

RF Test Data for Bluetooth

(Conducted Measurements)

General Description of EUT	
Product Name:	Smart Watch
Test Model:	HD8Mini
Sample ID:	HC-C-202508-0203-01-2#
Environmental Conditions	
Temperature:	23.9℃
Relative Humidity:	48%
Test Voltage:	DC 5V
Test Engineer:	Gold Zhang
Note: For a more detailed features description, please refer to the report TBR-C-202508-0203-8 The report only show the worst case data.	

Contents

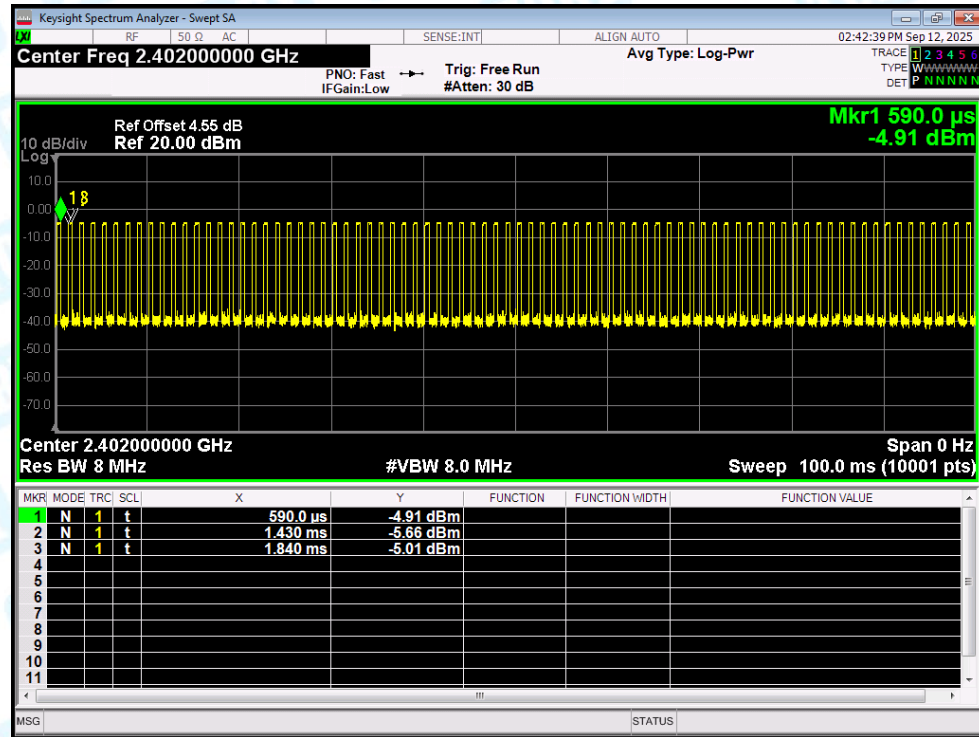
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1. Duty Cycle

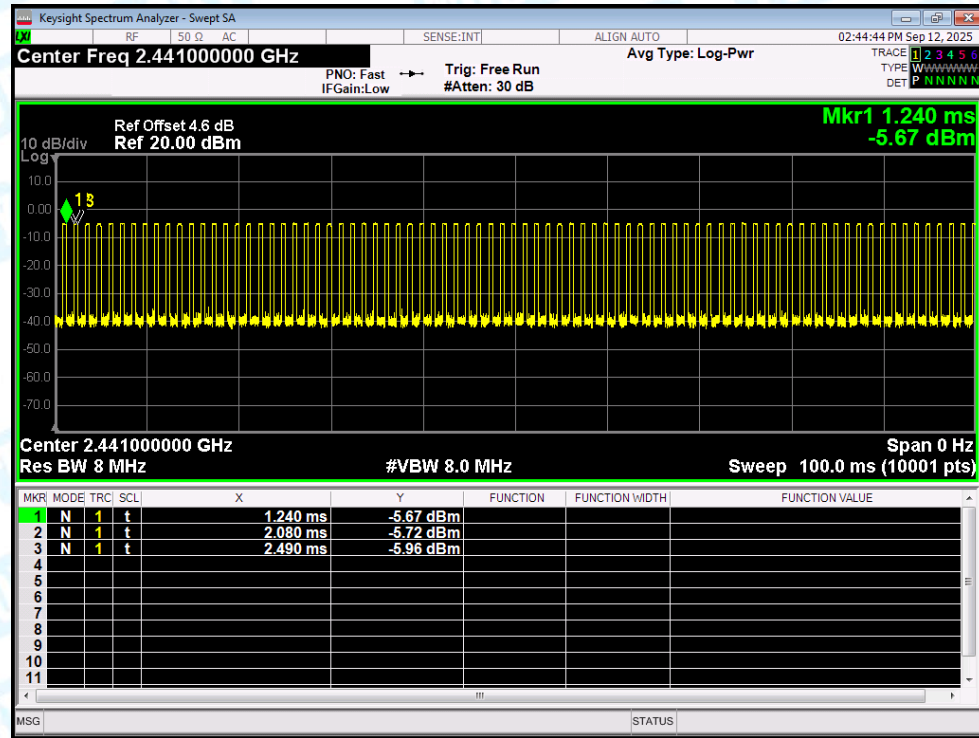
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH1	2402	Ant1	32.8	4.84	2.44
NVNT	1-DH1	2441	Ant1	32.8	4.84	2.44
NVNT	1-DH1	2480	Ant1	32.8	4.84	2.44
NVNT	2-DH1	2402	Ant1	33.6	4.74	2.38
NVNT	2-DH1	2441	Ant1	33.6	4.74	2.38
NVNT	2-DH1	2480	Ant1	33.6	4.74	2.38
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	32.8	4.84	2.44

Test Graphs

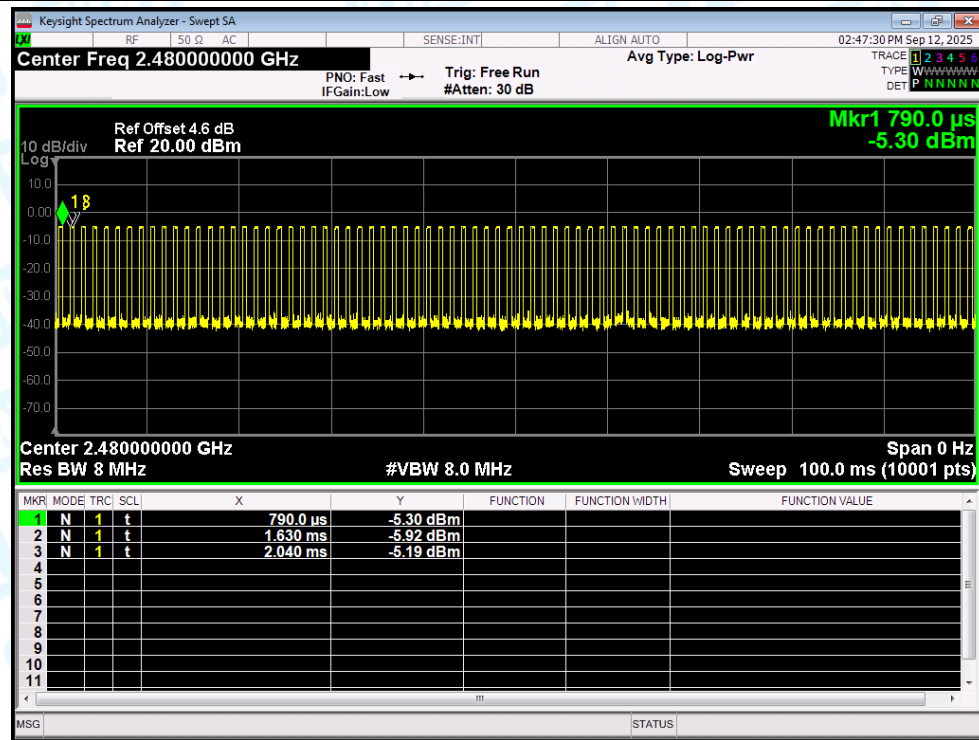
Duty Cycle NVNT 1-DH1 2402MHz Ant1



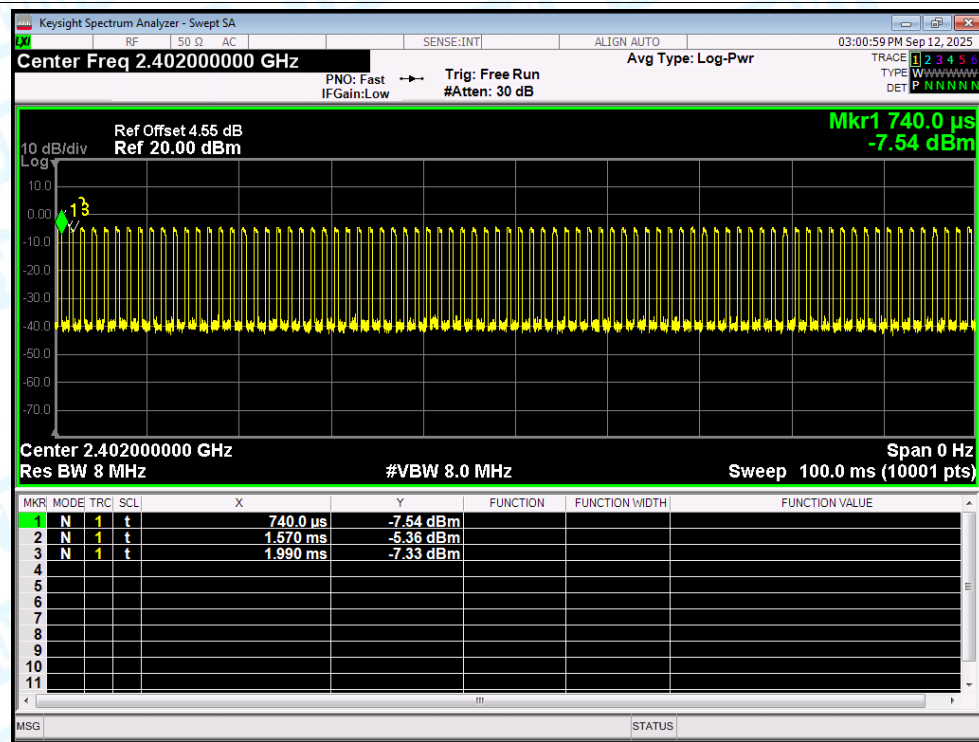
Duty Cycle NVNT 1-DH1 2441MHz Ant1



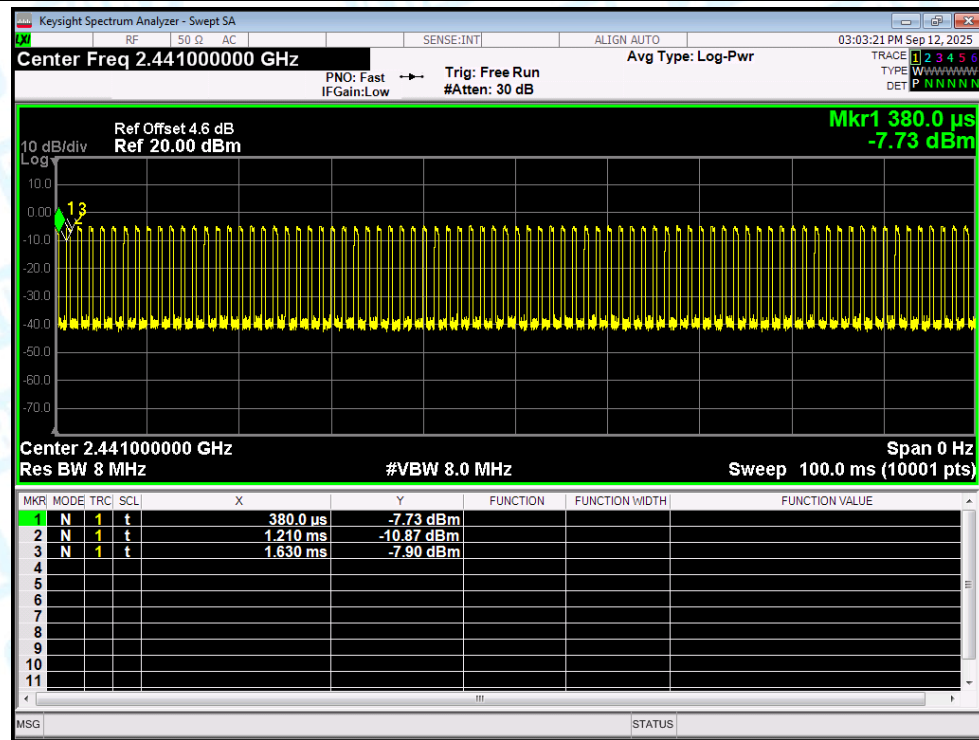
Duty Cycle NVNT 1-DH1 2480MHz Ant1



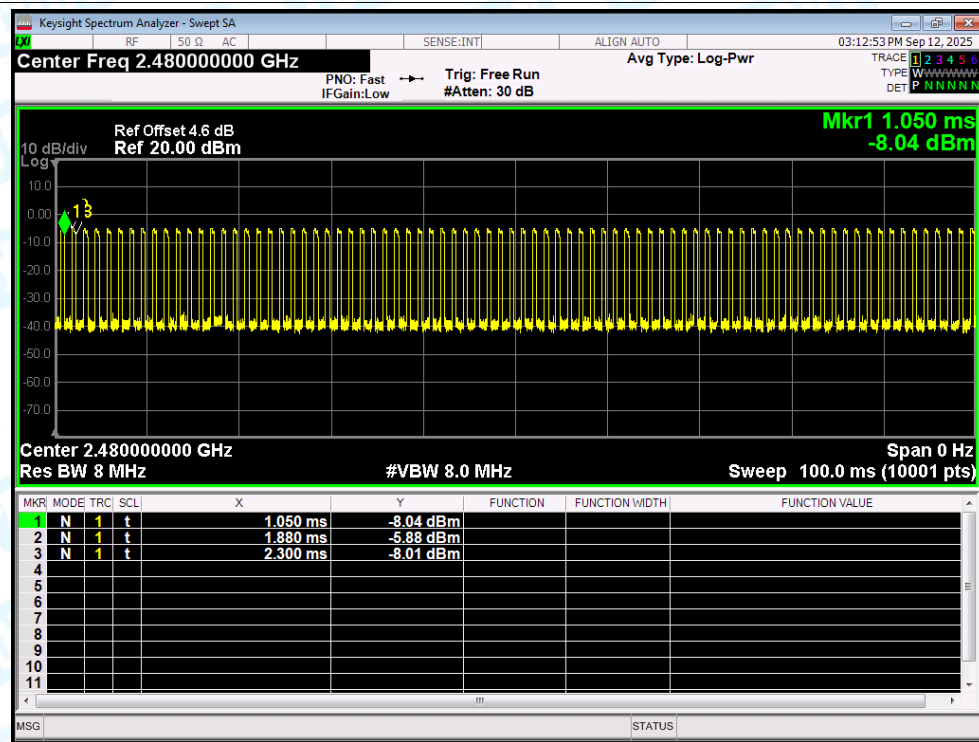
Duty Cycle NVNT 2-DH1 2402MHz Ant1



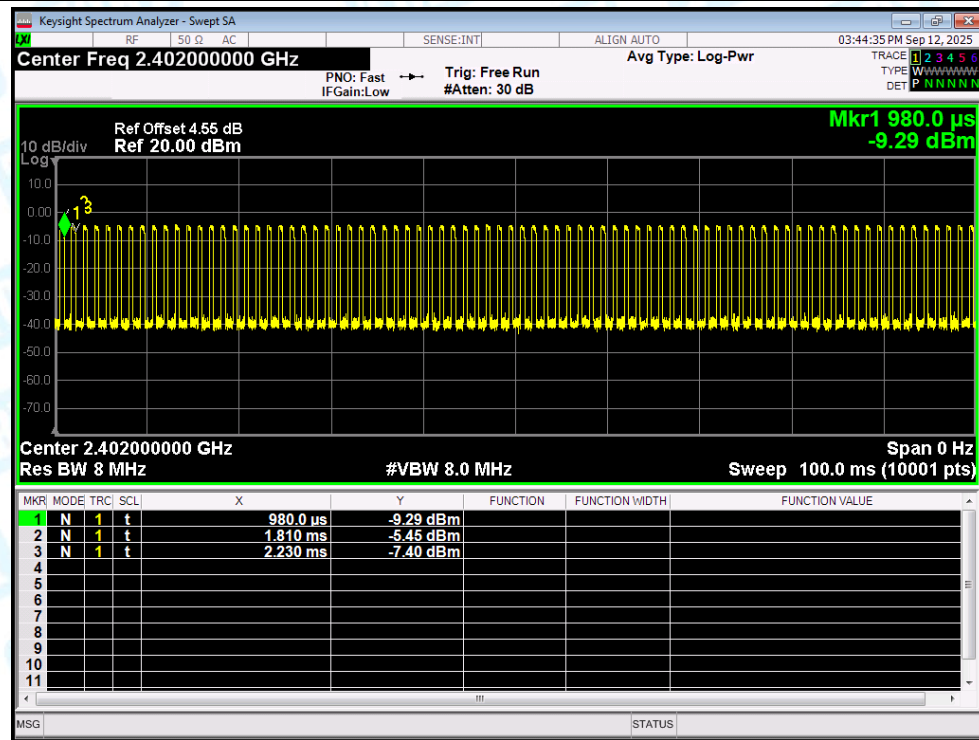
Duty Cycle NVNT 2-DH1 2441MHz Ant1



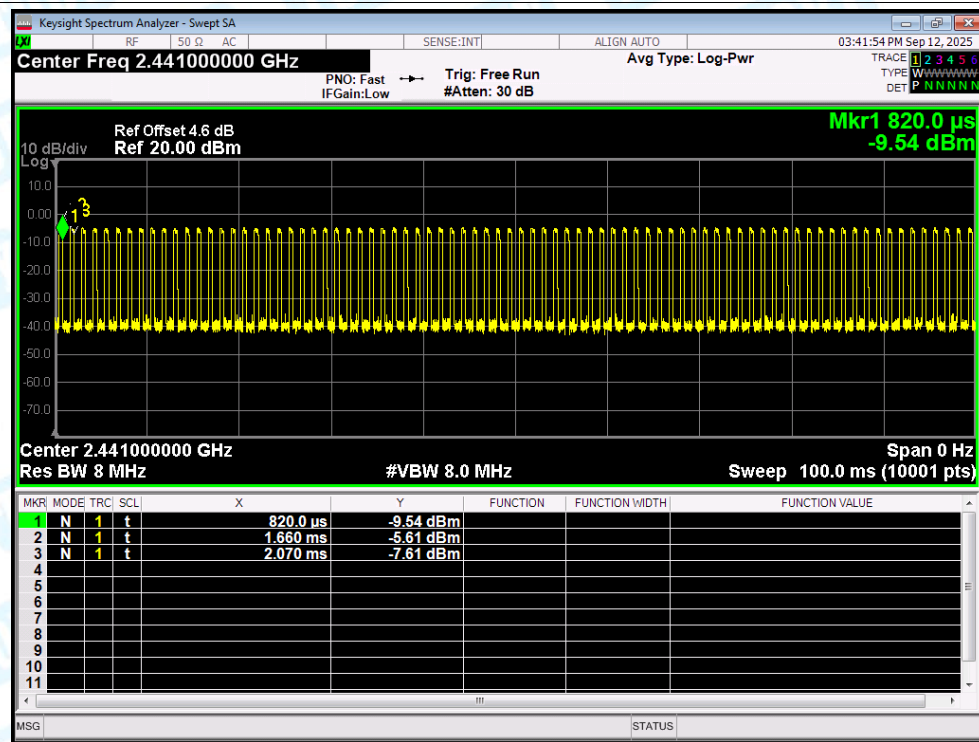
Duty Cycle NVNT 2-DH1 2480MHz Ant1

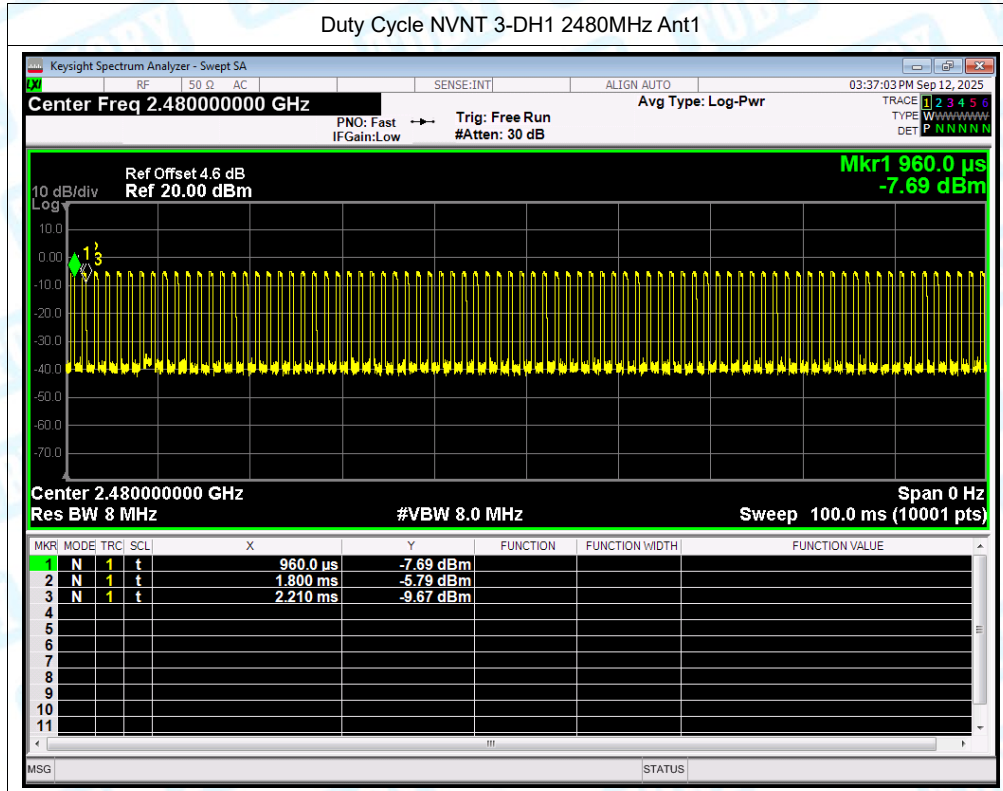


Duty Cycle NVNT 3-DH1 2402MHz Ant1



Duty Cycle NVNT 3-DH1 2441MHz Ant1



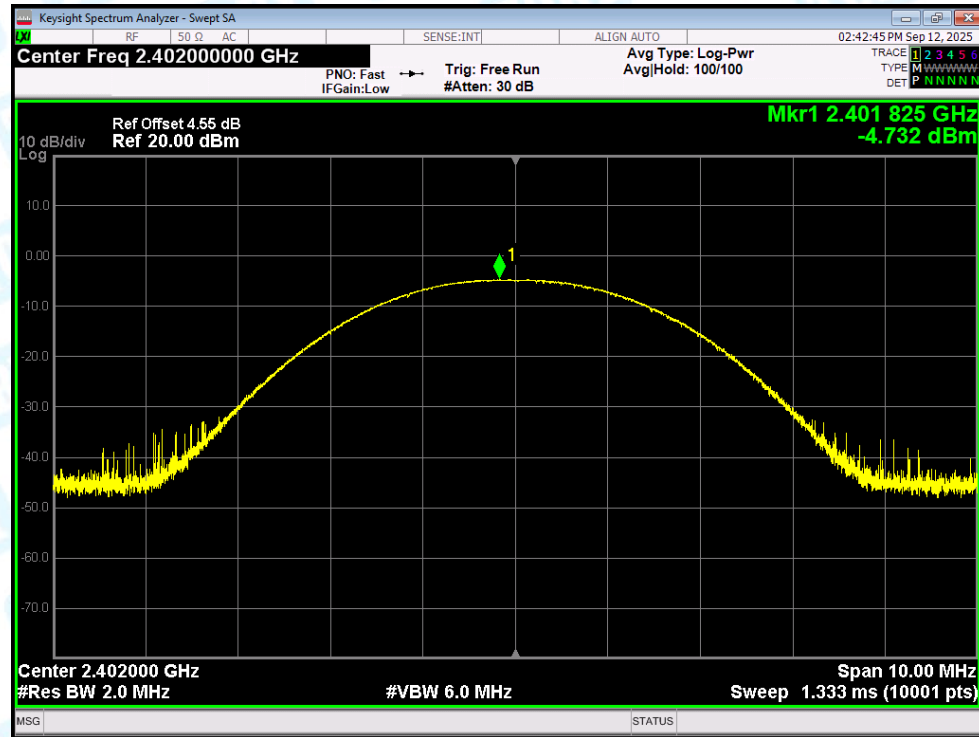


2. Maximum Conducted Output Power

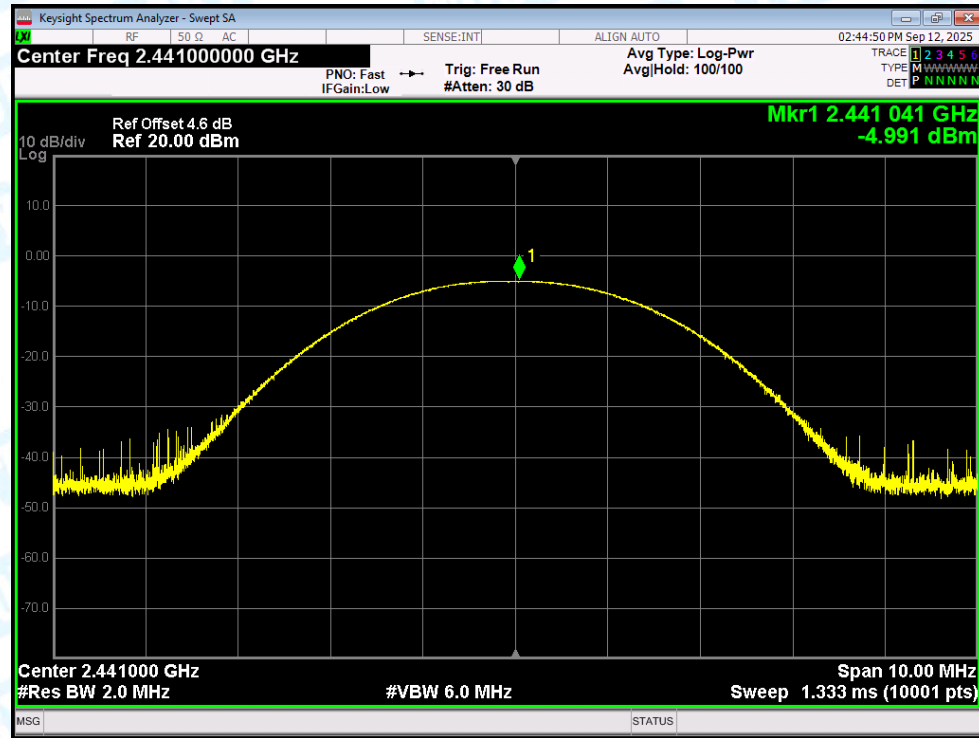
Condition	Mode	Frequency (MHz)	Antenna	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH1	2402	Ant1	-4.732	21	Pass
NVNT	1-DH1	2441	Ant1	-4.991	21	Pass
NVNT	1-DH1	2480	Ant1	-5.154	21	Pass
NVNT	1-DH3	2441	Ant1	-5.012	21	Pass
NVNT	1-DH5	2441	Ant1	-5.017	21	Pass
NVNT	2-DH1	2402	Ant1	-4.683	21	Pass
NVNT	2-DH1	2441	Ant1	-4.944	21	Pass
NVNT	2-DH1	2480	Ant1	-5.117	21	Pass
NVNT	2-DH3	2441	Ant1	-5	21	Pass
NVNT	2-DH5	2441	Ant1	-5.046	21	Pass
NVNT	3-DH1	2402	Ant1	-4.656	21	Pass
NVNT	3-DH1	2441	Ant1	-4.918	21	Pass
NVNT	3-DH1	2480	Ant1	-5.065	21	Pass
NVNT	3-DH3	2441	Ant1	-5.02	21	Pass
NVNT	3-DH5	2441	Ant1	-5.026	21	Pass

Test Graphs

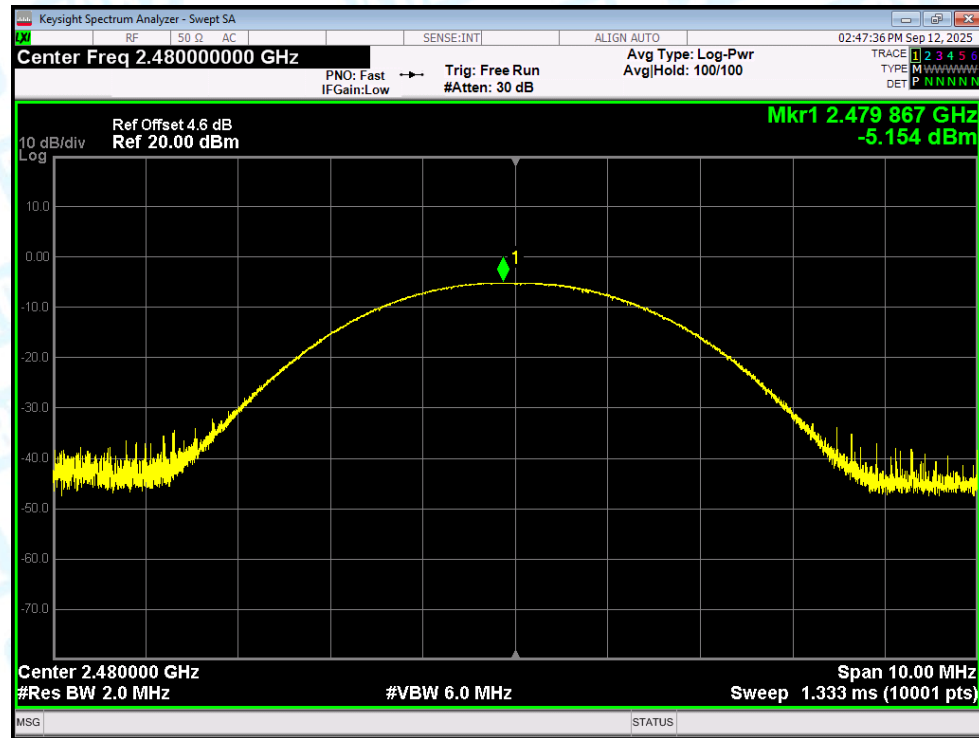
Power NVNT 1-DH1 2402MHz Ant1



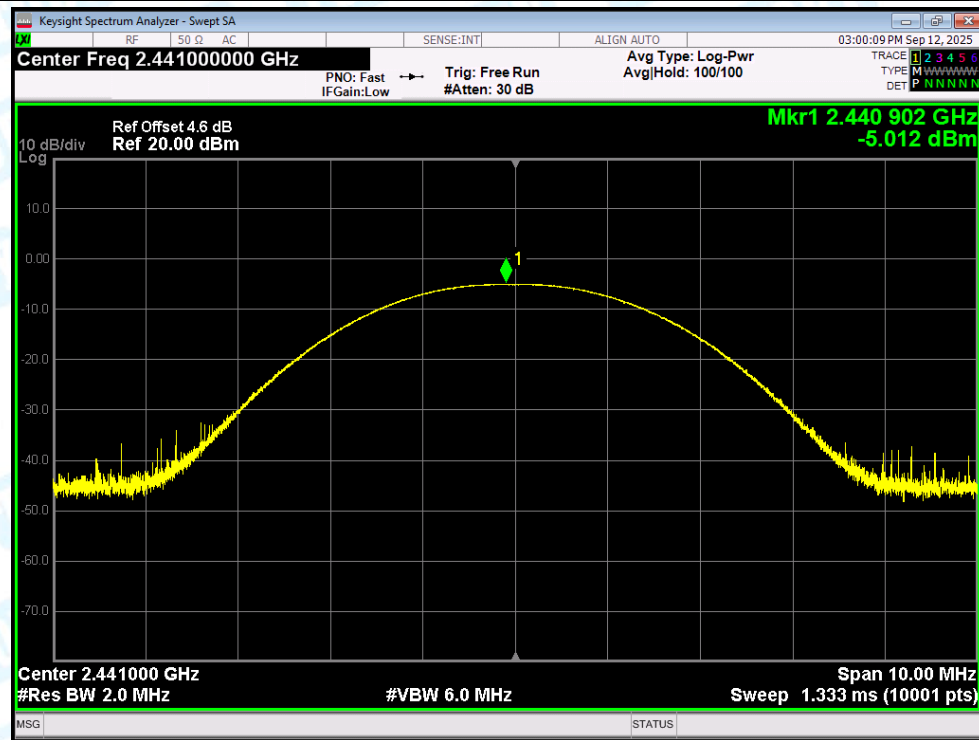
Power NVNT 1-DH1 2441MHz Ant1



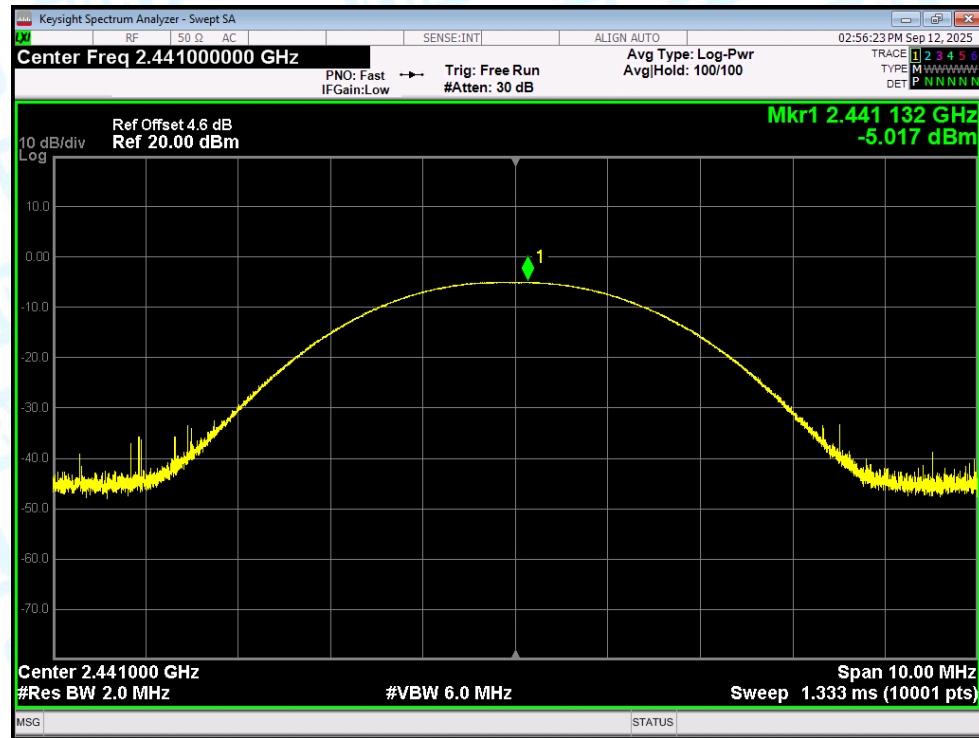
Power NVNT 1-DH1 2480MHz Ant1



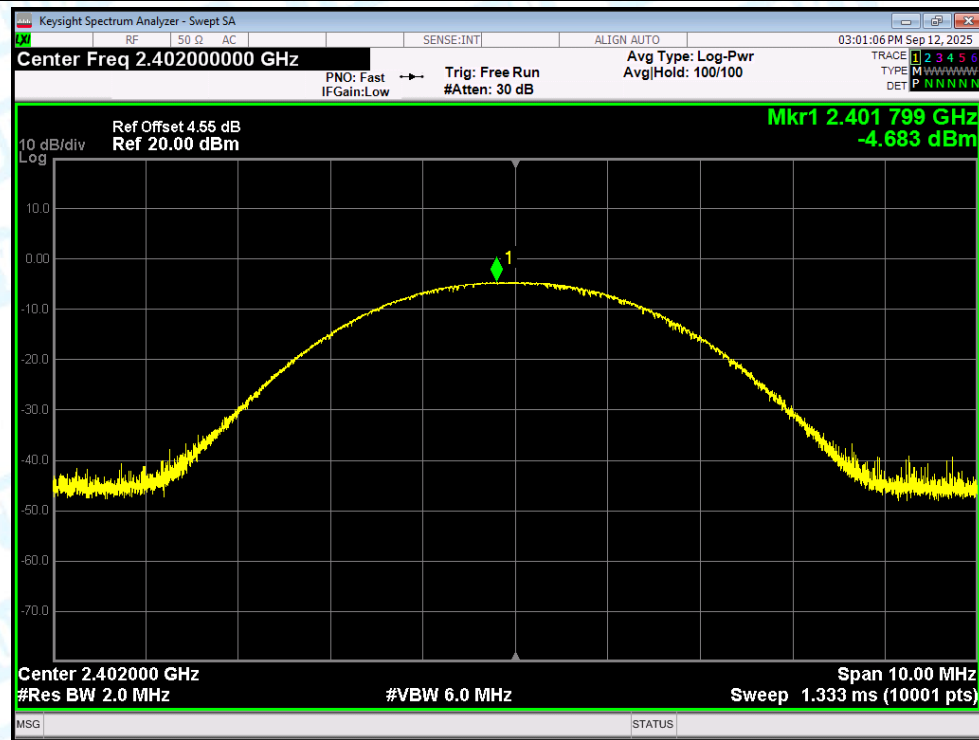
Power NVNT 1-DH3 2441MHz Ant1



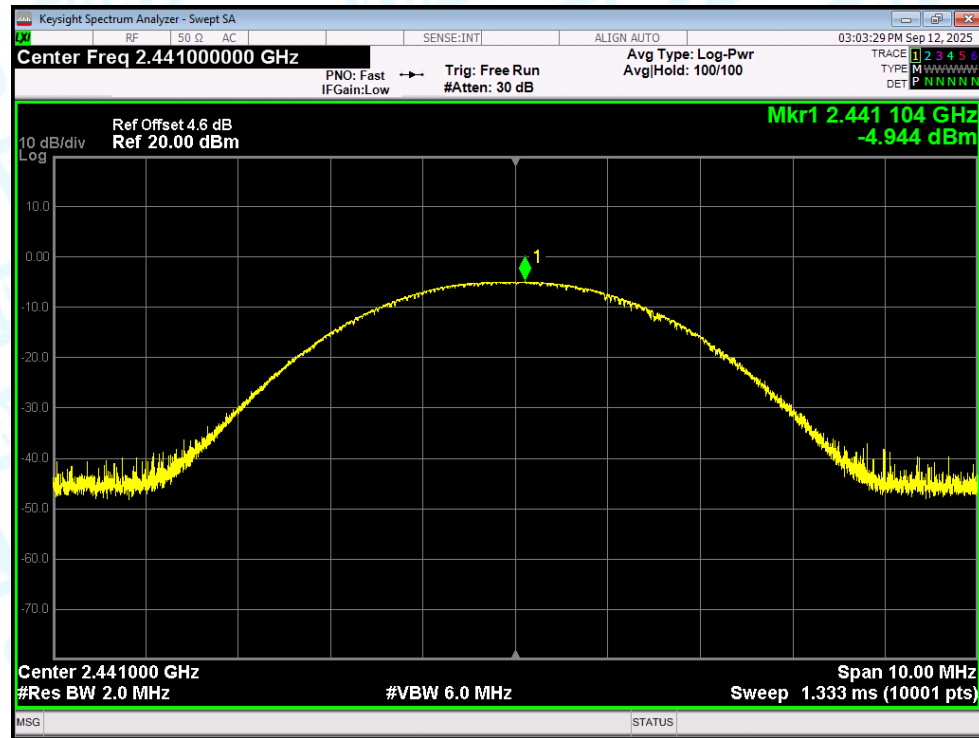
Power NVNT 1-DH5 2441MHz Ant1



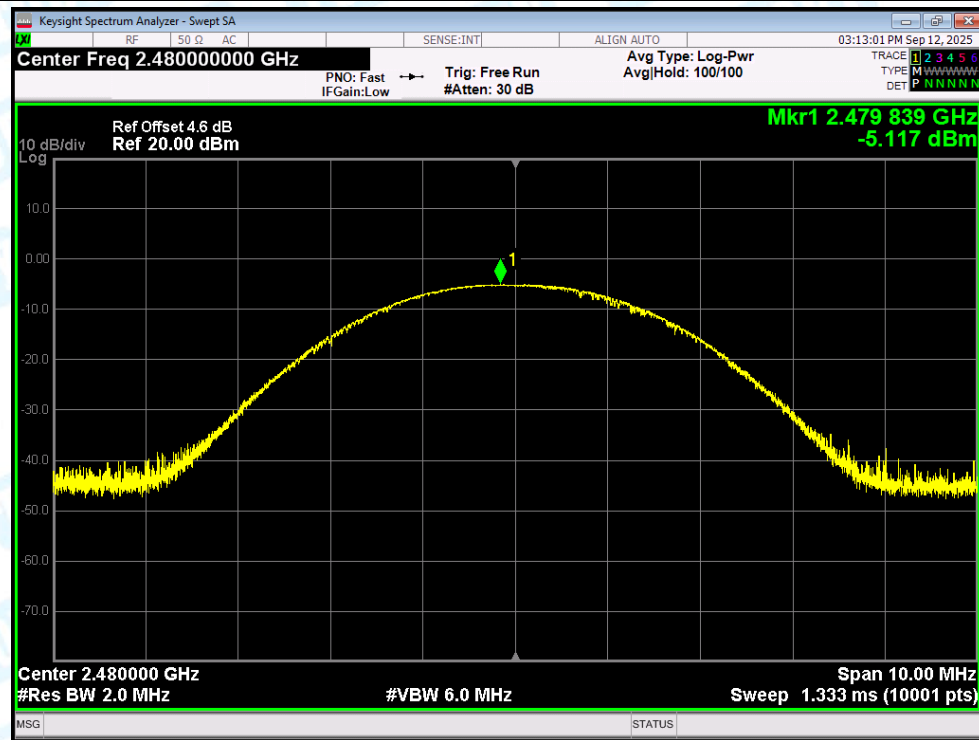
Power NVNT 2-DH1 2402MHz Ant1



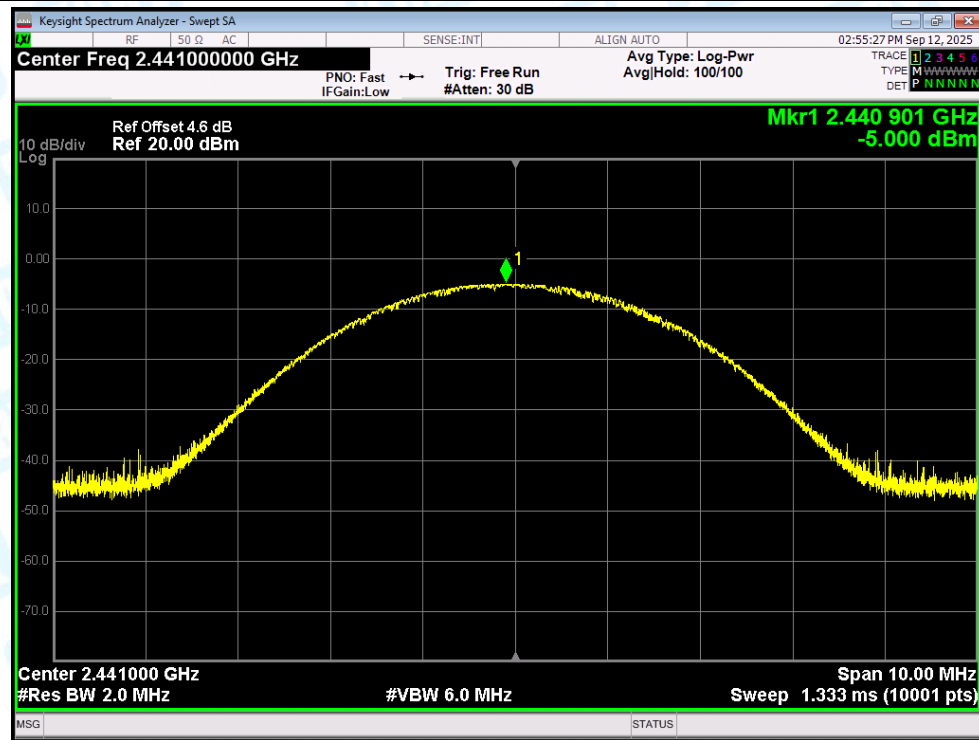
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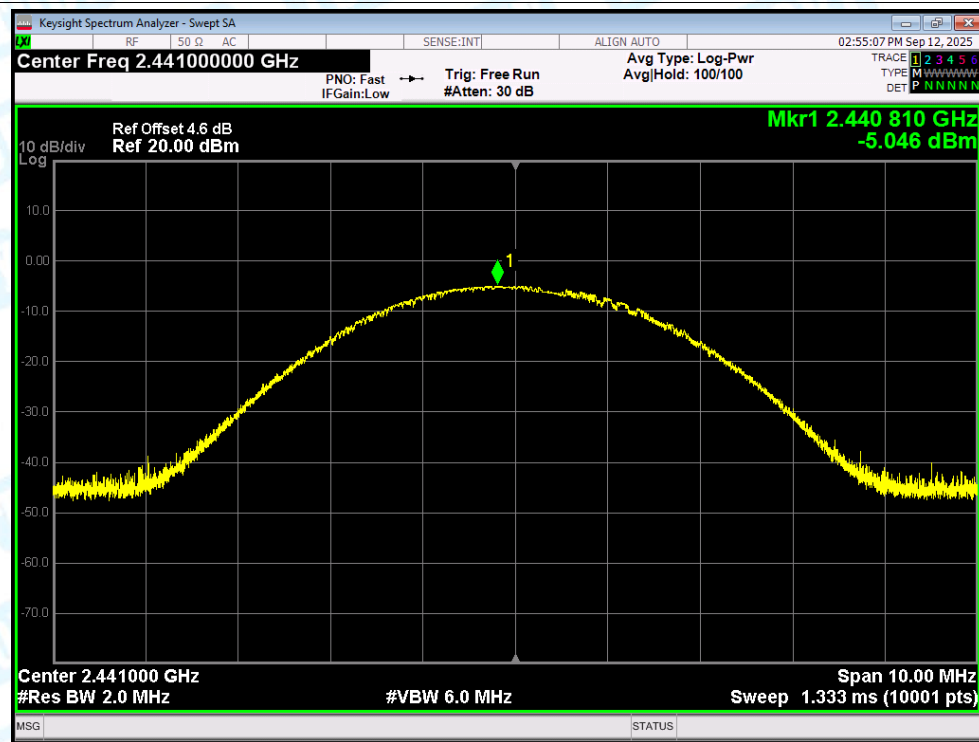
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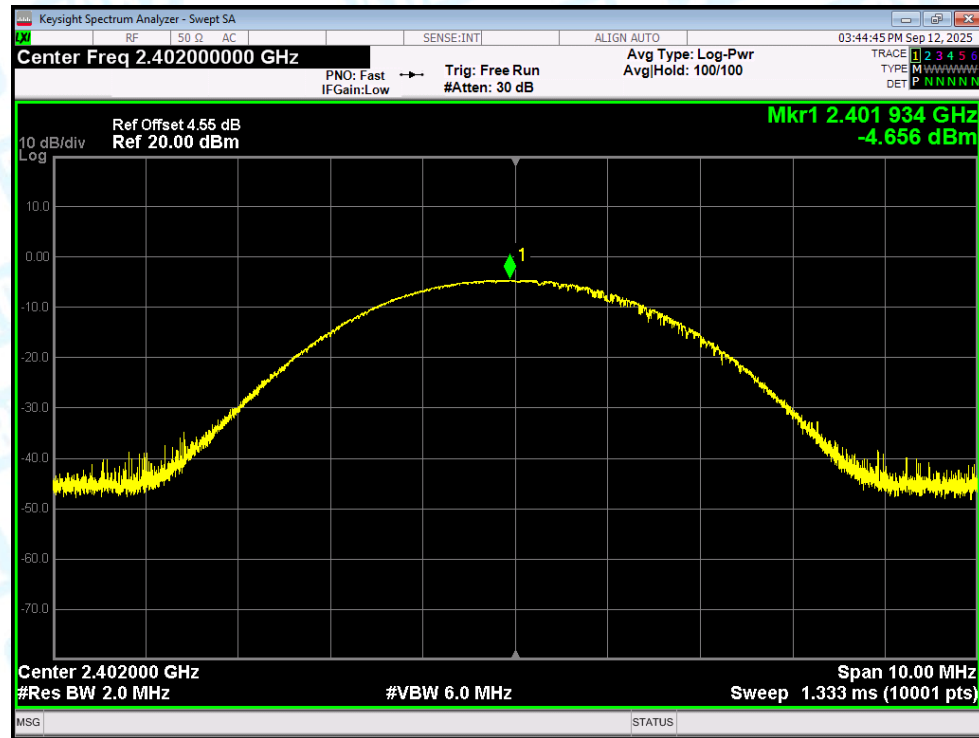
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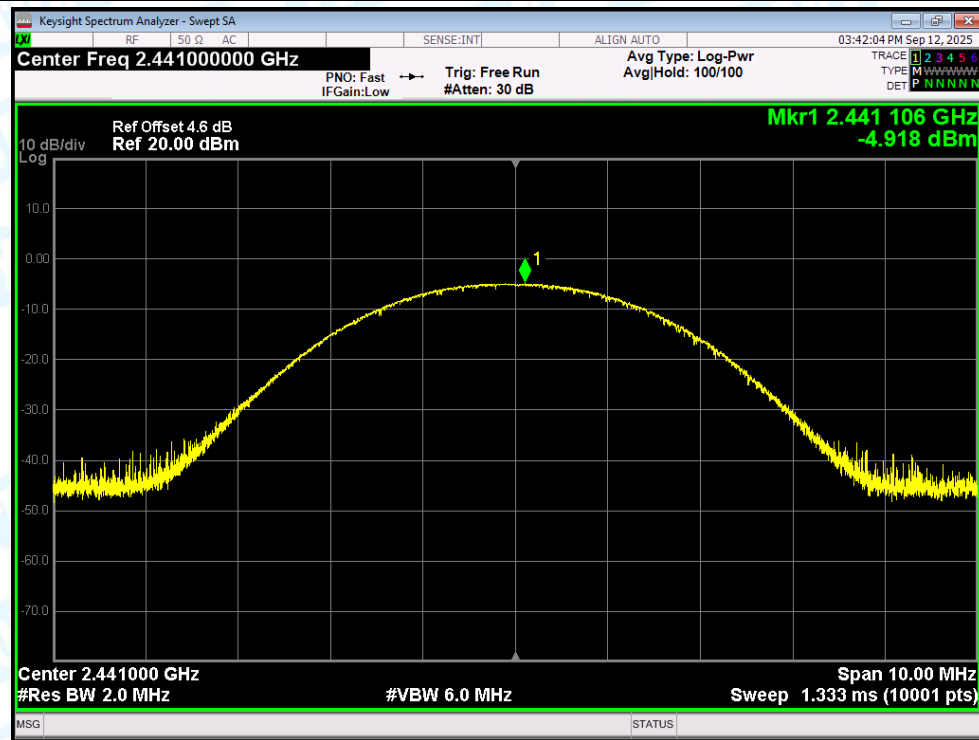
Power NVNT 2-DH5 2441MHz Ant1



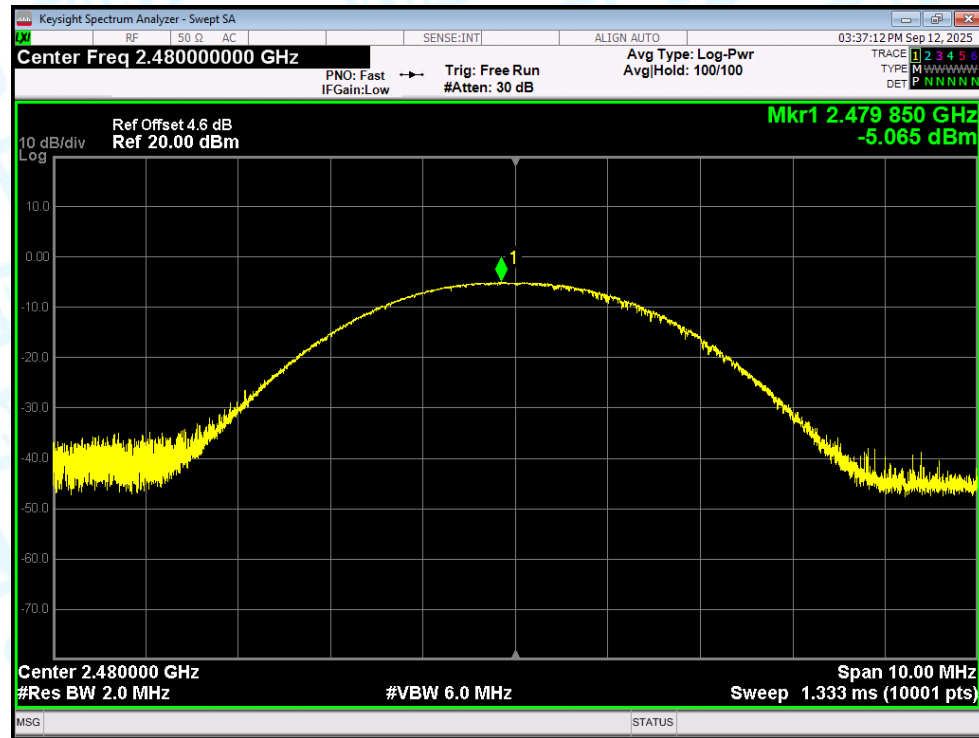
Power NVNT 3-DH1 2402MHz Ant1



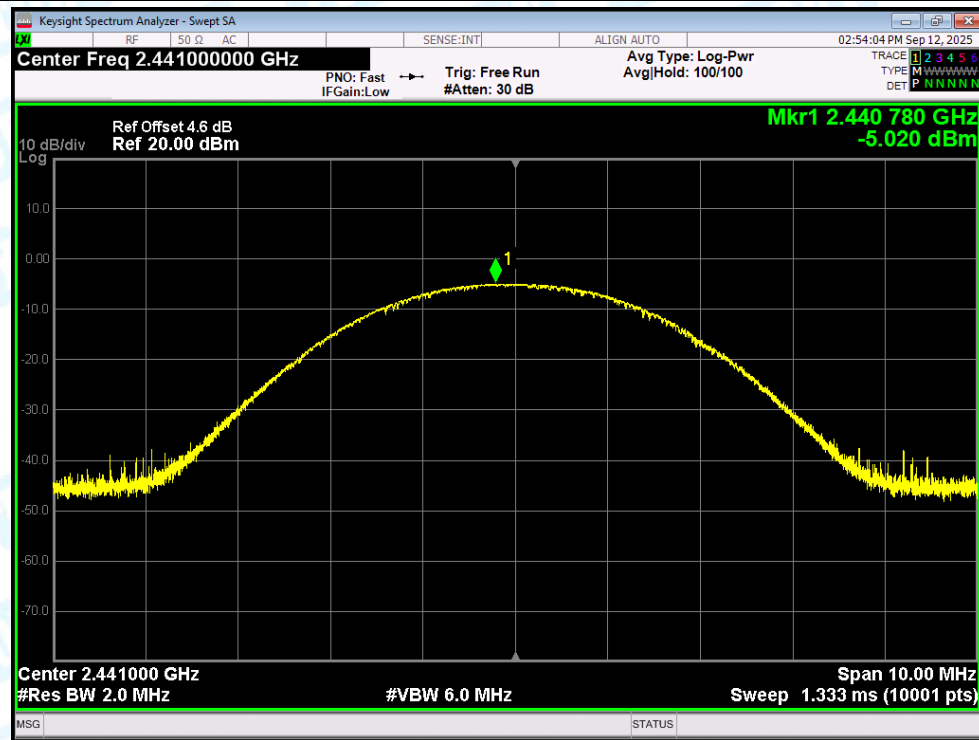
Power NVNT 3-DH1 2441MHz Ant1

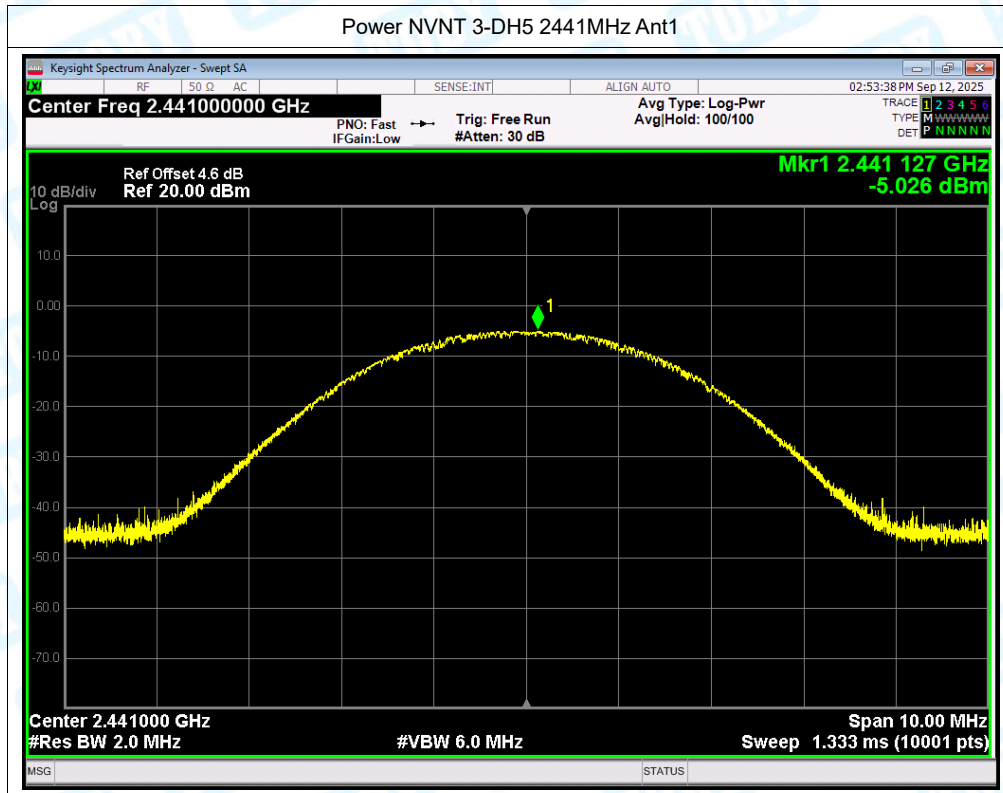


Power NVNT 3-DH1 2480MHz Ant1



Power NVNT 3-DH3 2441MHz Ant1





3. -20dB Bandwidth

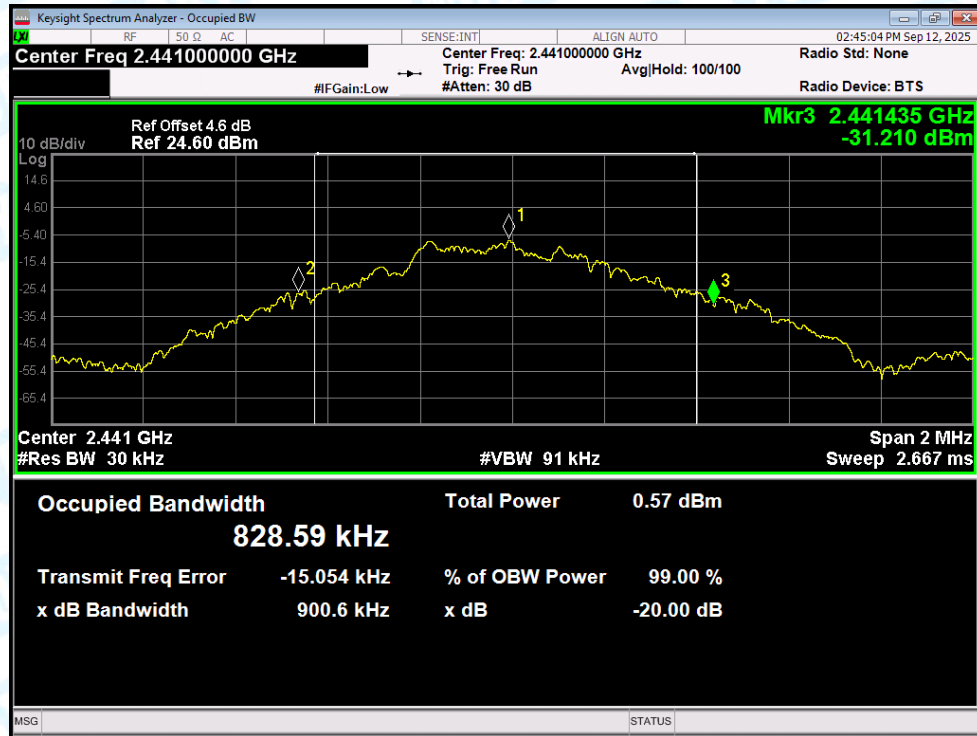
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH1	2402	Ant1	0.9	Pass
NVNT	1-DH1	2441	Ant1	0.9	Pass
NVNT	1-DH1	2480	Ant1	0.91	Pass
NVNT	2-DH1	2402	Ant1	1.18	Pass
NVNT	2-DH1	2441	Ant1	1.17	Pass
NVNT	2-DH1	2480	Ant1	1.15	Pass
NVNT	3-DH1	2402	Ant1	1.19	Pass
NVNT	3-DH1	2441	Ant1	1.16	Pass
NVNT	3-DH1	2480	Ant1	1.19	Pass

Test Graphs

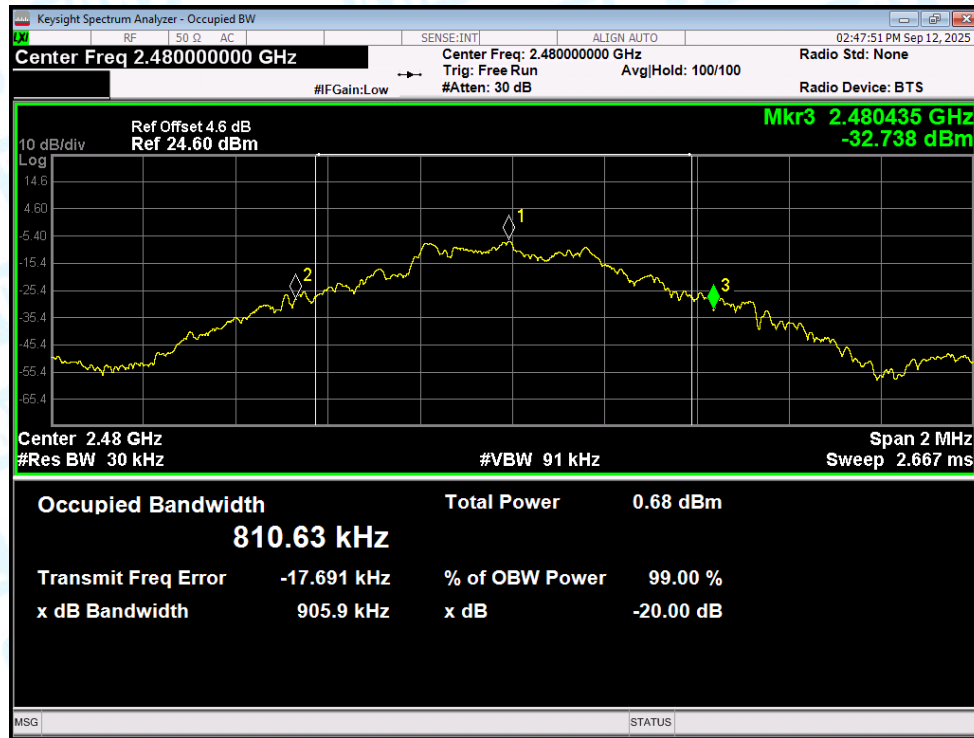
-20dB Bandwidth NVNT 1-DH1 2402MHz Ant1



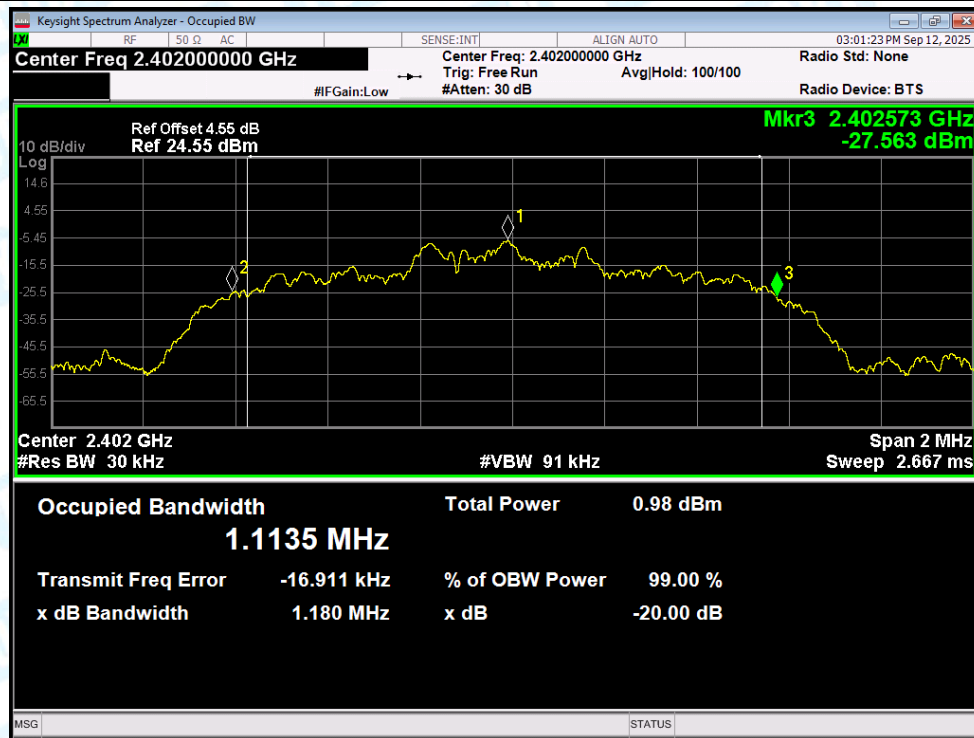
-20dB Bandwidth NVNT 1-DH1 2441MHz Ant1



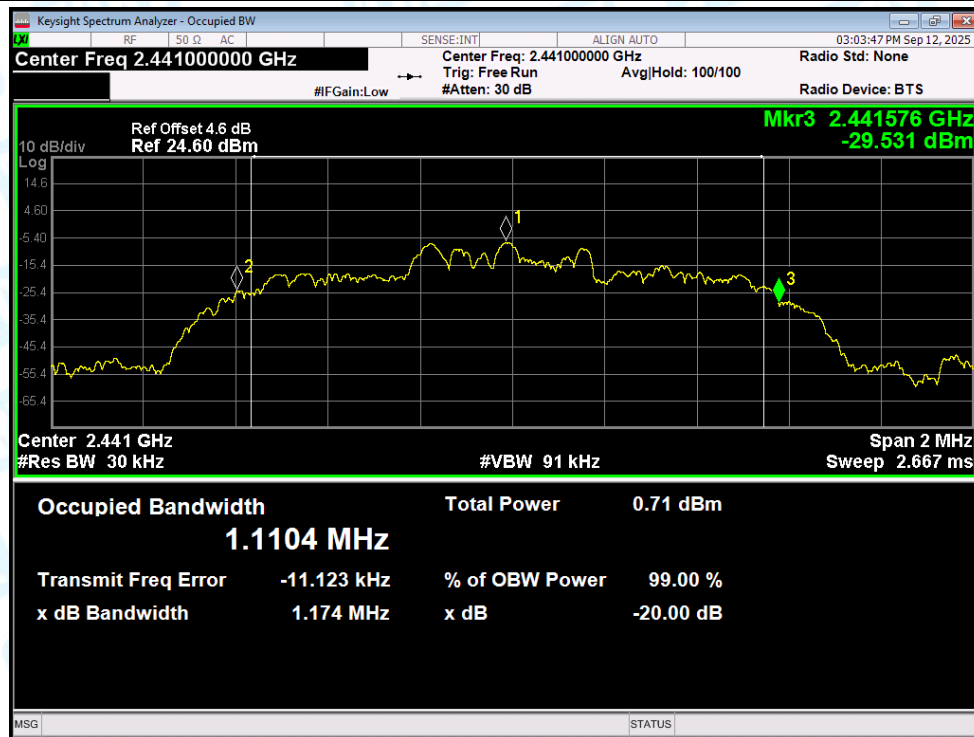
-20dB Bandwidth NVNT 1-DH1 2480MHz Ant1



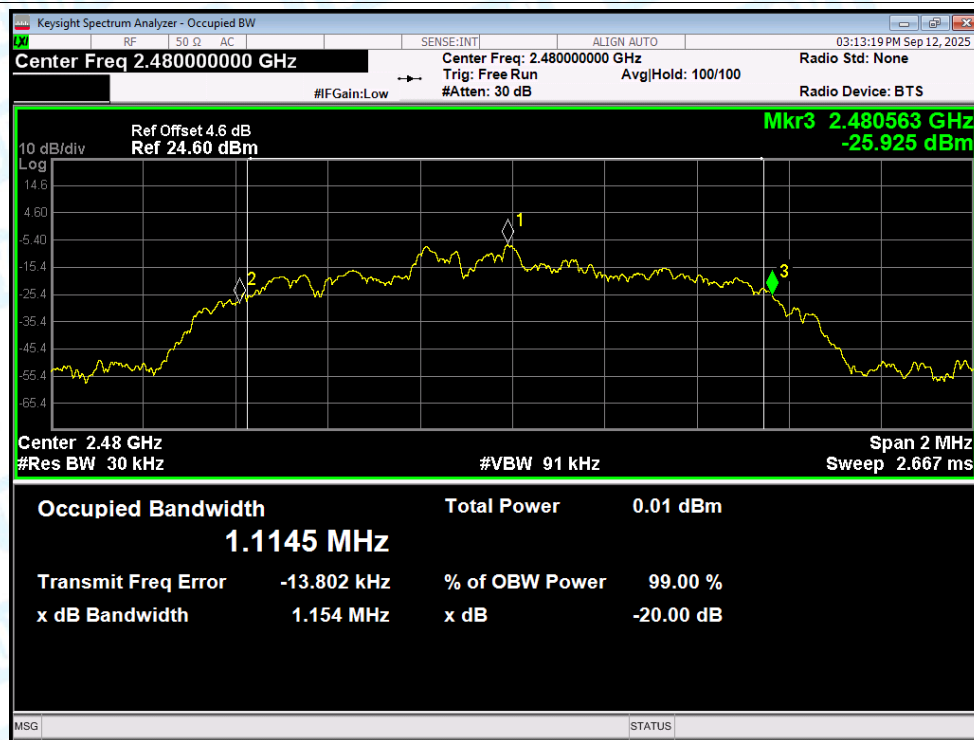
-20dB Bandwidth NVNT 2-DH1 2402MHz Ant1



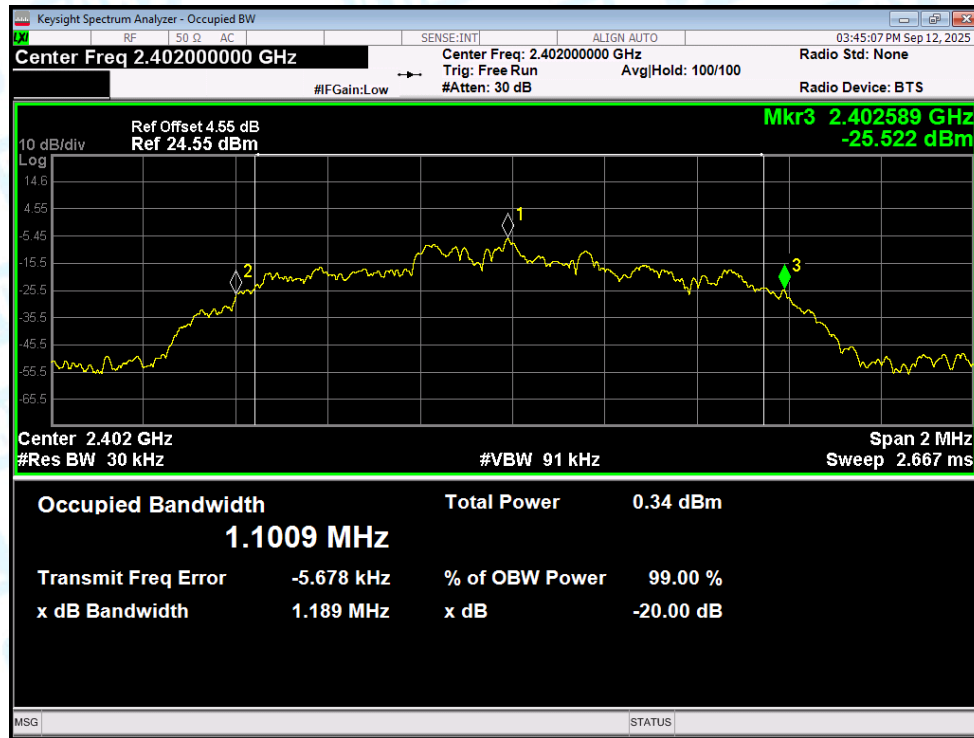
-20dB Bandwidth NVNT 2-DH1 2441MHz Ant1



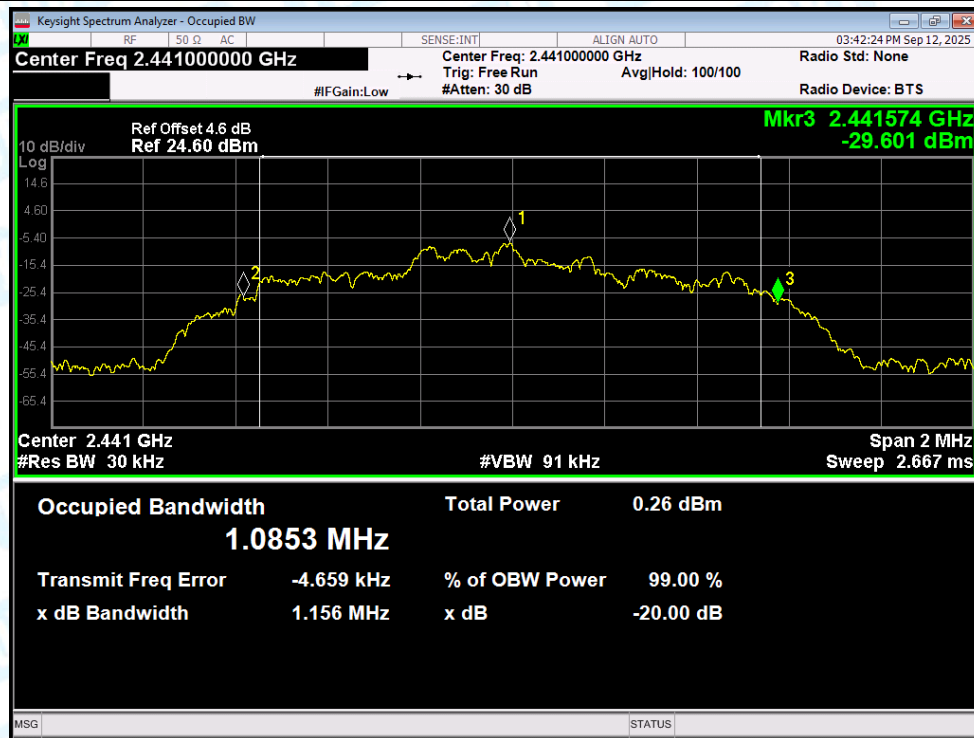
-20dB Bandwidth NVNT 2-DH1 2480MHz Ant1

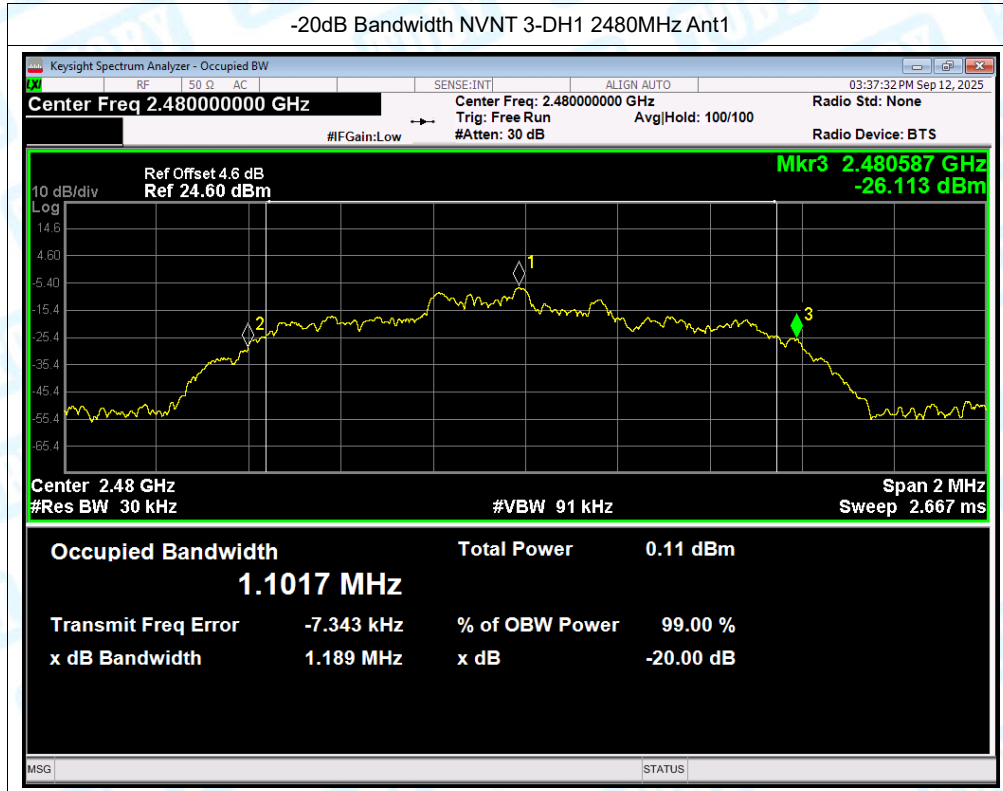


-20dB Bandwidth NVNT 3-DH1 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH1 2441MHz Ant1



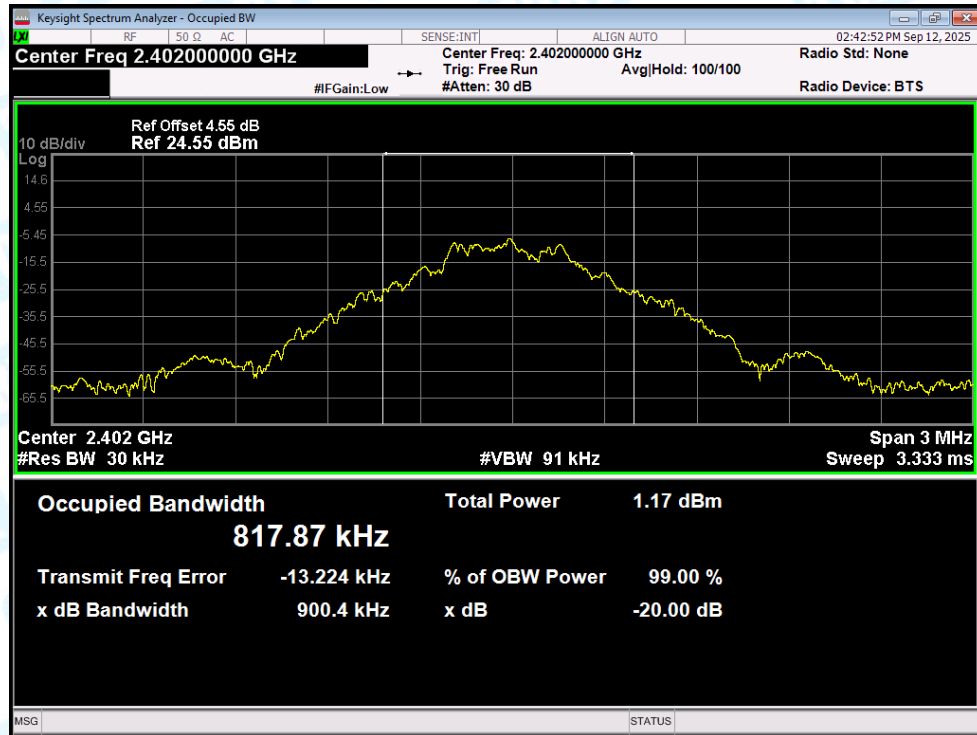


4. Occupied Channel Bandwidth

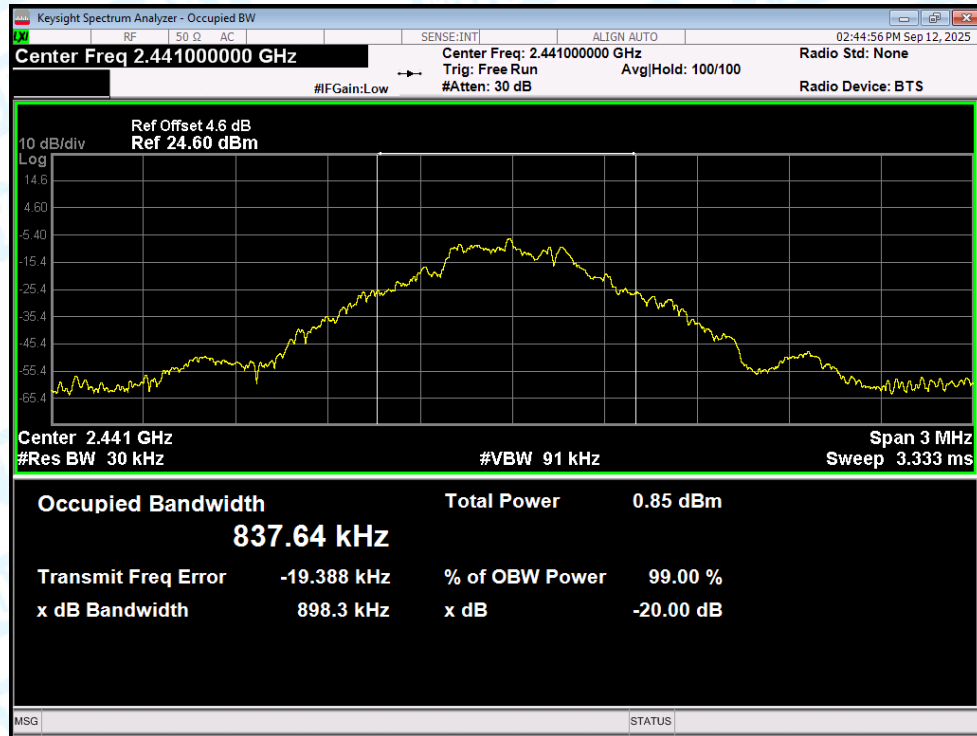
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	1-DH1	2402	Ant1	0.818
NVNT	1-DH1	2441	Ant1	0.838
NVNT	1-DH1	2480	Ant1	0.843
NVNT	2-DH1	2402	Ant1	1.124
NVNT	2-DH1	2441	Ant1	1.13
NVNT	2-DH1	2480	Ant1	1.122
NVNT	3-DH1	2402	Ant1	1.096
NVNT	3-DH1	2441	Ant1	1.117
NVNT	3-DH1	2480	Ant1	1.11

Test Graphs

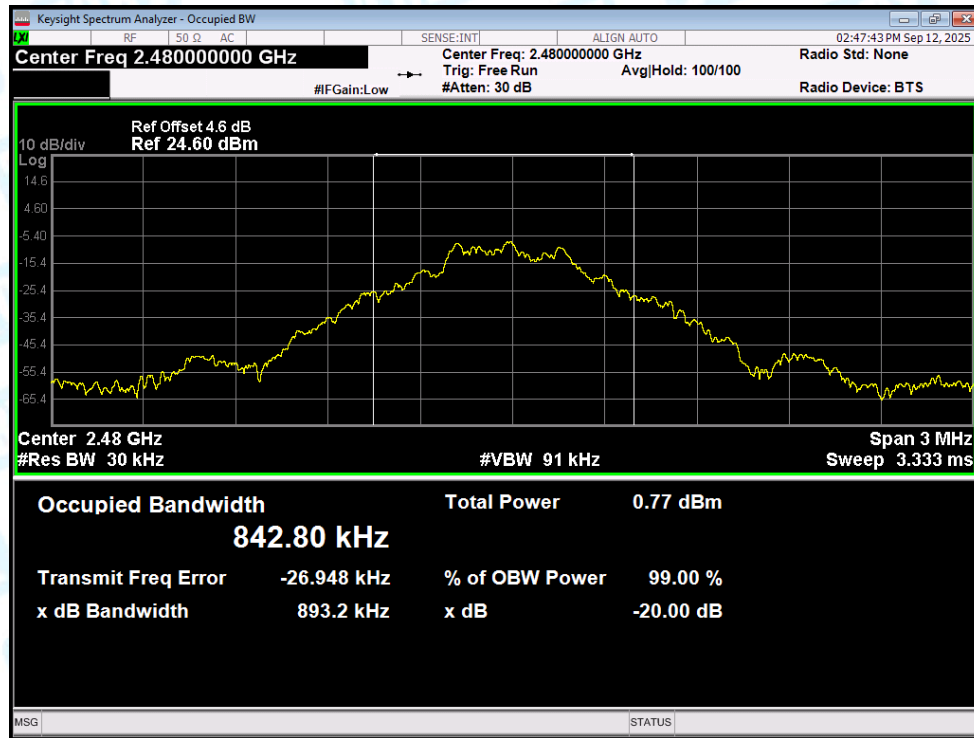
OBW NVNT 1-DH1 2402MHz Ant1



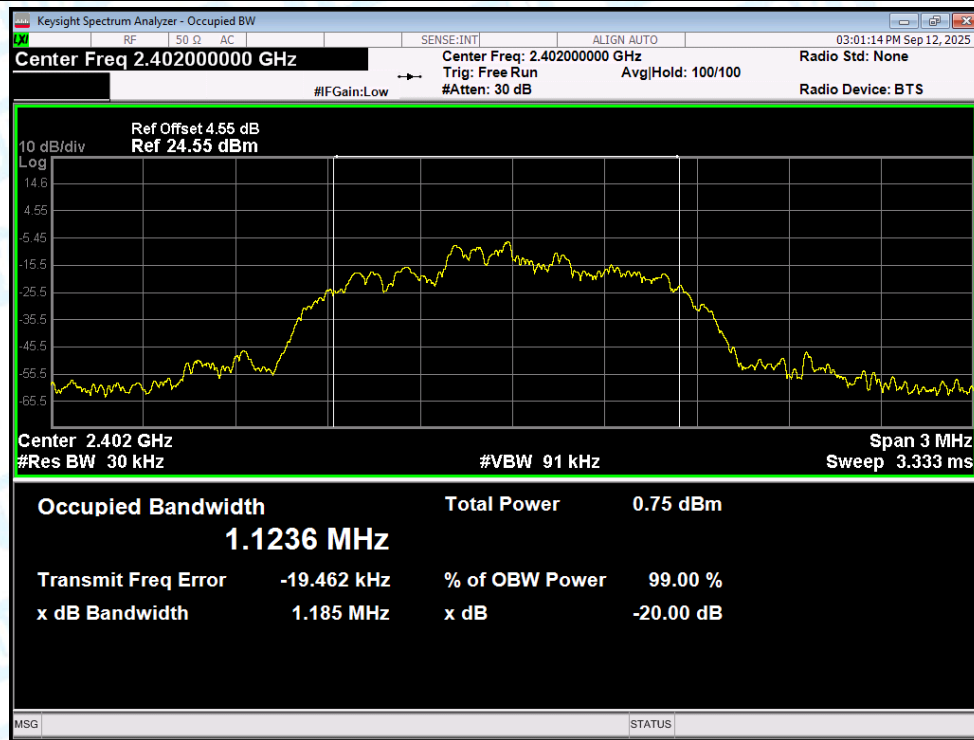
OBW NVNT 1-DH1 2441MHz Ant1



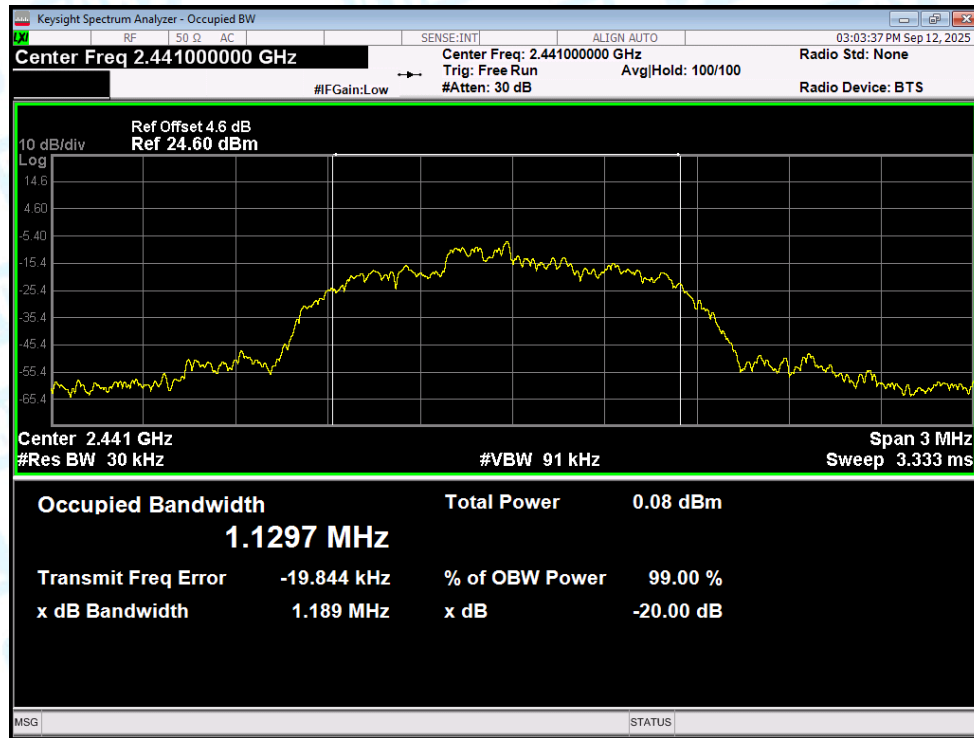
OBW NVNT 1-DH1 2480MHz Ant1



OBW NVNT 2-DH1 2402MHz Ant1



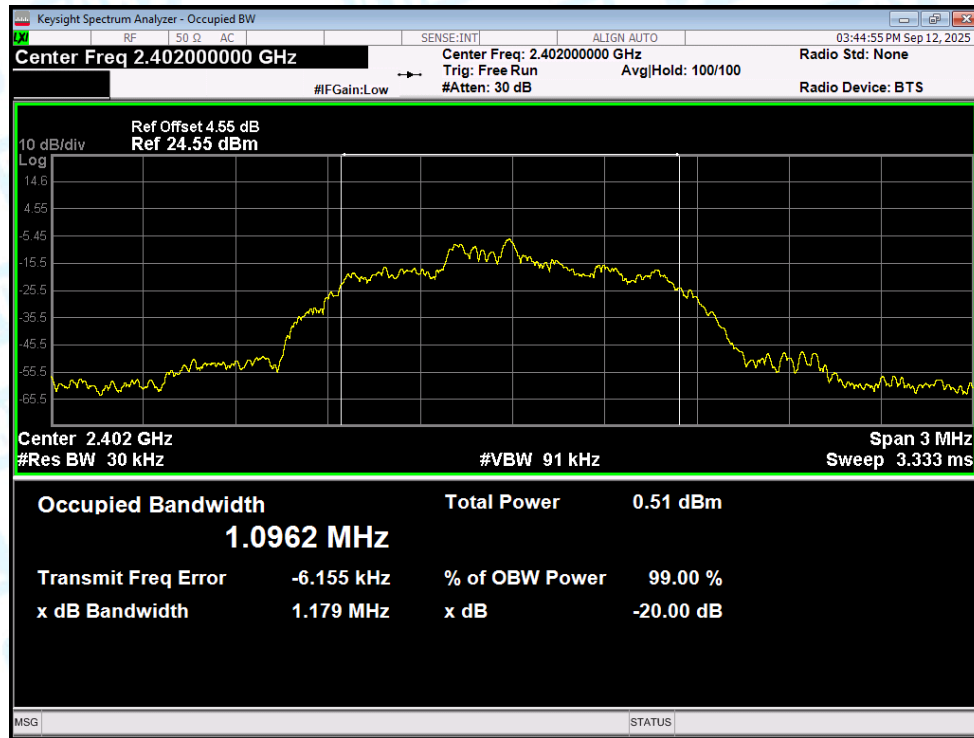
OBW NVNT 2-DH1 2441MHz Ant1



OBW NVNT 2-DH1 2480MHz Ant1

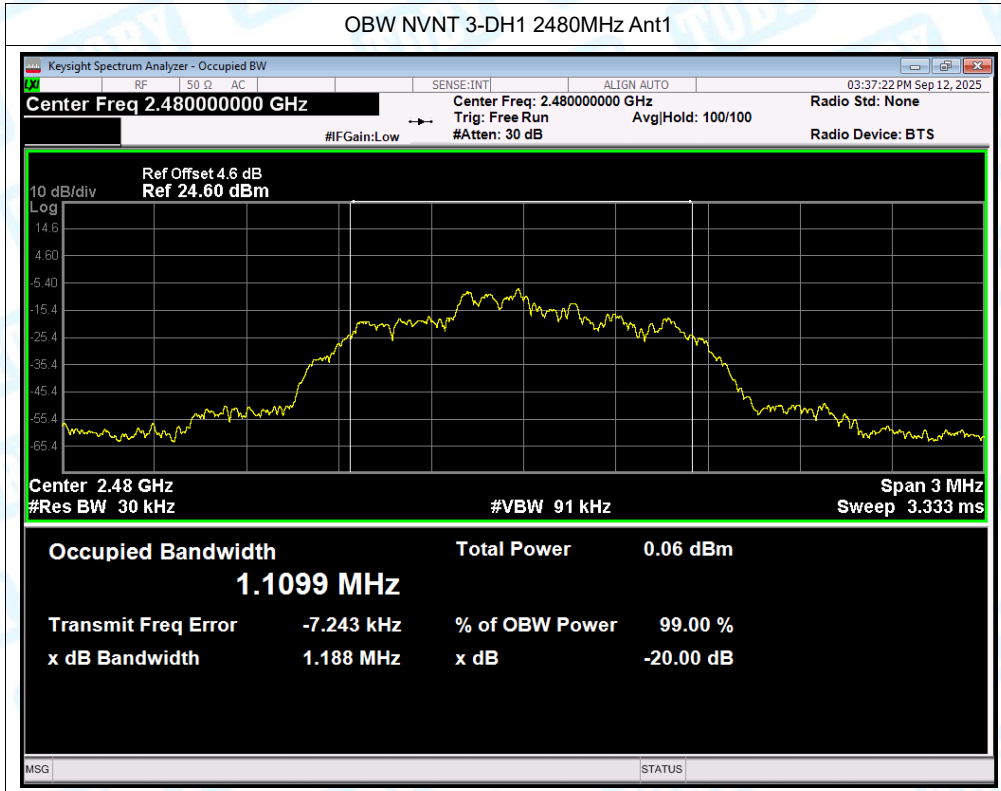


OBW NVNT 3-DH1 2402MHz Ant1



OBW NVNT 3-DH1 2441MHz Ant1



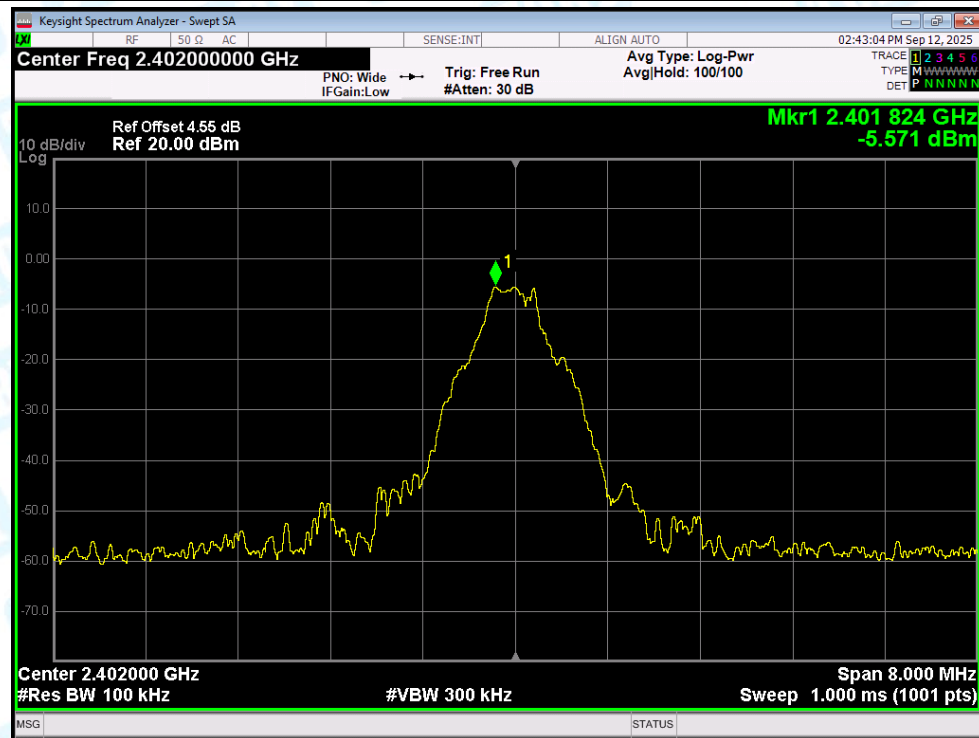


5. Band Edge

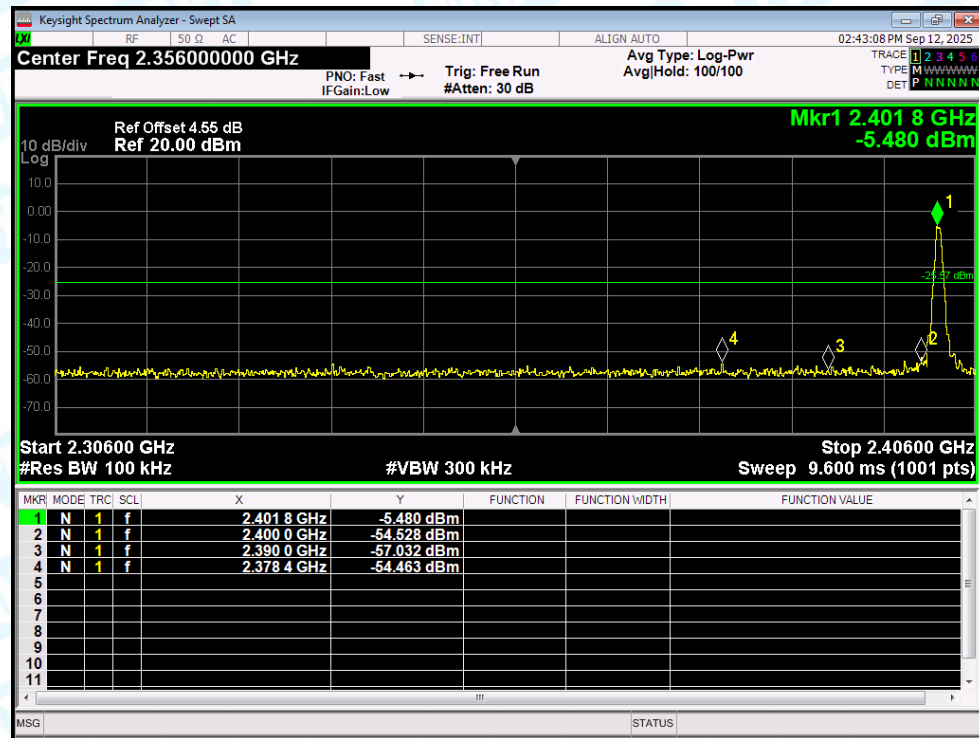
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	-48.89	-20	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	-48.35	-20	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	-49.8	-20	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	-48.49	-20	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	-49.2	-20	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	-48.45	-20	Pass

Test Graphs

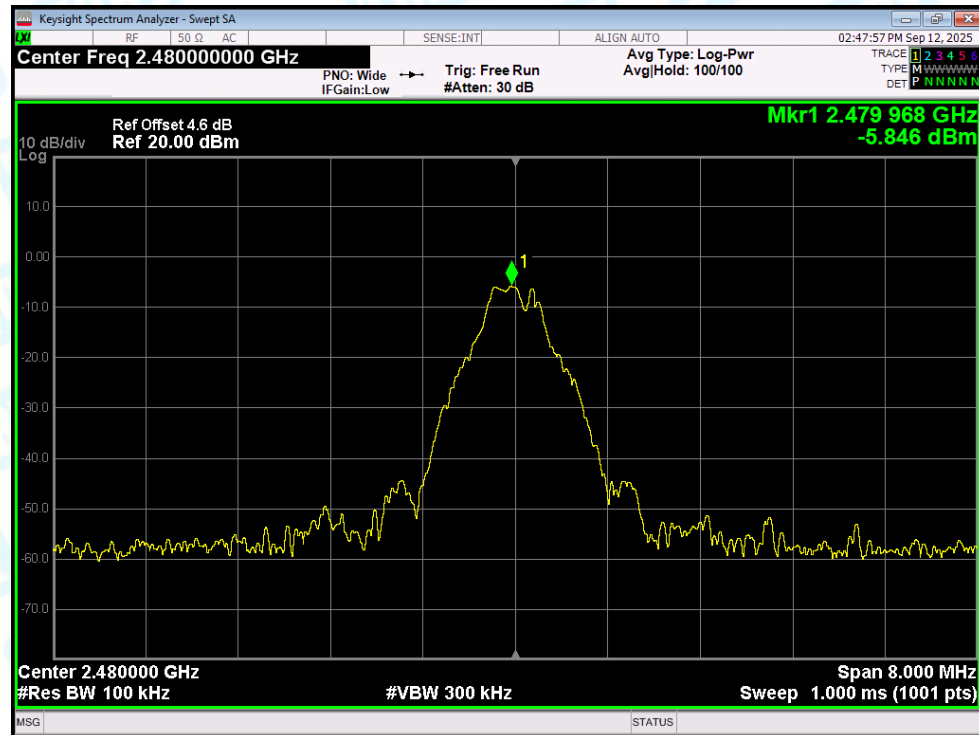
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Ref



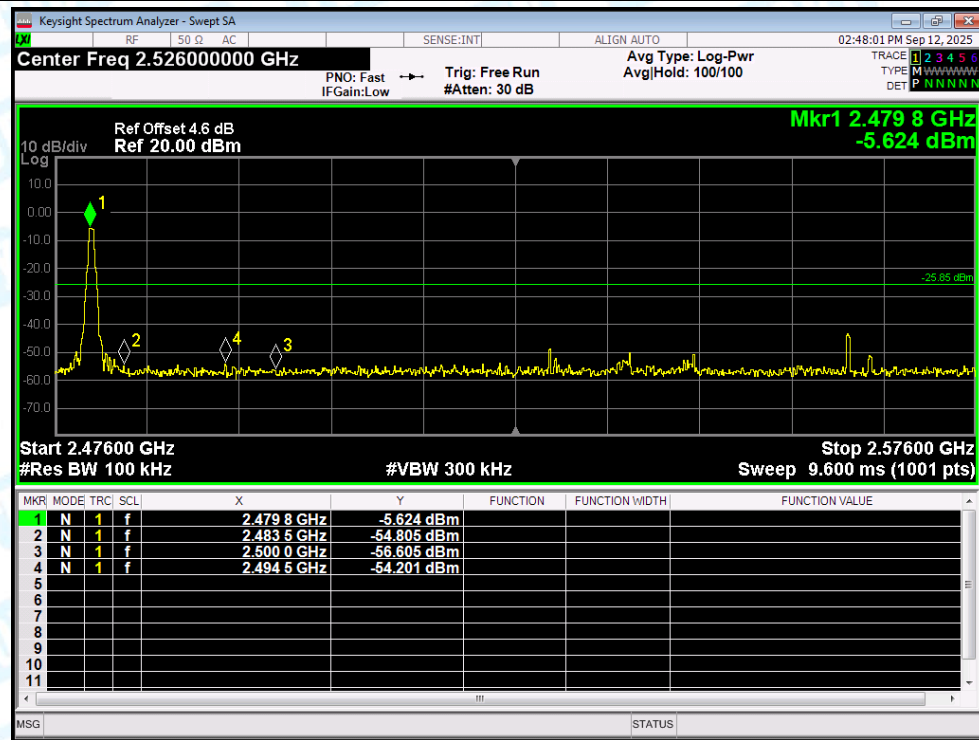
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Emission



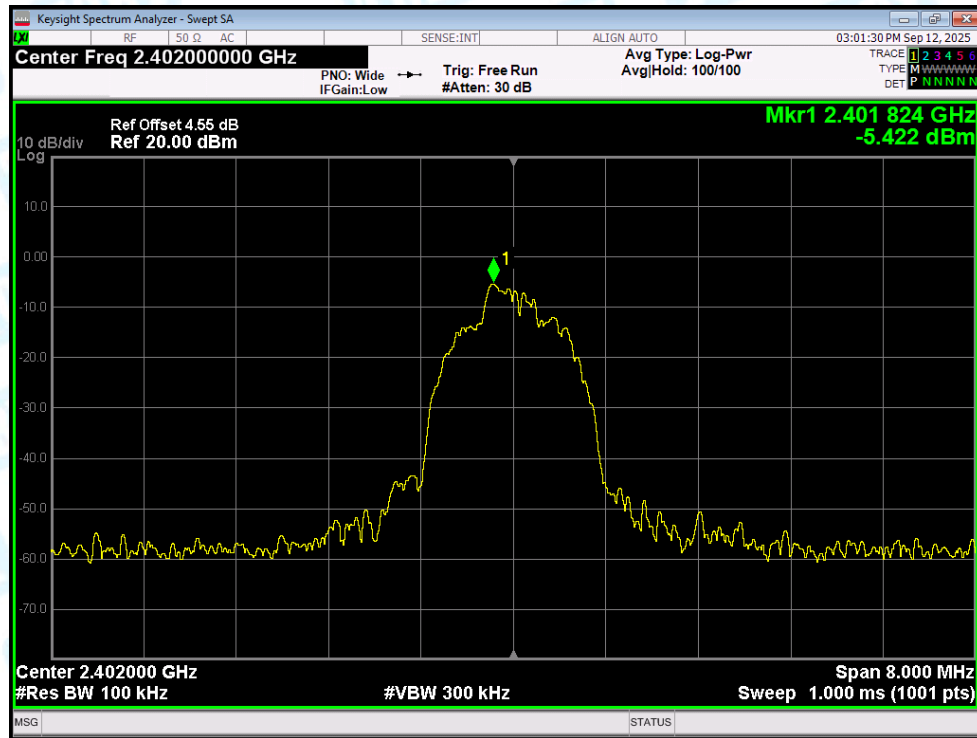
Band Edge NVNT 1-DH1 2480MHz Ant1 No-Hopping Ref



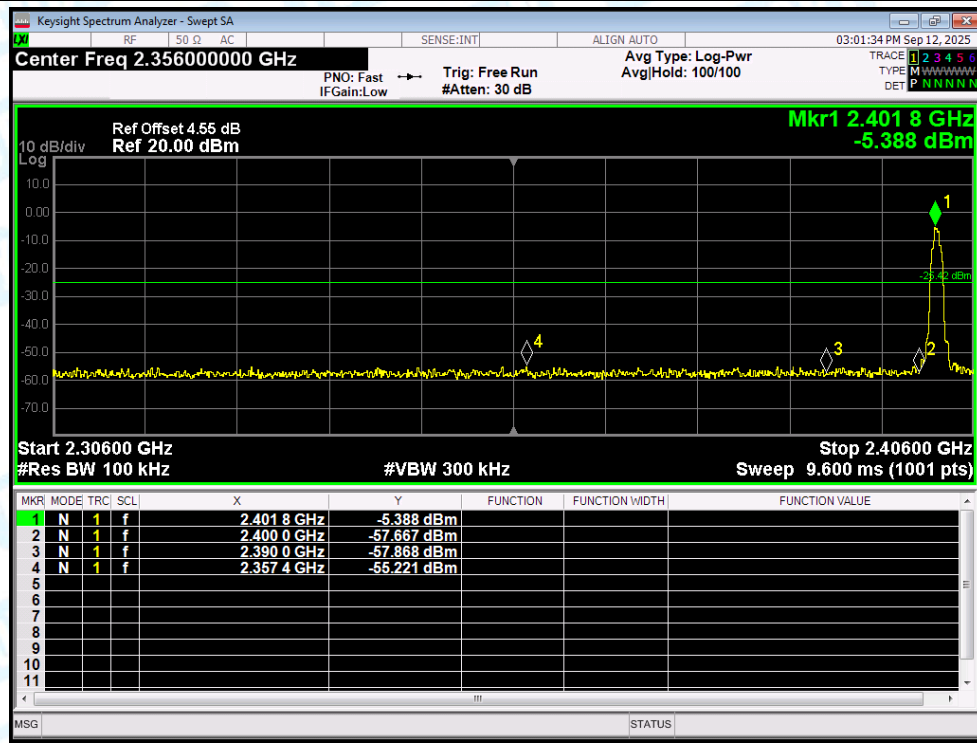
Band Edge NVNT 1-DH1 2480MHz Ant1 No-Hopping Emission

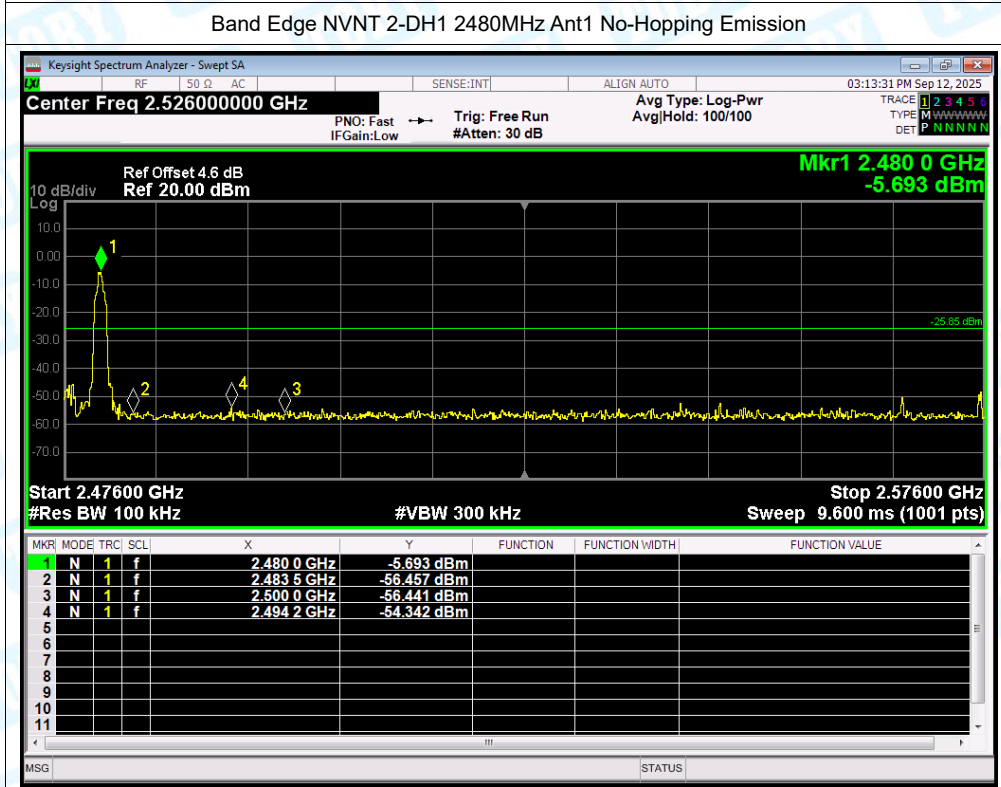
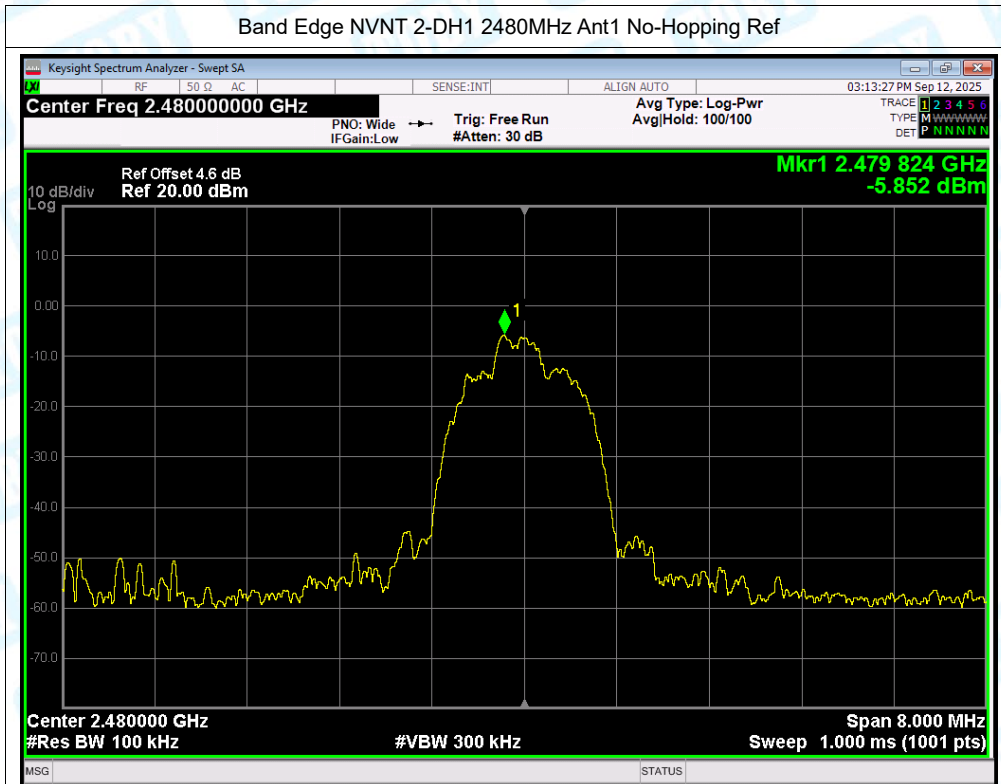


Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Ref

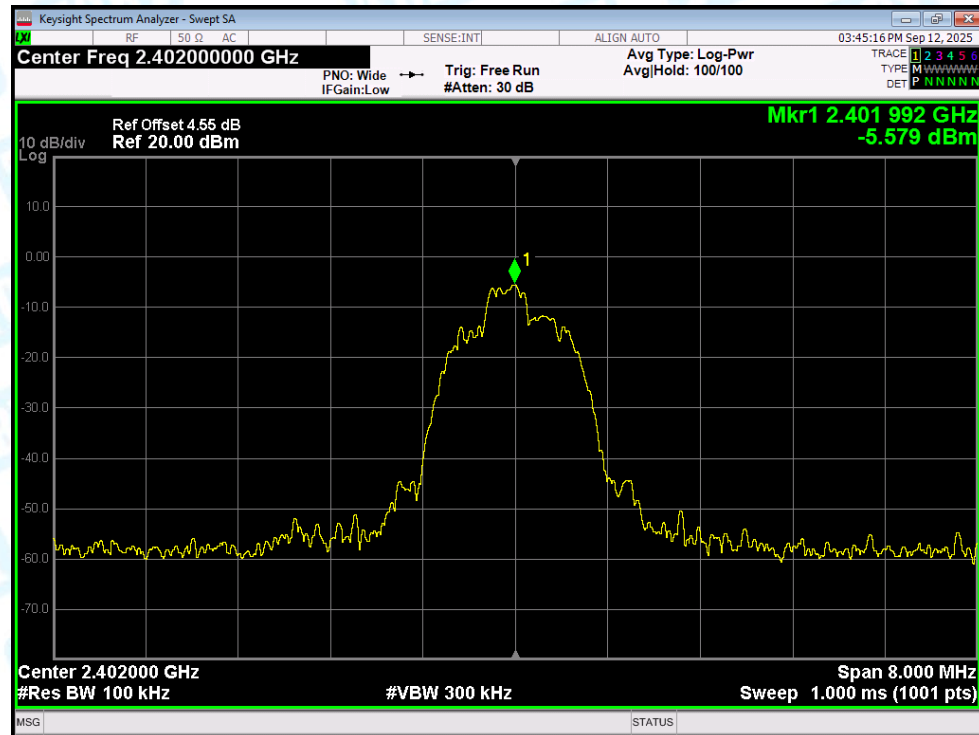


Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Emission

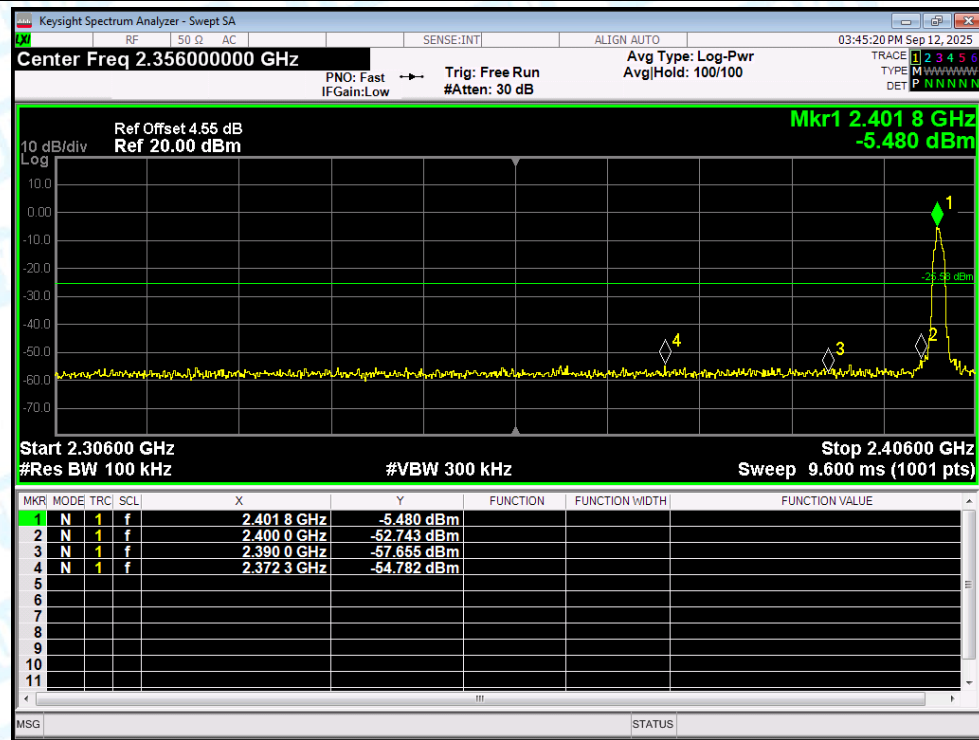




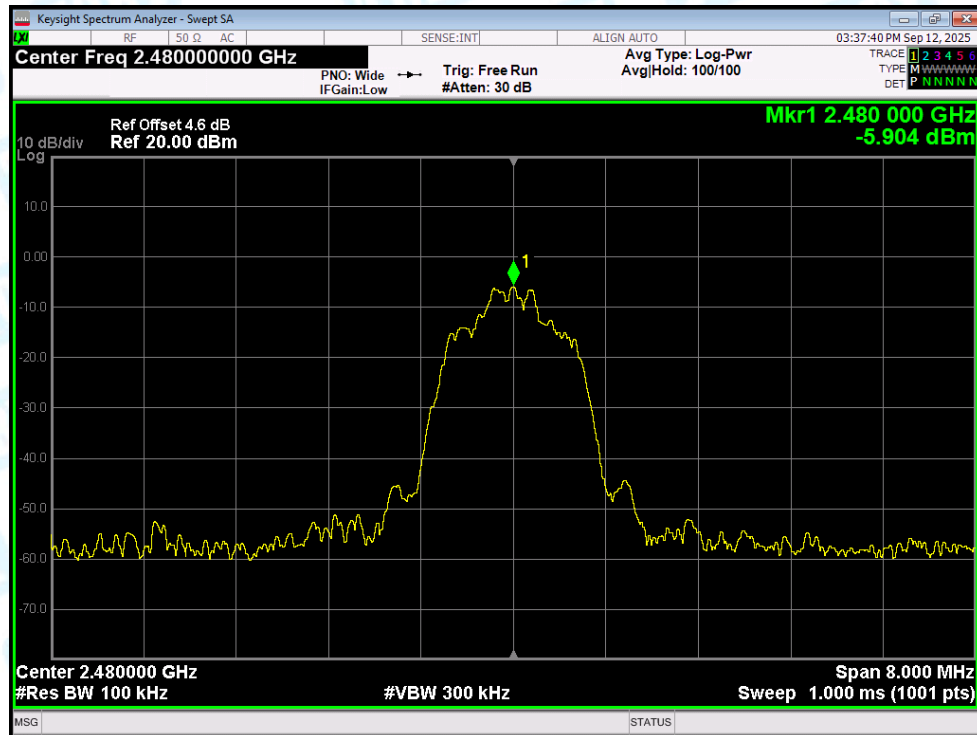
Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Ref



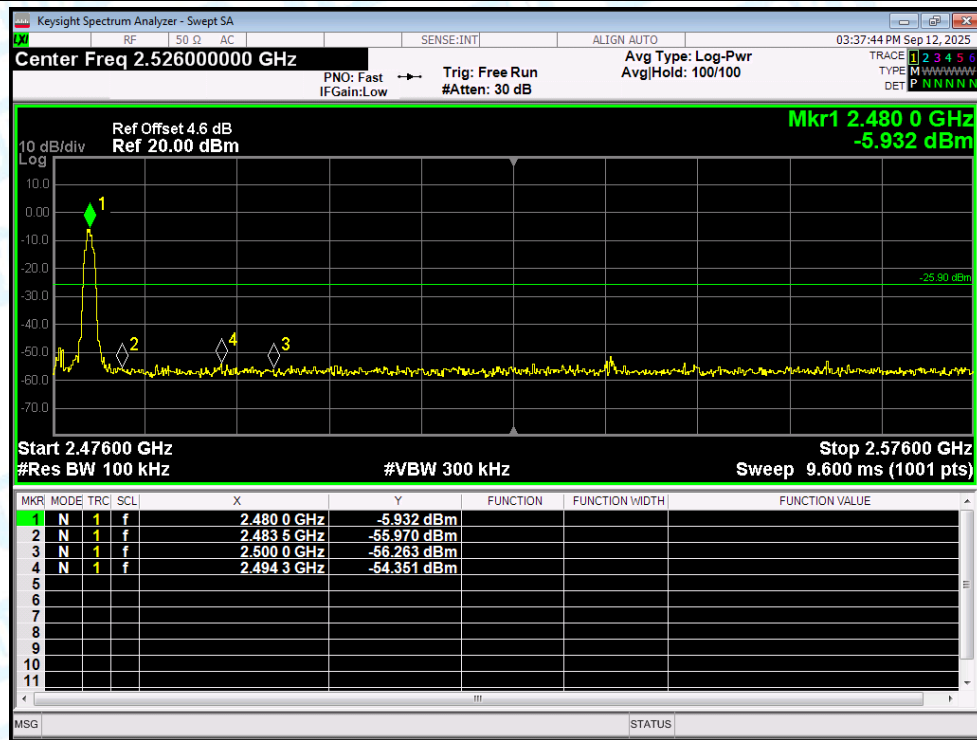
Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Emission



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



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

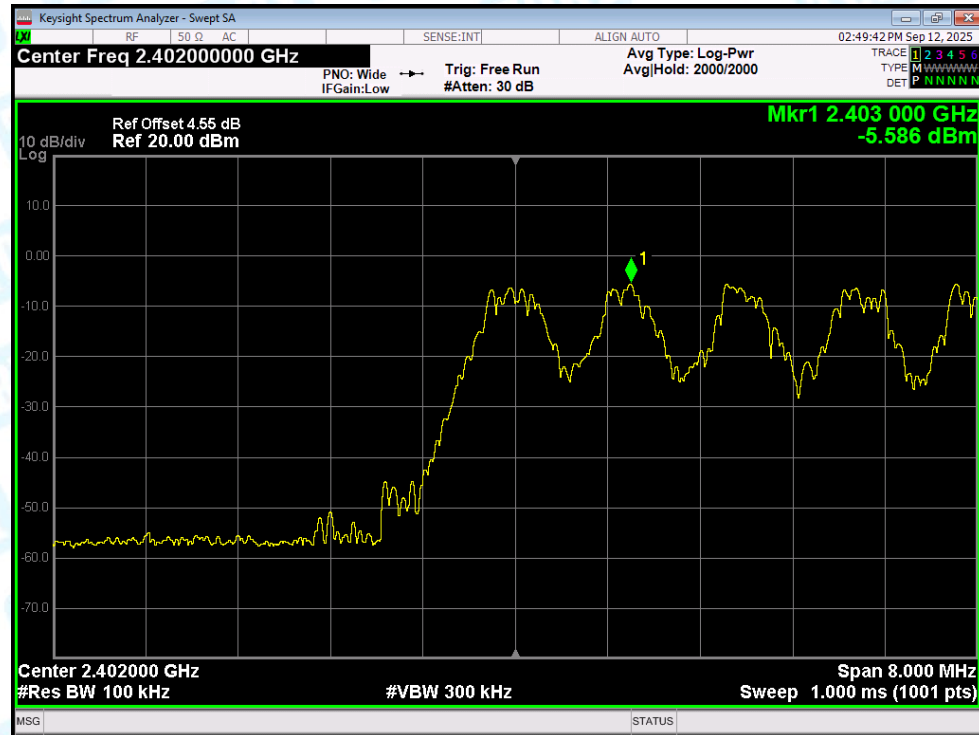


6. Band Edge(Hopping)

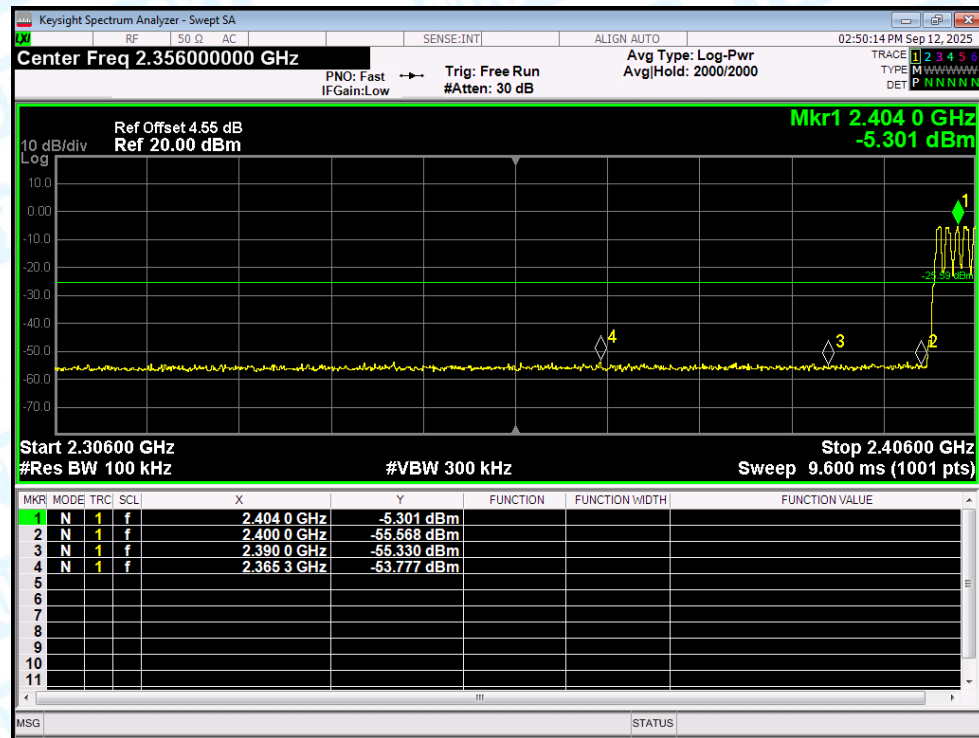
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	Hopping	-48.19	-20	Pass
NVNT	1-DH1	2480	Ant1	Hopping	-47.98	-20	Pass
NVNT	2-DH1	2402	Ant1	Hopping	-47.94	-20	Pass
NVNT	2-DH1	2480	Ant1	Hopping	-47.83	-20	Pass
NVNT	3-DH1	2402	Ant1	Hopping	-48.4	-20	Pass
NVNT	3-DH1	2480	Ant1	Hopping	-47.12	-20	Pass

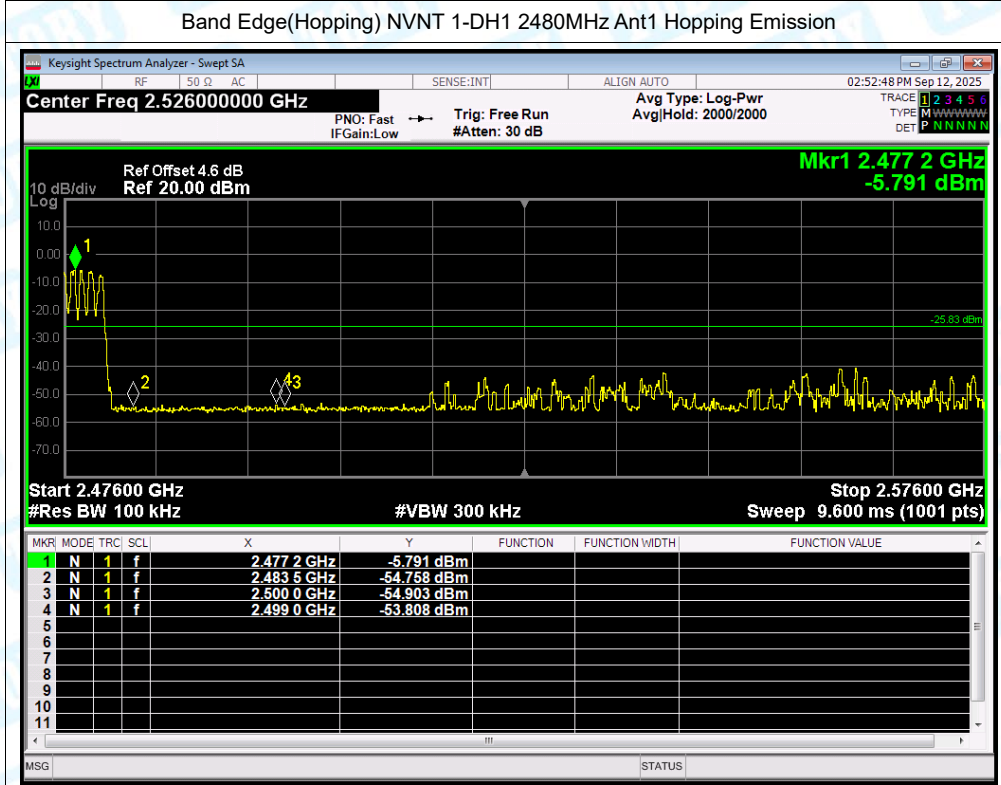
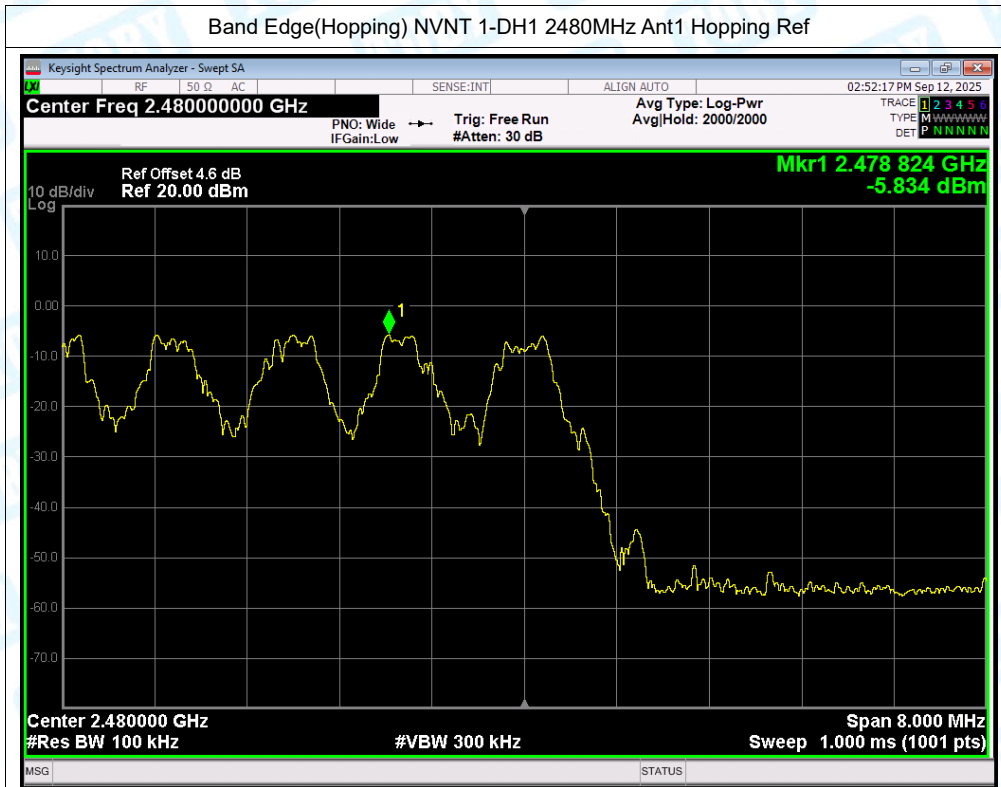
Test Graphs

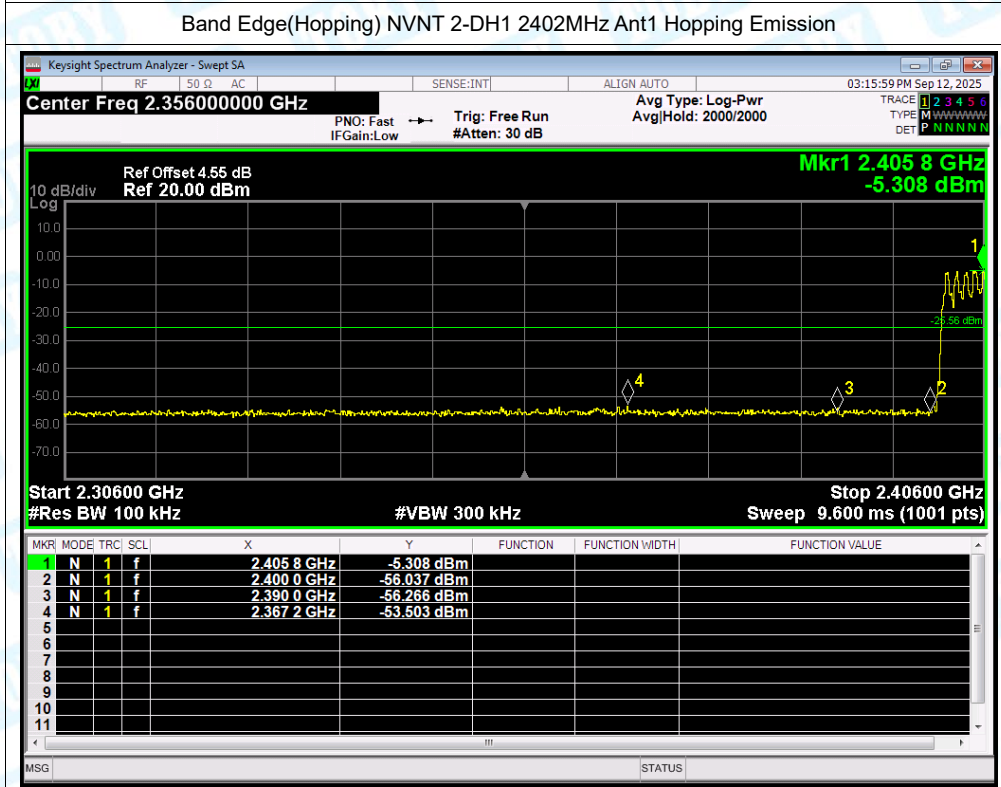
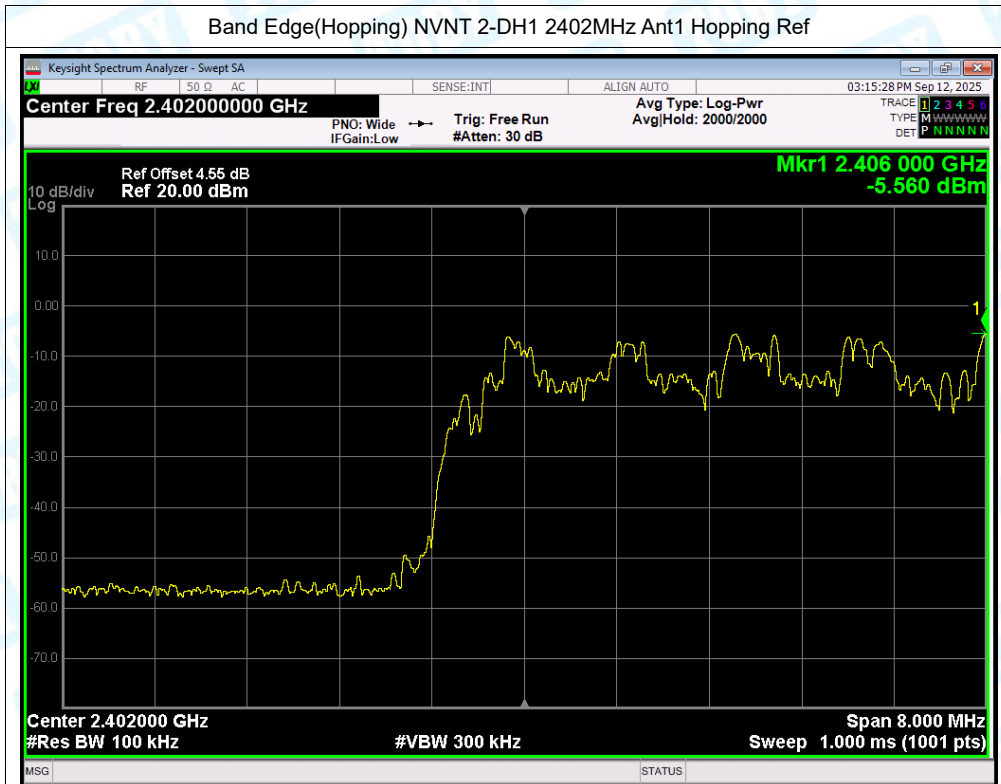
Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Ref

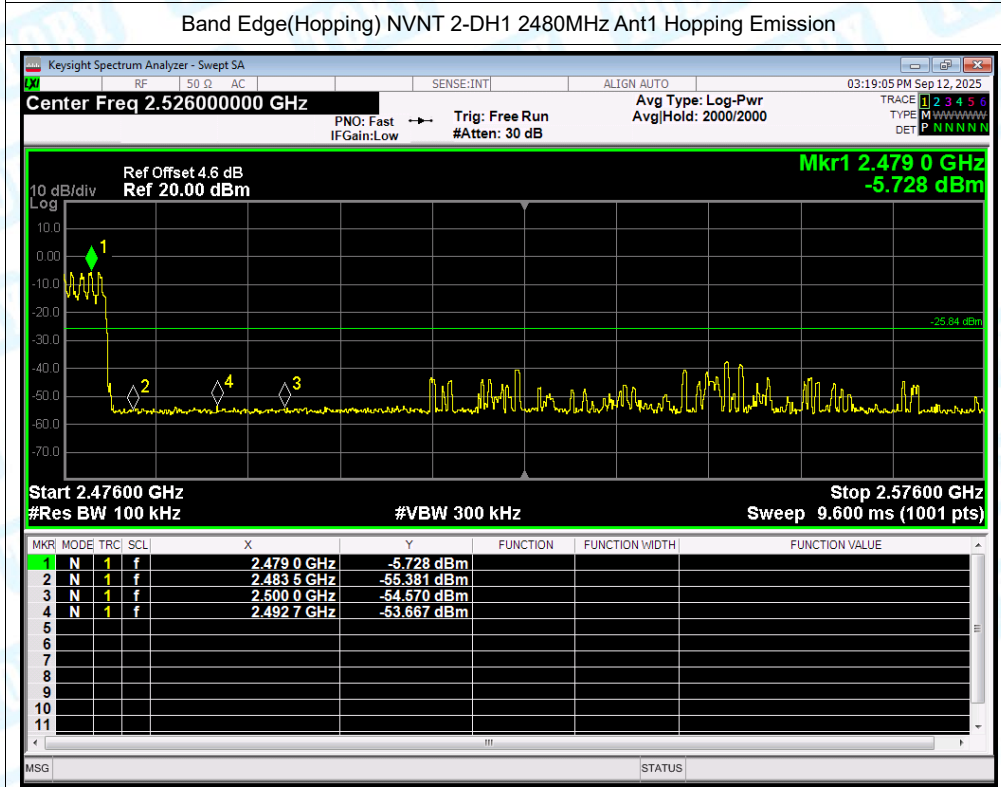
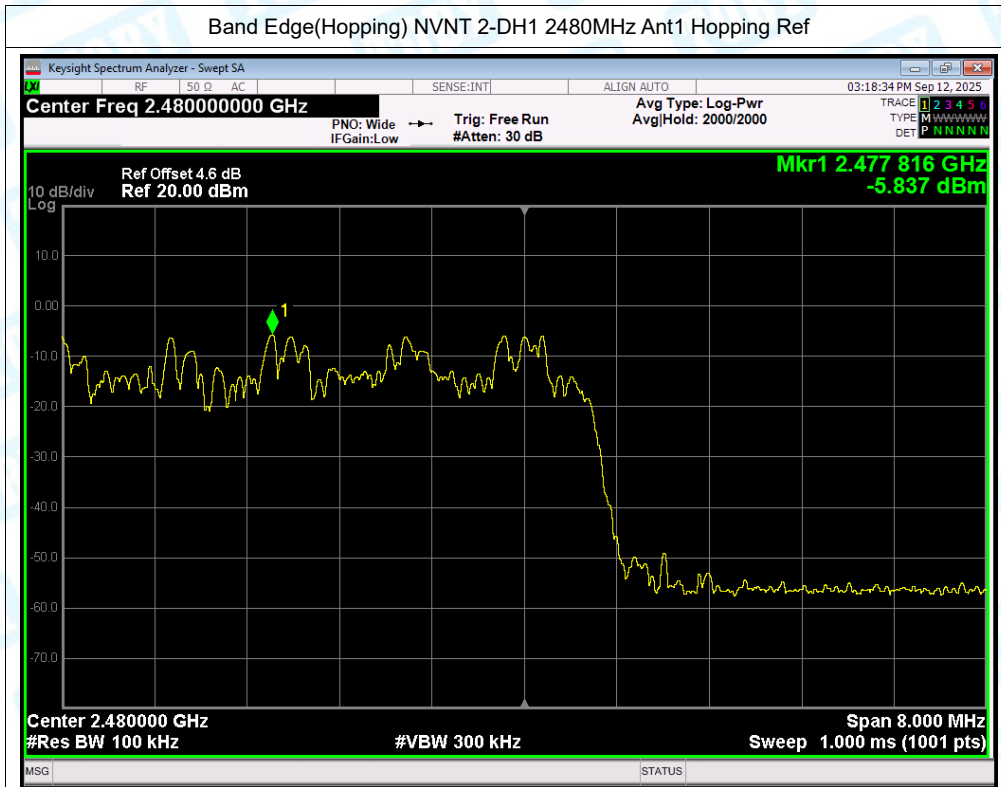


Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Emission





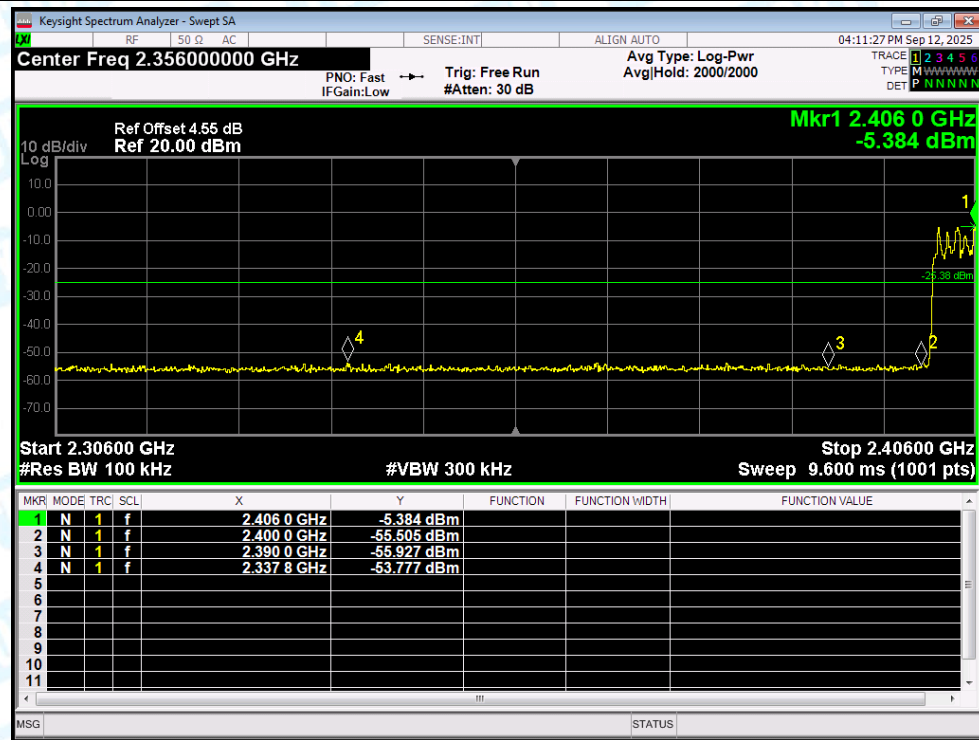


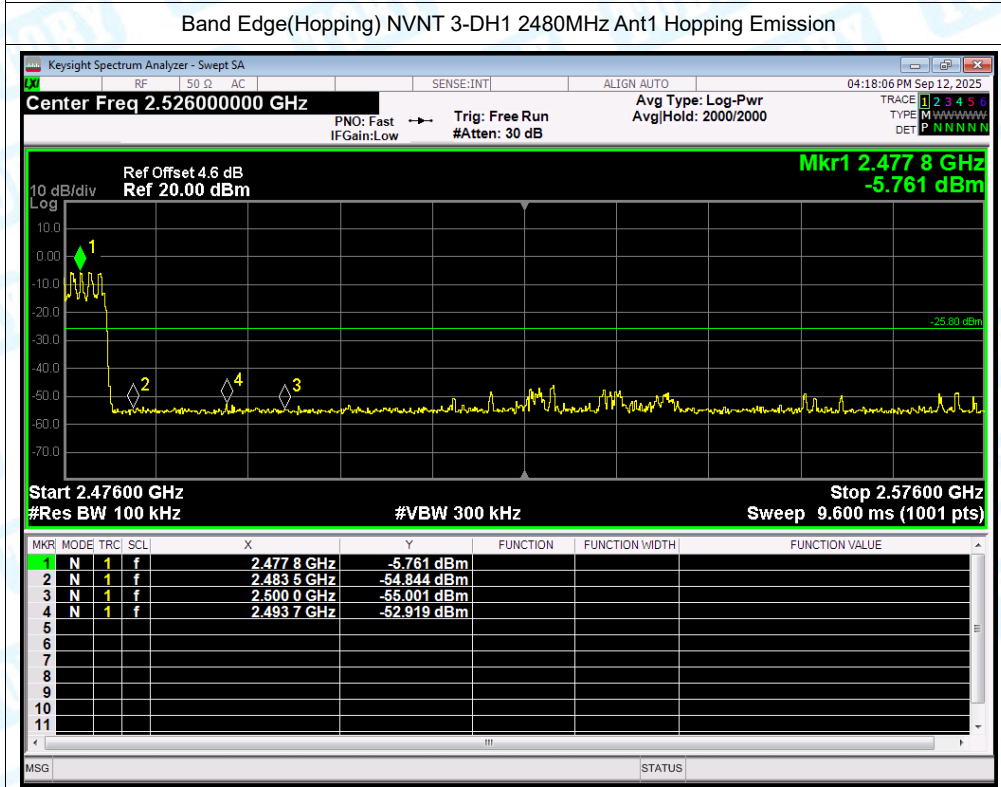
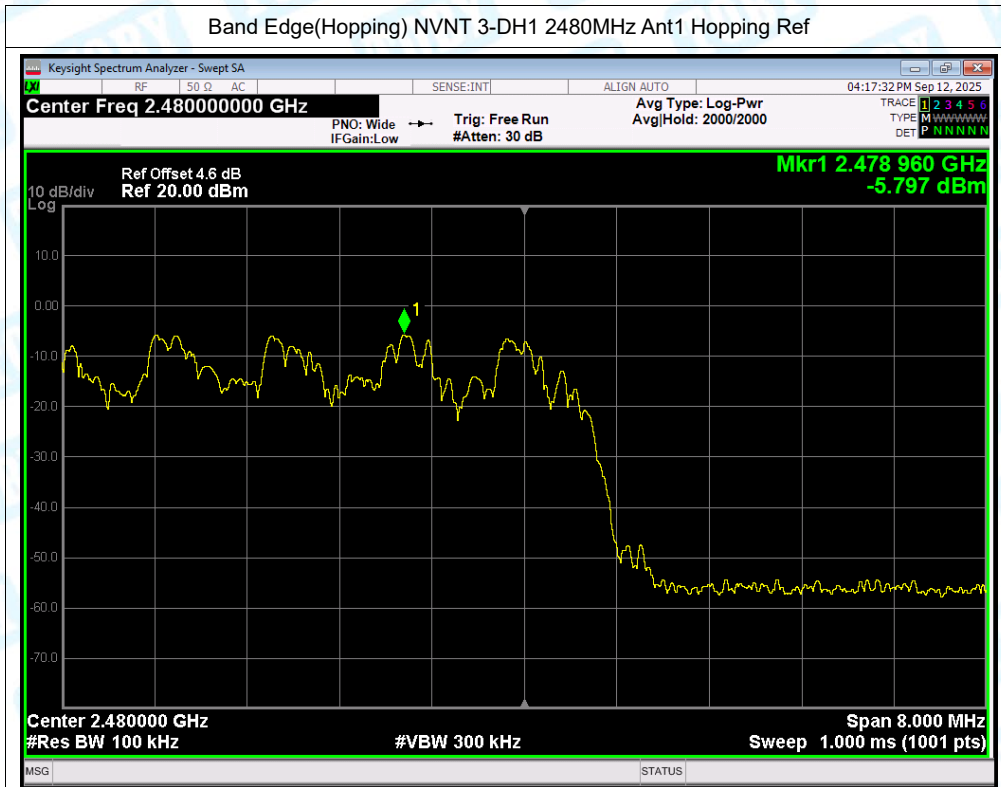


Band Edge(Hopping) NVNT 3-DH1 2402MHz Ant1 Hopping Ref



Band Edge(Hopping) NVNT 3-DH1 2402MHz Ant1 Hopping Emission



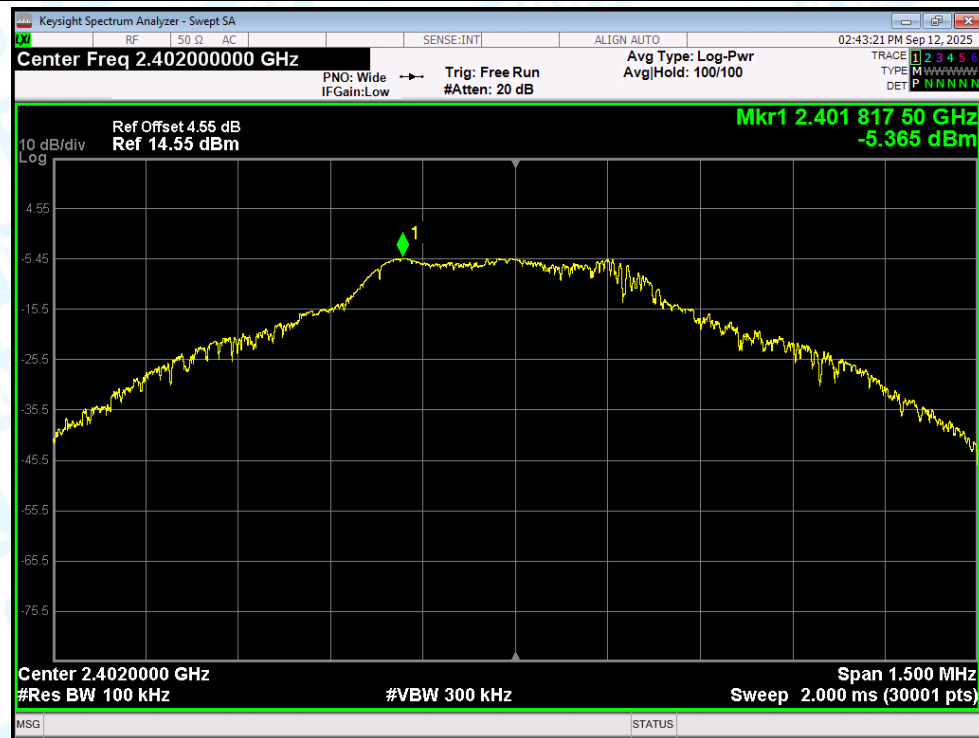


7. Conducted RF Spurious Emission

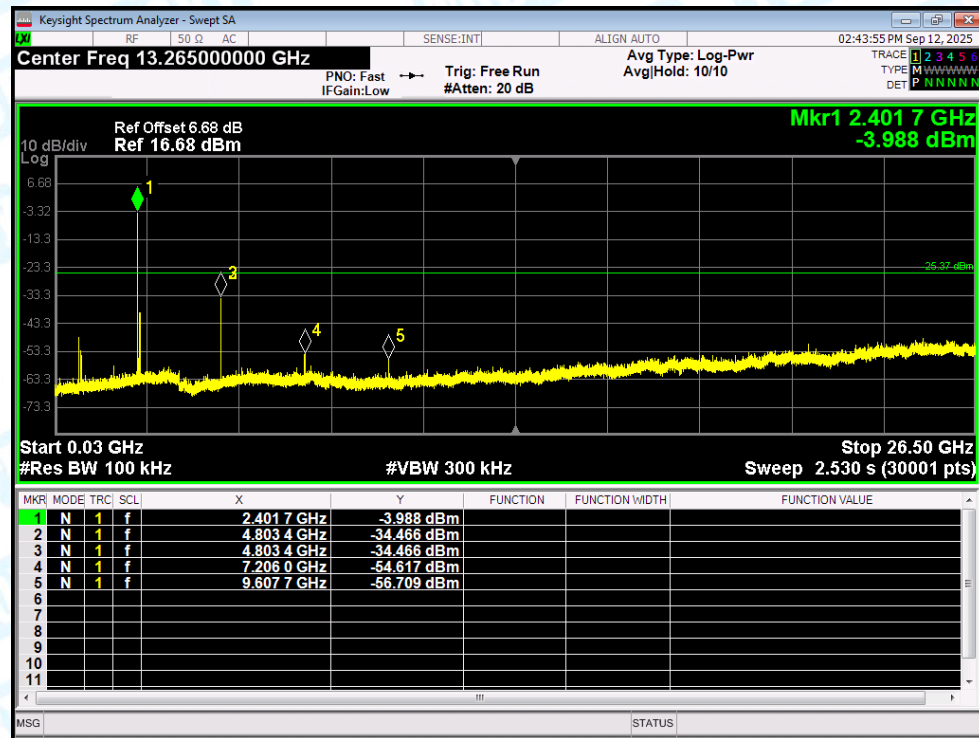
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	-29.1	-20	Pass
NVNT	1-DH1	2441	Ant1	-29.69	-20	Pass
NVNT	1-DH1	2480	Ant1	-30.8	-20	Pass
NVNT	2-DH1	2402	Ant1	-29.71	-20	Pass
NVNT	2-DH1	2441	Ant1	-29.67	-20	Pass
NVNT	2-DH1	2480	Ant1	-41.4	-20	Pass
NVNT	3-DH1	2402	Ant1	-32.02	-20	Pass
NVNT	3-DH1	2441	Ant1	-39.85	-20	Pass
NVNT	3-DH1	2480	Ant1	-31.42	-20	Pass

Test Graphs

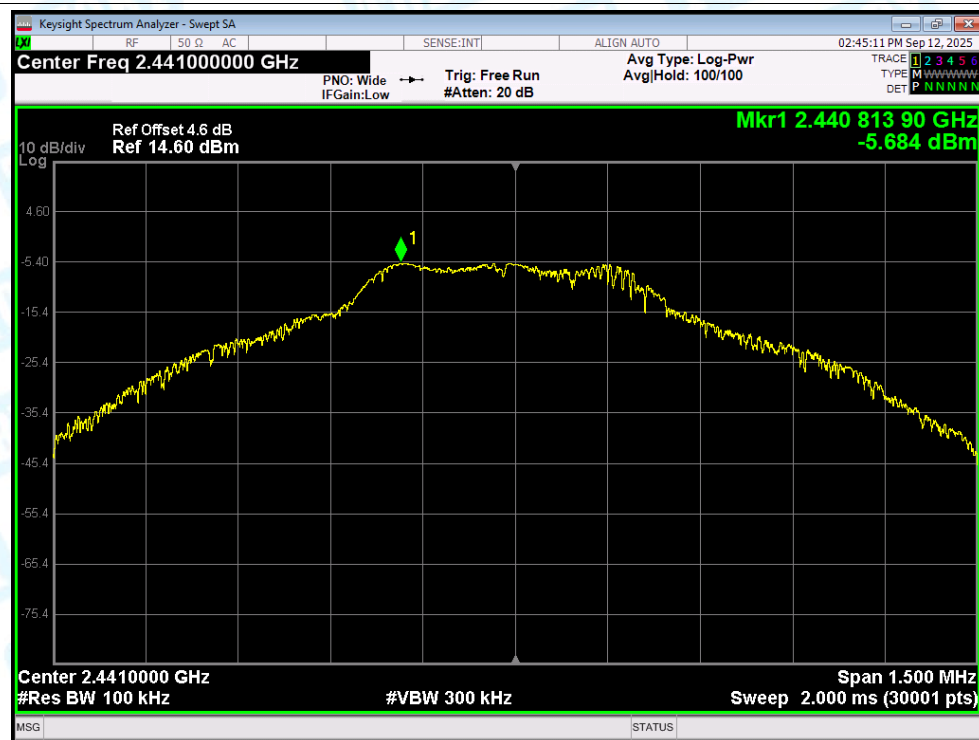
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Ref



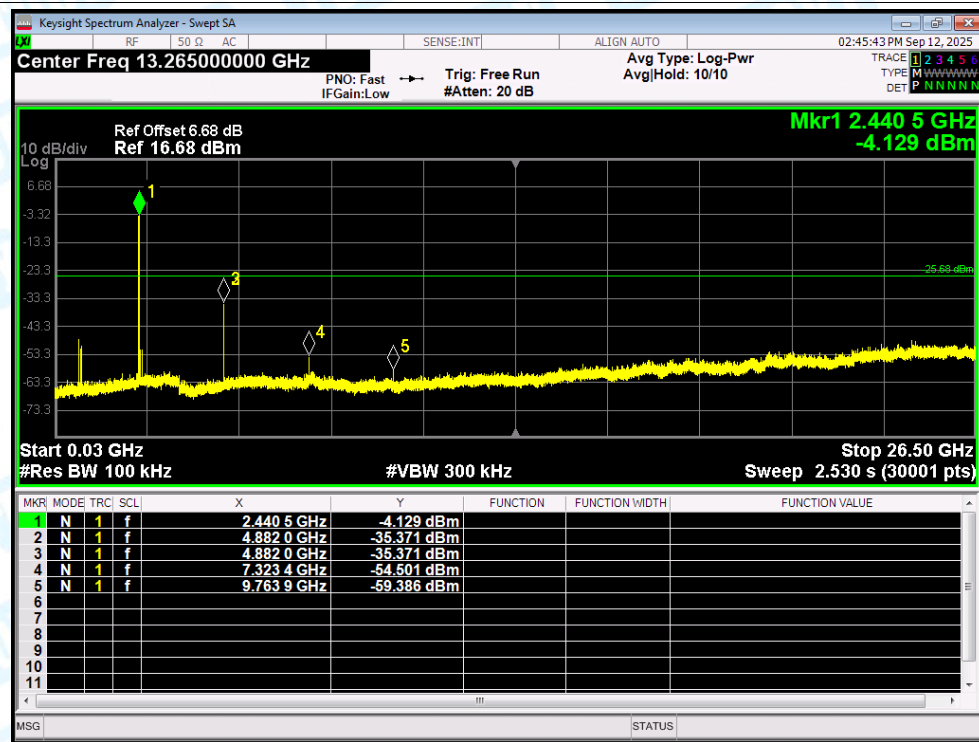
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Emission



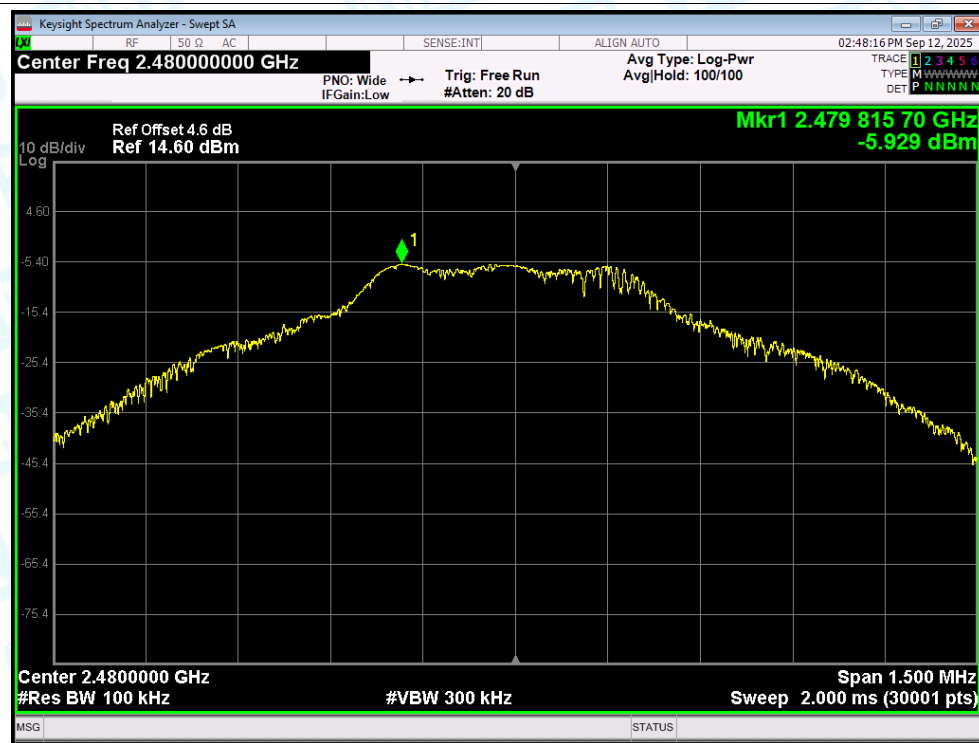
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Ref



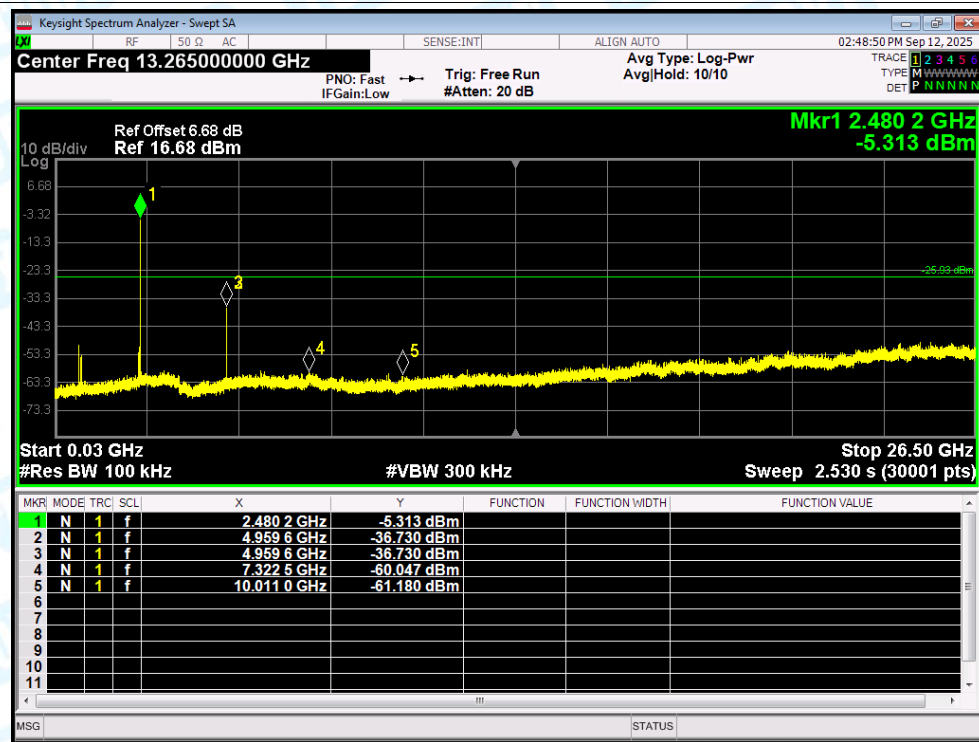
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Emission



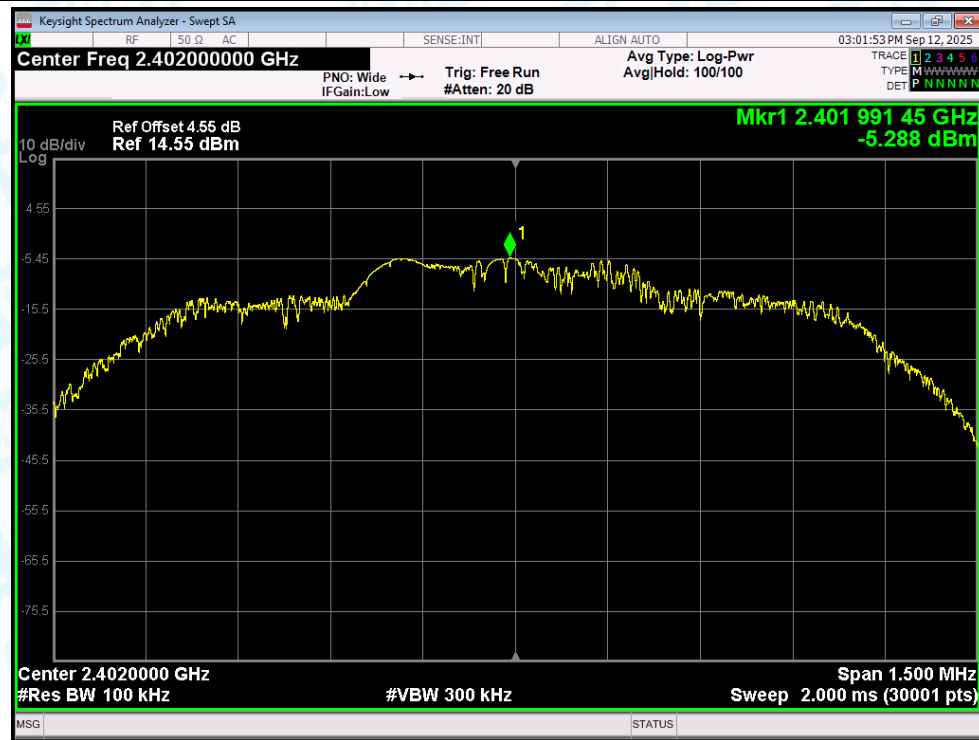
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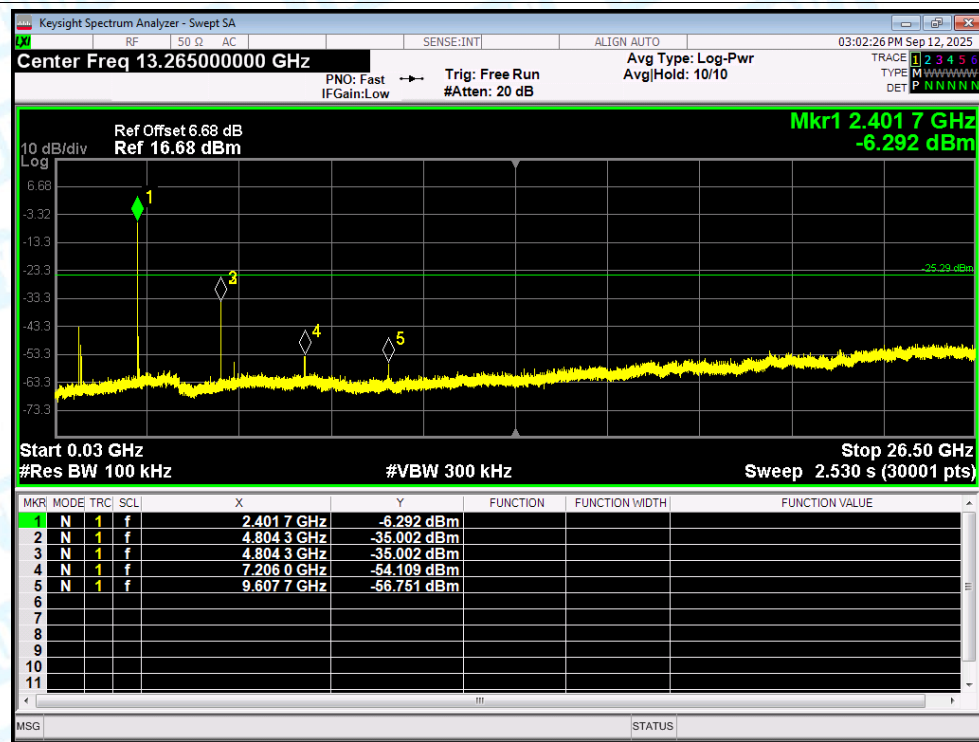
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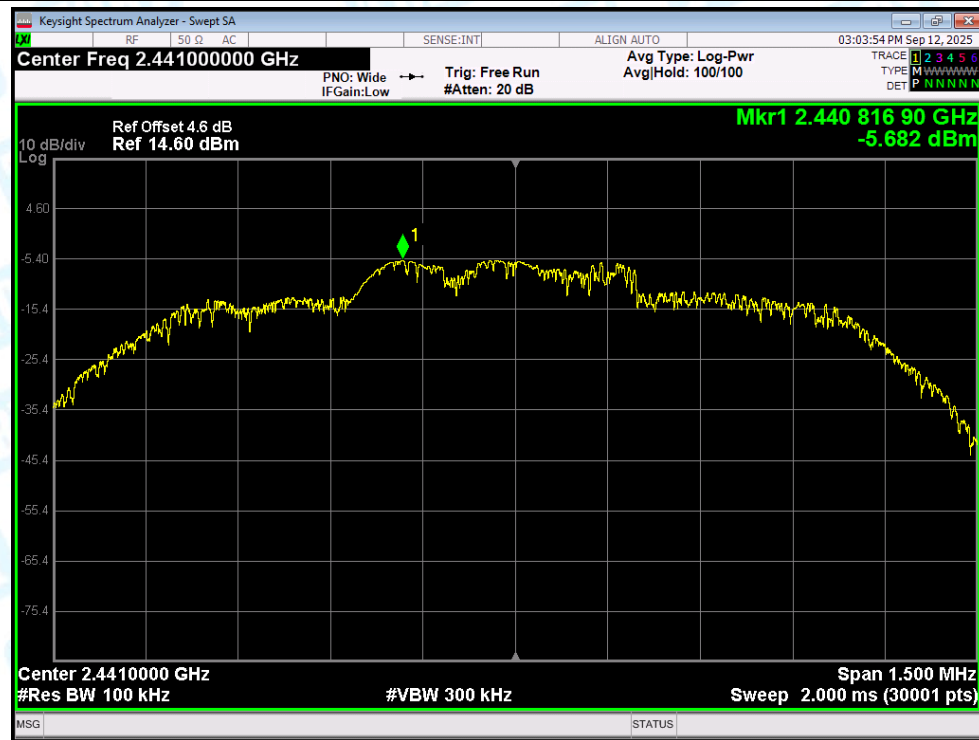
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Ref



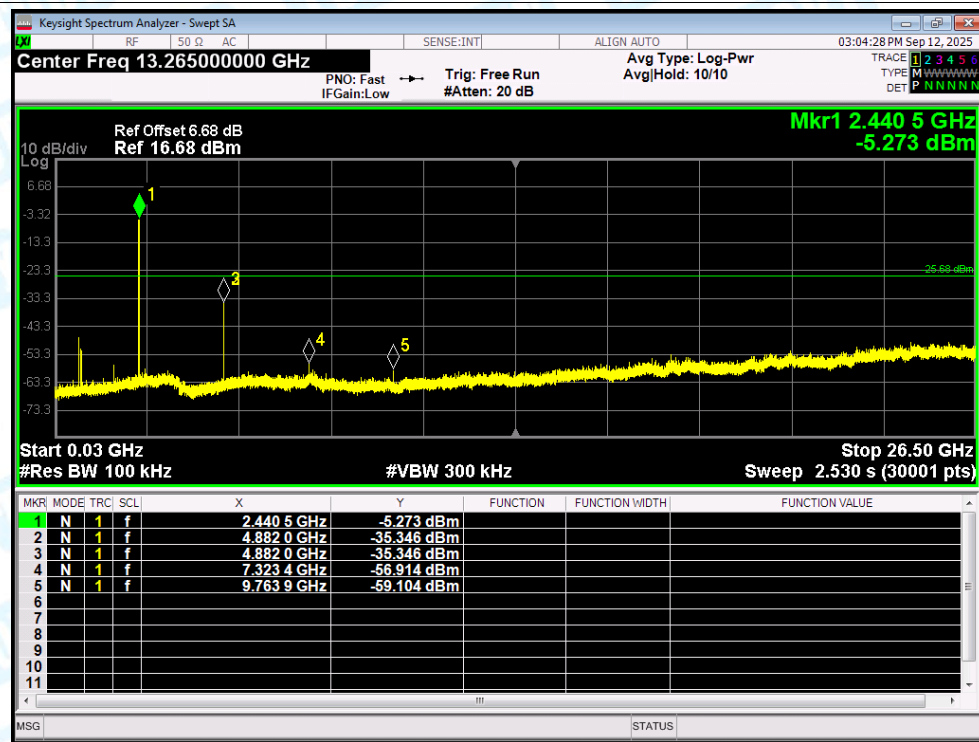
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Emission



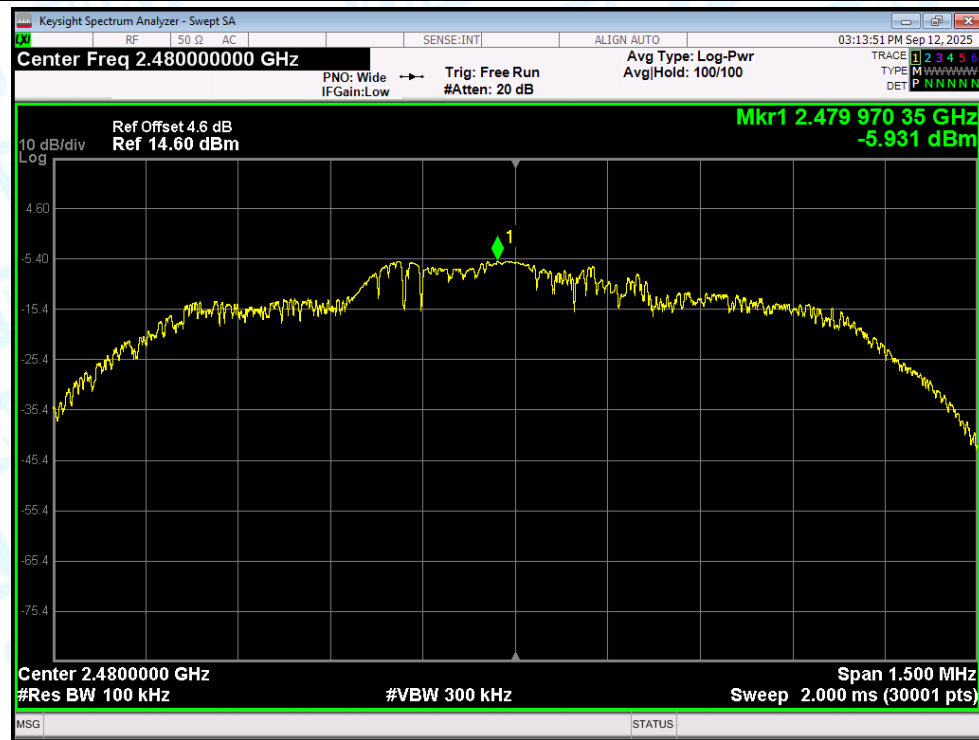
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Ref



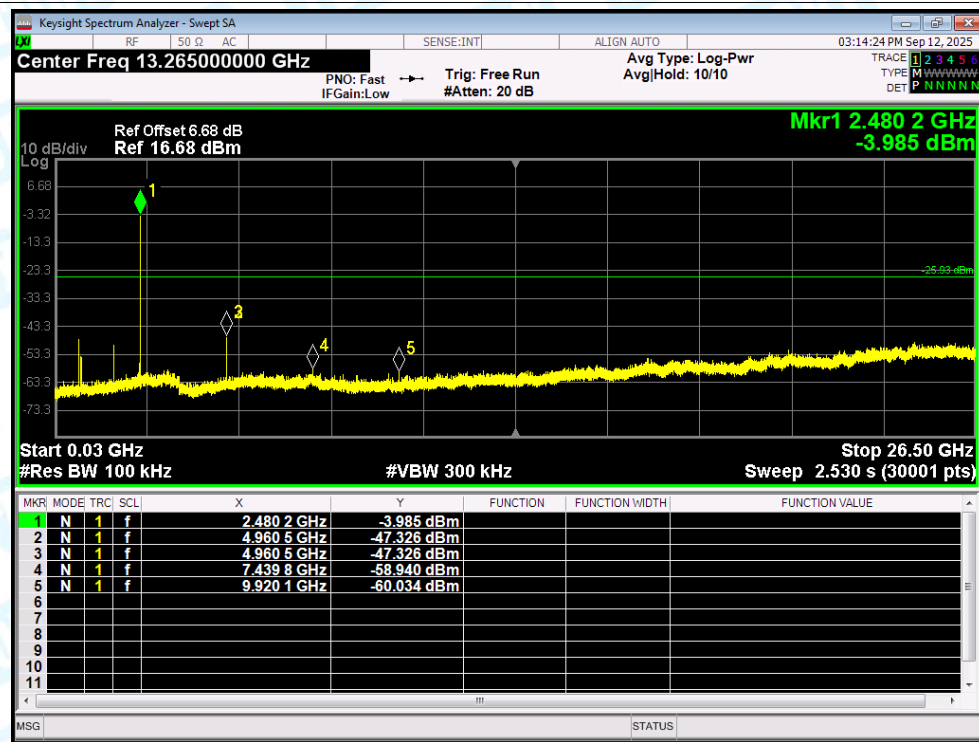
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Emission



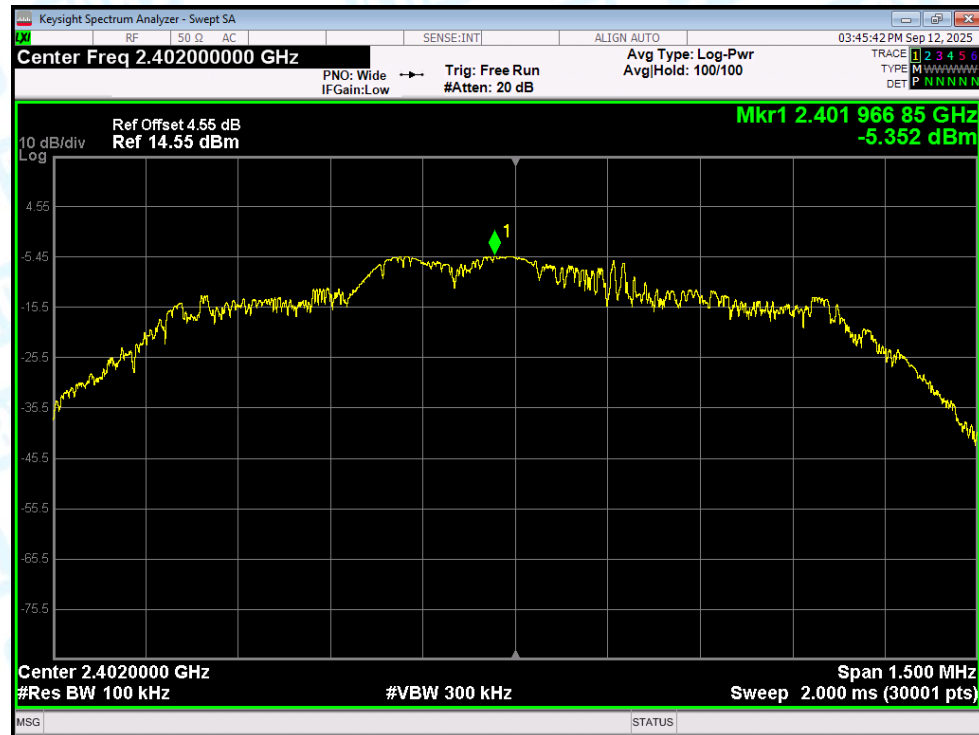
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Ref



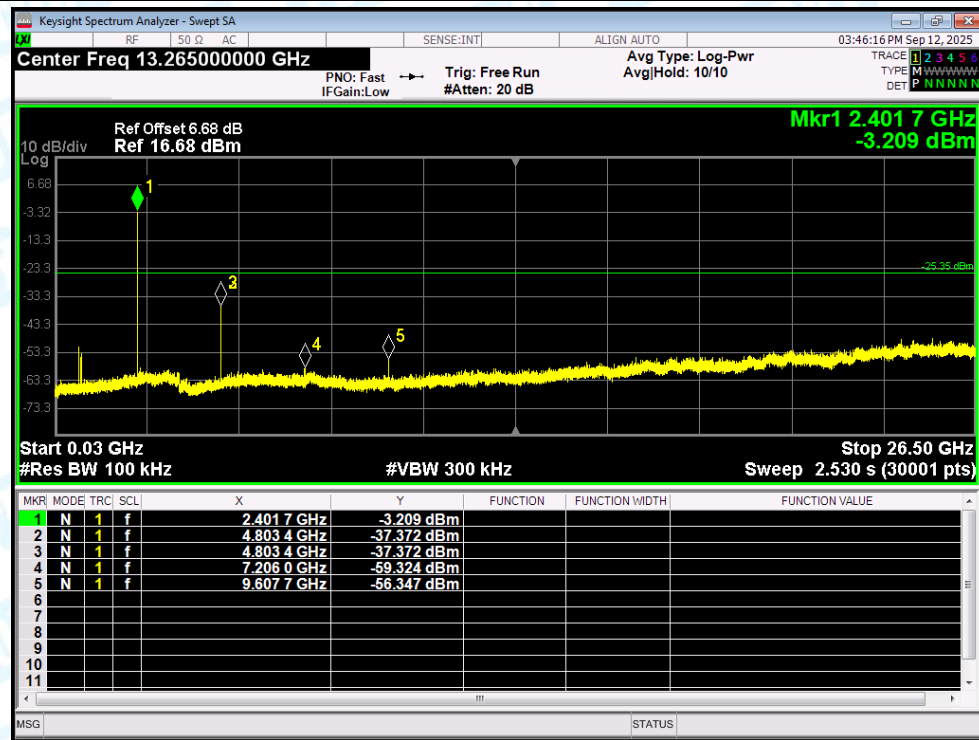
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Emission



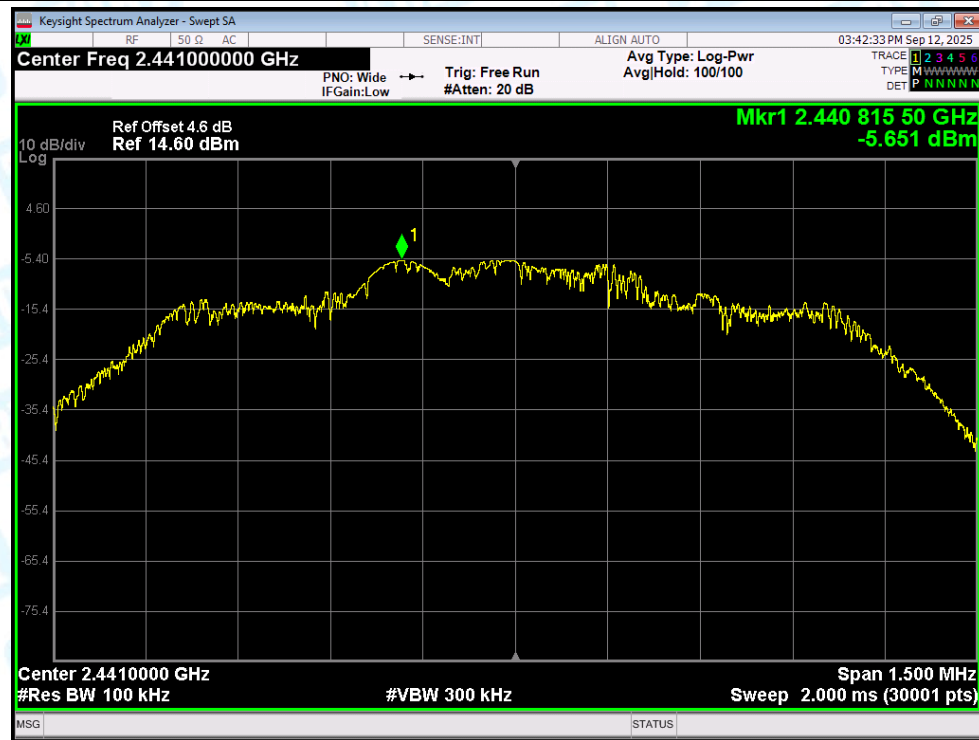
Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Ref



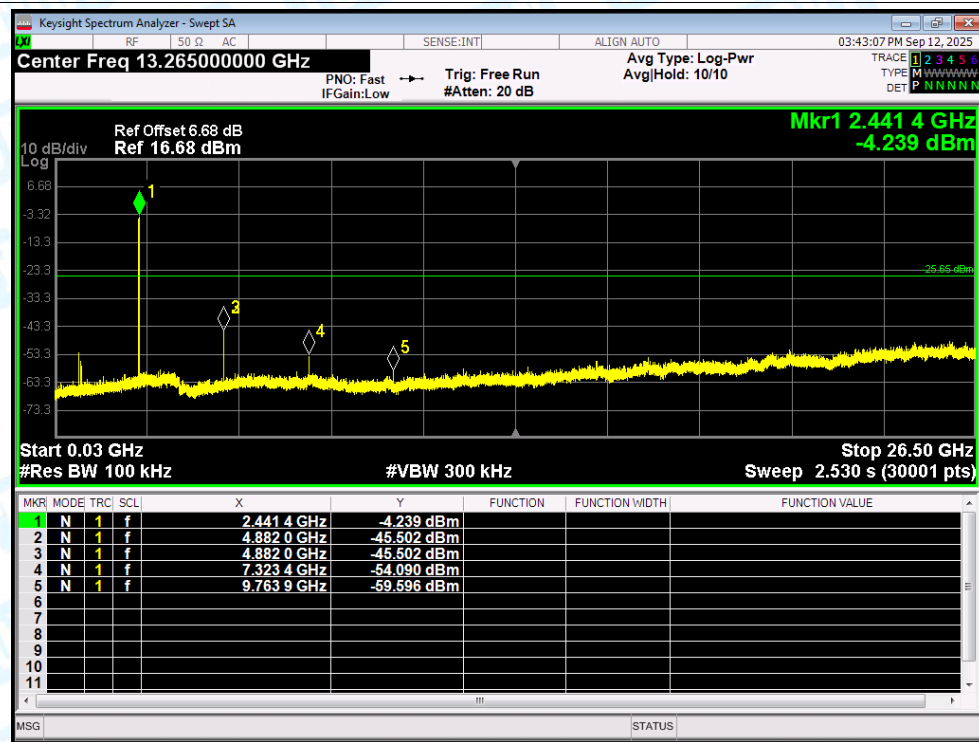
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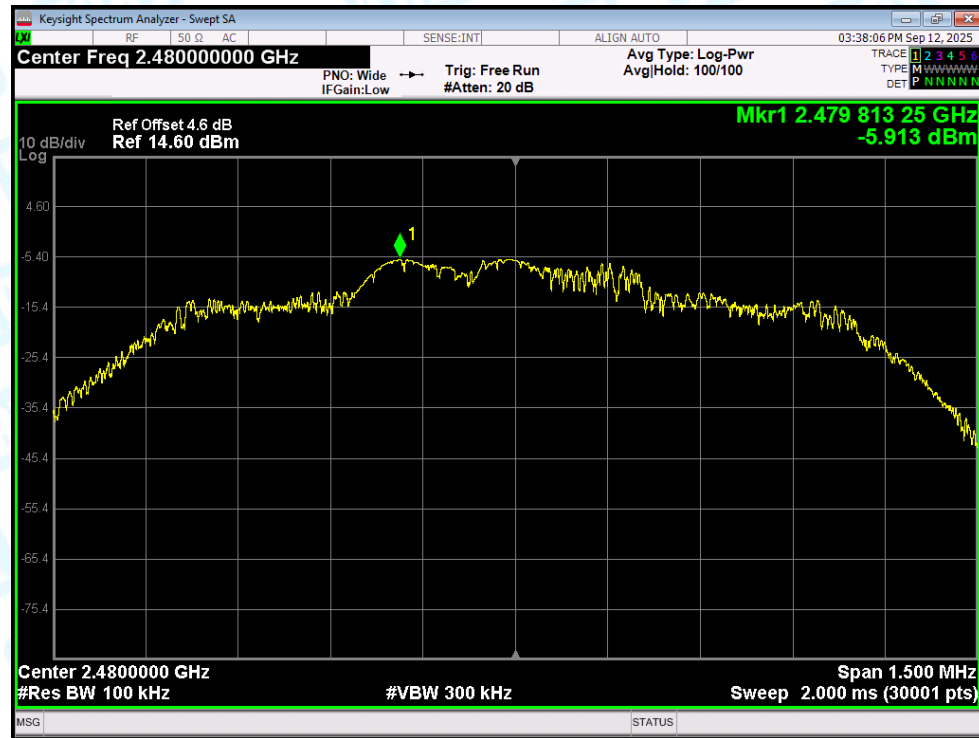
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Ref



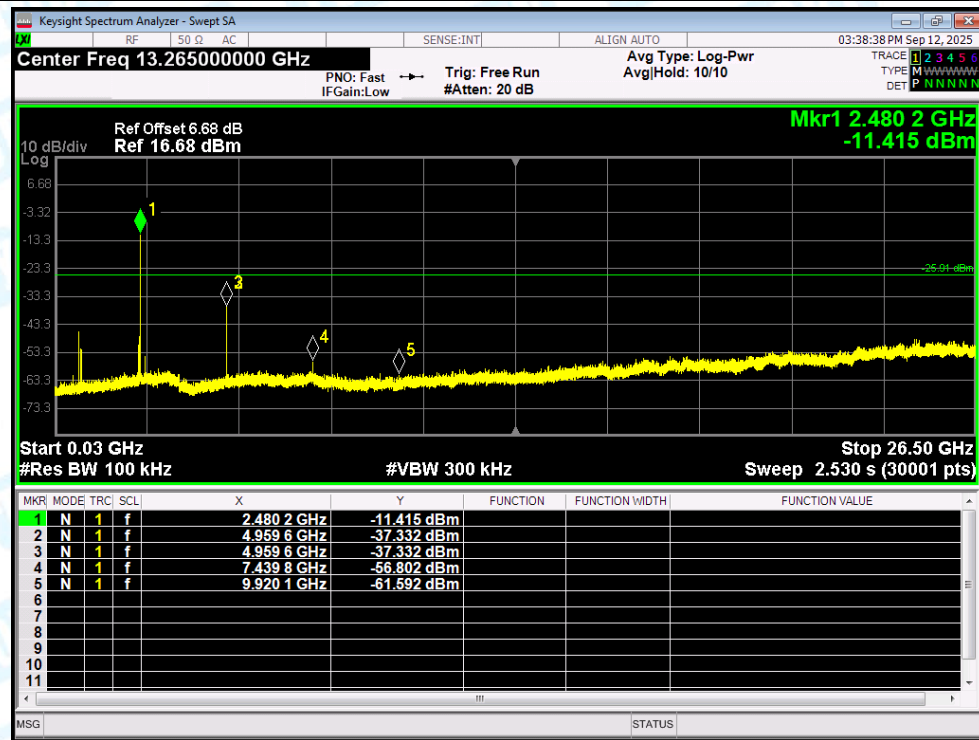
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Emission



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Emission

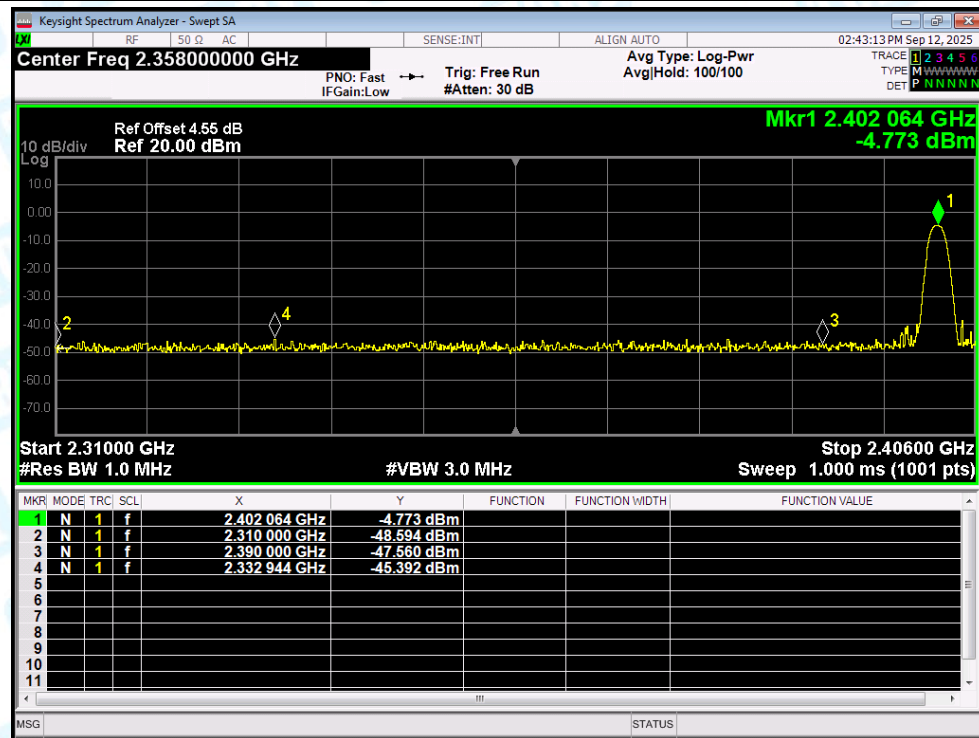


8. Restrict Band

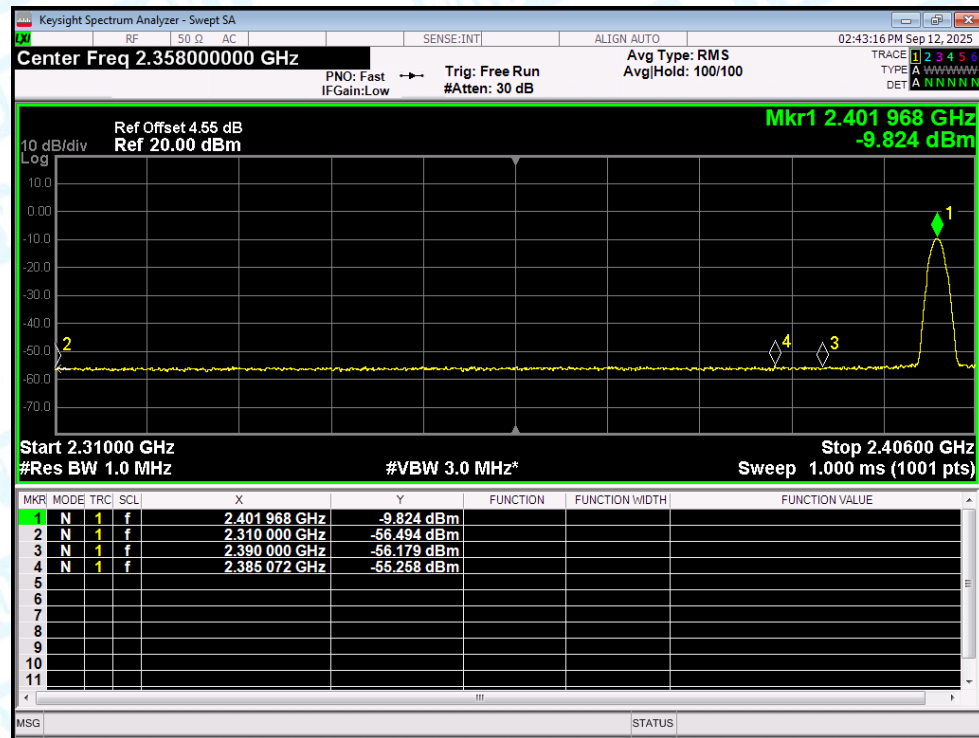
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-48.59	4	-	50.67	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-56.49	4	4.84	47.61	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2332.944	-45.39	4	-	53.87	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2385.072	-55.26	4	4.84	48.84	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-47.56	4	-	51.7	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-56.18	4	4.84	47.92	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-47.12	4	-	52.14	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-55.73	4	4.84	48.37	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2484.04	-42.37	4	-	56.89	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2491.24	-54.88	4	4.84	49.22	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-48.9	4	-	50.36	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-54.88	4	4.84	49.22	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-48.28	4	-	50.98	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-56.57	4	4.74	47.43	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2351.568	-45.13	4	-	54.13	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2353.68	-55.24	4	4.74	48.76	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-46.58	4	-	52.68	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-56.08	4	4.74	47.92	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-48.83	4	-	50.43	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-55.85	4	4.74	48.15	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2498.632	-44.68	4	-	54.58	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2499.976	-54.87	4	4.74	49.13	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-48.53	4	-	50.73	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-55.39	4	4.74	48.61	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-47	4	-	52.26	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-56.98	4	4.74	47.02	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2313.552	-45.27	4	-	53.99	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2370	-55.27	4	4.74	48.73	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-47.15	4	-	52.11	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-56.29	4	4.74	47.71	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-48.02	4	-	51.24	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-55.66	4	4.84	48.44	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2498.728	-45.15	4	-	54.11	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2486.68	-54.67	4	4.84	49.43	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-47.33	4	-	51.93	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-55.38	4	4.84	48.72	Average	54	Pass

Test Graphs

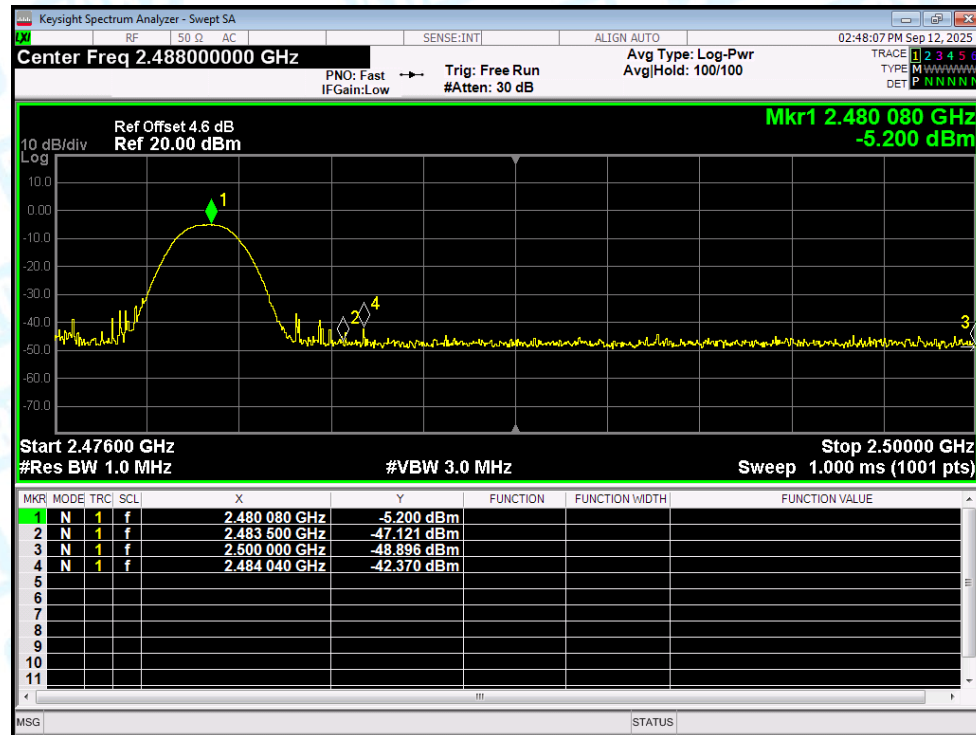
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Peak



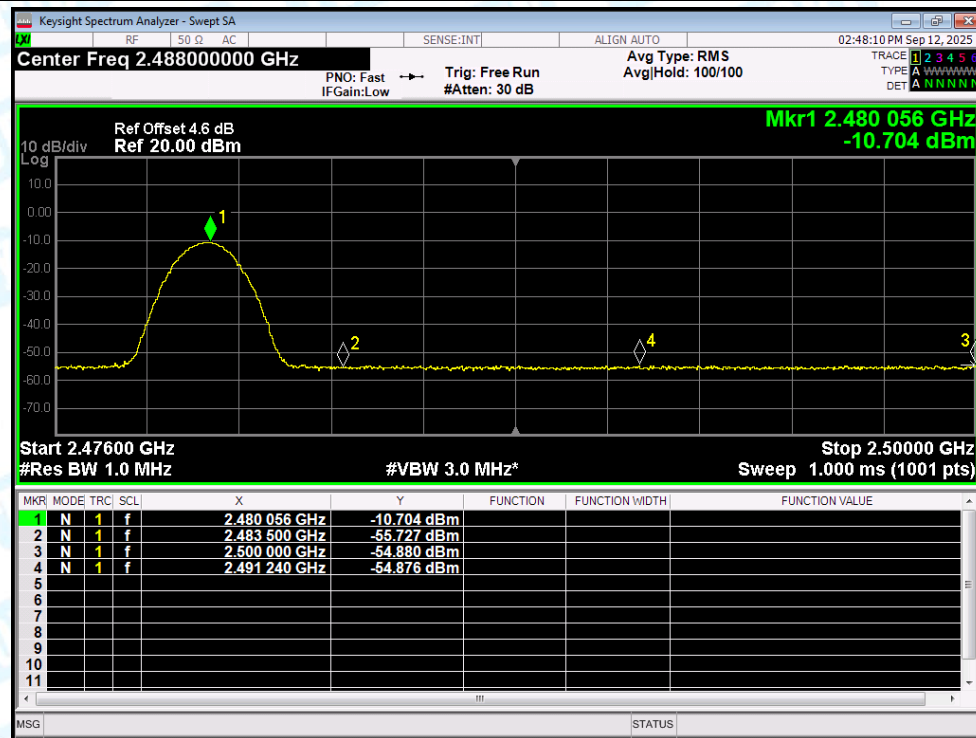
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Average



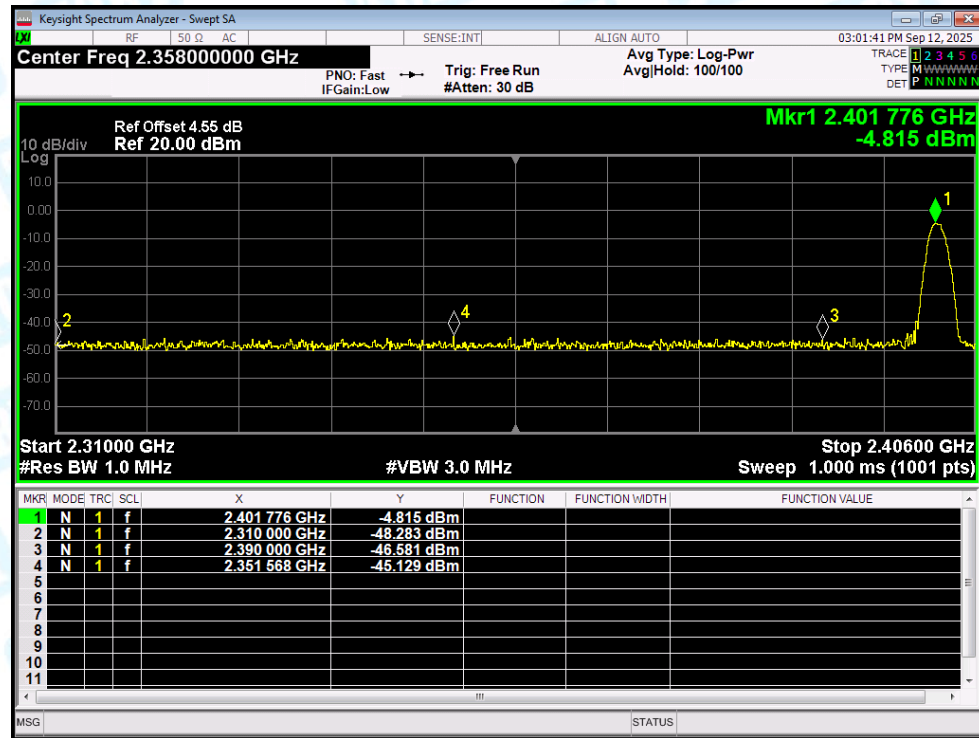
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Peak



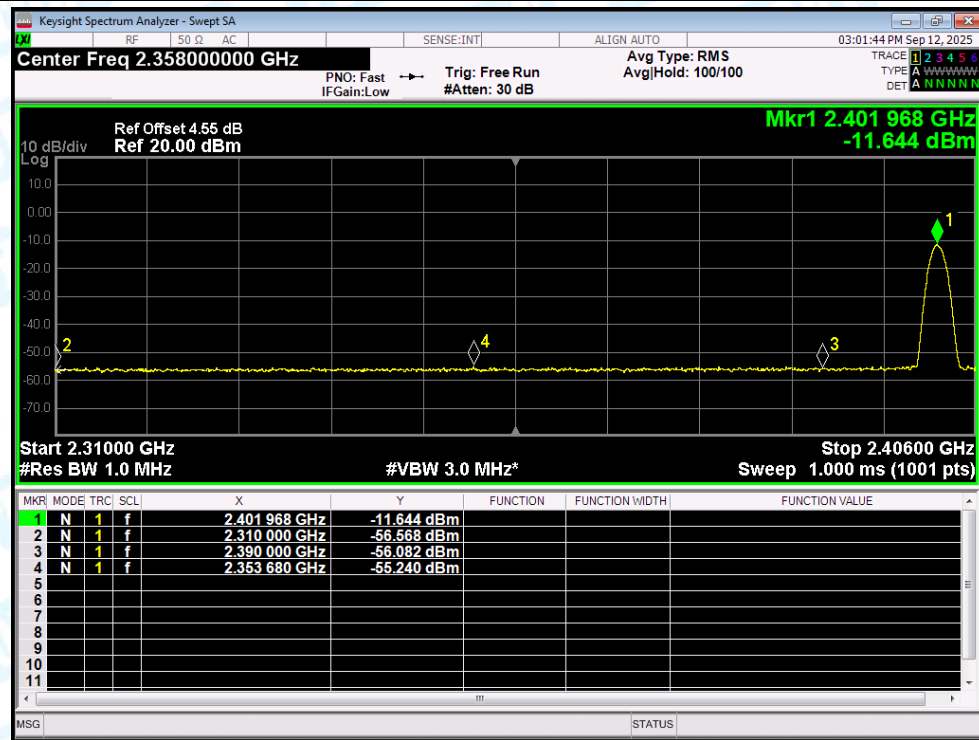
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Average



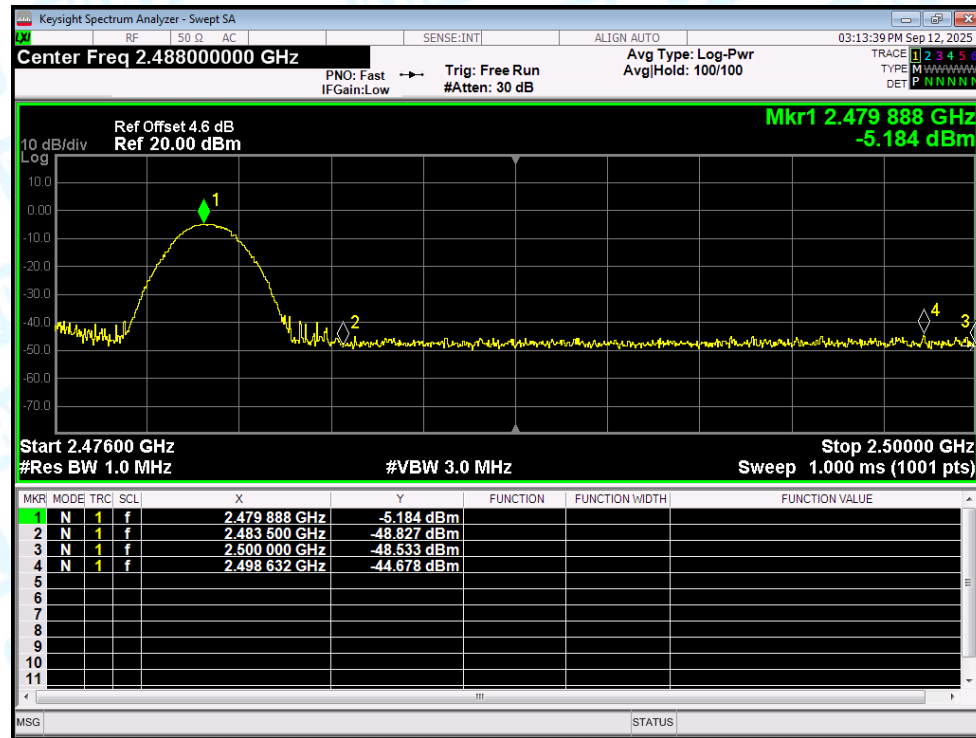
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Peak



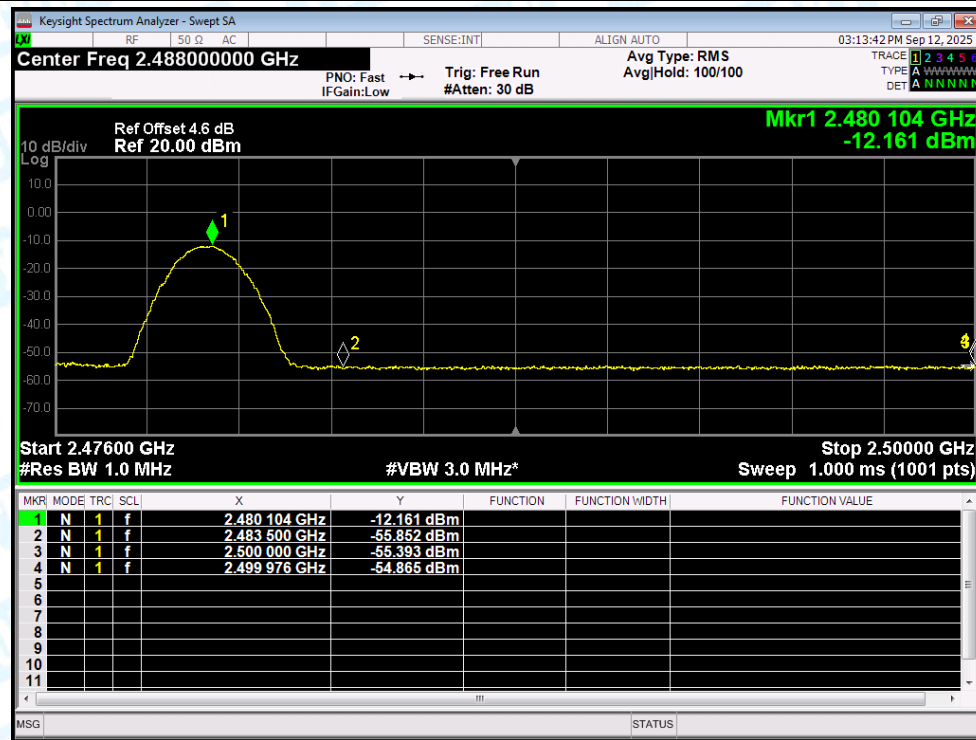
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Average



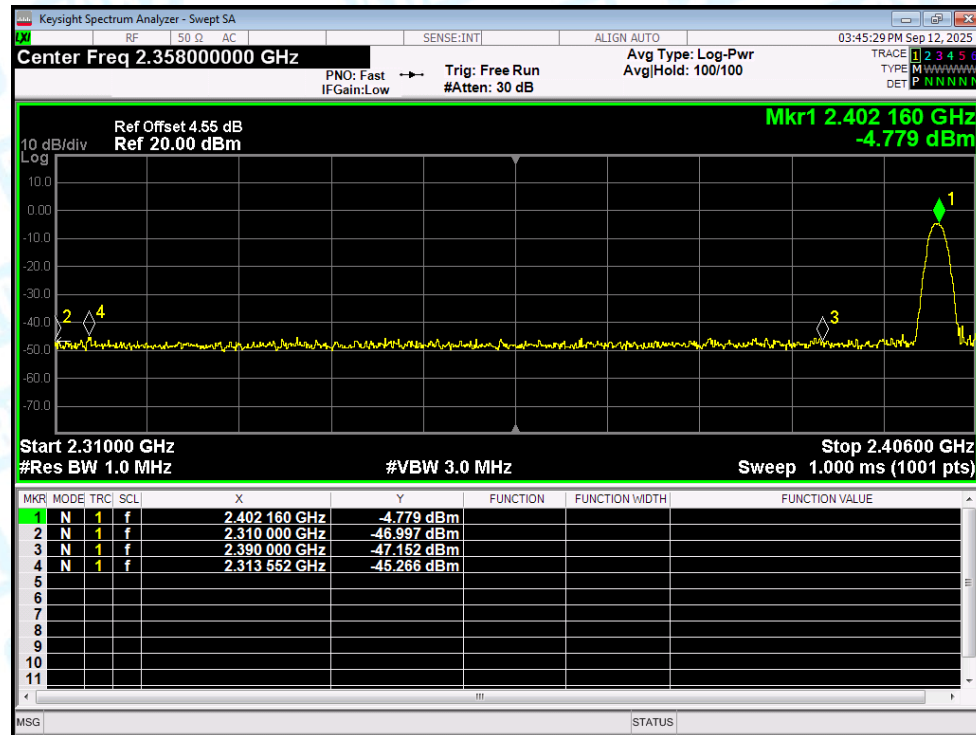
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Peak



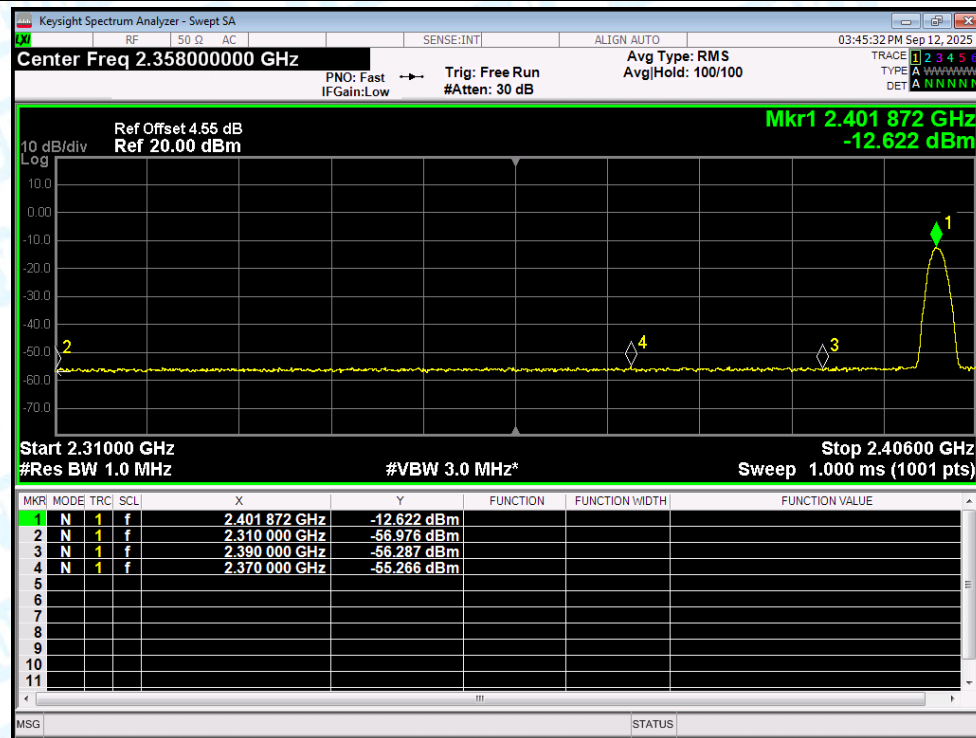
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Average



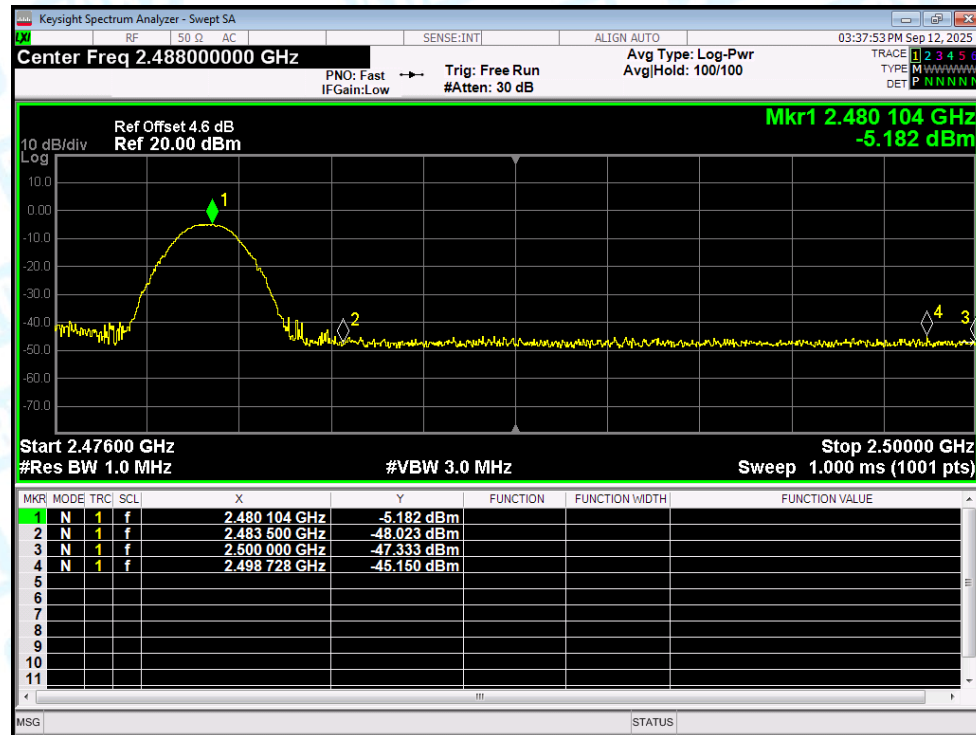
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Peak



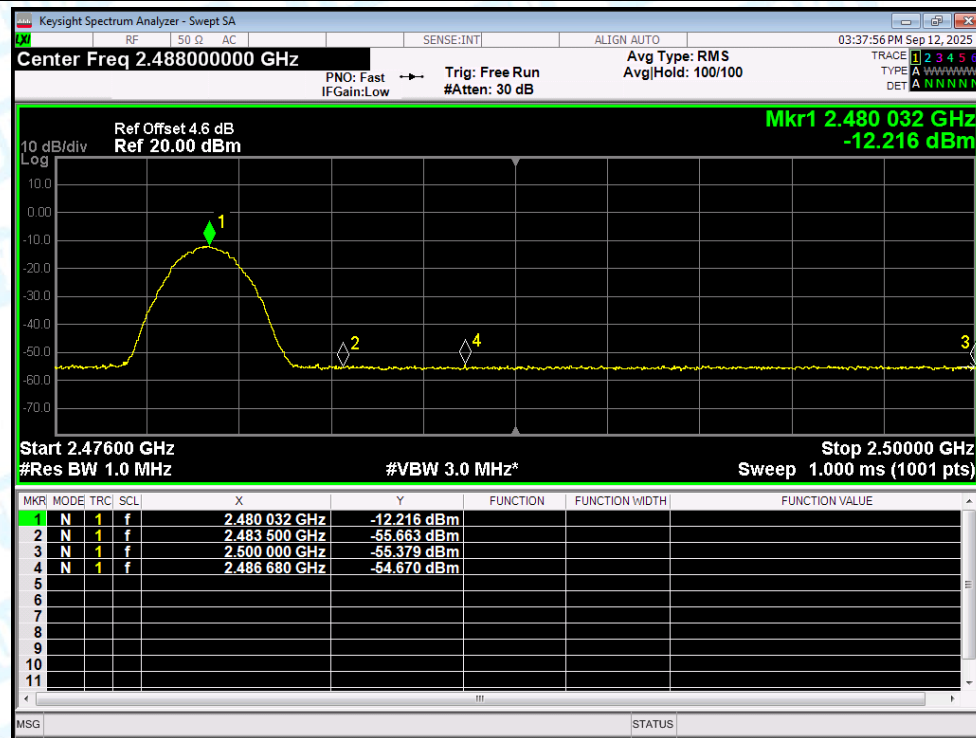
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Average



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



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

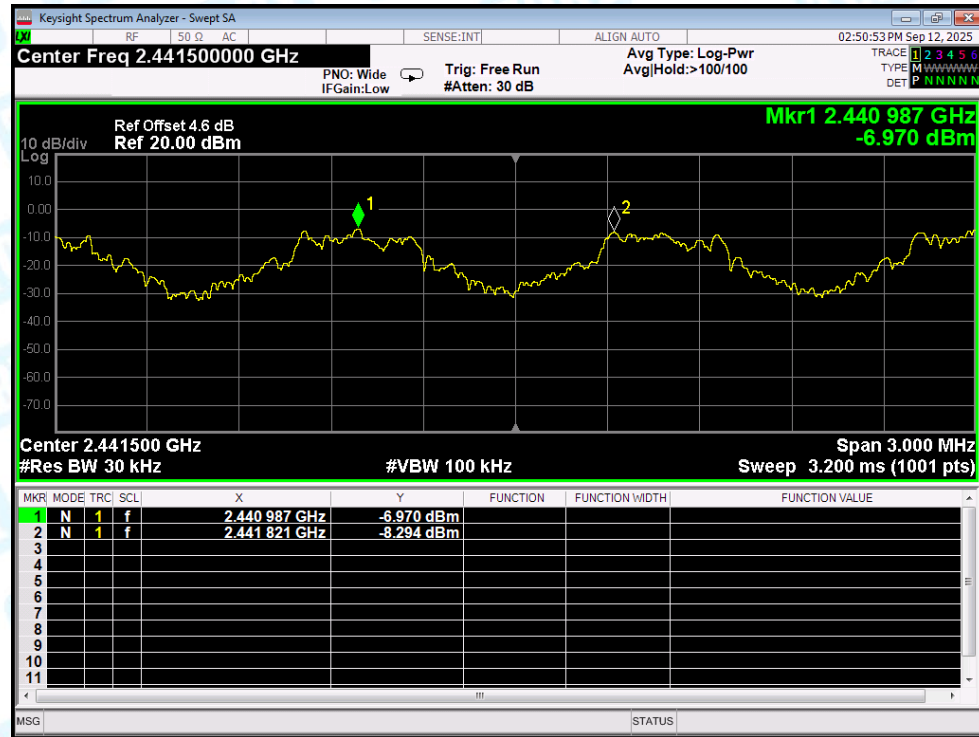


9. Carrier Frequencies Separation

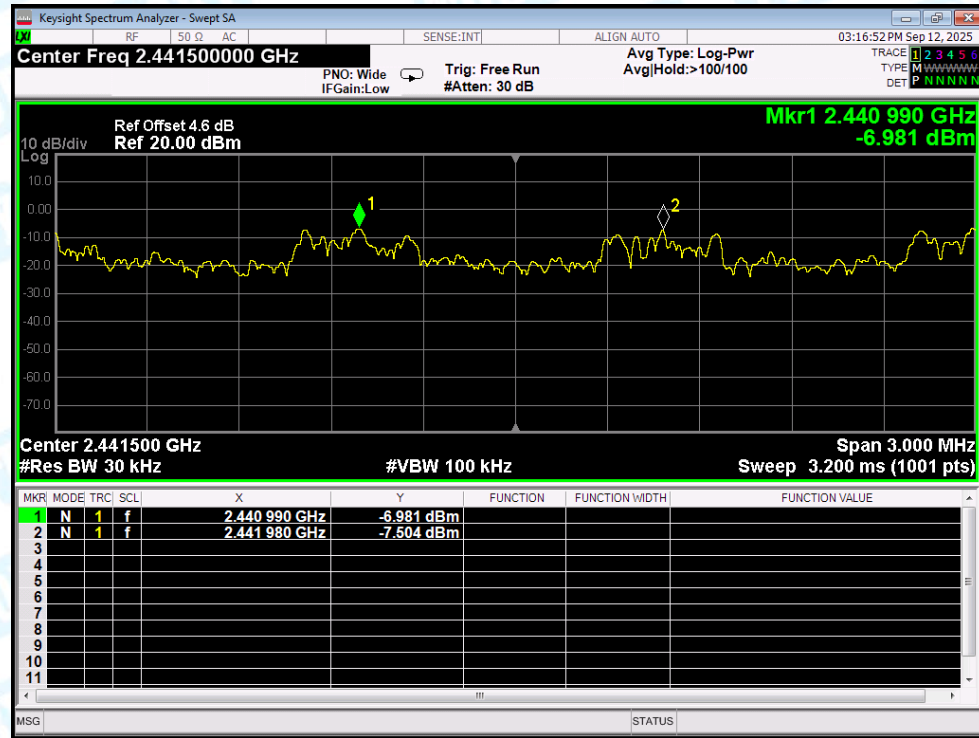
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH1	Ant1	2440.987	2441.821	0.834	0.6	Pass
NVNT	2-DH1	Ant1	2440.99	2441.98	0.99	0.78	Pass
NVNT	3-DH1	Ant1	2440.978	2441.974	0.996	0.773	Pass

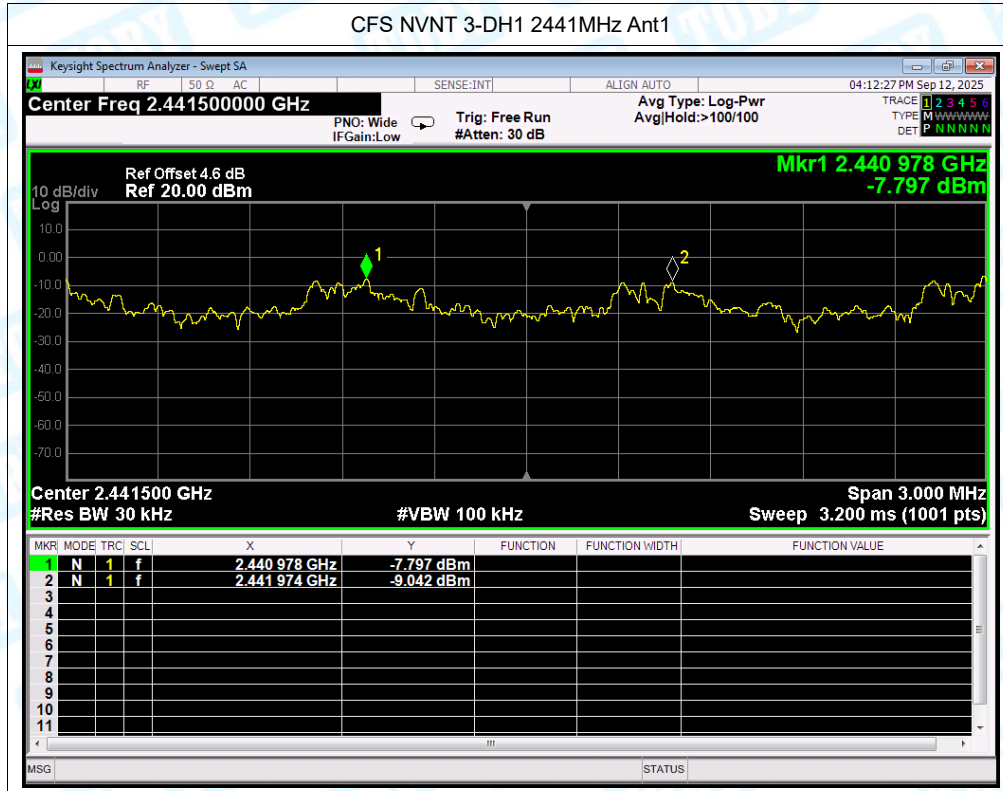
Test Graphs

CFS NVNT 1-DH1 2441MHz Ant1



CFS NVNT 2-DH1 2441MHz Ant1



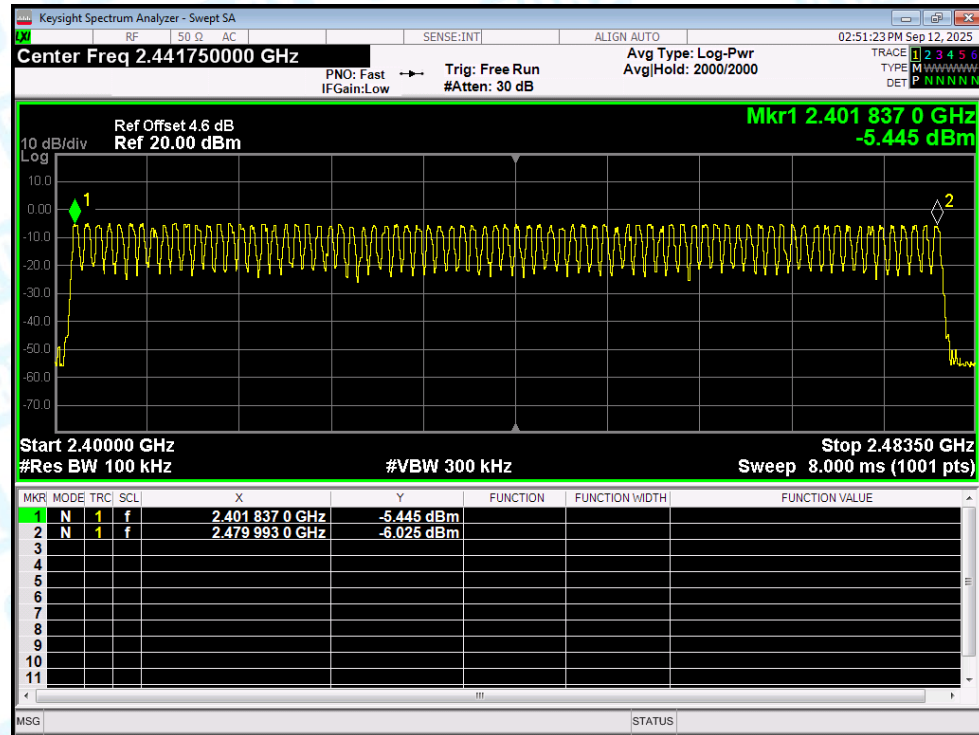


10. Number of Hopping Channel

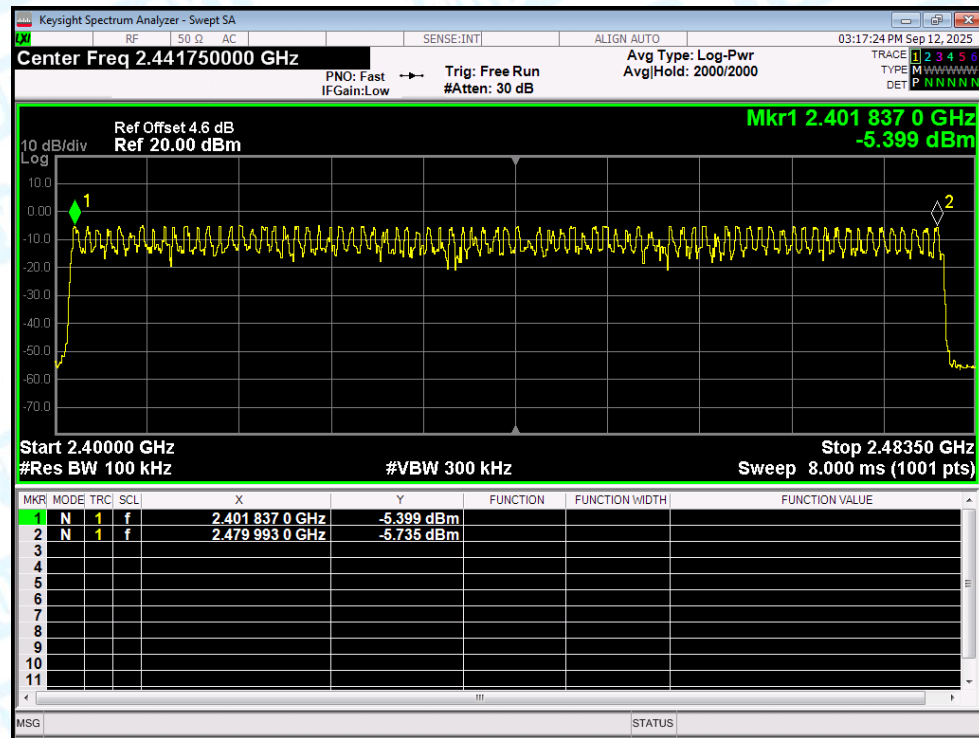
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH1	Ant1	79	15	Pass
NVNT	2-DH1	Ant1	79	15	Pass
NVNT	3-DH1	Ant1	79	15	Pass

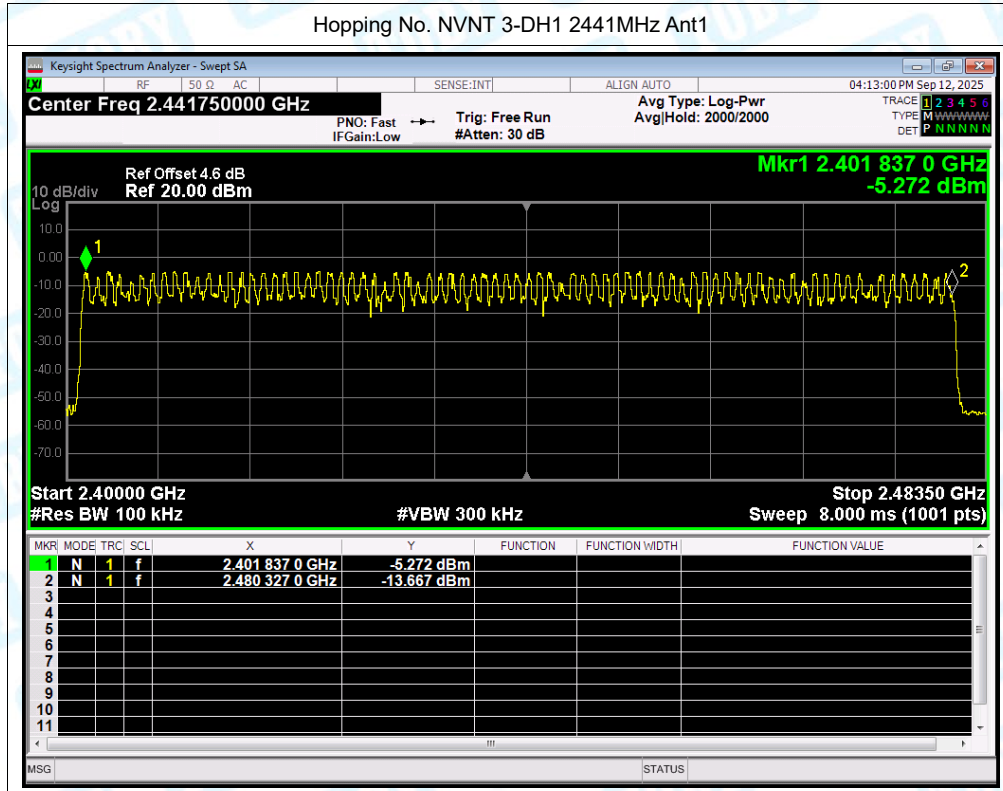
Test Graphs

Hopping No. NVNT 1-DH1 2441MHz Ant1



Hopping No. NVNT 2-DH1 2441MHz Ant1

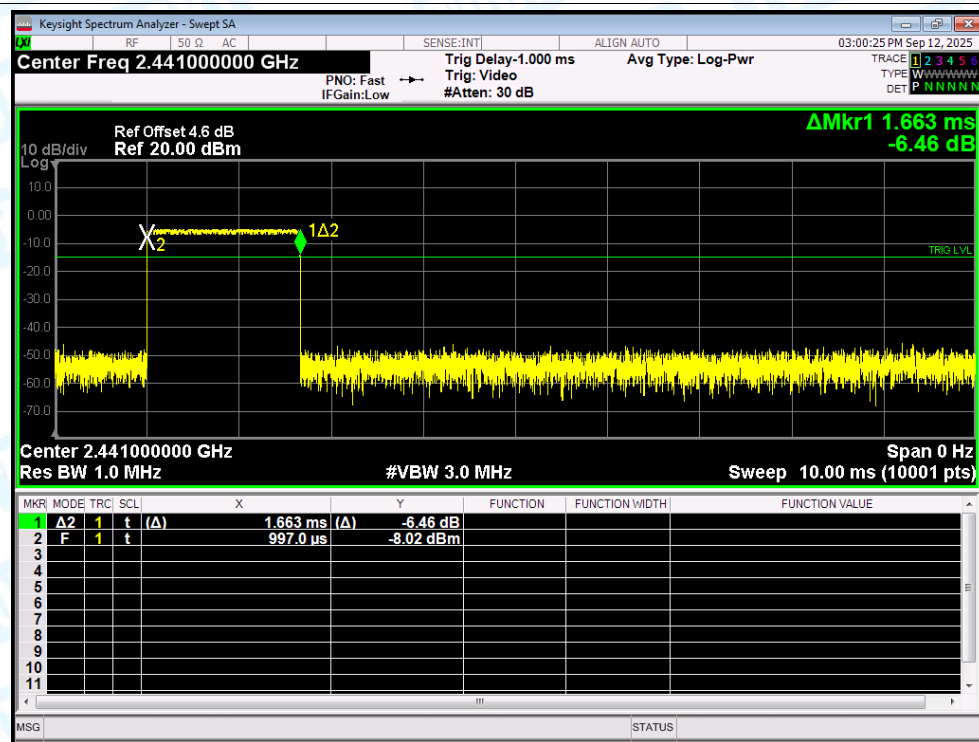




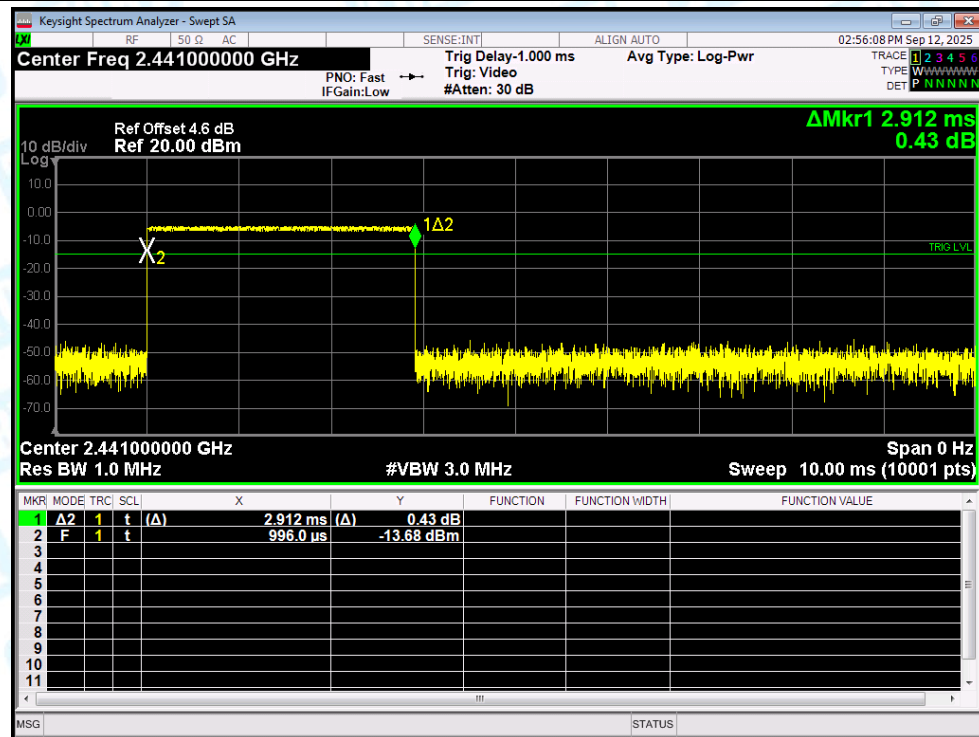
11. Dwell Time

Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	Ant1	0.407	130.24	31600	400	Pass
NVNT	1-DH3	2441	Ant1	1.663	266.08	31600	400	Pass
NVNT	1-DH5	2441	Ant1	2.912	310.613	31600	400	Pass
NVNT	2-DH1	2441	Ant1	0.417	133.44	31600	400	Pass
NVNT	2-DH3	2441	Ant1	1.669	267.04	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	1.668	266.88	31600	400	Pass
NVNT	3-DH5	2441	Ant1	2.918	311.253	31600	400	Pass

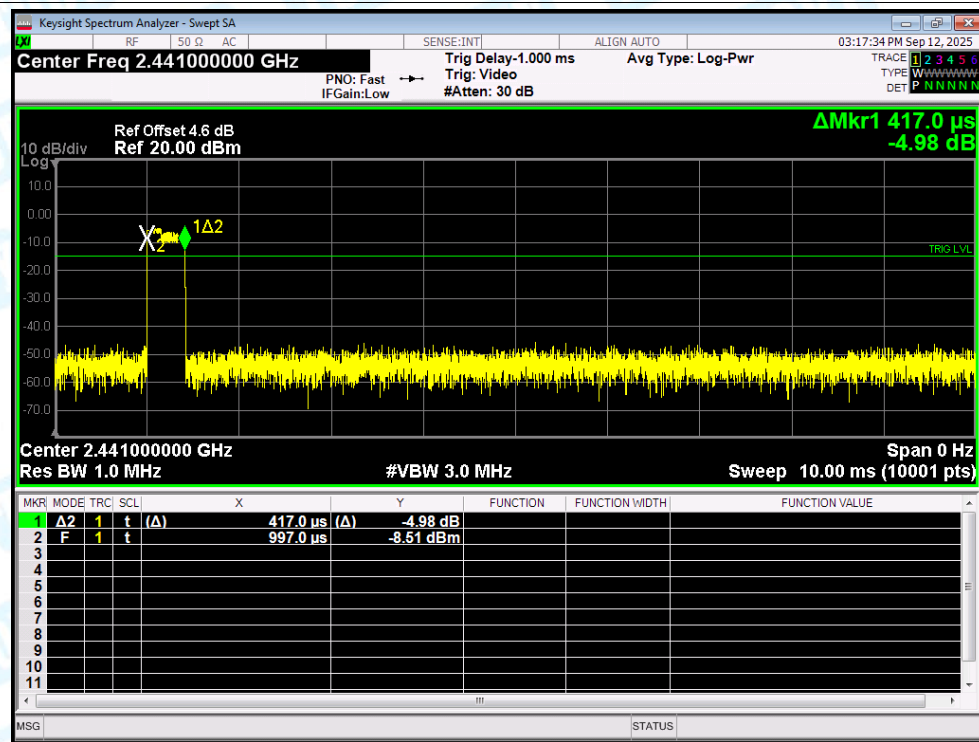
Dwell NVNT 1-DH1 2441MHz Ant1



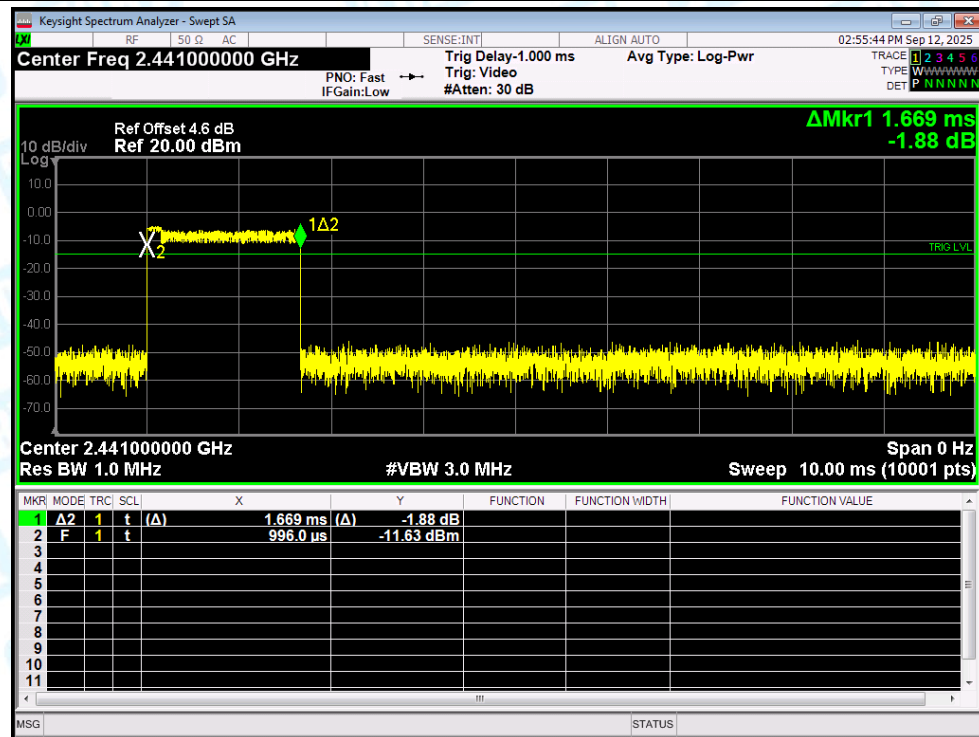
Dwell NVNT 1-DH5 2441MHz Ant1



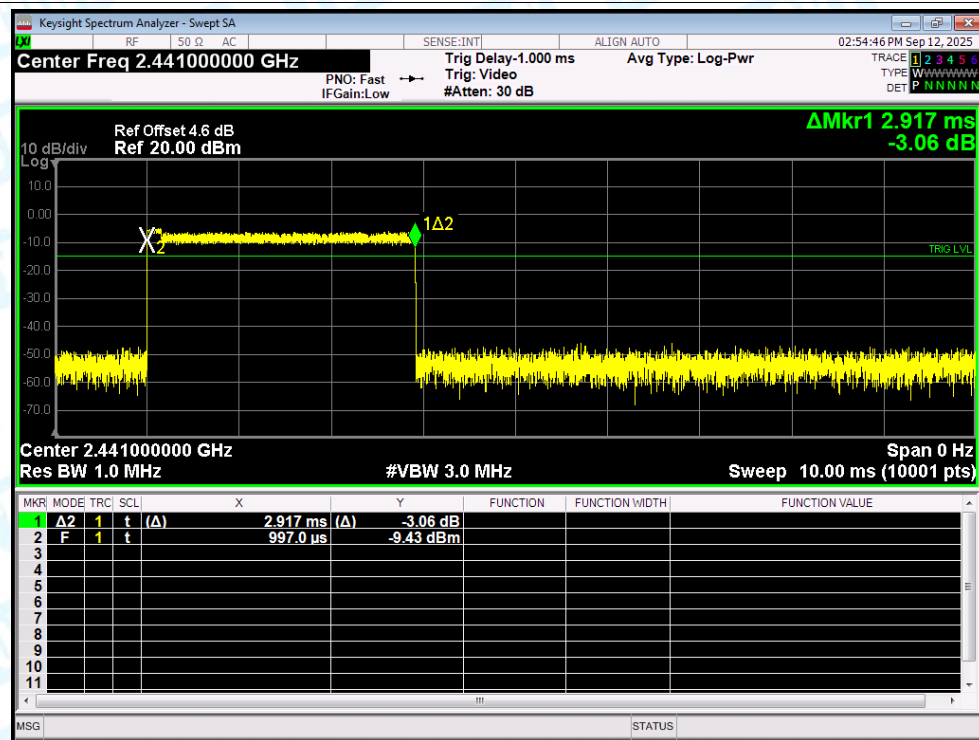
Dwell NVNT 2-DH1 2441MHz Ant1



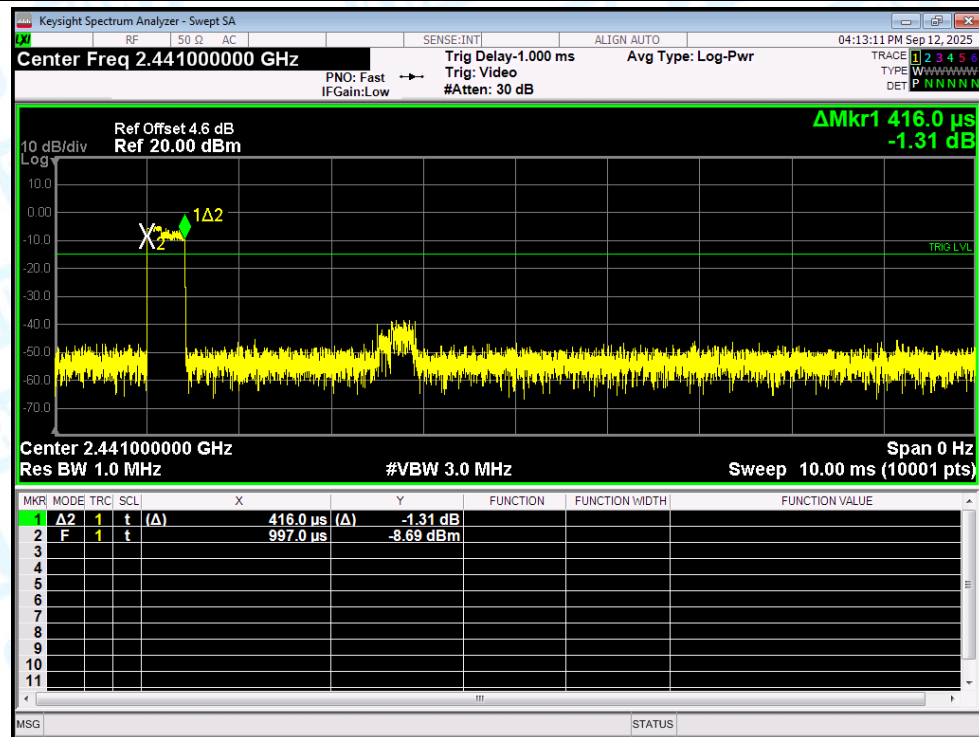
Dwell NVNT 2-DH3 2441MHz Ant1



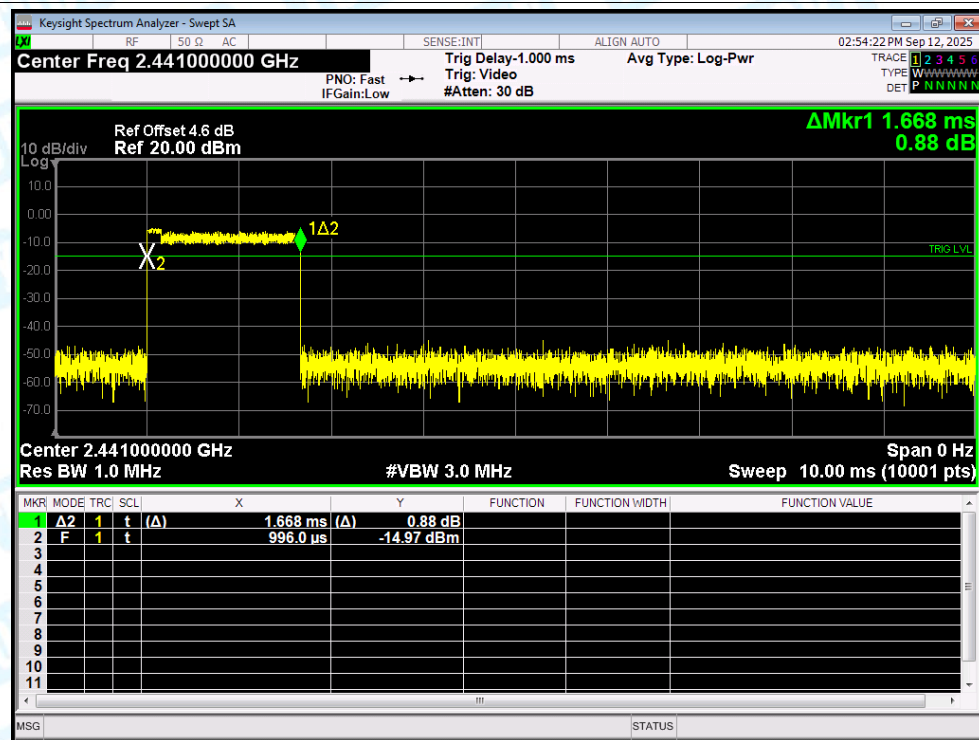
Dwell NVNT 2-DH5 2441MHz Ant1

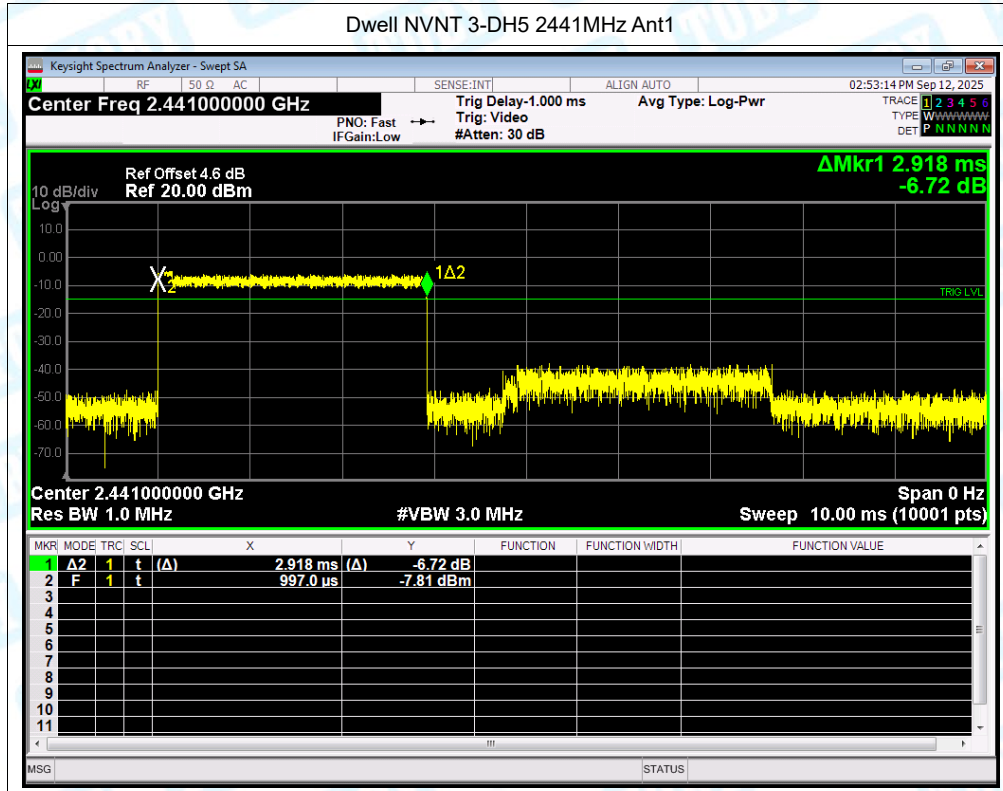


Dwell NVNT 3-DH1 2441MHz Ant1



Dwell NVNT 3-DH3 2441MHz Ant1





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