

RF Test Data for Bluetooth (Conducted Measurements)

General Description of EUT	
Product Name:	Smart Watch
Test Model:	AK93
Sample ID:	HC-C-202510-0214-09-01#
Environmental Conditions	
Temperature:	25℃
Relative Humidity:	55%
Test Voltage:	DC 3.8V
Test Engineer:	Lily Zhang
Note: For a more detailed features description, please refer to the report TBR-C-202510-0214-9 The report only show the worst case data.	

Contents

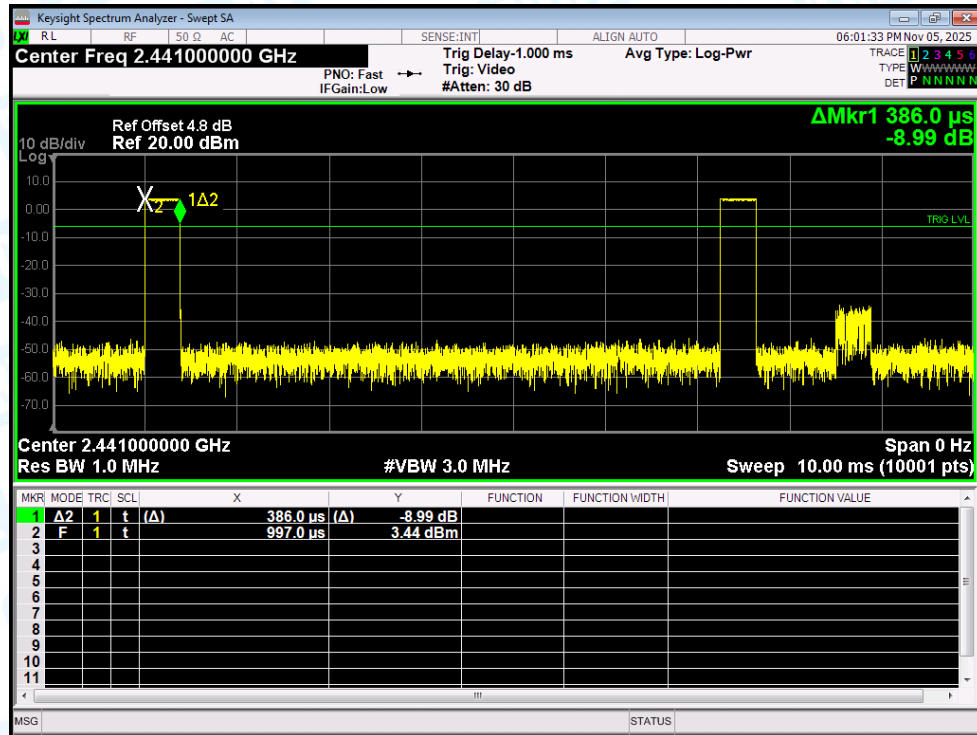
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1.Dwell Time

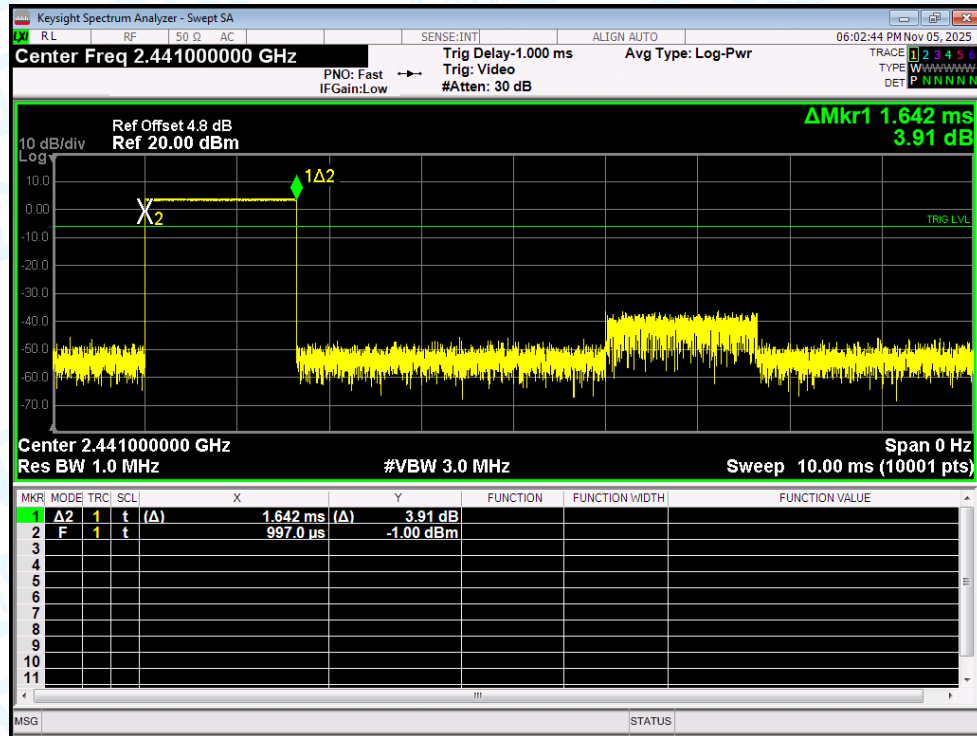
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	Ant1	0.386	123.52	31600	400	Pass
NVNT	1-DH3	2441	Ant1	1.642	262.72	31600	400	Pass
NVNT	1-DH5	2441	Ant1	2.89	308.267	31600	400	Pass
NVNT	2-DH1	2441	Ant1	0.394	126.08	31600	400	Pass
NVNT	2-DH3	2441	Ant1	1.646	263.36	31600	400	Pass
NVNT	2-DH5	2441	Ant1	2.895	308.8	31600	400	Pass
NVNT	3-DH1	2441	Ant1	0.395	126.4	31600	400	Pass
NVNT	3-DH3	2441	Ant1	1.645	263.2	31600	400	Pass
NVNT	3-DH5	2441	Ant1	2.896	308.907	31600	400	Pass

Test Graphs

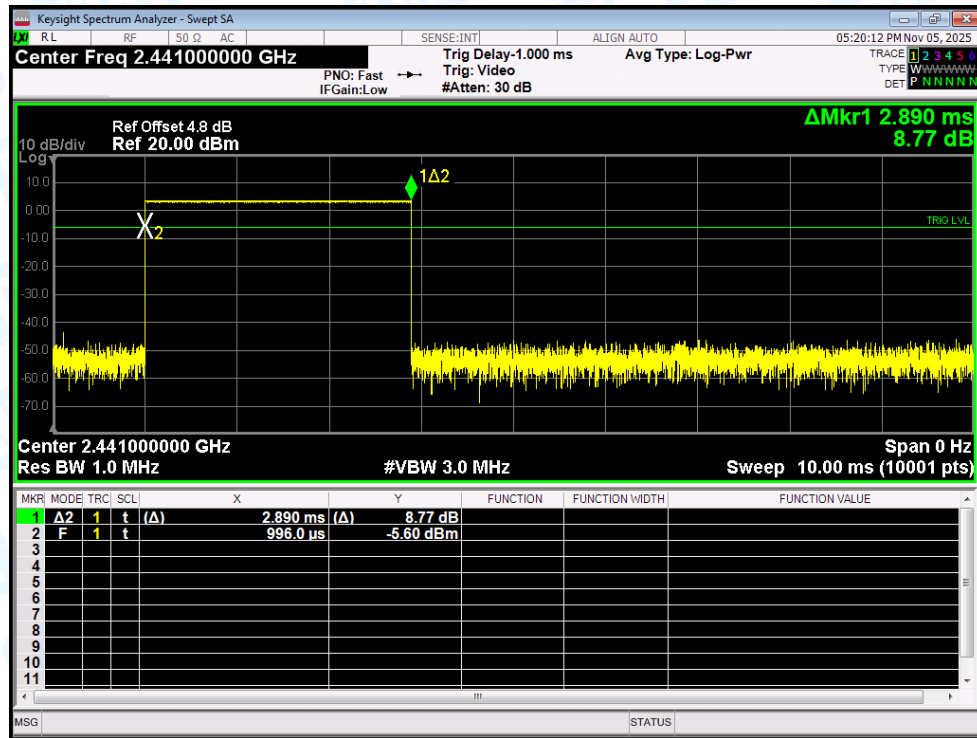
Dwell NVNT 1-DH1 2441MHz Ant1



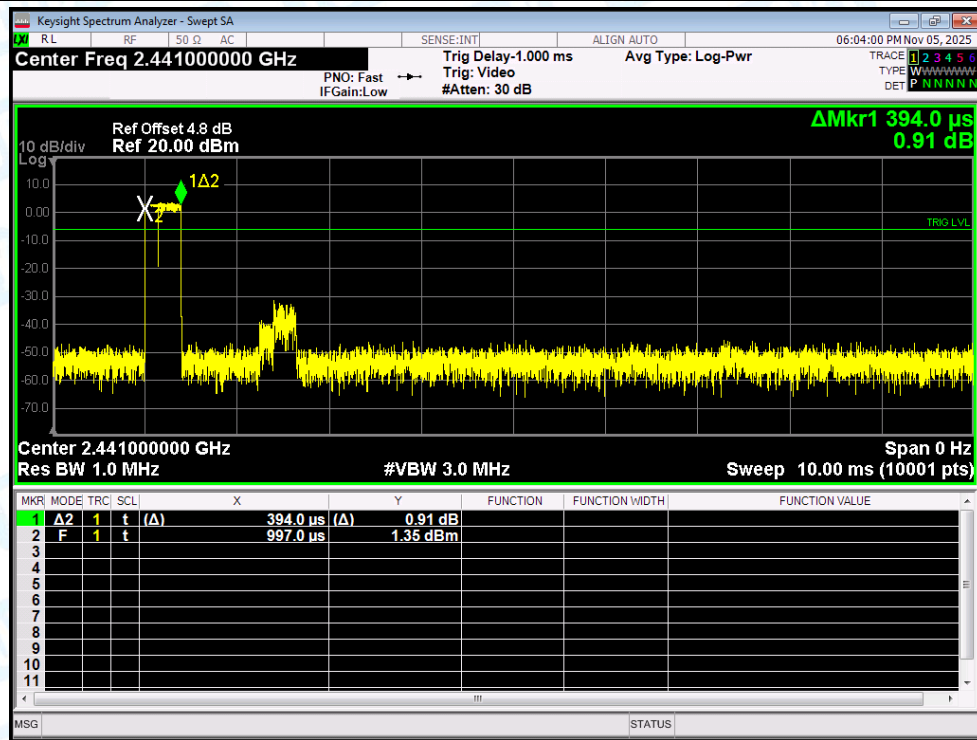
Dwell NVNT 1-DH3 2441MHz Ant1



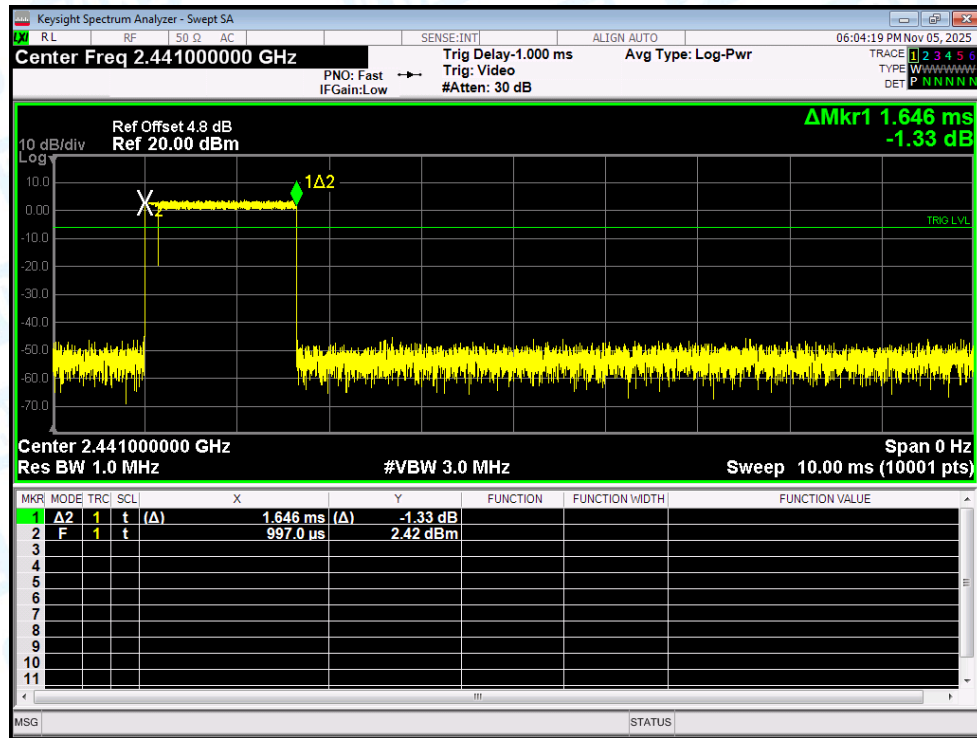
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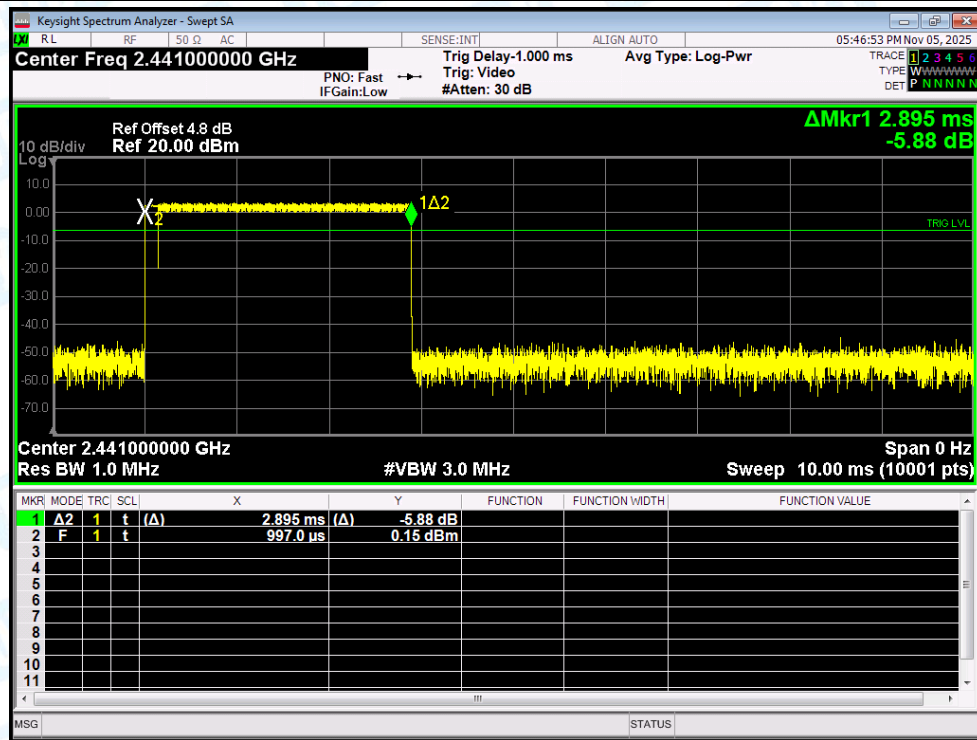
Dwell NVNT 2-DH1 2441MHz Ant1



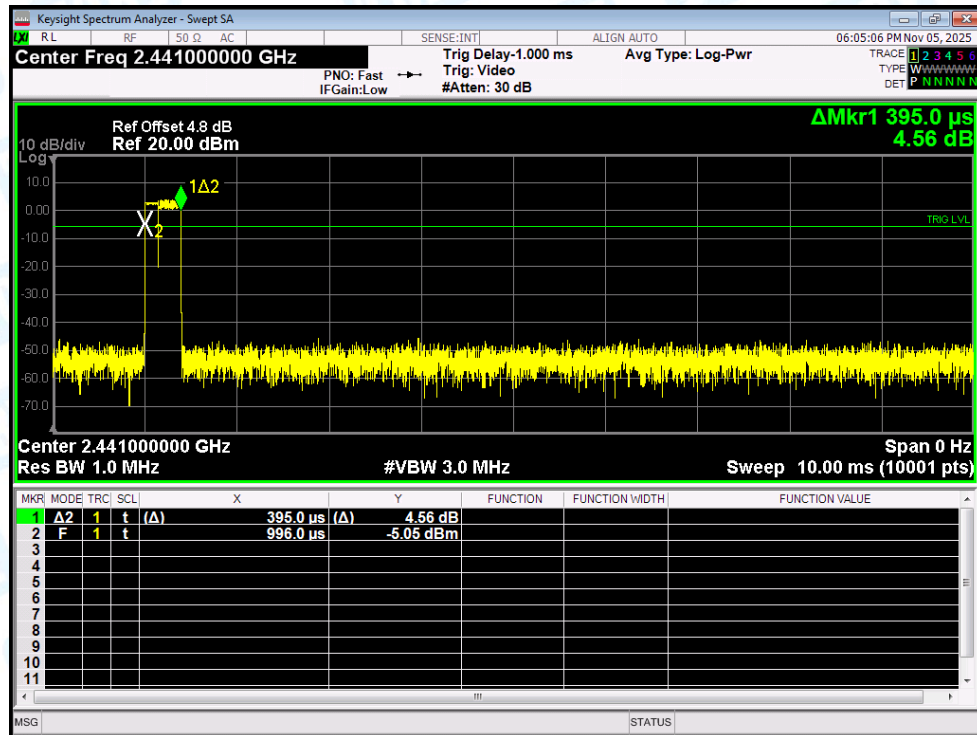
Dwell NVNT 2-DH3 2441MHz Ant1



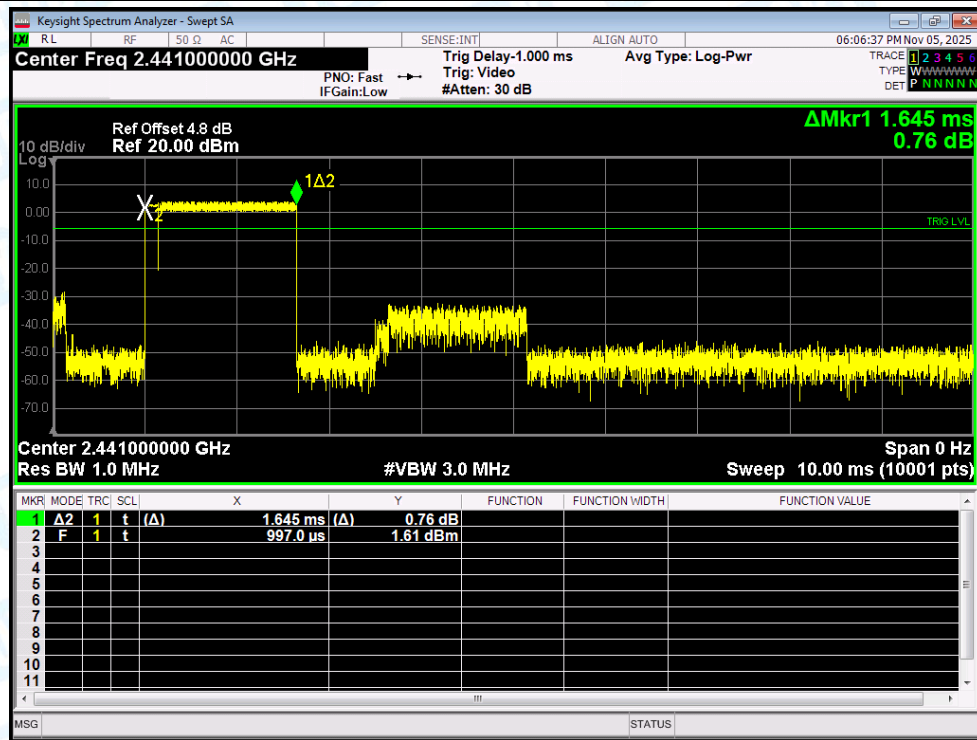
Dwell NVNT 2-DH5 2441MHz Ant1

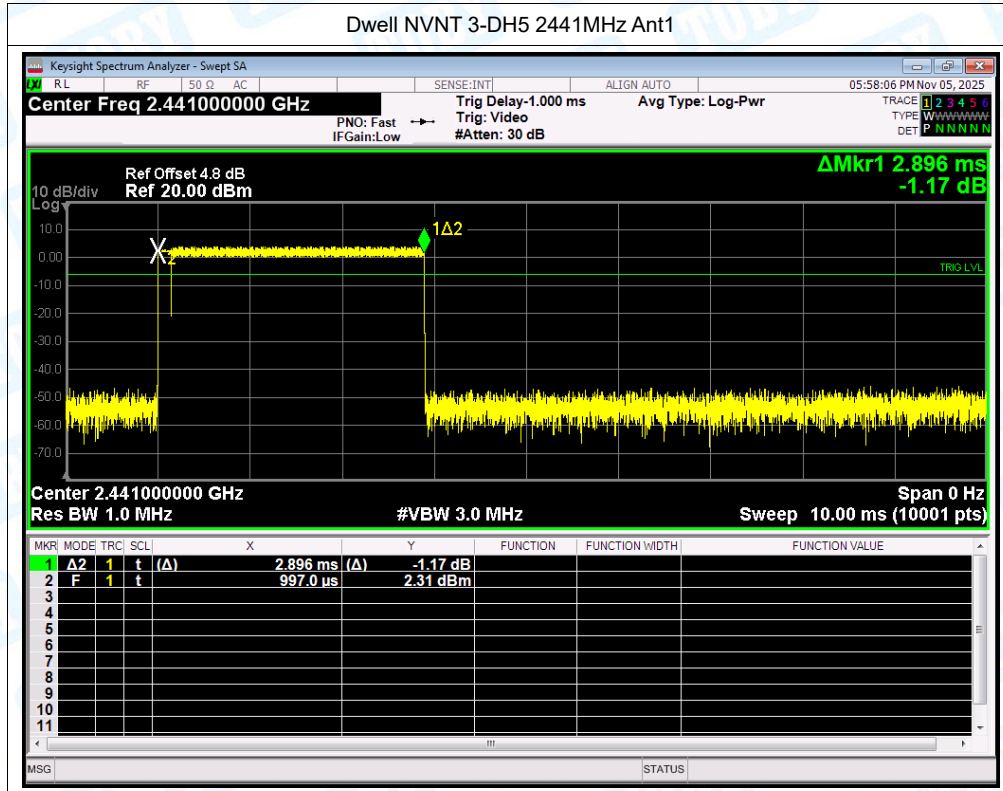


Dwell NVNT 3-DH1 2441MHz Ant1



Dwell NVNT 3-DH3 2441MHz Ant1



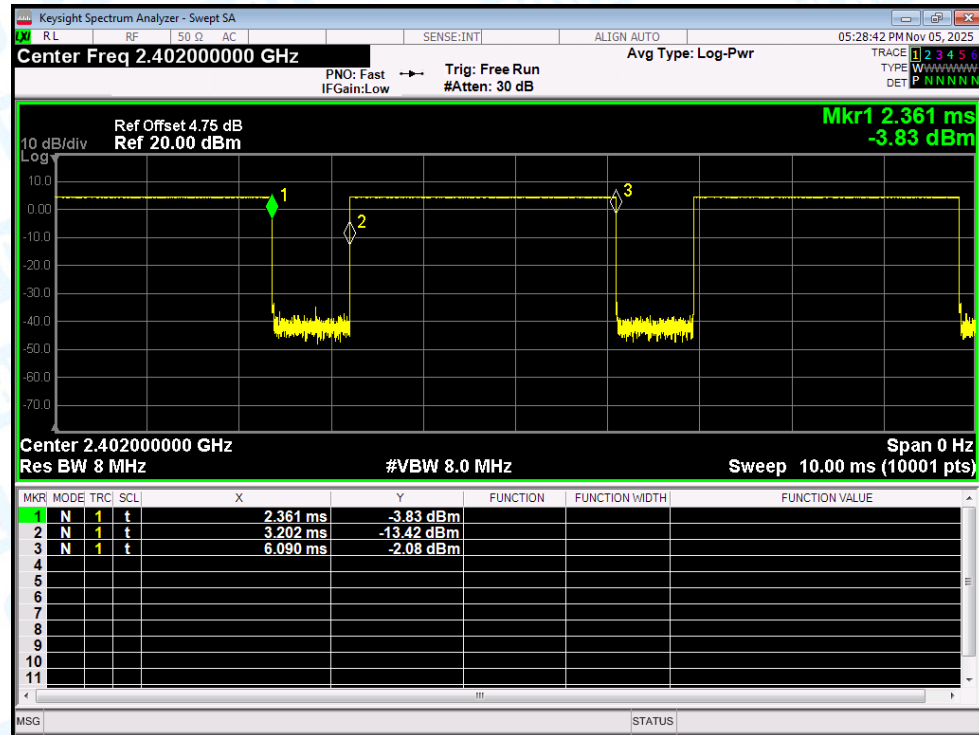


2.Duty Cycle

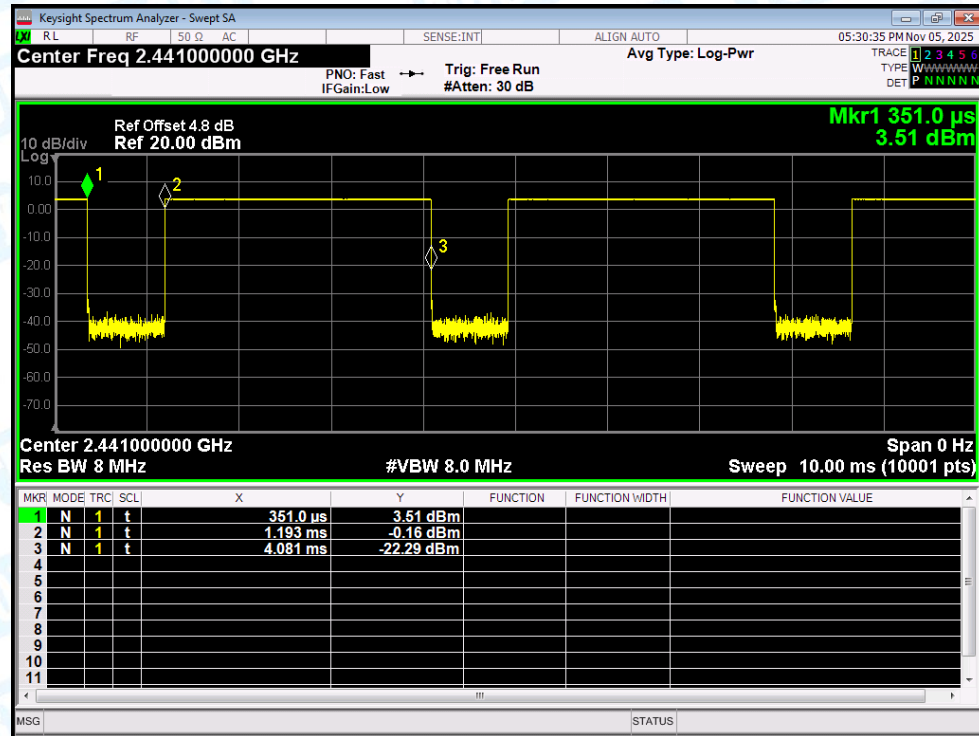
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH5	2402	Ant1	77.45	1.11	0.35
NVNT	1-DH5	2441	Ant1	77.43	1.11	0.35
NVNT	1-DH5	2480	Ant1	77.45	1.11	0.35
NVNT	2-DH5	2402	Ant1	77.46	1.11	0.35
NVNT	2-DH5	2441	Ant1	77.46	1.11	0.35
NVNT	2-DH5	2480	Ant1	77.46	1.11	0.35
NVNT	3-DH5	2402	Ant1	77.47	1.11	0.35
NVNT	3-DH5	2441	Ant1	77.47	1.11	0.35
NVNT	3-DH5	2480	Ant1	77.47	1.11	0.35

Test Graphs

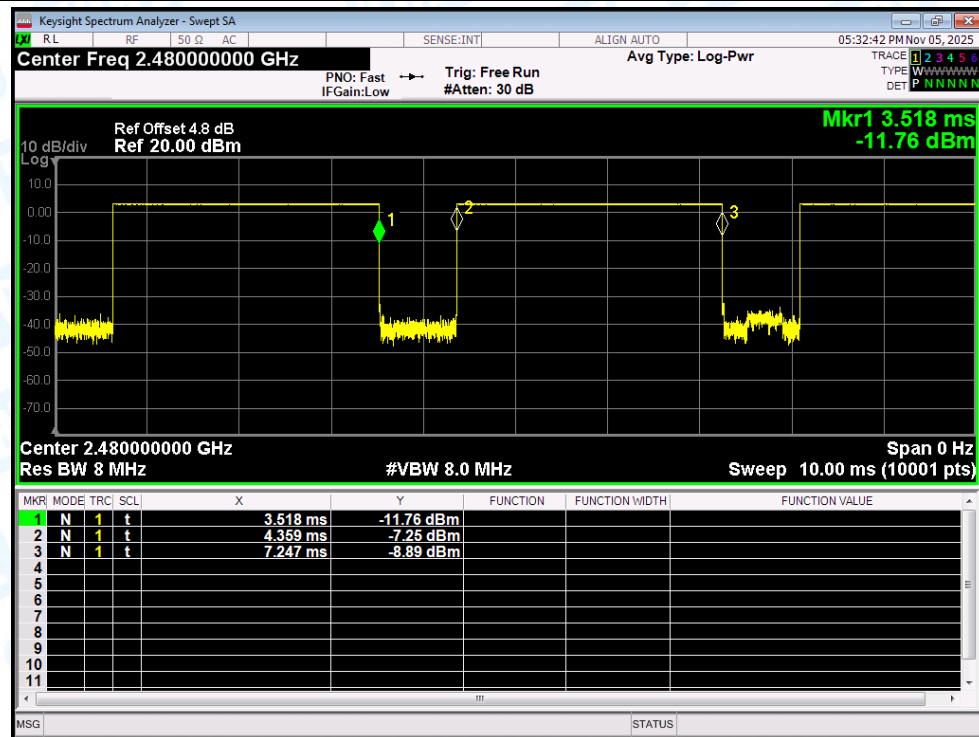
Duty Cycle NVNT 1-DH5 2402MHz Ant1



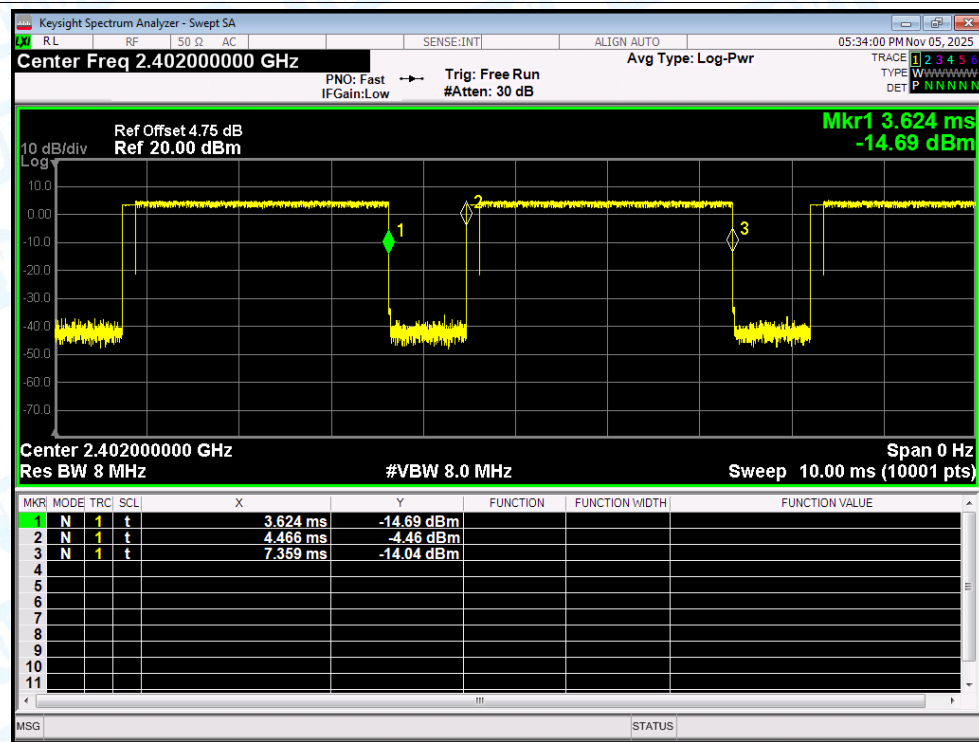
Duty Cycle NVNT 1-DH5 2441MHz Ant1



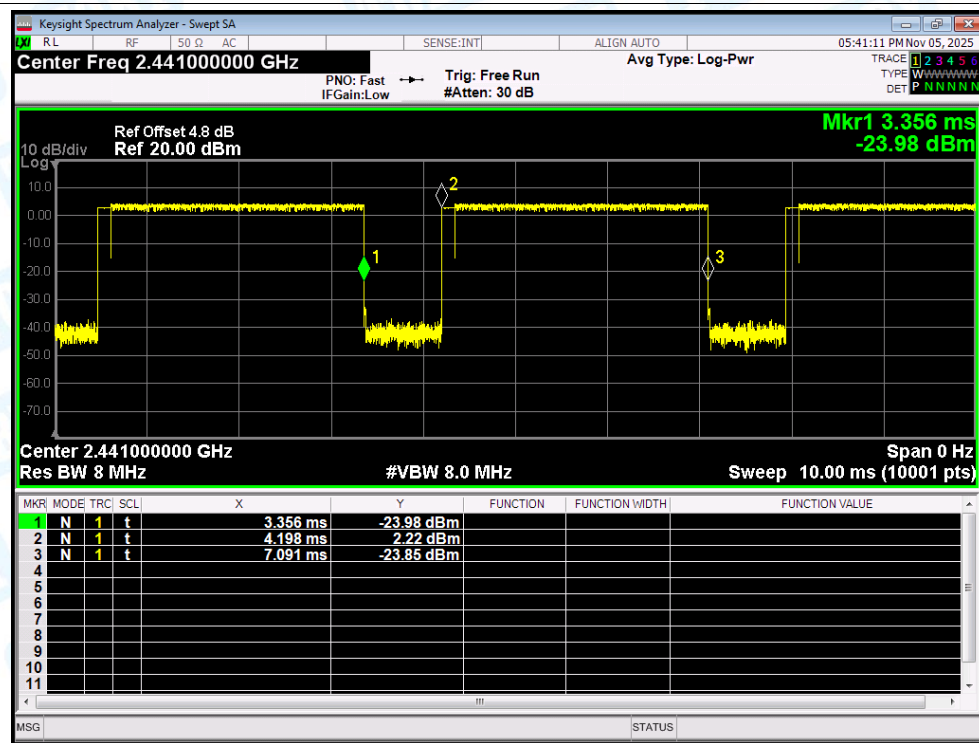
Duty Cycle NVNT 1-DH5 2480MHz Ant1



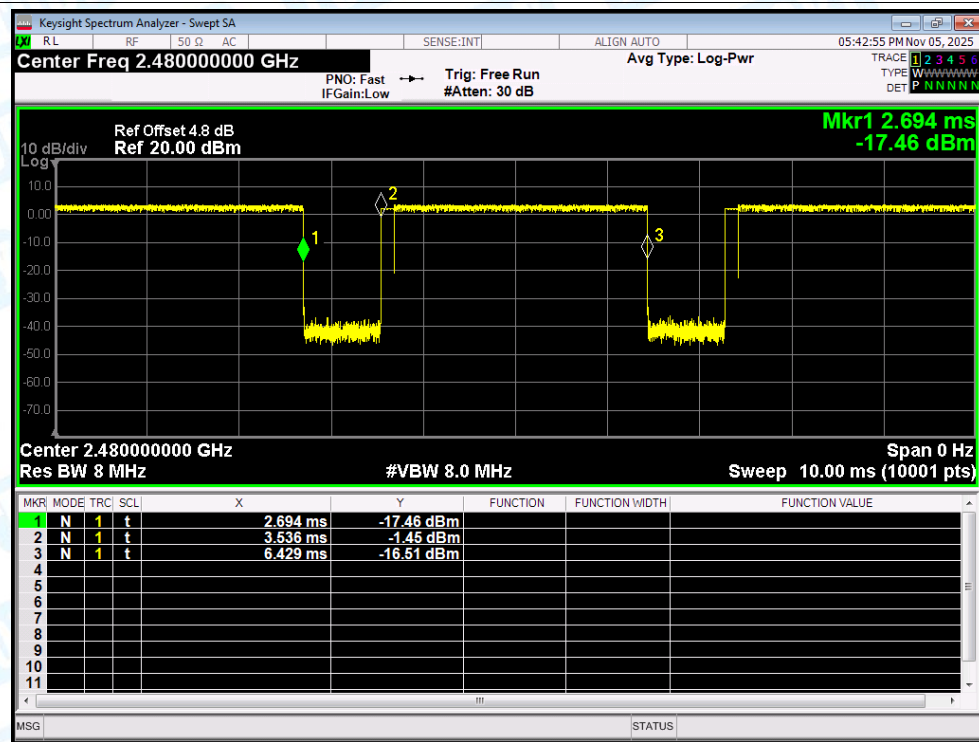
Duty Cycle NVNT 2-DH5 2402MHz Ant1



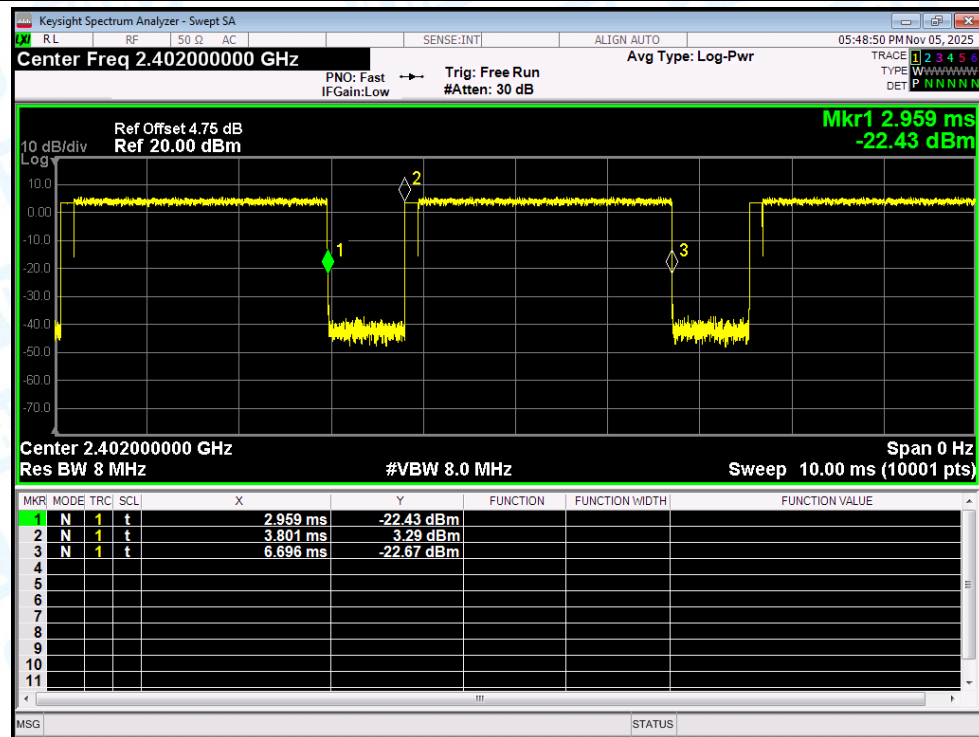
Duty Cycle NVNT 2-DH5 2441MHz Ant1



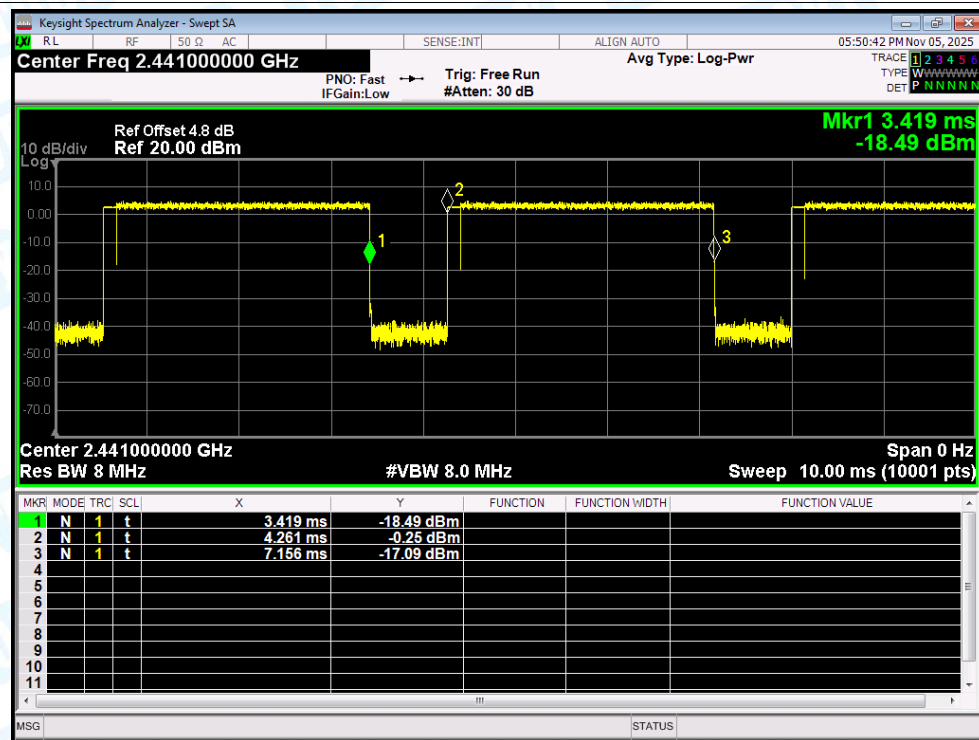
Duty Cycle NVNT 2-DH5 2480MHz Ant1

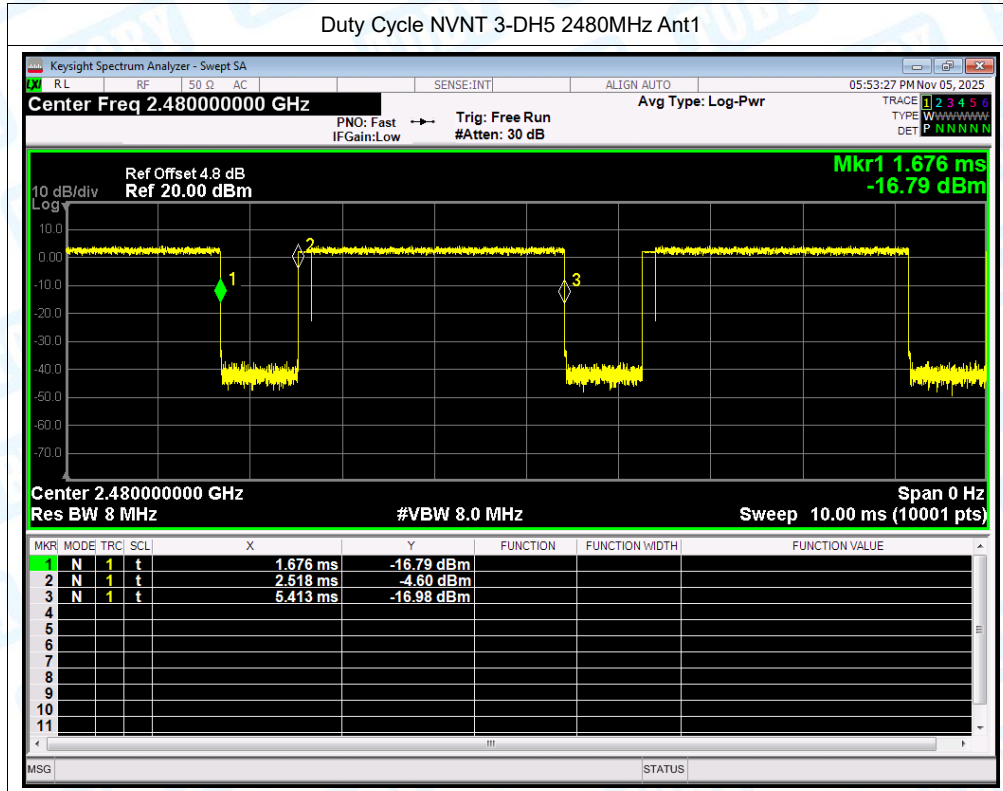


Duty Cycle NVNT 3-DH5 2402MHz Ant1



Duty Cycle NVNT 3-DH5 2441MHz Ant1



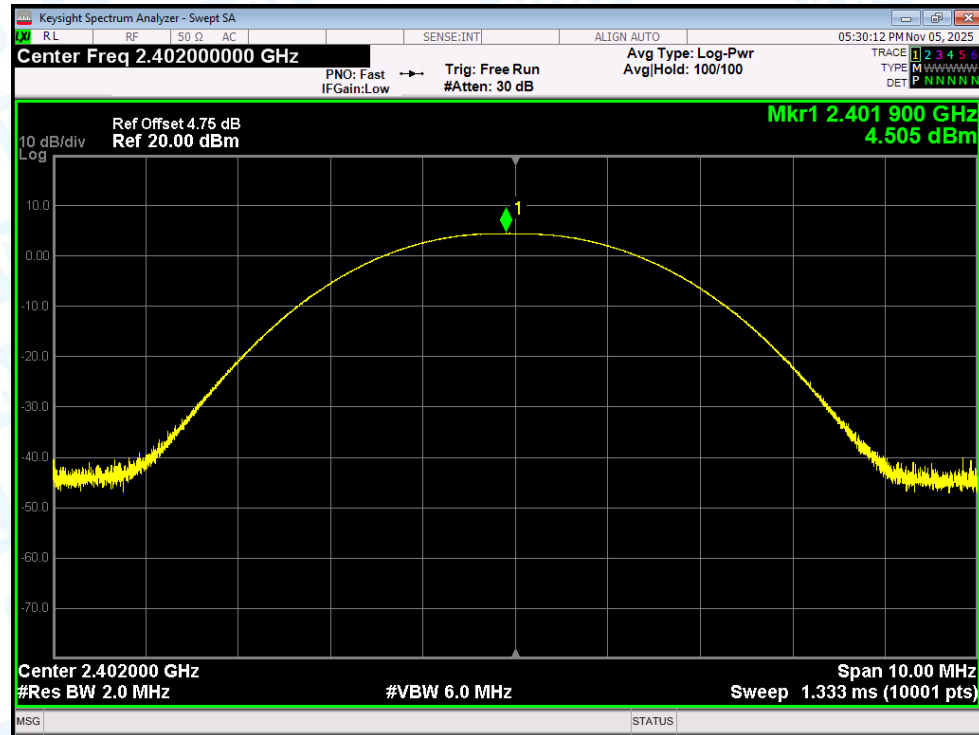


3.Maximum Conducted Output Power

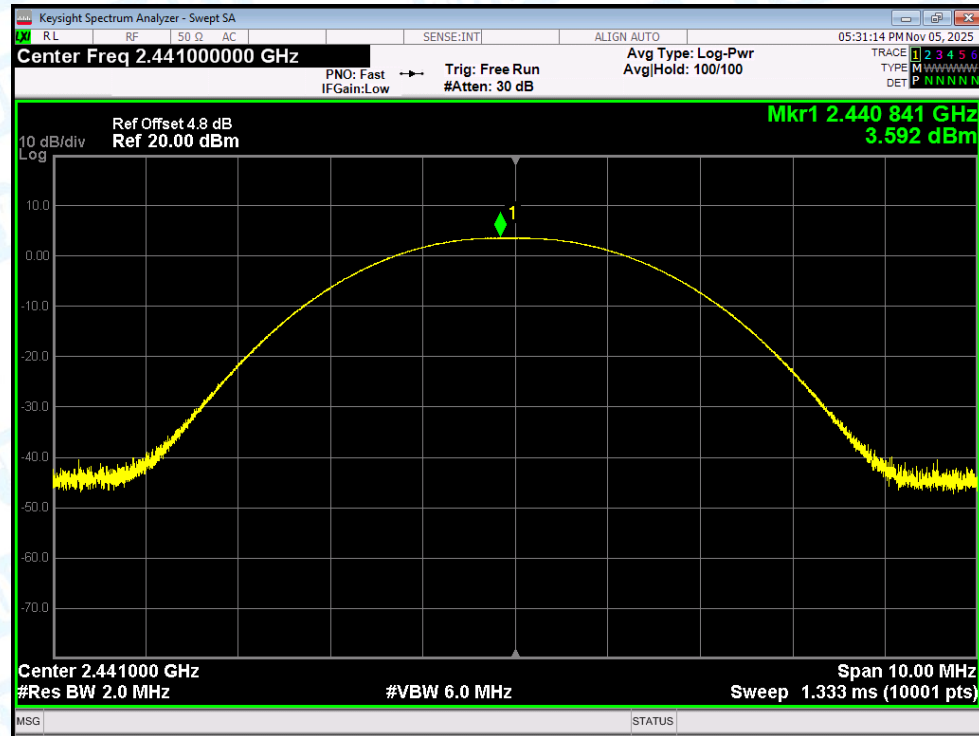
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH5	2402	Ant1	4.505	21	Pass
NVNT	1-DH5	2441	Ant1	3.592	21	Pass
NVNT	1-DH5	2480	Ant1	2.991	21	Pass
NVNT	2-DH5	2402	Ant1	4.734	21	Pass
NVNT	2-DH5	2441	Ant1	4.12	21	Pass
NVNT	2-DH5	2480	Ant1	3.42	21	Pass
NVNT	3-DH5	2402	Ant1	5.38	21	Pass
NVNT	3-DH5	2441	Ant1	4.575	21	Pass
NVNT	3-DH5	2480	Ant1	3.924	21	Pass

Test Graphs

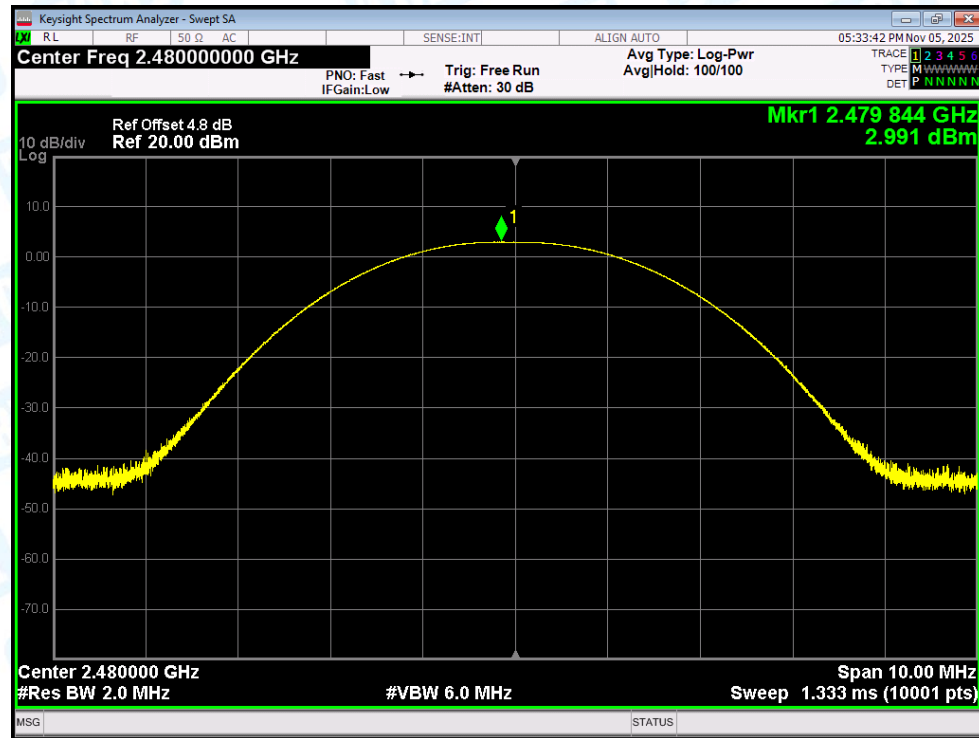
Power NVNT 1-DH5 2402MHz Ant1



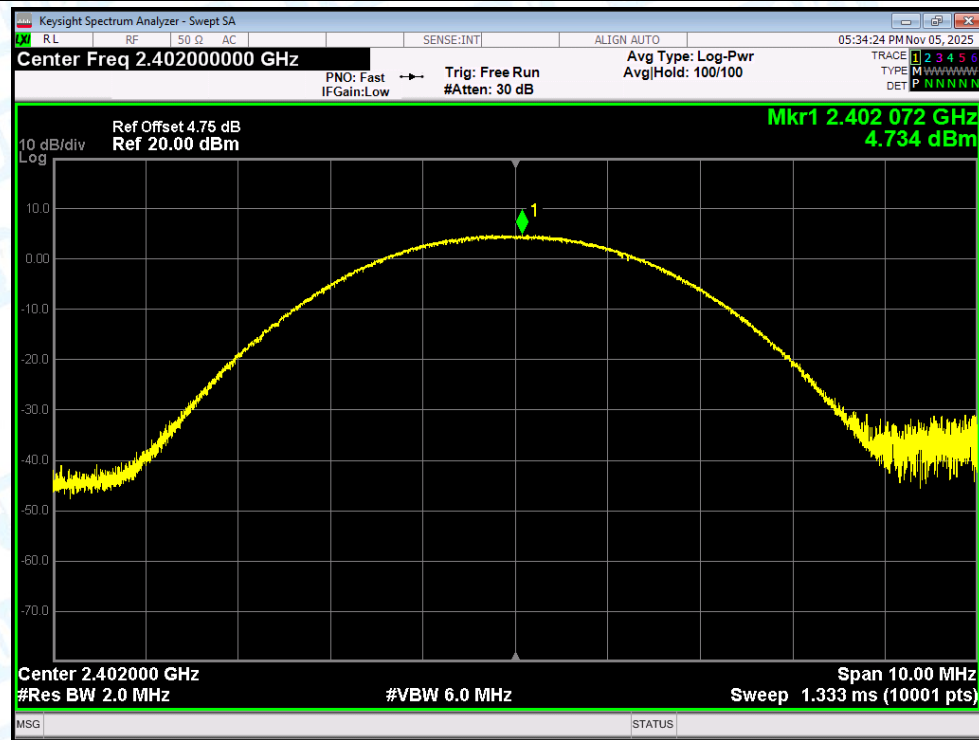
Power NVNT 1-DH5 2441MHz Ant1



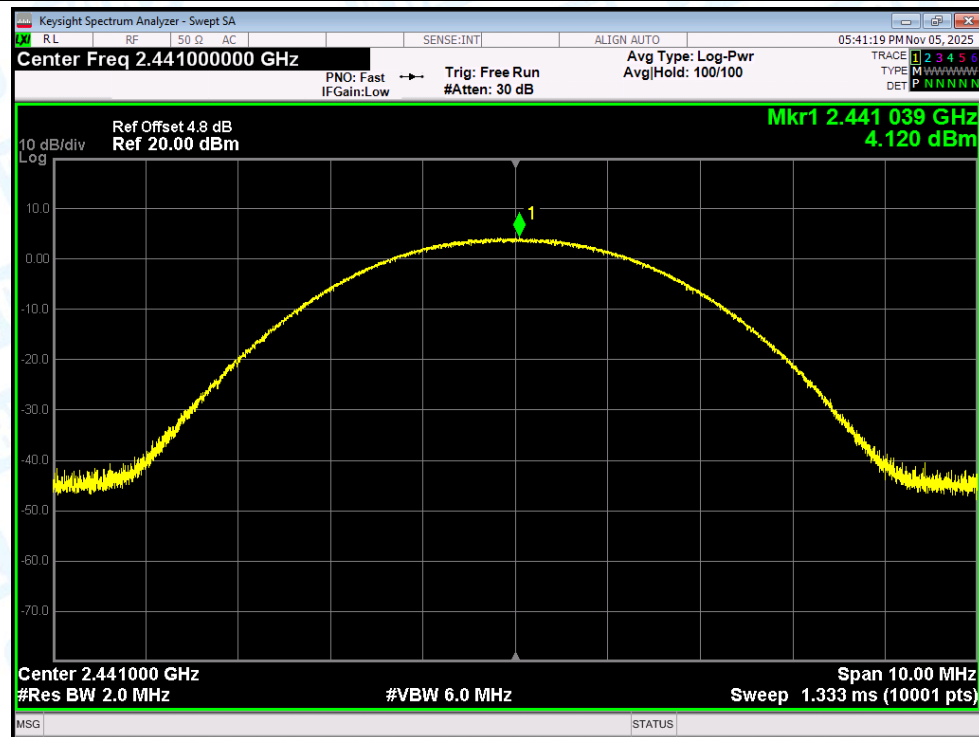
Power NVNT 1-DH5 2480MHz Ant1



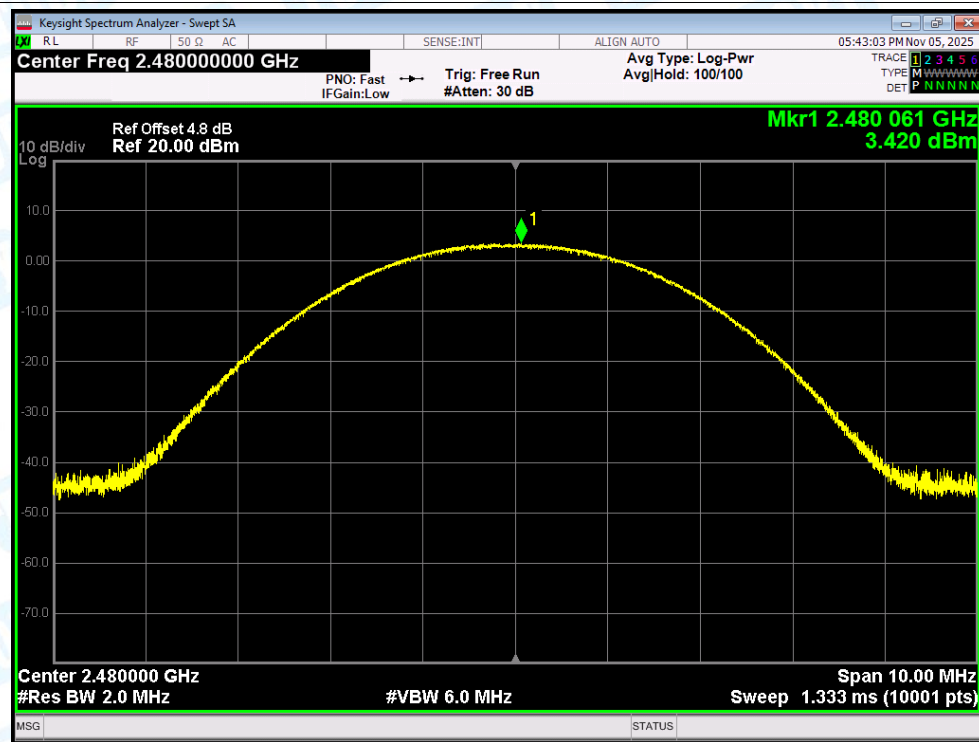
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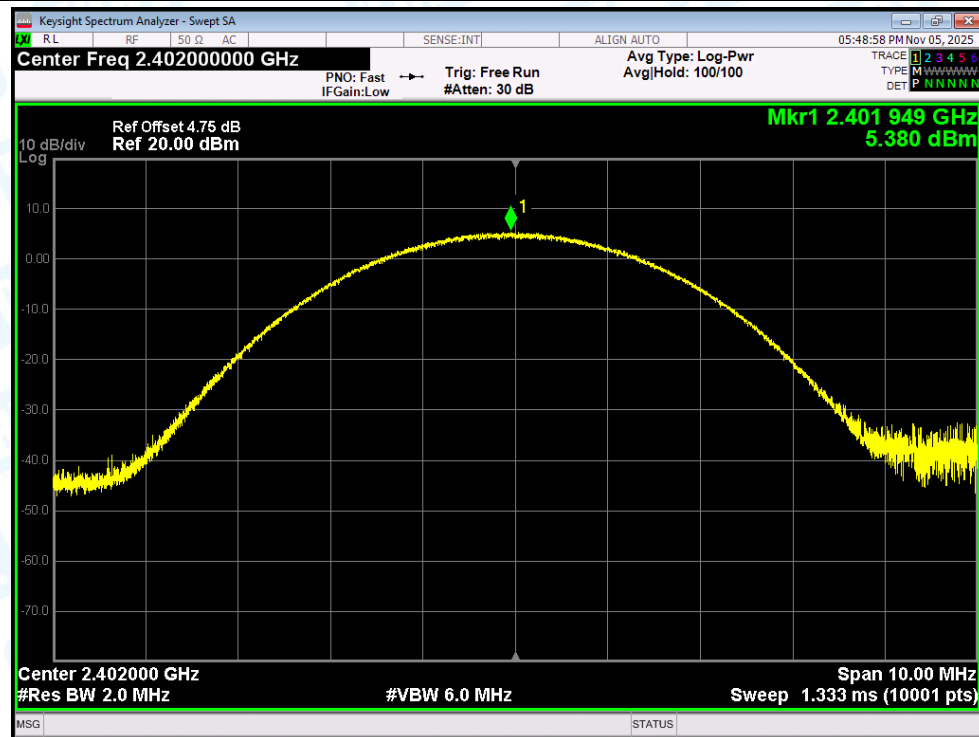
Power NVNT 2-DH5 2441MHz Ant1



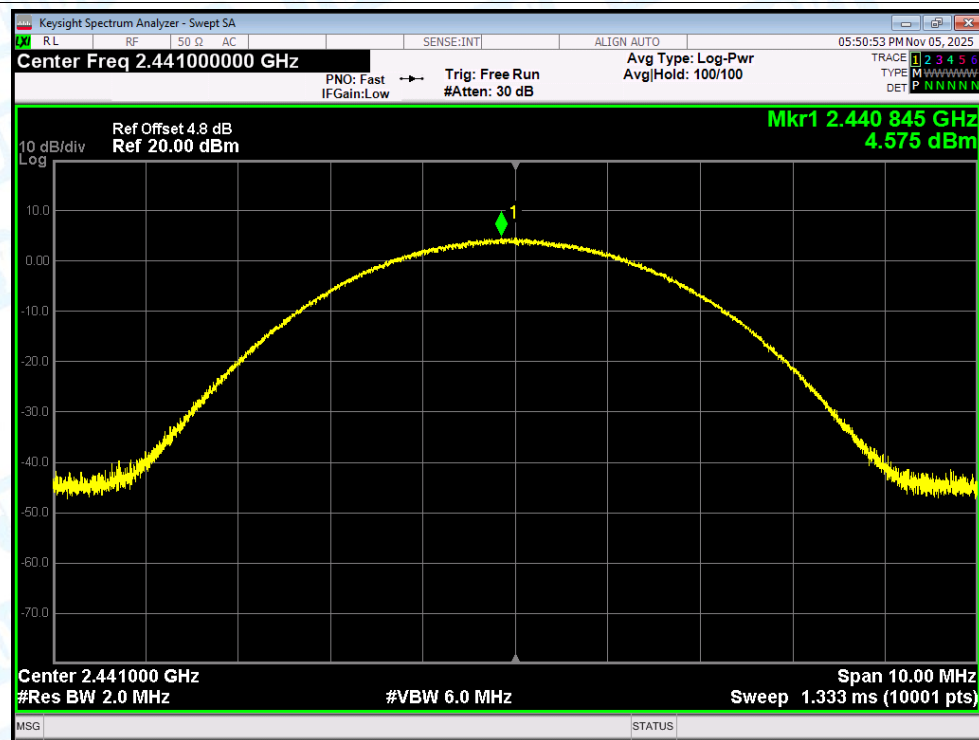
Power NVNT 2-DH5 2480MHz Ant1

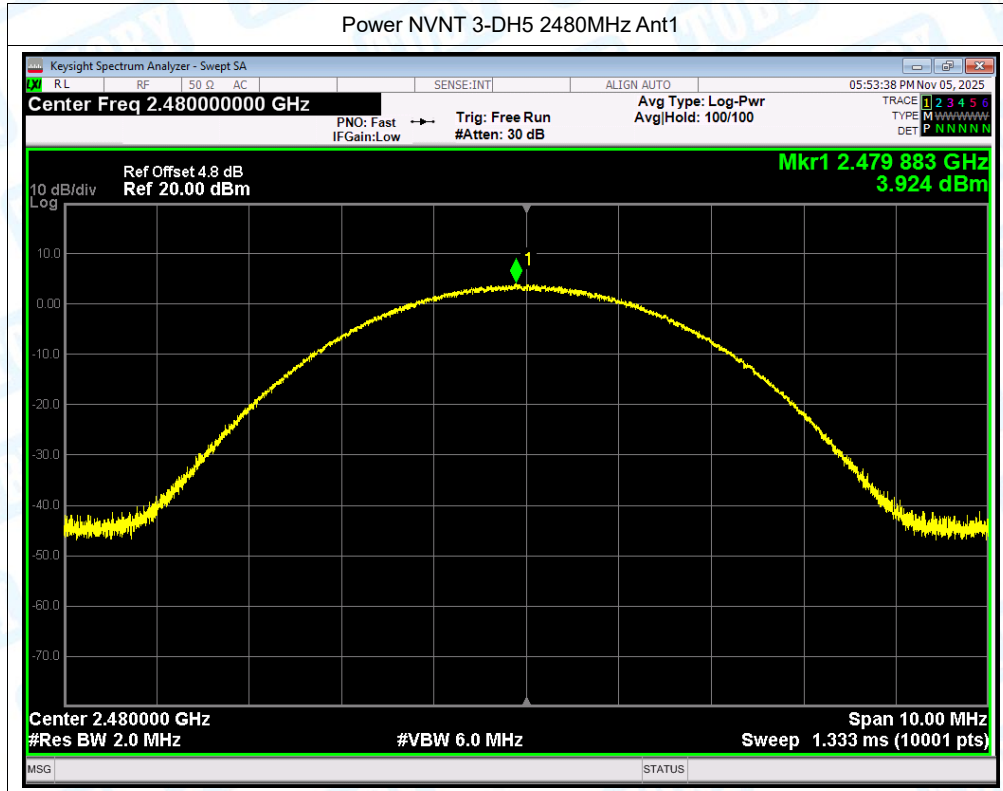


Power NVNT 3-DH5 2402MHz Ant1



Power NVNT 3-DH5 2441MHz Ant1



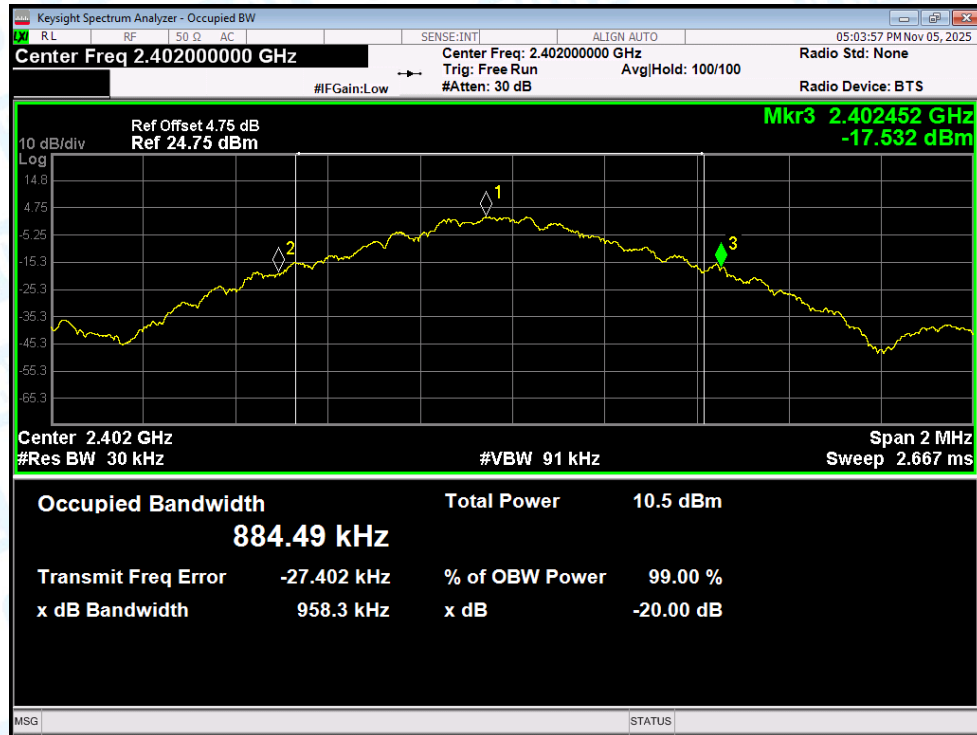


4.-20dB Bandwidth

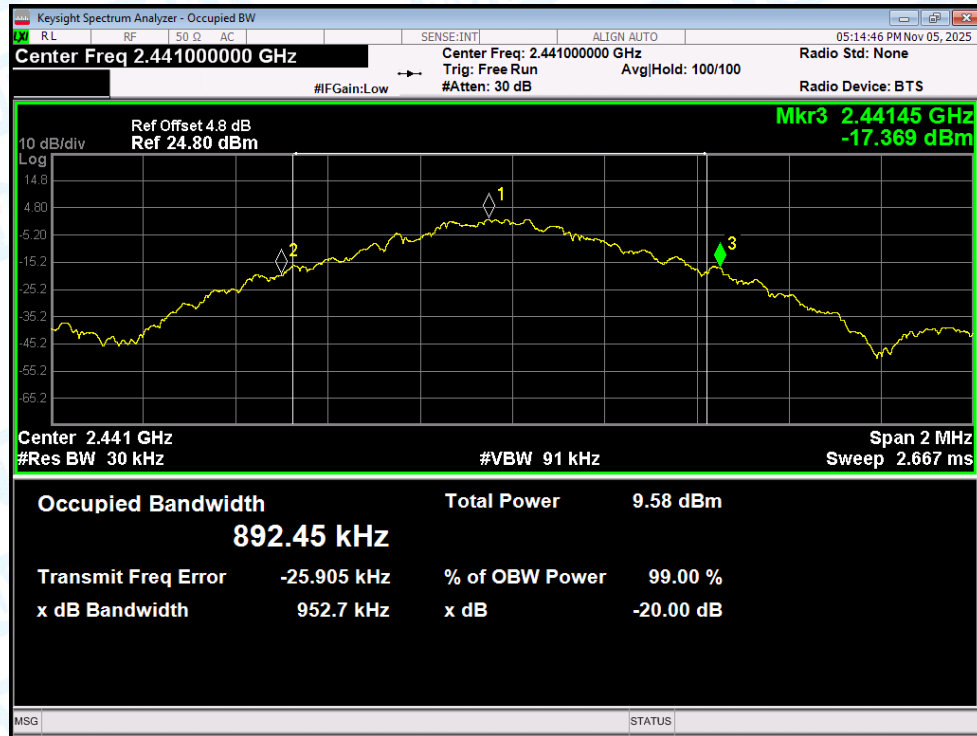
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH5	2402	Ant1	0.96	/	Pass
NVNT	1-DH5	2441	Ant1	0.95	/	Pass
NVNT	1-DH5	2480	Ant1	0.96	/	Pass
NVNT	2-DH5	2402	Ant1	1.37	/	Pass
NVNT	2-DH5	2441	Ant1	1.31	/	Pass
NVNT	2-DH5	2480	Ant1	1.27	/	Pass
NVNT	3-DH5	2402	Ant1	1.29	/	Pass
NVNT	3-DH5	2441	Ant1	1.28	/	Pass
NVNT	3-DH5	2480	Ant1	1.28	/	Pass

Test Graphs

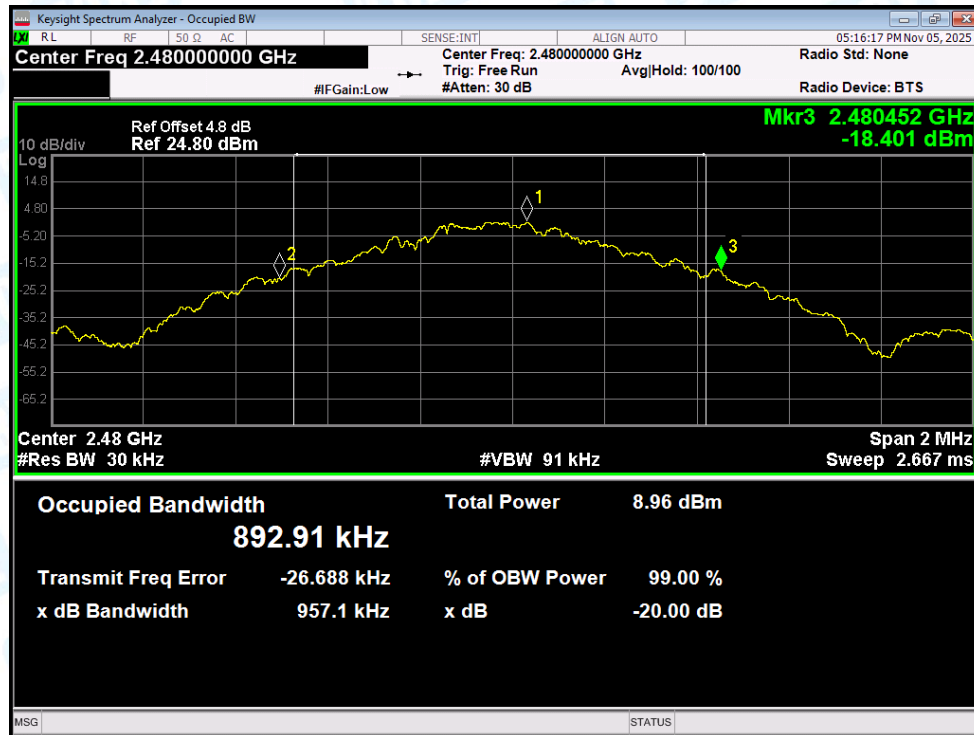
-20dB Bandwidth NVNT 1-DH5 2402MHz Ant1



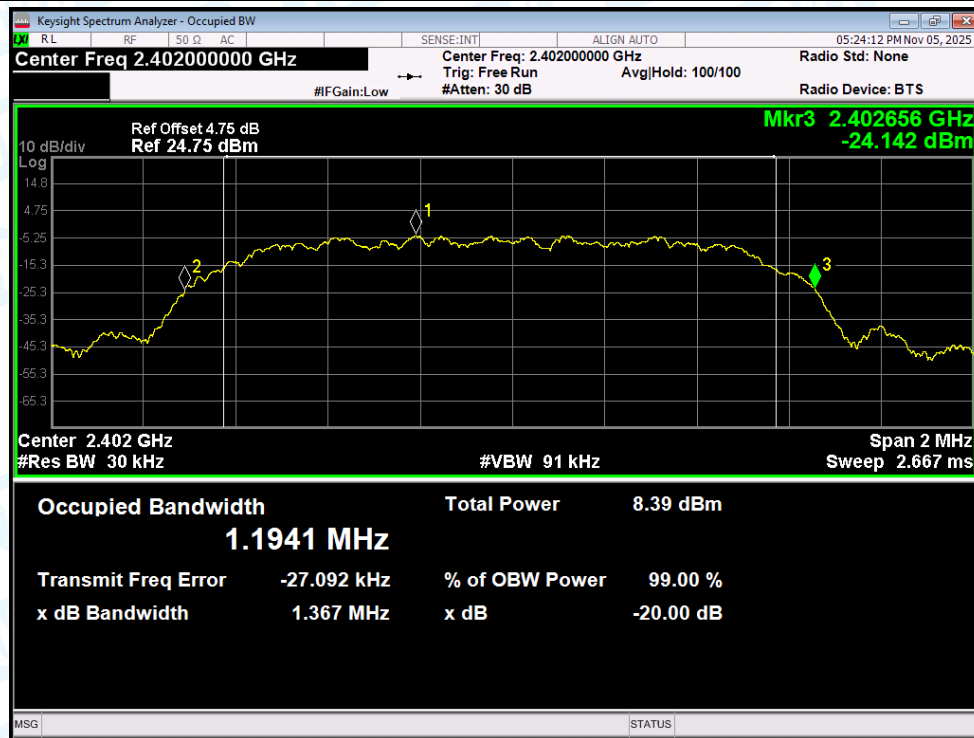
-20dB Bandwidth NVNT 1-DH5 2441MHz Ant1



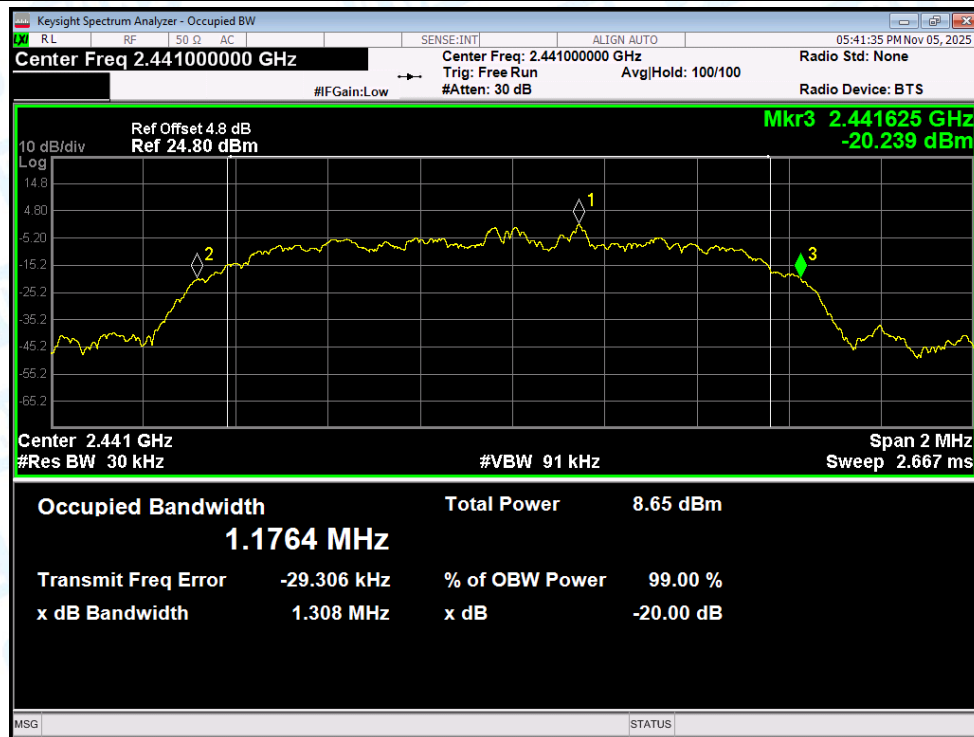
-20dB Bandwidth NVNT 1-DH5 2480MHz Ant1



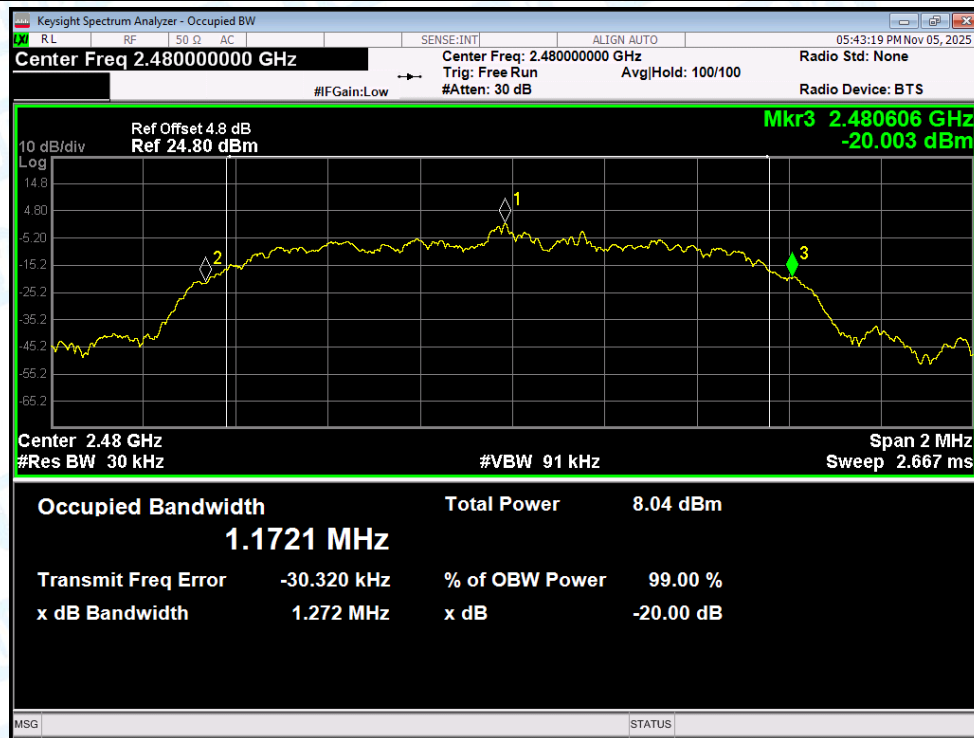
-20dB Bandwidth NVNT 2-DH5 2402MHz Ant1



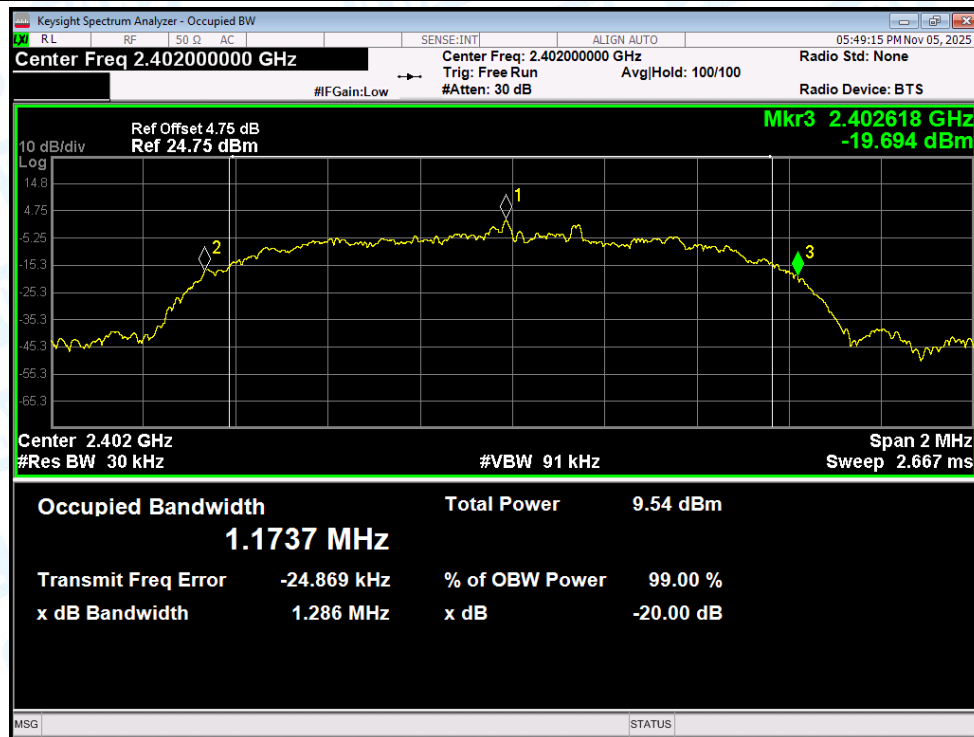
-20dB Bandwidth NVNT 2-DH5 2441MHz Ant1



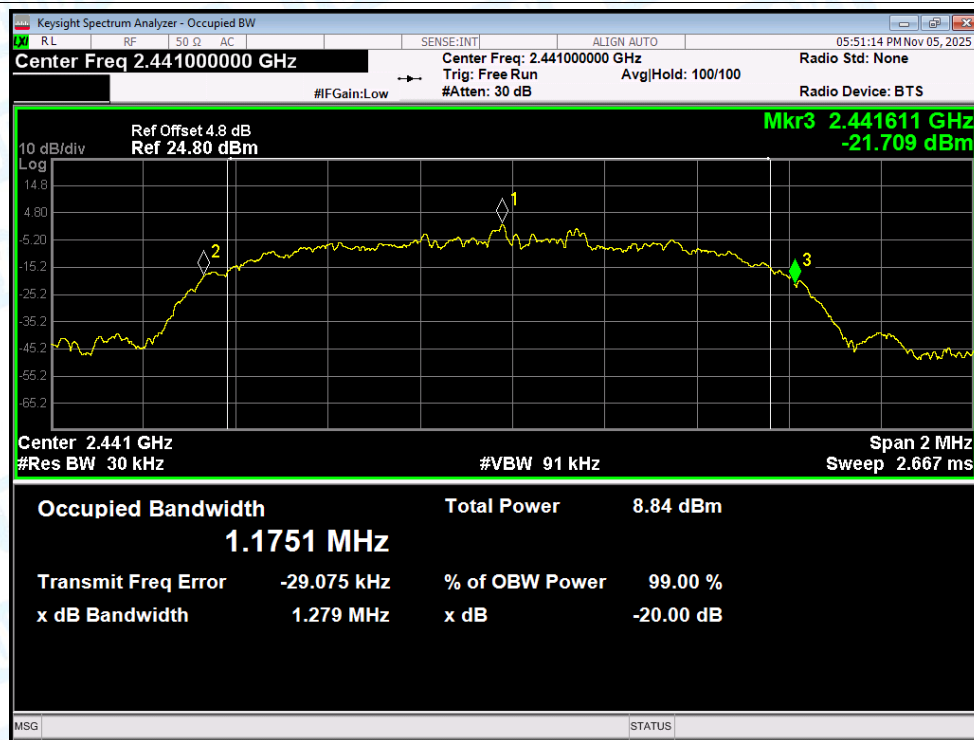
-20dB Bandwidth NVNT 2-DH5 2480MHz Ant1

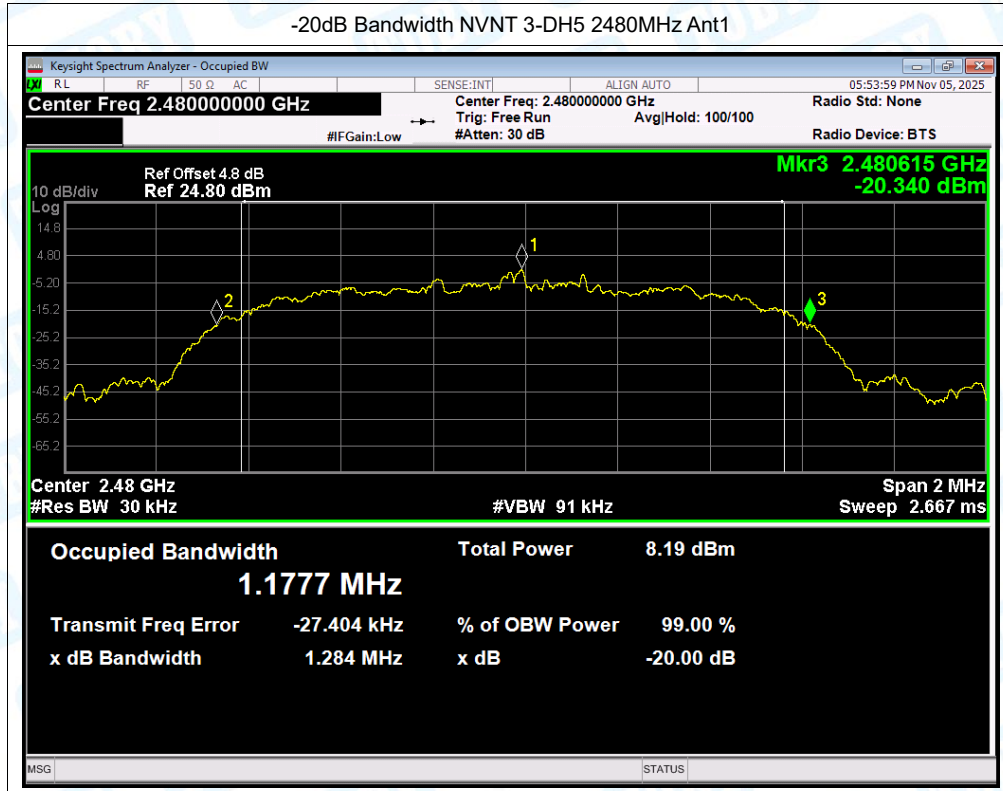


-20dB Bandwidth NVNT 3-DH5 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH5 2441MHz Ant1



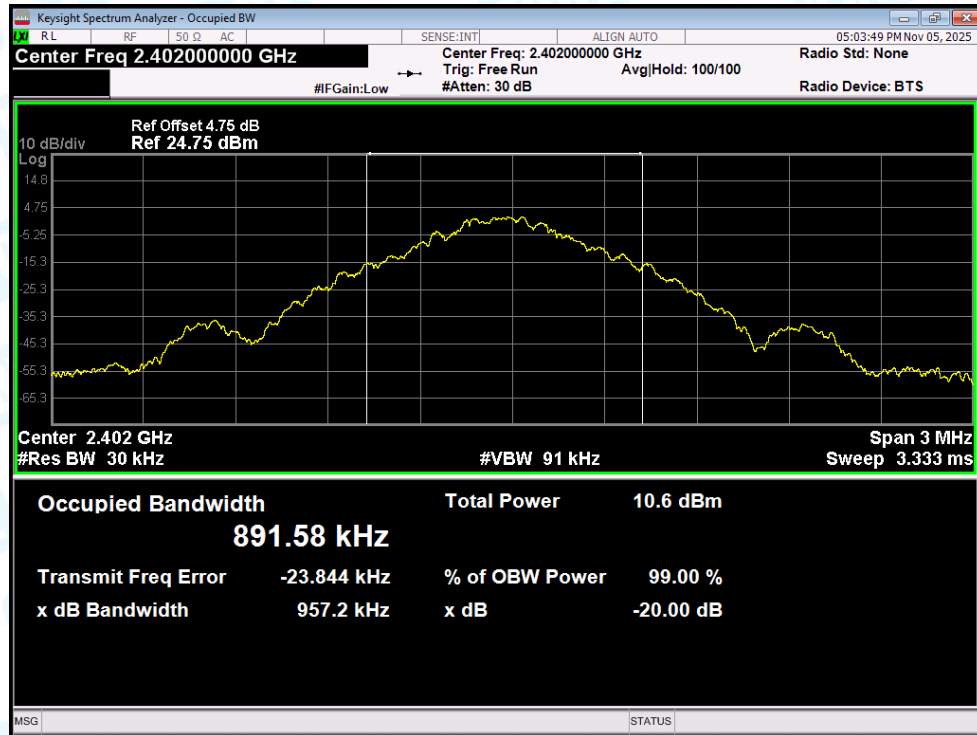


5.Occupied Channel Bandwidth

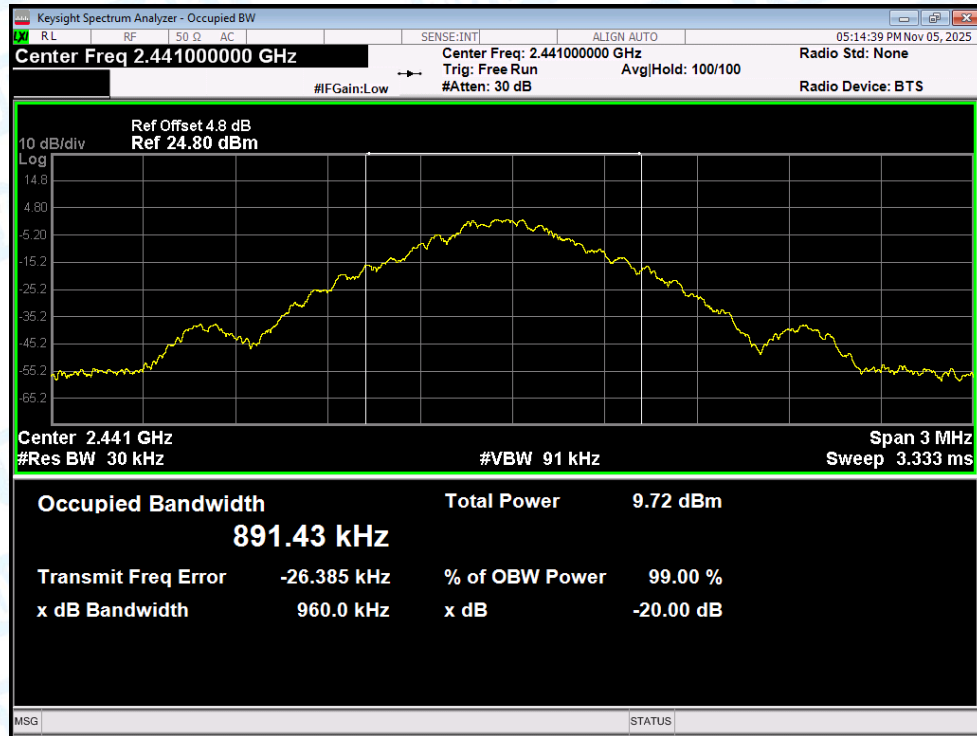
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	1-DH5	2402	Ant1	0.892
NVNT	1-DH5	2441	Ant1	0.891
NVNT	1-DH5	2480	Ant1	0.883
NVNT	2-DH5	2402	Ant1	1.195
NVNT	2-DH5	2441	Ant1	1.178
NVNT	2-DH5	2480	Ant1	1.179
NVNT	3-DH5	2402	Ant1	1.186
NVNT	3-DH5	2441	Ant1	1.181
NVNT	3-DH5	2480	Ant1	1.188

Test Graphs

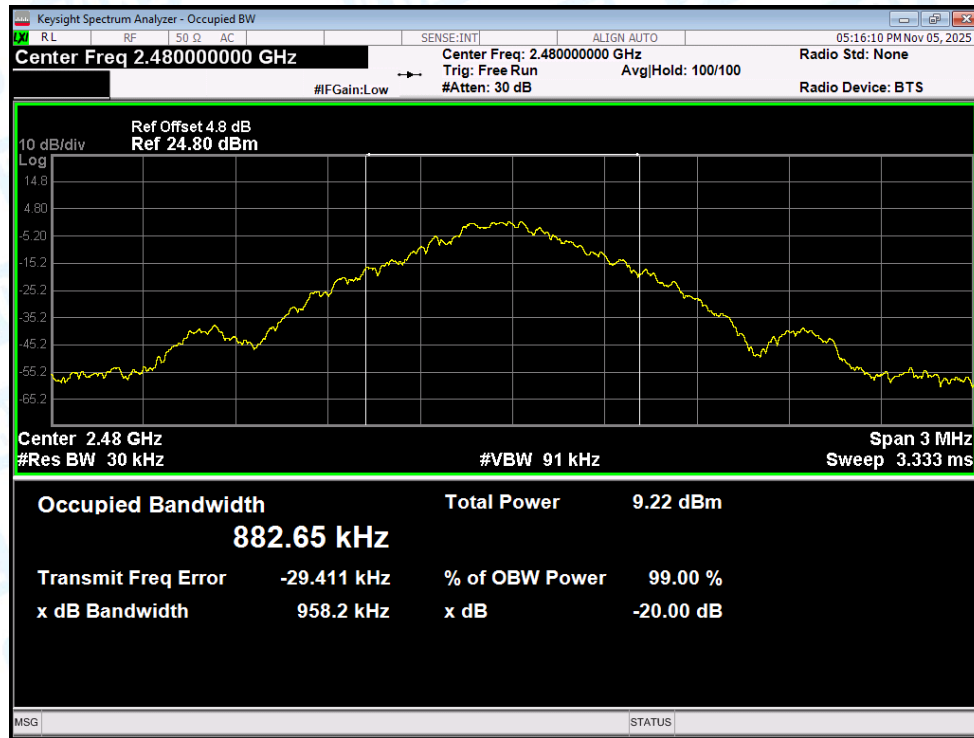
OBW NVNT 1-DH5 2402MHz Ant1



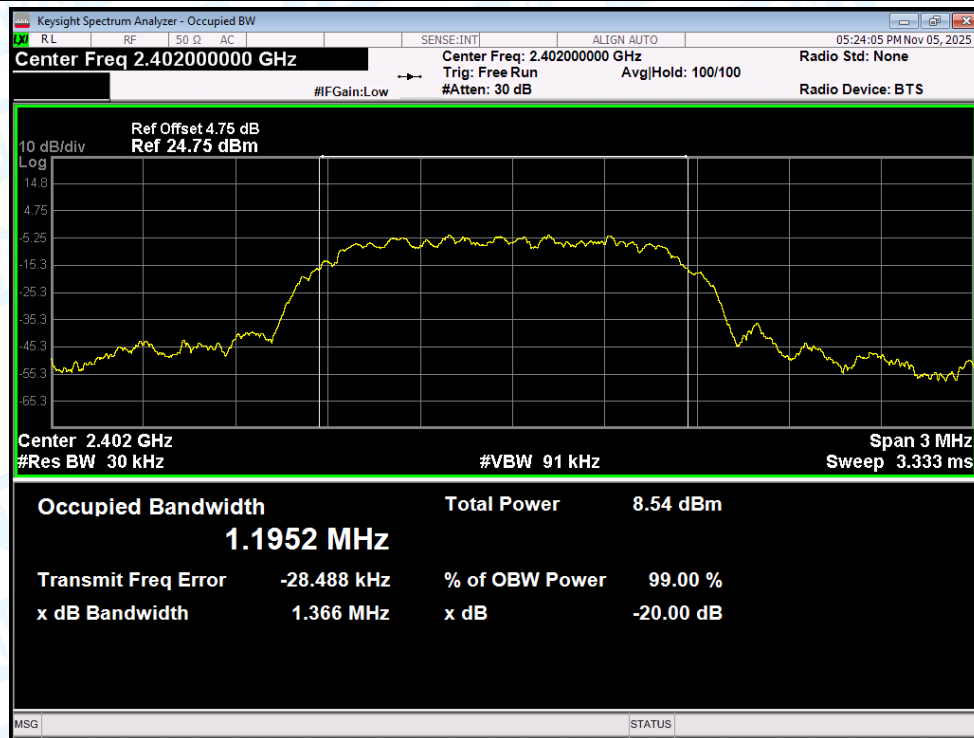
OBW NVNT 1-DH5 2441MHz Ant1



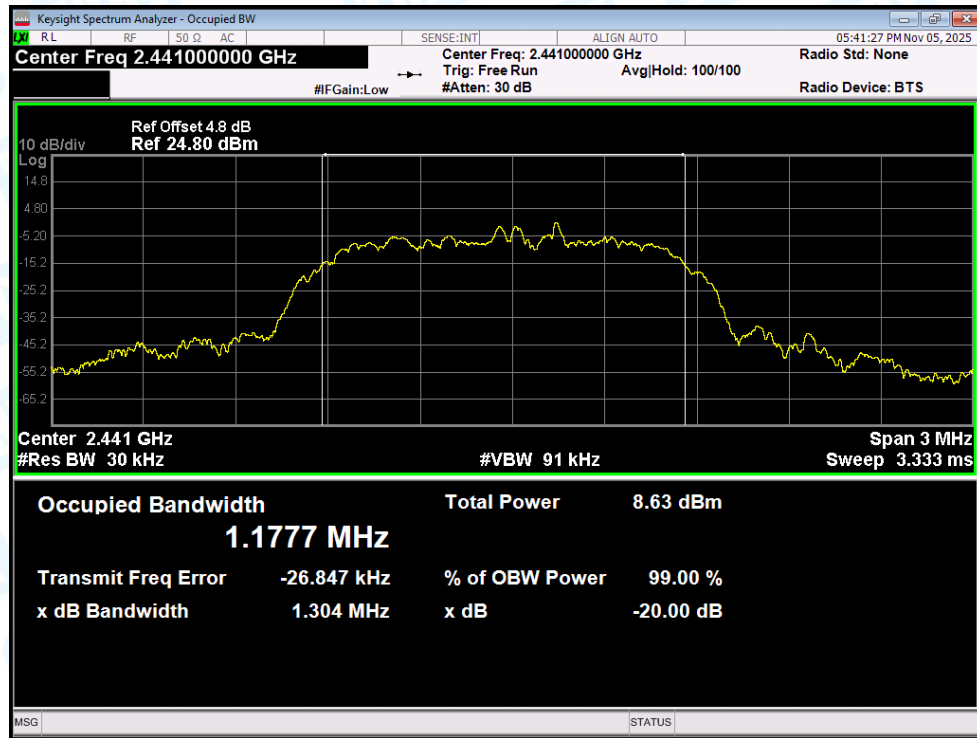
OBW NVNT 1-DH5 2480MHz Ant1



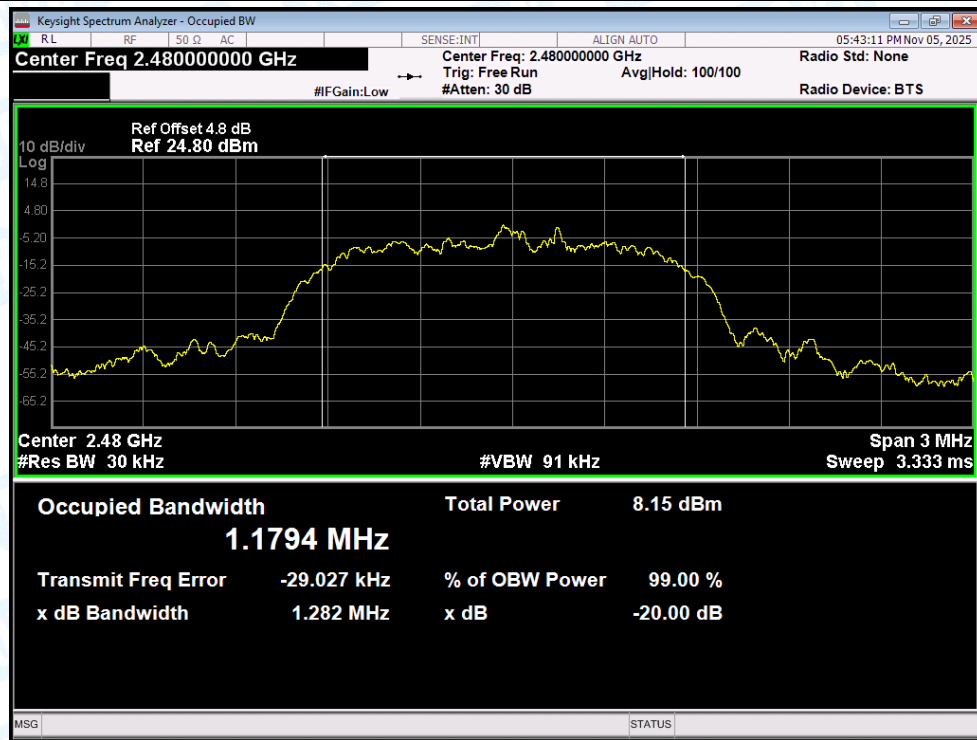
OBW NVNT 2-DH5 2402MHz Ant1



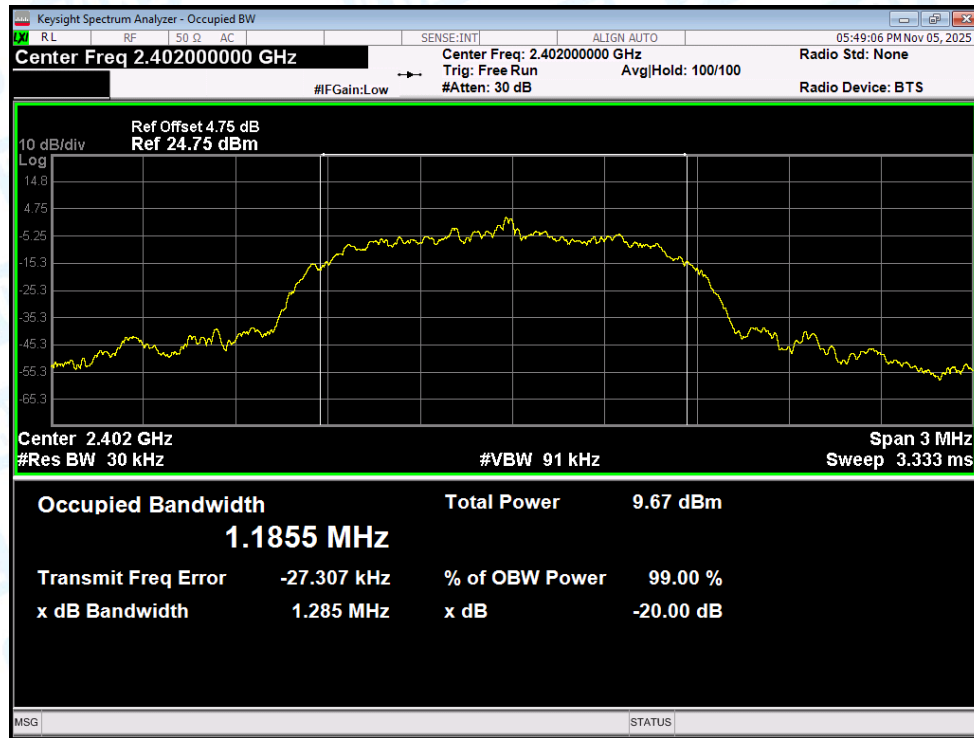
OBW NVNT 2-DH5 2441MHz Ant1



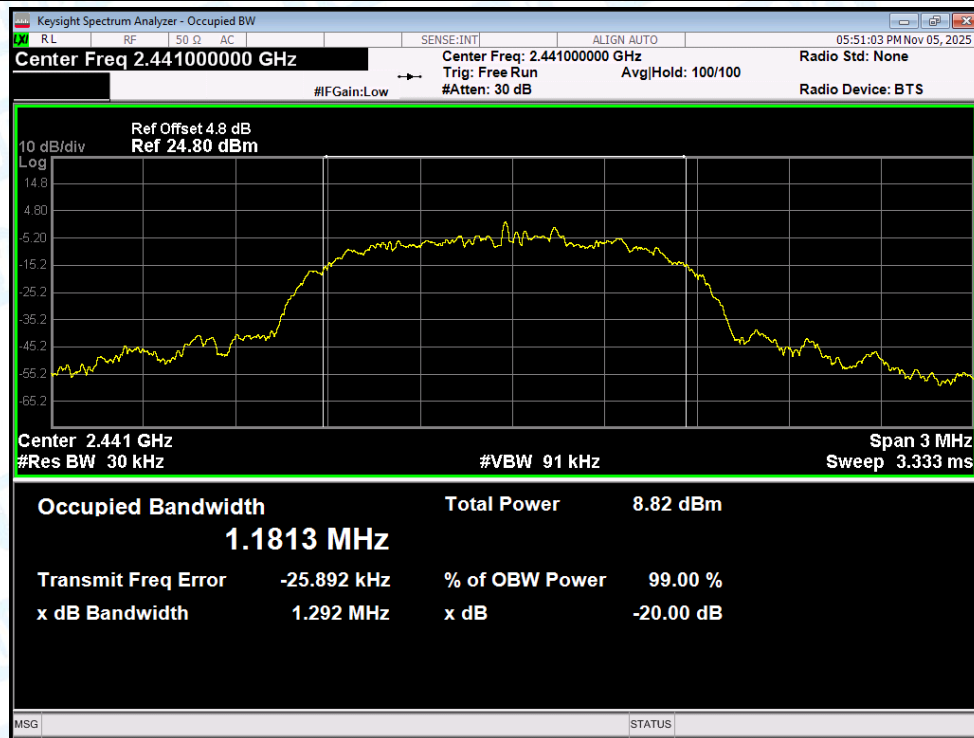
OBW NVNT 2-DH5 2480MHz Ant1

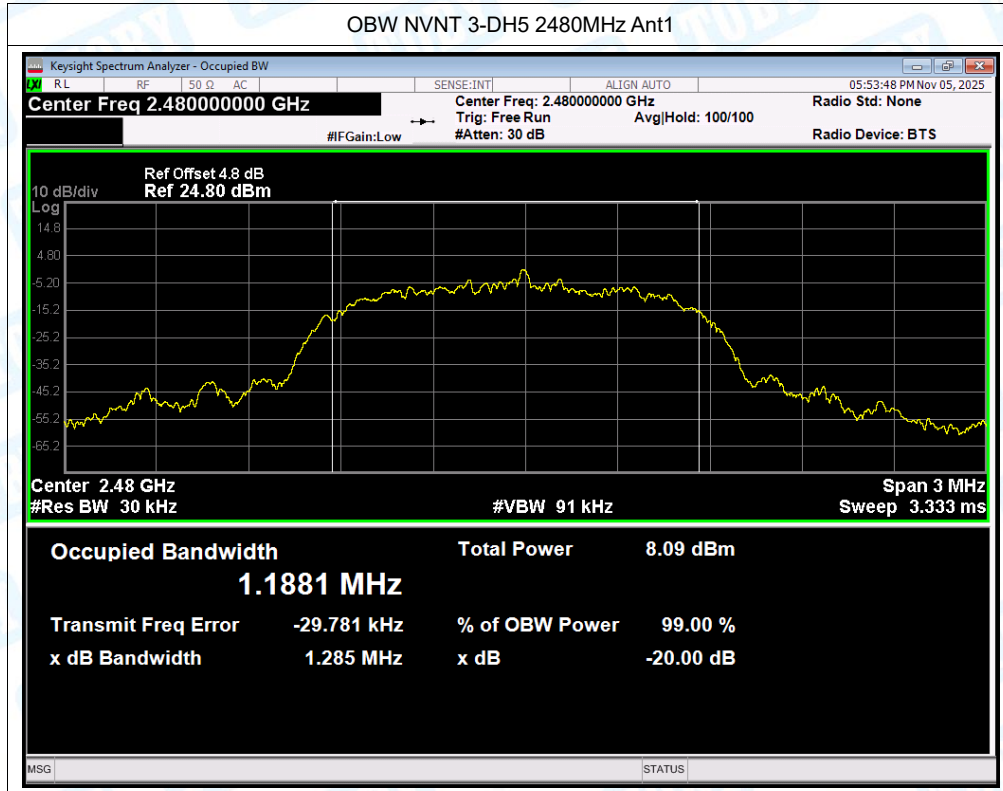


OBW NVNT 3-DH5 2402MHz Ant1



OBW NVNT 3-DH5 2441MHz Ant1



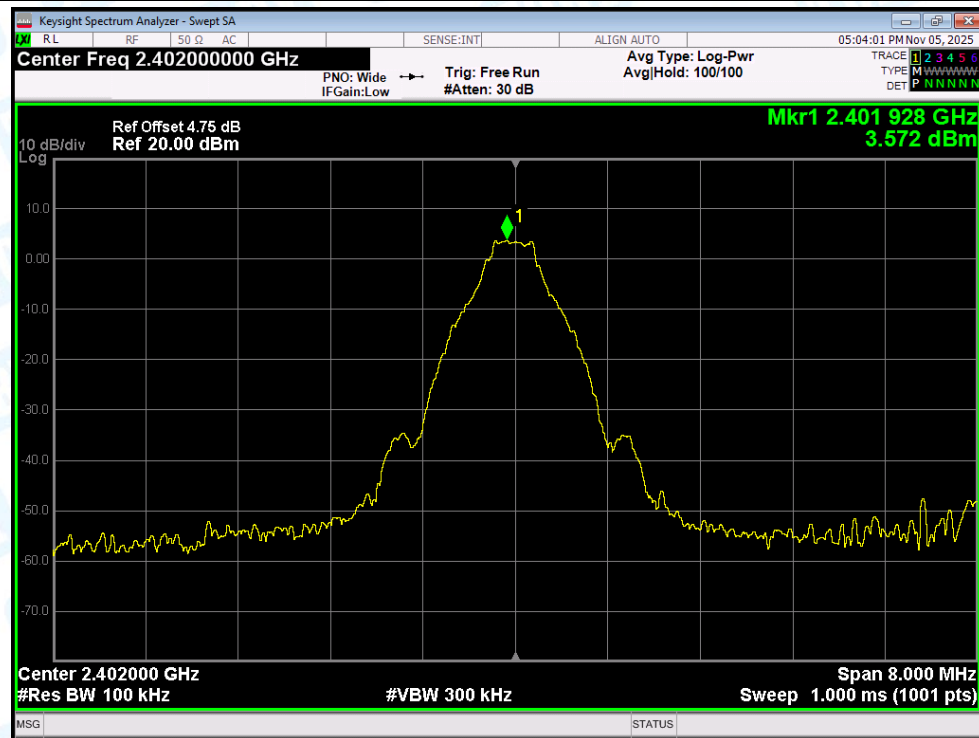


6.Band Edge

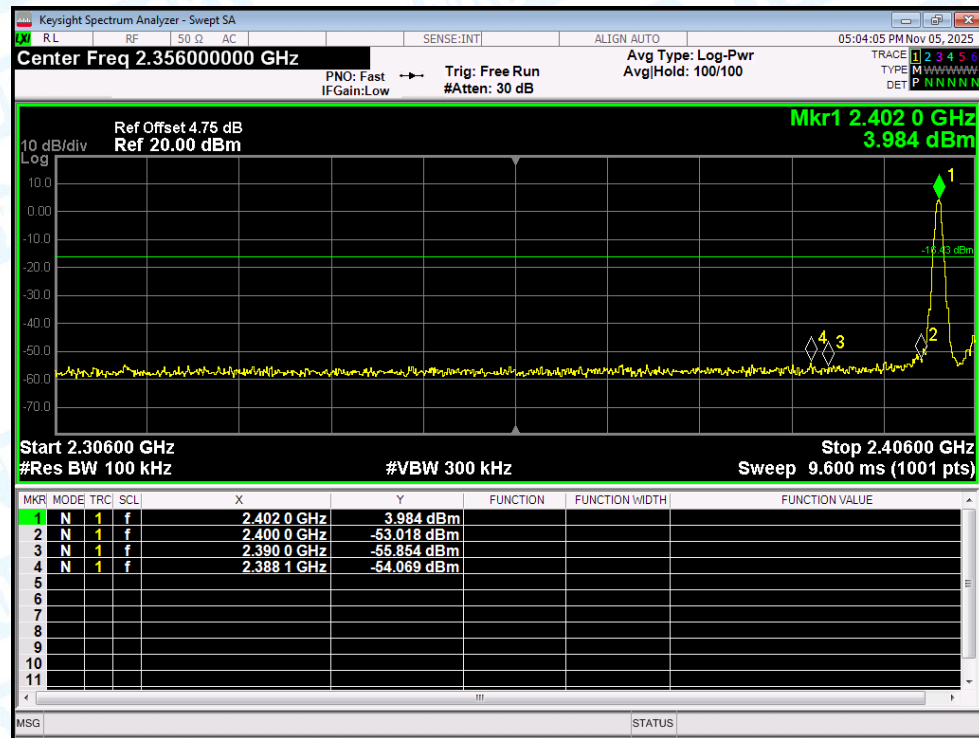
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	No-Hopping	-57.64	-20	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	-56.59	-20	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	-54.49	-20	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	-55.57	-20	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	-56.68	-20	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	-56.43	-20	Pass

Test Graphs

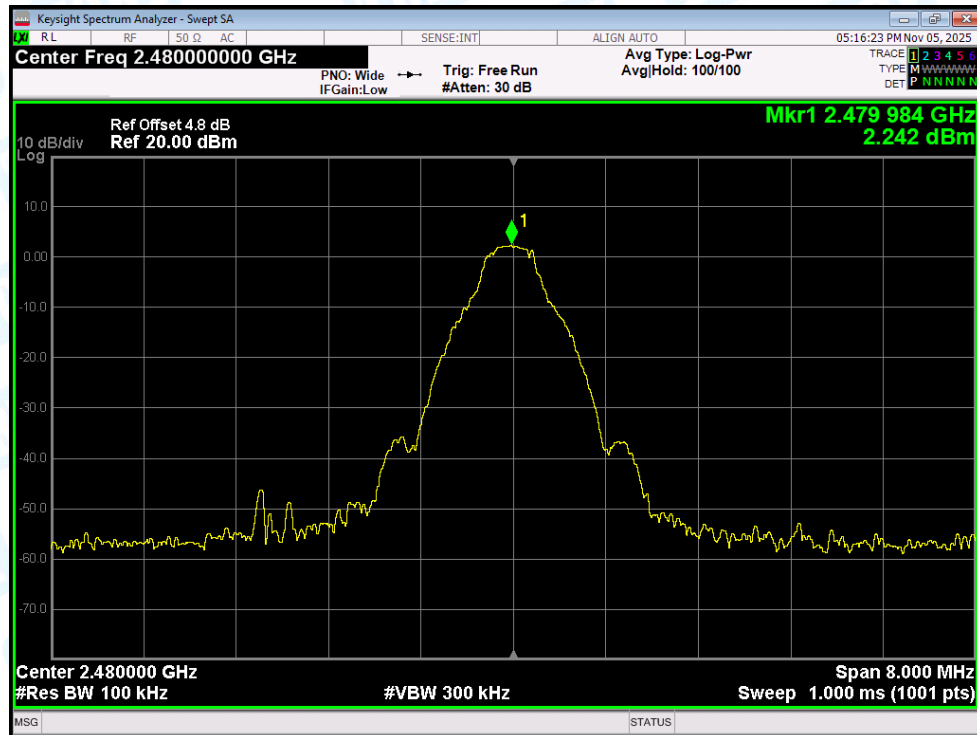
Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Ref



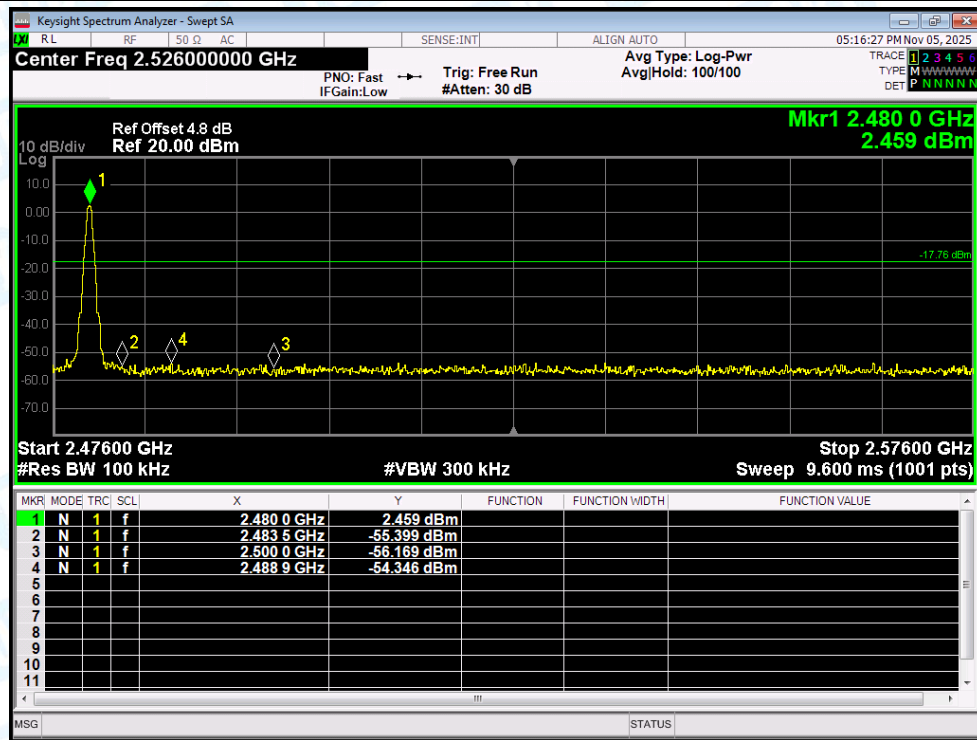
Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Emission

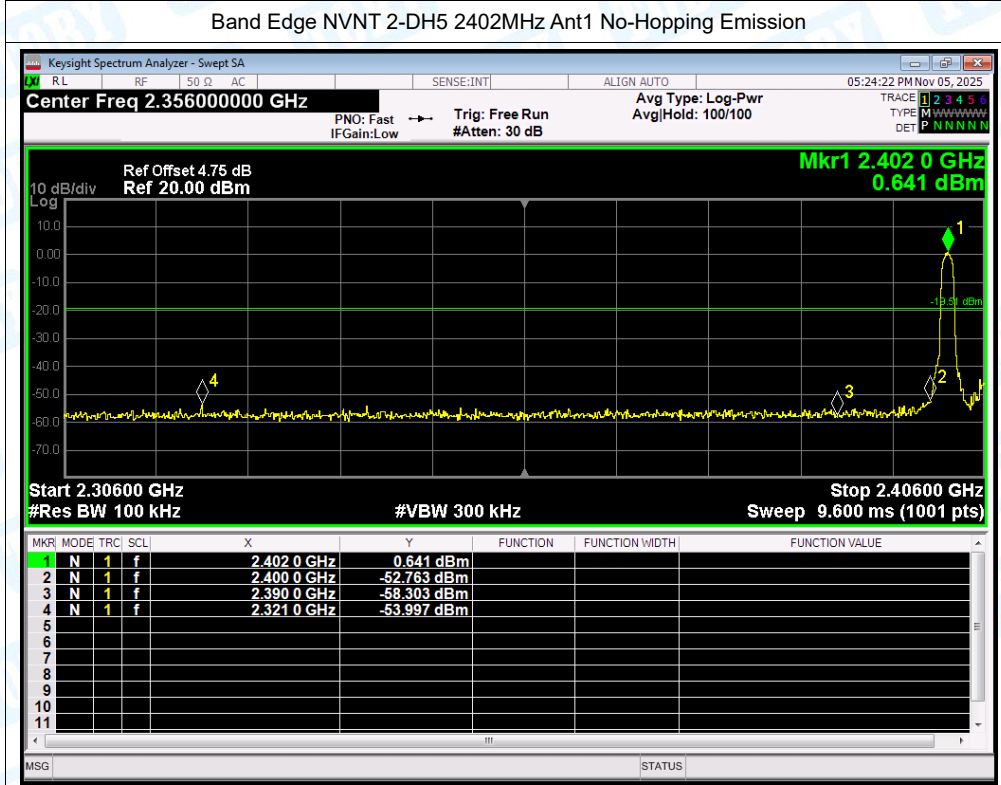
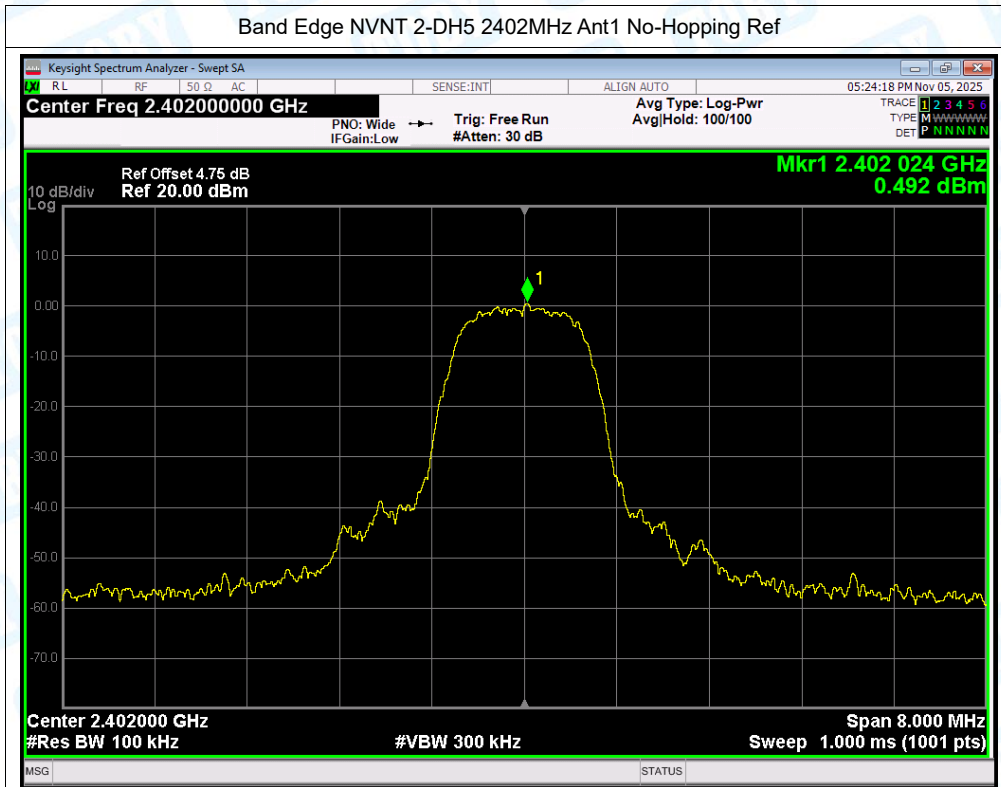


Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Ref

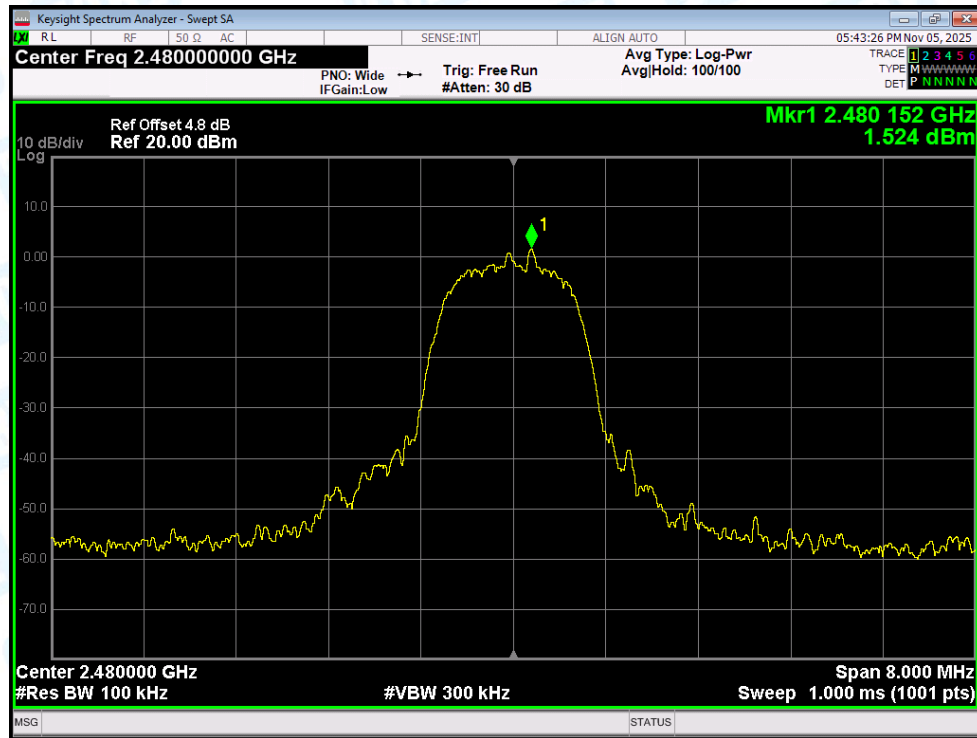


Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Emission

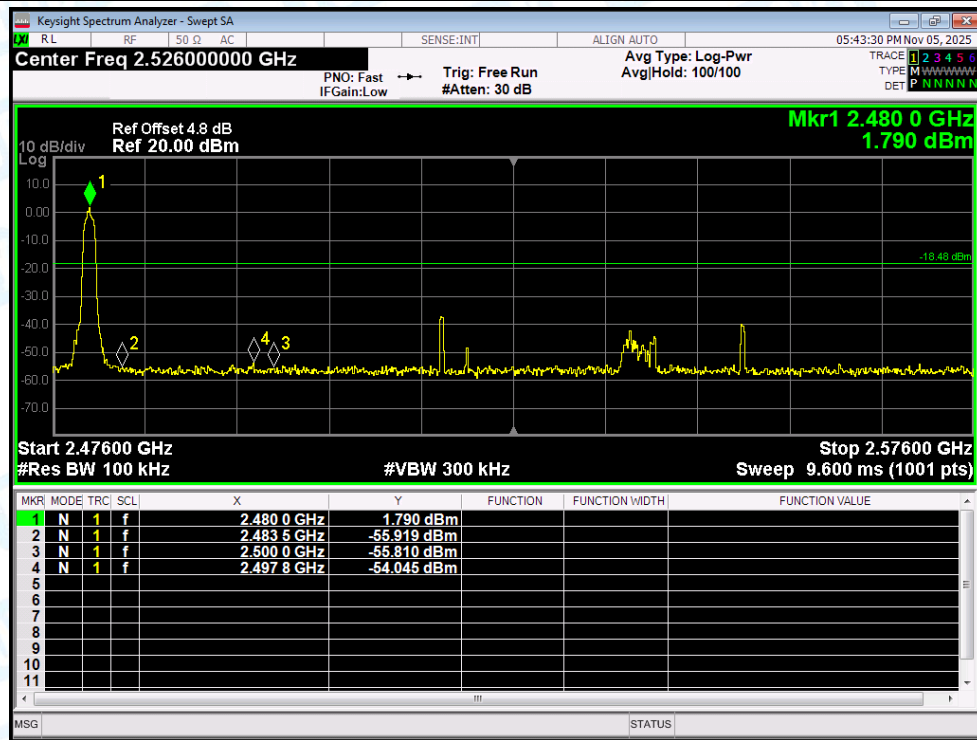




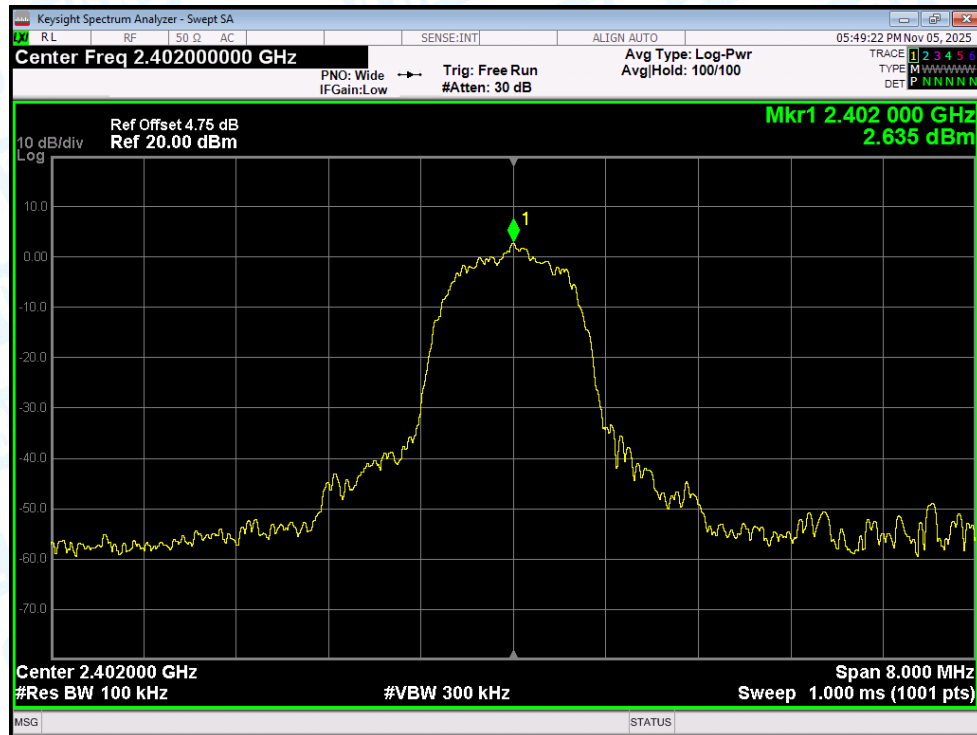
Band Edge NVNT 2-DH5 2480MHz Ant1 No-Hopping Ref



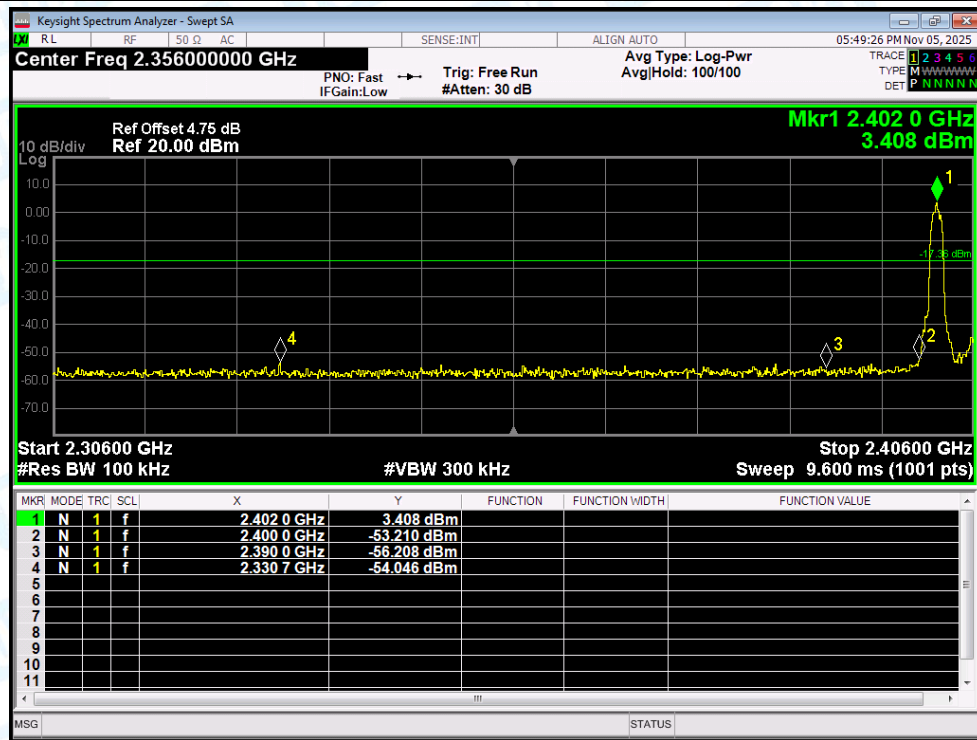
Band Edge NVNT 2-DH5 2480MHz Ant1 No-Hopping Emission



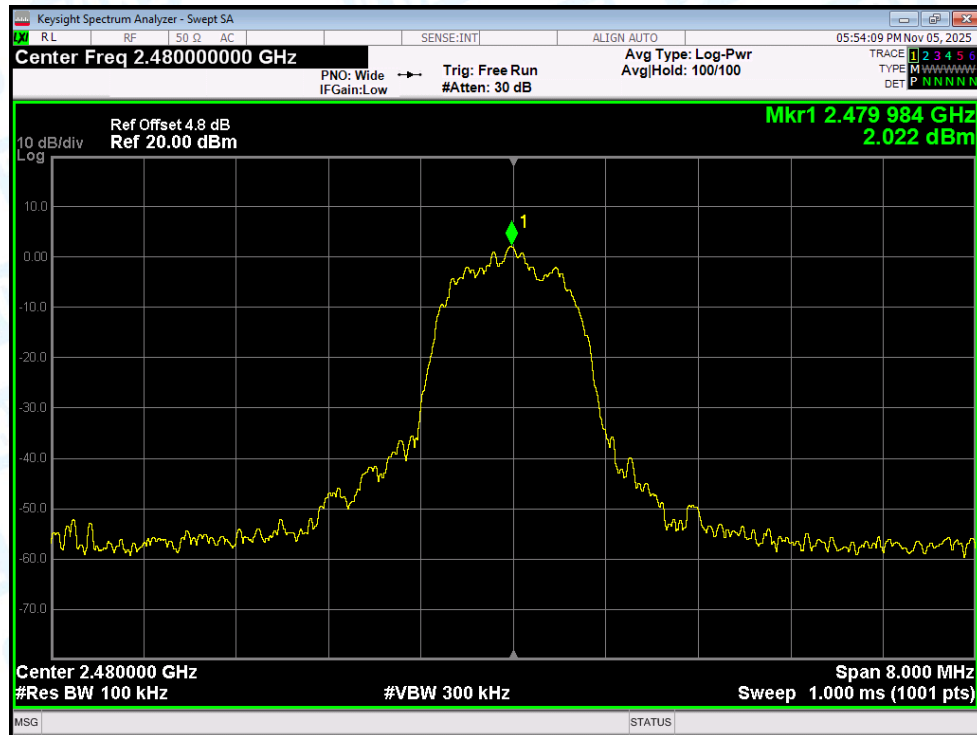
Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Ref



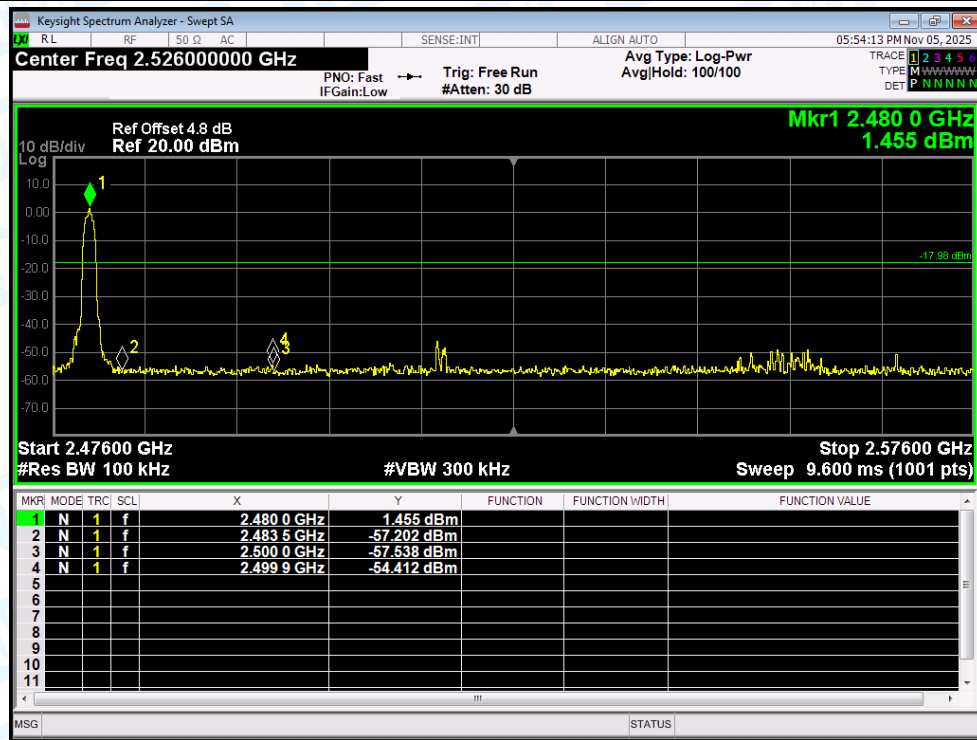
Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Emission



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



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

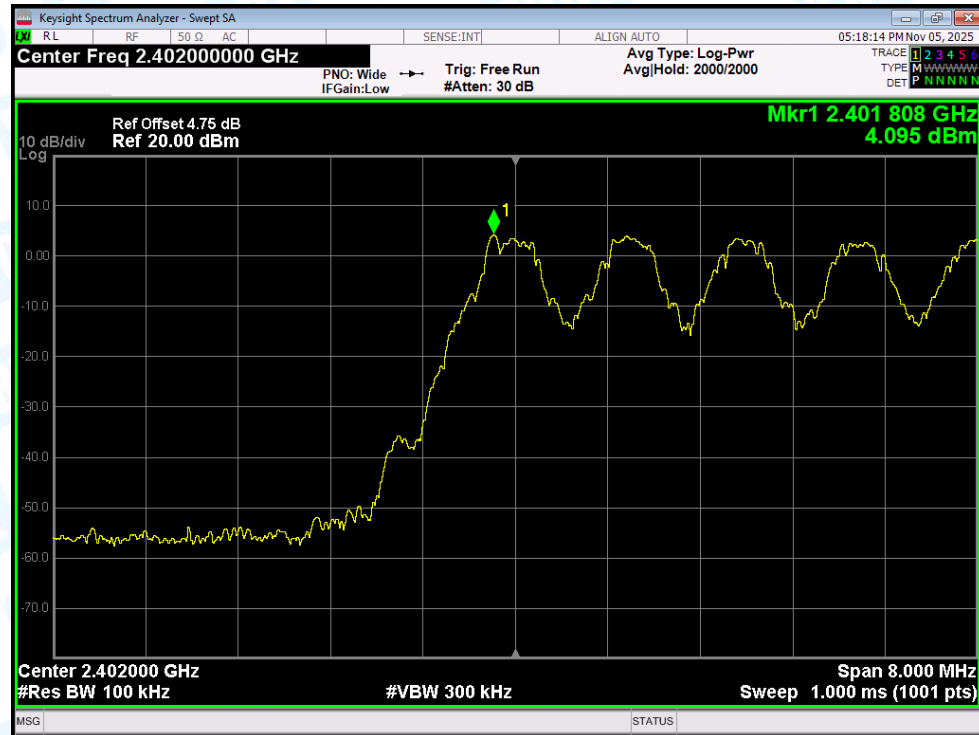


7. Band Edge(Hopping)

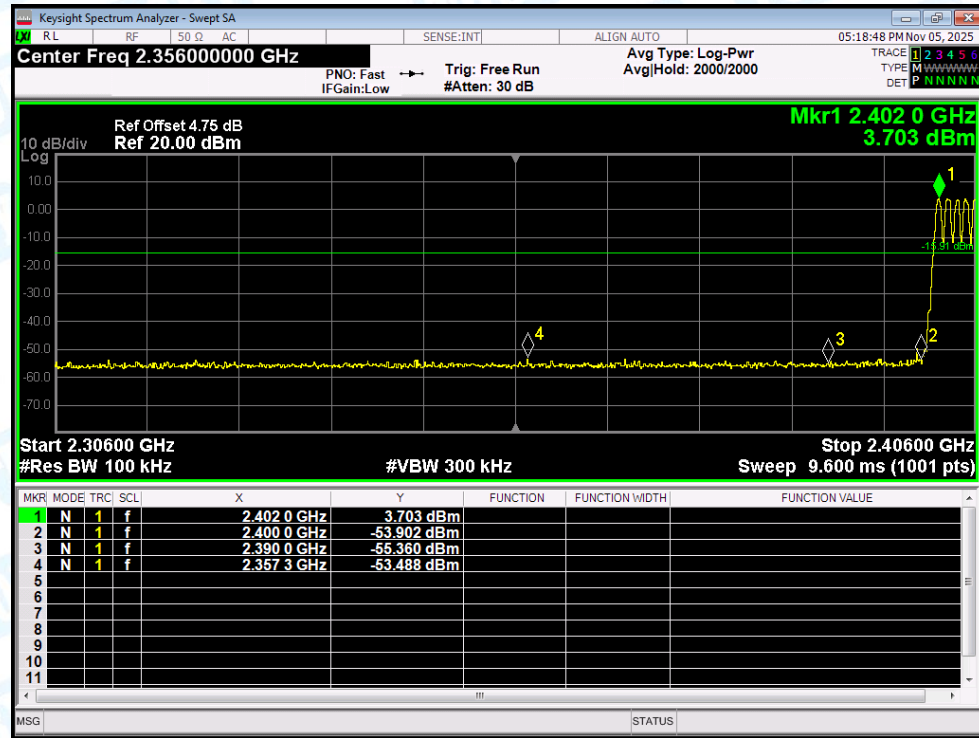
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	Hopping	-57.59	-20	Pass
NVNT	1-DH5	2480	Ant1	Hopping	-55.34	-20	Pass
NVNT	2-DH5	2402	Ant1	Hopping	-55.51	-20	Pass
NVNT	2-DH5	2480	Ant1	Hopping	-54.79	-20	Pass
NVNT	3-DH5	2402	Ant1	Hopping	-55.86	-20	Pass
NVNT	3-DH5	2480	Ant1	Hopping	-53.89	-20	Pass

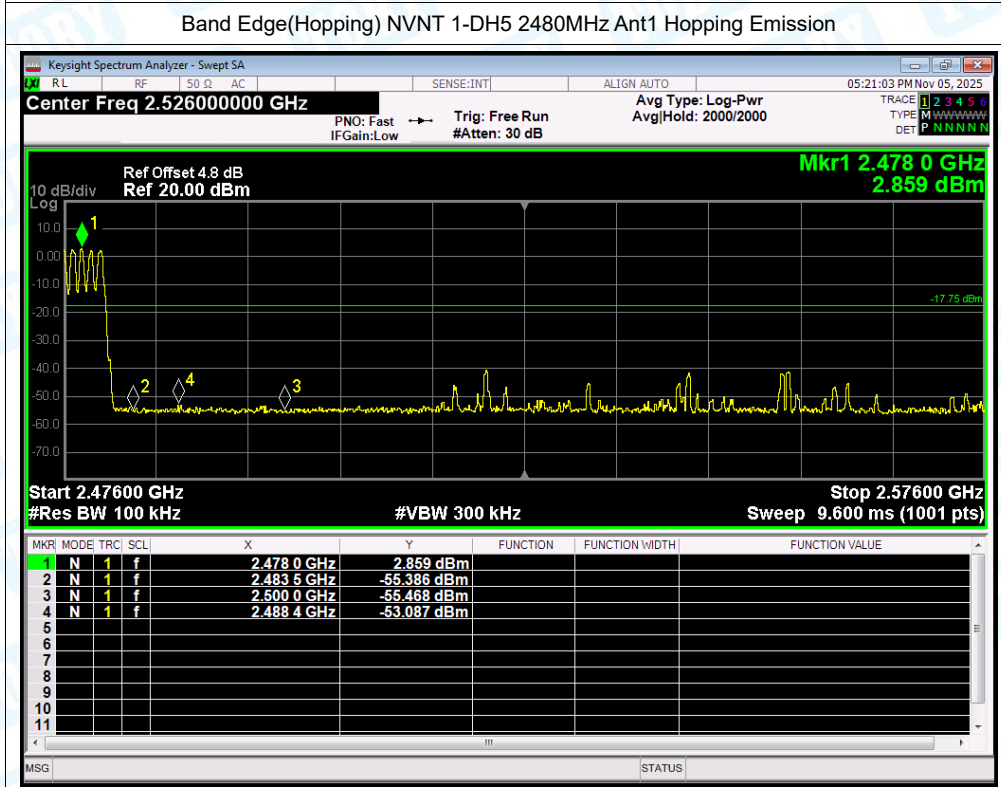
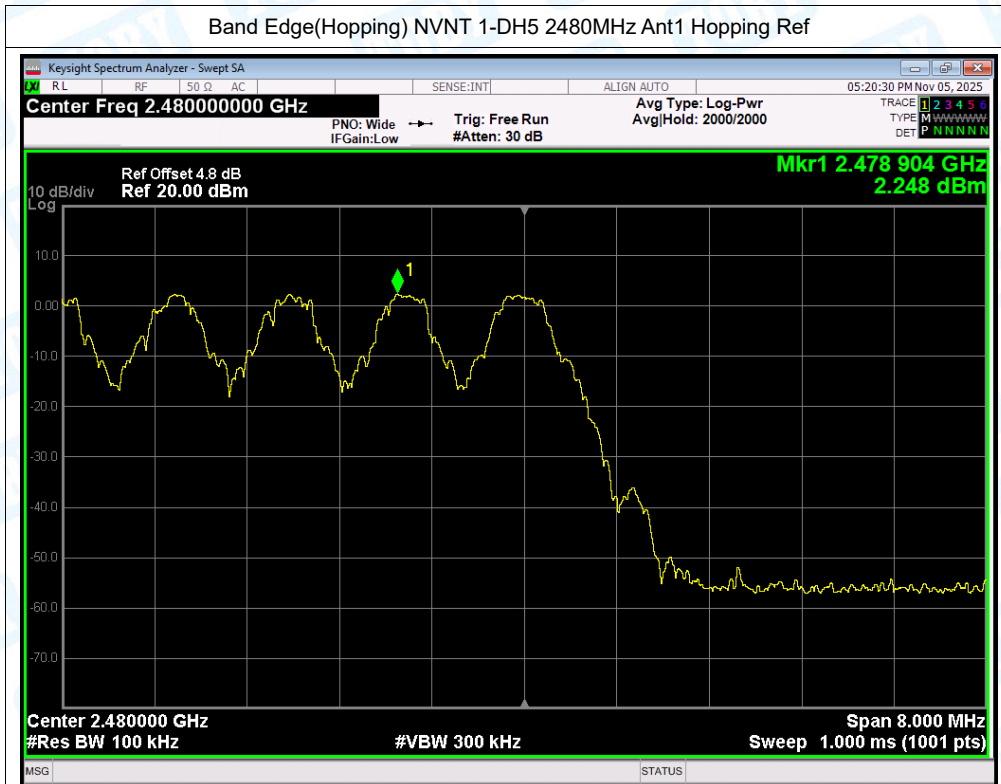
Test Graphs

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



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

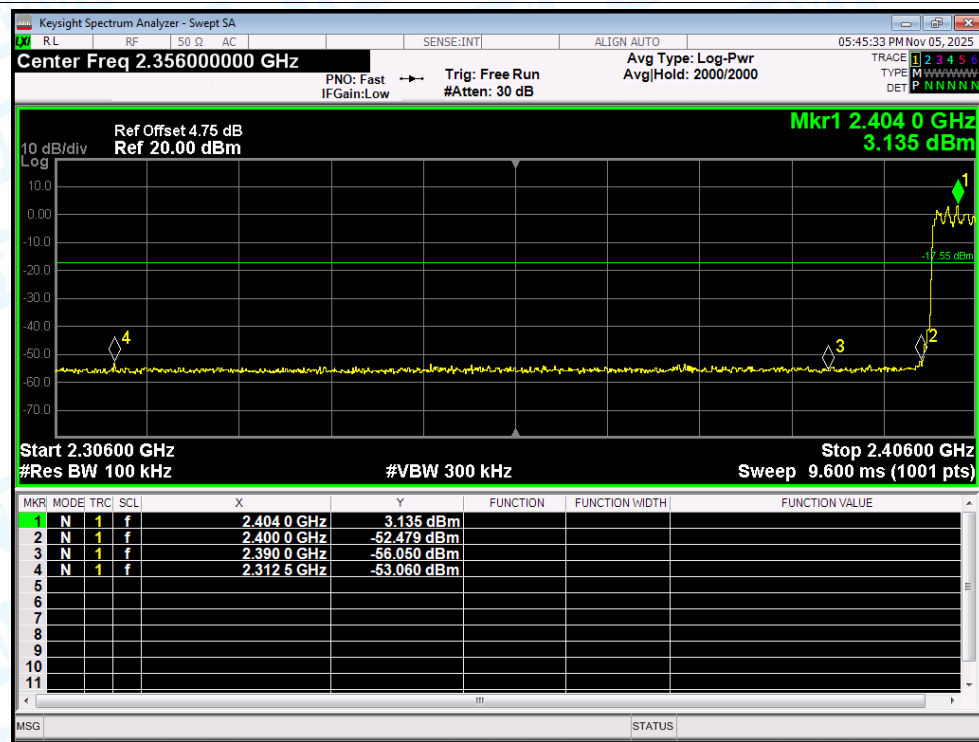


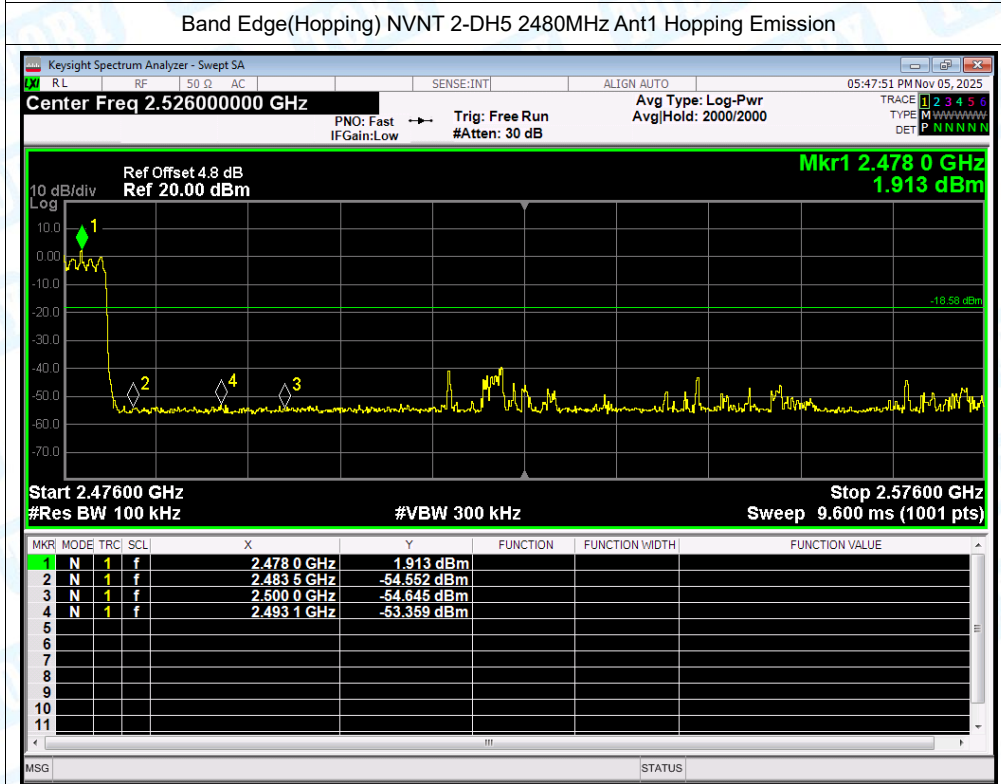
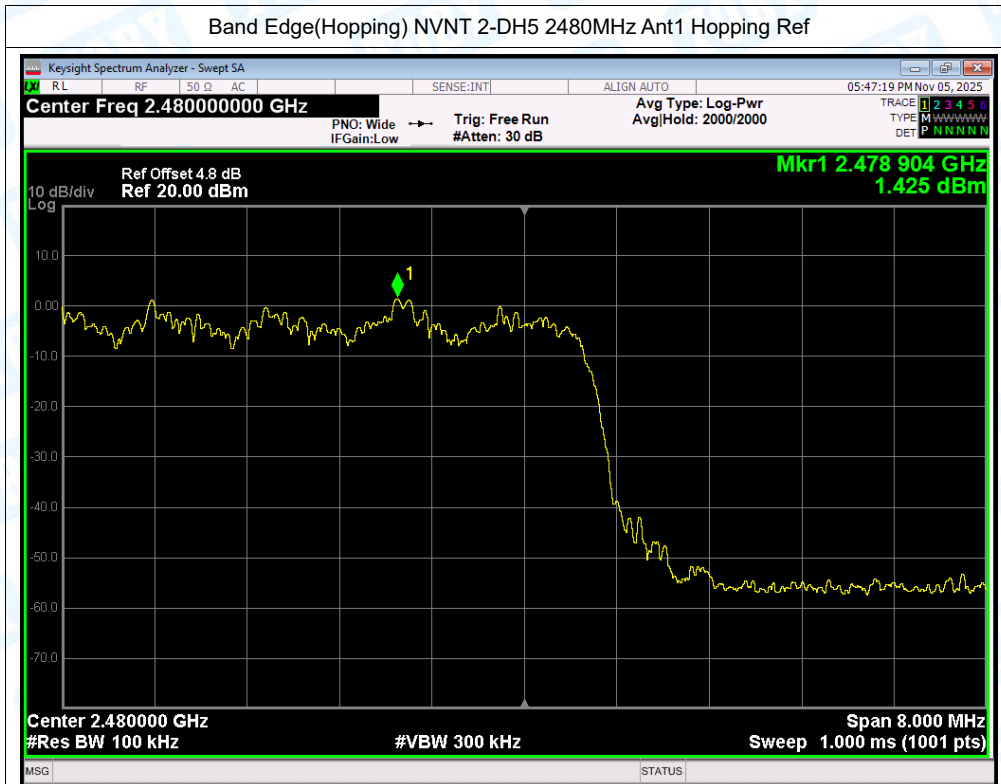


Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Ref

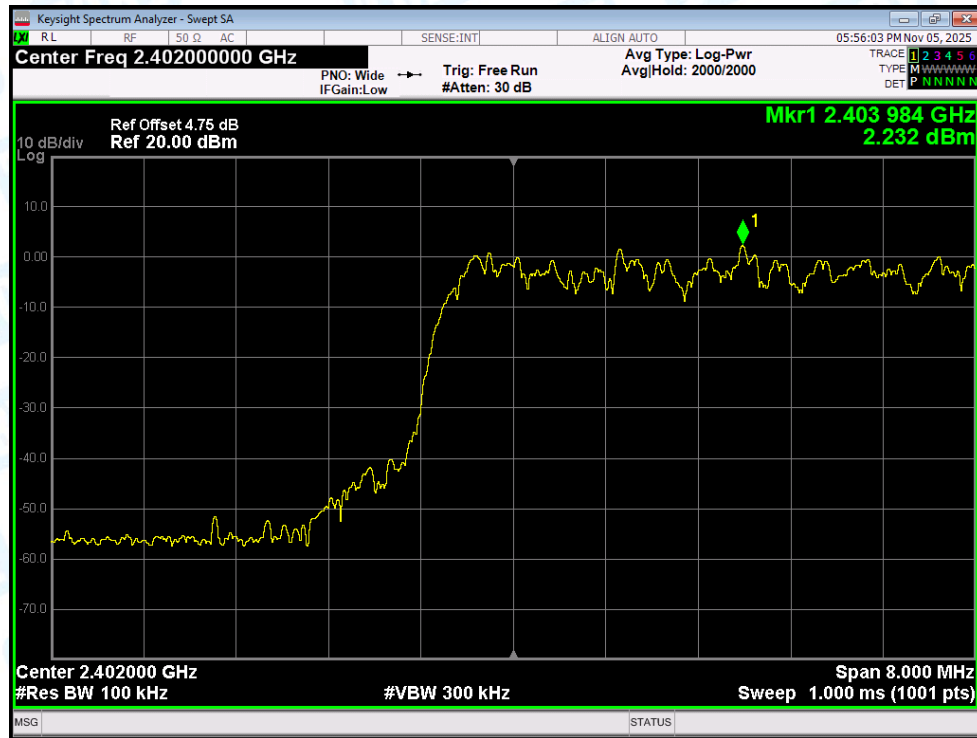


Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Emission

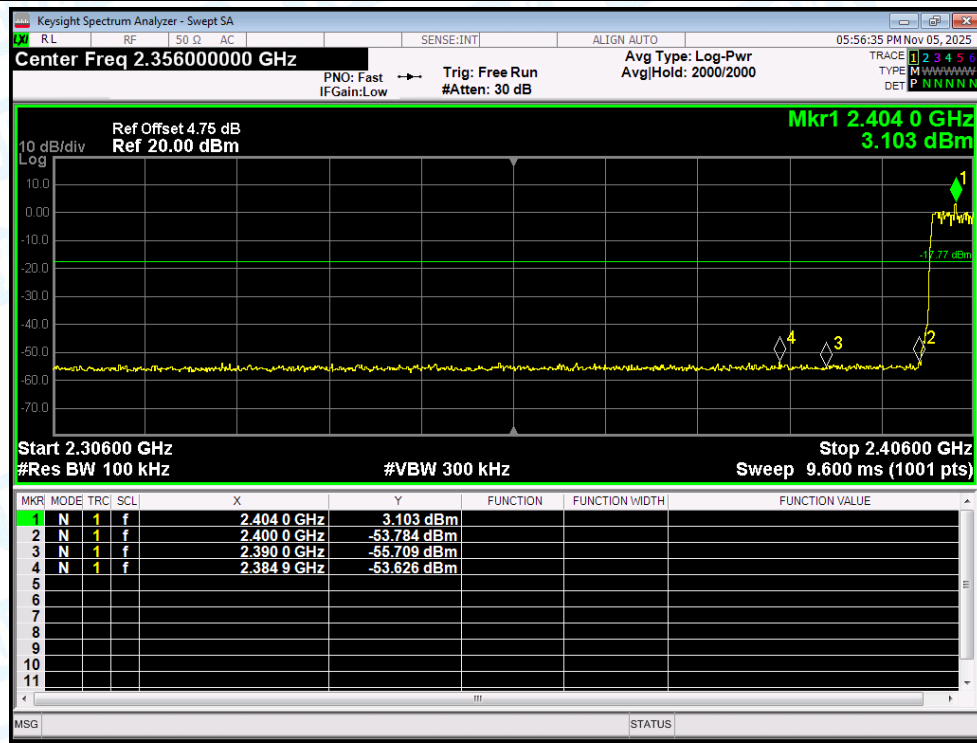


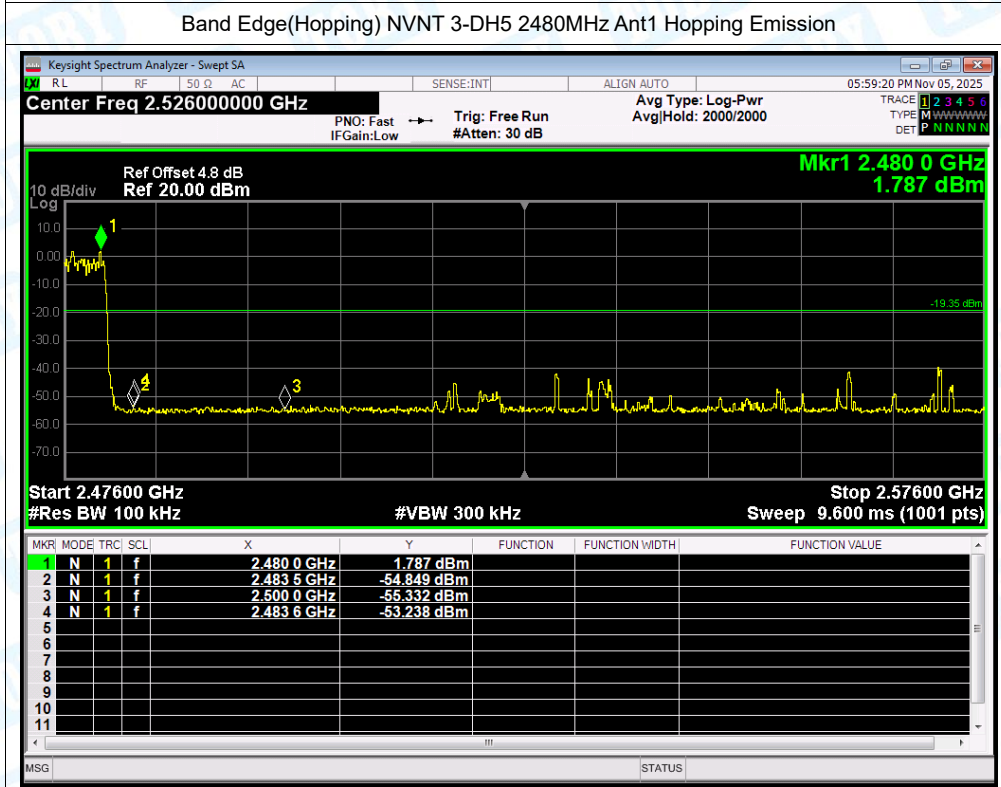
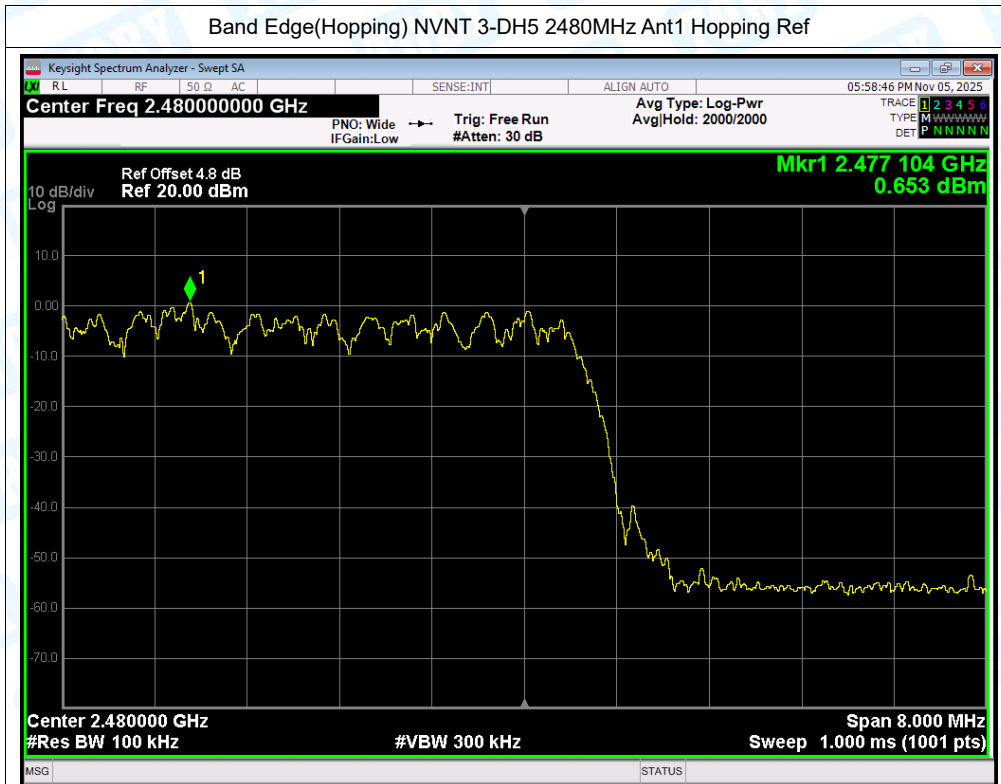


Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Ref



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



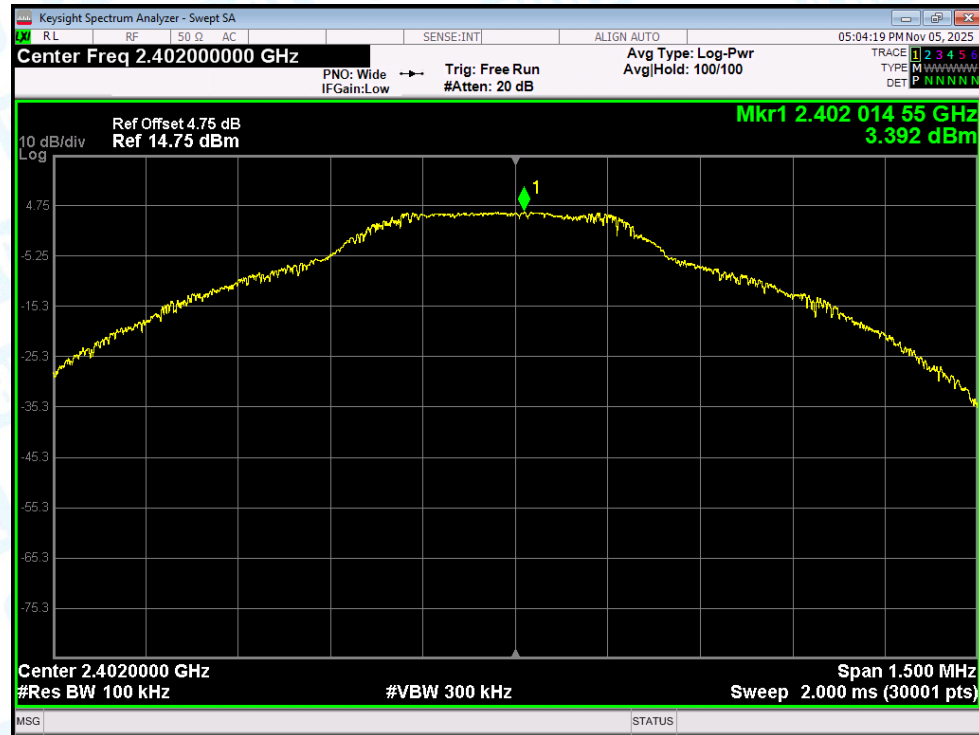


8. Conducted RF Spurious Emission

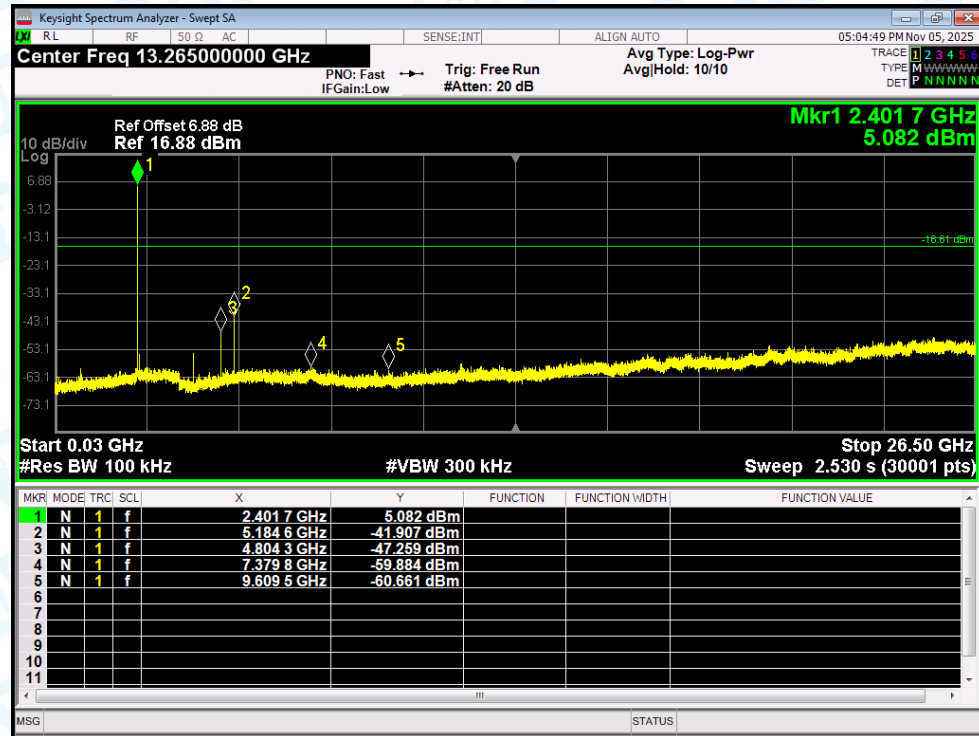
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	-45.3	-20	Pass
NVNT	1-DH5	2441	Ant1	-50.84	-20	Pass
NVNT	1-DH5	2480	Ant1	-45.26	-20	Pass
NVNT	2-DH5	2402	Ant1	-43.27	-20	Pass
NVNT	2-DH5	2441	Ant1	-51.52	-20	Pass
NVNT	2-DH5	2480	Ant1	-50.47	-20	Pass
NVNT	3-DH5	2402	Ant1	-51.62	-20	Pass
NVNT	3-DH5	2441	Ant1	-43.51	-20	Pass
NVNT	3-DH5	2480	Ant1	-50.18	-20	Pass

Test Graphs

Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Ref



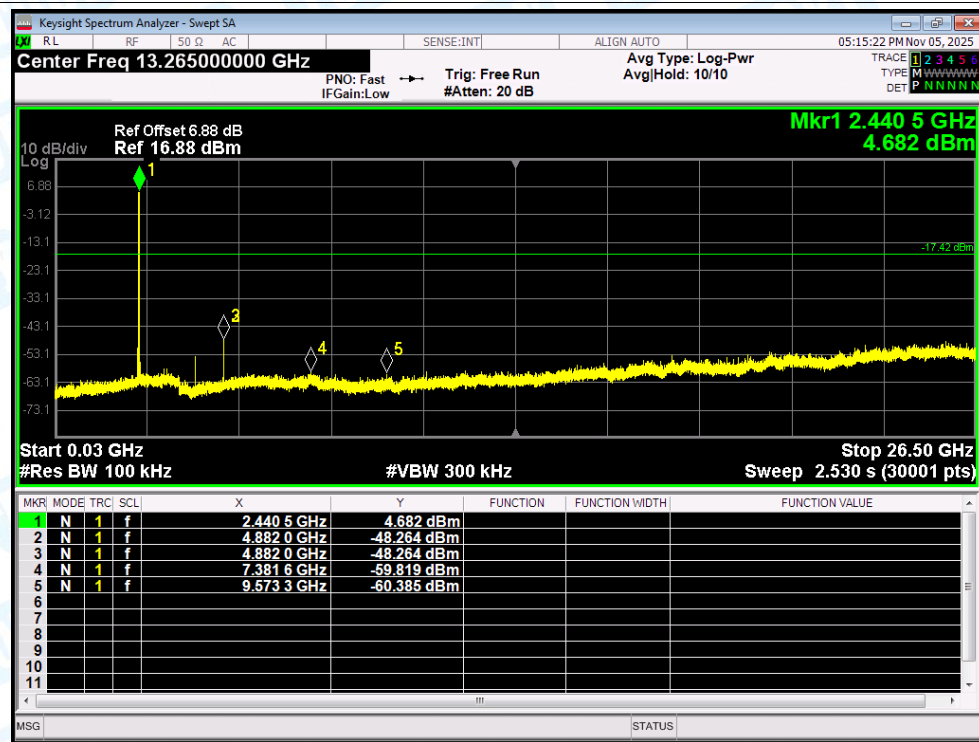
Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Emission



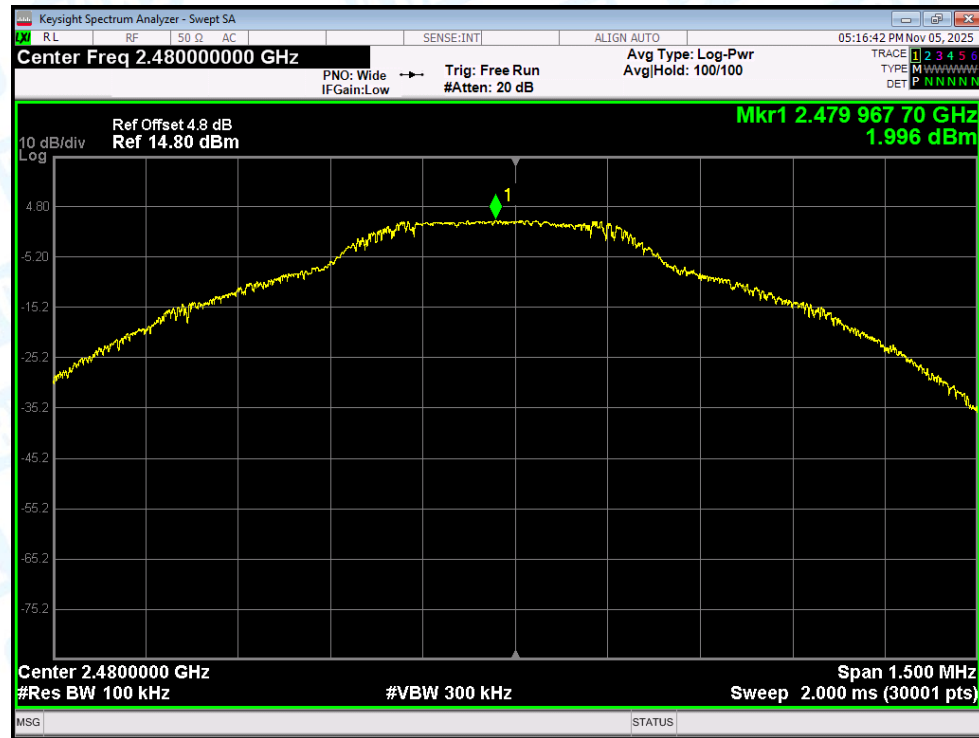
Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Ref



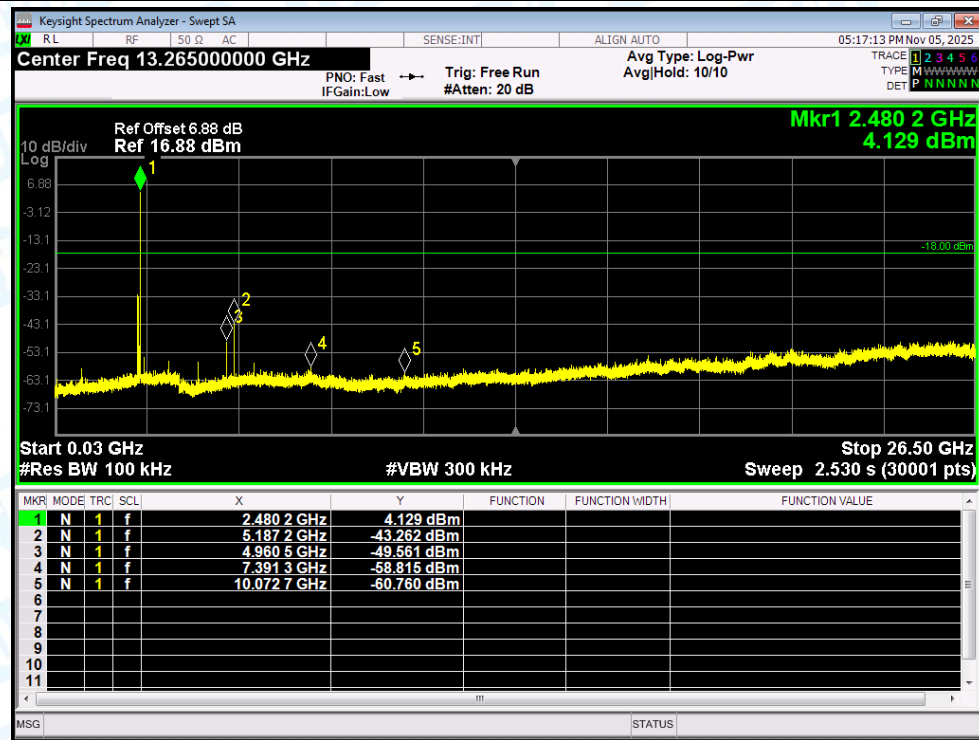
Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Emission



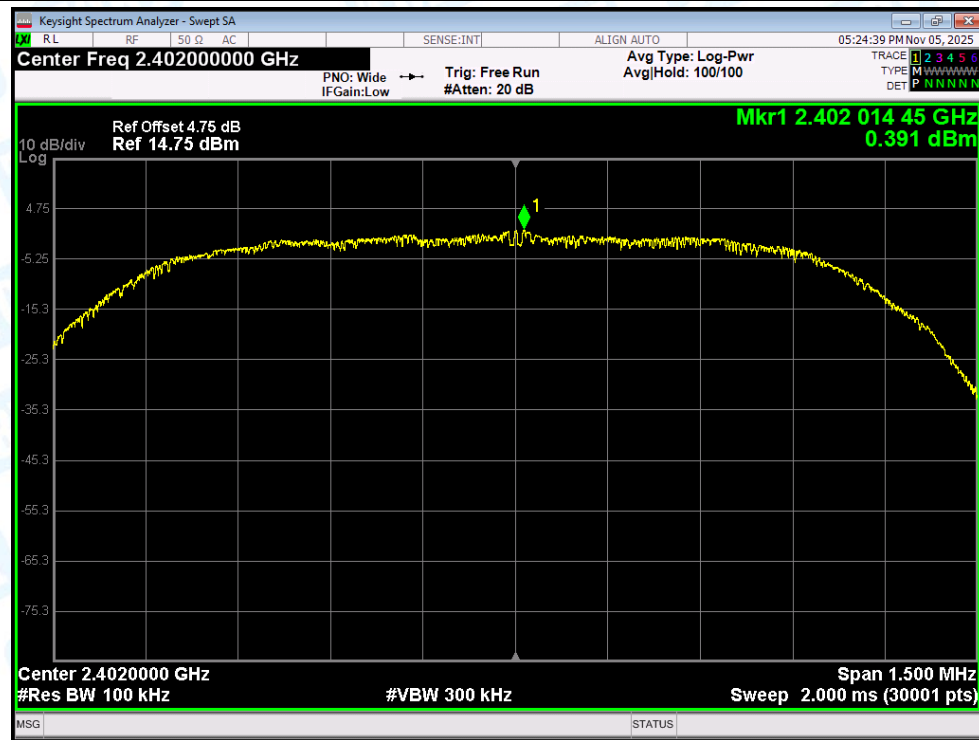
Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Ref



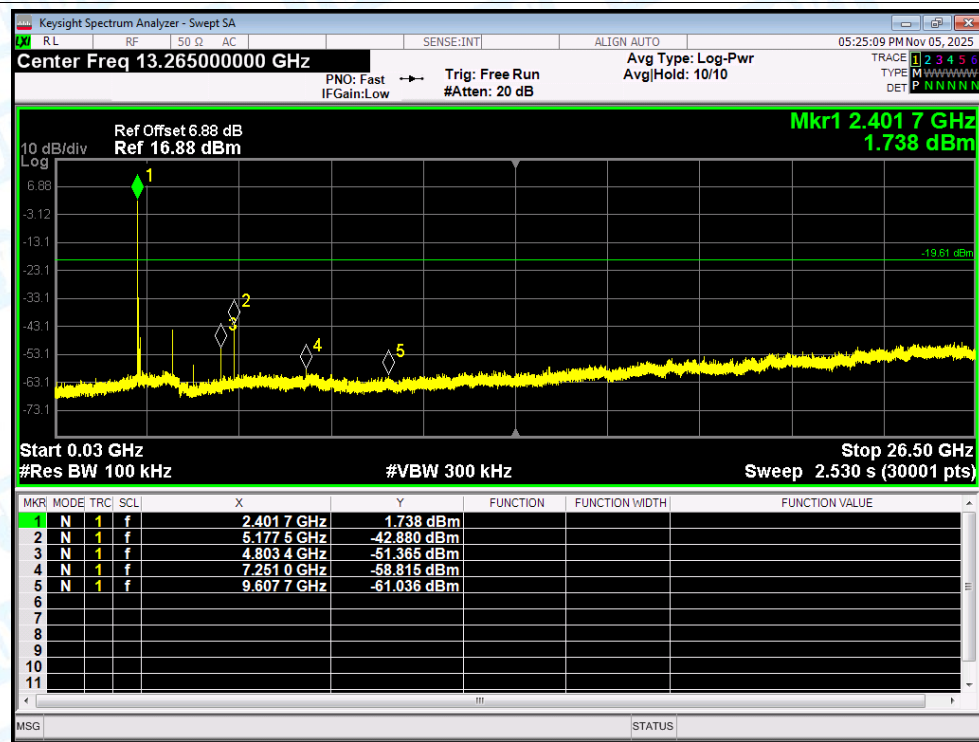
Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Emission



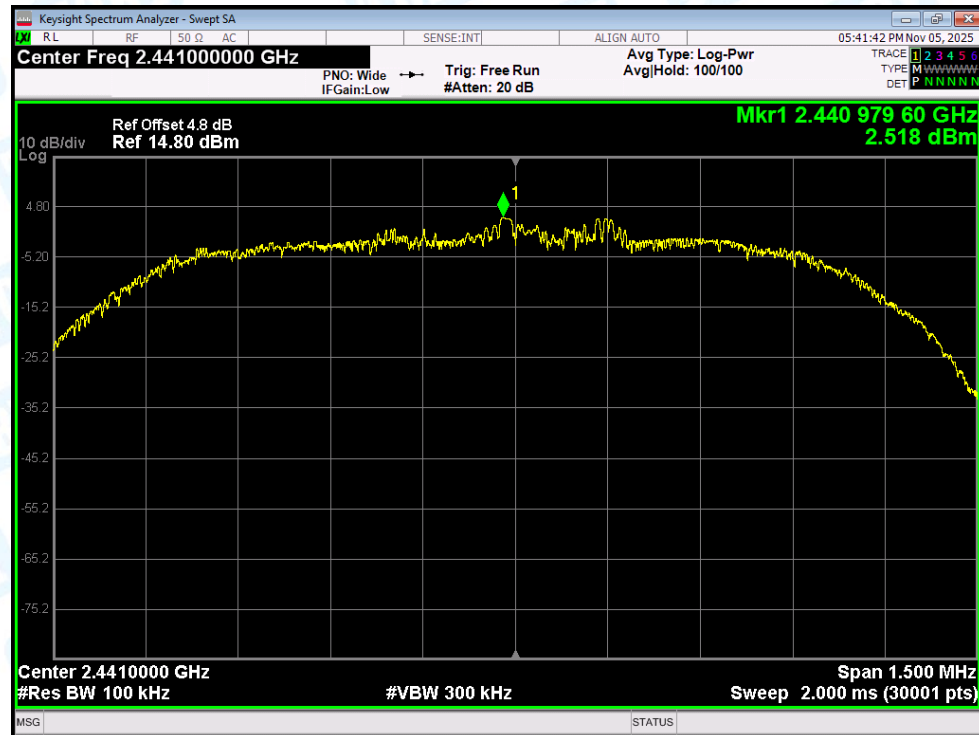
Tx. Spurious NVNT 2-DH5 2402MHz Ant1 Ref



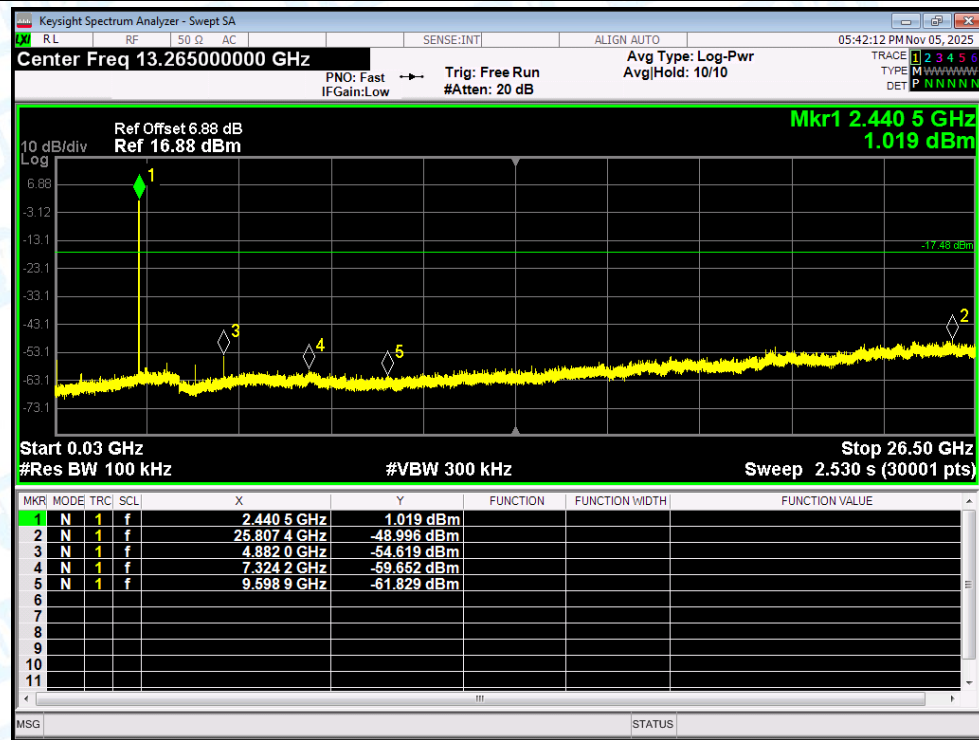
Tx. Spurious NVNT 2-DH5 2402MHz Ant1 Emission



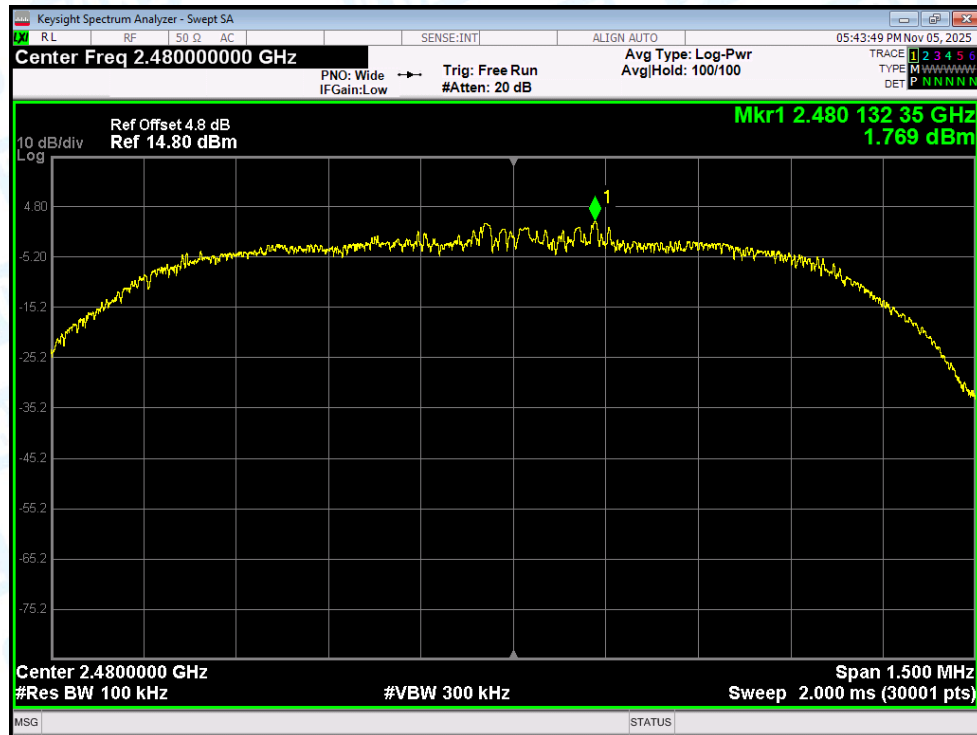
Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Ref



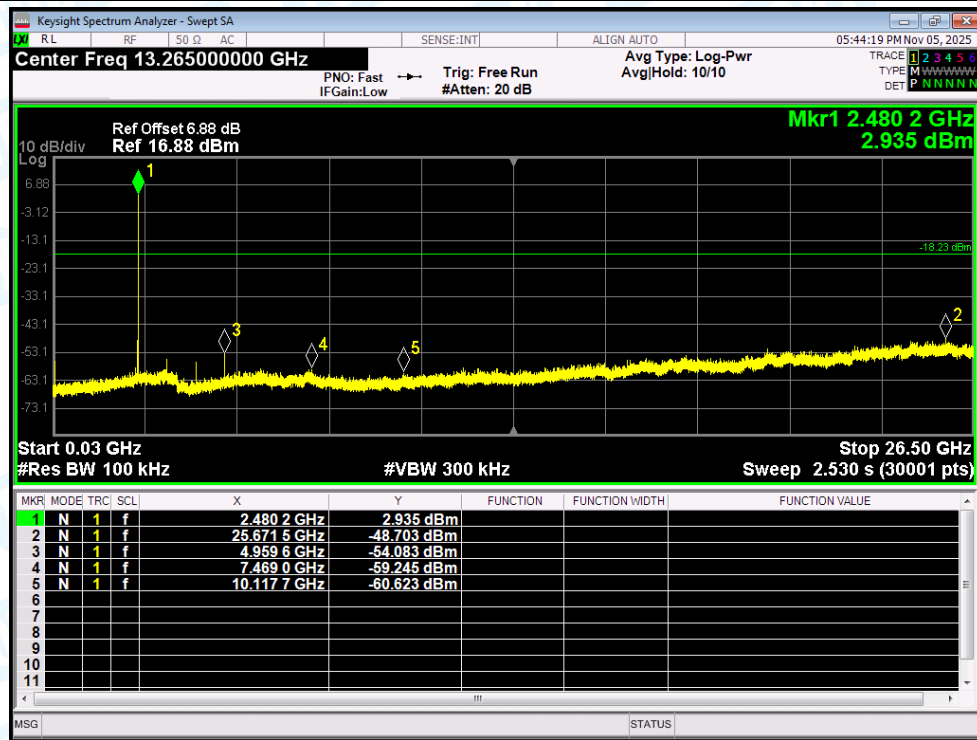
Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Emission



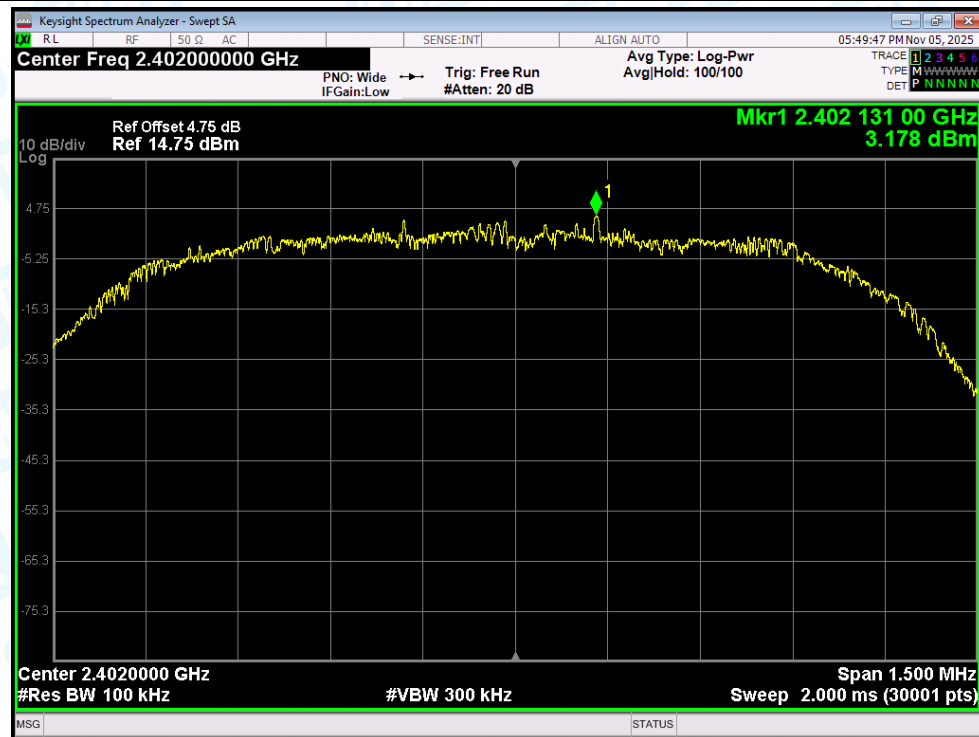
Tx. Spurious NVNT 2-DH5 2480MHz Ant1 Ref



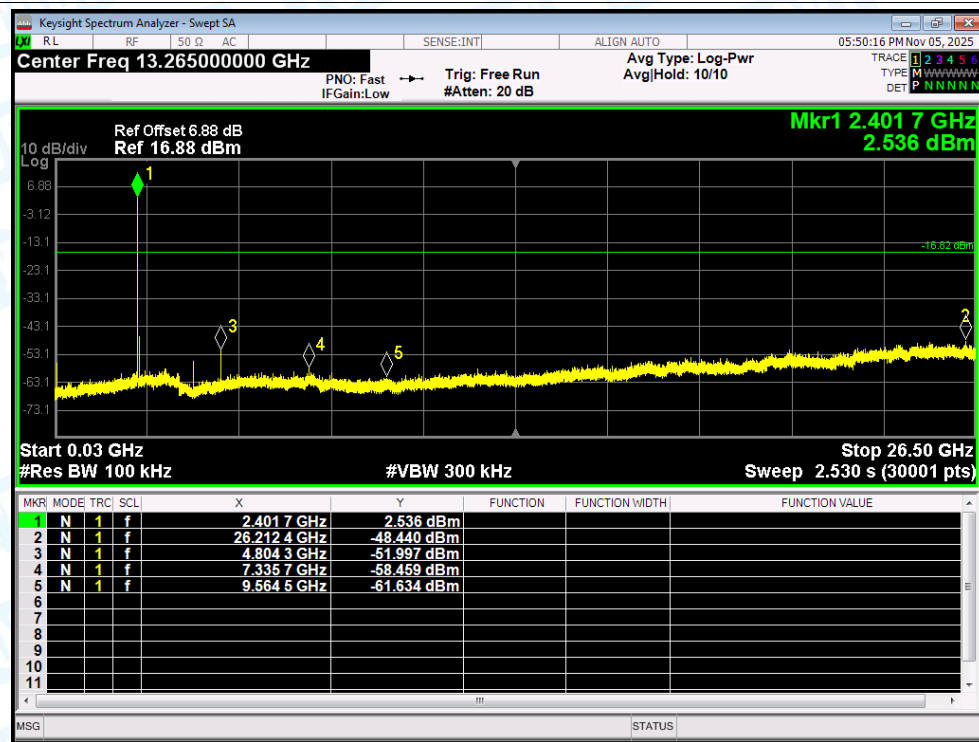
Tx. Spurious NVNT 2-DH5 2480MHz Ant1 Emission



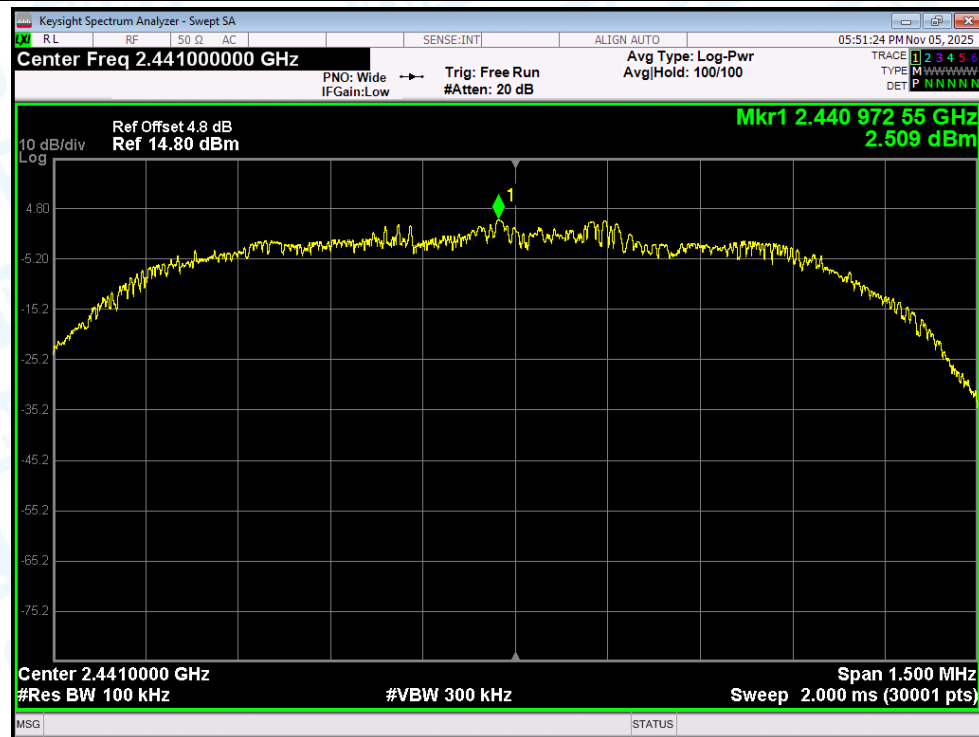
Tx. Spurious NVNT 3-DH5 2402MHz Ant1 Ref



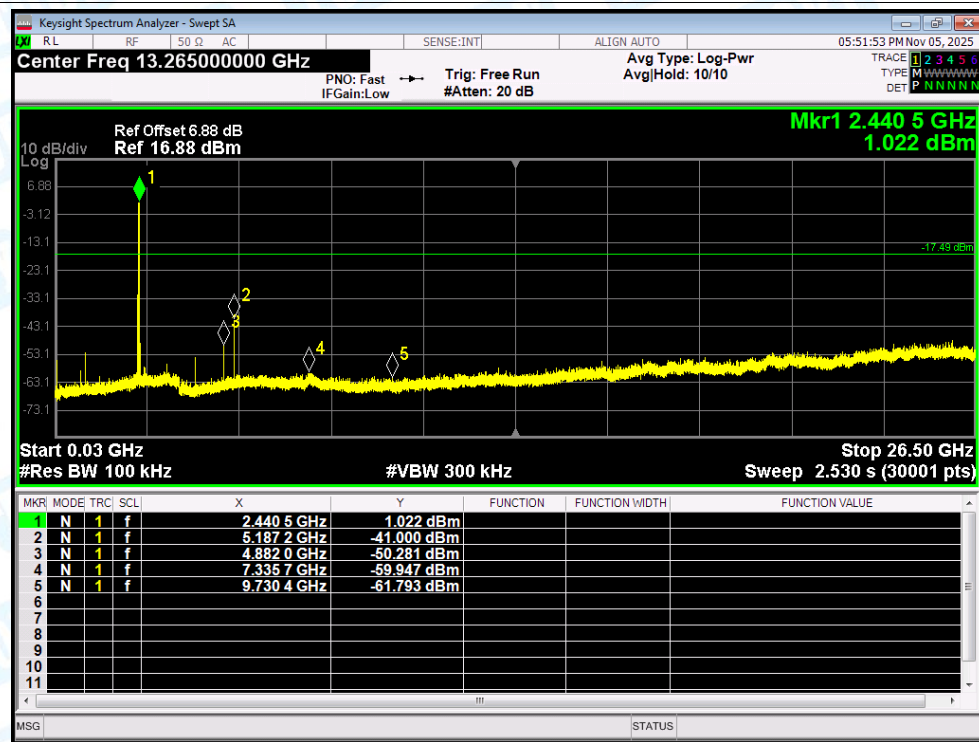
Tx. Spurious NVNT 3-DH5 2402MHz Ant1 Emission



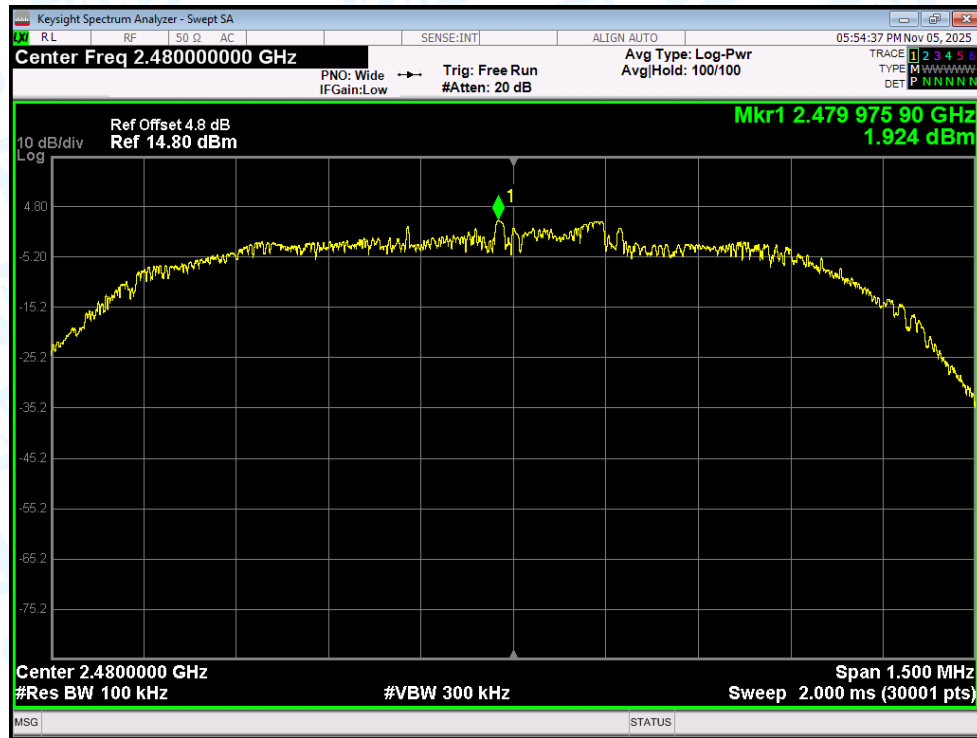
Tx. Spurious NVNT 3-DH5 2441MHz Ant1 Ref



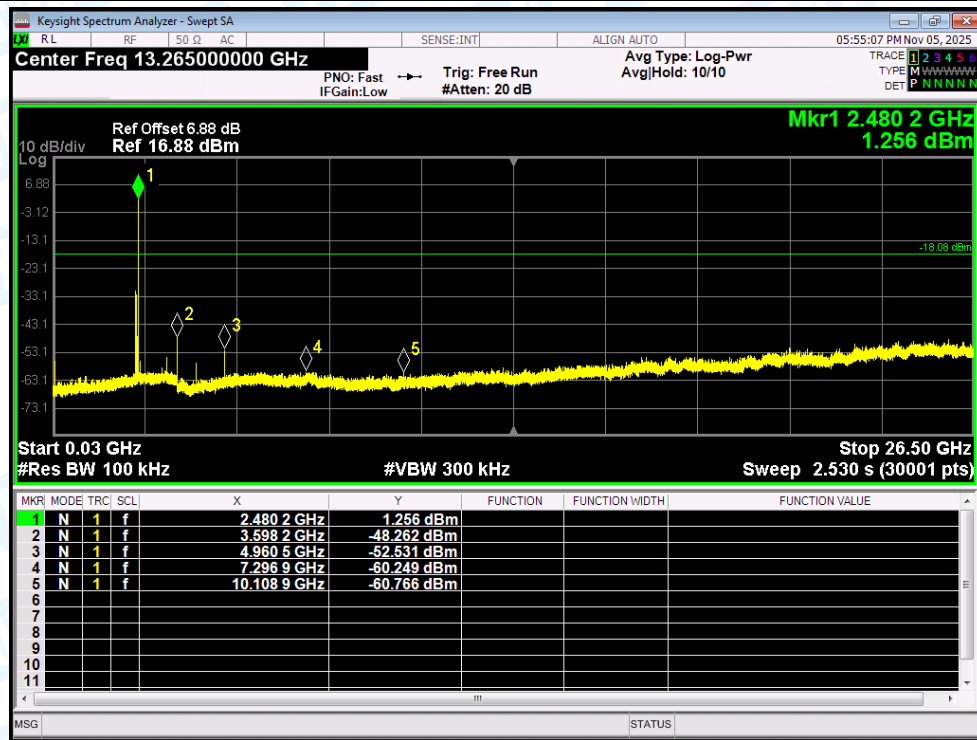
Tx. Spurious NVNT 3-DH5 2441MHz Ant1 Emission



Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Emission

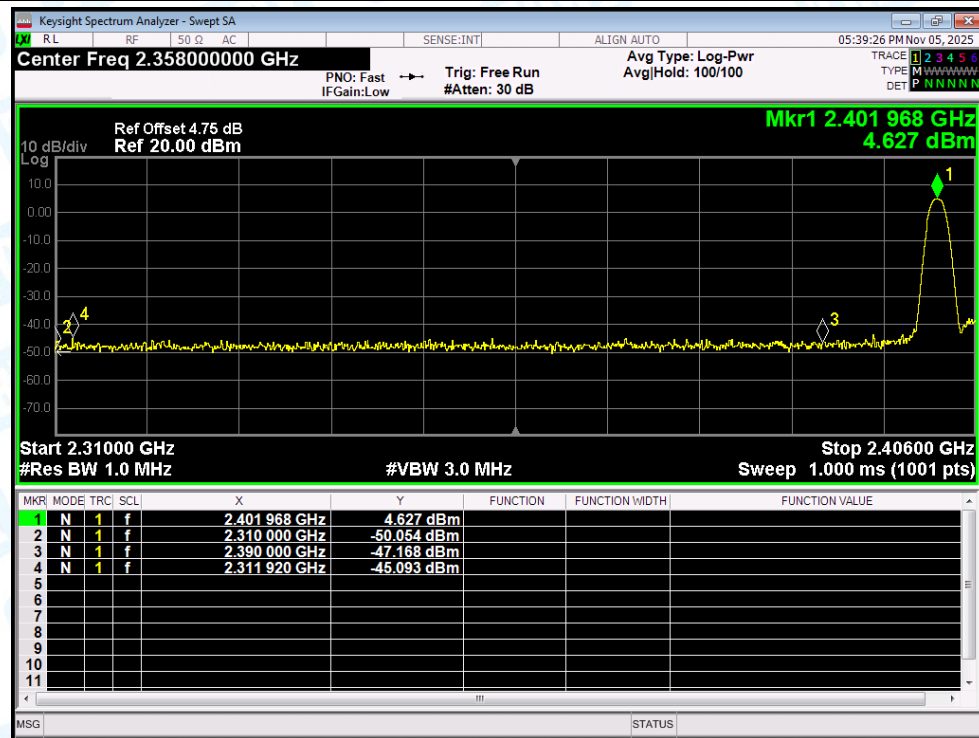


9.Restrict Band

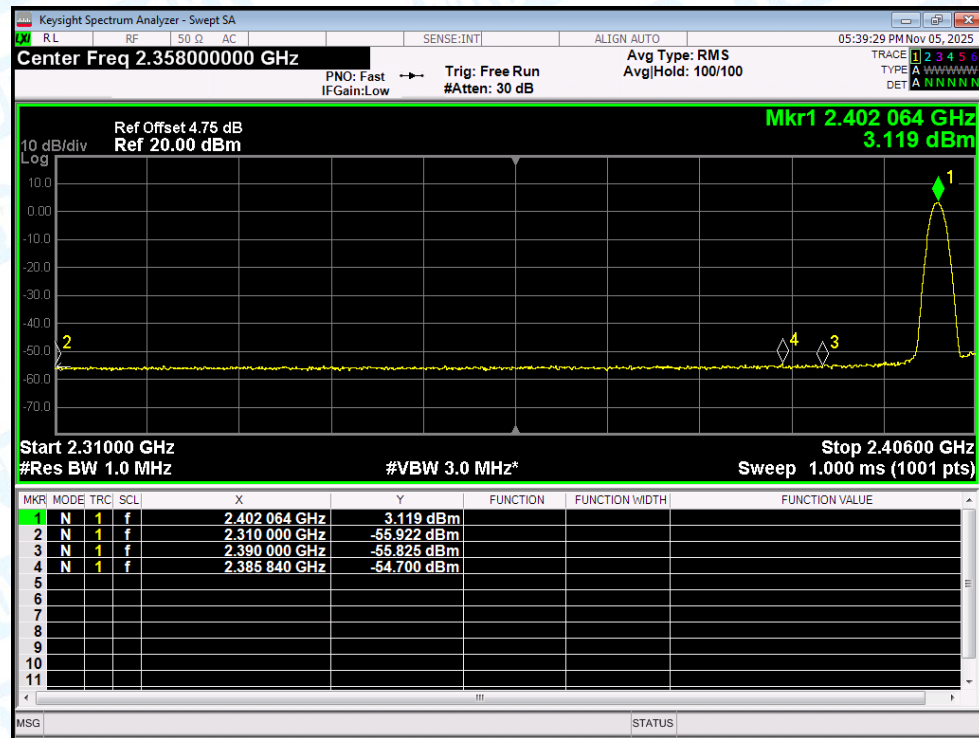
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH5	2402	Ant1	No-Hopping	2310	-50.05	2	-	47.21	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2310	-55.92	2	1.11	42.45	Average	54	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2311.92	-45.09	2	-	52.17	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2385.84	-54.7	2	1.11	43.67	Average	54	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2390	-47.17	2	-	50.09	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2390	-55.83	2	1.11	42.54	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.5	-44.92	2	-	52.34	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.5	-54.68	2	1.11	43.69	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2499.16	-44.13	2	-	53.13	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2484.112	-54.29	2	1.11	44.08	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2500	-47.28	2	-	49.98	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2500	-54.92	2	1.11	43.45	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2310	-48.14	2	-	49.12	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2310	-55.8	2	1.11	42.57	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2389.2	-44.96	2	-	52.3	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2379.984	-54.92	2	1.11	43.45	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2390	-47.69	2	-	49.57	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2390	-55.44	2	1.11	42.93	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.5	-48.31	2	-	48.95	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.5	-55.01	2	1.11	43.36	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2488.816	-44.09	2	-	53.17	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.584	-54.18	2	1.11	44.19	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2500	-46.22	2	-	51.04	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2500	-55.33	2	1.11	43.04	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2310	-47.91	2	-	49.35	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2310	-56.09	2	1.11	42.28	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2367.6	-44.77	2	-	52.49	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2362.224	-55.06	2	1.11	43.31	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2390	-46.8	2	-	50.46	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2390	-55.29	2	1.11	43.08	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.5	-46.47	2	-	50.79	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.5	-54.52	2	1.11	43.85	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2492.392	-43.96	2	-	53.3	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.944	-54.37	2	1.11	44	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2500	-47.3	2	-	49.96	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2500	-55.03	2	1.11	43.34	Average	54	Pass

Test Graphs

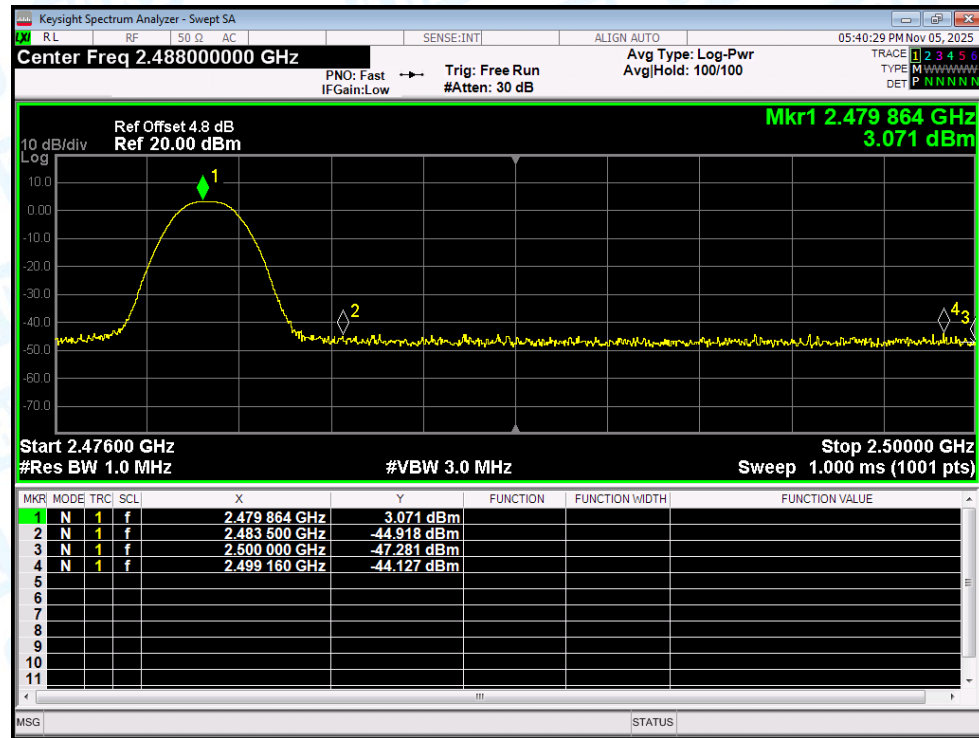
Restrict Band NVNT 1-DH5 2402MHz Ant1 No-Hopping Peak



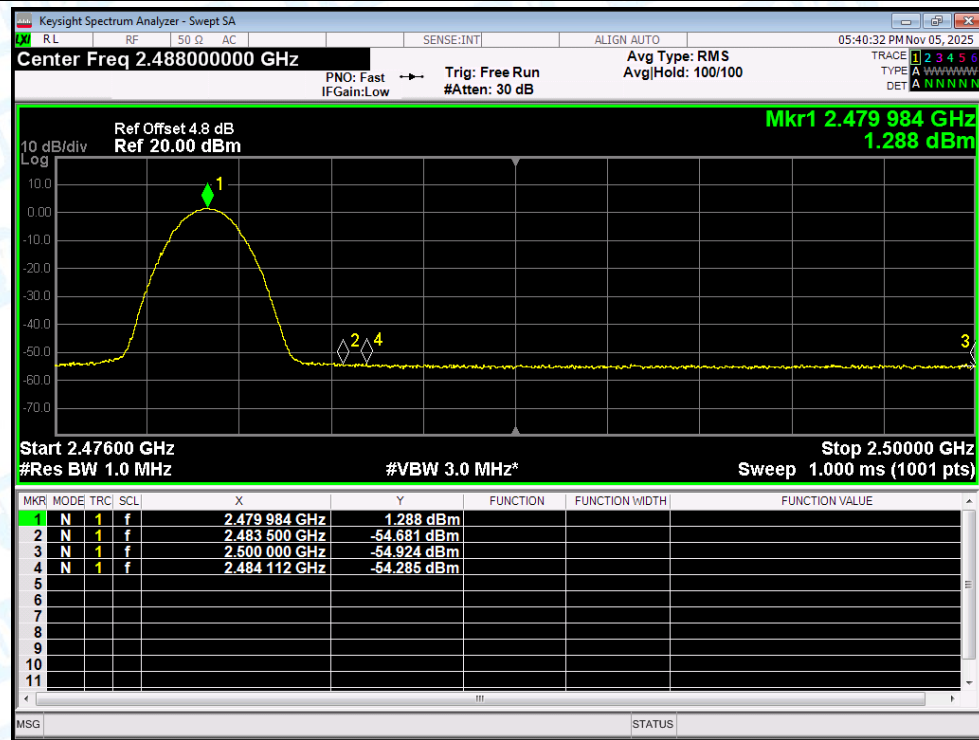
Restrict Band NVNT 1-DH5 2402MHz Ant1 No-Hopping Average



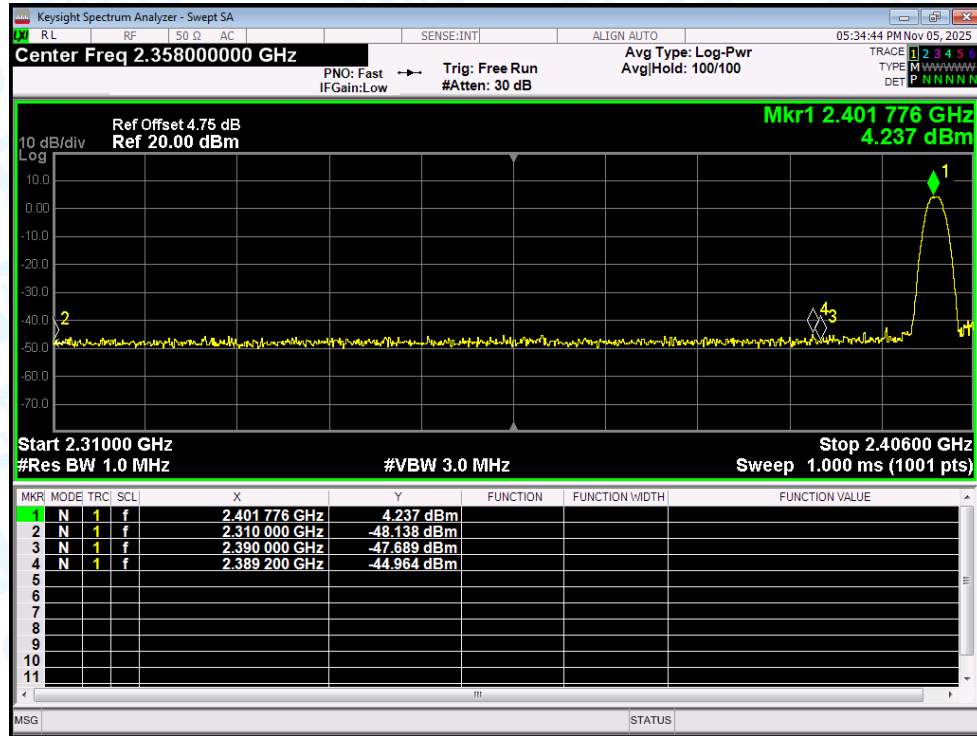
Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Peak



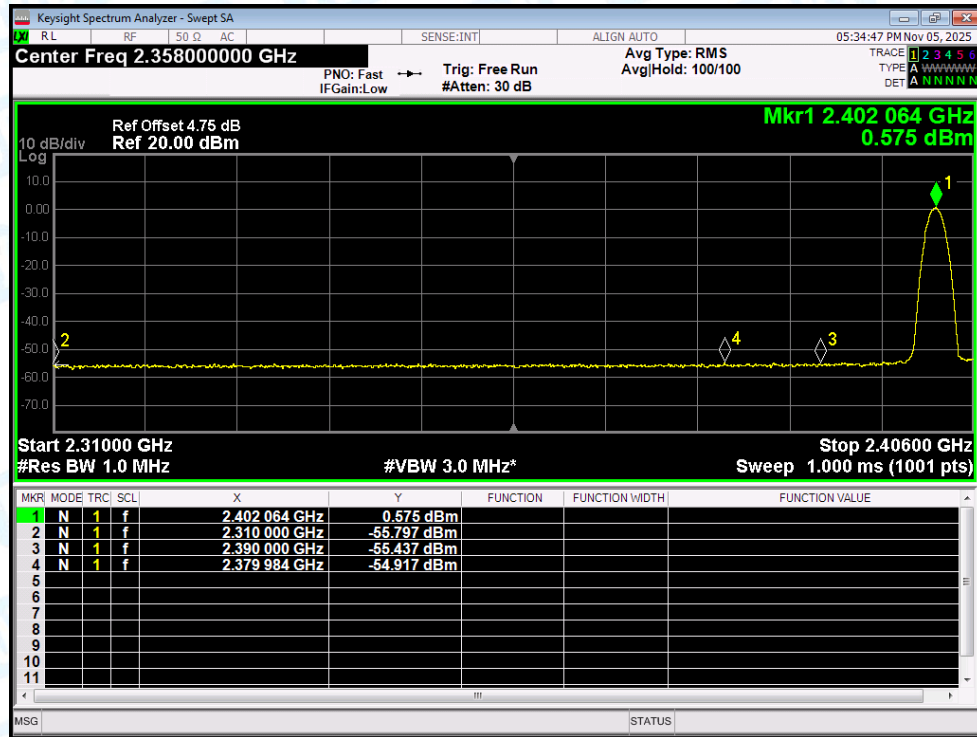
Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Average



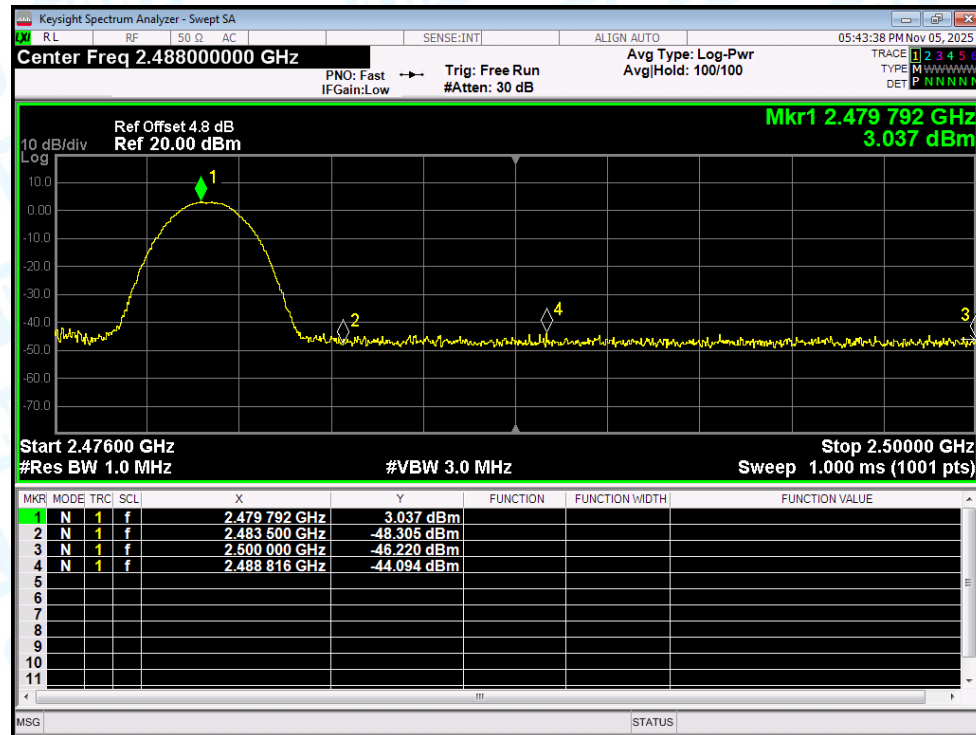
Restrict Band NVNT 2-DH5 2402MHz Ant1 No-Hopping Peak



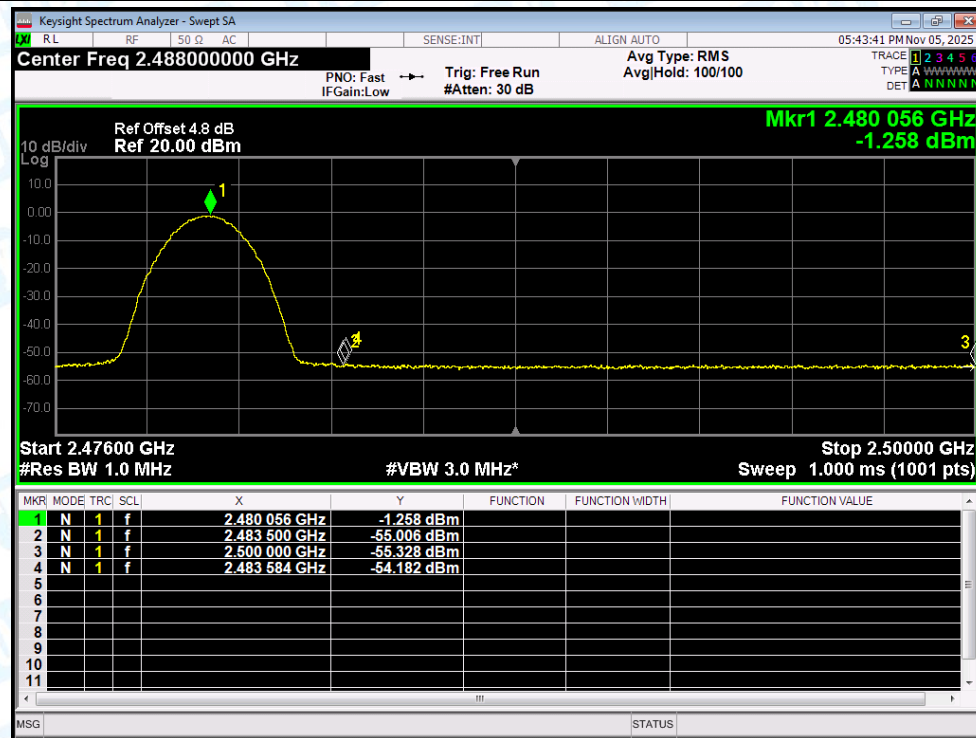
Restrict Band NVNT 2-DH5 2402MHz Ant1 No-Hopping Average



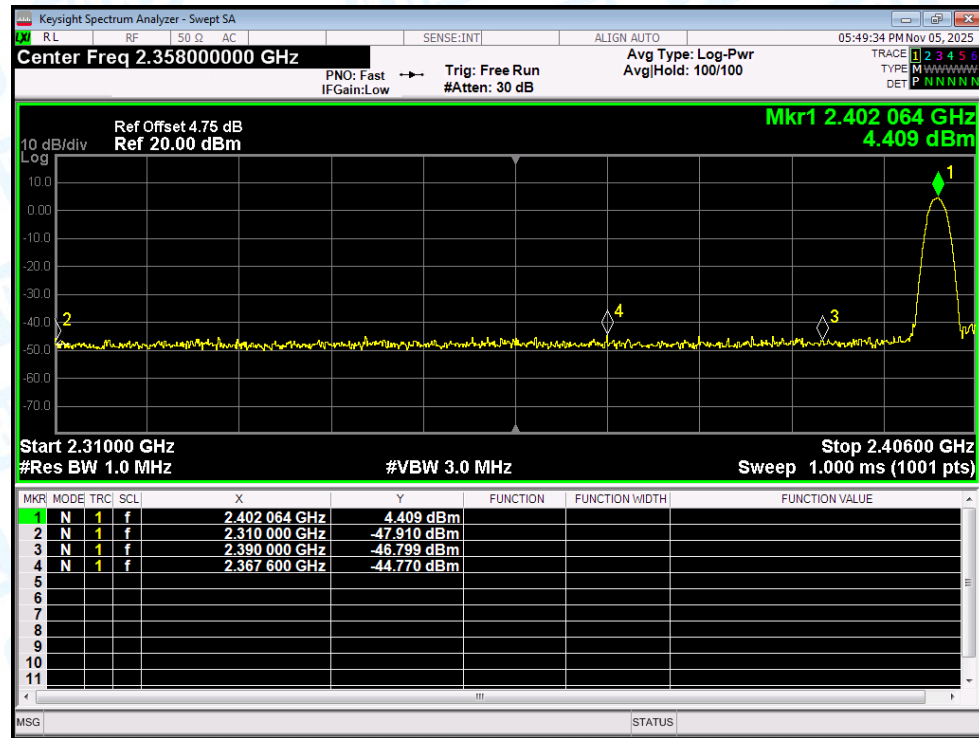
Restrict Band NVNT 2-DH5 2480MHz Ant1 No-Hopping Peak



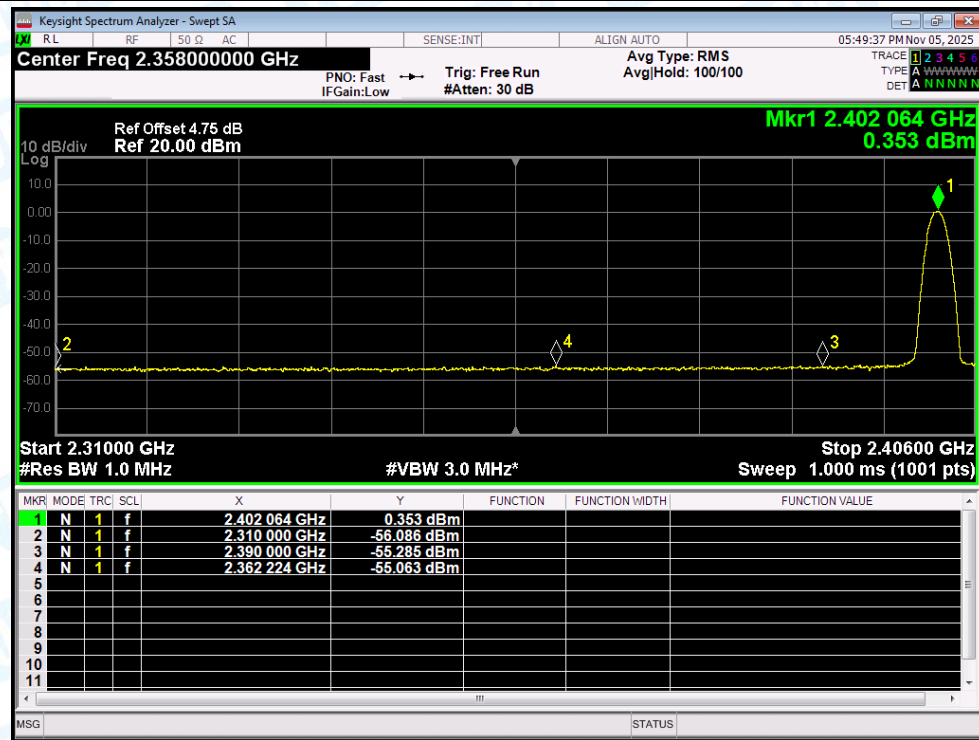
Restrict Band NVNT 2-DH5 2480MHz Ant1 No-Hopping Average



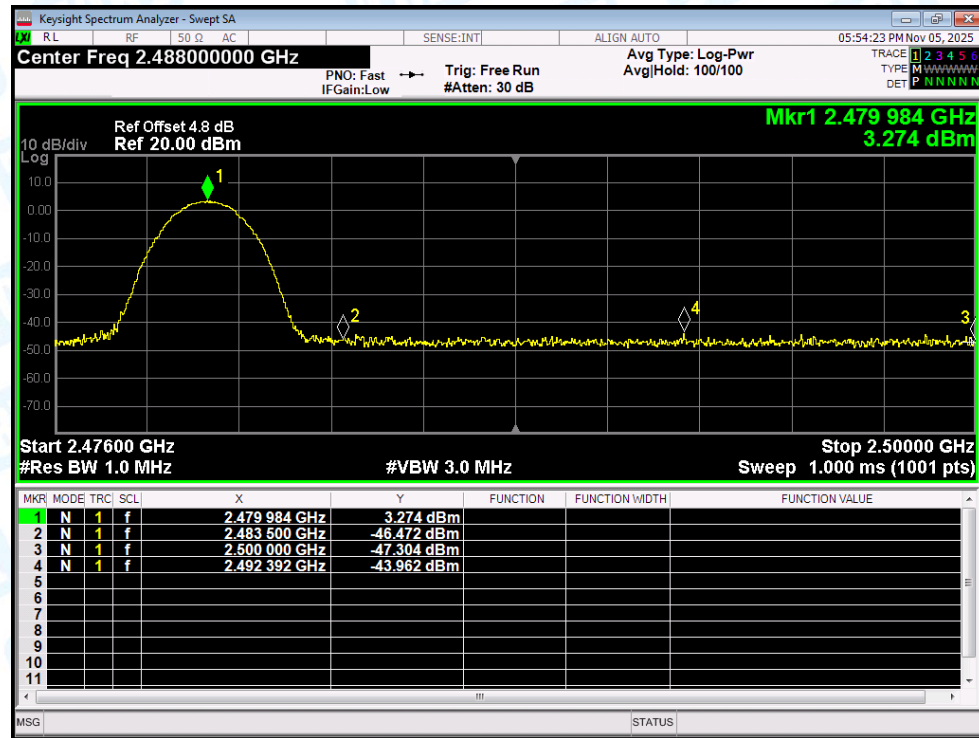
Restrict Band NVNT 3-DH5 2402MHz Ant1 No-Hopping Peak



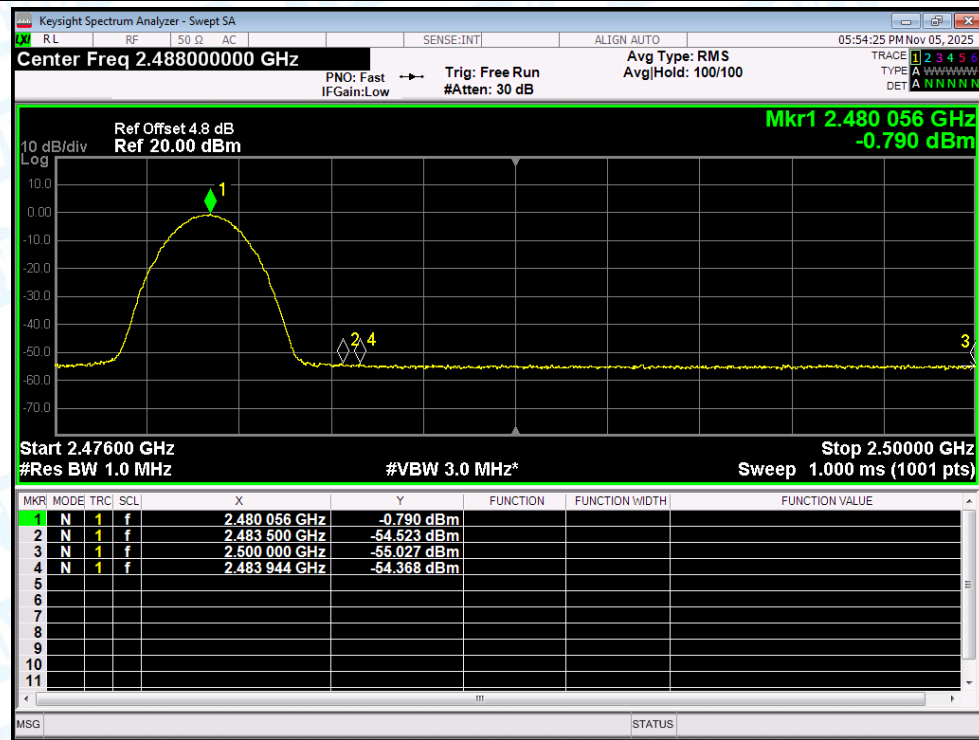
Restrict Band NVNT 3-DH5 2402MHz Ant1 No-Hopping Average



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



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

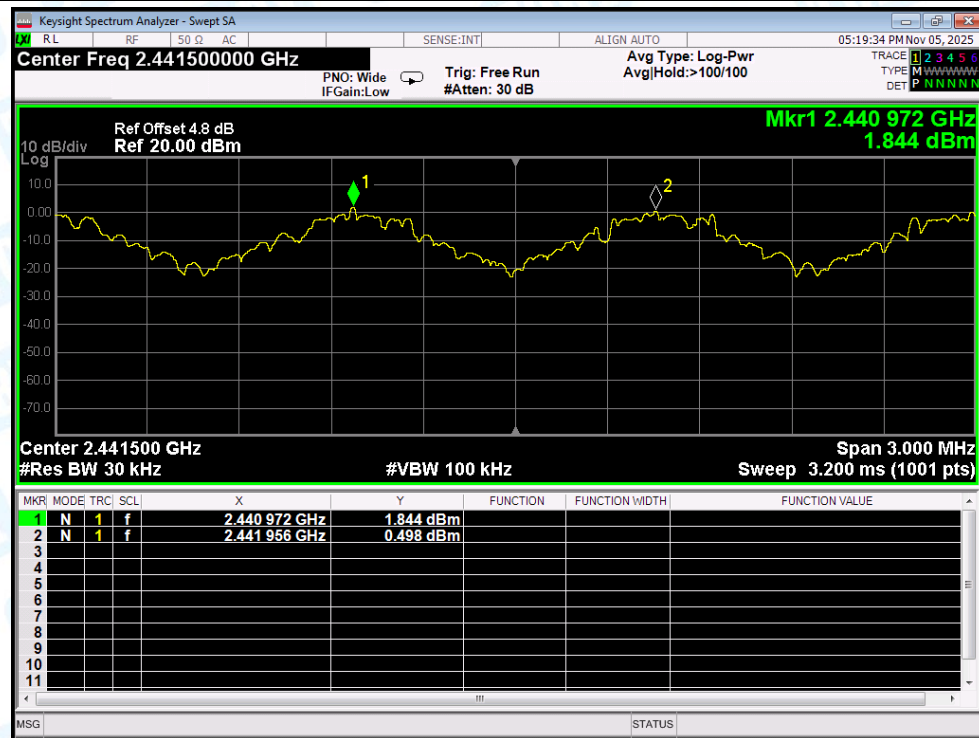


10. Carrier Frequencies Separation

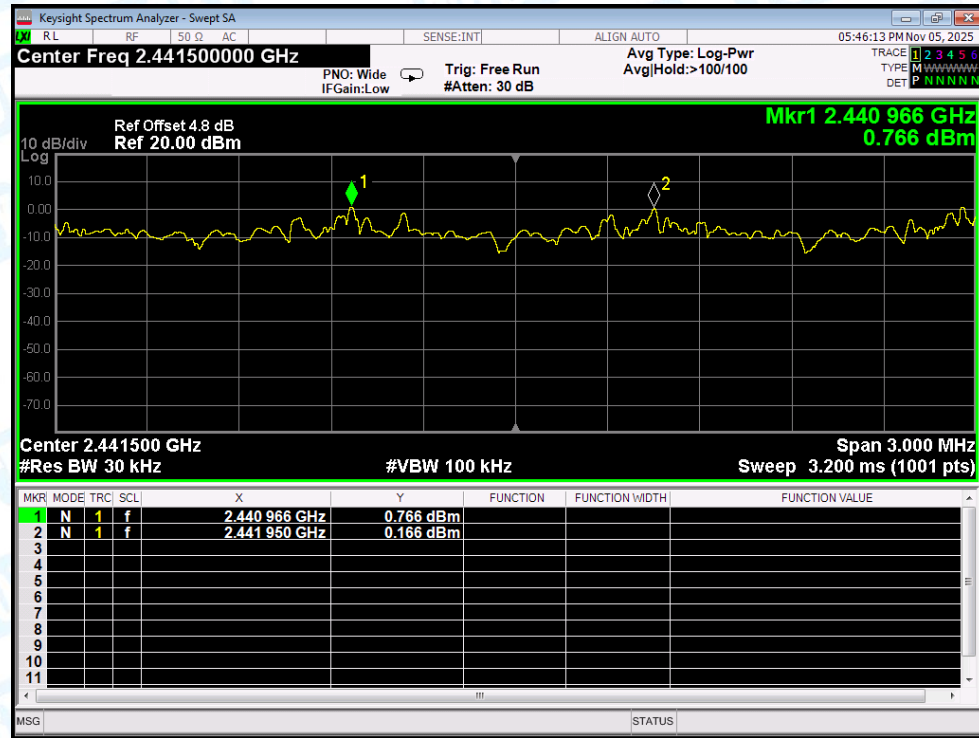
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH5	Ant1	2440.972	2441.956	0.984	0.633	Pass
NVNT	2-DH5	Ant1	2440.966	2441.95	0.984	0.873	Pass
NVNT	3-DH5	Ant1	2440.918	2441.797	0.879	0.853	Pass

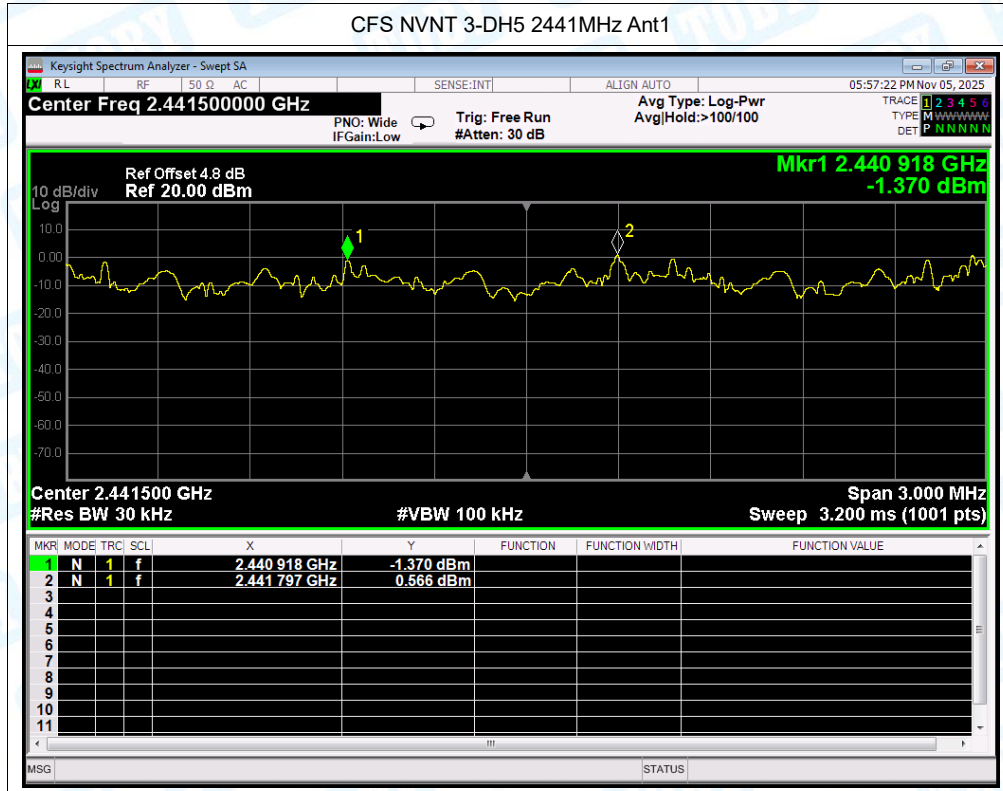
Test Graphs

CFS NVNT 1-DH5 2441MHz Ant1



CFS NVNT 2-DH5 2441MHz Ant1



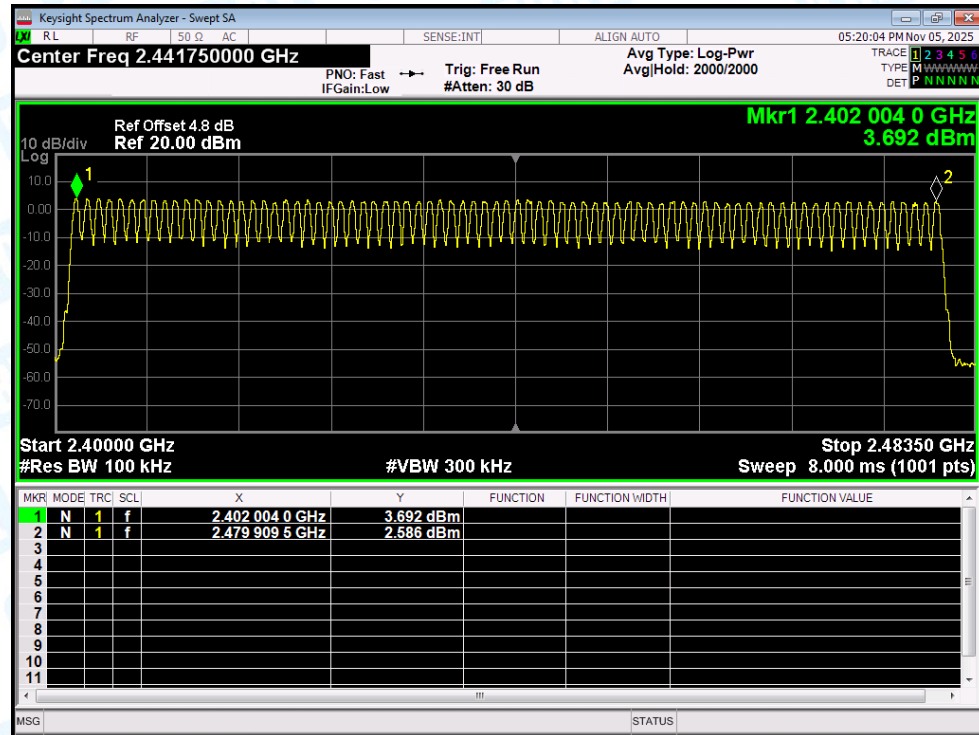


11.Number of Hopping Channel

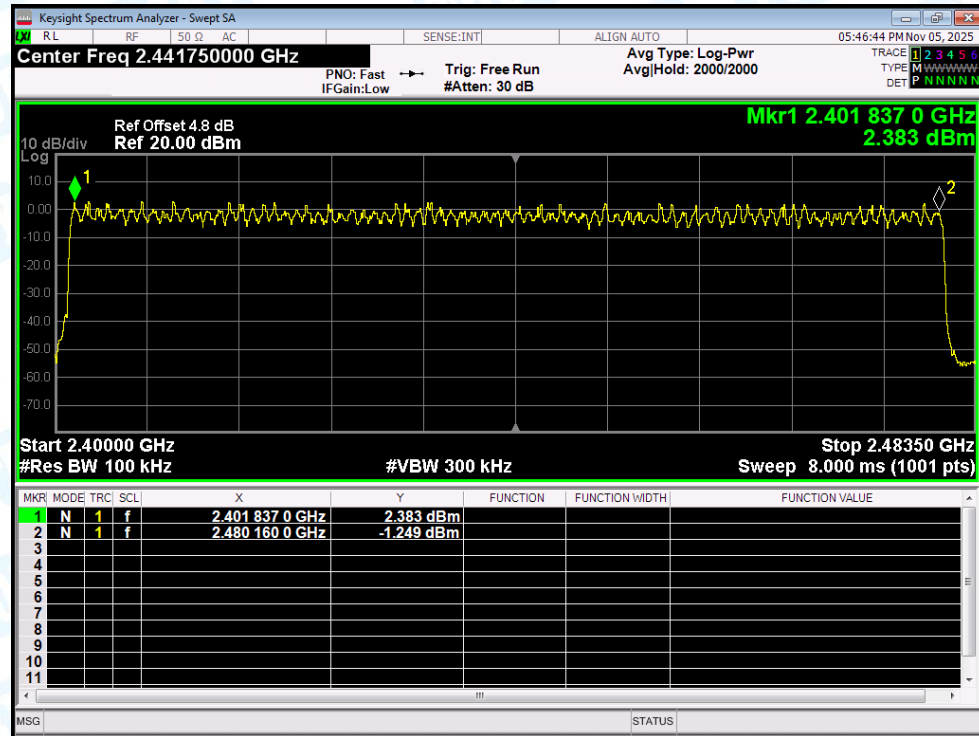
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH5	Ant1	79	15	Pass
NVNT	2-DH5	Ant1	79	15	Pass
NVNT	3-DH5	Ant1	79	15	Pass

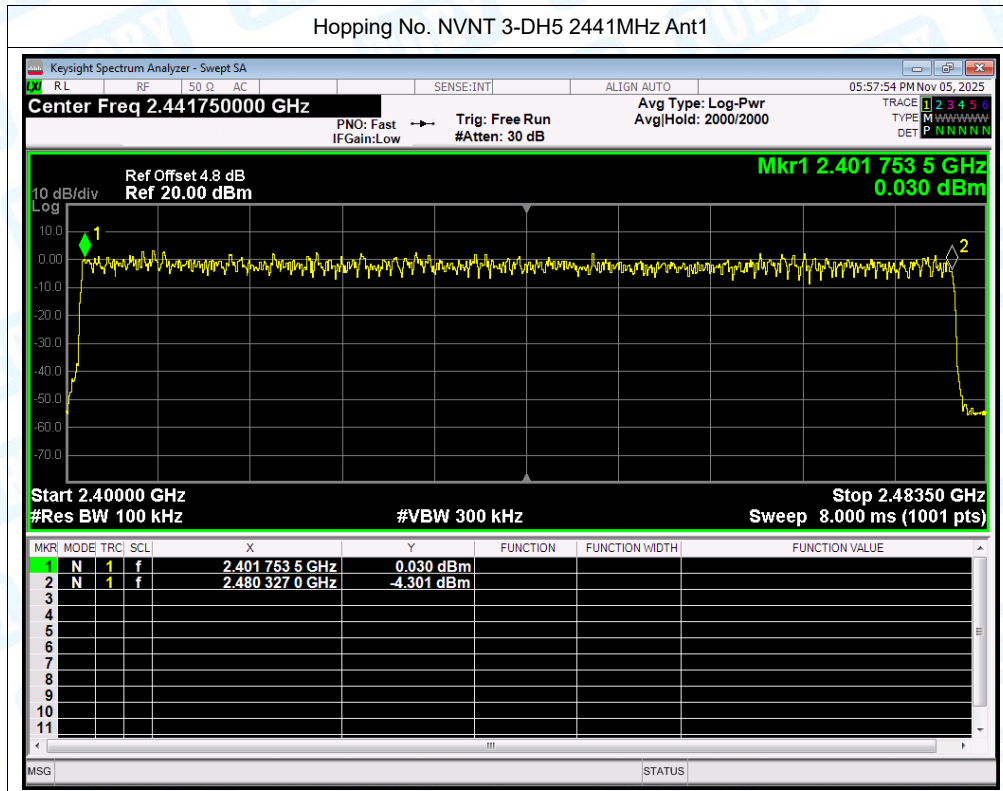
Test Graphs

Hopping No. NVNT 1-DH5 2441MHz Ant1



Hopping No. NVNT 2-DH5 2441MHz Ant1





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