

RF Test Data for Bluetooth (Conducted Measurements)

General Description of EUT	
Product Name:	Smart Watch
Test Model:	HD8ultra
Sample ID:	HC-C-202509-0164-01-01
Environmental Conditions	
Temperature:	25.6℃
Relative Humidity:	52.6%
Test Voltage:	DC 3.8V
Test Engineer:	Lily zhang
Note: For a more detailed features description, please refer to the report TBR-C-202509-0164-15 The report only show the worst case data.	

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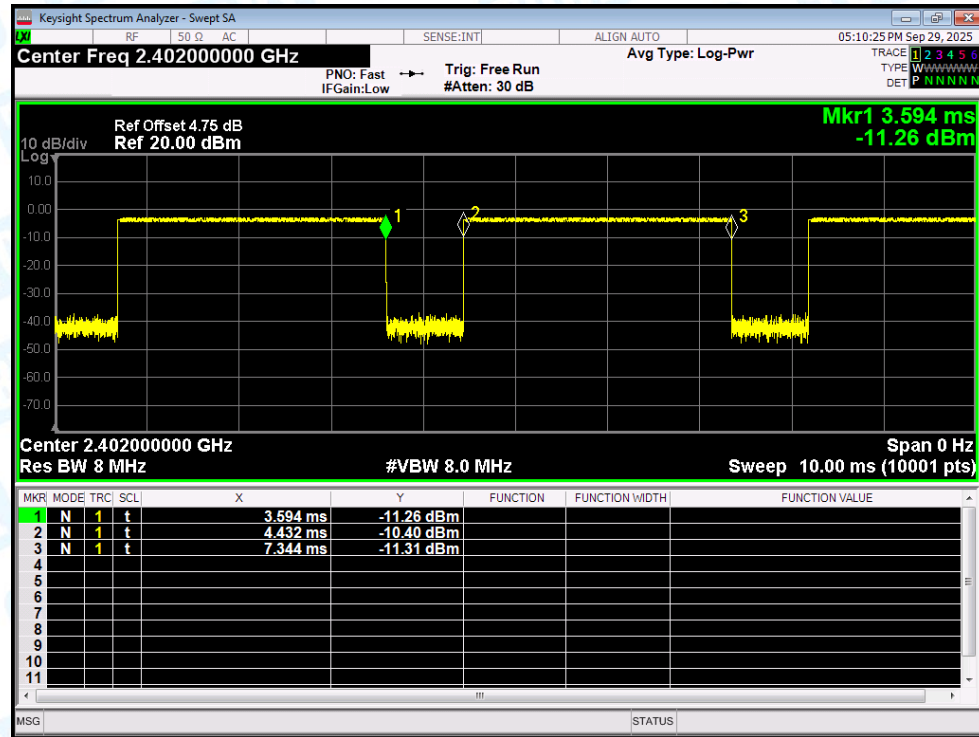
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1. Duty Cycle

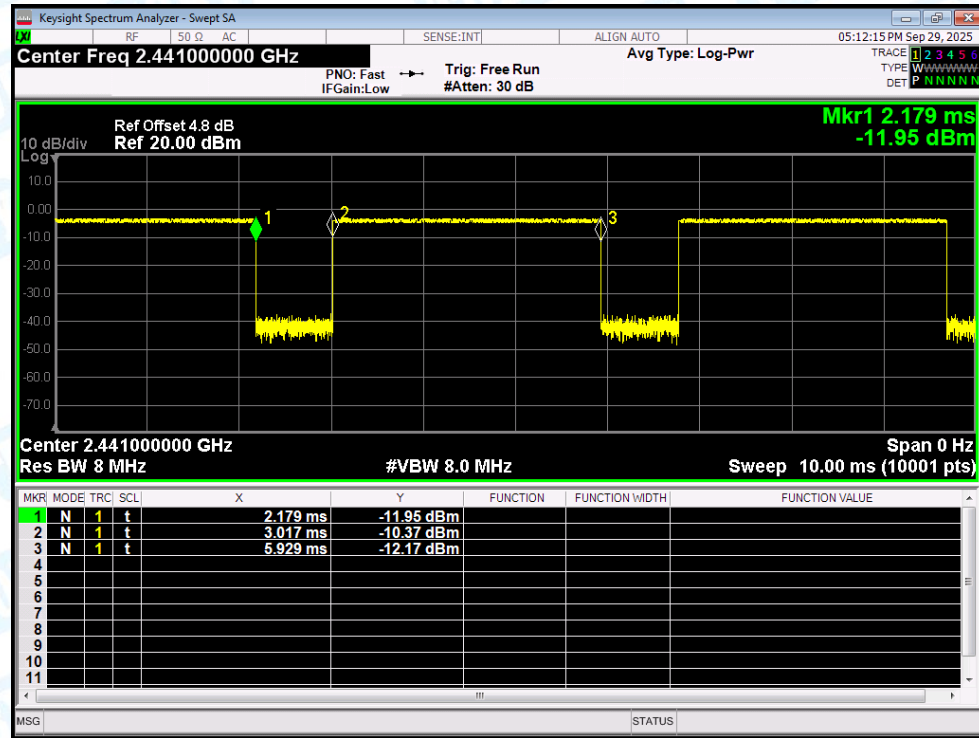
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH5	2402	Ant1	77.65	1.1	0.34
NVNT	1-DH5	2441	Ant1	77.65	1.1	0.34
NVNT	1-DH5	2480	Ant1	77.65	1.1	0.34
NVNT	2-DH5	2402	Ant1	77.81	1.09	0.34
NVNT	2-DH5	2441	Ant1	77.81	1.09	0.34
NVNT	2-DH5	2480	Ant1	77.81	1.09	0.34
NVNT	3-DH5	2402	Ant1	77.84	1.09	0.34
NVNT	3-DH5	2441	Ant1	77.84	1.09	0.34
NVNT	3-DH5	2480	Ant1	77.84	1.09	0.34

Test Graphs

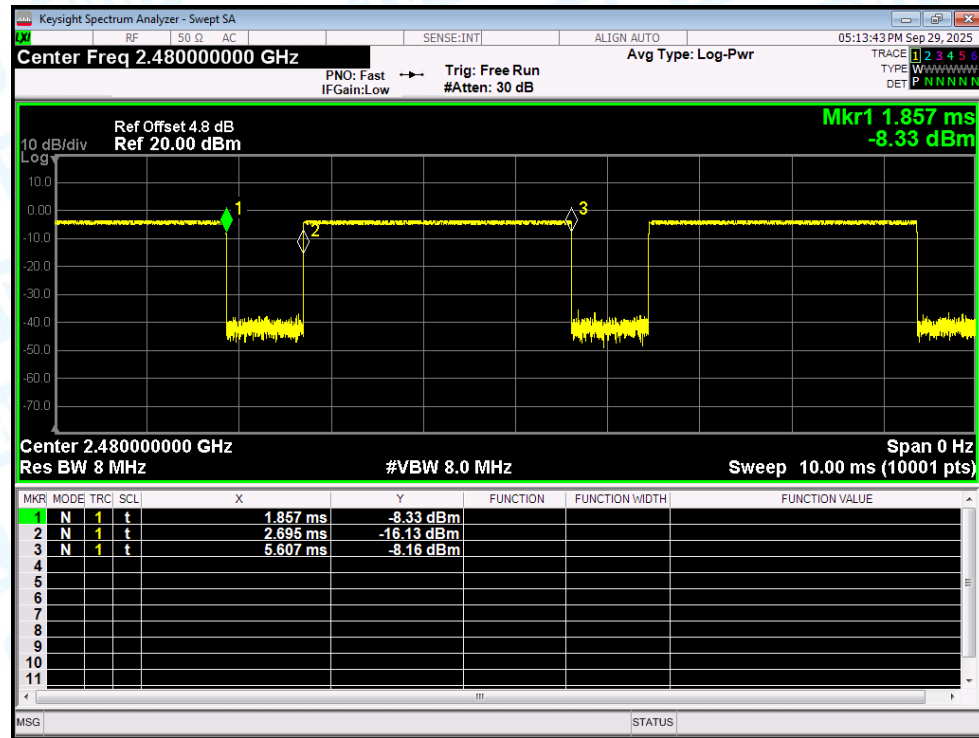
Duty Cycle NVNT 1-DH5 2402MHz Ant1



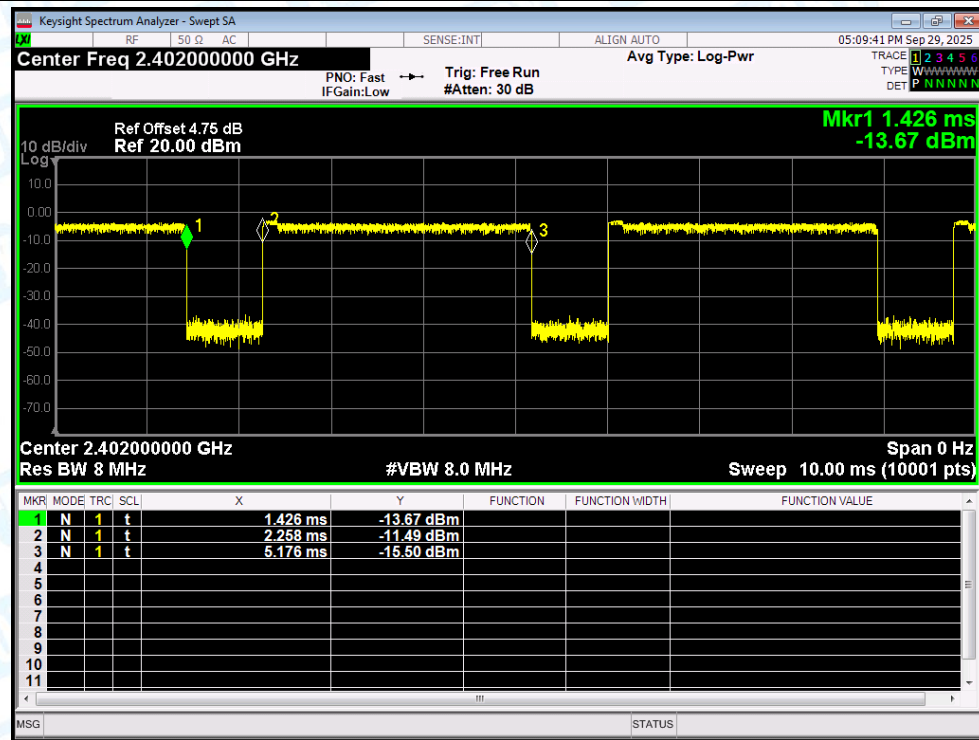
Duty Cycle NVNT 1-DH5 2441MHz Ant1



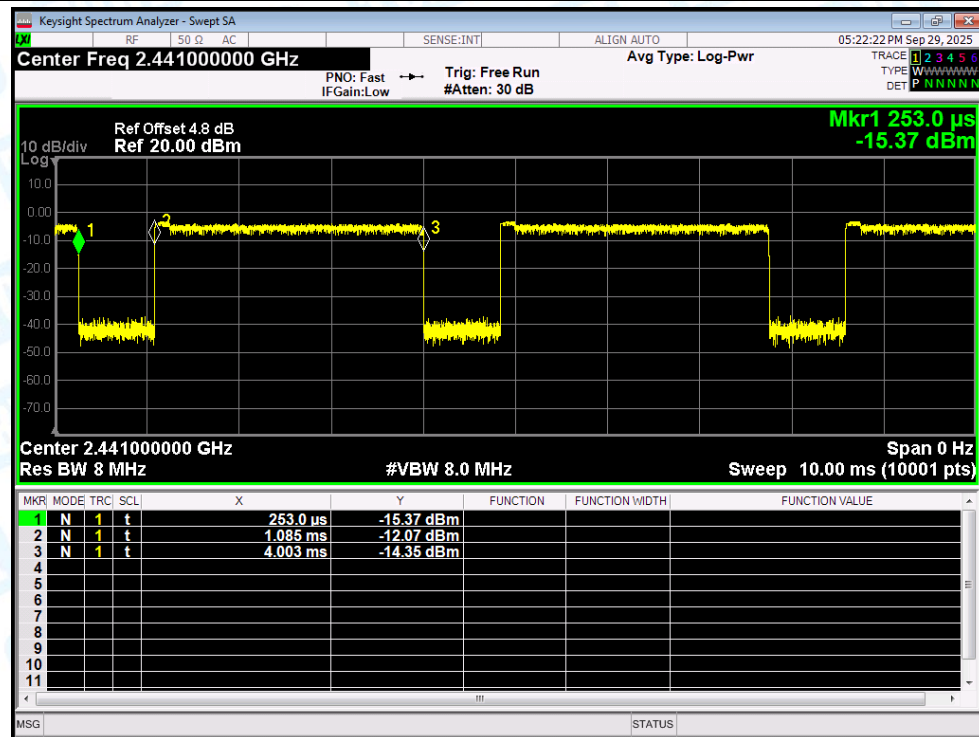
Duty Cycle NVNT 1-DH5 2480MHz Ant1



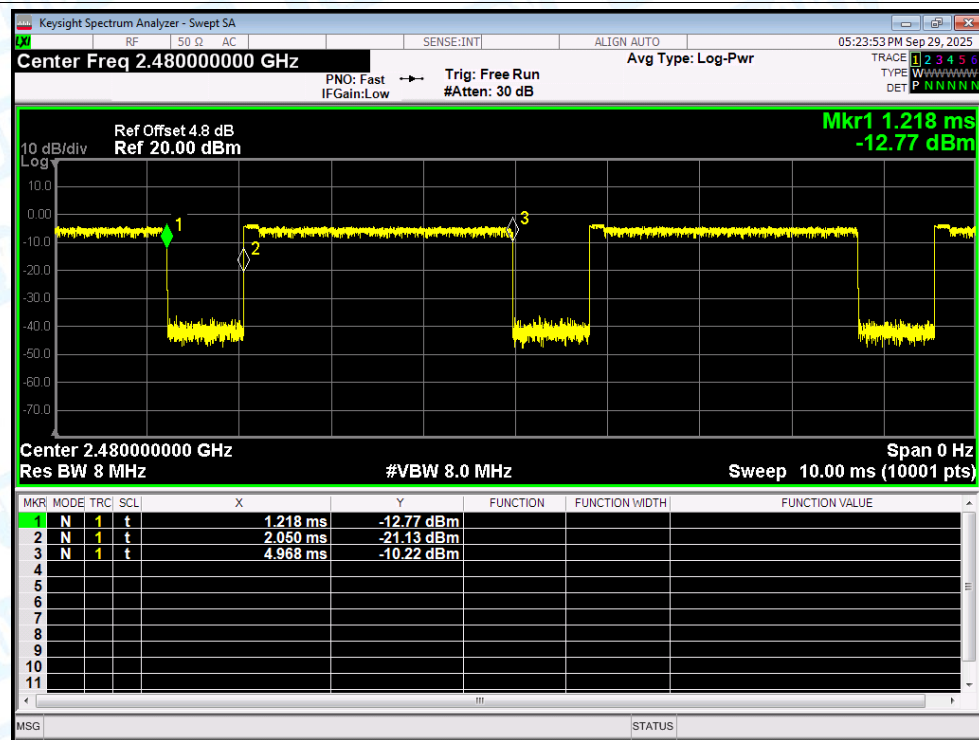
Duty Cycle NVNT 2-DH5 2402MHz Ant1



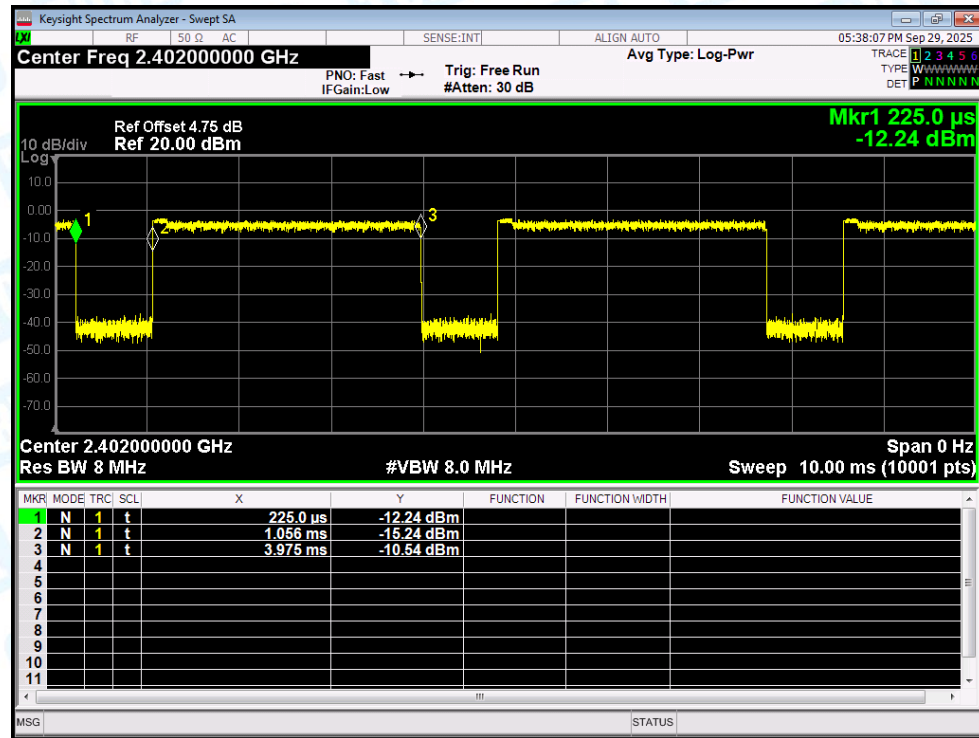
Duty Cycle NVNT 2-DH5 2441MHz Ant1



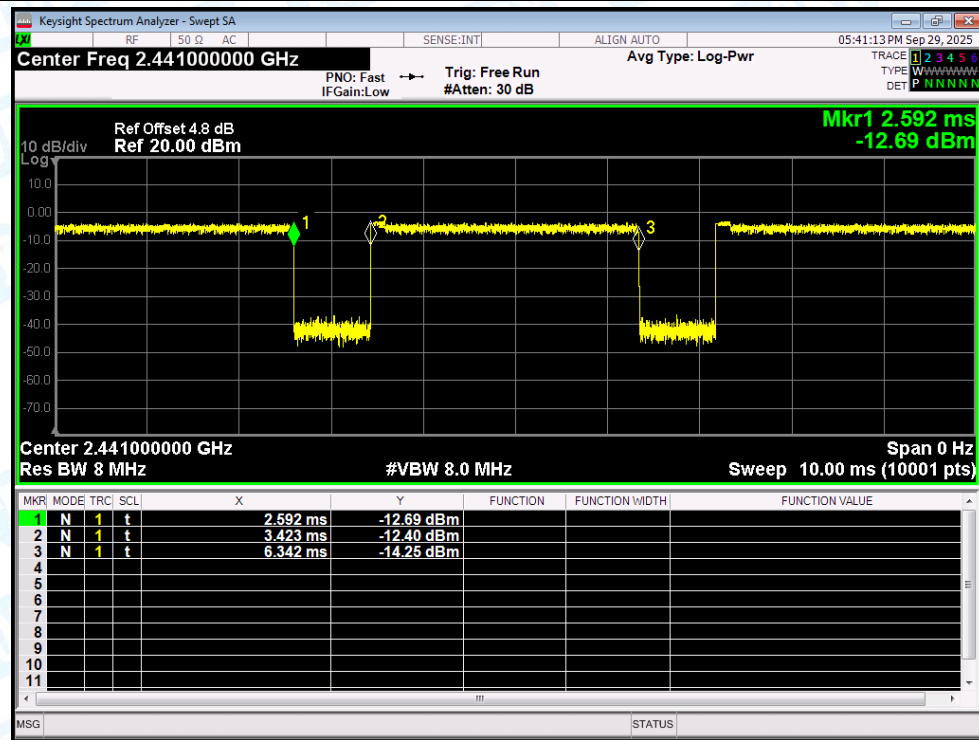
Duty Cycle NVNT 2-DH5 2480MHz Ant1

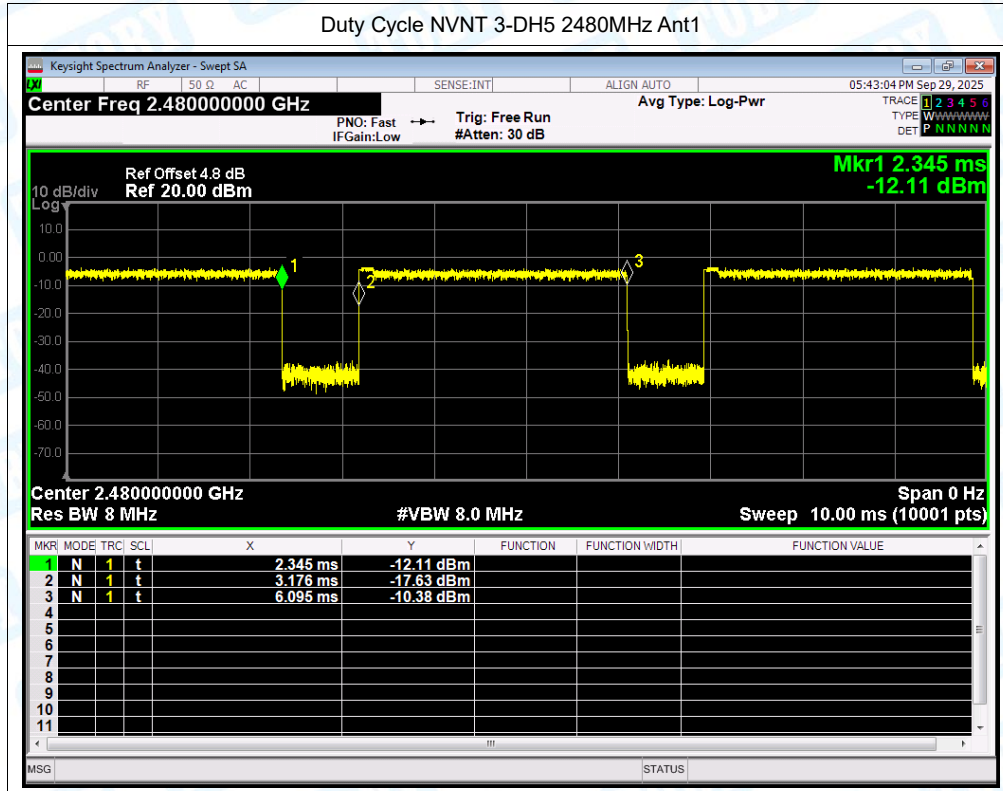


Duty Cycle NVNT 3-DH5 2402MHz Ant1



Duty Cycle NVNT 3-DH5 2441MHz Ant1



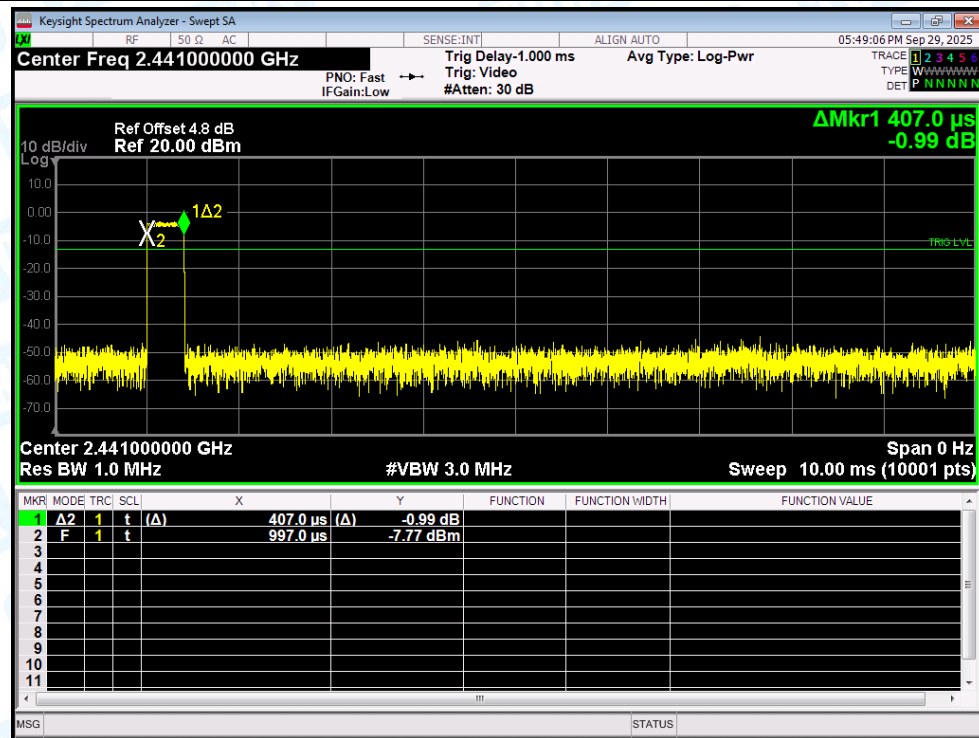


2. Dwell Time

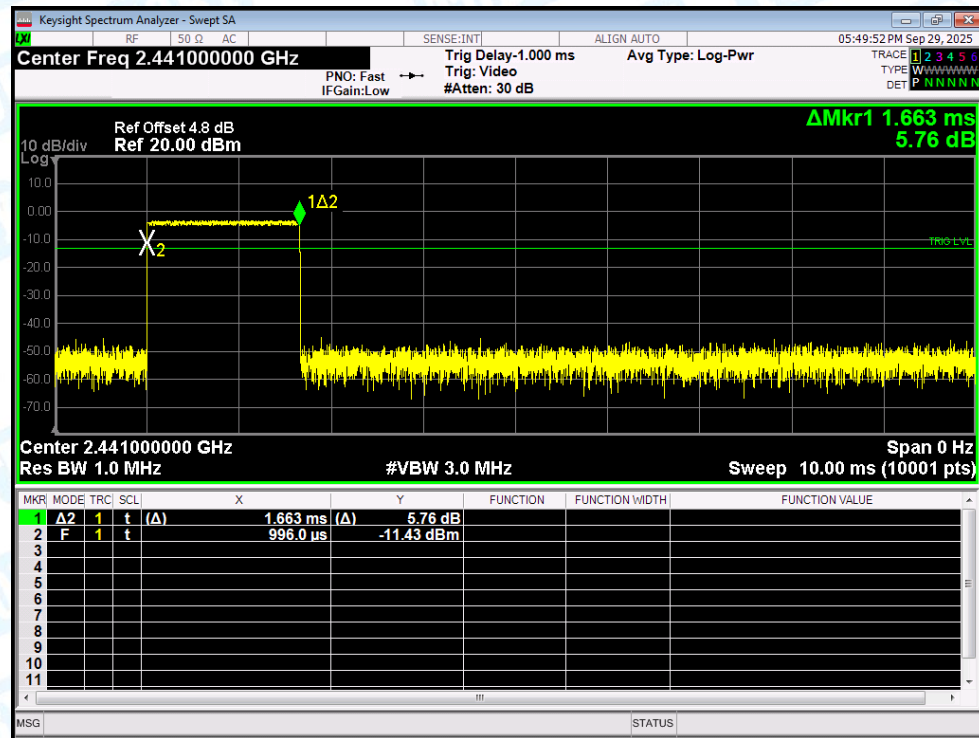
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	Ant1	0.407	130.24	31600	400	Pass
NVNT	1-DH3	2441	Ant1	1.663	266.08	31600	400	Pass
NVNT	1-DH5	2441	Ant1	2.912	310.613	31600	400	Pass
NVNT	2-DH1	2441	Ant1	0.417	133.44	31600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

Test Graphs

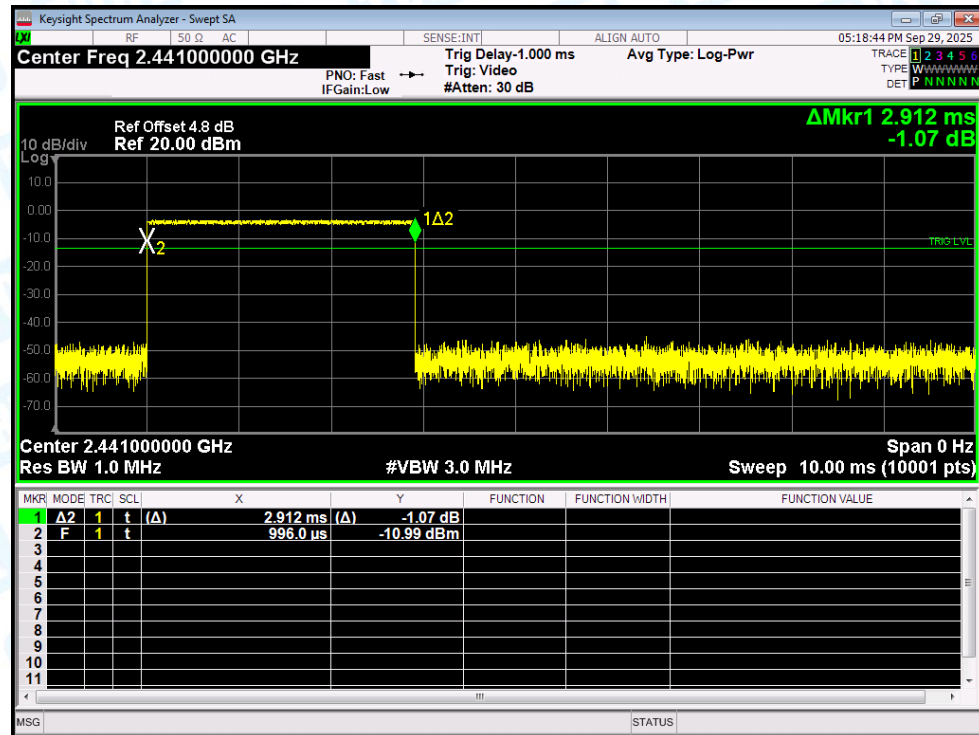
Dwell NVNT 1-DH1 2441MHz Ant1



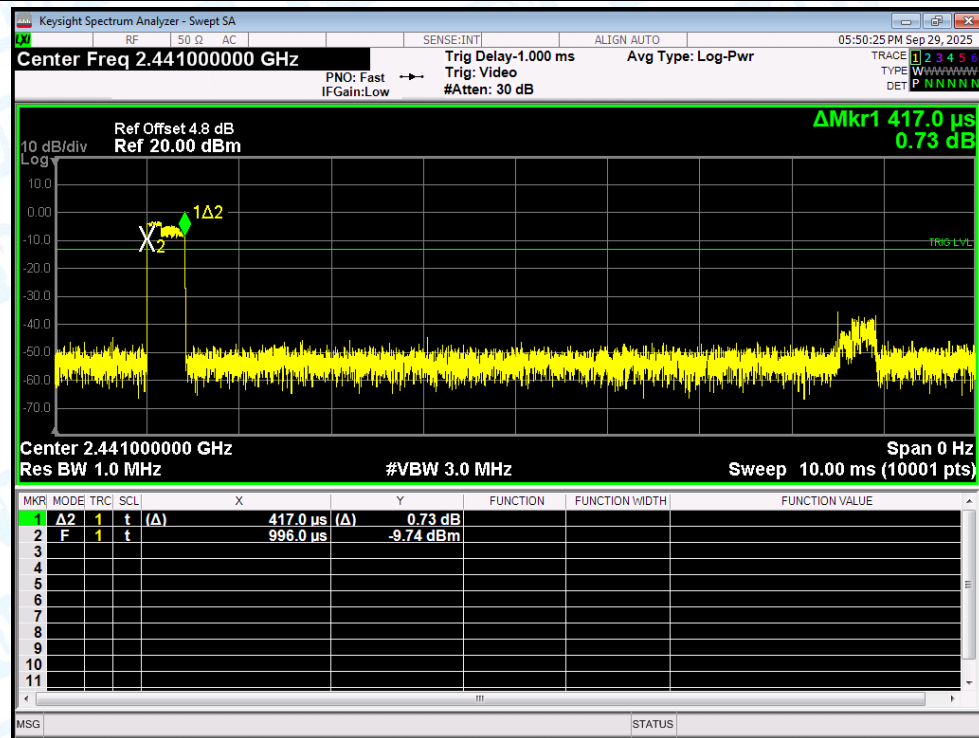
Dwell NVNT 1-DH3 2441MHz Ant1



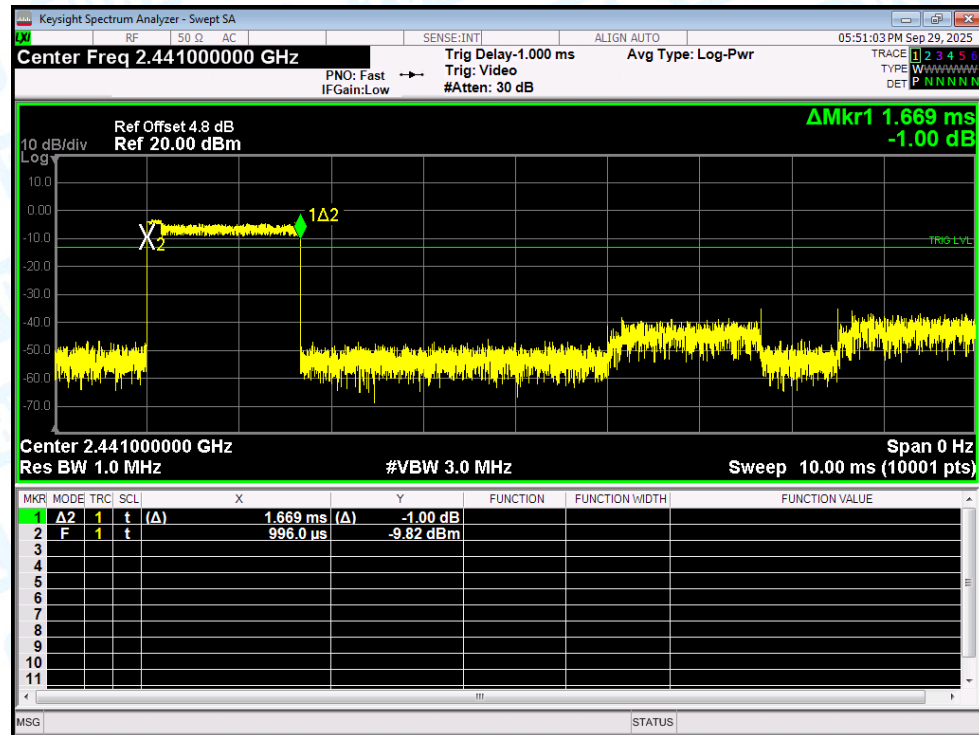
Dwell NVNT 1-DH5 2441MHz Ant1



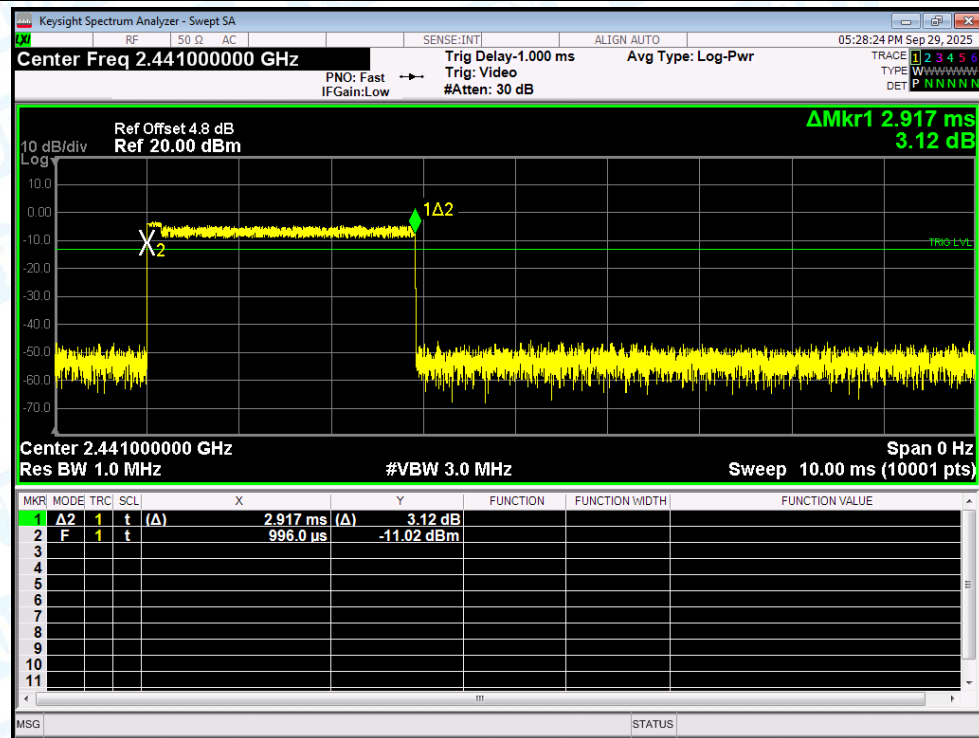
Dwell NVNT 2-DH1 2441MHz Ant1



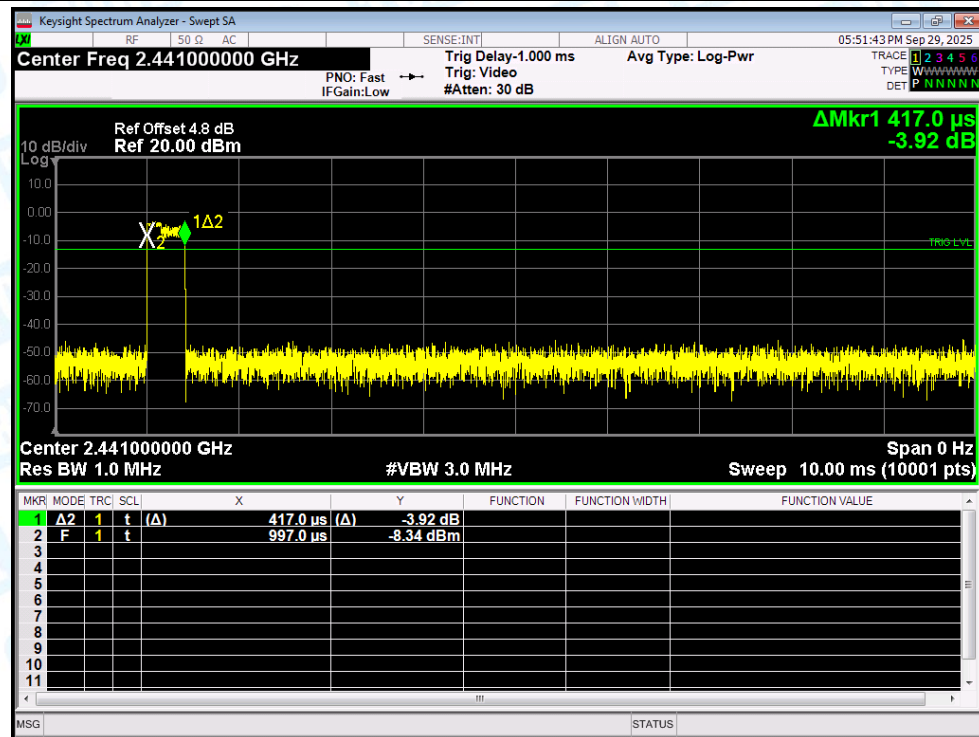
Dwell NVNT 2-DH3 2441MHz Ant1



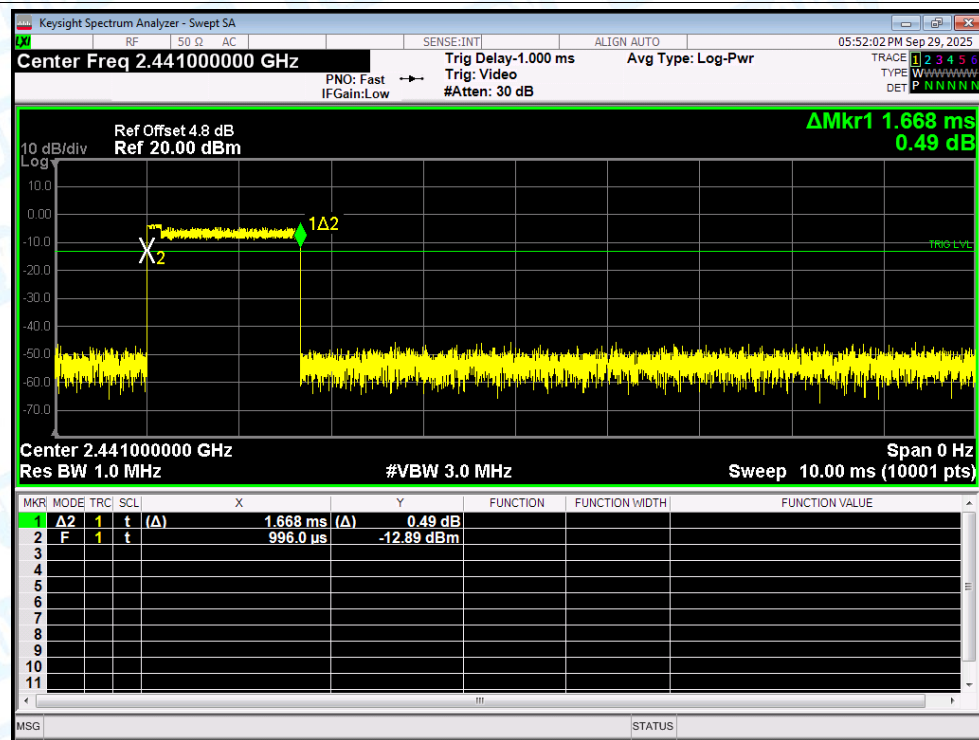
Dwell NVNT 2-DH5 2441MHz Ant1

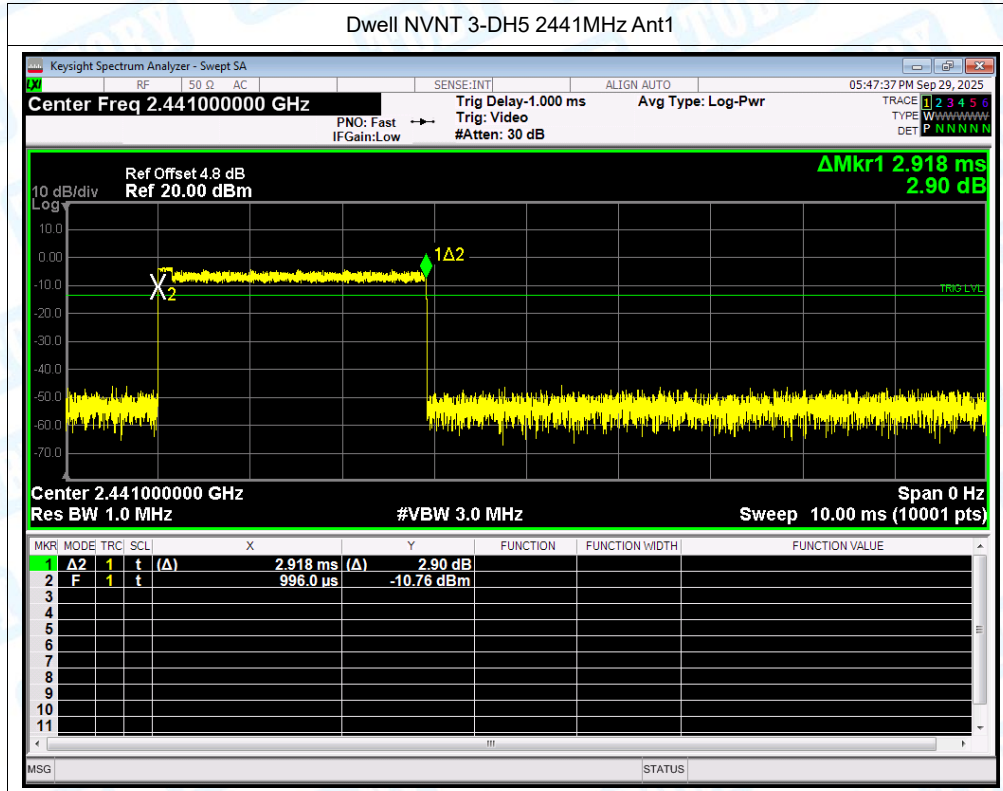


Dwell NVNT 3-DH1 2441MHz Ant1



Dwell NVNT 3-DH3 2441MHz Ant1



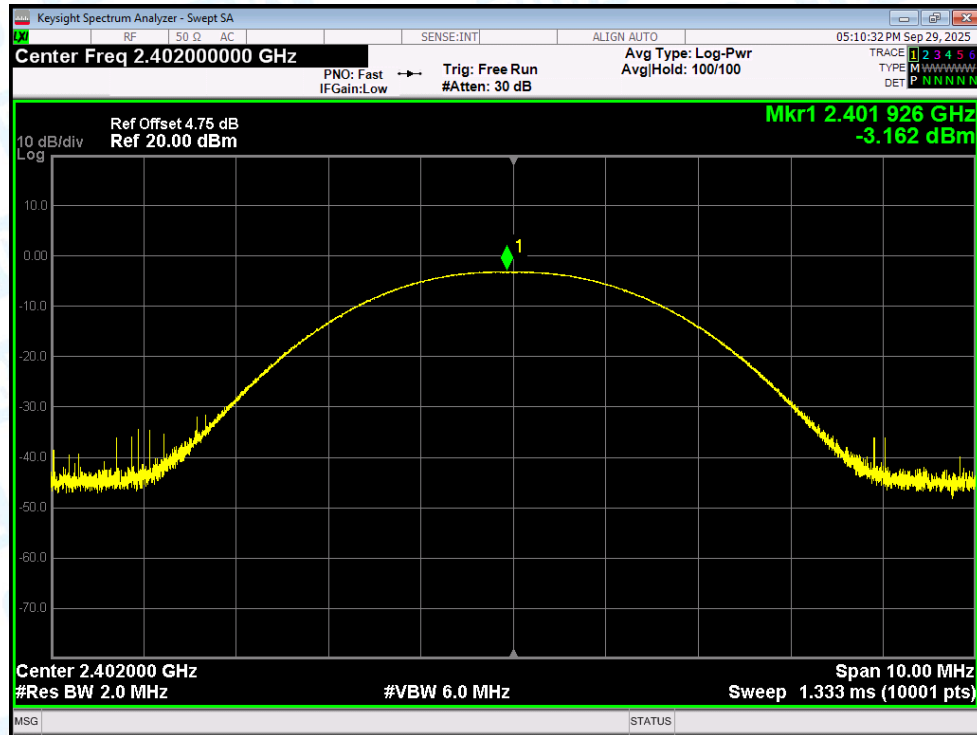


3. Maximum Conducted Output Power

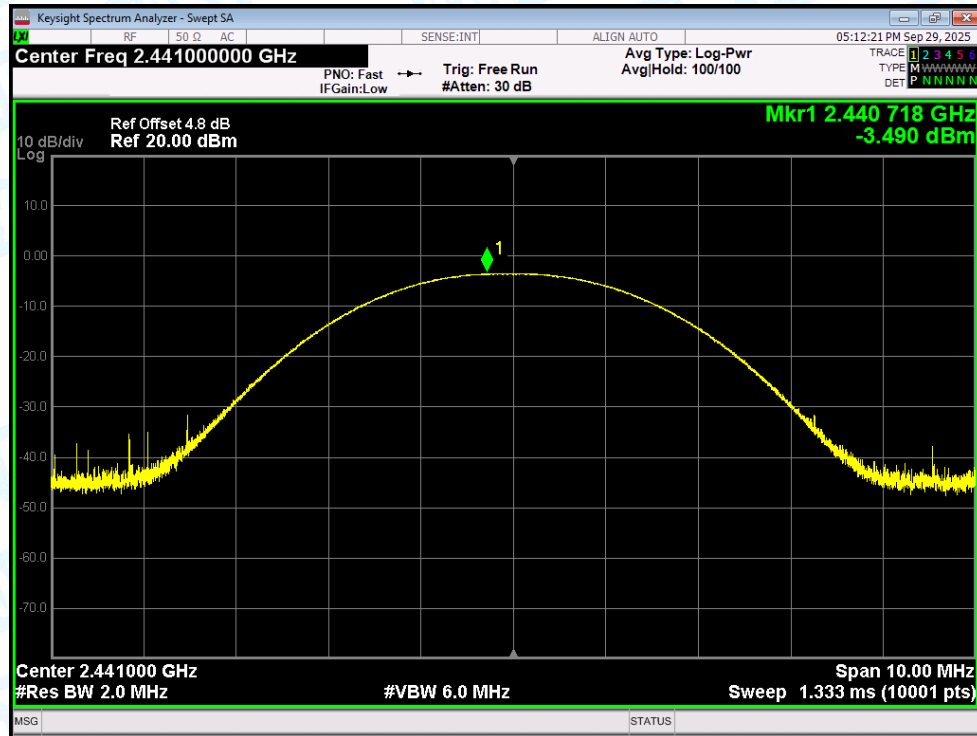
Condition	Mode	Frequency (MHz)	Antenna	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH5	2402	Ant1	-3.162	21	Pass
NVNT	1-DH5	2441	Ant1	-3.49	21	Pass
NVNT	1-DH5	2480	Ant1	-3.763	21	Pass
NVNT	2-DH5	2402	Ant1	-3.138	21	Pass
NVNT	2-DH5	2441	Ant1	-3.482	21	Pass
NVNT	2-DH5	2480	Ant1	-3.815	21	Pass
NVNT	3-DH5	2402	Ant1	-3.16	21	Pass
NVNT	3-DH5	2441	Ant1	-3.555	21	Pass
NVNT	3-DH5	2480	Ant1	-3.746	21	Pass

Test Graphs

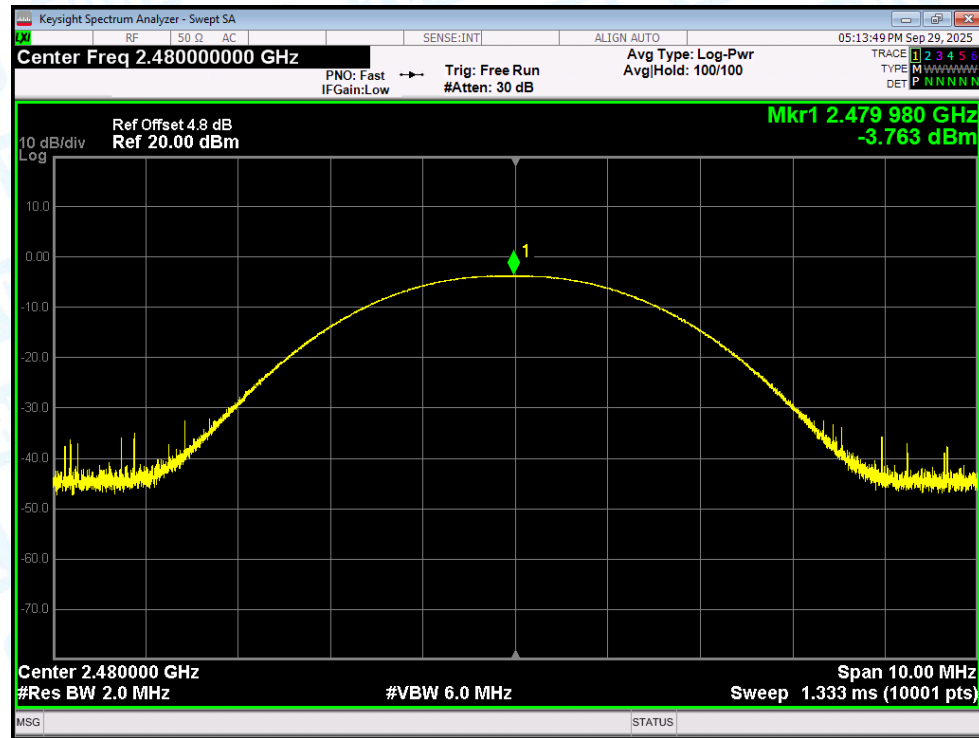
Power NVNT 1-DH5 2402MHz Ant1



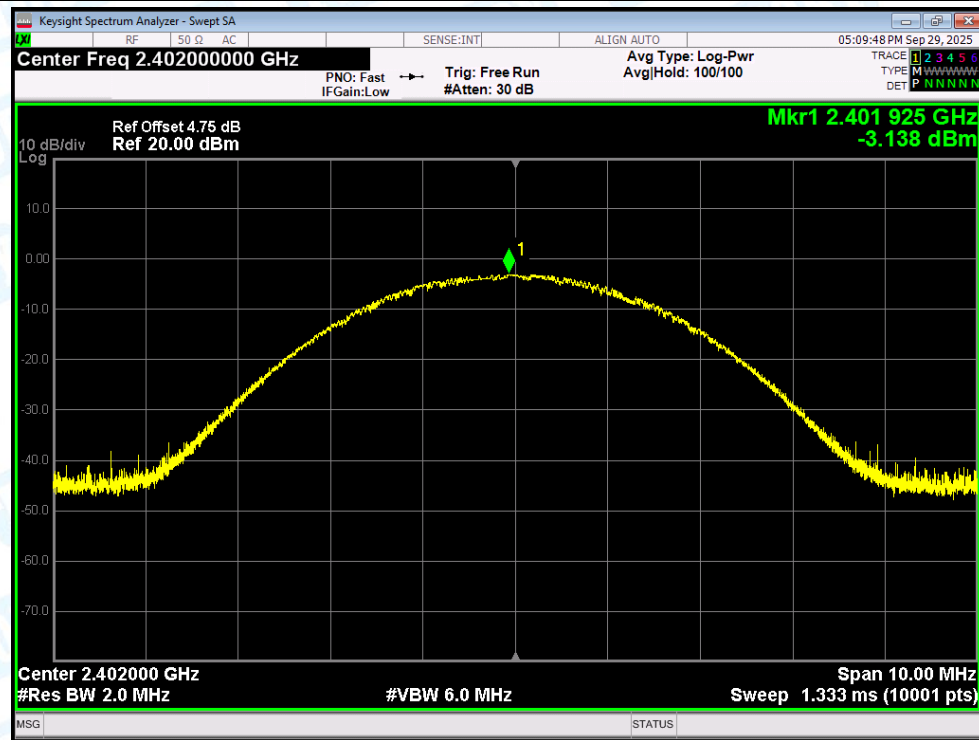
Power NVNT 1-DH5 2441MHz Ant1



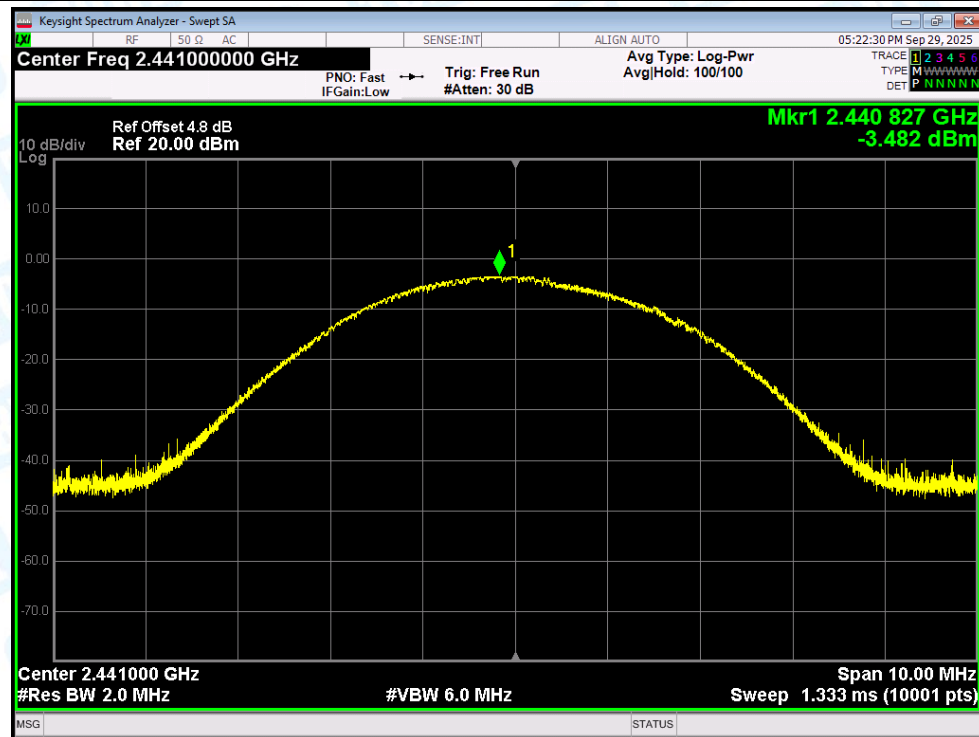
Power NVNT 1-DH5 2480MHz Ant1



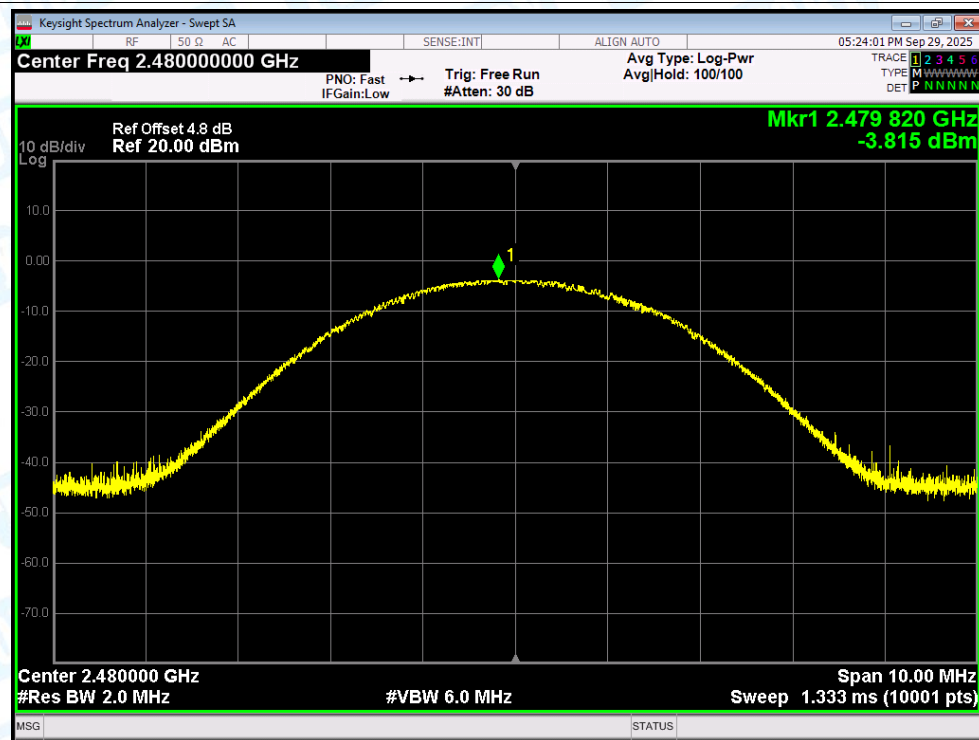
Power NVNT 2-DH5 2402MHz Ant1



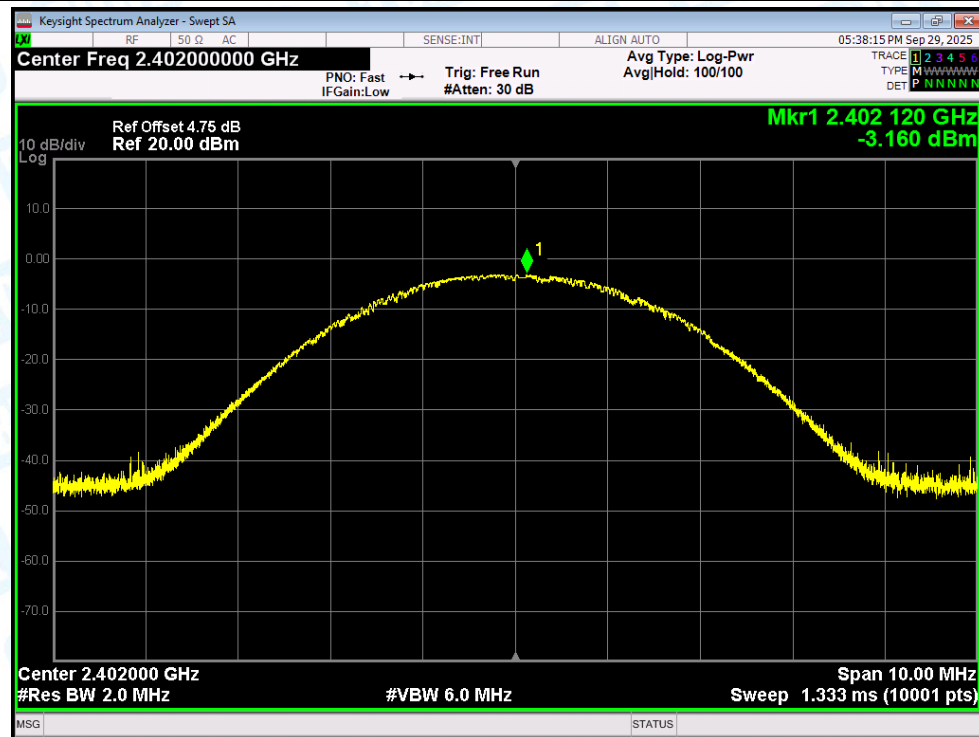
Power NVNT 2-DH5 2441MHz Ant1



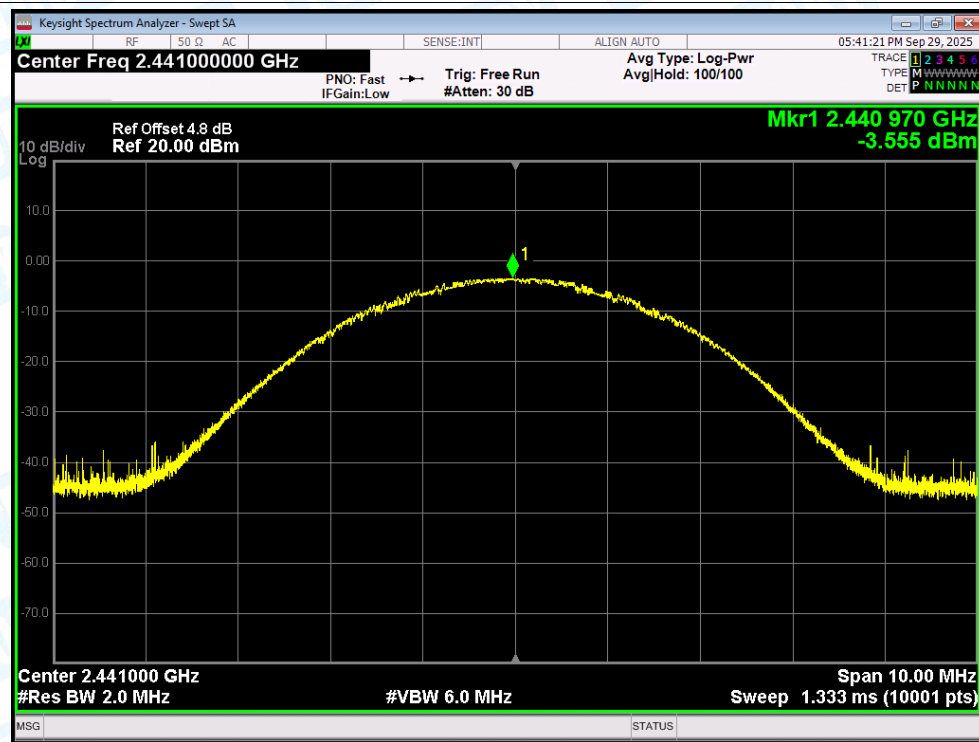
Power NVNT 2-DH5 2480MHz Ant1

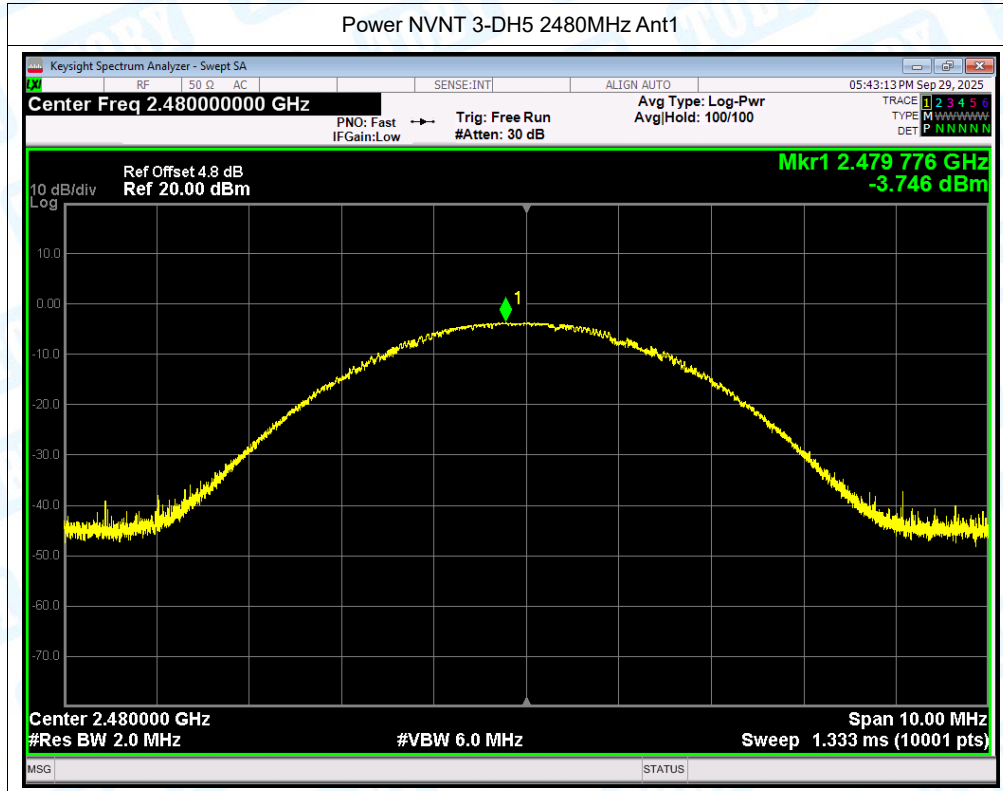


Power NVNT 3-DH5 2402MHz Ant1



Power NVNT 3-DH5 2441MHz Ant1



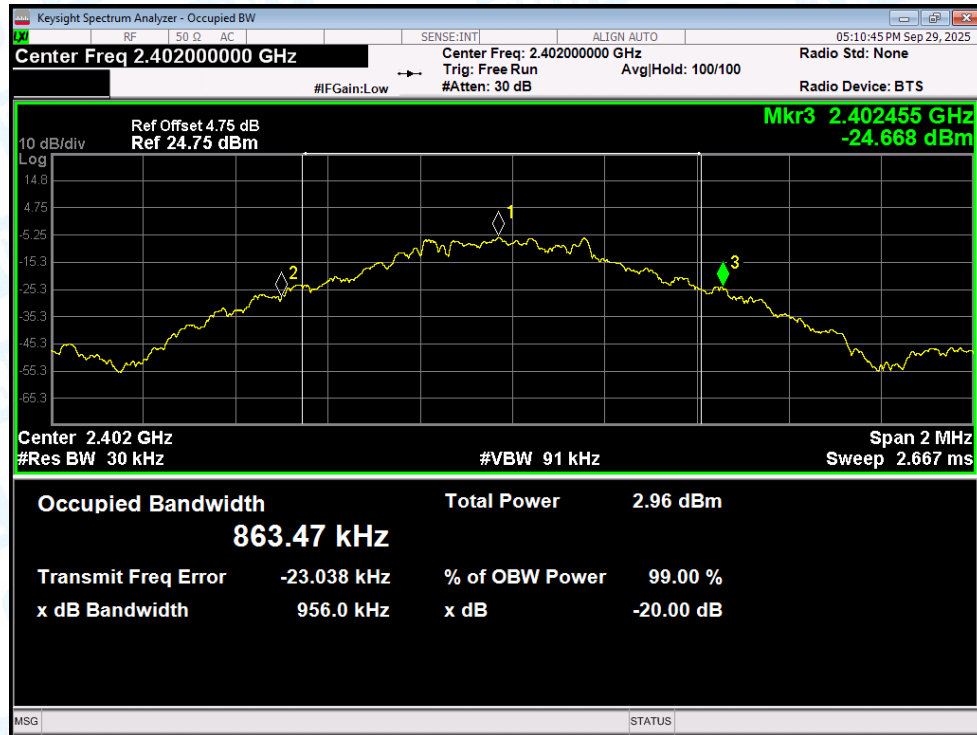


4. -20dB Bandwidth

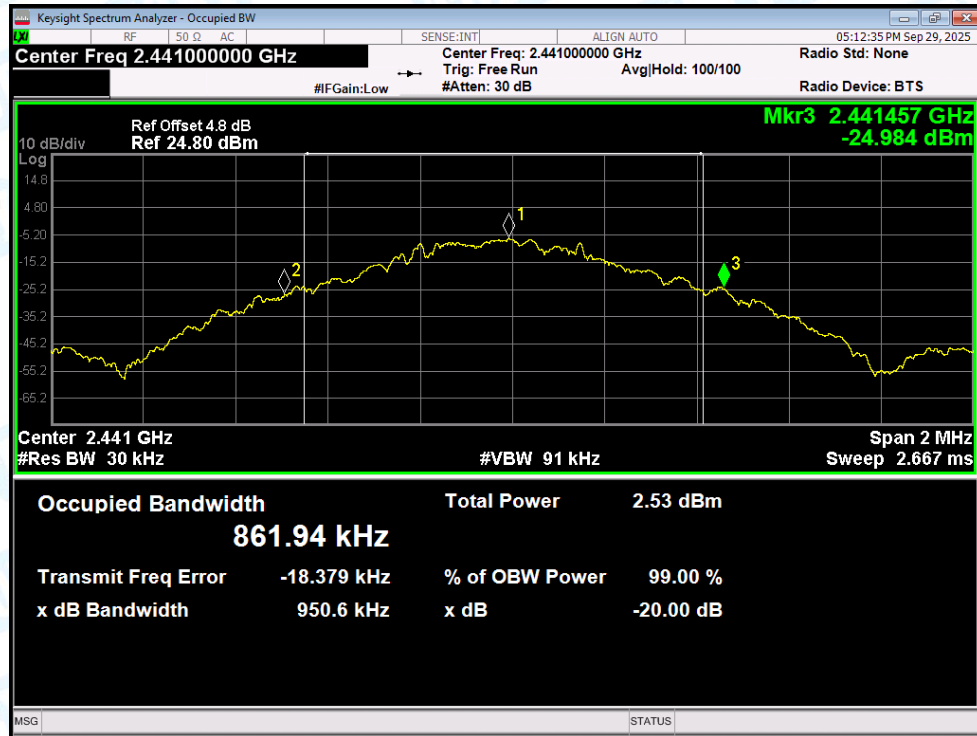
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH5	2402	Ant1	0.96	/	Pass
NVNT	1-DH5	2441	Ant1	0.95	/	Pass
NVNT	1-DH5	2480	Ant1	0.97	/	Pass
NVNT	2-DH5	2402	Ant1	1.26	/	Pass
NVNT	2-DH5	2441	Ant1	1.26	/	Pass
NVNT	2-DH5	2480	Ant1	1.2	/	Pass
NVNT	3-DH5	2402	Ant1	1.19	/	Pass
NVNT	3-DH5	2441	Ant1	1.18	/	Pass
NVNT	3-DH5	2480	Ant1	1.27	/	Pass

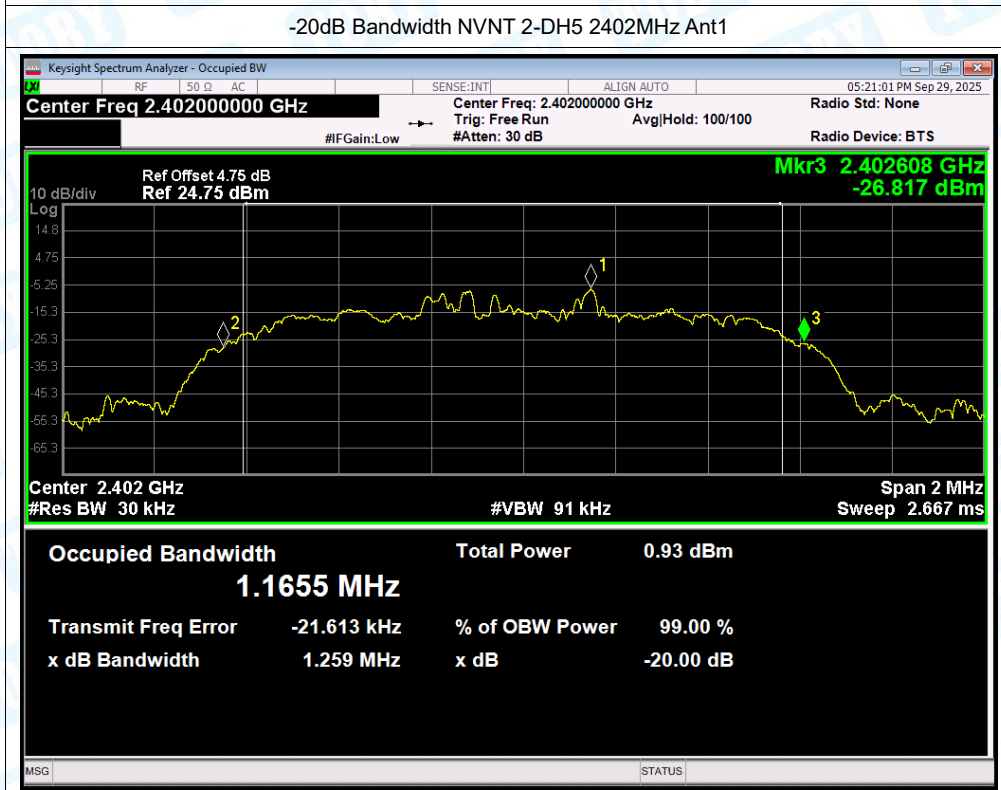
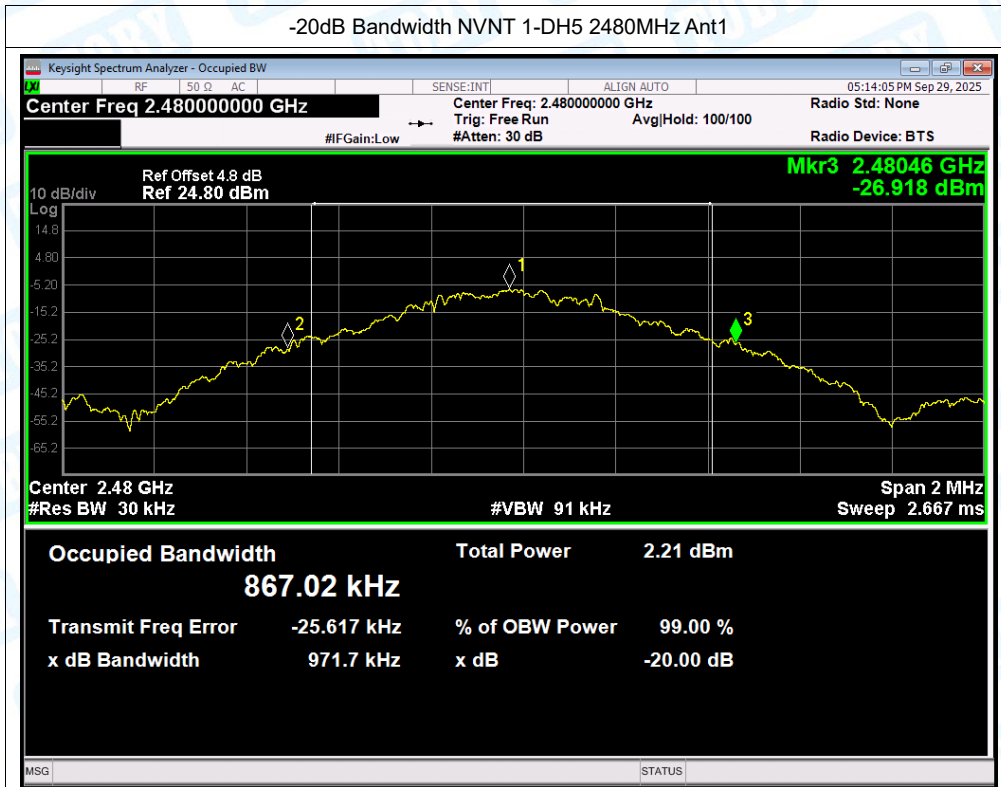
Test Graphs

-20dB Bandwidth NVNT 1-DH5 2402MHz Ant1

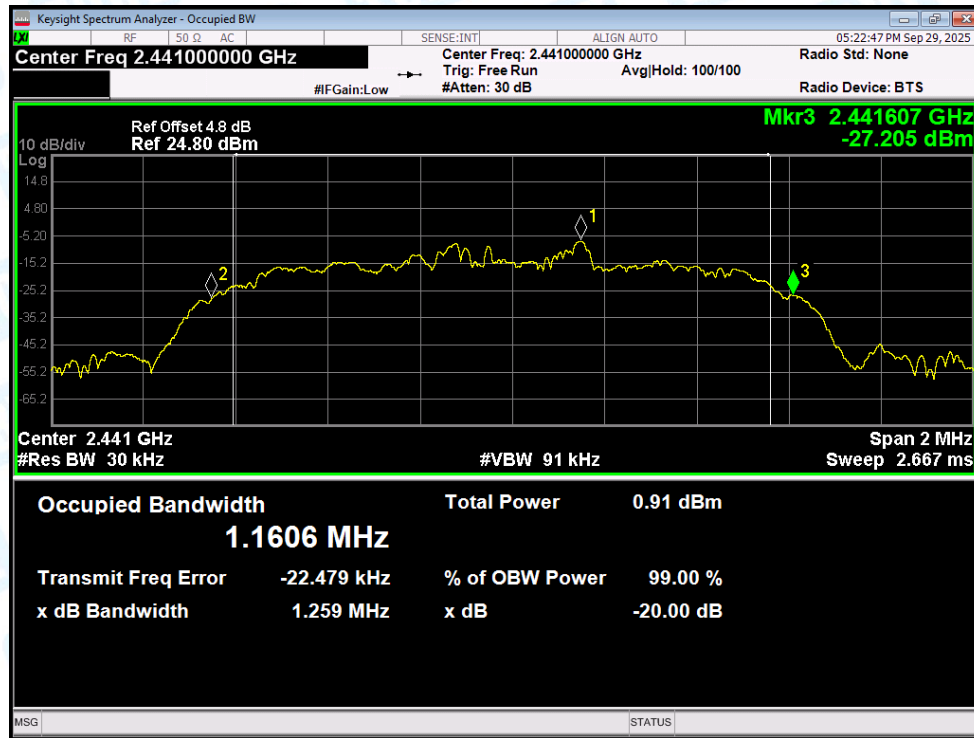


-20dB Bandwidth NVNT 1-DH5 2441MHz Ant1

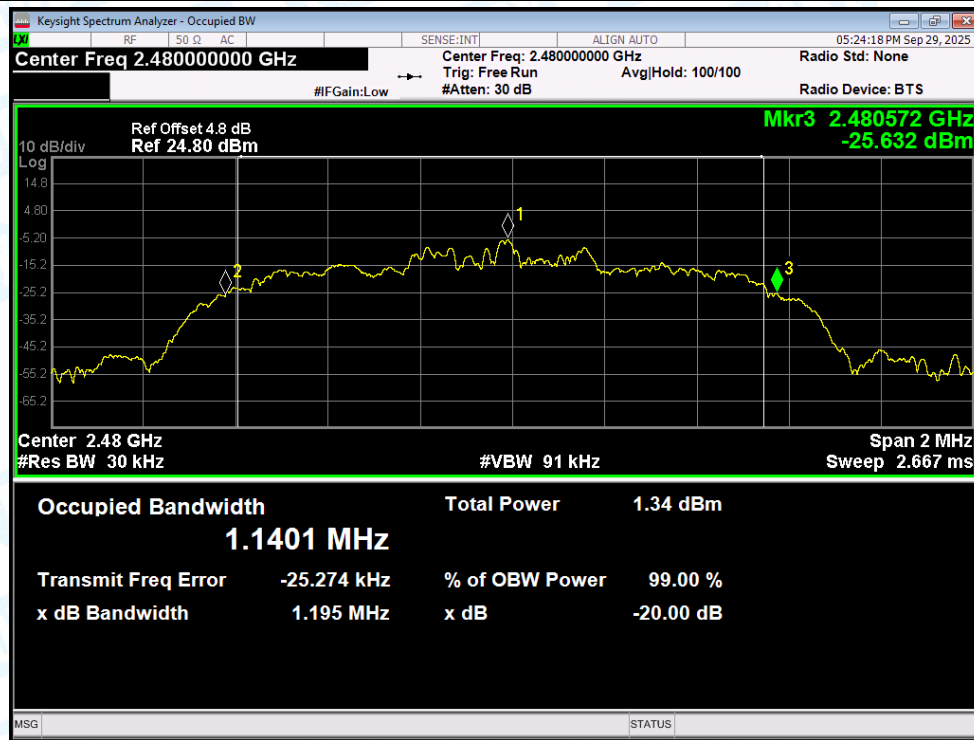




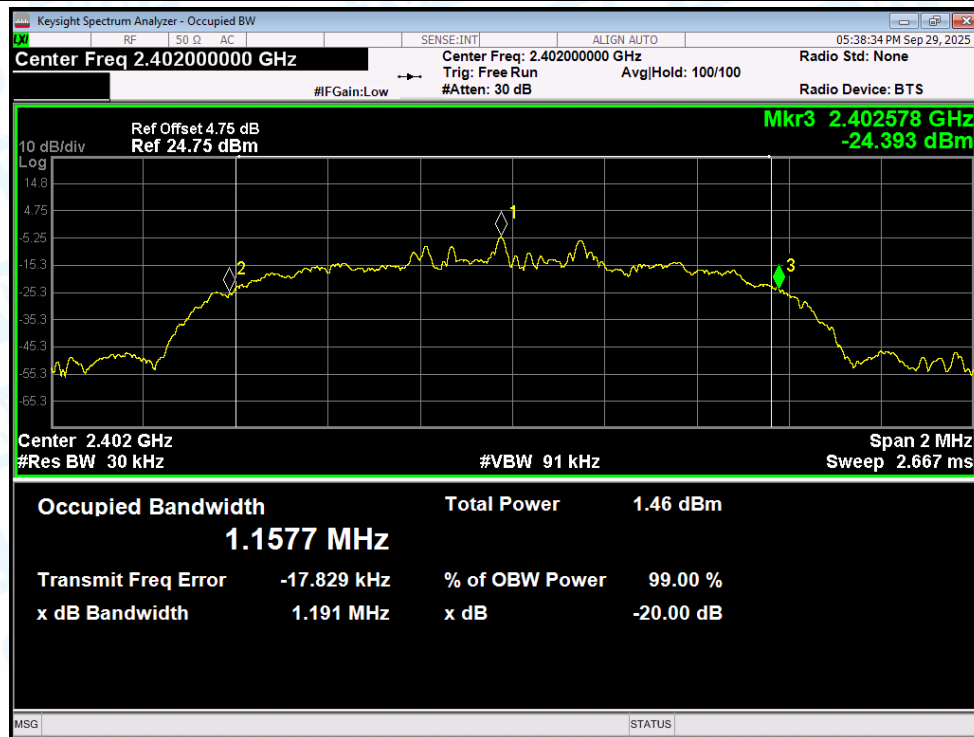
-20dB Bandwidth NVNT 2-DH5 2441MHz Ant1



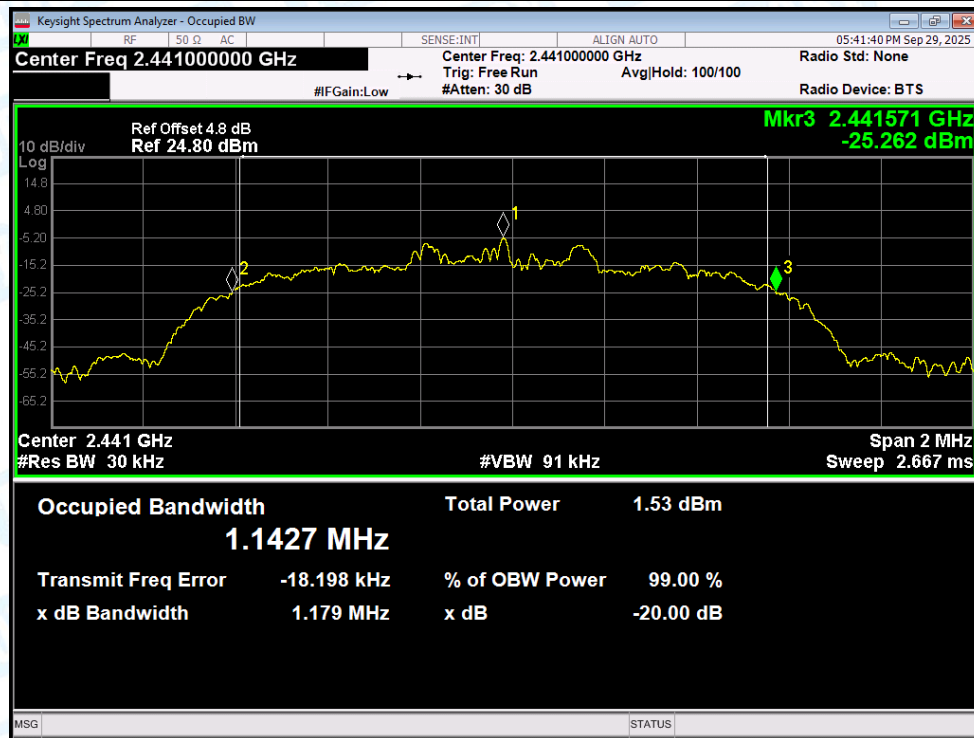
-20dB Bandwidth NVNT 2-DH5 2480MHz Ant1

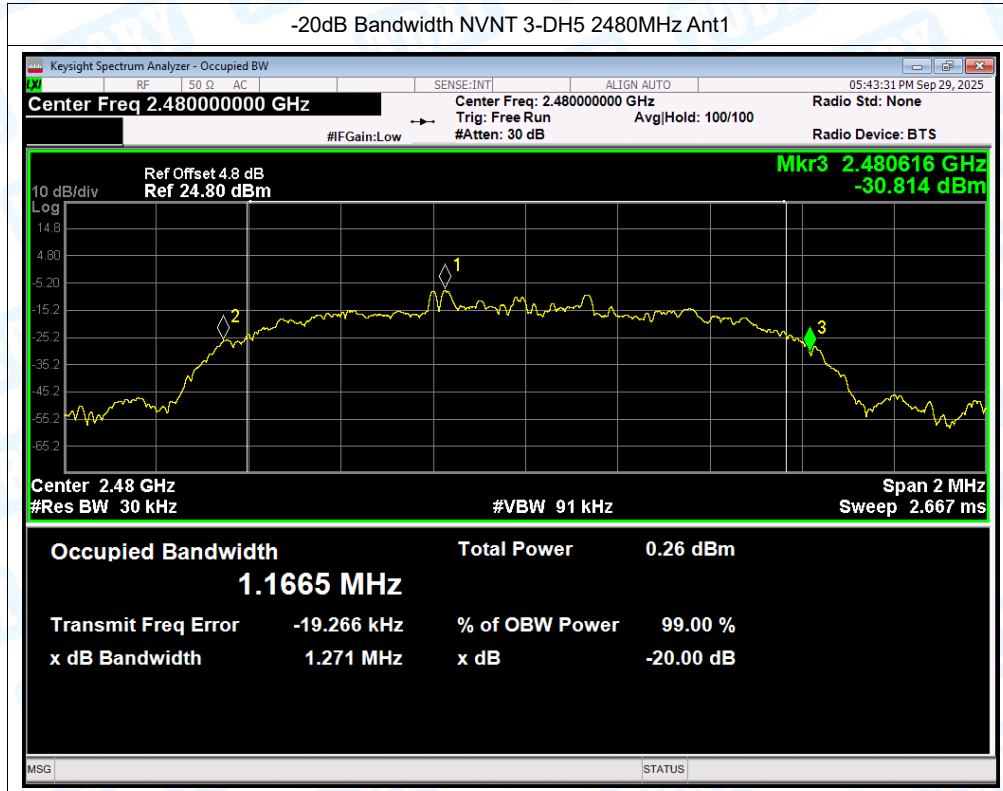


-20dB Bandwidth NVNT 3-DH5 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH5 2441MHz Ant1



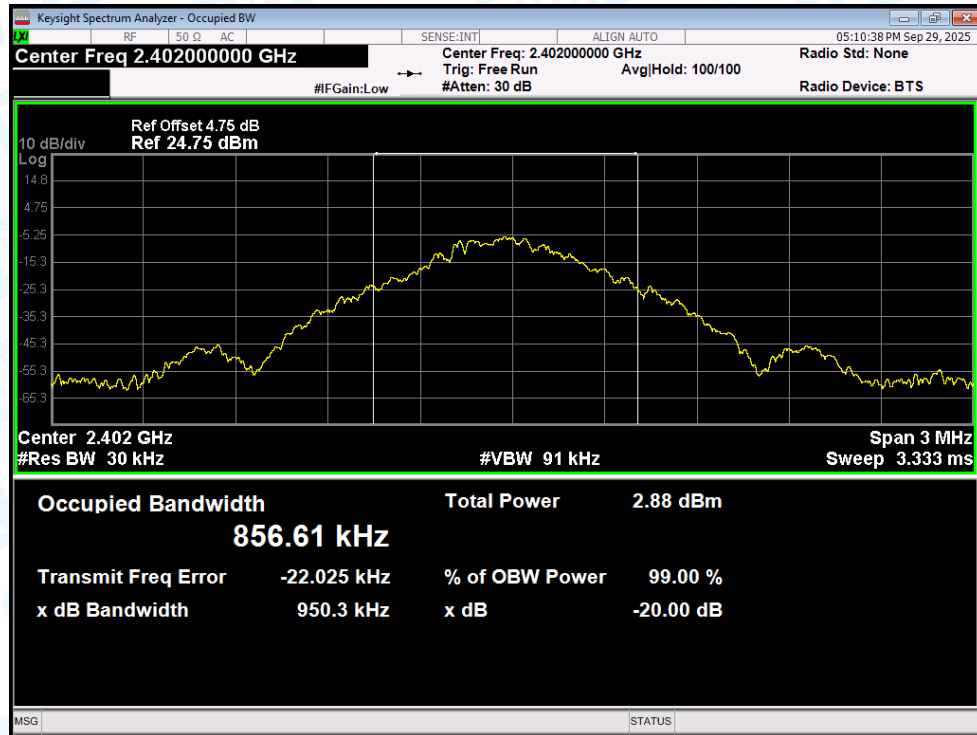


5. Occupied Channel Bandwidth

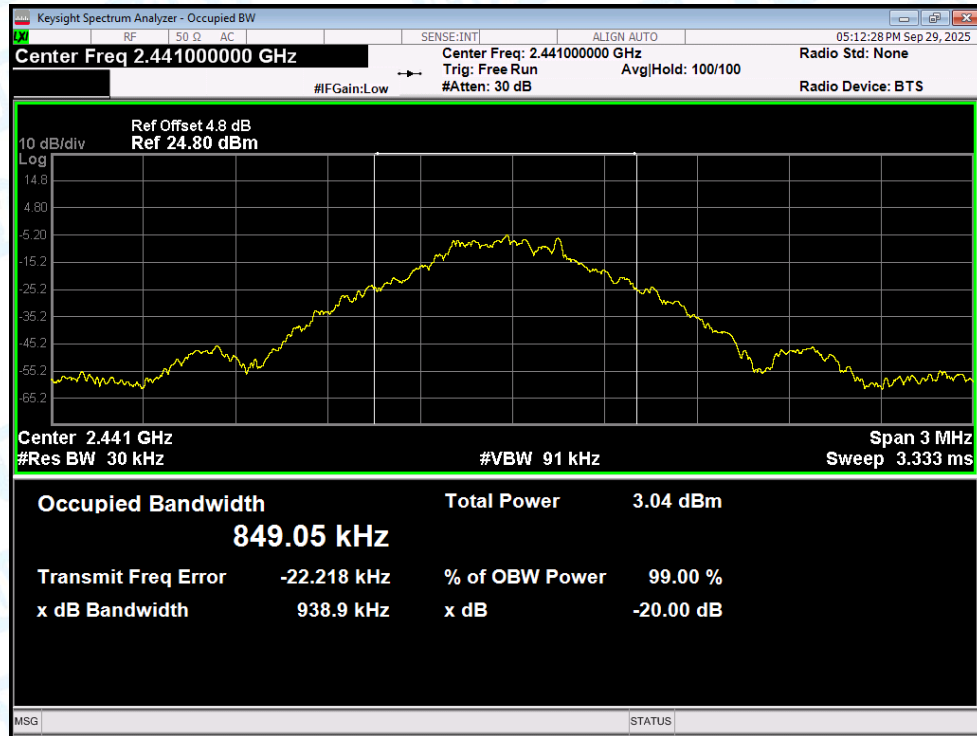
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	1-DH5	2402	Ant1	0.857
NVNT	1-DH5	2441	Ant1	0.849
NVNT	1-DH5	2480	Ant1	0.856
NVNT	2-DH5	2402	Ant1	1.159
NVNT	2-DH5	2441	Ant1	1.165
NVNT	2-DH5	2480	Ant1	1.151
NVNT	3-DH5	2402	Ant1	1.163
NVNT	3-DH5	2441	Ant1	1.139
NVNT	3-DH5	2480	Ant1	1.148

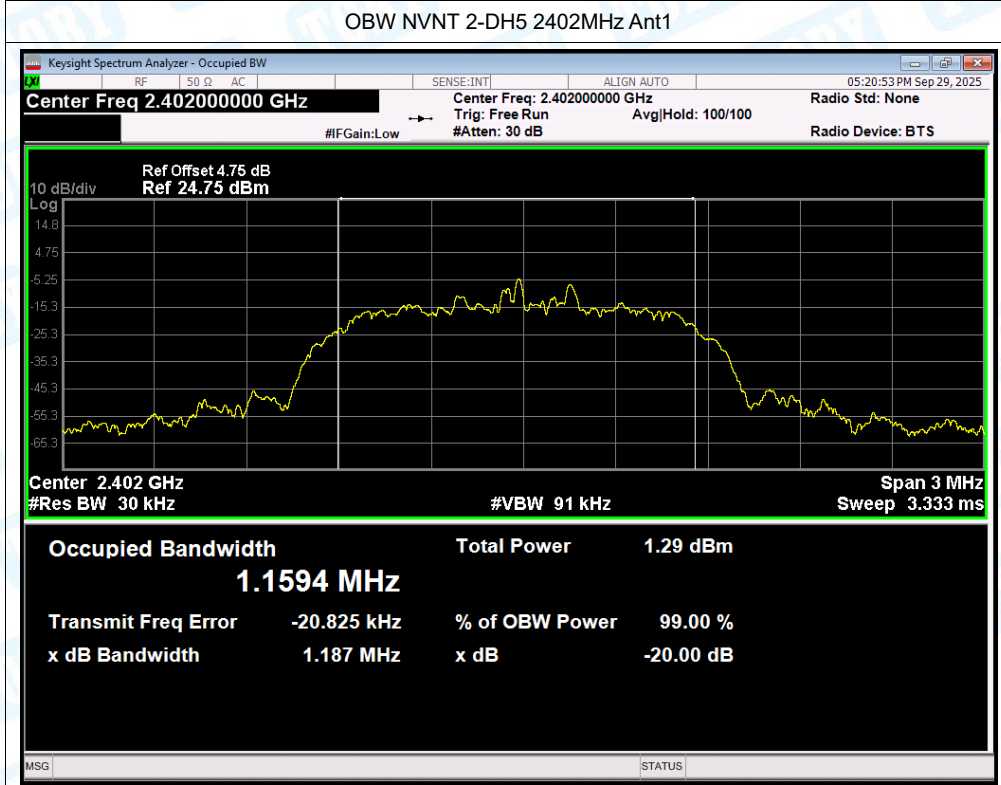
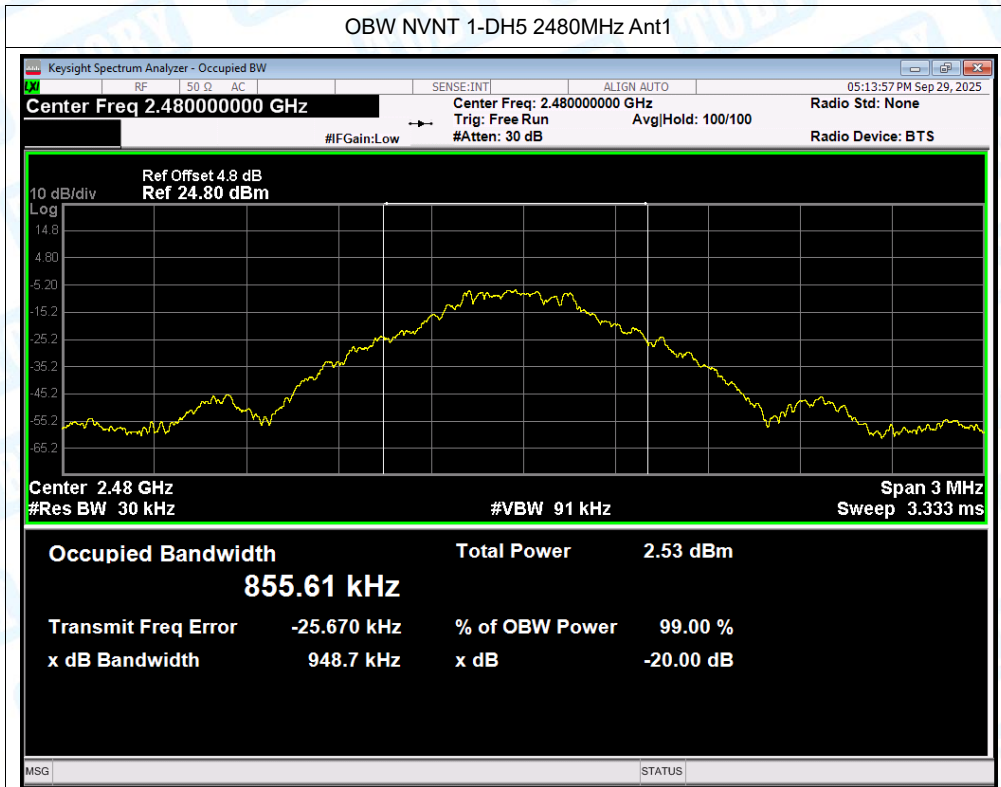
Test Graphs

OBW NVNT 1-DH5 2402MHz Ant1



OBW NVNT 1-DH5 2441MHz Ant1

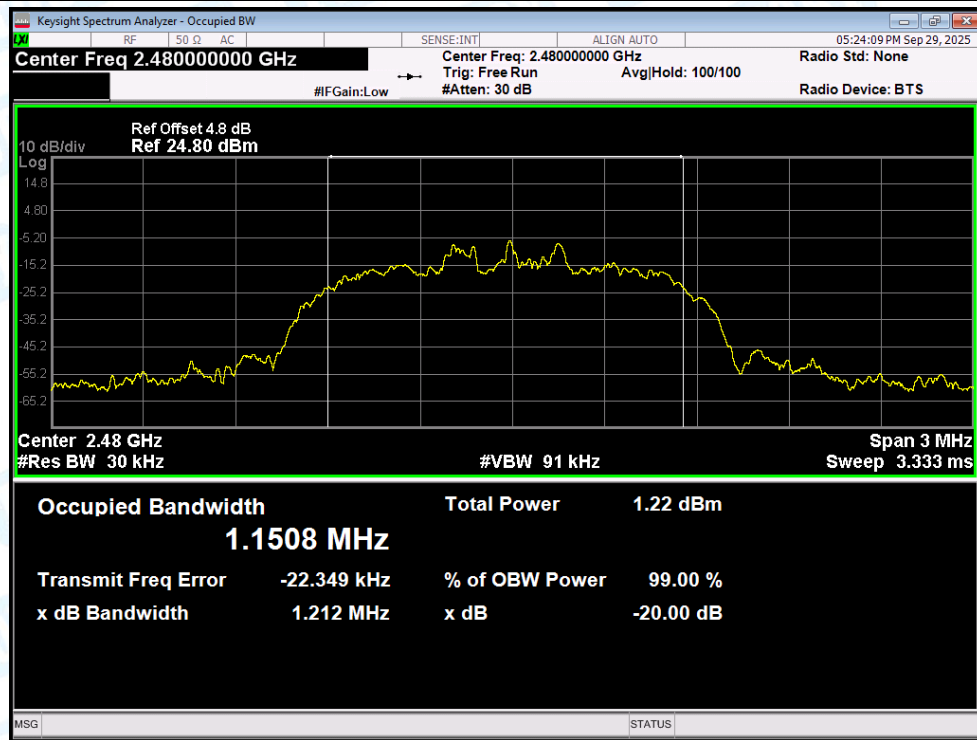




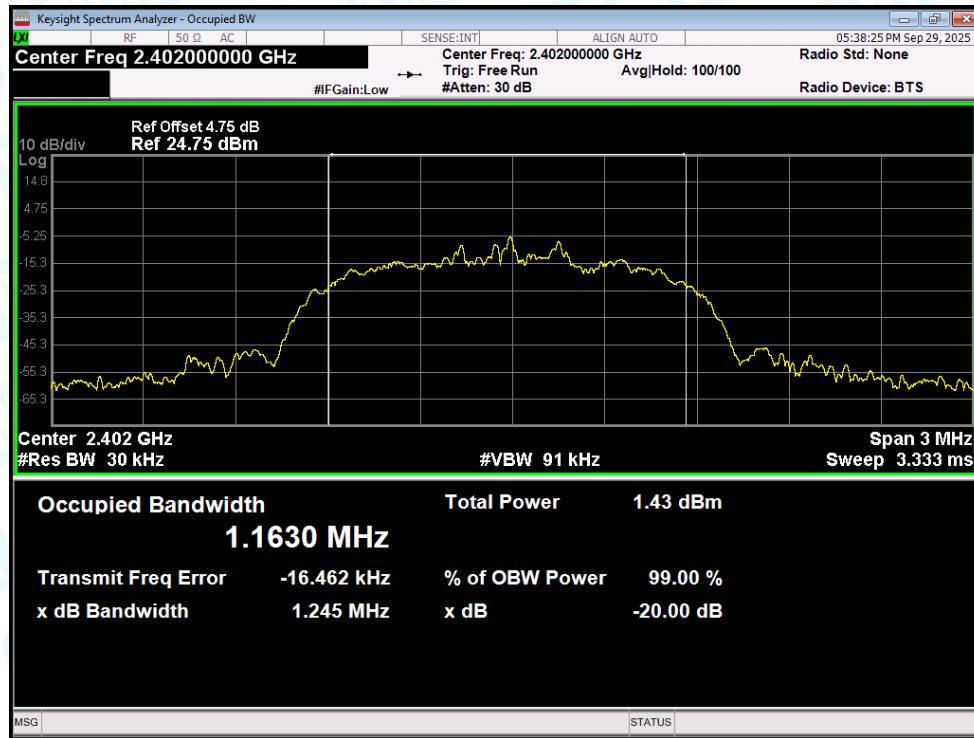
OBW NVNT 2-DH5 2441MHz Ant1



OBW NVNT 2-DH5 2480MHz Ant1

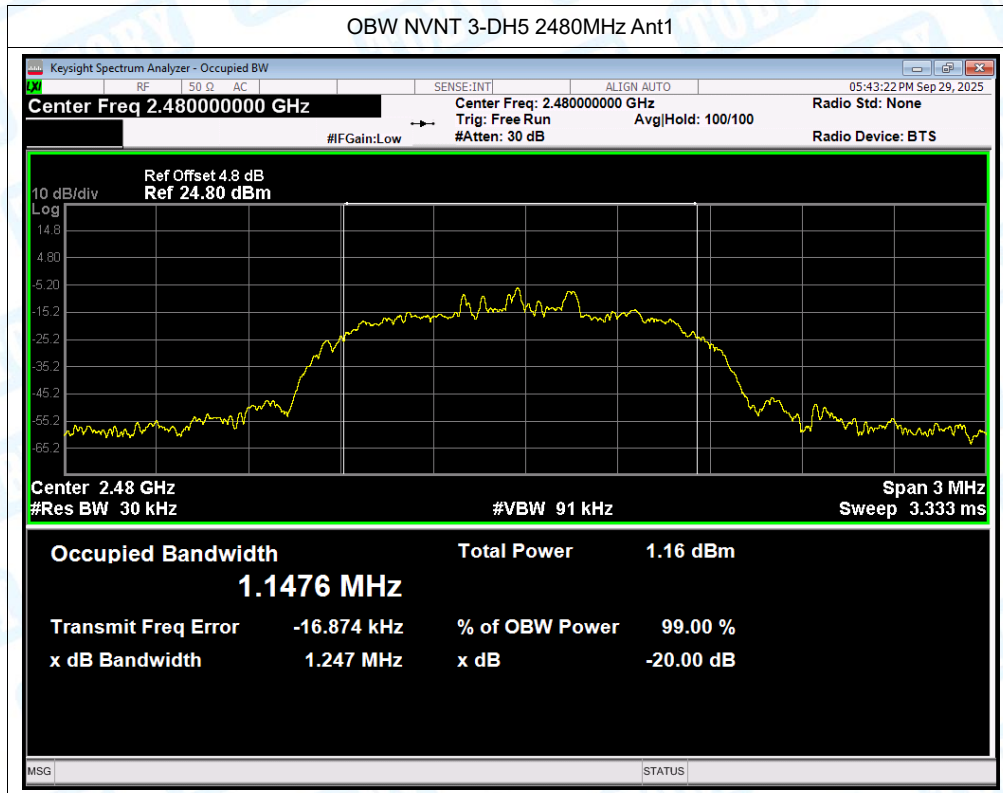


OBW NVNT 3-DH5 2402MHz Ant1



OBW NVNT 3-DH5 2441MHz Ant1



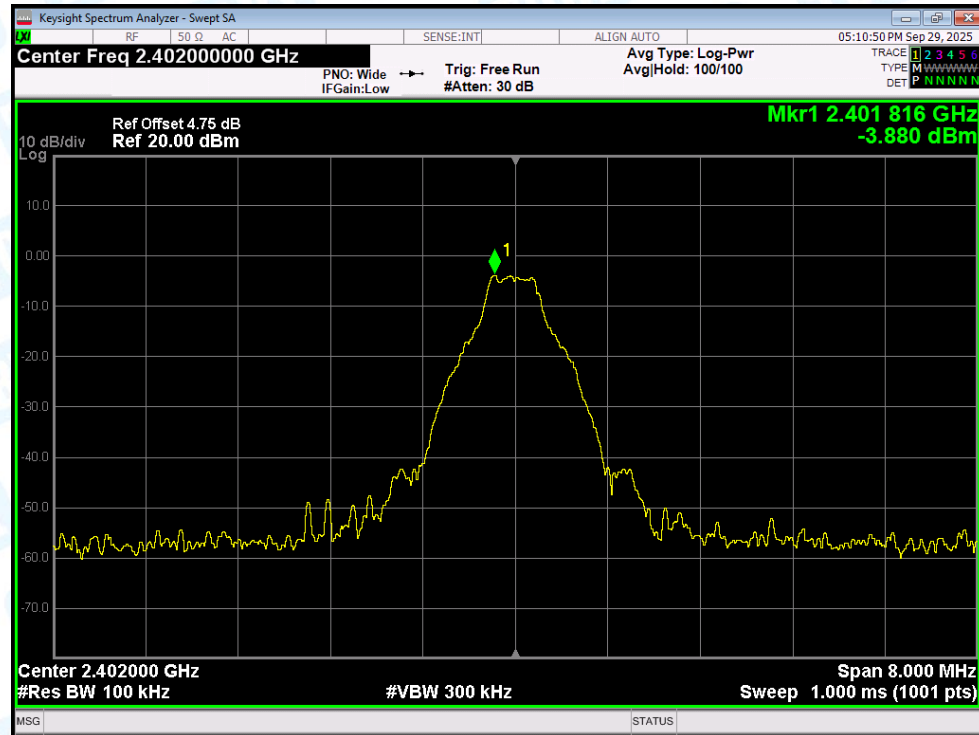


6. Band Edge

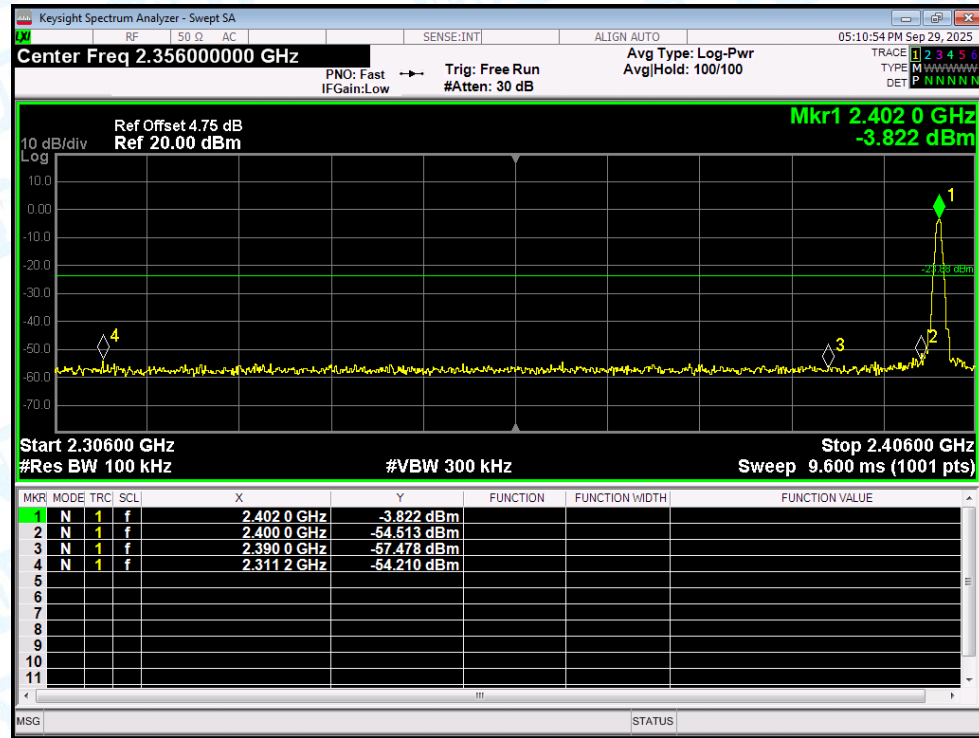
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	No-Hopping	-50.33	-20	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	-49.19	-20	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	-50.36	-20	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	-47.36	-20	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	-50.43	-20	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	-50.32	-20	Pass

Test Graphs

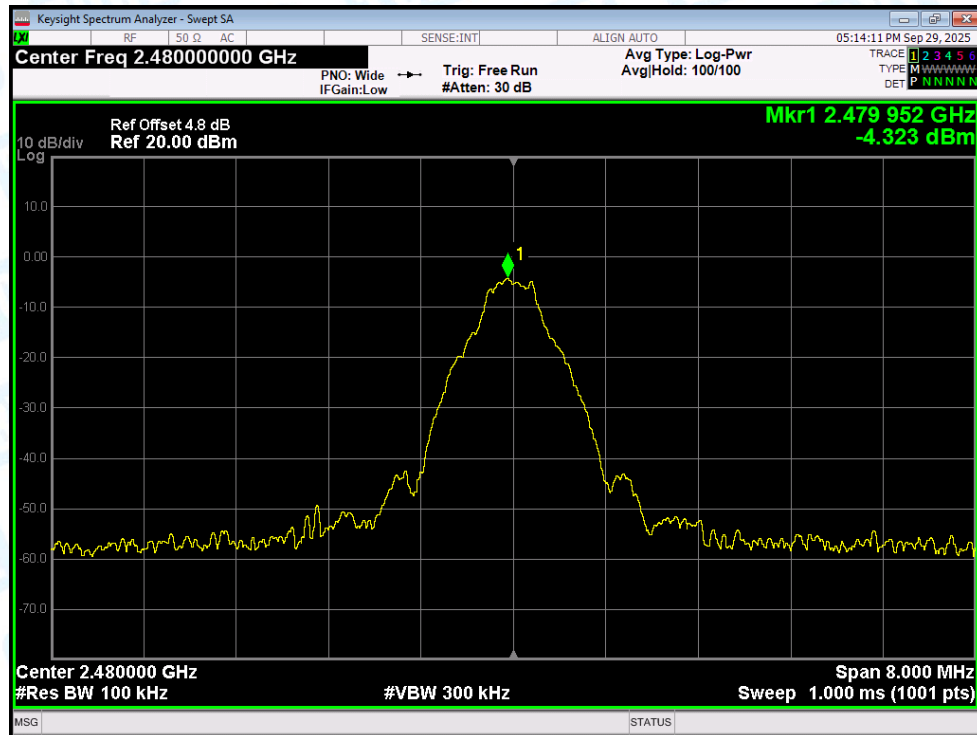
Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Ref



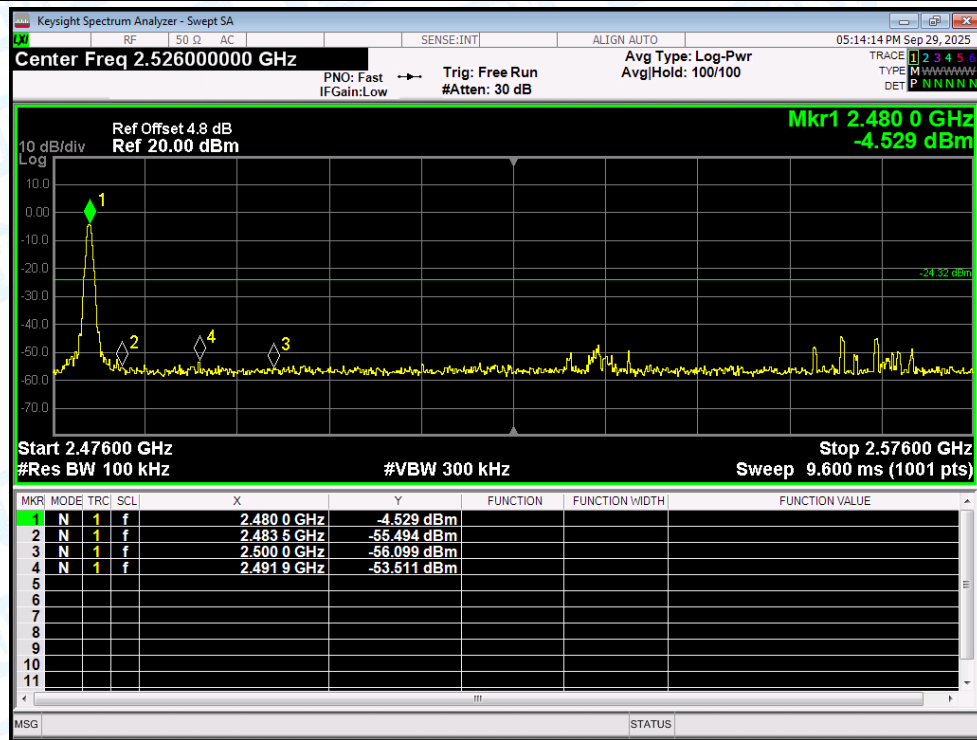
Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Emission

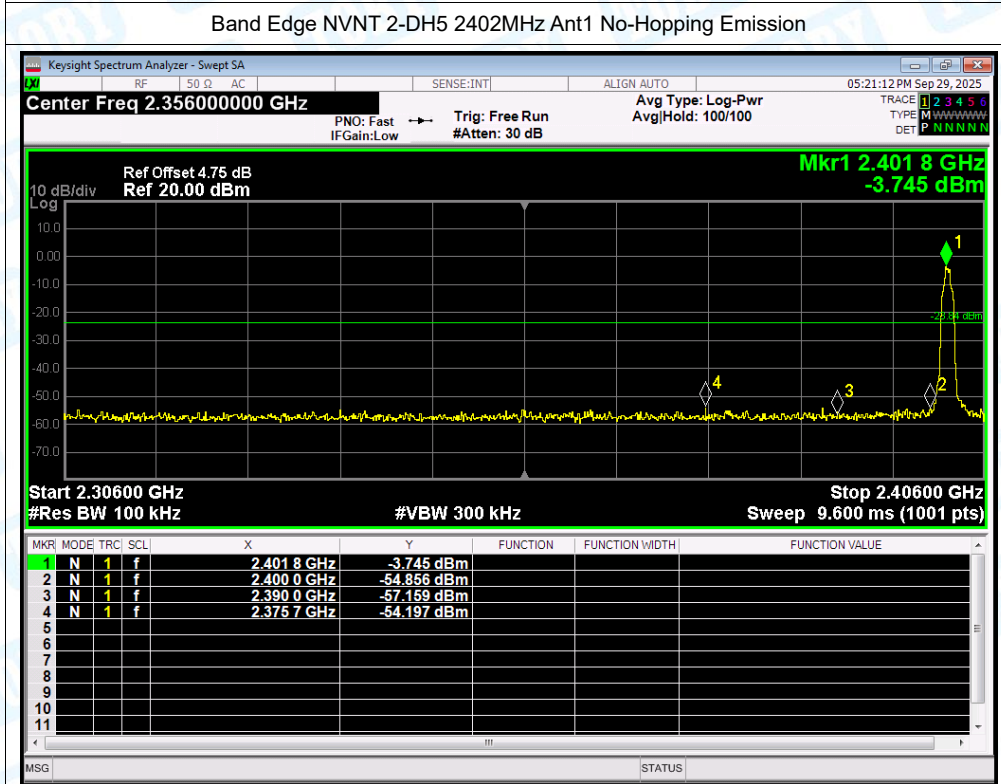
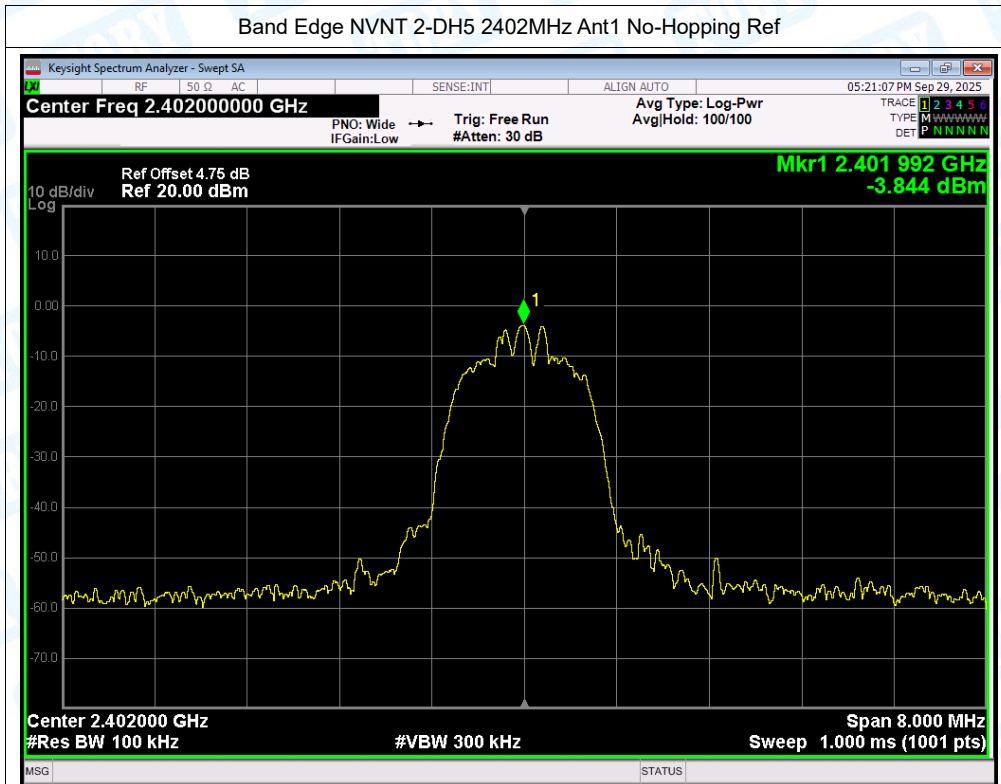


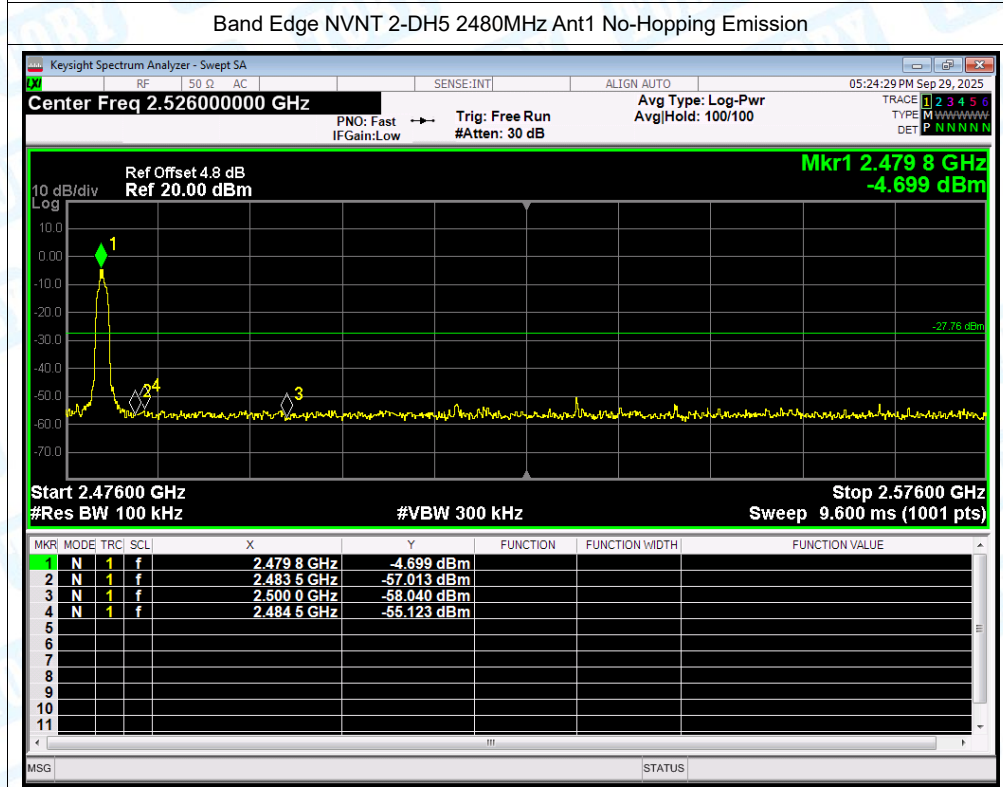
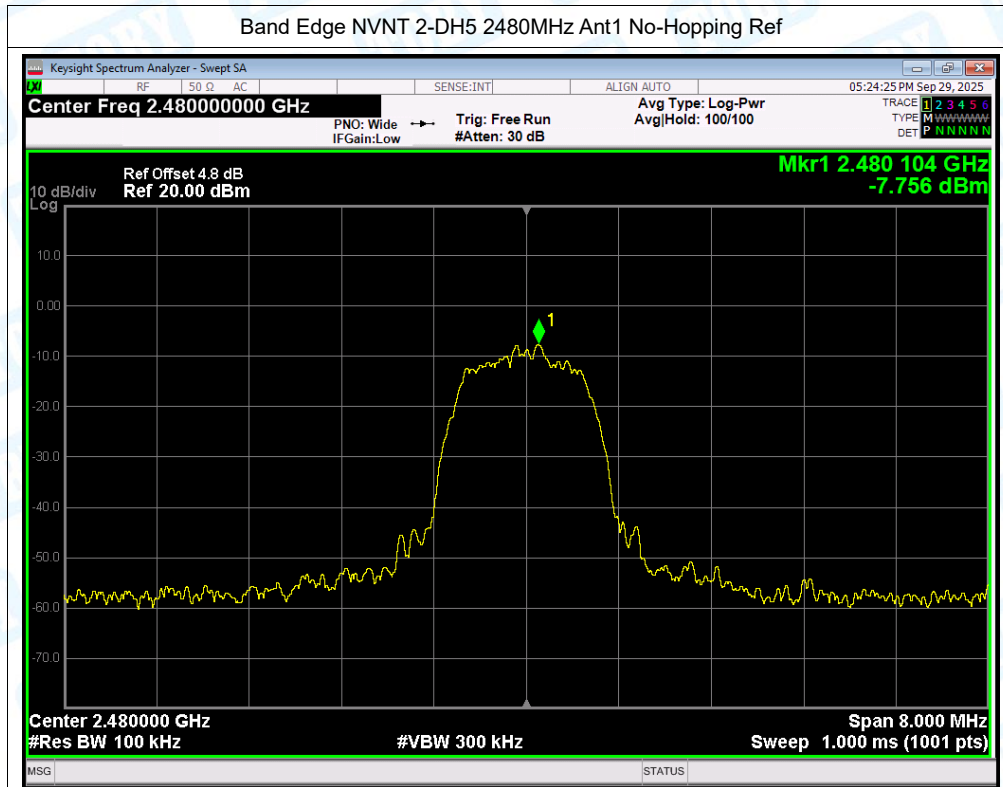
Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Ref



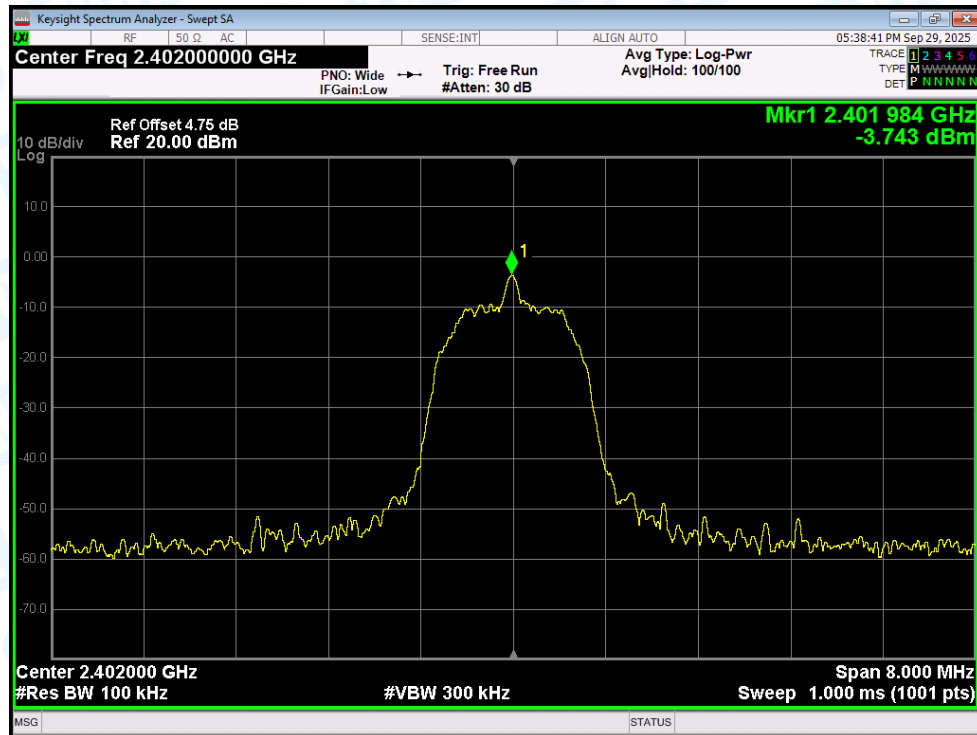
Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Emission



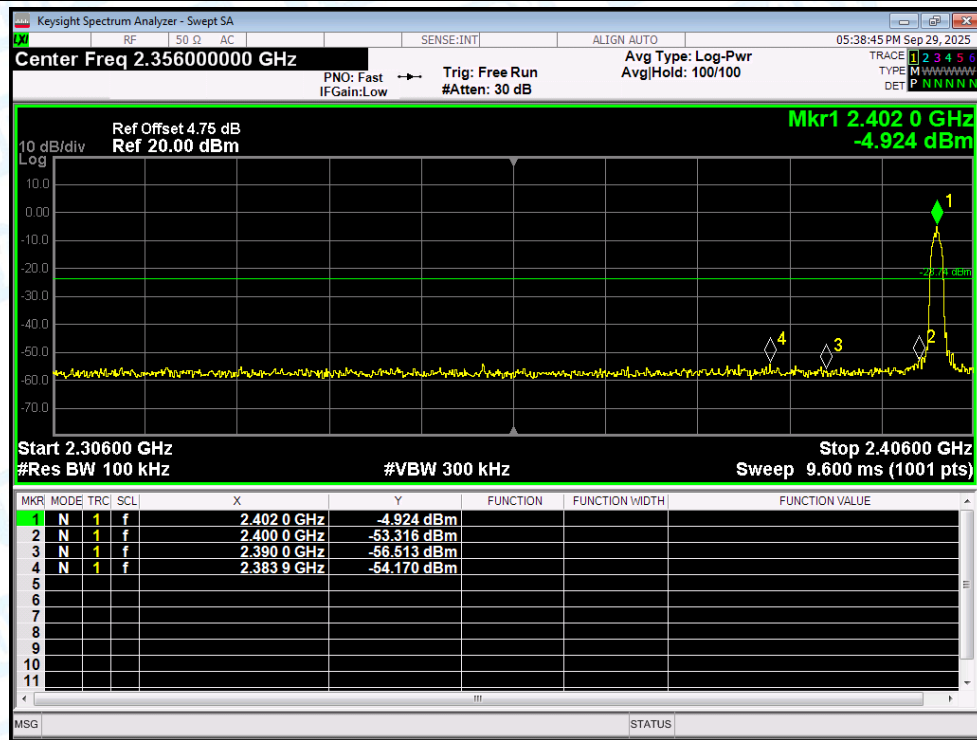




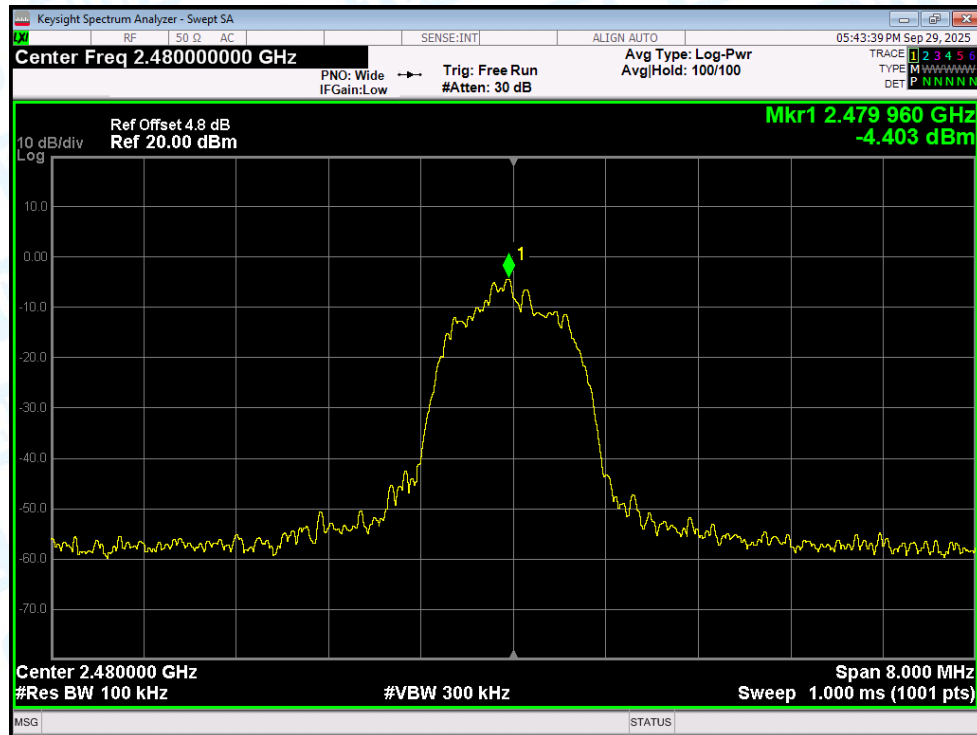
Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Ref



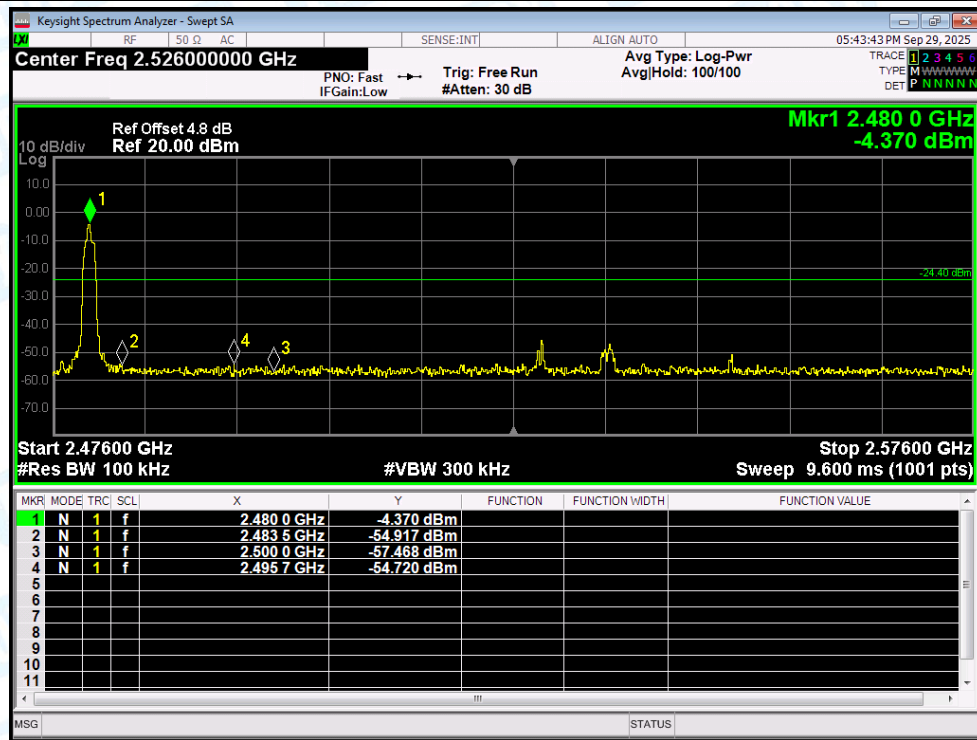
Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Emission



Band Edge NVNT 3-DH5 2480MHz Ant1 No-Hopping Ref



Band Edge NVNT 3-DH5 2480MHz Ant1 No-Hopping Emission

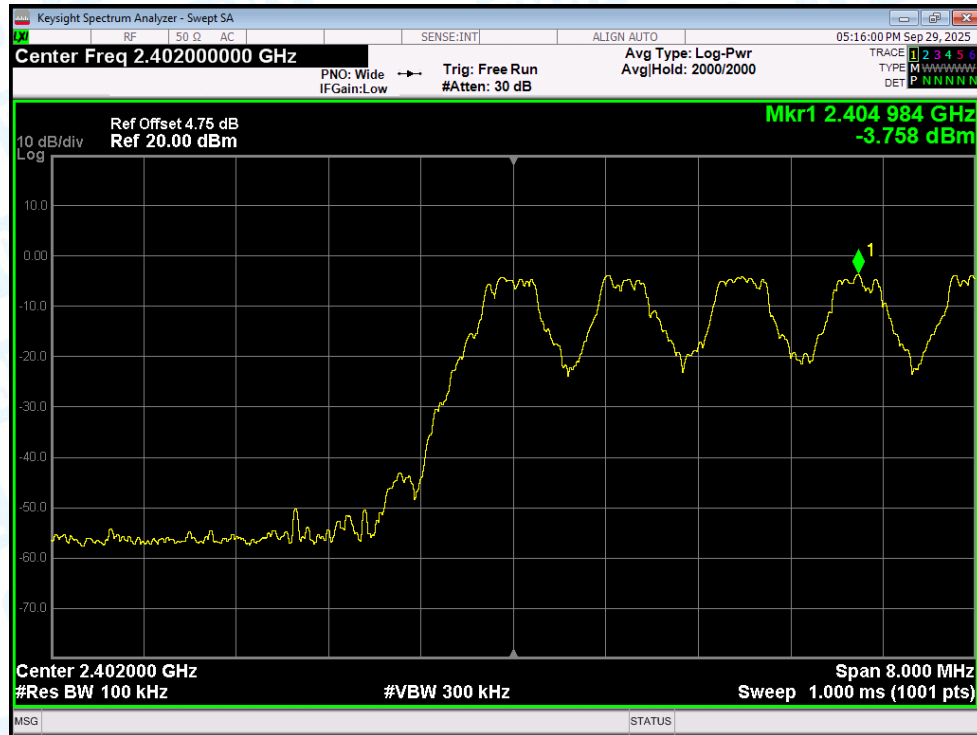


7. Band Edge(Hopping)

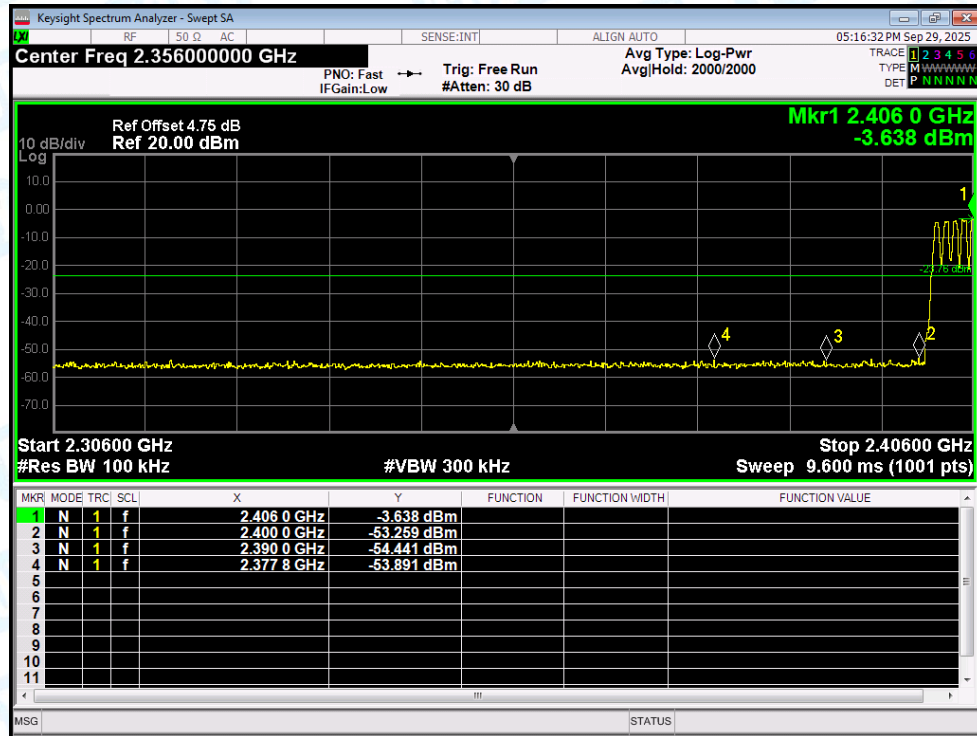
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	Hopping	-50.13	-20	Pass
NVNT	1-DH5	2480	Ant1	Hopping	-48.97	-20	Pass
NVNT	2-DH5	2402	Ant1	Hopping	-49.11	-20	Pass
NVNT	2-DH5	2480	Ant1	Hopping	-48.59	-20	Pass
NVNT	3-DH5	2402	Ant1	Hopping	-49.26	-20	Pass
NVNT	3-DH5	2480	Ant1	Hopping	-48.54	-20	Pass

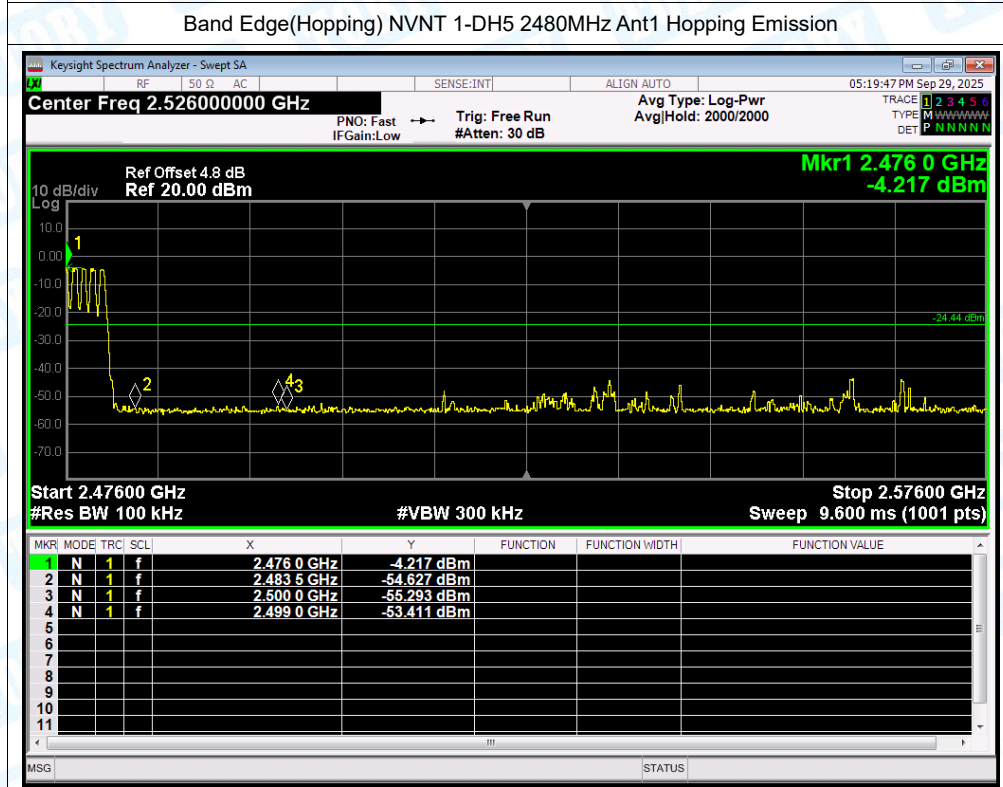
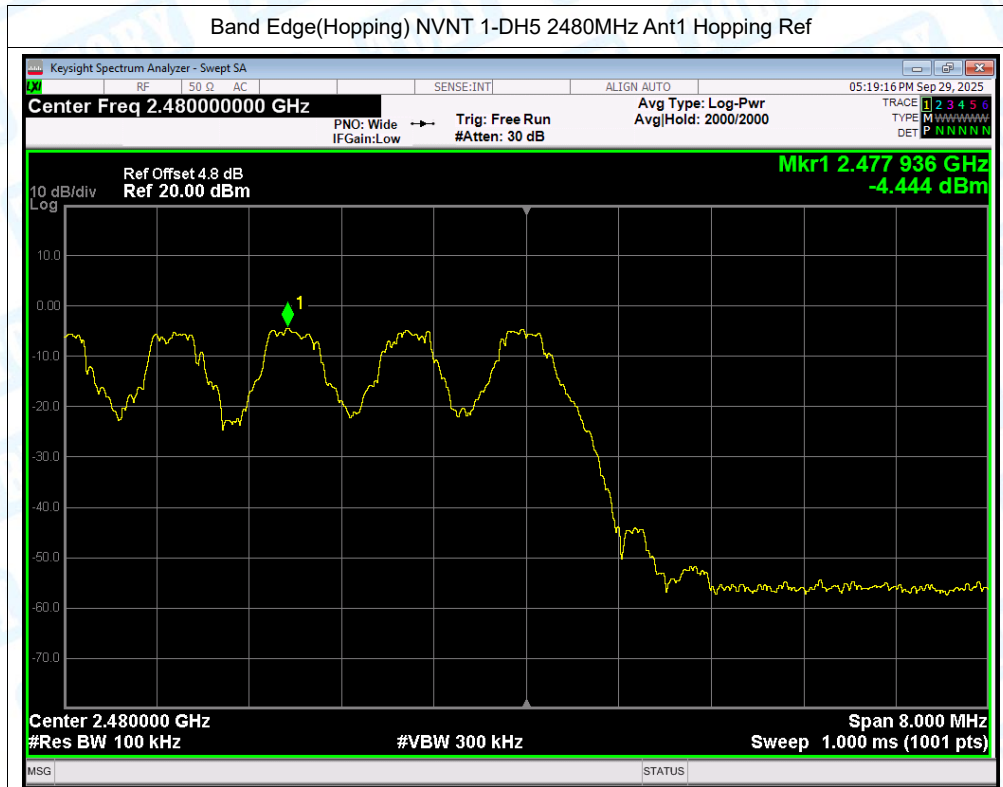
Test Graphs

Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Ref



Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Emission

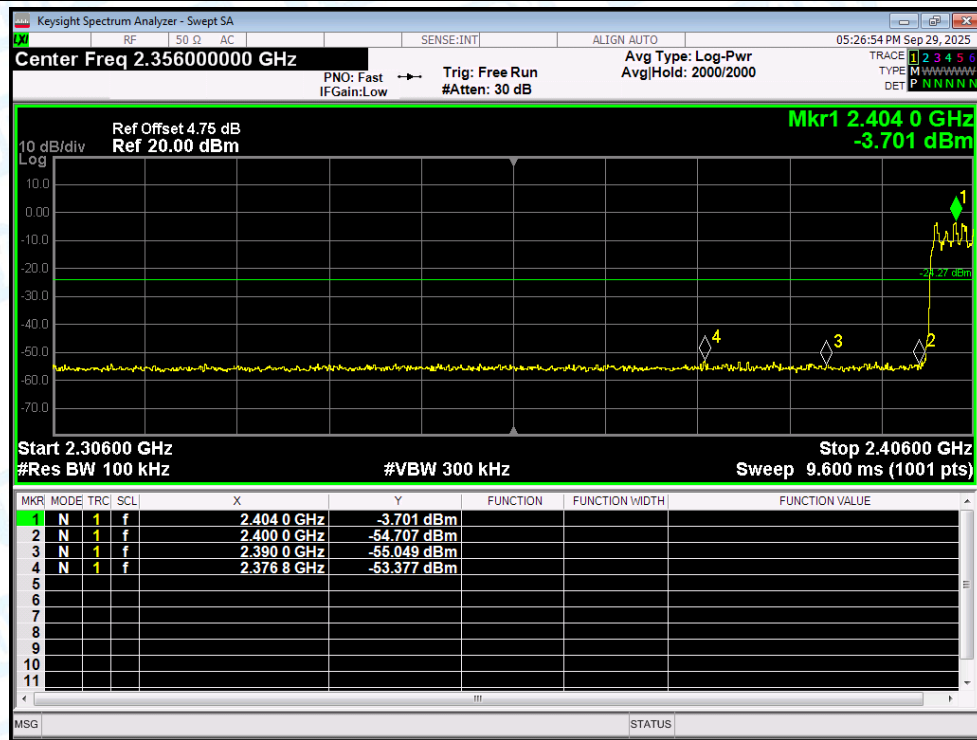




Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Ref



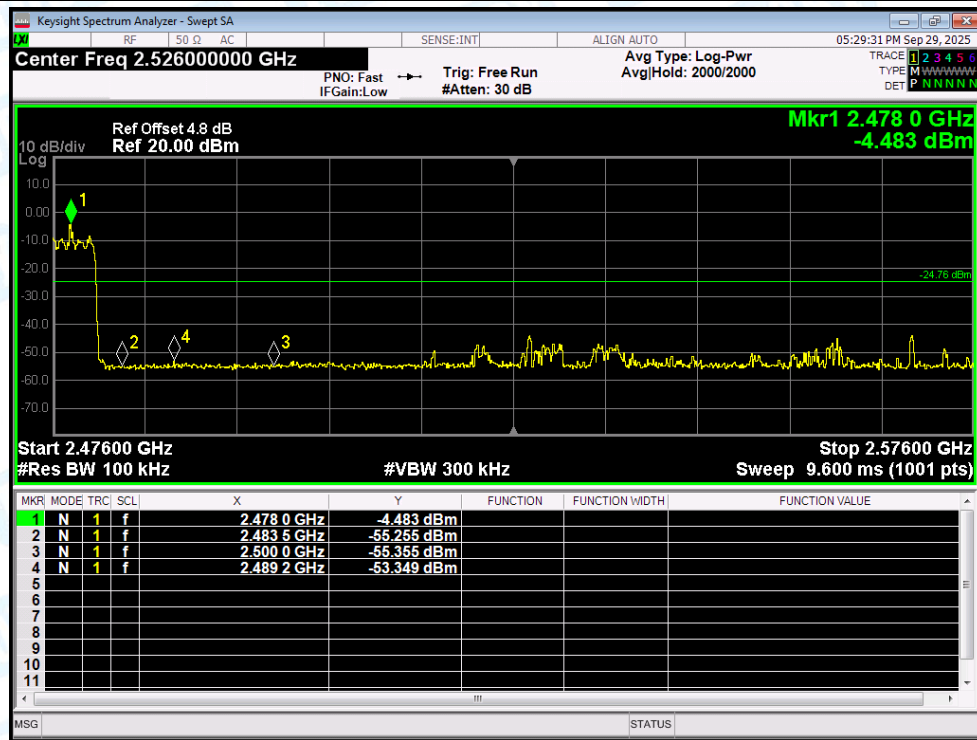
Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Emission



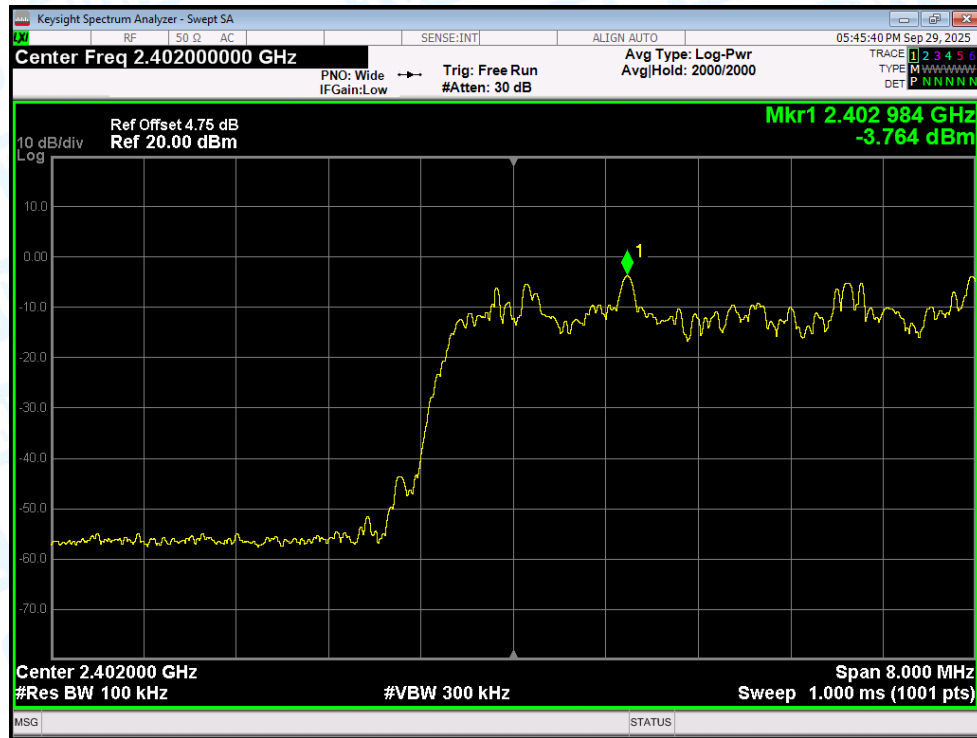
Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Ref



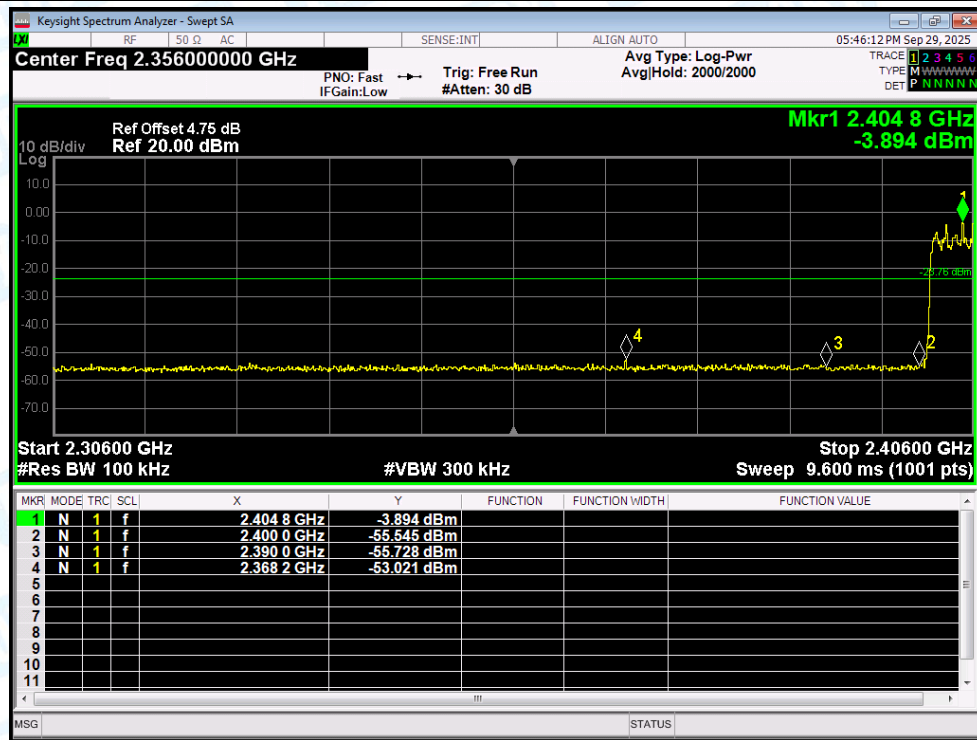
Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Emission



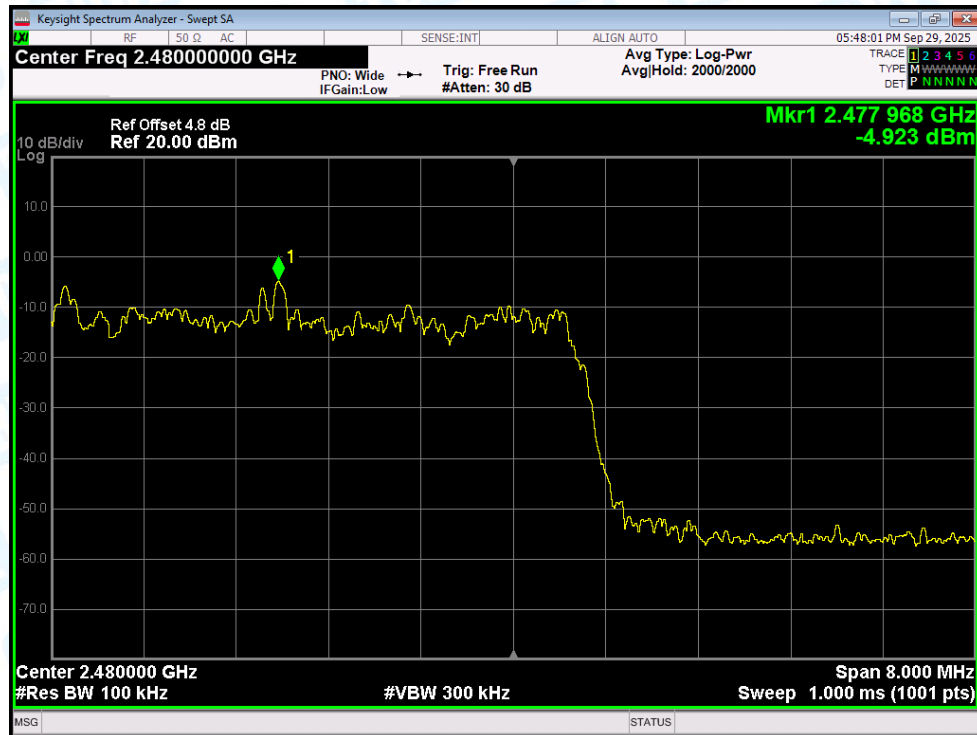
Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Ref



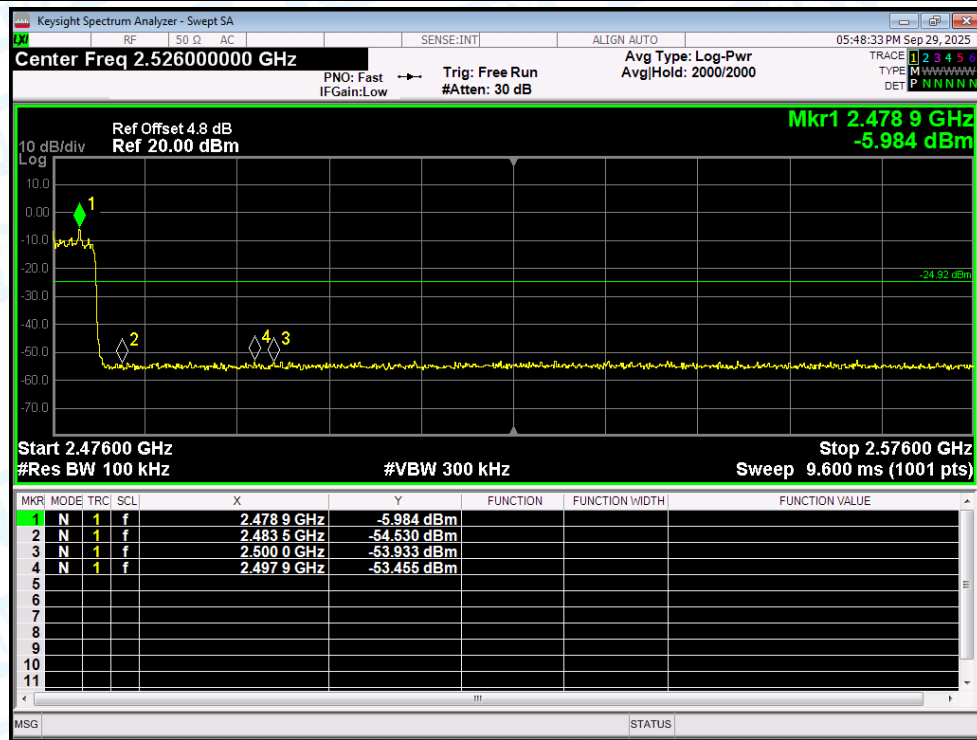
Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Emission



Band Edge(Hopping) NVNT 3-DH5 2480MHz Ant1 Hopping Ref



Band Edge(Hopping) NVNT 3-DH5 2480MHz Ant1 Hopping Emission

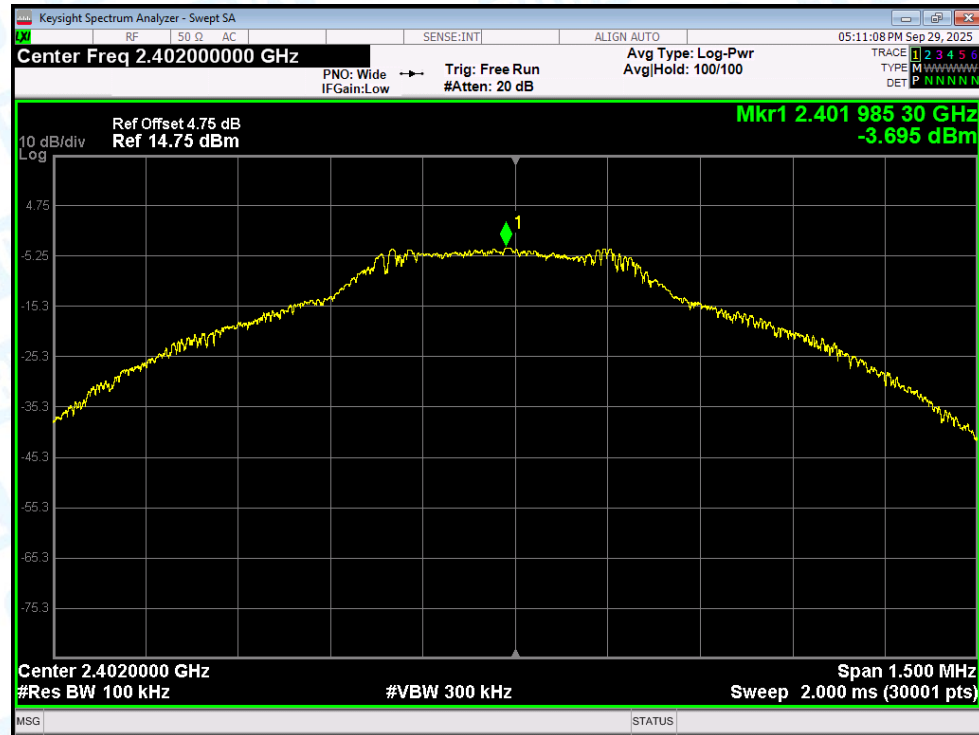


8. Conducted RF Spurious Emission

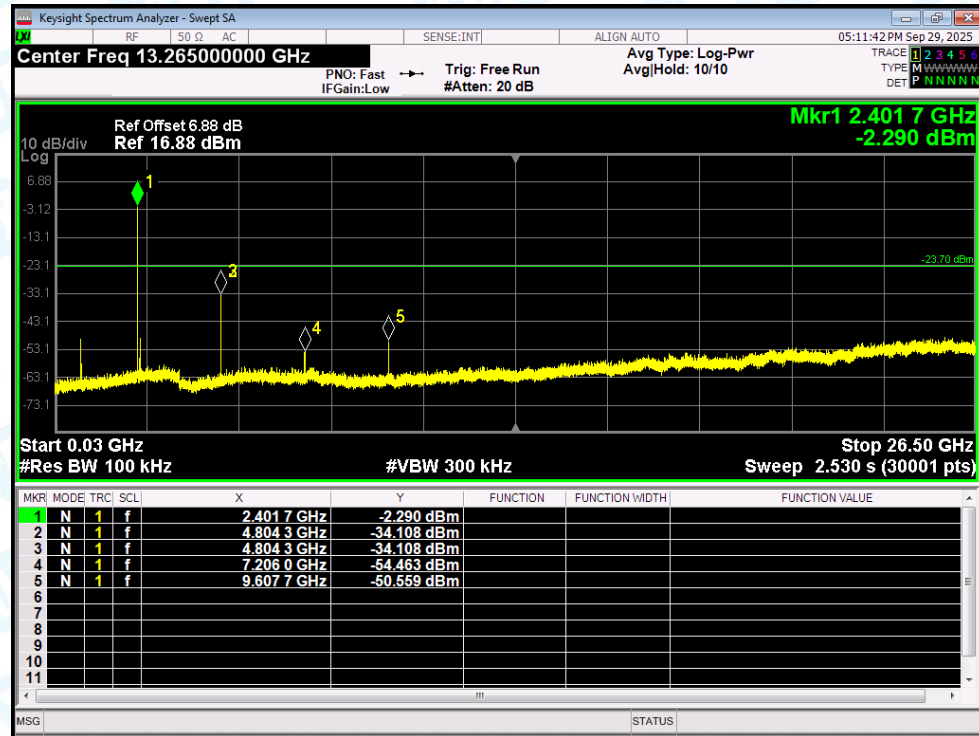
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	-30.42	-20	Pass
NVNT	1-DH5	2441	Ant1	-30.22	-20	Pass
NVNT	1-DH5	2480	Ant1	-31.96	-20	Pass
NVNT	2-DH5	2402	Ant1	-34.97	-20	Pass
NVNT	2-DH5	2441	Ant1	-29.33	-20	Pass
NVNT	2-DH5	2480	Ant1	-37.51	-20	Pass
NVNT	3-DH5	2402	Ant1	-38.05	-20	Pass
NVNT	3-DH5	2441	Ant1	-29.74	-20	Pass
NVNT	3-DH5	2480	Ant1	-39.21	-20	Pass

Test Graphs

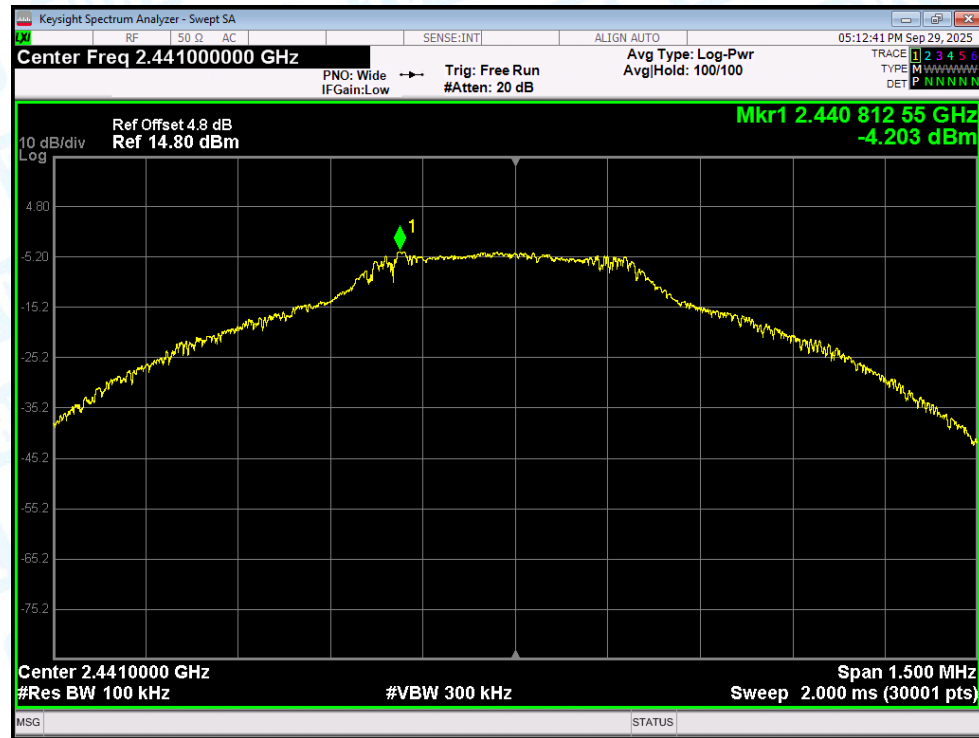
Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Ref



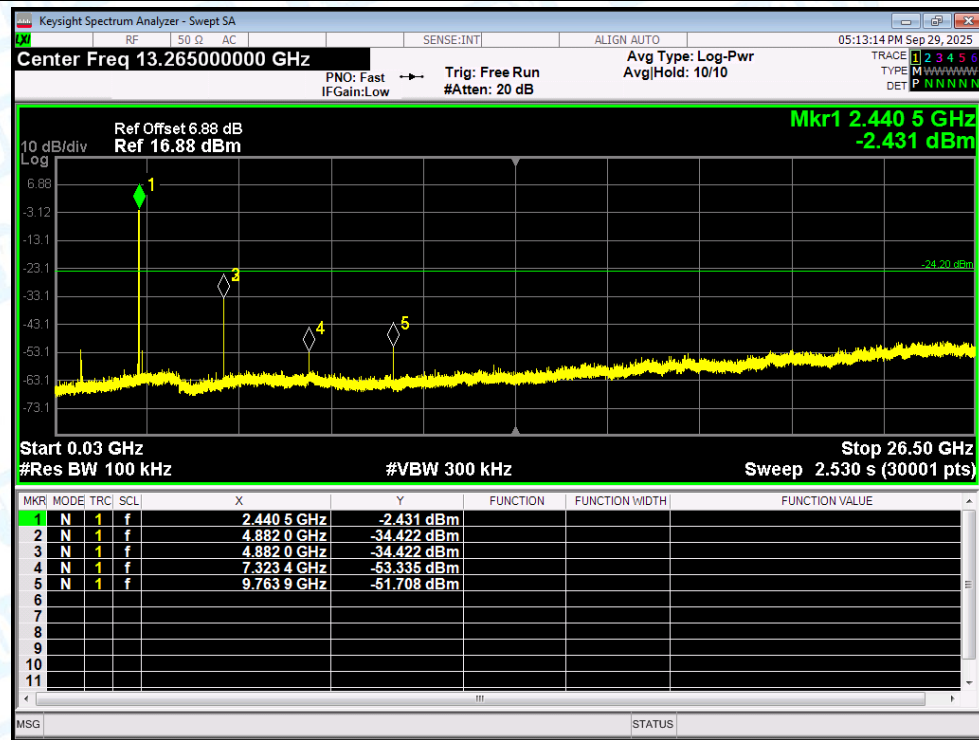
Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Emission



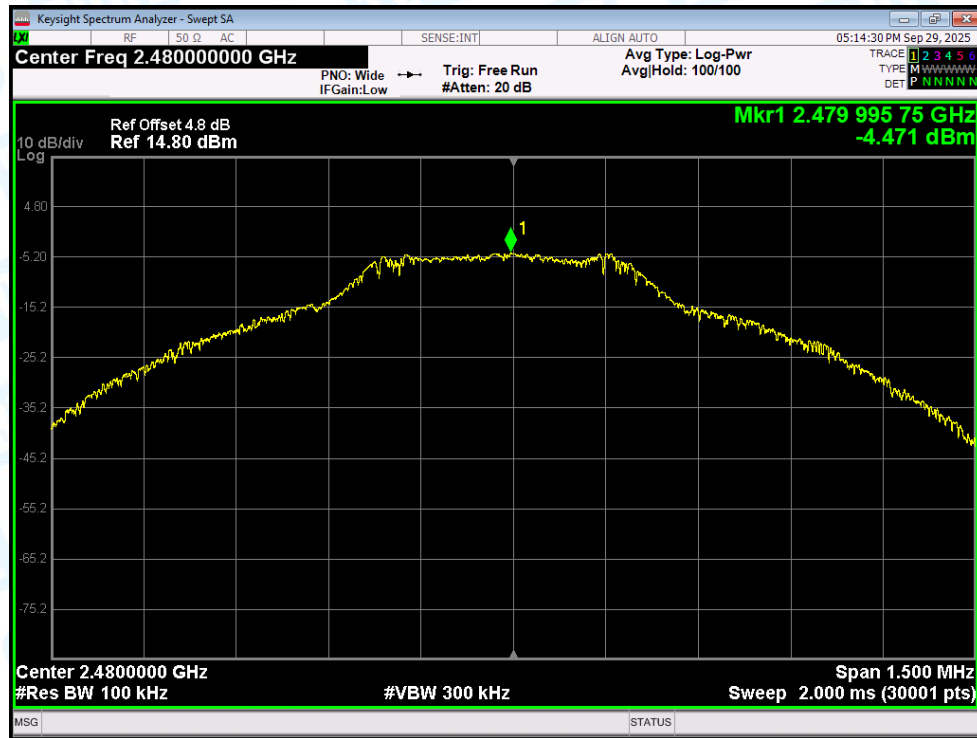
Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Ref



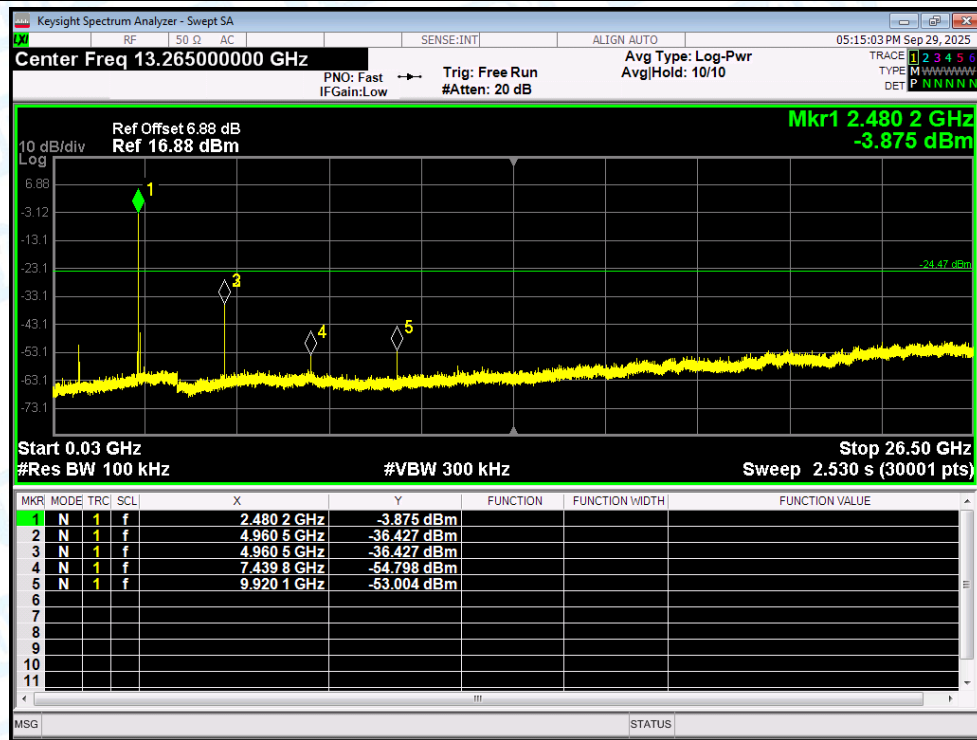
Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Emission



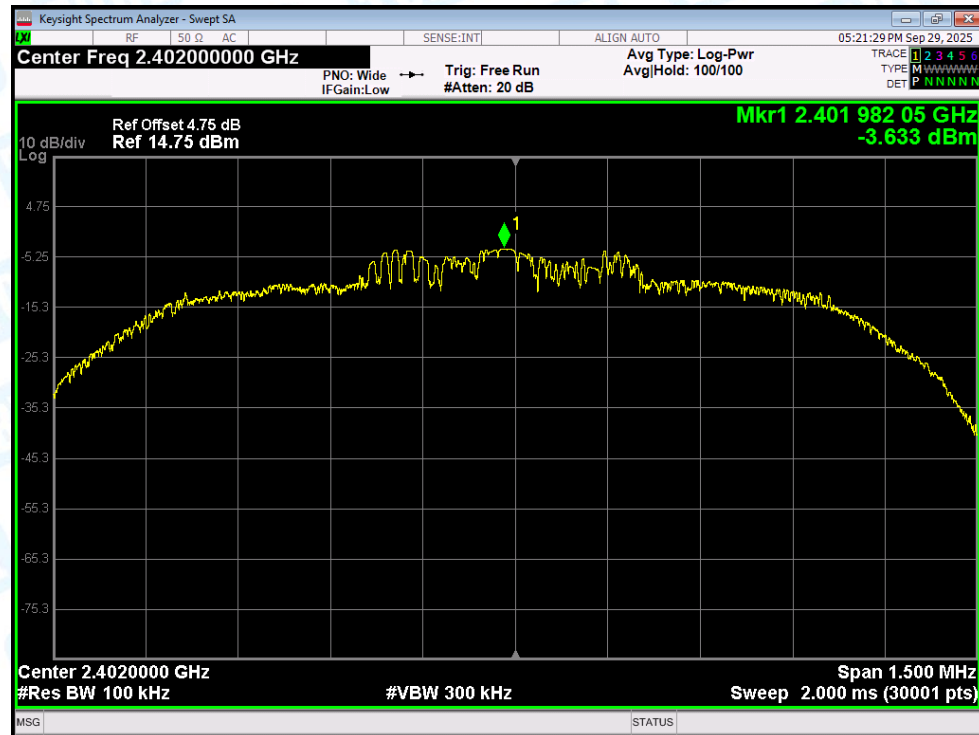
Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Ref



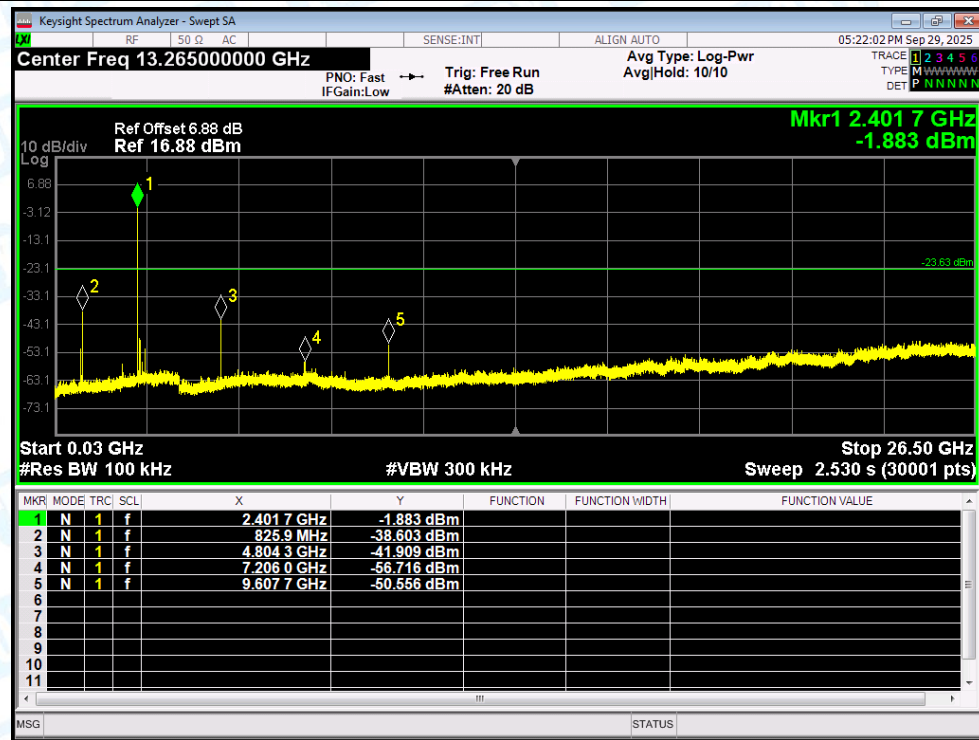
Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Emission



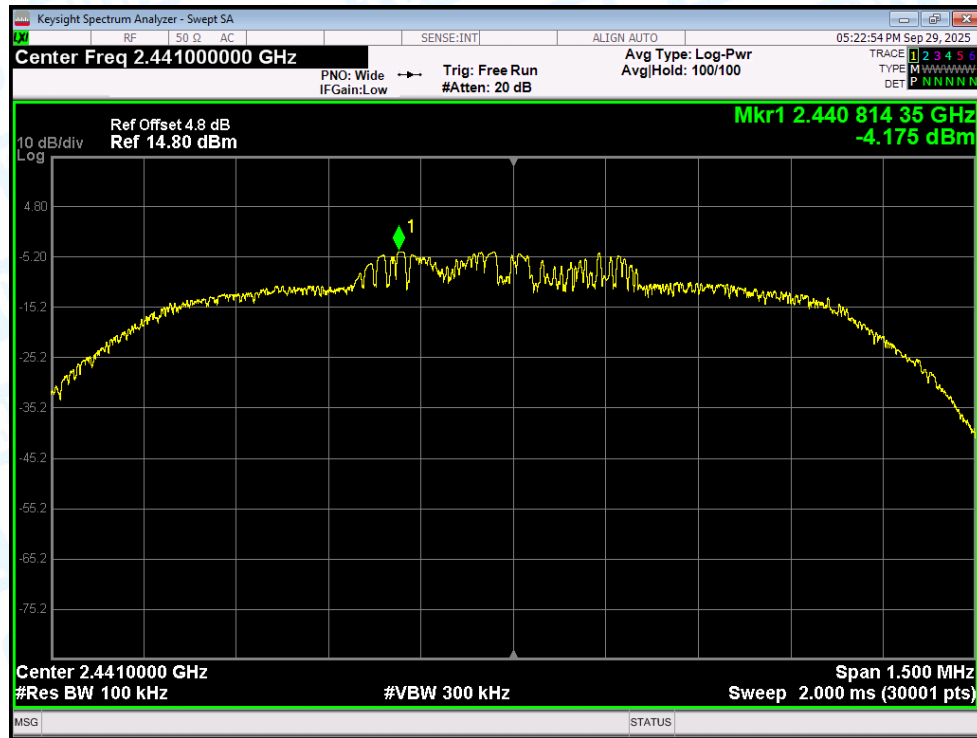
Tx. Spurious NVNT 2-DH5 2402MHz Ant1 Ref



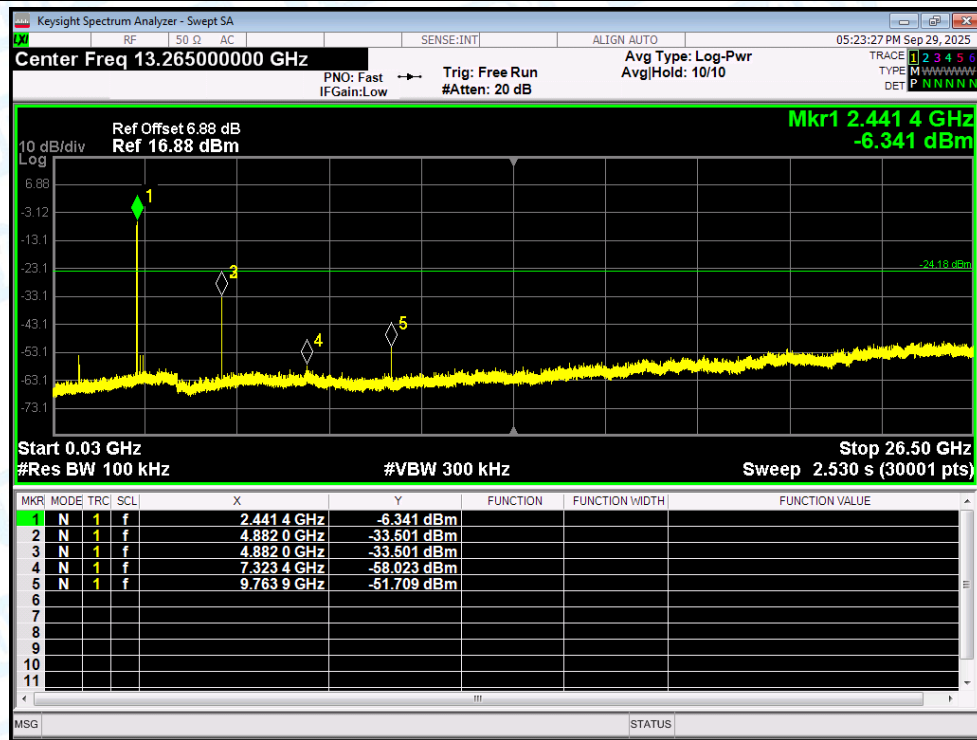
Tx. Spurious NVNT 2-DH5 2402MHz Ant1 Emission



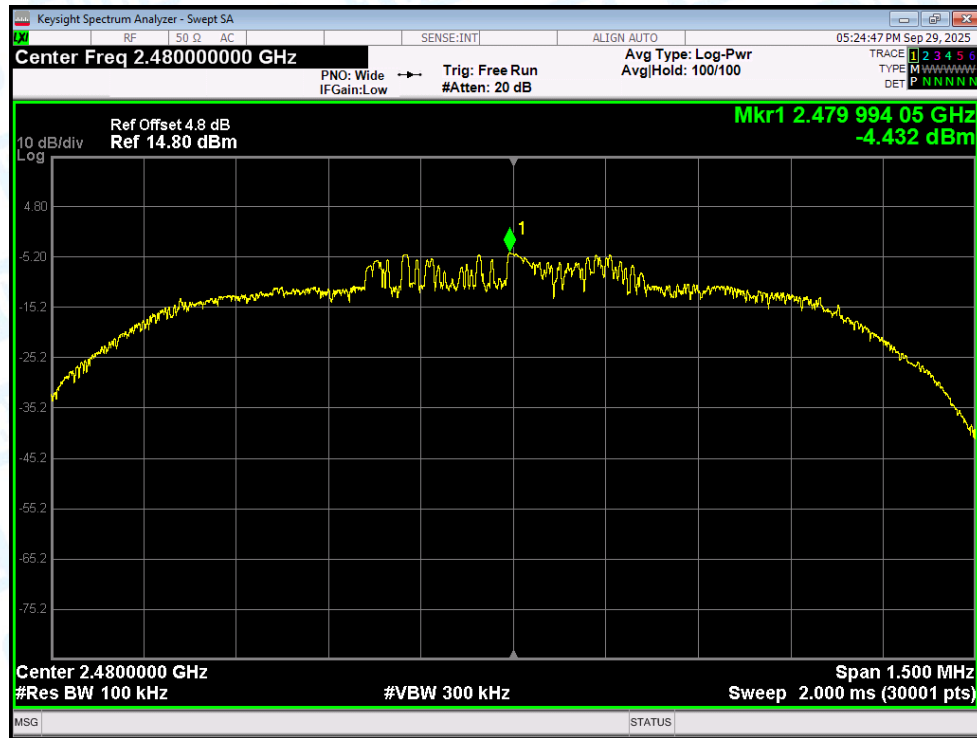
Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Ref



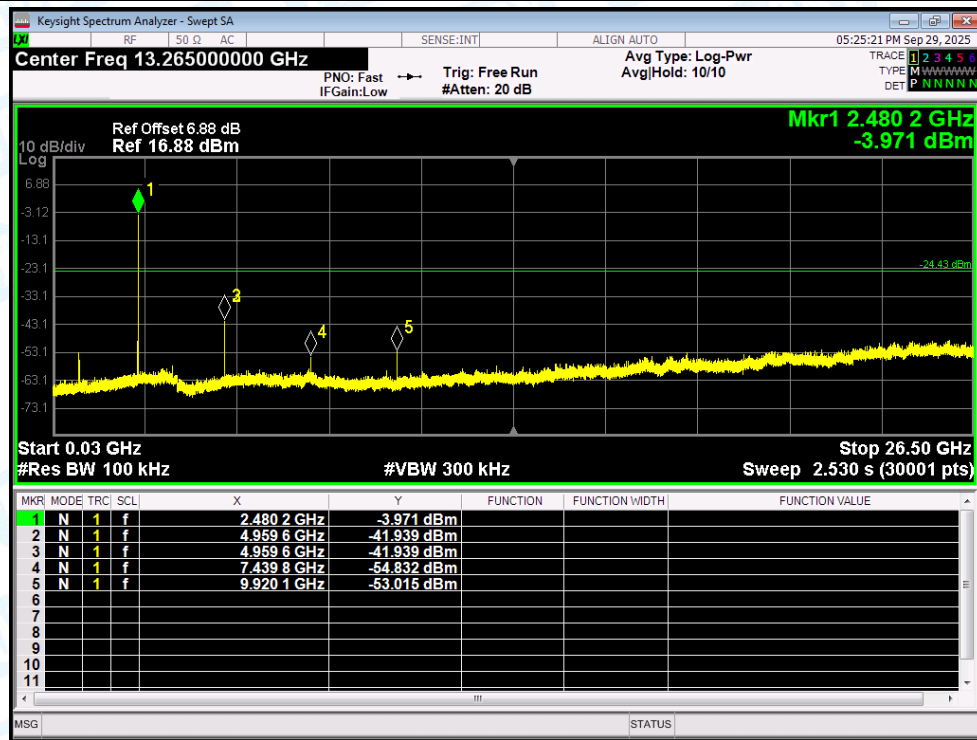
Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Emission



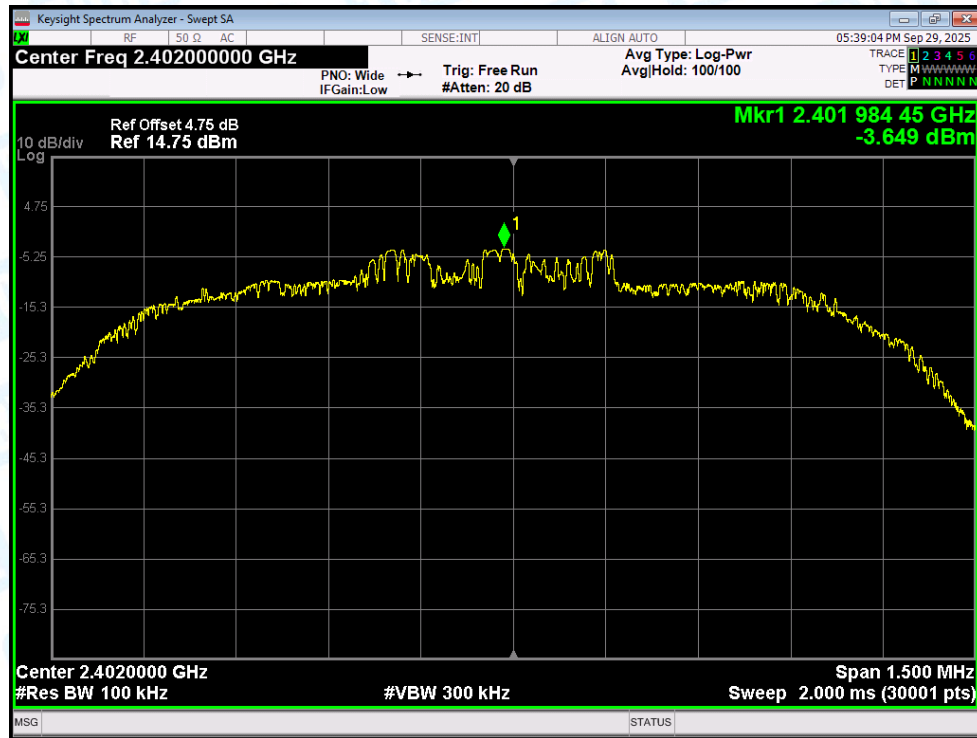
Tx. Spurious NVNT 2-DH5 2480MHz Ant1 Ref



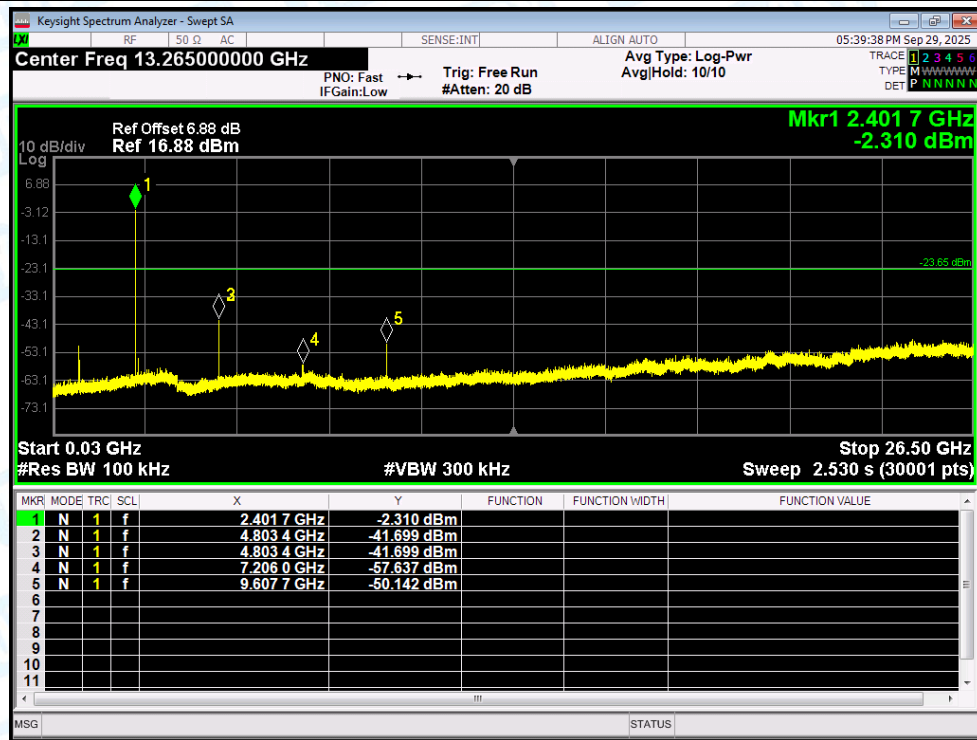
Tx. Spurious NVNT 2-DH5 2480MHz Ant1 Emission



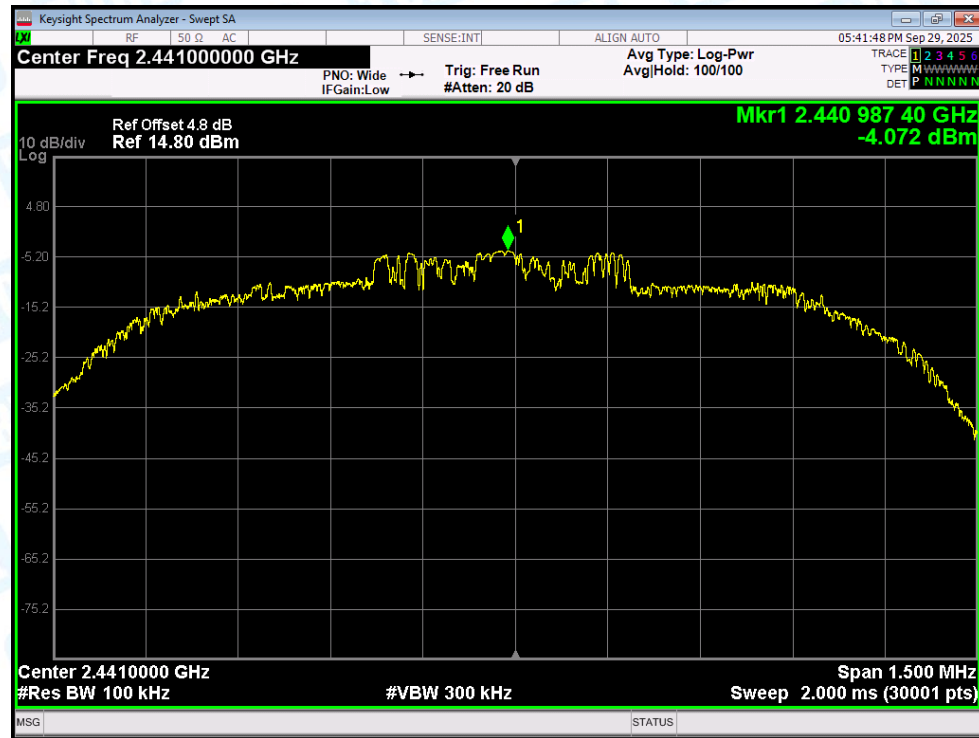
Tx. Spurious NVNT 3-DH5 2402MHz Ant1 Ref



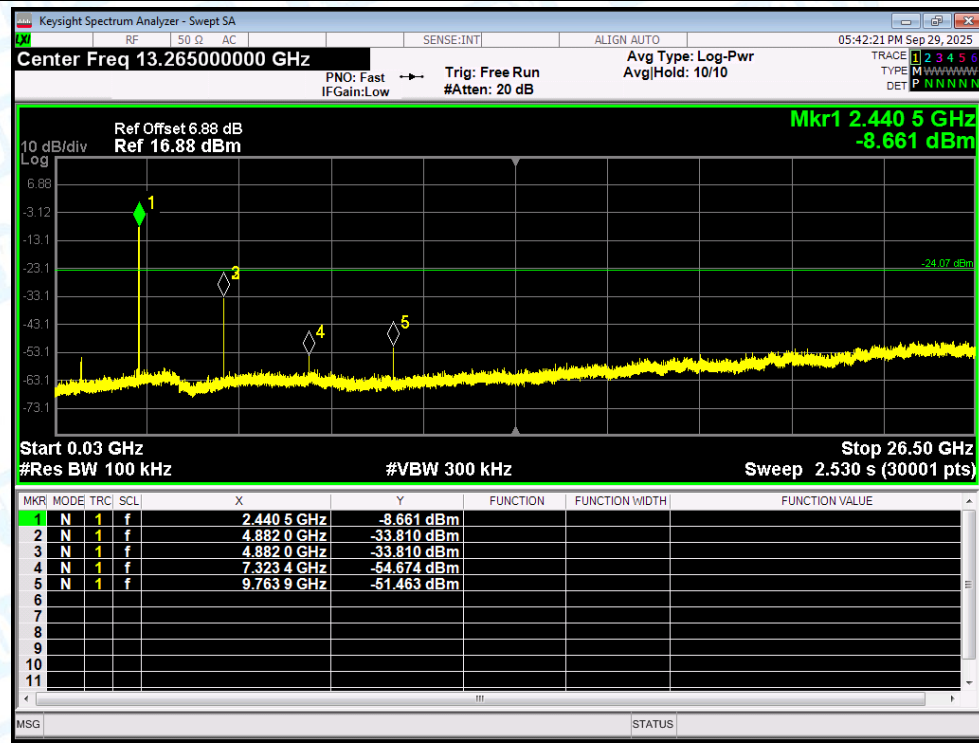
Tx. Spurious NVNT 3-DH5 2402MHz Ant1 Emission



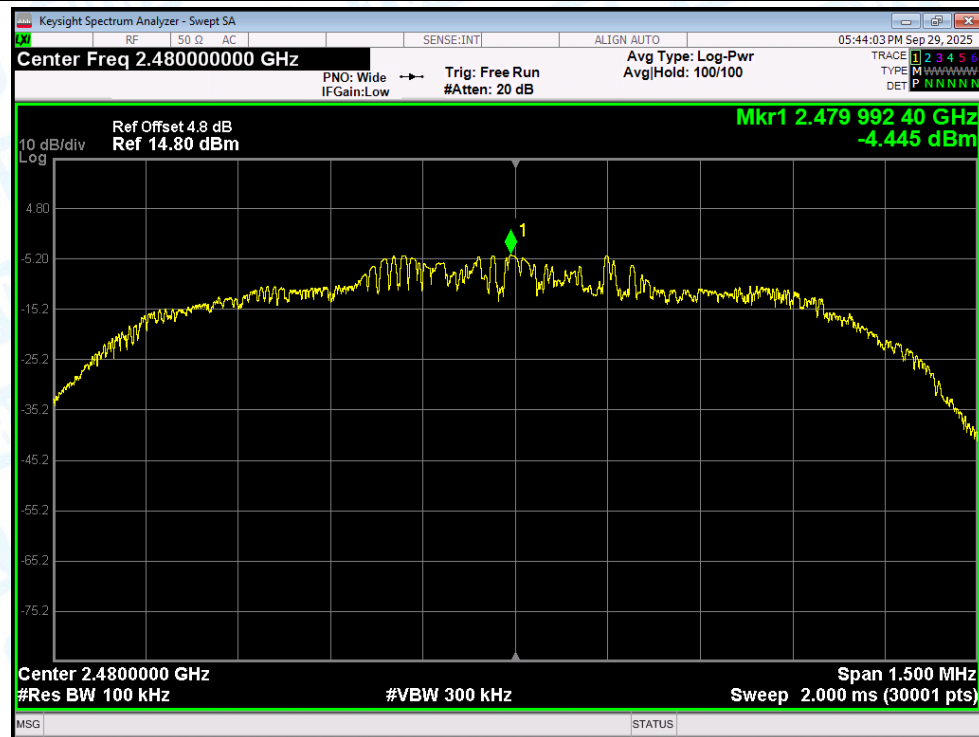
Tx. Spurious NVNT 3-DH5 2441MHz Ant1 Ref



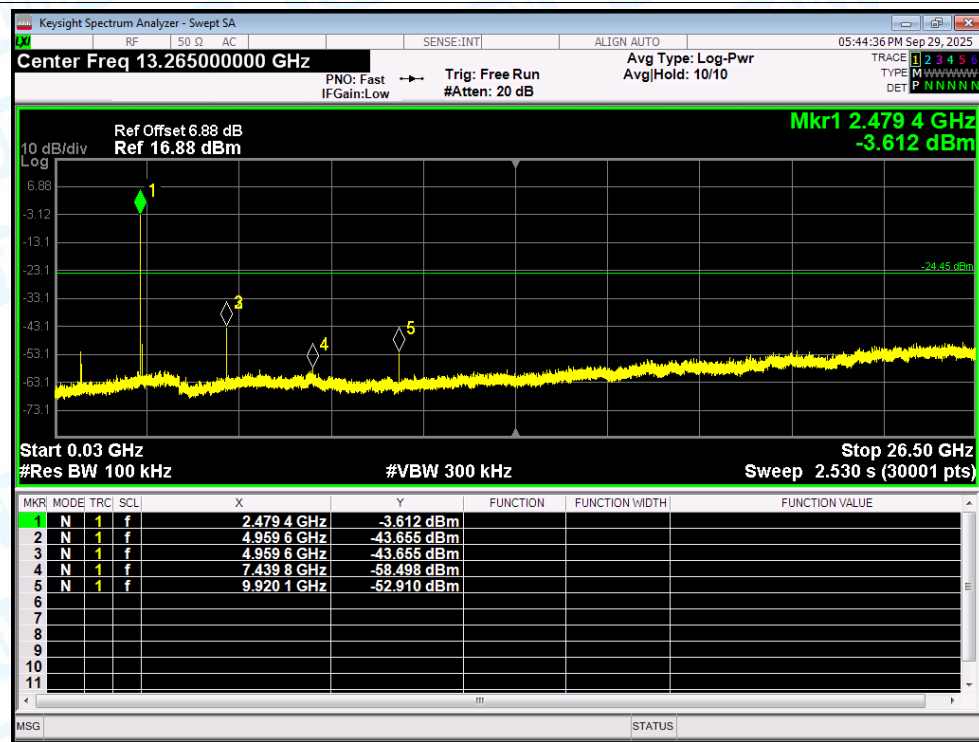
Tx. Spurious NVNT 3-DH5 2441MHz Ant1 Emission



Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Emission

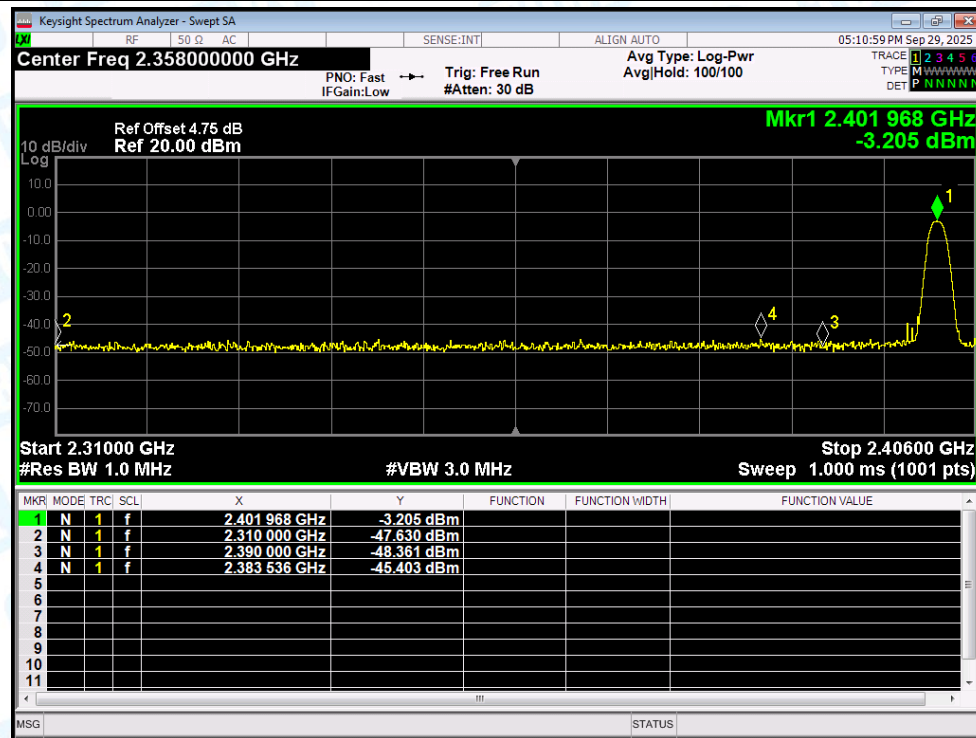


9. Restrict Band

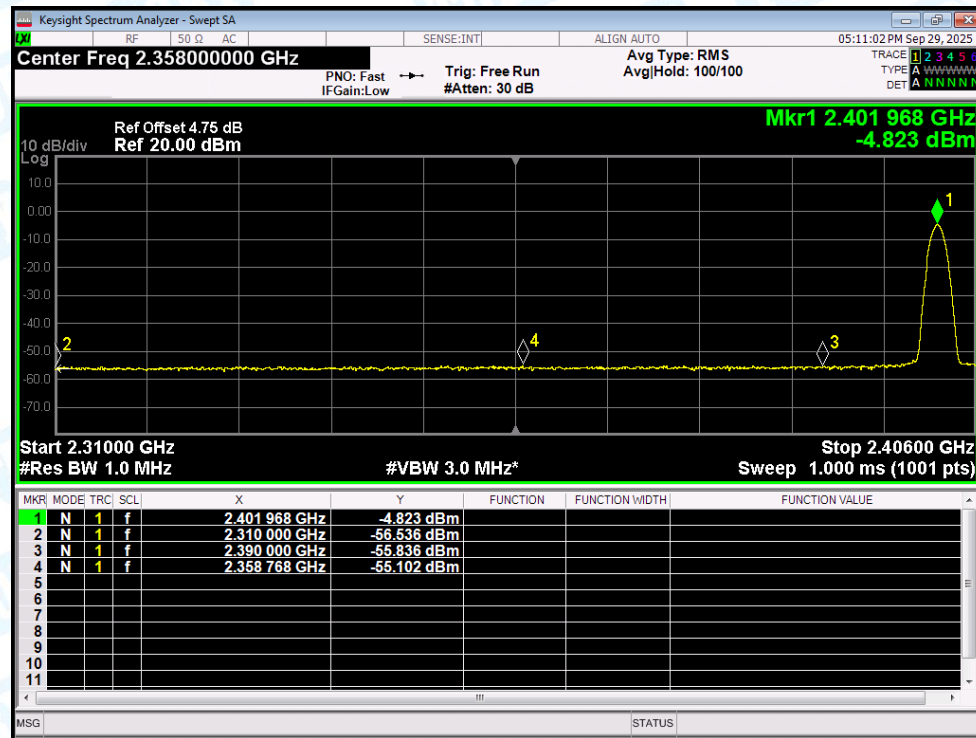
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH5	2402	Ant1	No-Hopping	2310	-47.63	2	-	49.63	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2310	-56.54	2	1.1	41.82	Average	54	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2383.536	-45.4	2	-	51.86	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2358.768	-55.1	2	1.1	43.26	Average	54	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2390	-48.36	2	-	48.9	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2390	-55.84	2	1.1	42.52	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.5	-46.6	2	-	50.66	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.5	-55.04	2	1.1	43.32	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2488.192	-44	2	-	53.26	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2492.776	-54.31	2	1.1	44.05	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2500	-47.08	2	-	50.18	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2500	-55.18	2	1.1	43.18	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2310	-48.2	2	-	49.06	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2310	-56.6	2	1.09	41.75	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2326.992	-44.6	2	-	52.66	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2373.744	-55.22	2	1.09	43.13	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2390	-48.55	2	-	48.71	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2390	-55.86	2	1.09	42.49	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.5	-44.68	2	-	52.58	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.5	-54.84	2	1.09	43.51	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2487.784	-44.04	2	-	53.22	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2497.072	-54.35	2	1.09	44	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2500	-46.7	2	-	50.56	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2500	-55.85	2	1.09	42.5	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2310	-47.68	2	-	49.58	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2310	-56.06	2	1.09	42.29	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2374.128	-45.16	2	-	52.1	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2368.656	-55.16	2	1.09	43.19	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2390	-47.01	2	-	50.25	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2390	-55.94	2	1.09	42.41	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.5	-47.91	2	-	49.35	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.5	-55.22	2	1.09	43.13	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2499.808	-44.07	2	-	53.19	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2484.208	-54.19	2	1.09	44.16	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2500	-47.2	2	-	50.06	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2500	-55.42	2	1.09	42.93	Average	54	Pass

Test Graphs

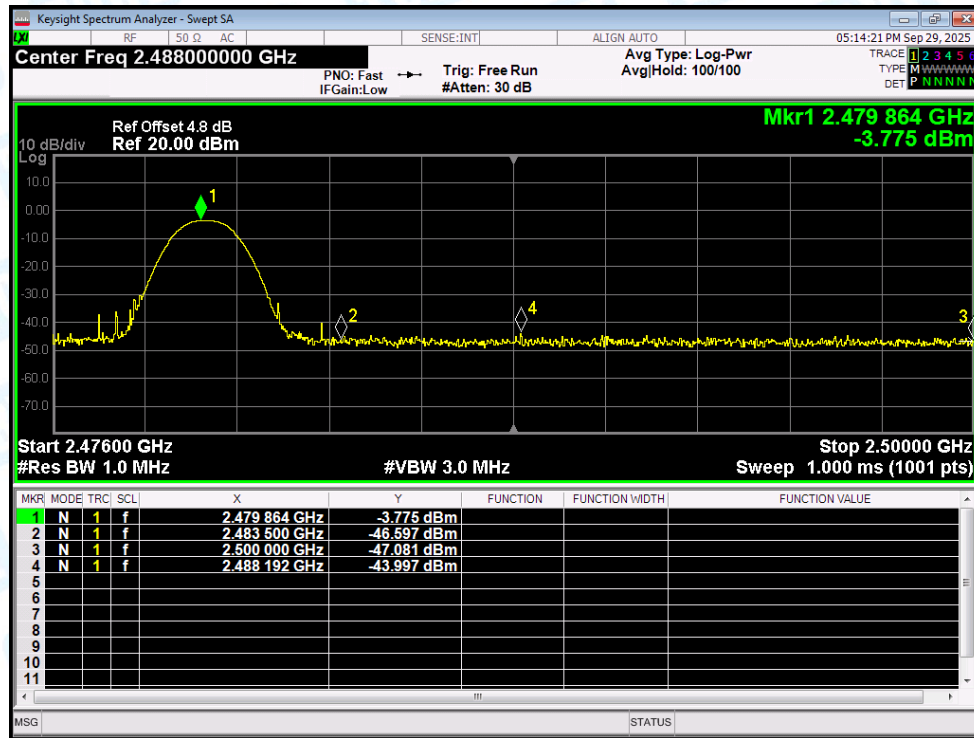
Restrict Band NVNT 1-DH5 2402MHz Ant1 No-Hopping Peak



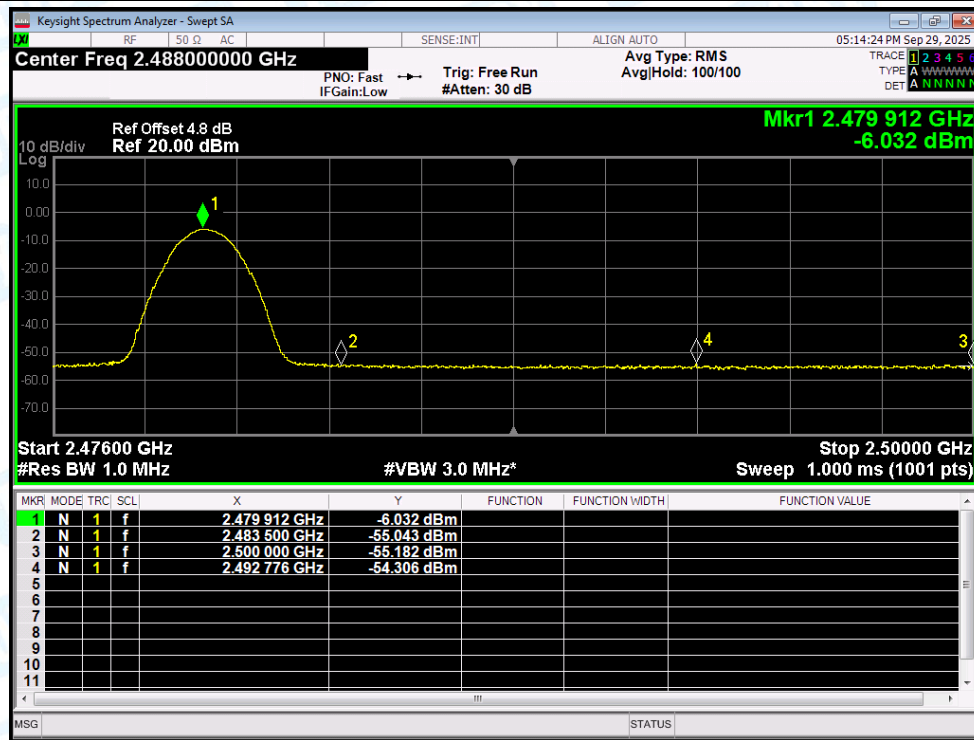
Restrict Band NVNT 1-DH5 2402MHz Ant1 No-Hopping Average



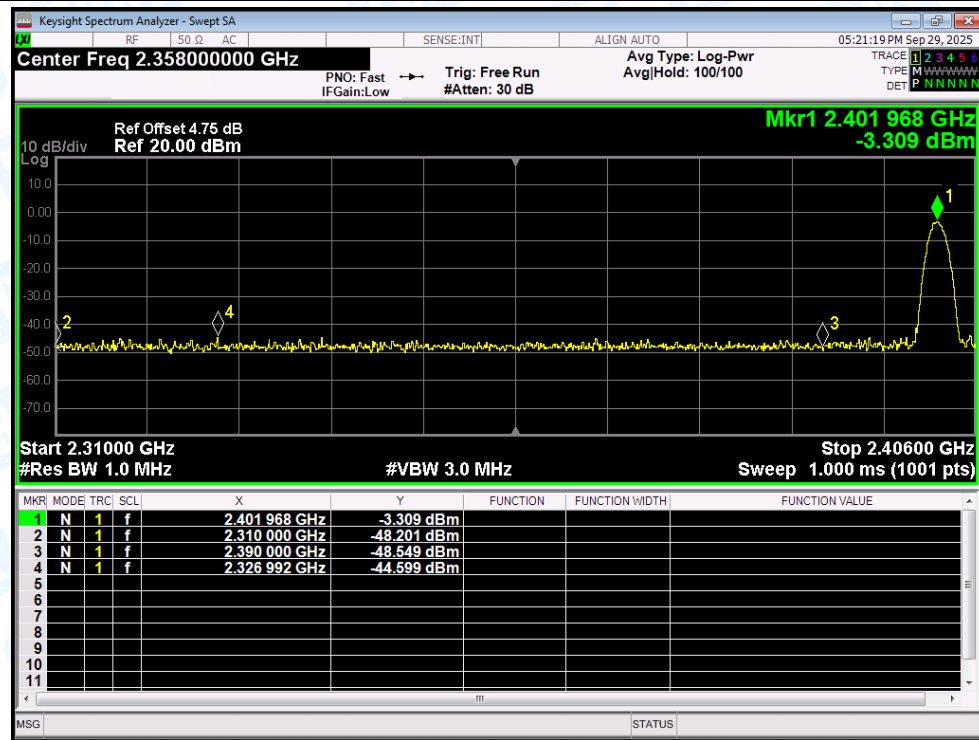
Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Peak



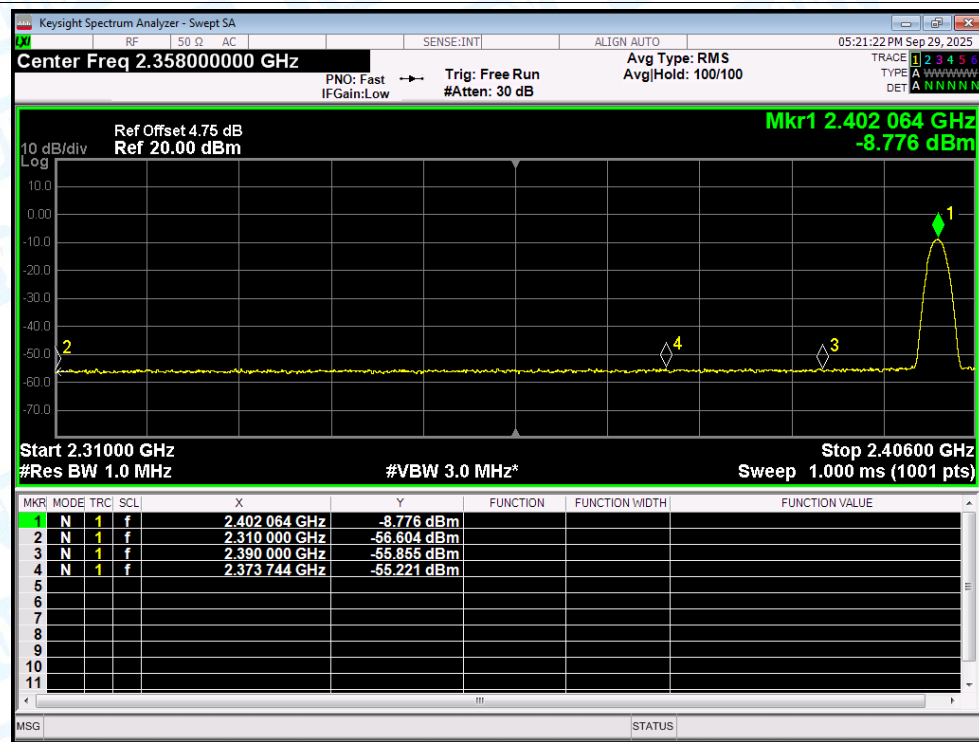
Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Average



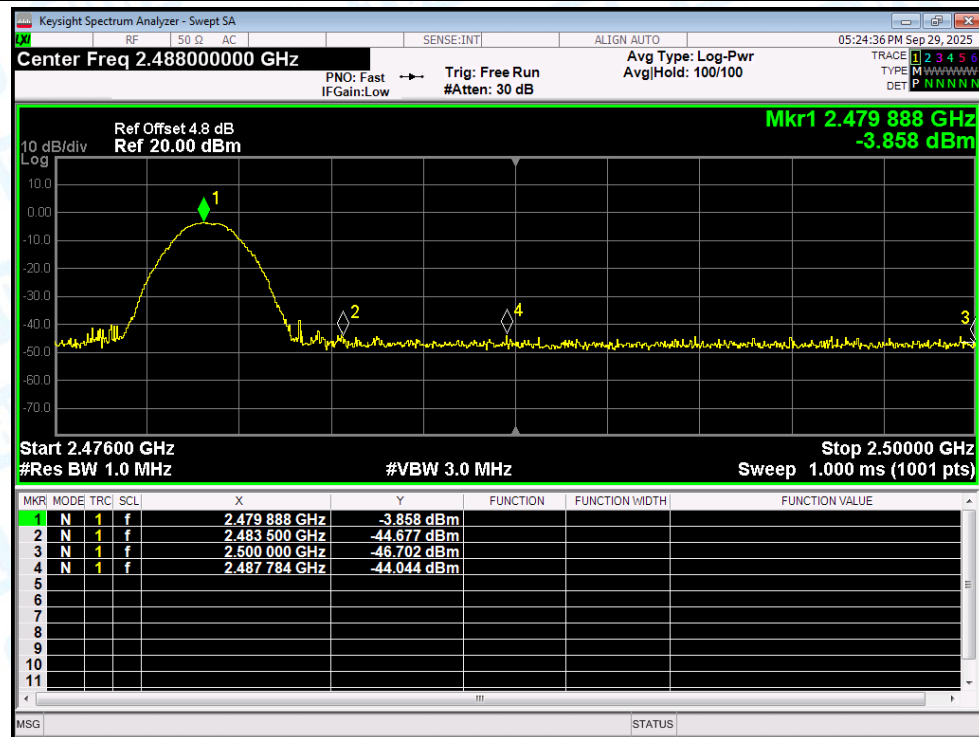
Restrict Band NVNT 2-DH5 2402MHz Ant1 No-Hopping Peak



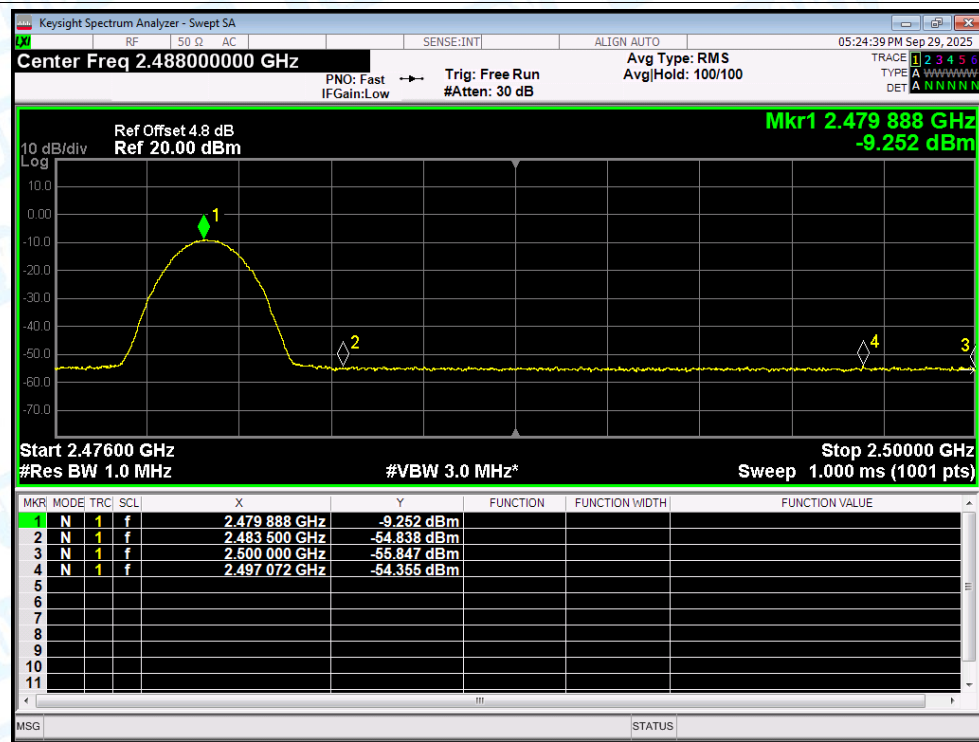
Restrict Band NVNT 2-DH5 2402MHz Ant1 No-Hopping Average



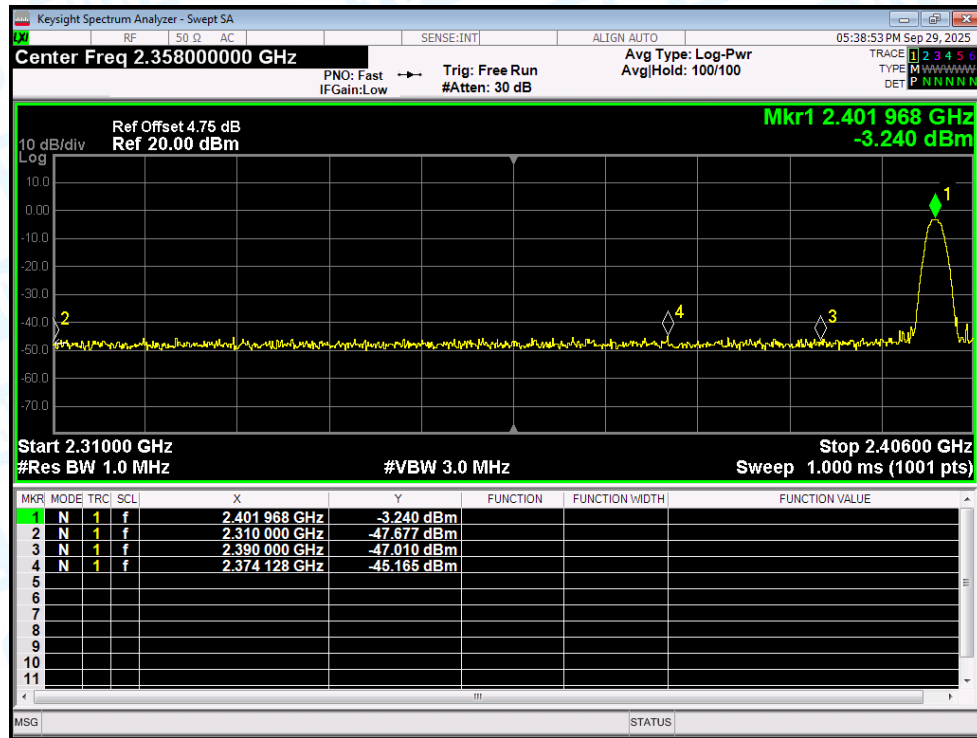
Restrict Band NVNT 2-DH5 2480MHz Ant1 No-Hopping Peak



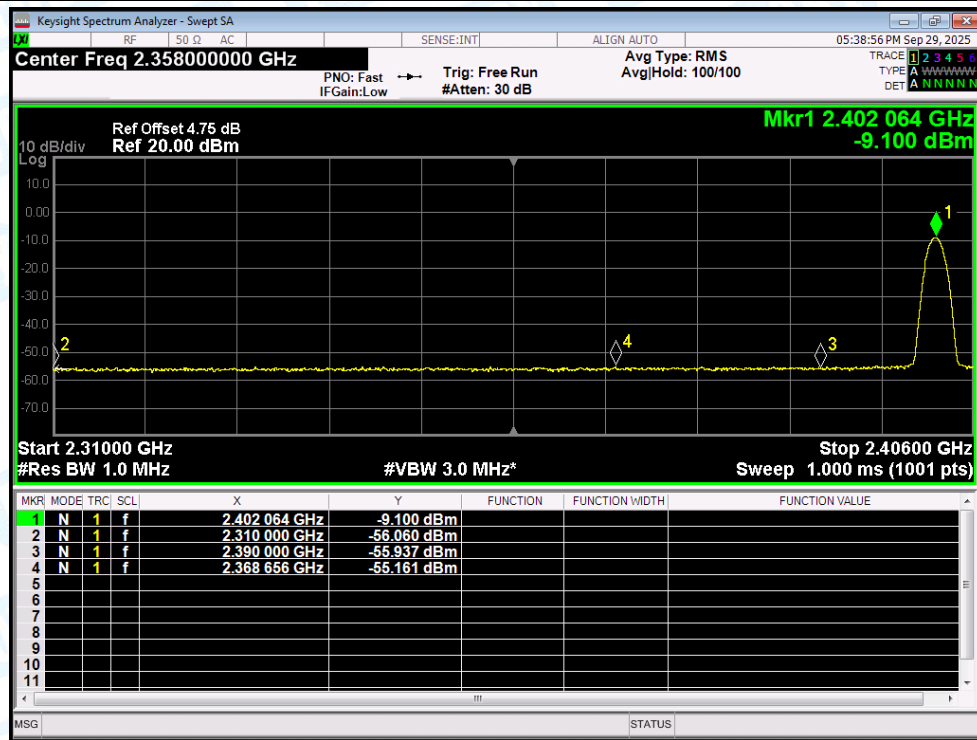
Restrict Band NVNT 2-DH5 2480MHz Ant1 No-Hopping Average



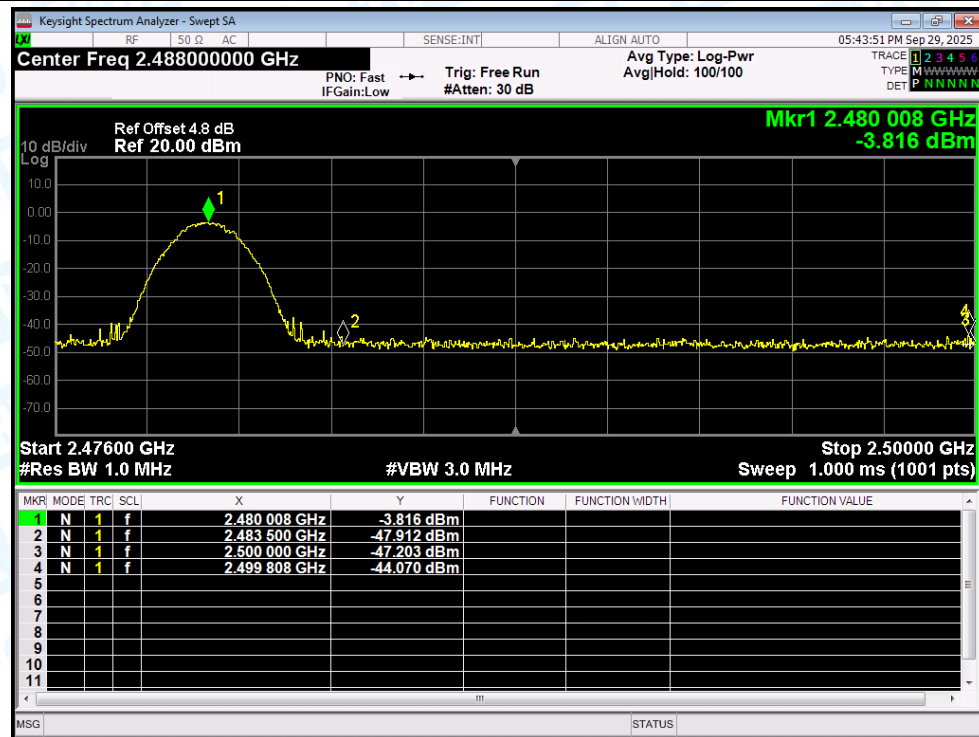
Restrict Band NVNT 3-DH5 2402MHz Ant1 No-Hopping Peak



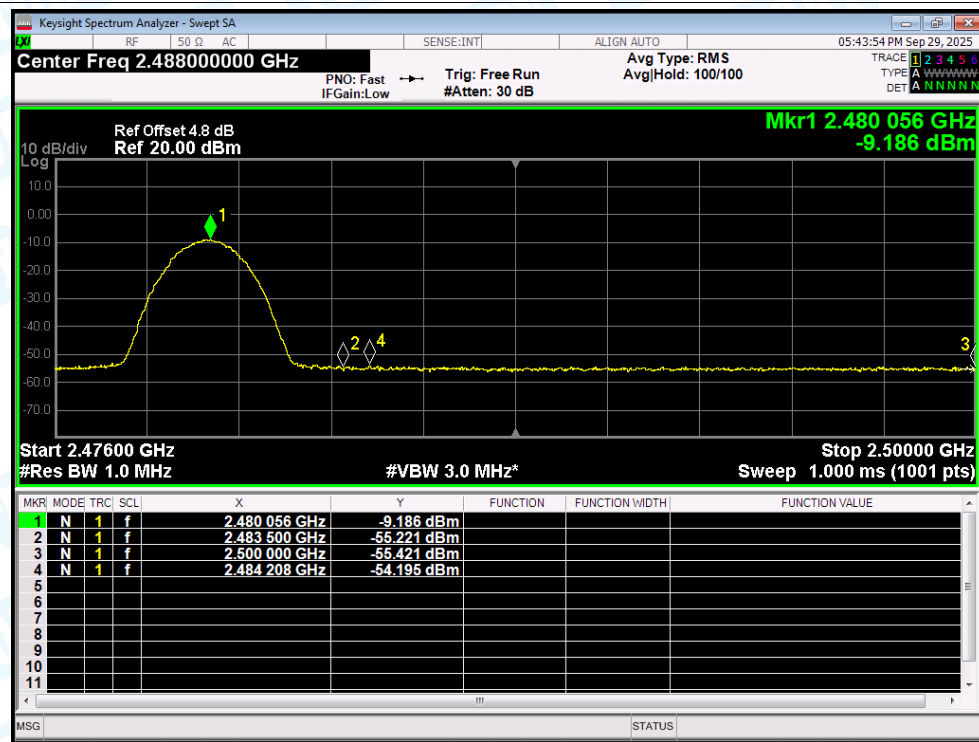
Restrict Band NVNT 3-DH5 2402MHz Ant1 No-Hopping Average



Restrict Band NVNT 3-DH5 2480MHz Ant1 No-Hopping Peak



Restrict Band NVNT 3-DH5 2480MHz Ant1 No-Hopping Average

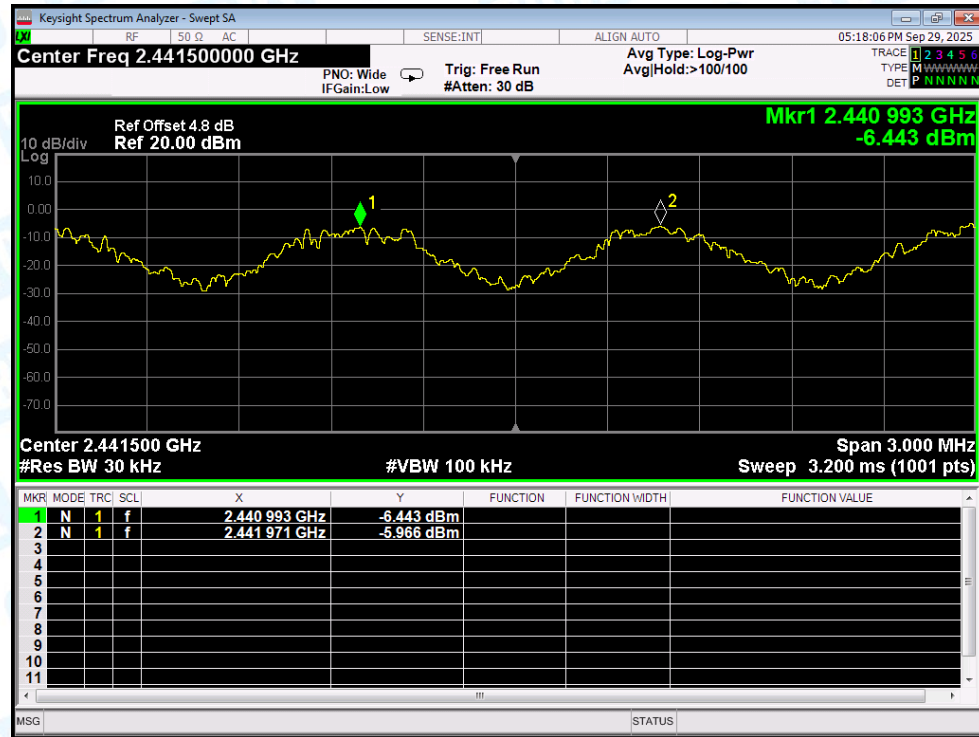


10. Carrier Frequencies Separation

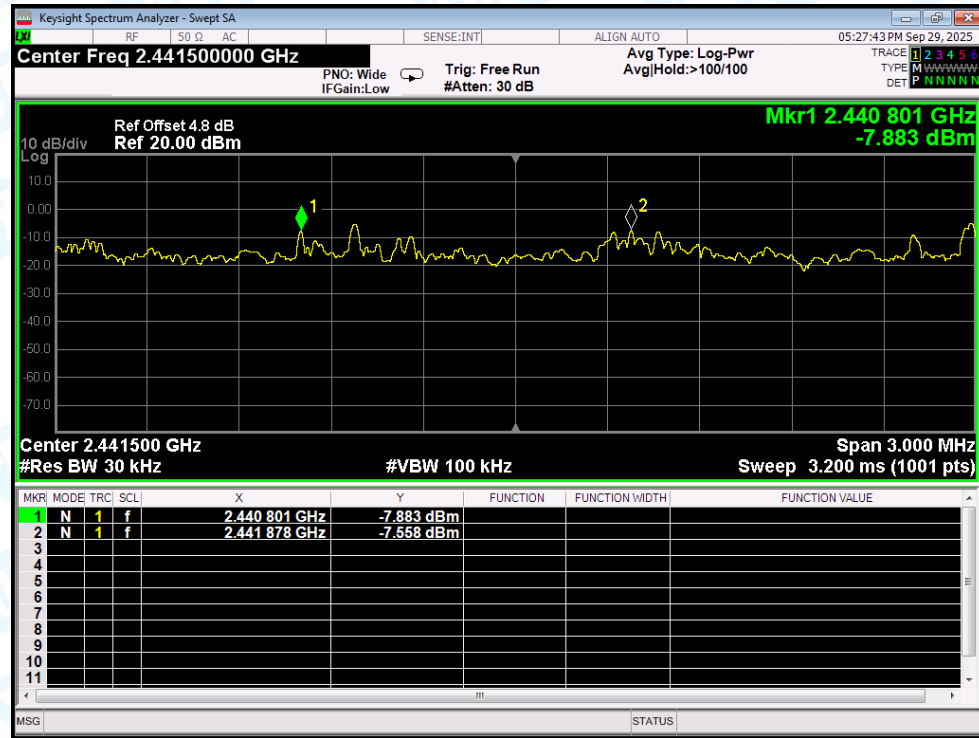
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH5	Ant1	2440.993	2441.971	0.978	0.633	Pass
NVNT	2-DH5	Ant1	2440.801	2441.878	1.077	0.84	Pass
NVNT	3-DH5	Ant1	2440.801	2441.998	1.197	0.787	Pass

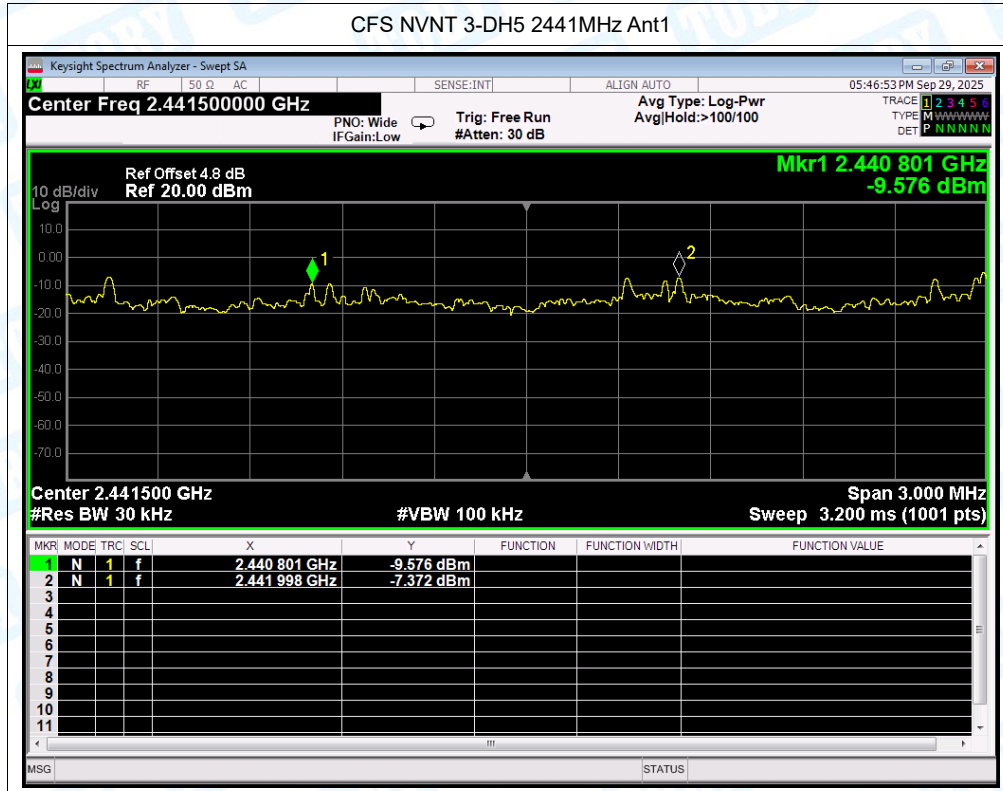
Test Graphs

CFS NVNT 1-DH5 2441MHz Ant1



CFS NVNT 2-DH5 2441MHz Ant1



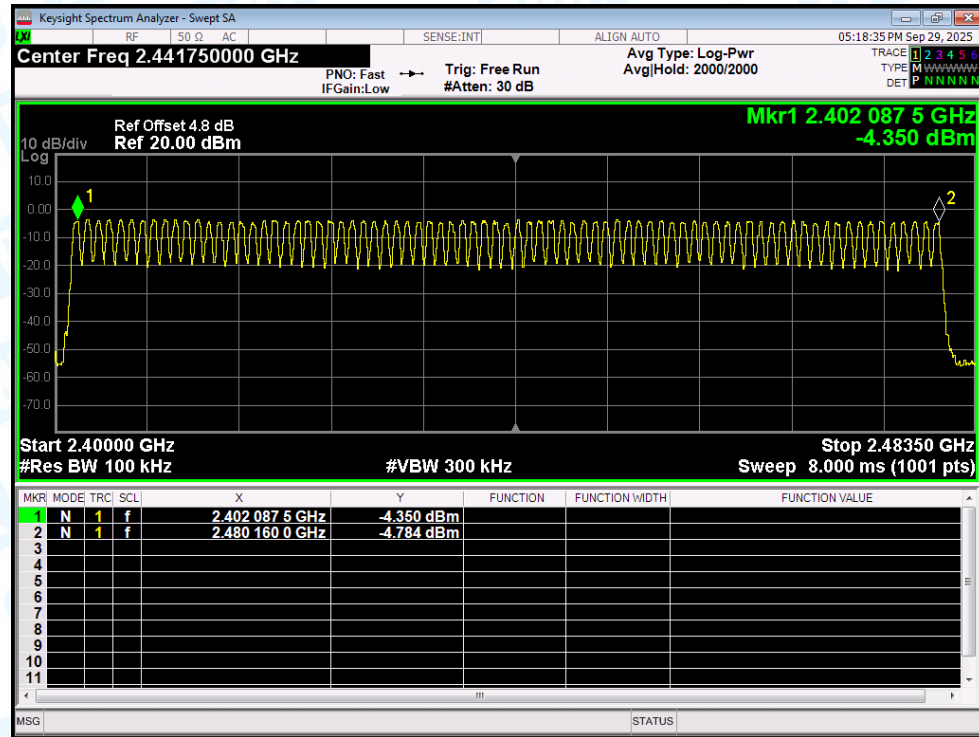


11. Number of Hopping Channel

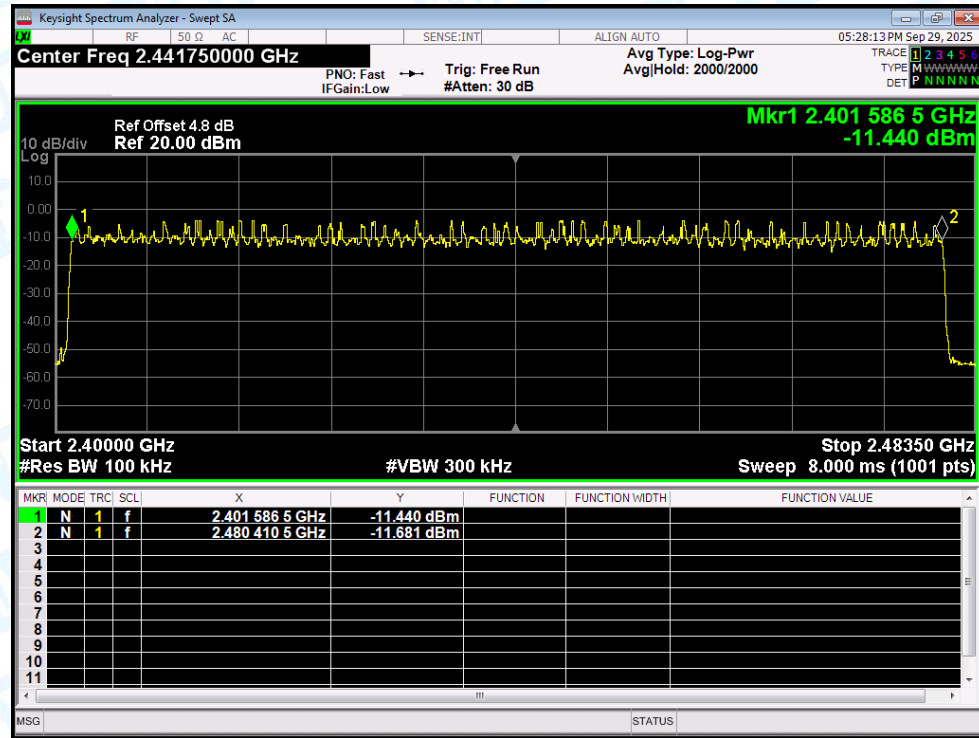
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH5	Ant1	79	15	Pass
NVNT	2-DH5	Ant1	79	15	Pass
NVNT	3-DH5	Ant1	79	15	Pass

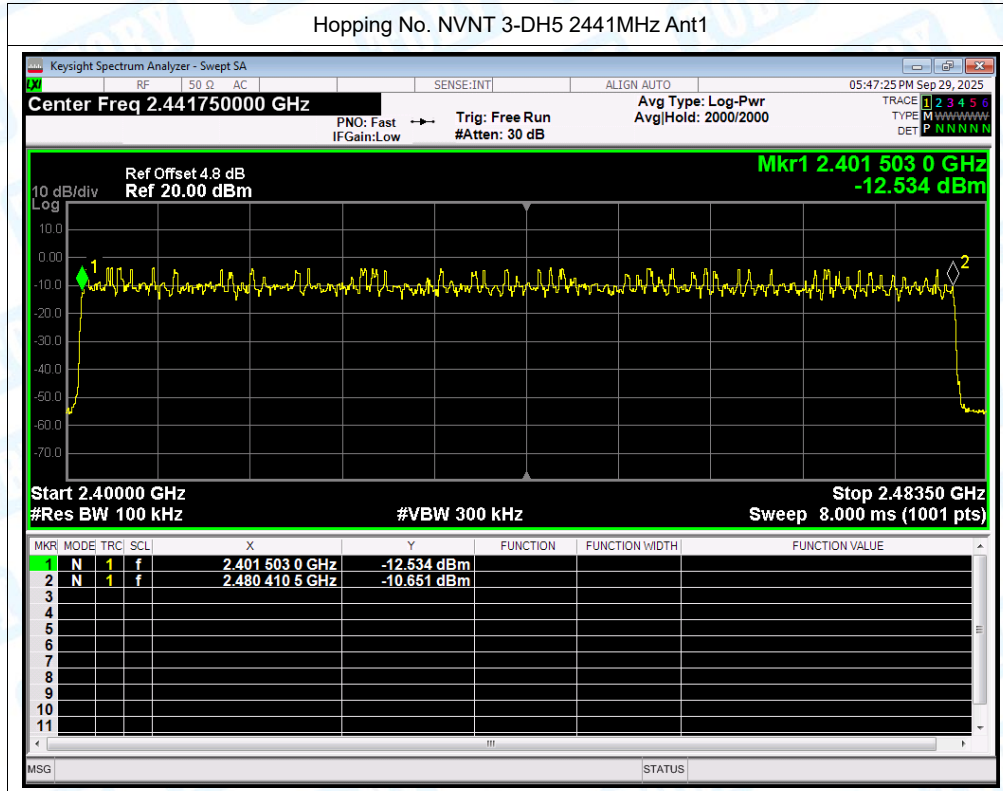
Test Graphs

Hopping No. NVNT 1-DH5 2441MHz Ant1



Hopping No. NVNT 2-DH5 2441MHz Ant1





--- END OF REPORT ---