

RF Test Data for Bluetooth (Conducted Measurements)

General Description of EUT	
Product Name:	Bluetooth Audio Receiver/Transmitter
Test Model:	M13 Pro
Sample ID:	HC-C-202407-0104-02-01
Environmental Conditions	
Temperature:	24.6℃
Relative Humidity:	52.6%
Test Voltage:	DC 3.7V
Test Engineer:	Mike Yan
Note: For a more detailed features description, please refer to the report TBR-C-202407-0104-6 The report only show the worst case data.	

Contents

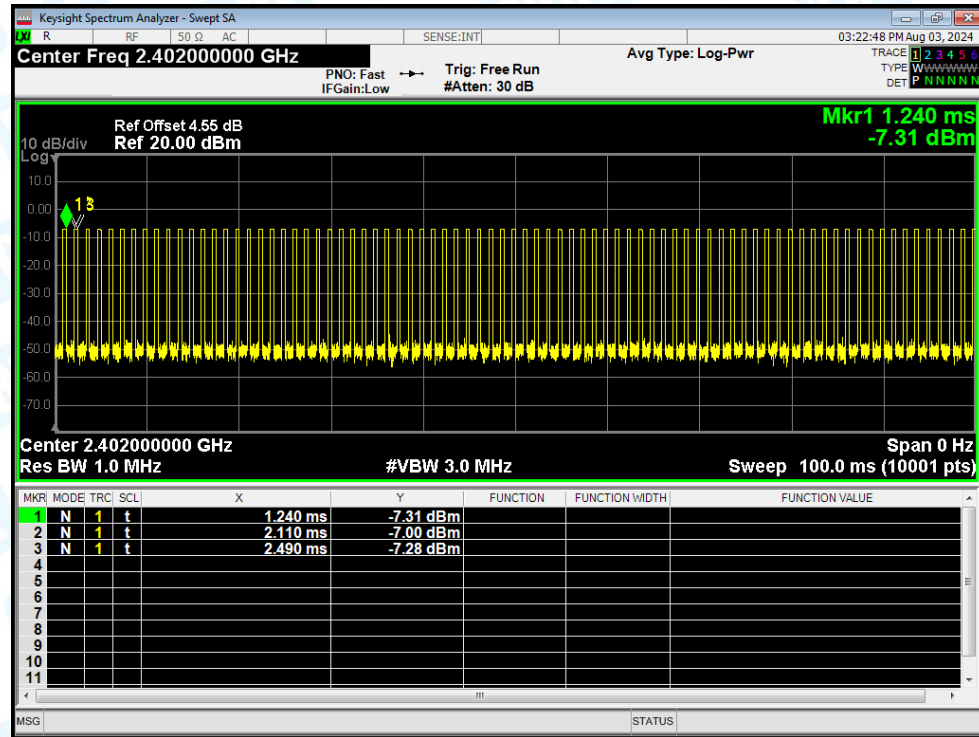
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1. Duty Cycle

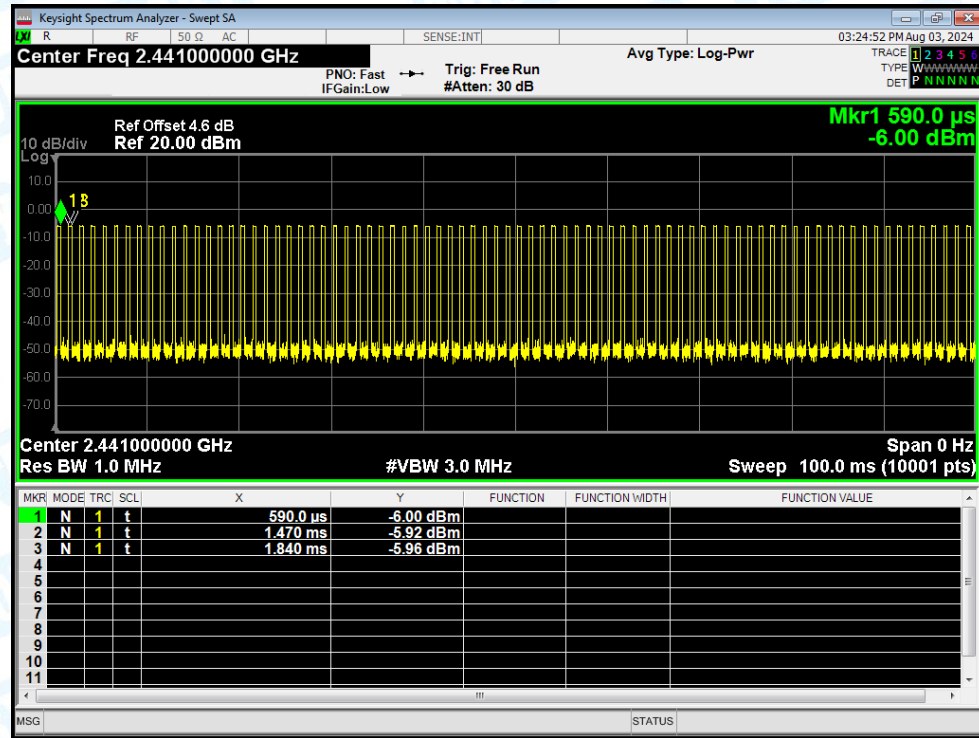
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH1	2402	Ant1	30.4	5.17	2.63
NVNT	1-DH1	2441	Ant1	29.6	5.29	2.7
NVNT	1-DH1	2480	Ant1	30.4	5.17	2.63
NVNT	2-DH1	2402	Ant1	31.2	5.06	2.56
NVNT	2-DH1	2441	Ant1	30.4	5.17	2.63
NVNT	2-DH1	2480	Ant1	30.4	5.17	2.63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

Test Graphs

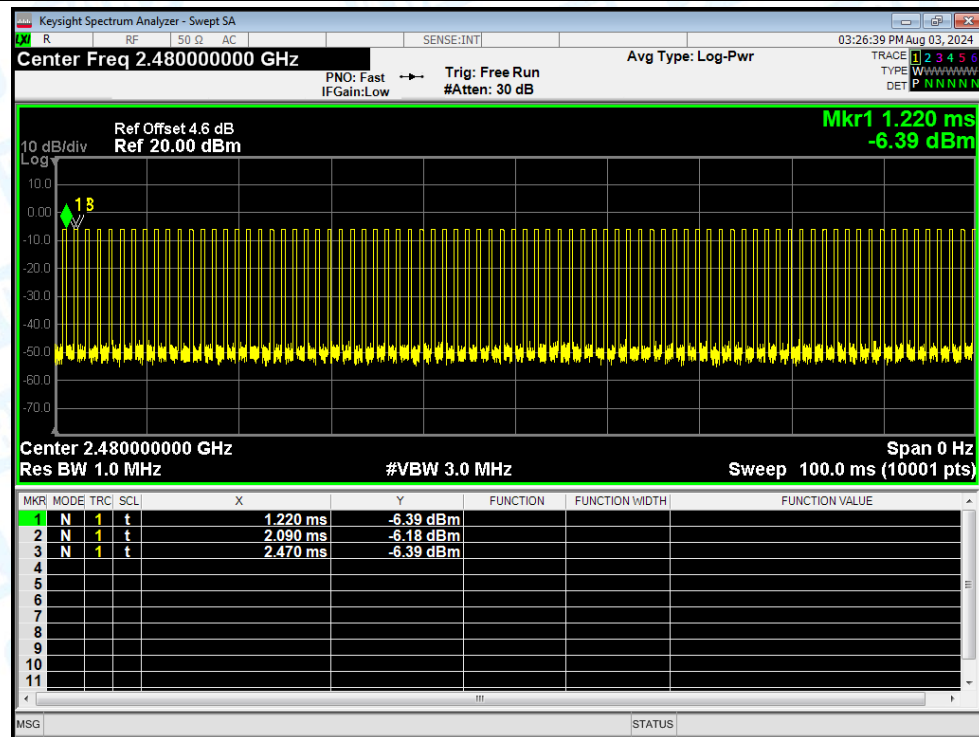
Duty Cycle NVNT 1-DH1 2402MHz Ant1



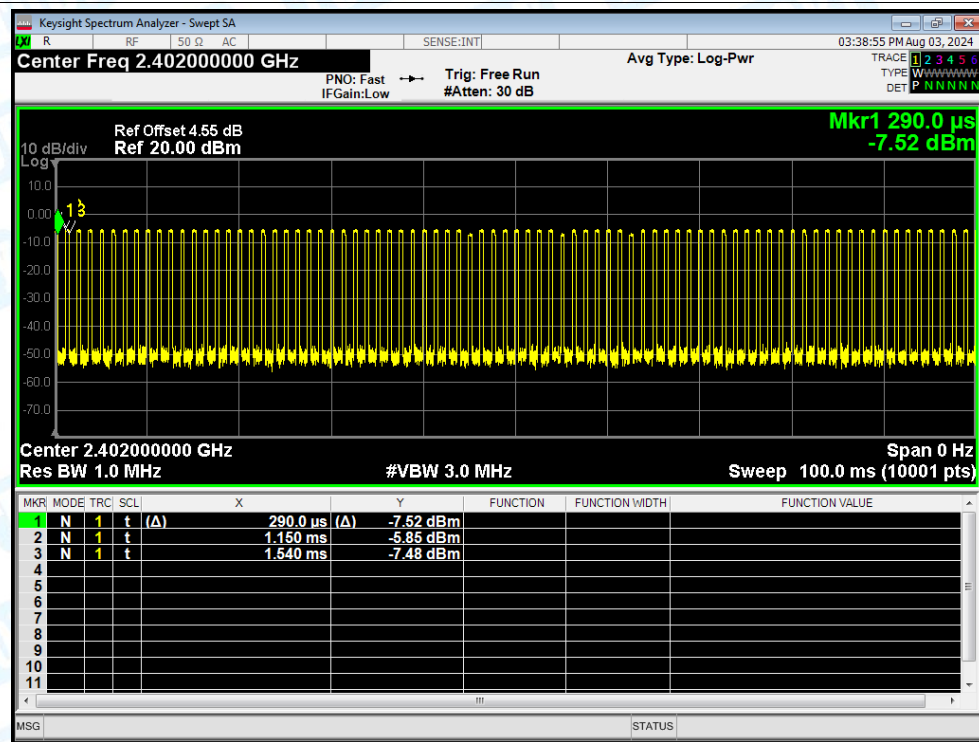
Duty Cycle NVNT 1-DH1 2441MHz Ant1



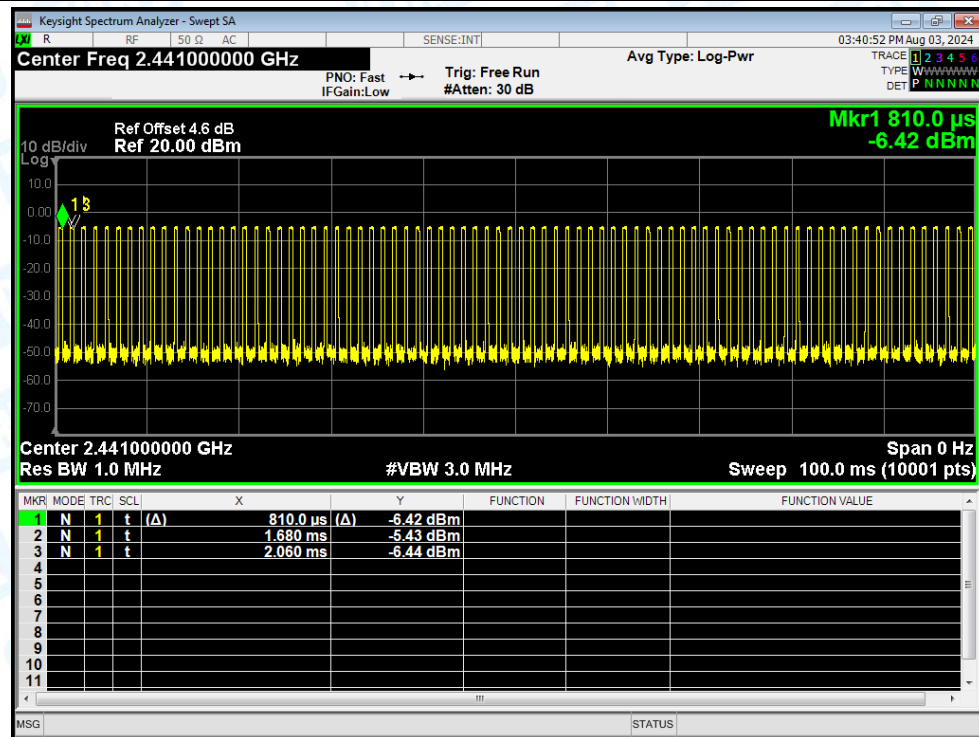
Duty Cycle NVNT 1-DH1 2480MHz Ant1



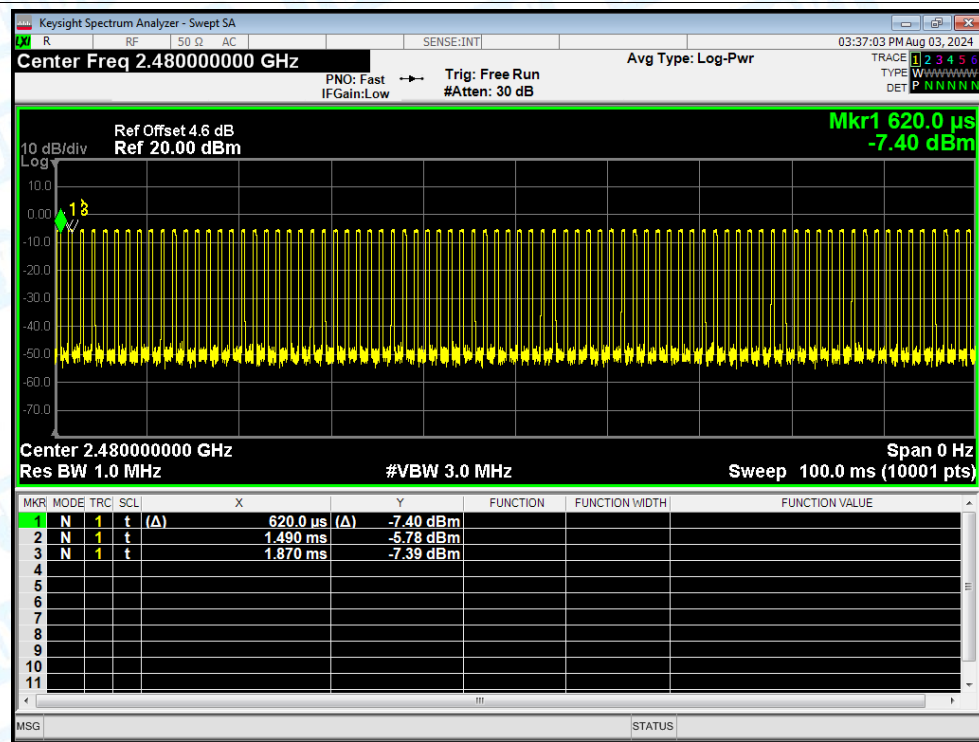
Duty Cycle NVNT 2-DH1 2402MHz Ant1



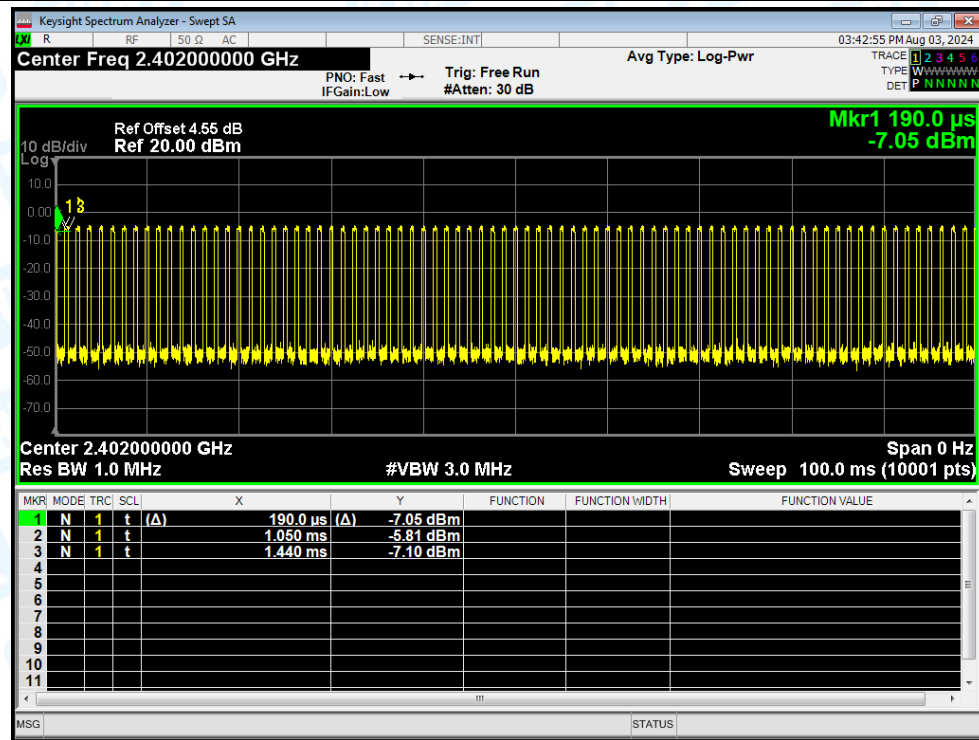
Duty Cycle NVNT 2-DH1 2441MHz Ant1



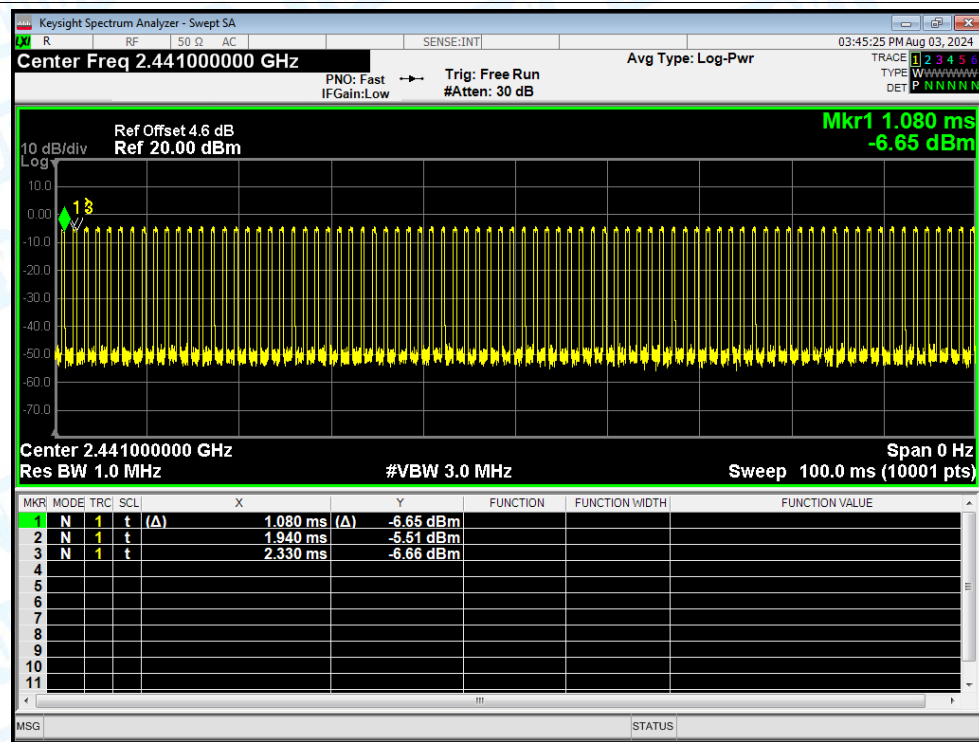
Duty Cycle NVNT 2-DH1 2480MHz Ant1

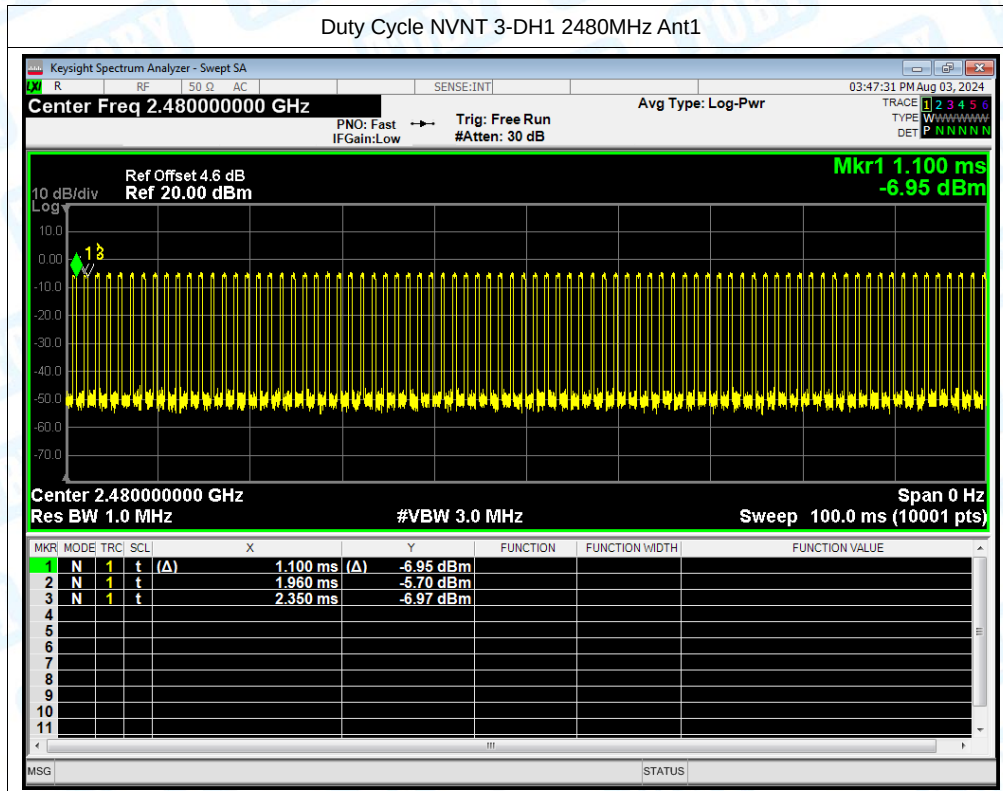


Duty Cycle NVNT 3-DH1 2402MHz Ant1



Duty Cycle NVNT 3-DH1 2441MHz Ant1



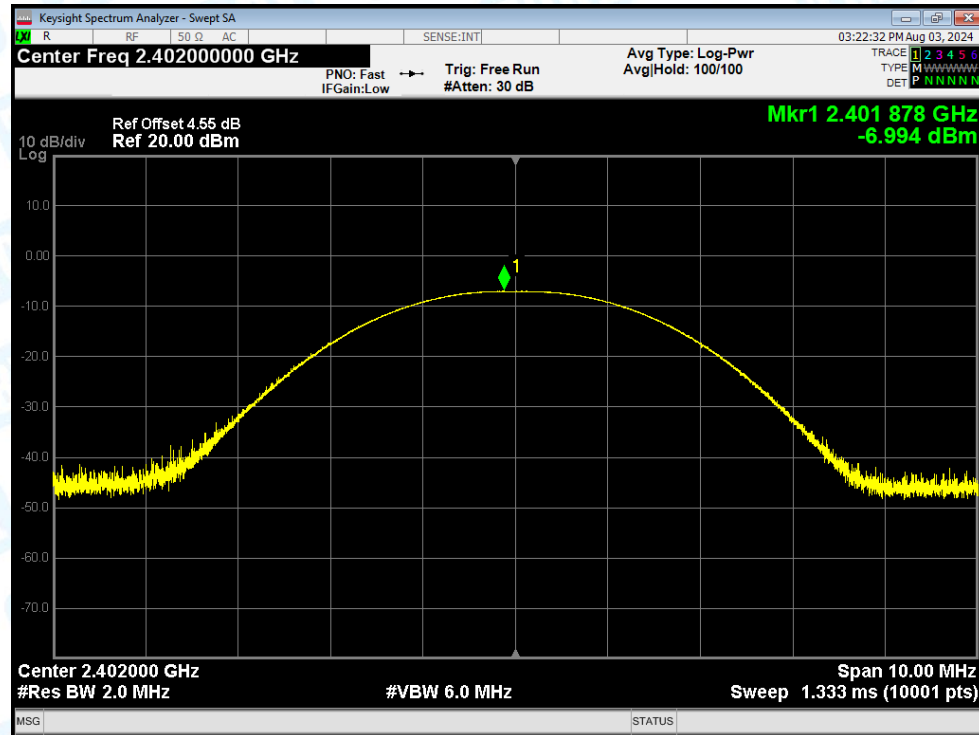


2. Maximum Conducted Output Power

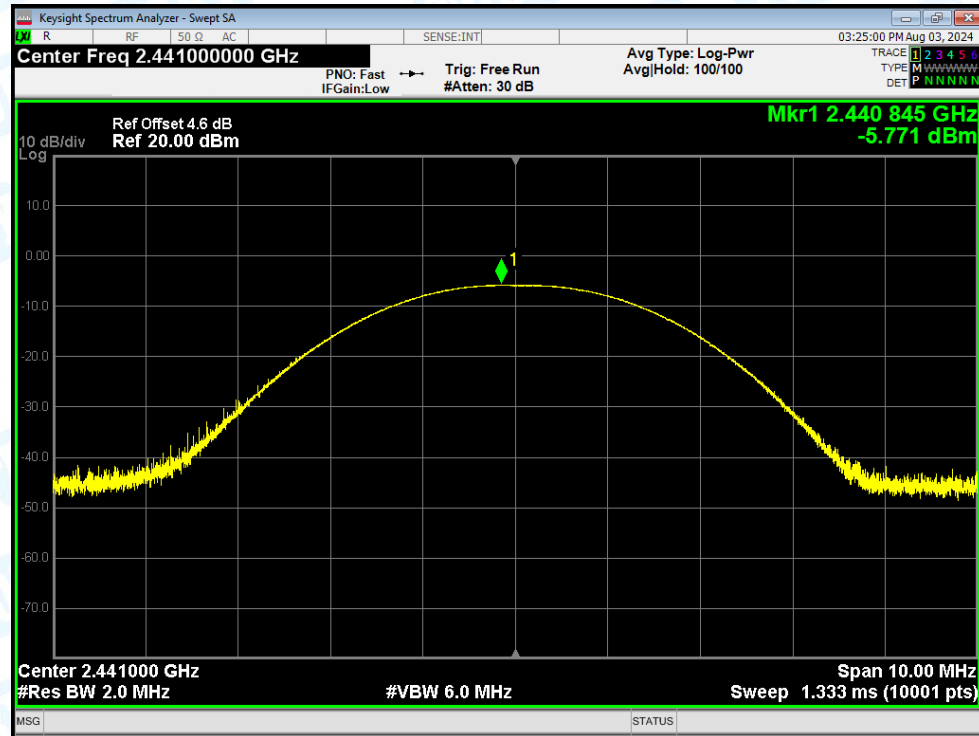
Condition	Mode	Frequency (MHz)	Antenna	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH1	2402	Ant1	-6.994	21	Pass
NVNT	1-DH1	2441	Ant1	-5.771	21	Pass
NVNT	1-DH1	2480	Ant1	-5.983	21	Pass
NVNT	1-DH3	2441	Ant1	-5.233	21	Pass
NVNT	1-DH5	2441	Ant1	-5.25	21	Pass
NVNT	2-DH1	2402	Ant1	-4.894	21	Pass
NVNT	2-DH1	2441	Ant1	-4.377	21	Pass
NVNT	2-DH1	2480	Ant1	-4.79	21	Pass
NVNT	2-DH3	2441	Ant1	-4.331	21	Pass
NVNT	2-DH5	2441	Ant1	-4.353	21	Pass
NVNT	3-DH1	2402	Ant1	-4.185	21	Pass
NVNT	3-DH1	2441	Ant1	-3.782	21	Pass
NVNT	3-DH1	2480	Ant1	-4.143	21	Pass
NVNT	3-DH3	2441	Ant1	-3.903	21	Pass
NVNT	3-DH5	2441	Ant1	-3.93	21	Pass

Test Graphs

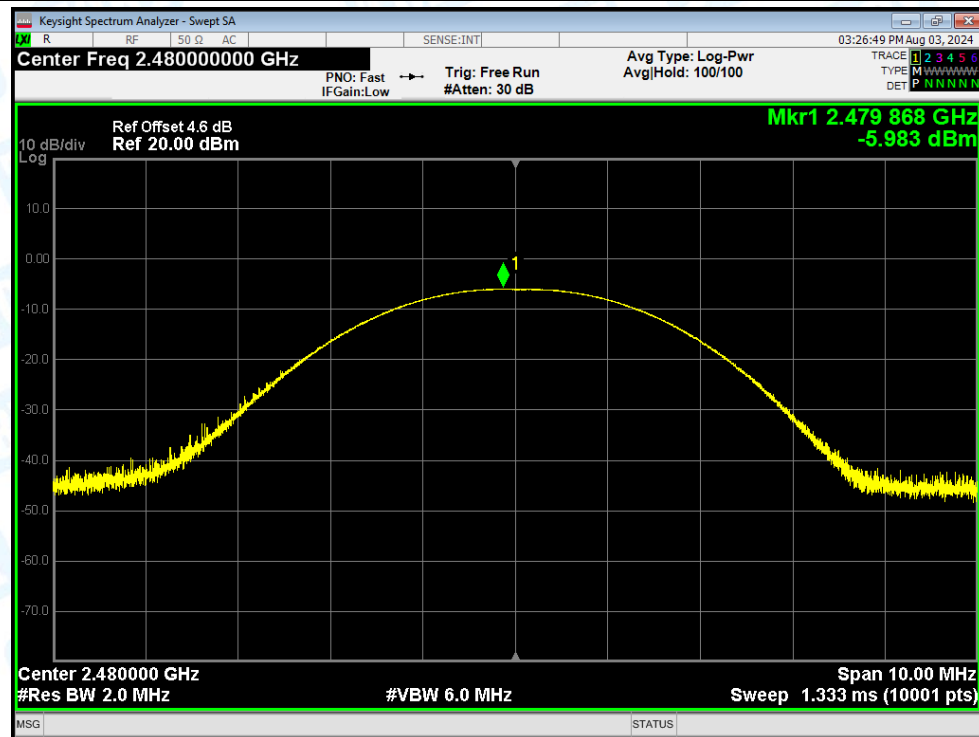
Power NVNT 1-DH1 2402MHz Ant1



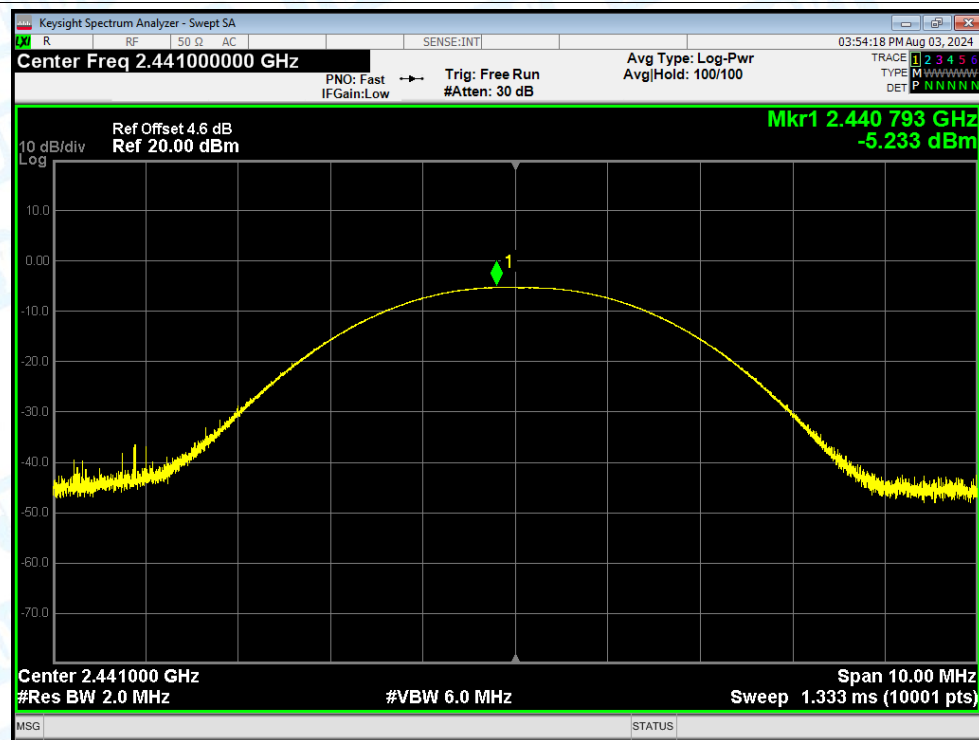
Power NVNT 1-DH1 2441MHz Ant1



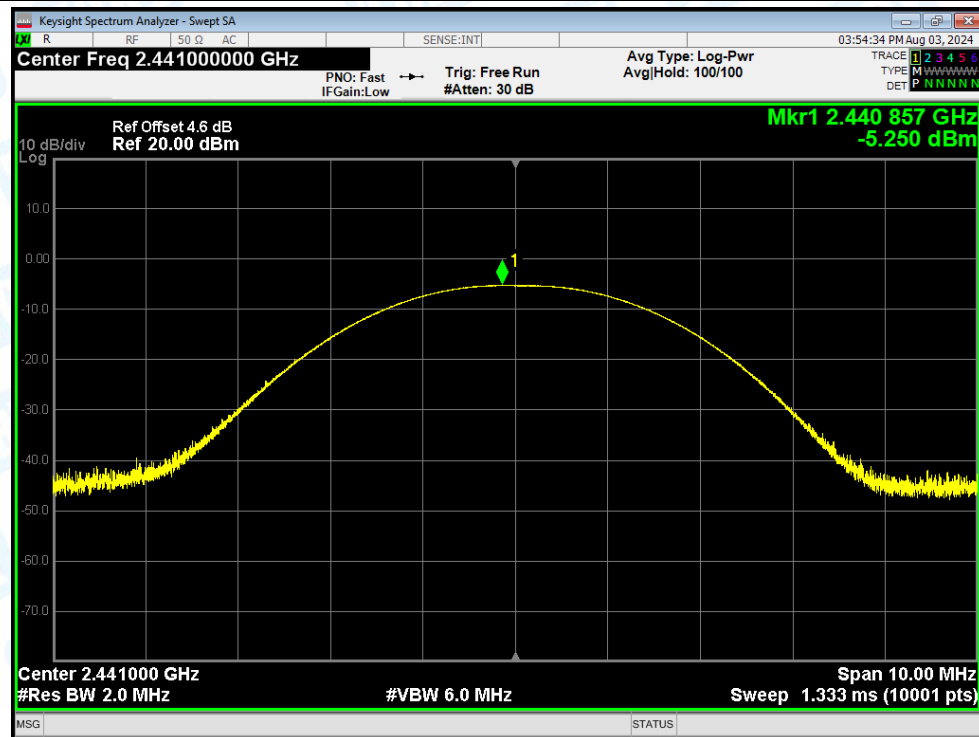
Power NVNT 1-DH1 2480MHz Ant1



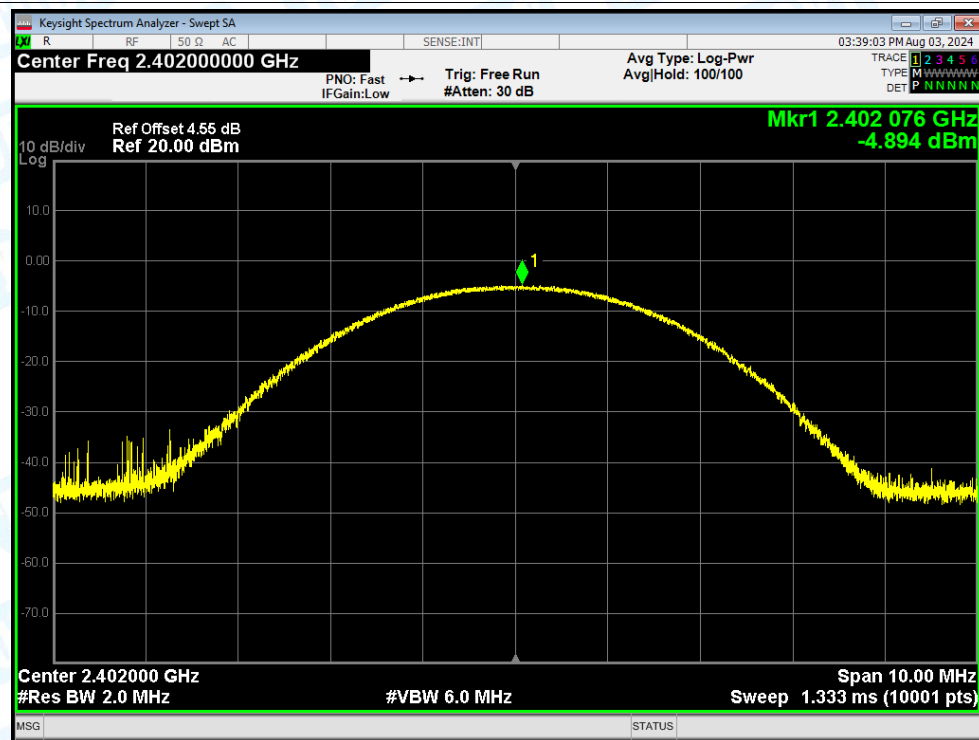
Power NVNT 1-DH3 2441MHz Ant1



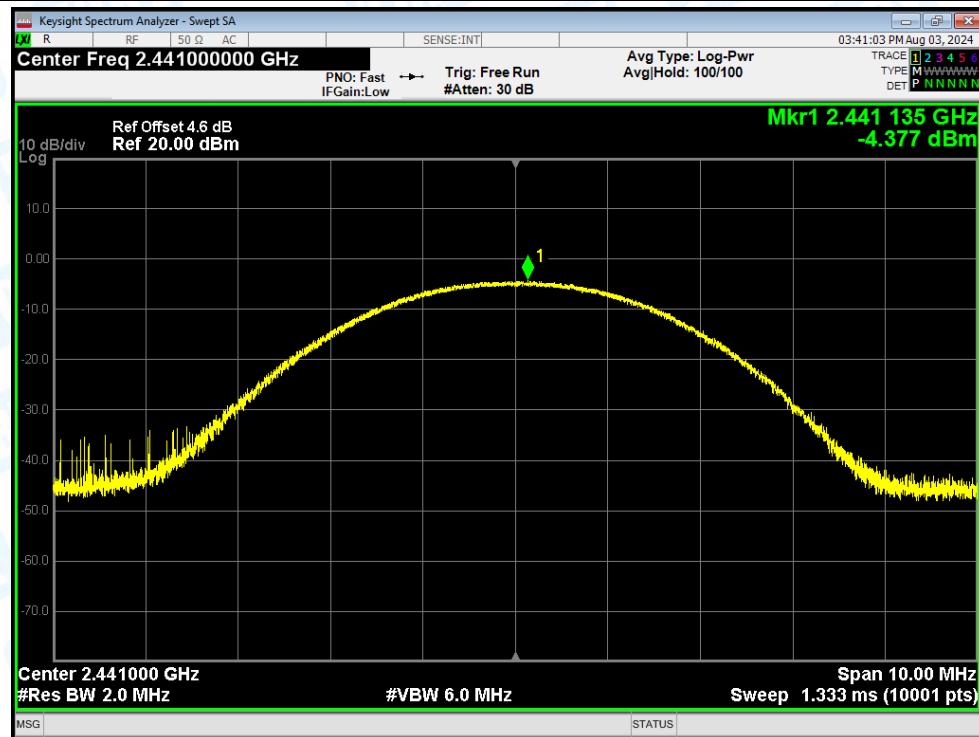
Power NVNT 1-DH5 2441MHz Ant1



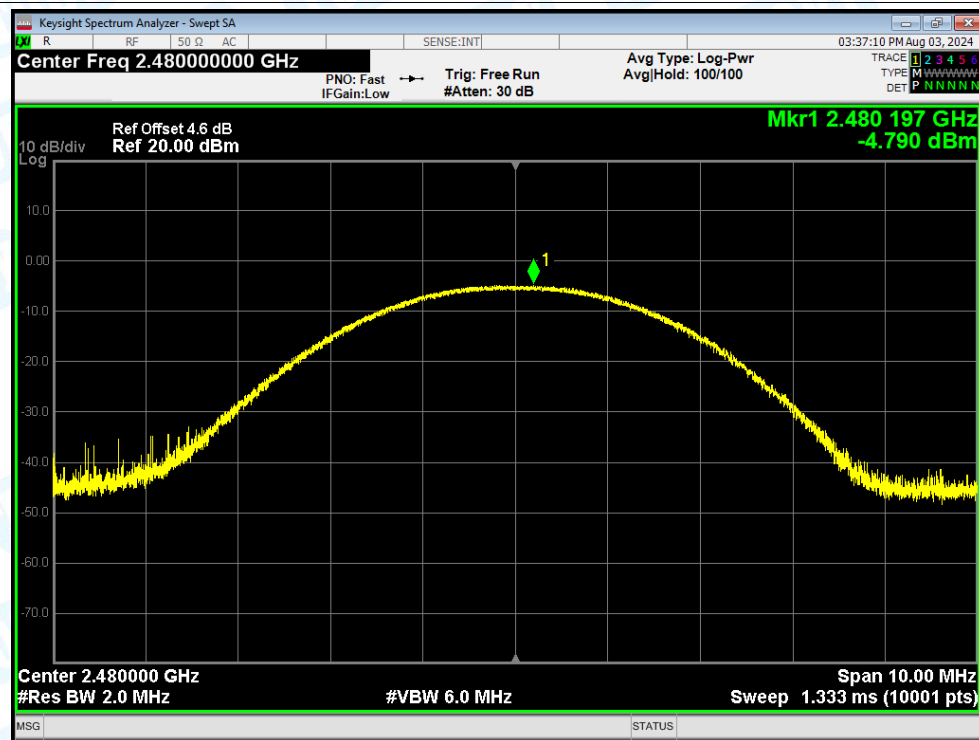
Power NVNT 2-DH1 2402MHz Ant1



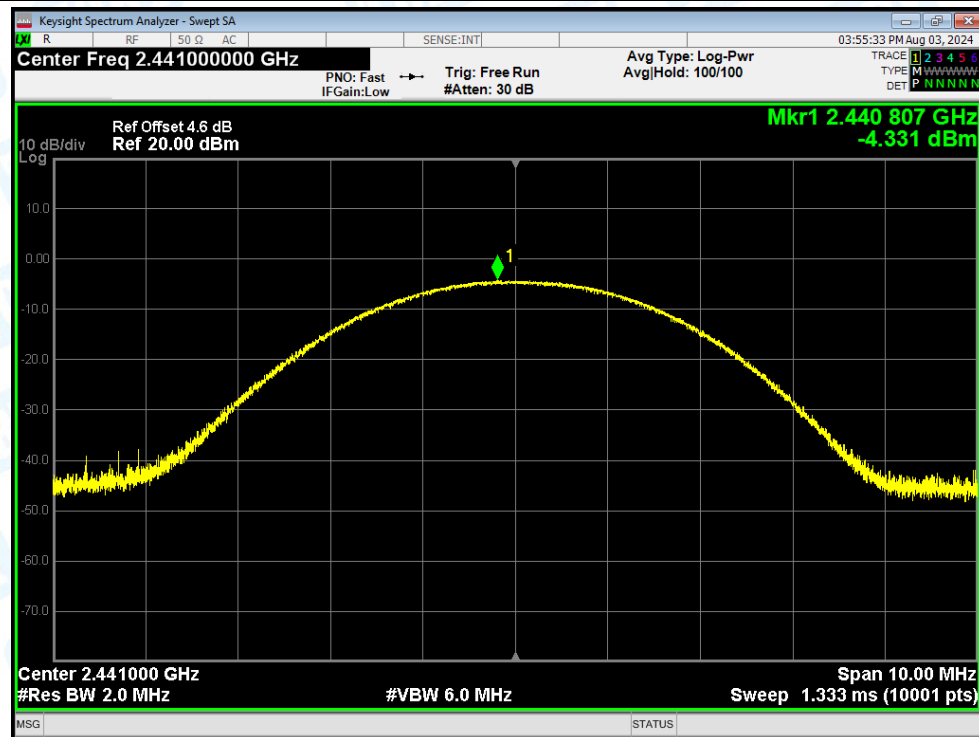
Power NVNT 2-DH1 2441MHz Ant1



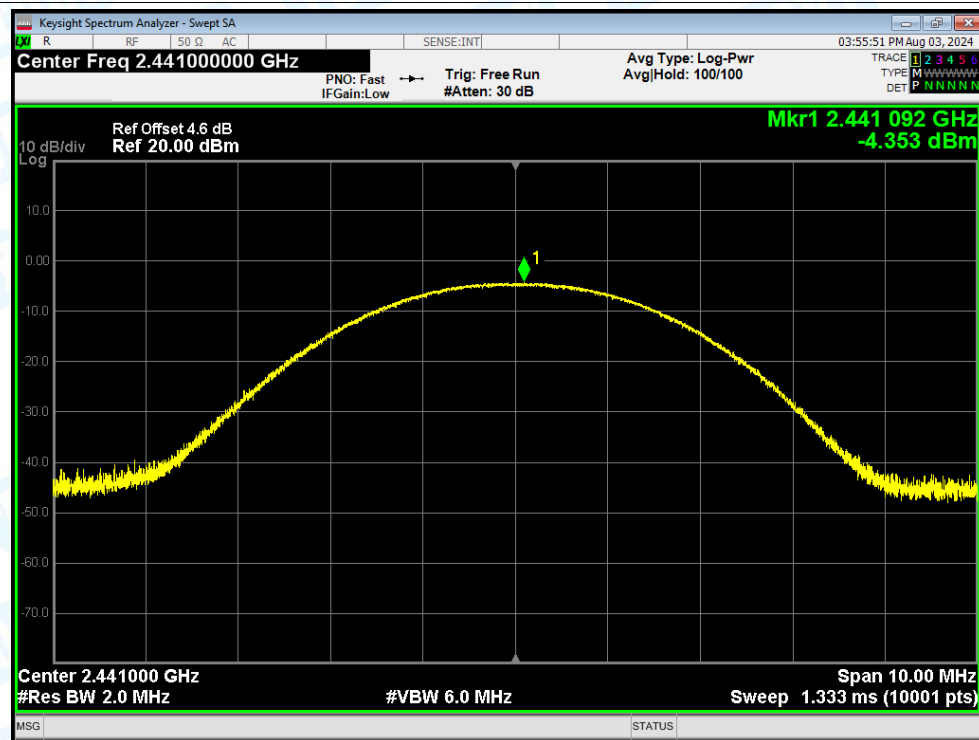
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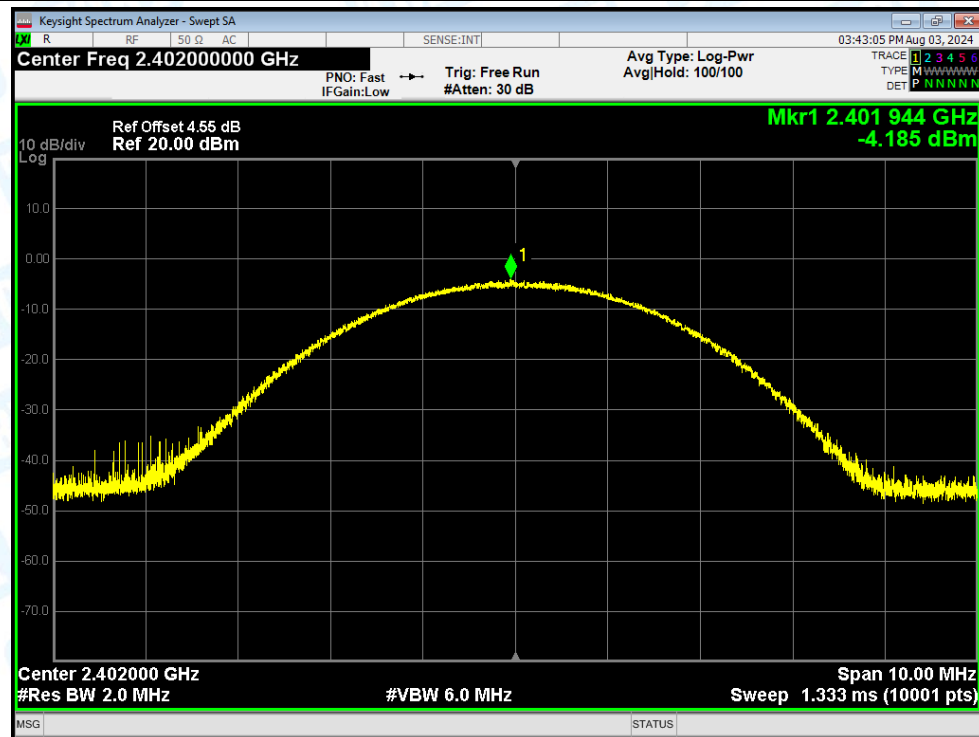
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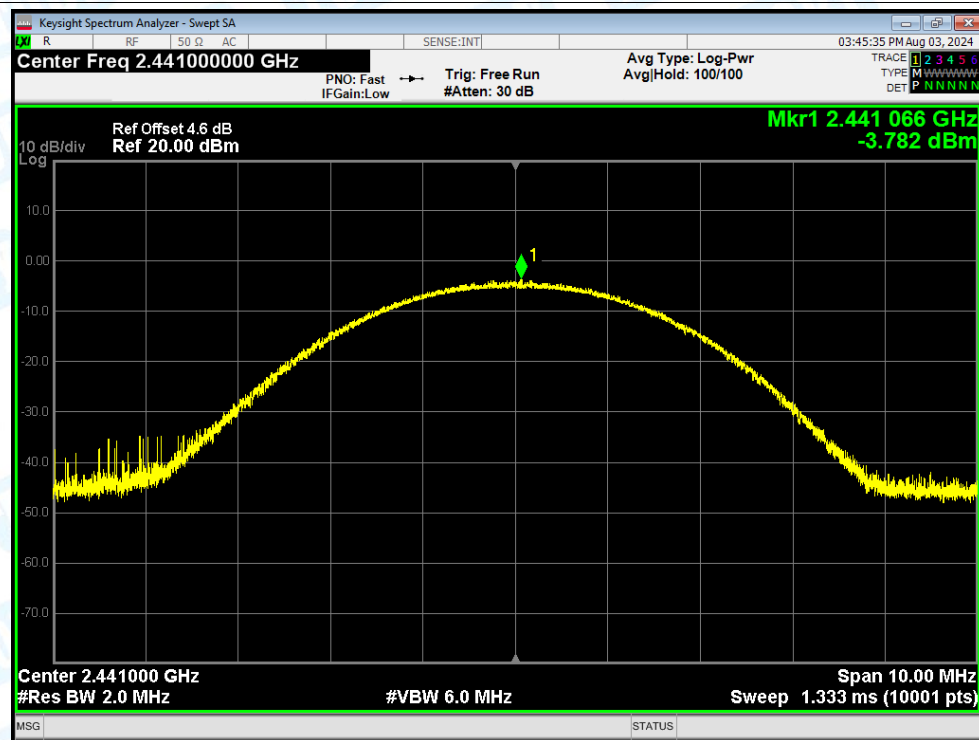
Power NVNT 2-DH5 2441MHz Ant1



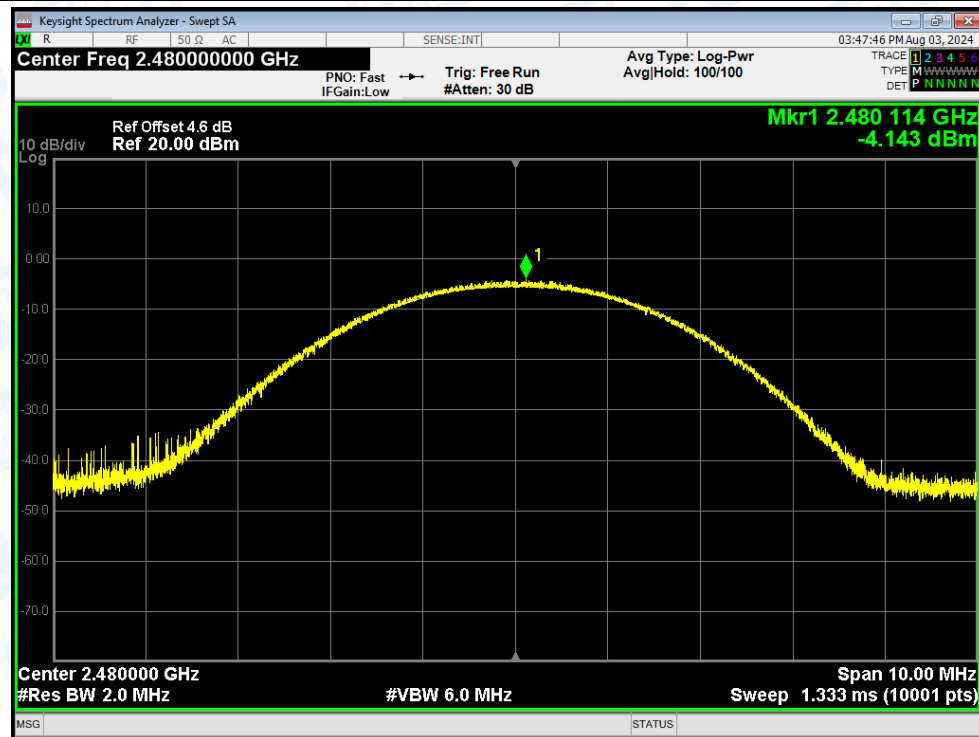
Power NVNT 3-DH1 2402MHz Ant1



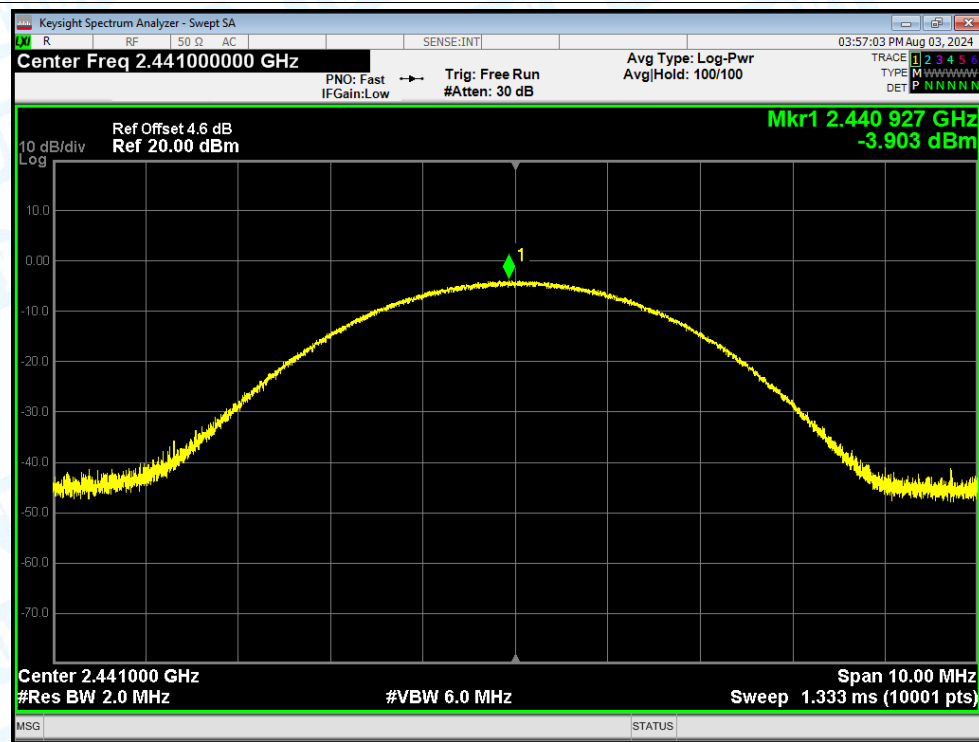
Power NVNT 3-DH1 2441MHz Ant1

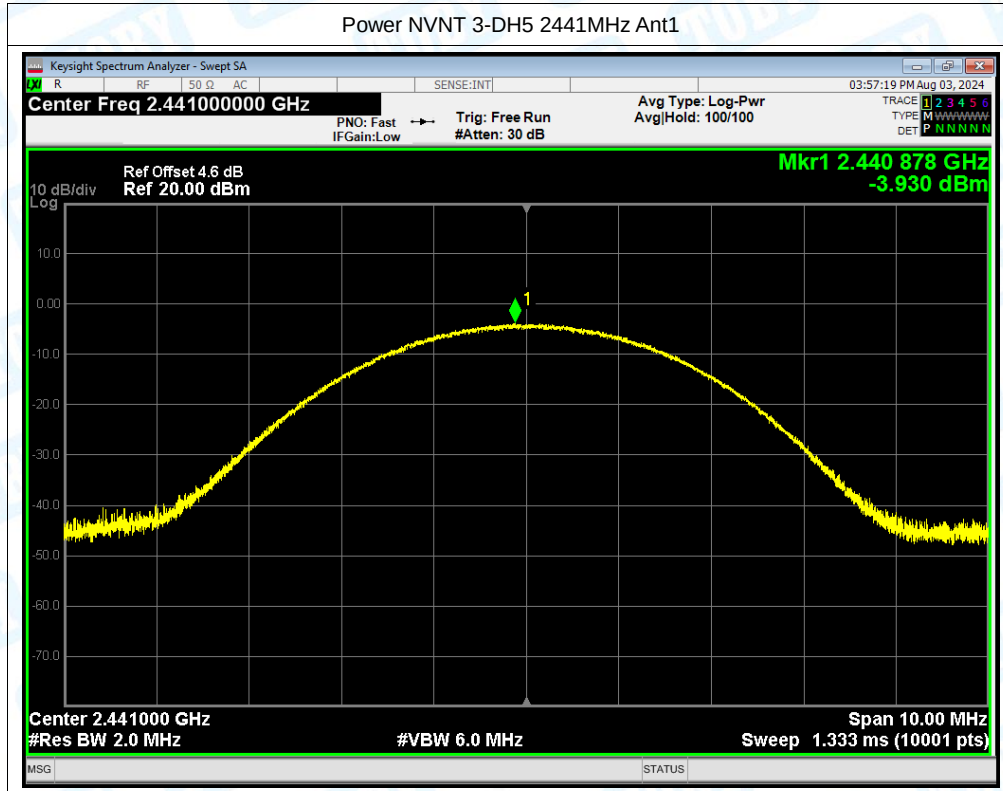


Power NVNT 3-DH1 2480MHz Ant1



Power NVNT 3-DH3 2441MHz Ant1





3. -20dB Bandwidth

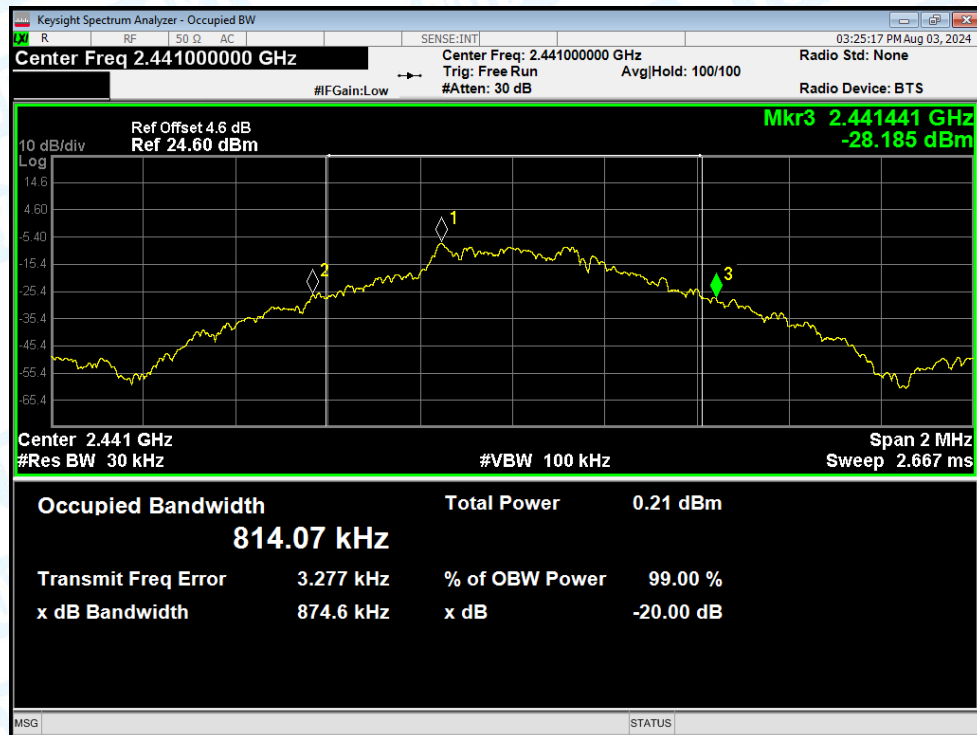
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH1	2402	Ant1	0.87	0	Pass
NVNT	1-DH1	2441	Ant1	0.87	0	Pass
NVNT	1-DH1	2480	Ant1	0.87	0	Pass
NVNT	2-DH1	2402	Ant1	1.24	0	Pass
NVNT	2-DH1	2441	Ant1	1.26	0	Pass
NVNT	2-DH1	2480	Ant1	1.24	0	Pass
NVNT	3-DH1	2402	Ant1	1.25	0	Pass
NVNT	3-DH1	2441	Ant1	1.24	0	Pass
NVNT	3-DH1	2480	Ant1	1.21	0	Pass

Test Graphs

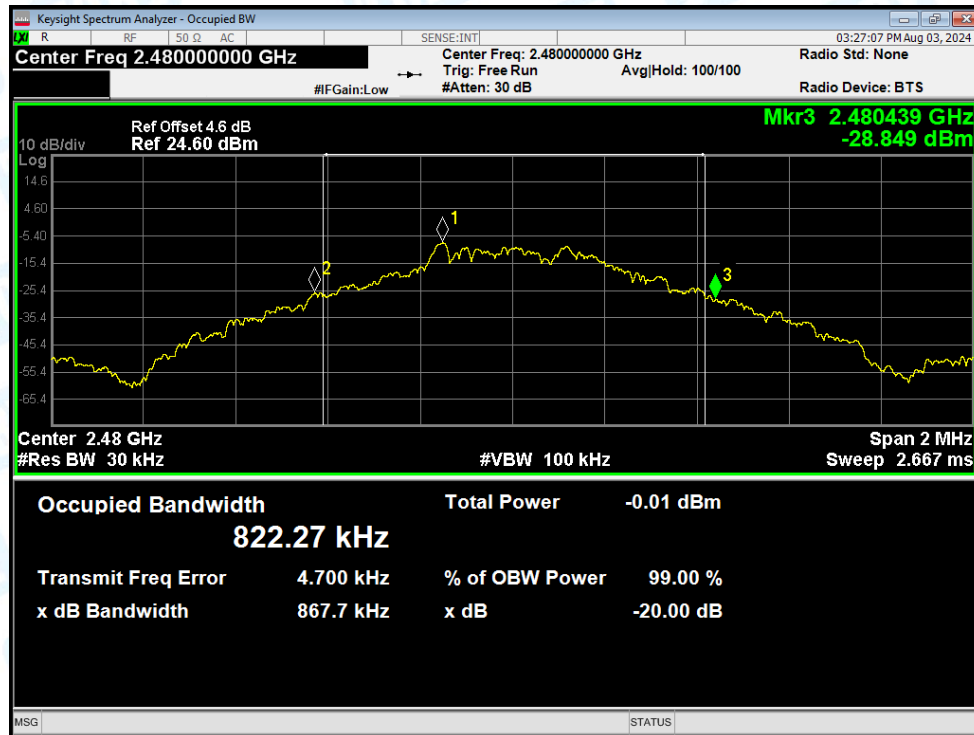
-20dB Bandwidth NVNT 1-DH1 2402MHz Ant1



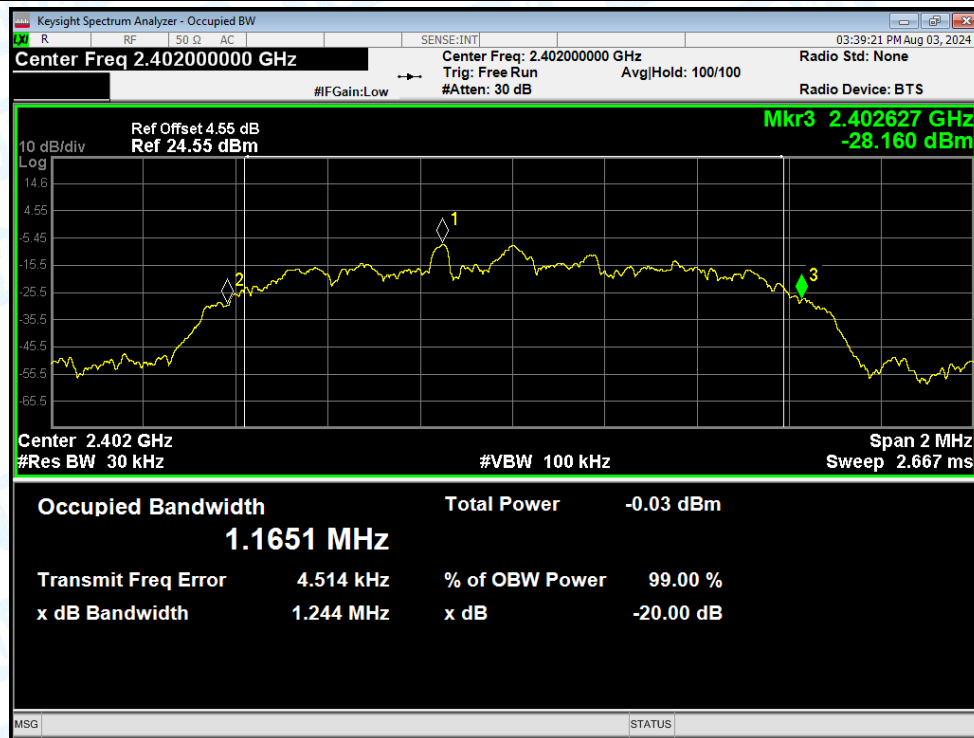
-20dB Bandwidth NVNT 1-DH1 2441MHz Ant1



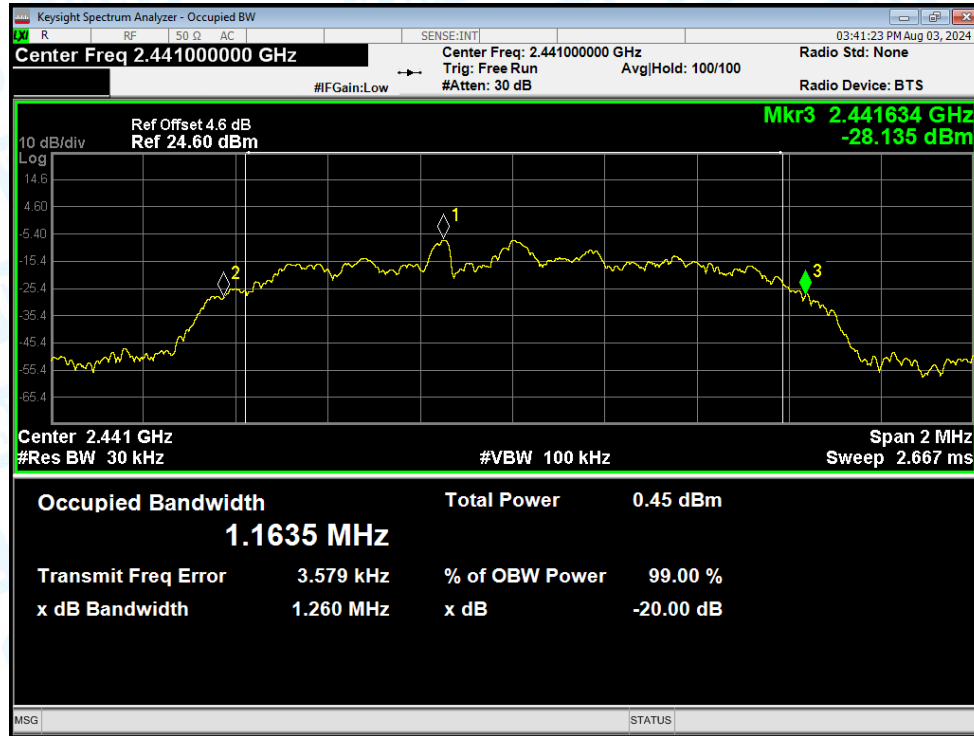
-20dB Bandwidth NVNT 1-DH1 2480MHz Ant1



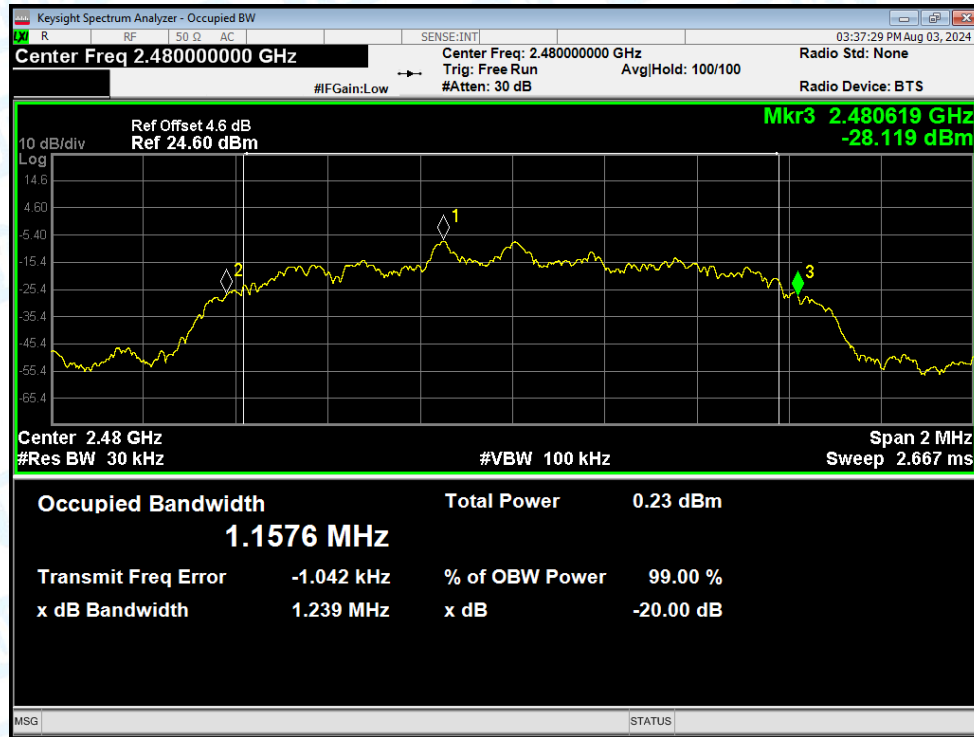
-20dB Bandwidth NVNT 2-DH1 2402MHz Ant1



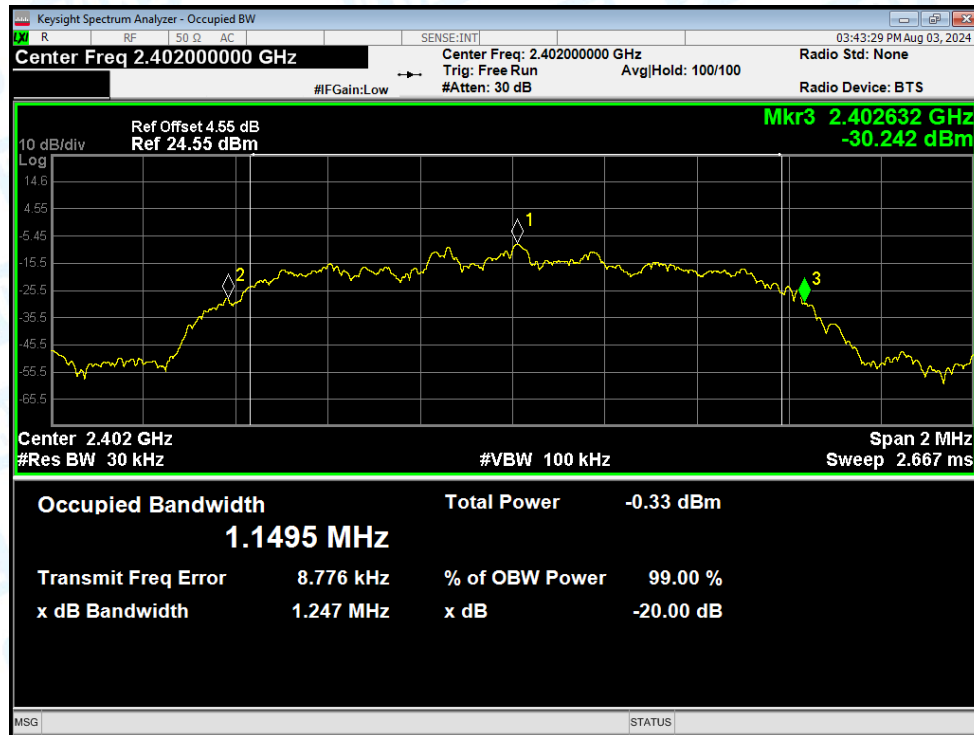
-20dB Bandwidth NVNT 2-DH1 2441MHz Ant1



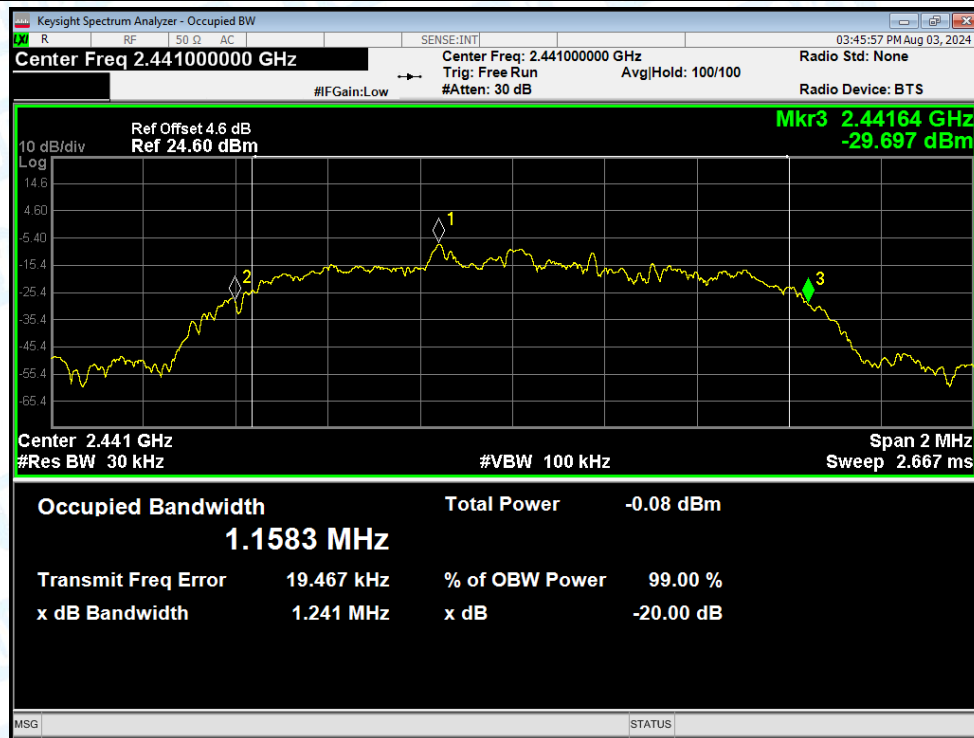
-20dB Bandwidth NVNT 2-DH1 2480MHz Ant1

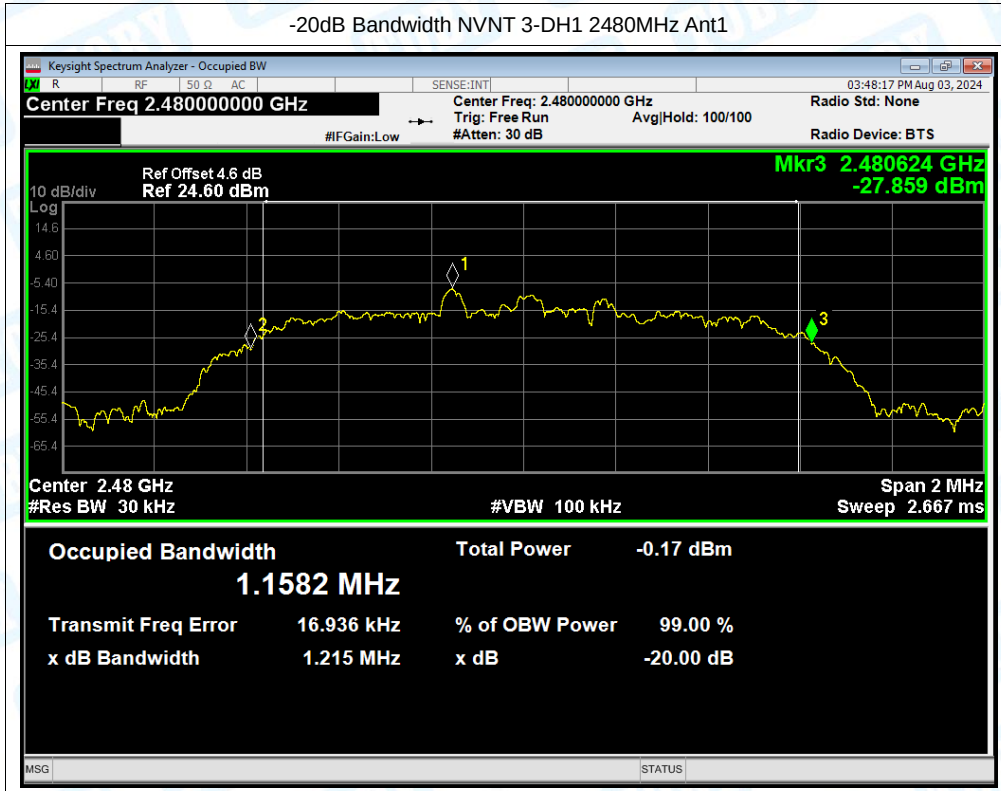


-20dB Bandwidth NVNT 3-DH1 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH1 2441MHz Ant1



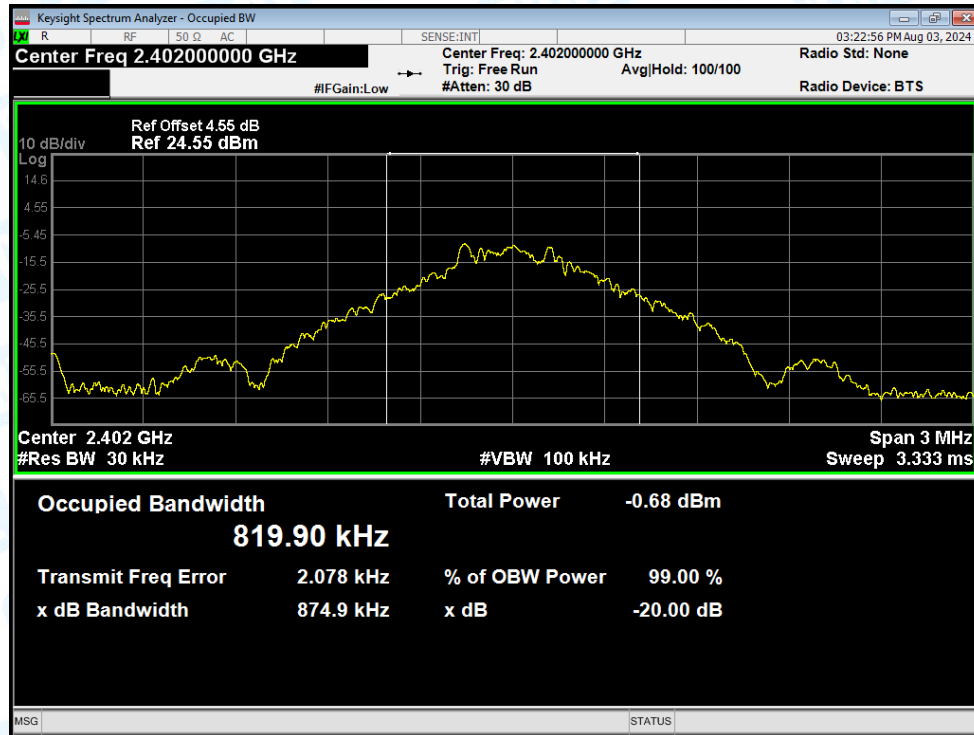


4. Occupied Channel Bandwidth

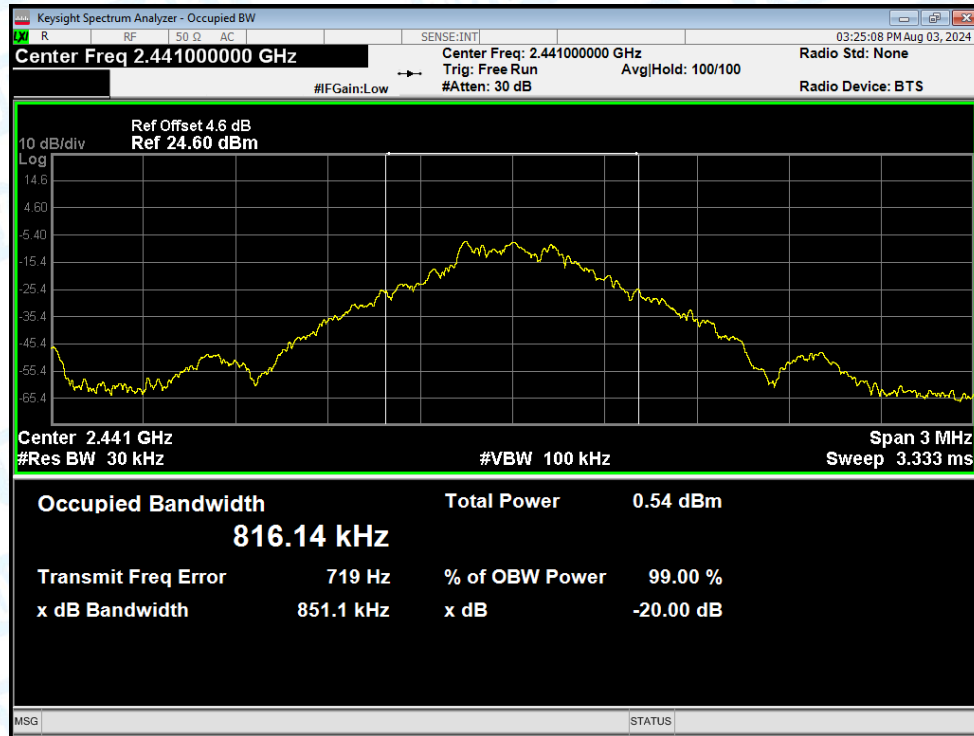
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	1-DH1	2402	Ant1	0.82
NVNT	1-DH1	2441	Ant1	0.816
NVNT	1-DH1	2480	Ant1	0.821
NVNT	2-DH1	2402	Ant1	1.166
NVNT	2-DH1	2441	Ant1	1.174
NVNT	2-DH1	2480	Ant1	1.165
NVNT	3-DH1	2402	Ant1	1.156
NVNT	3-DH1	2441	Ant1	1.153
NVNT	3-DH1	2480	Ant1	1.156

Test Graphs

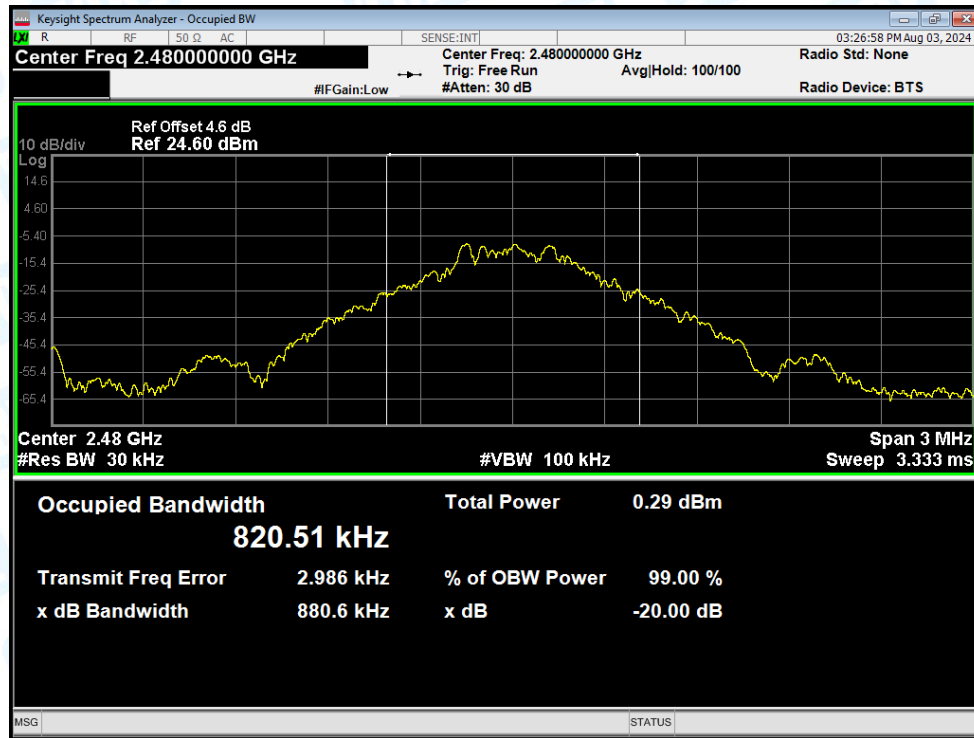
OBW NVNT 1-DH1 2402MHz Ant1



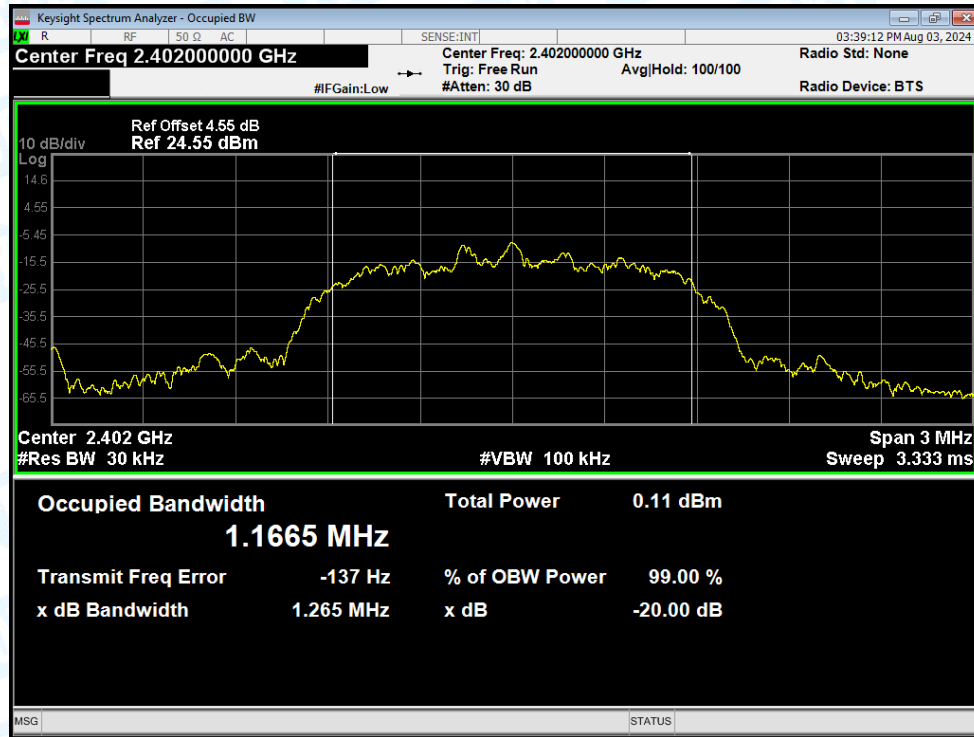
OBW NVNT 1-DH1 2441MHz Ant1



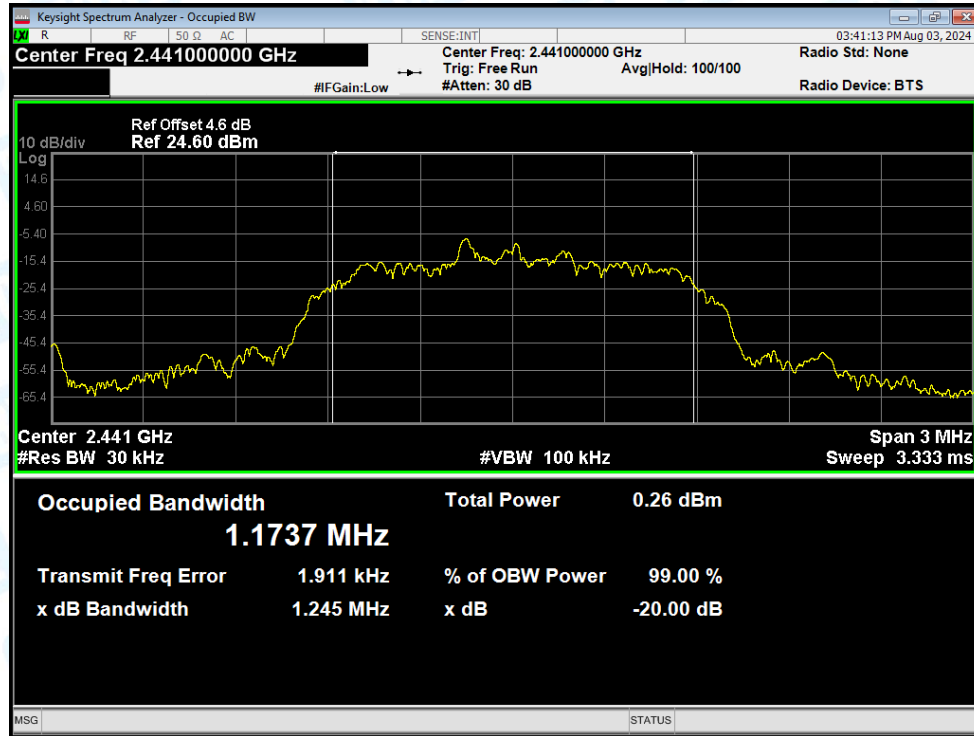
OBW NVNT 1-DH1 2480MHz Ant1



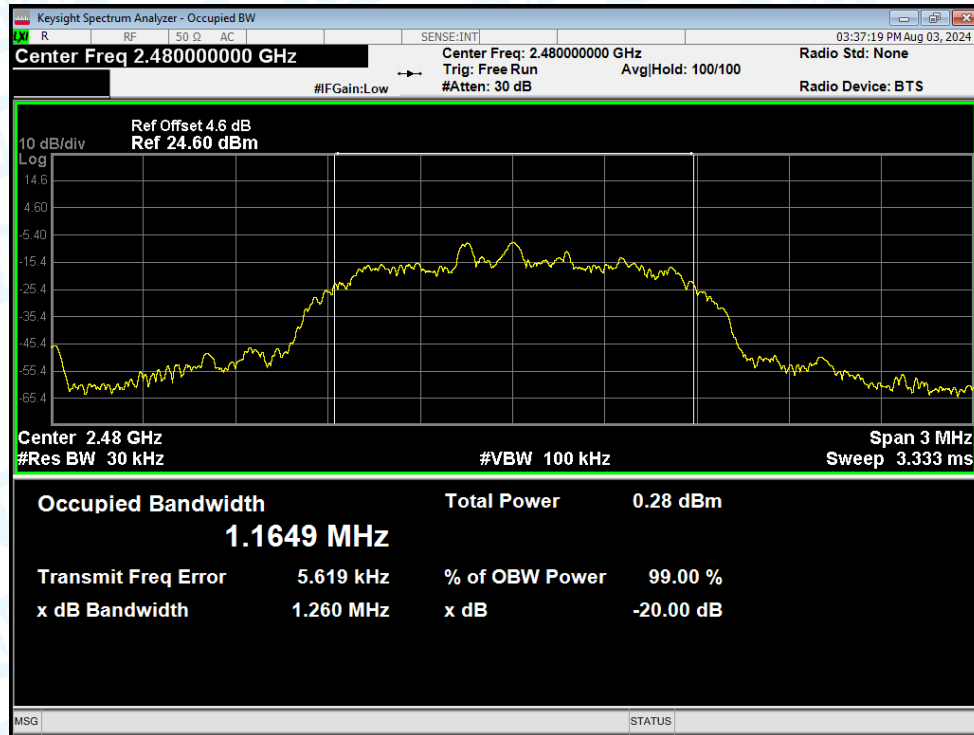
OBW NVNT 2-DH1 2402MHz Ant1



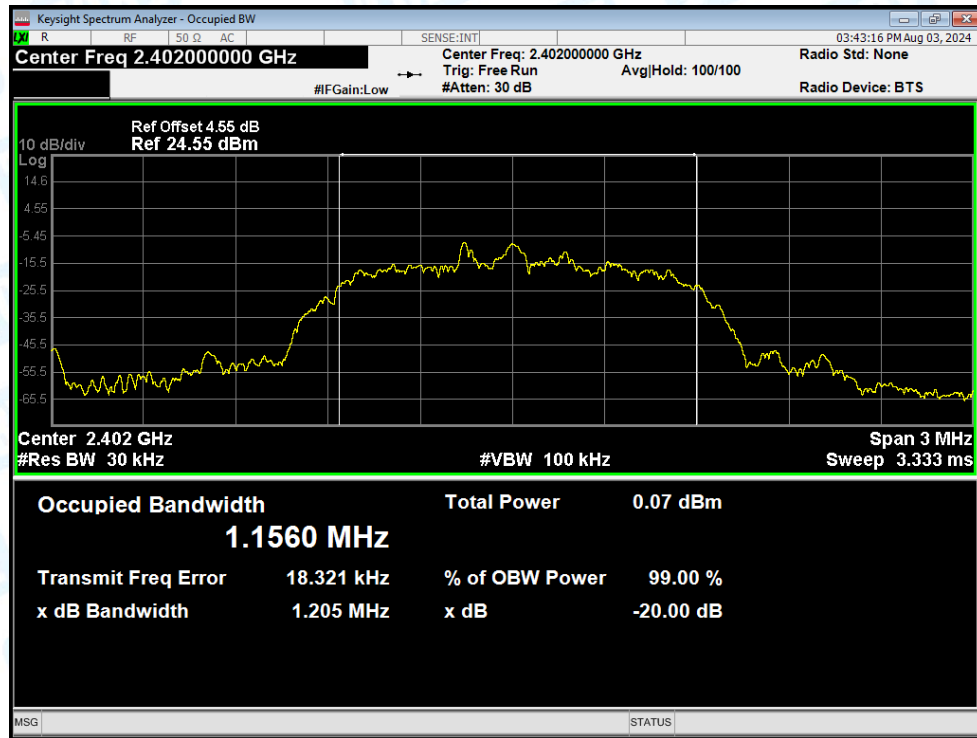
OBW NVNT 2-DH1 2441MHz Ant1



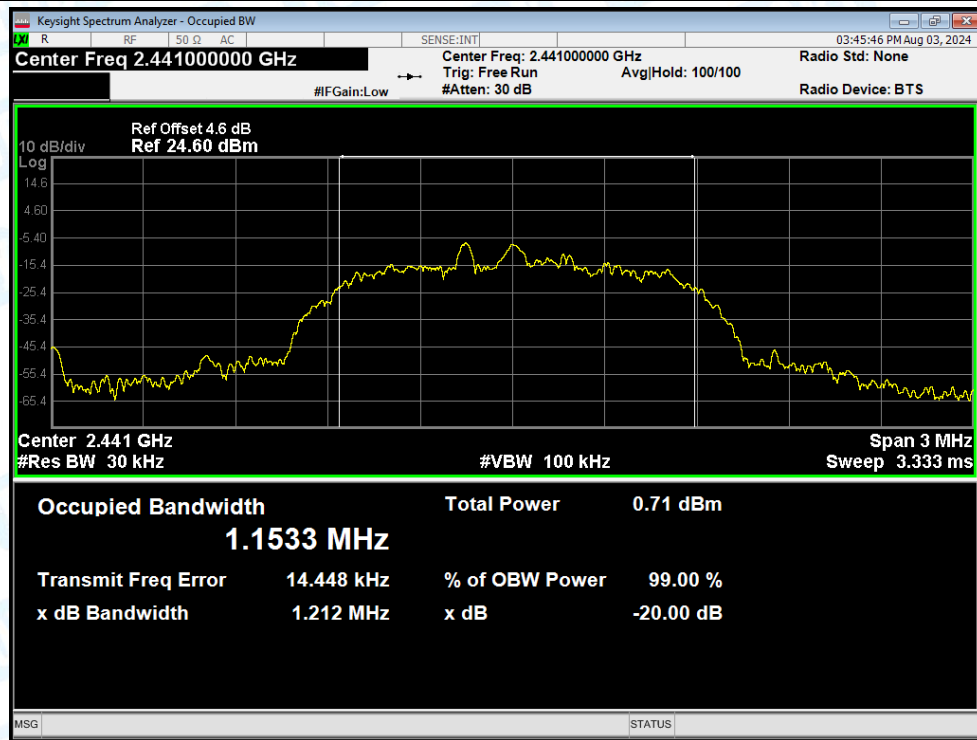
OBW NVNT 2-DH1 2480MHz Ant1

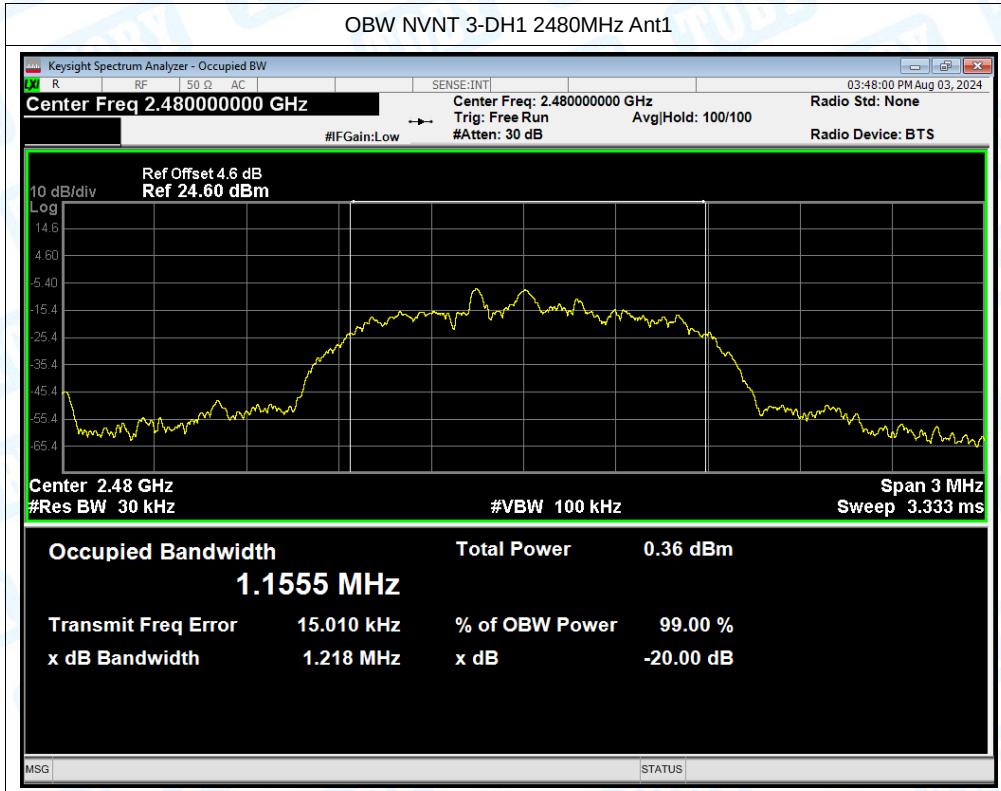


OBW NVNT 3-DH1 2402MHz Ant1



OBW NVNT 3-DH1 2441MHz Ant1



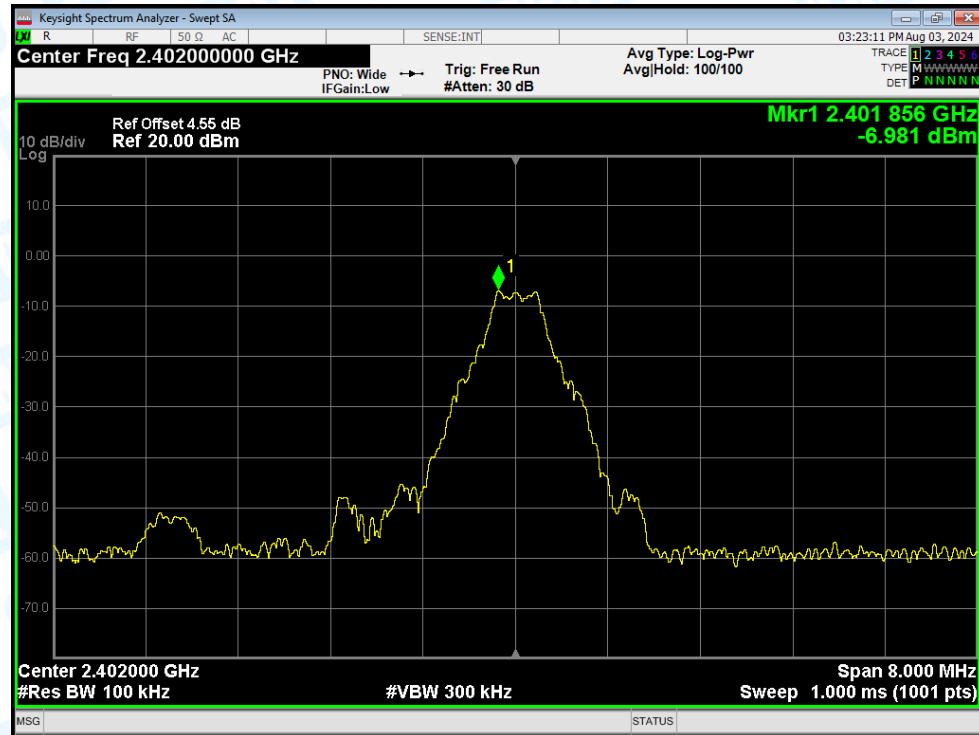


5. Band Edge

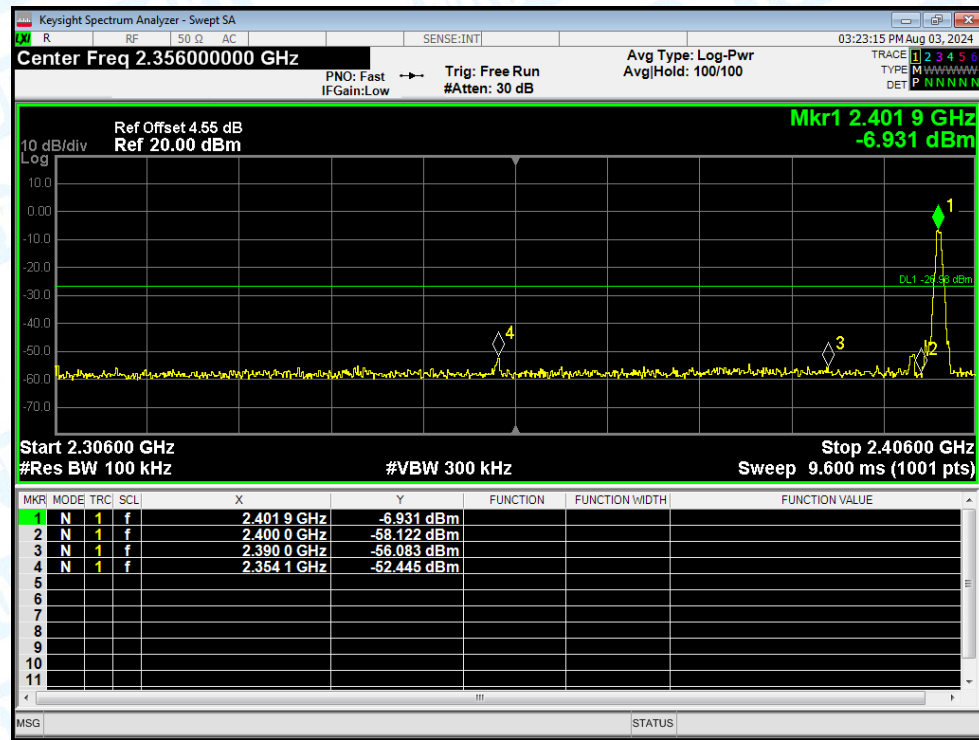
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	-45.46	-20	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	-47.91	-20	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	-48.11	-20	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	-47.54	-20	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	-48.1	-20	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	-48.36	-20	Pass

Test Graphs

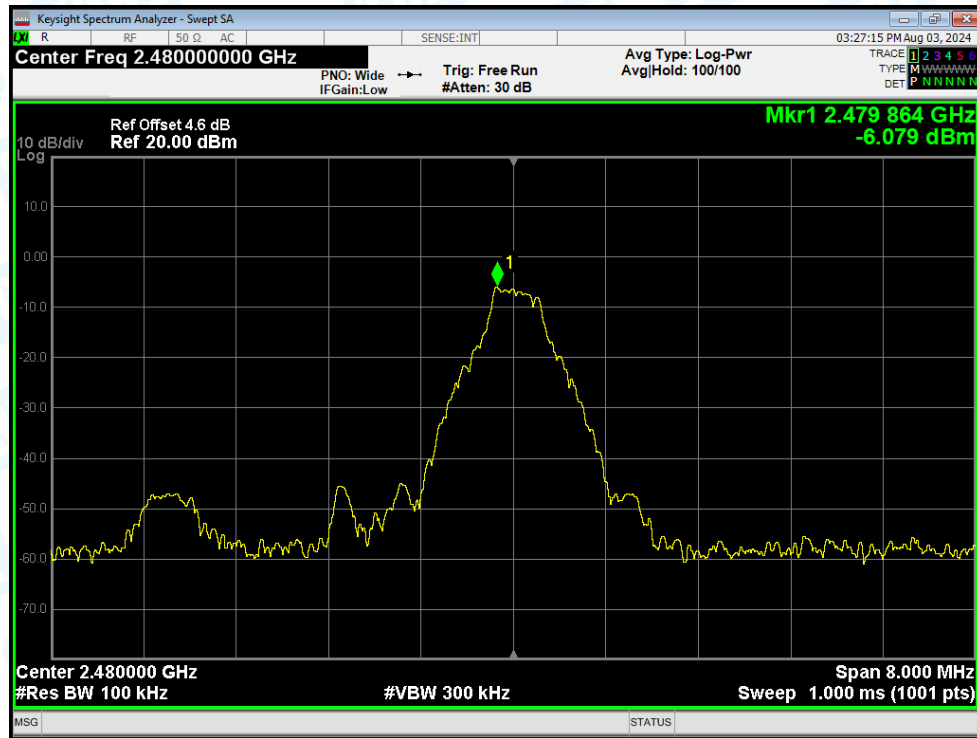
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Ref



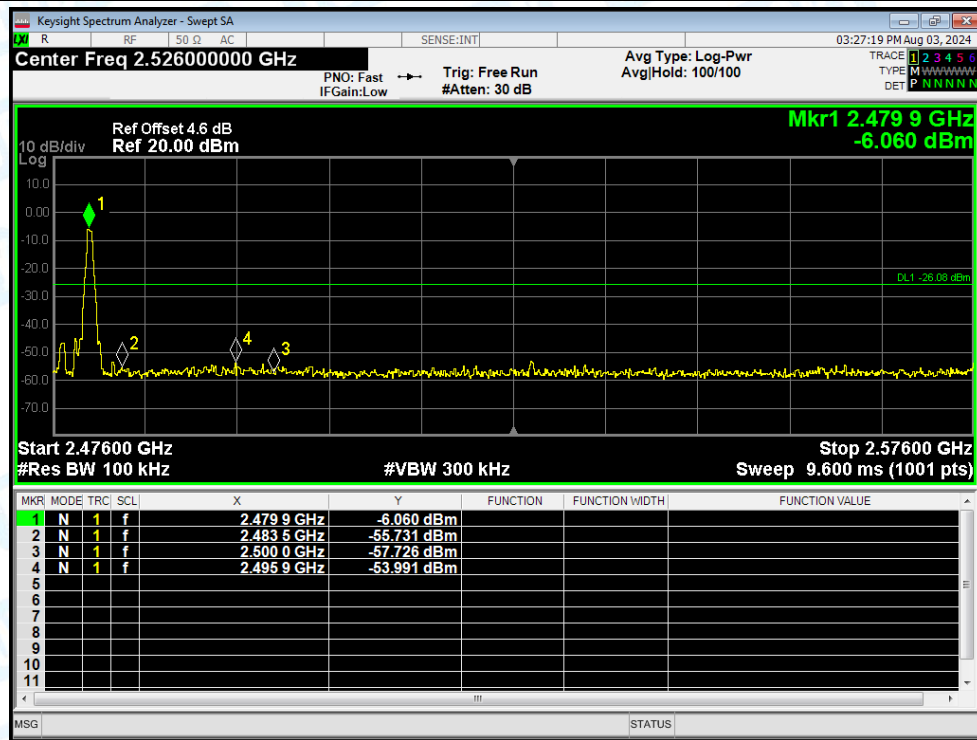
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Emission



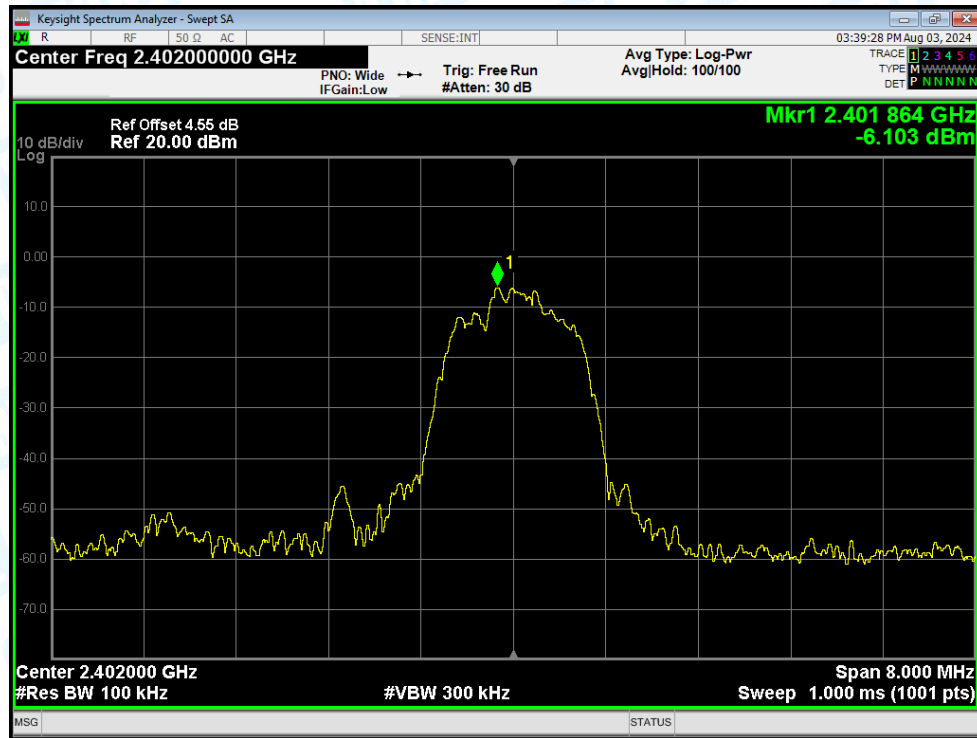
Band Edge NVNT 1-DH1 2480MHz Ant1 No-Hopping Ref



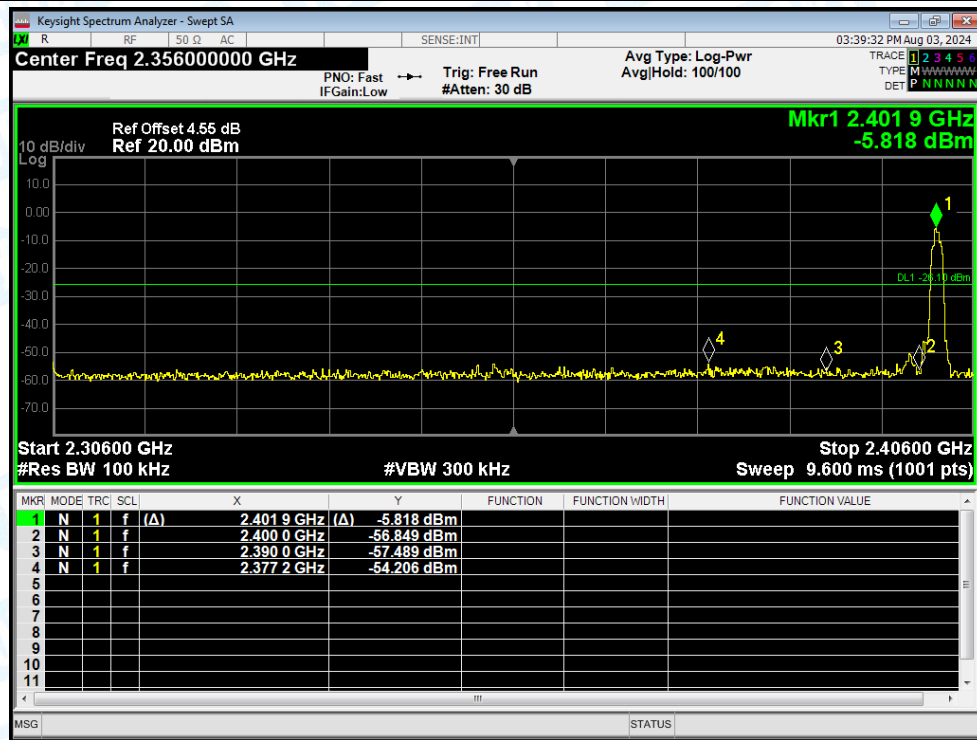
Band Edge NVNT 1-DH1 2480MHz Ant1 No-Hopping Emission



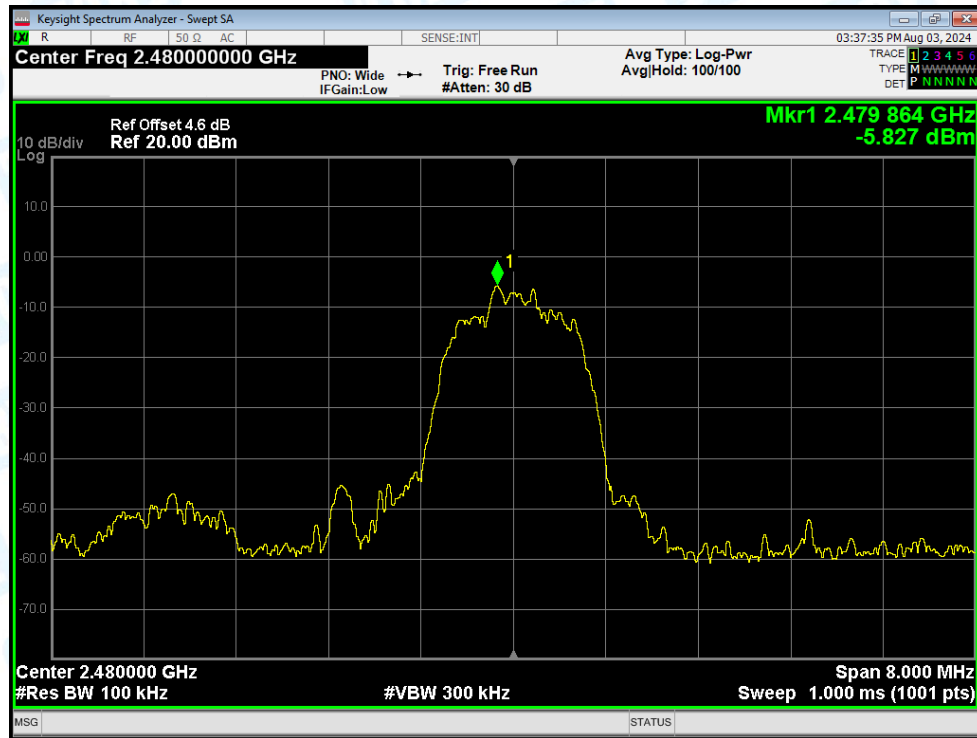
Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Ref



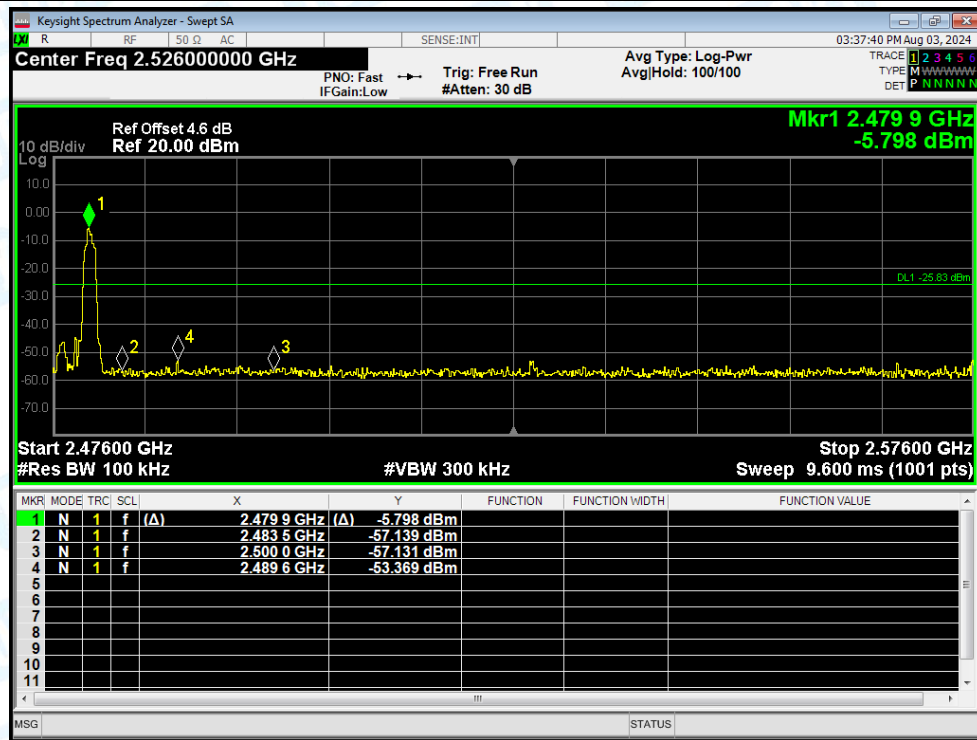
Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Emission



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



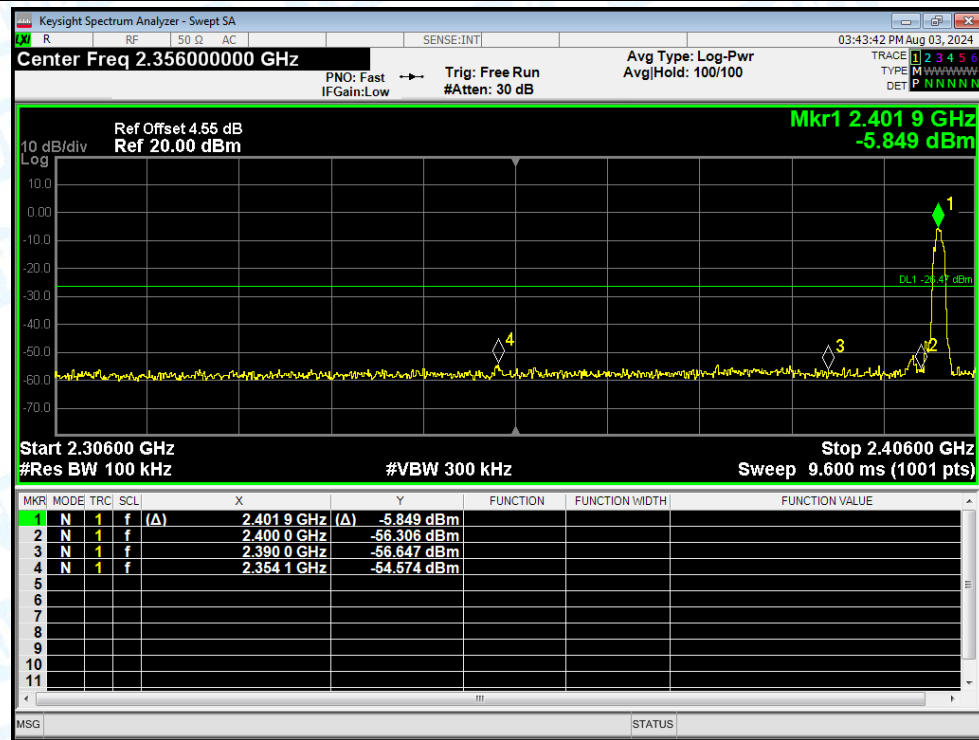
Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Emission



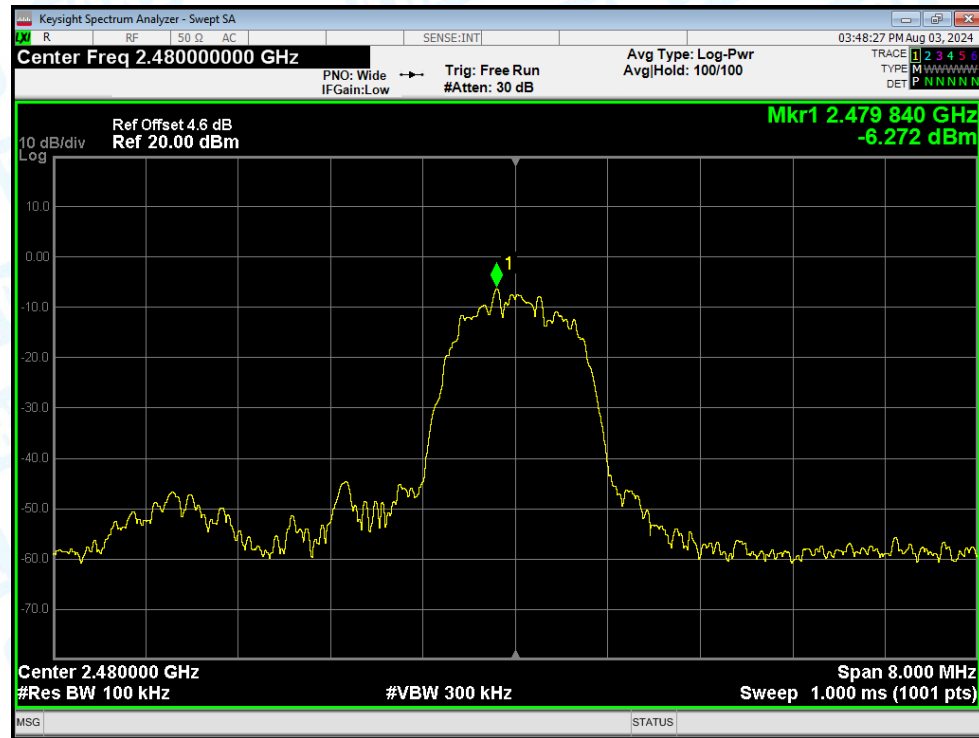
Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Ref



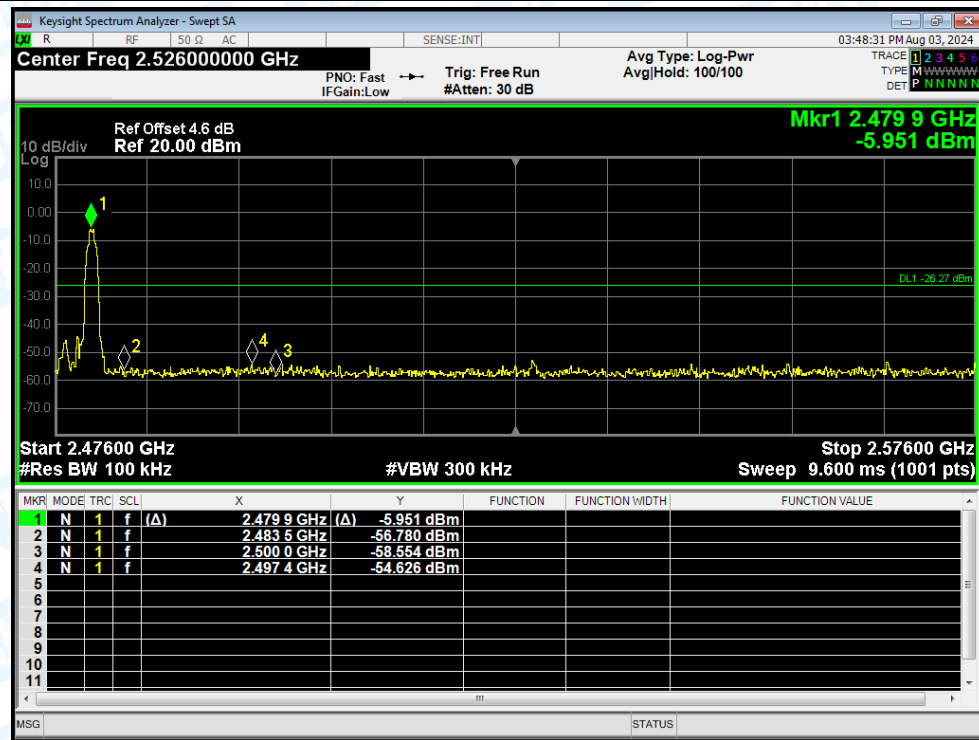
Band Edge NVNT 3-DH1 2402MHz Ant1 No-Hopping Emission



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



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

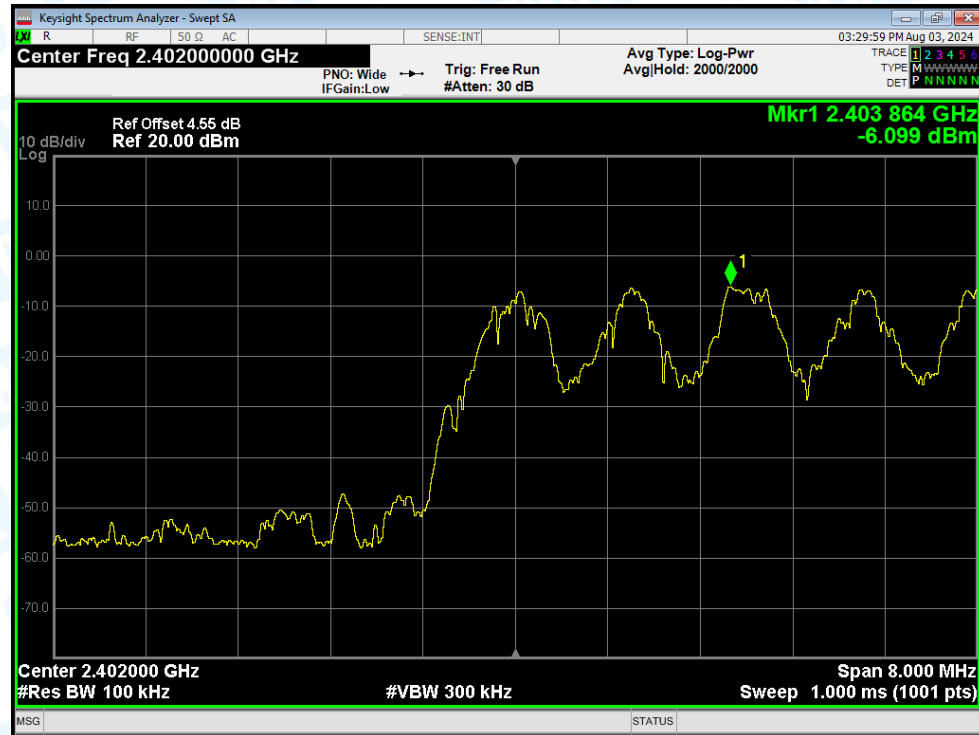


6. Band Edge(Hopping)

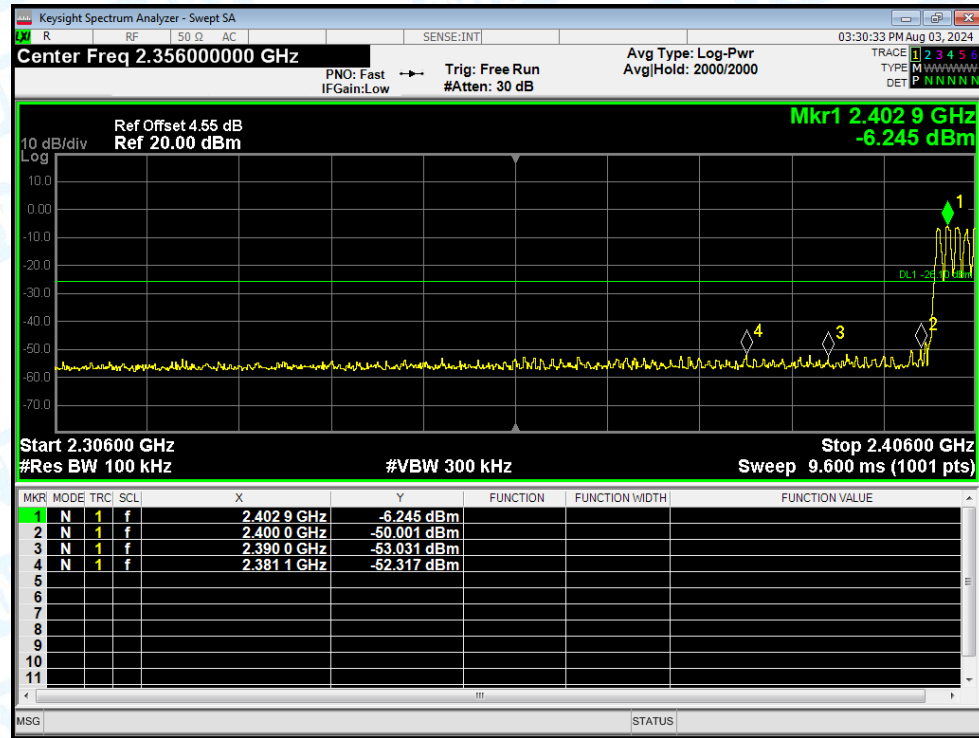
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	Hopping	-46.22	-20	Pass
NVNT	1-DH1	2480	Ant1	Hopping	-46.18	-20	Pass
NVNT	2-DH1	2402	Ant1	Hopping	-45.61	-20	Pass
NVNT	2-DH1	2480	Ant1	Hopping	-45.61	-20	Pass
NVNT	3-DH1	2402	Ant1	Hopping	-45.95	-20	Pass
NVNT	3-DH1	2480	Ant1	Hopping	-44.7	-20	Pass

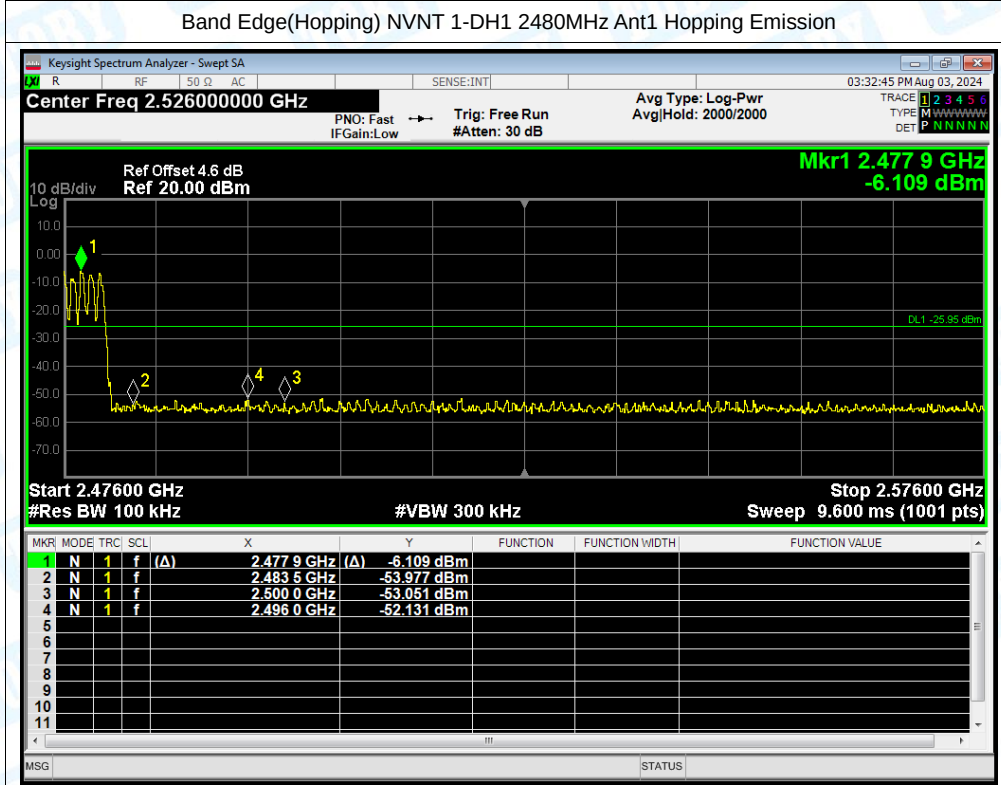
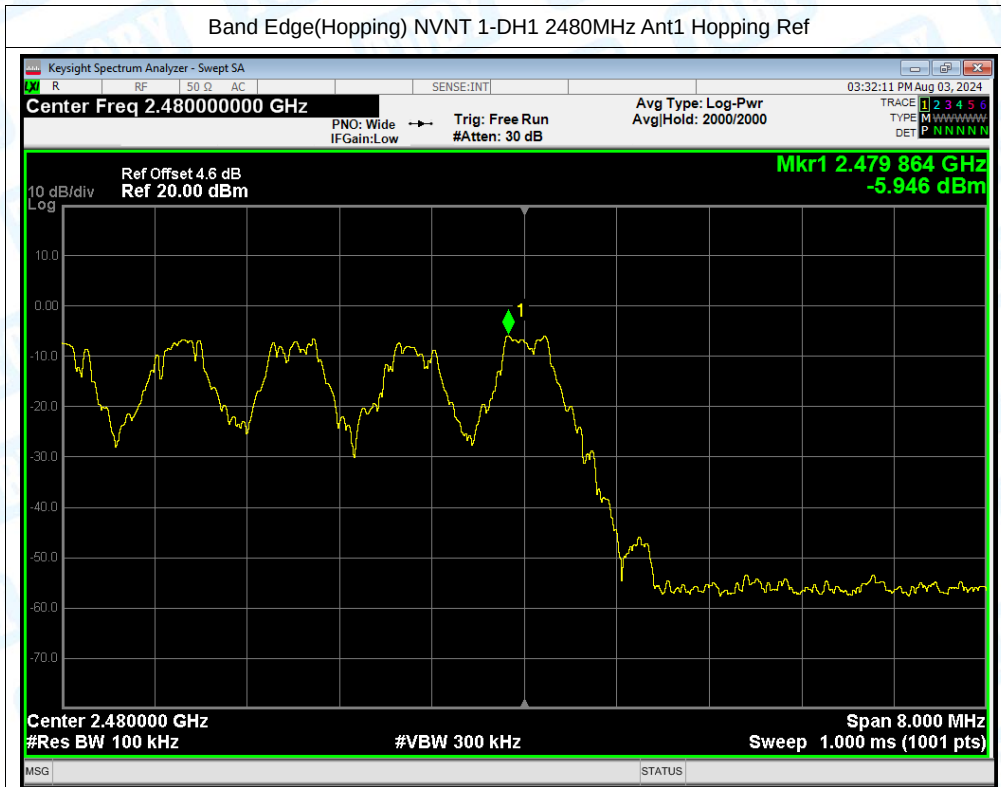
Test Graphs

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



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

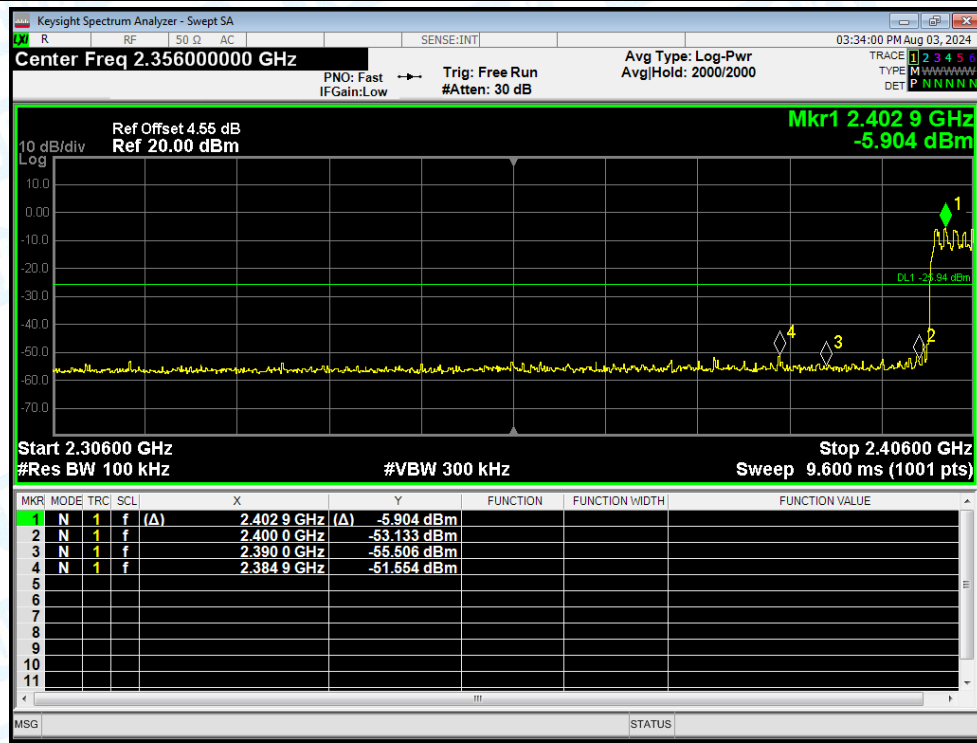




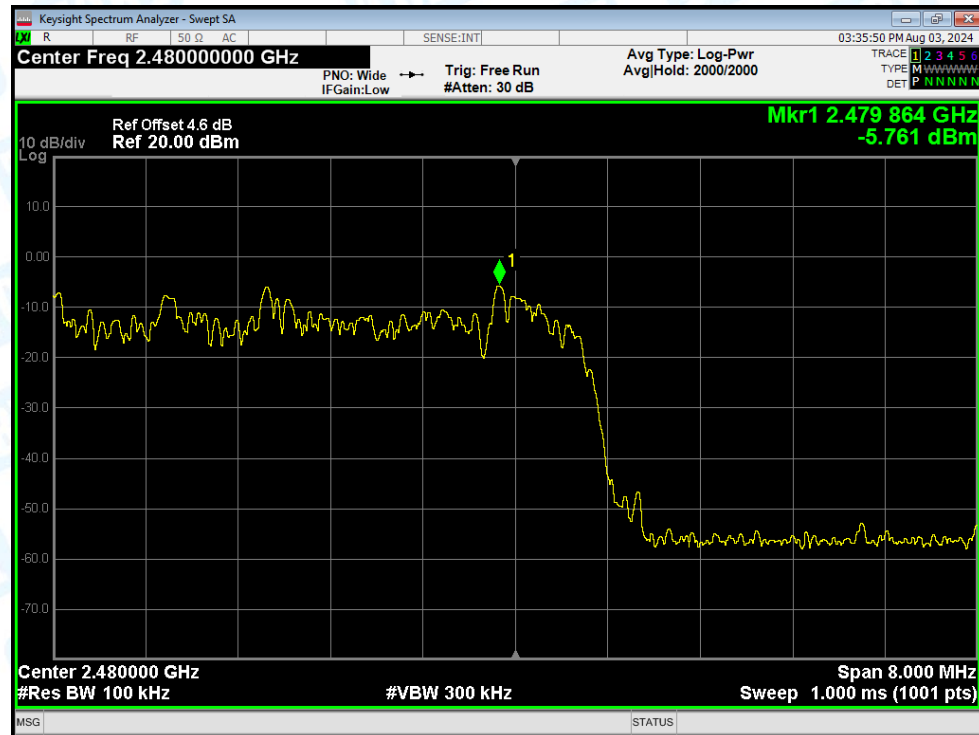
Band Edge(Hopping) NVNT 2-DH1 2402MHz Ant1 Hopping Ref



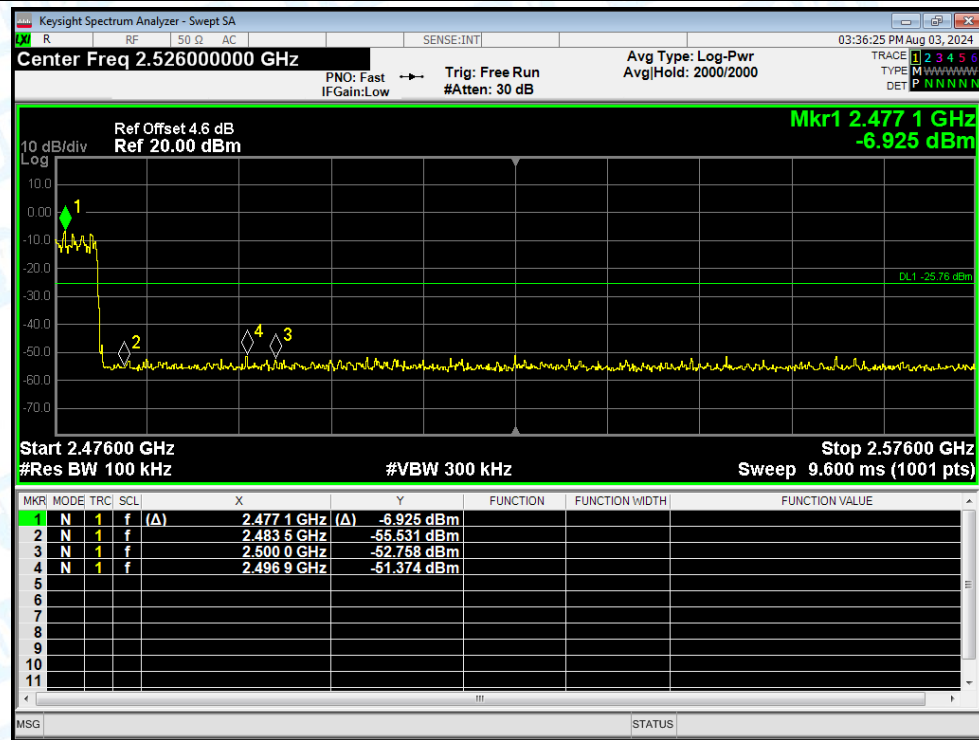
Band Edge(Hopping) NVNT 2-DH1 2402MHz Ant1 Hopping Emission

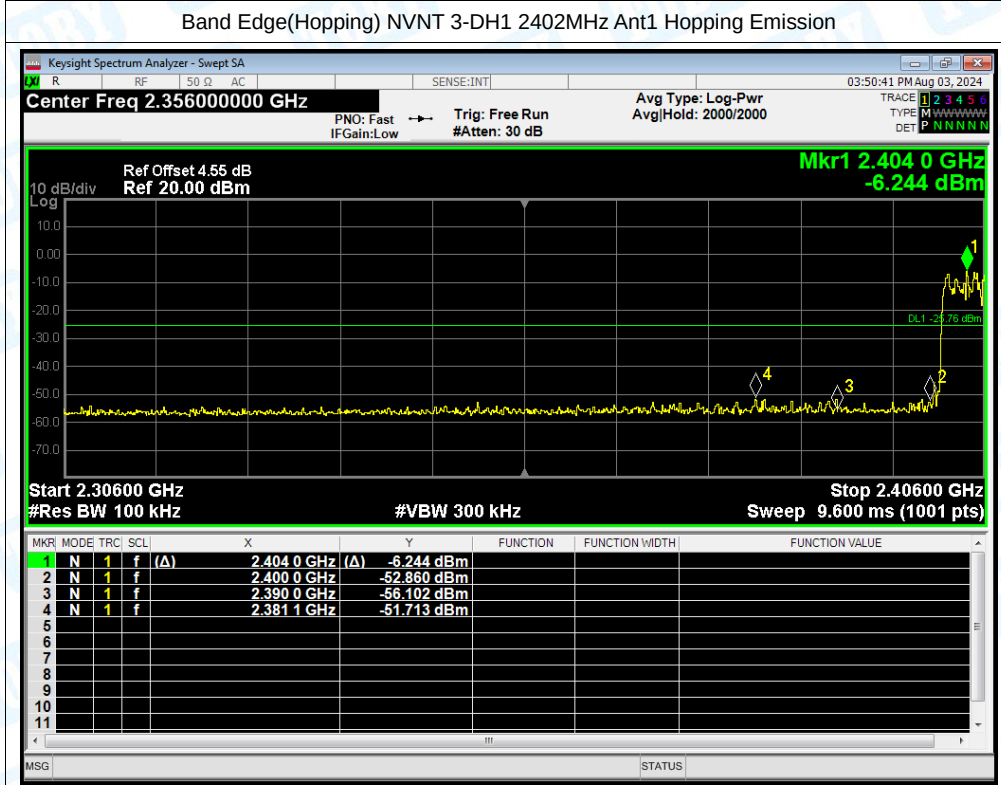
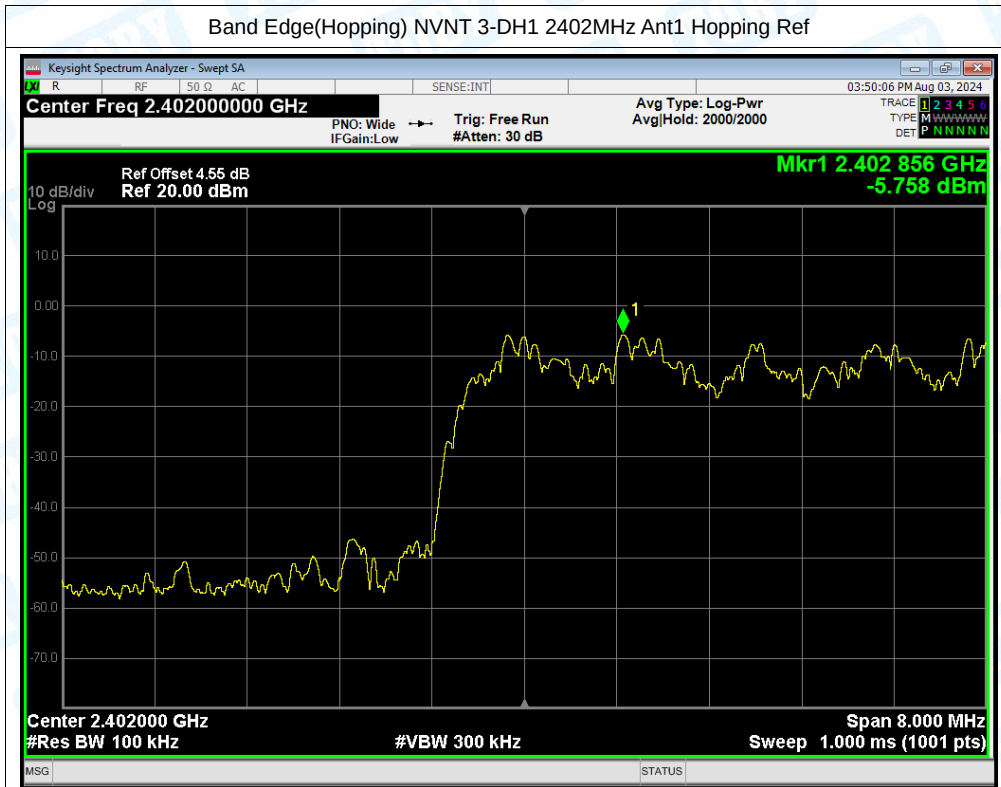


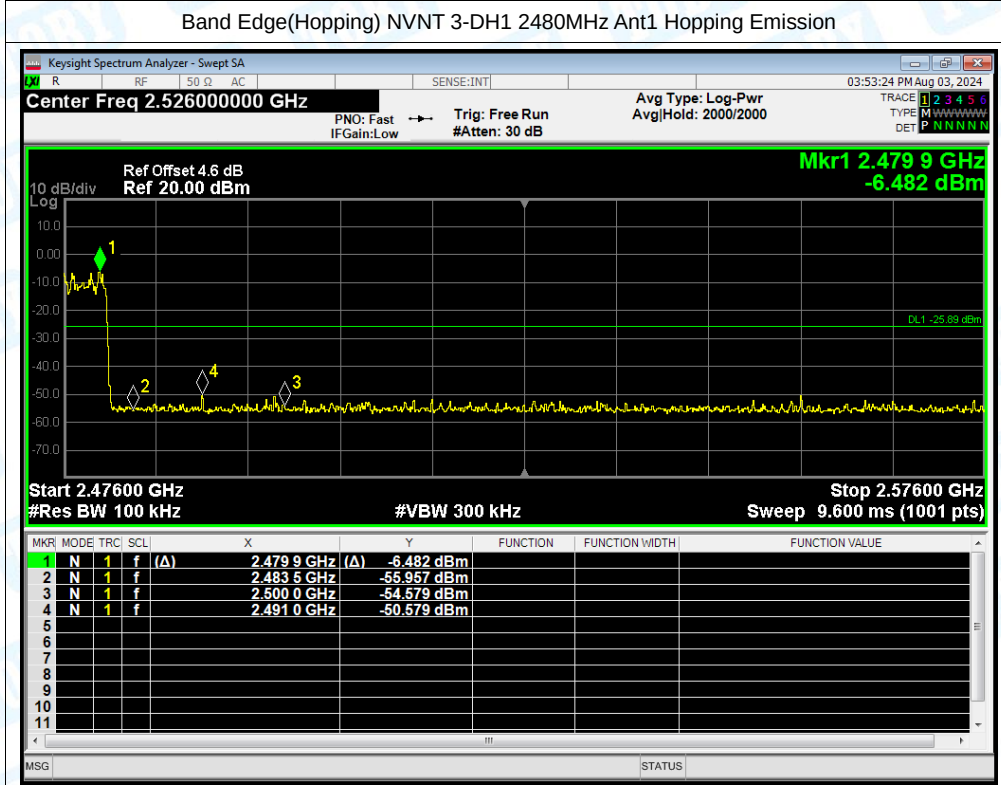
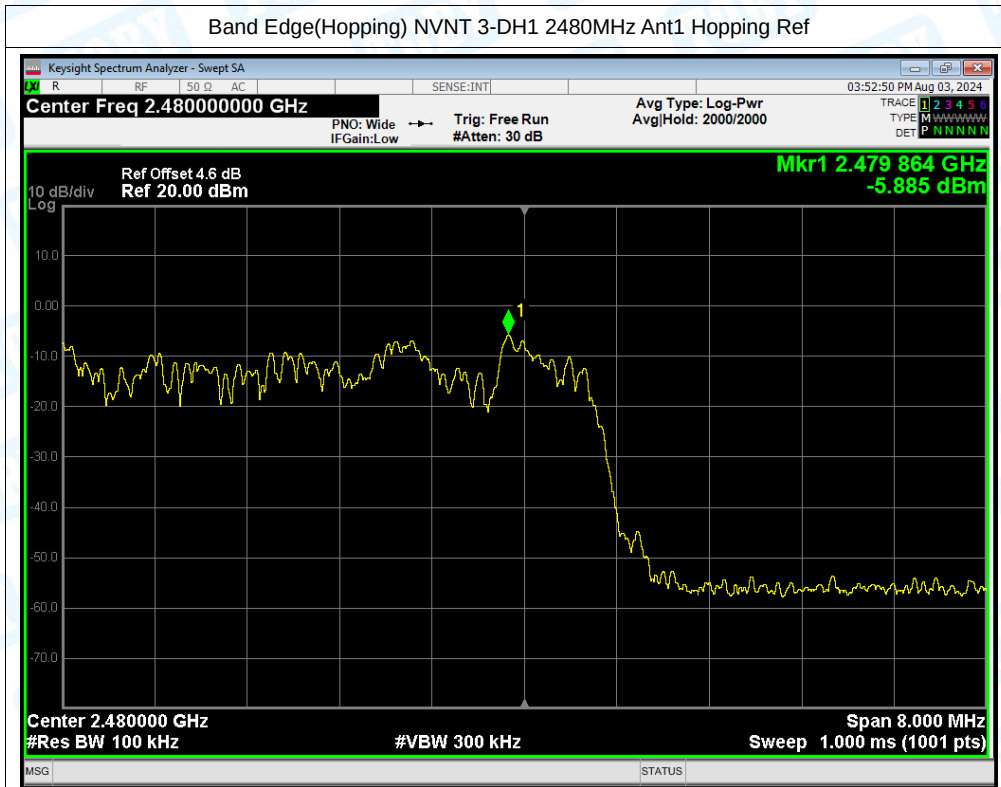
Band Edge(Hopping) NVNT 2-DH1 2480MHz Ant1 Hopping Ref



Band Edge(Hopping) NVNT 2-DH1 2480MHz Ant1 Hopping Emission





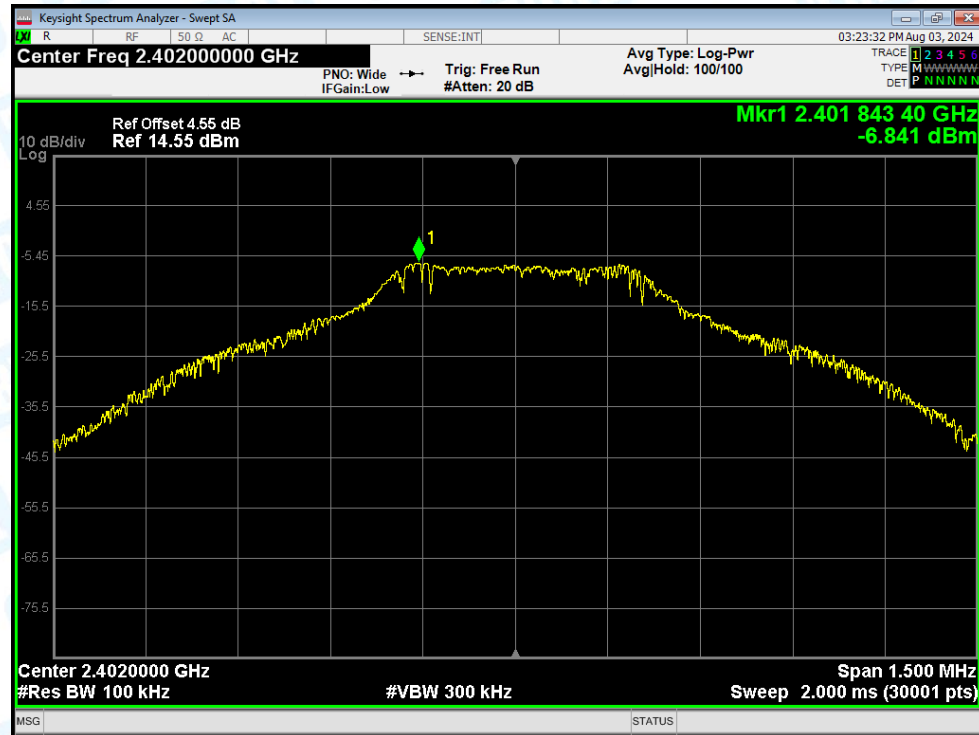


7. Conducted RF Spurious Emission

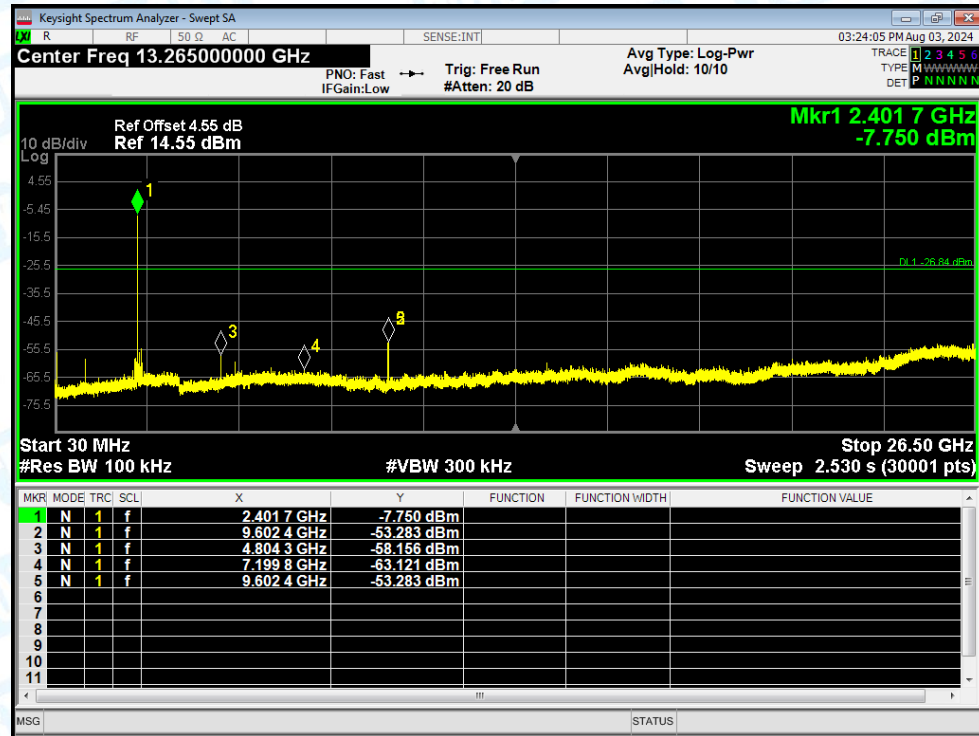
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	-46.44	-20	Pass
NVNT	1-DH1	2441	Ant1	-47	-20	Pass
NVNT	1-DH1	2480	Ant1	-46.83	-20	Pass
NVNT	2-DH1	2402	Ant1	-42.28	-20	Pass
NVNT	2-DH1	2441	Ant1	-44.39	-20	Pass
NVNT	2-DH1	2480	Ant1	-45.83	-20	Pass
NVNT	3-DH1	2402	Ant1	-46.82	-20	Pass
NVNT	3-DH1	2441	Ant1	-47.54	-20	Pass
NVNT	3-DH1	2480	Ant1	-45.78	-20	Pass

Test Graphs

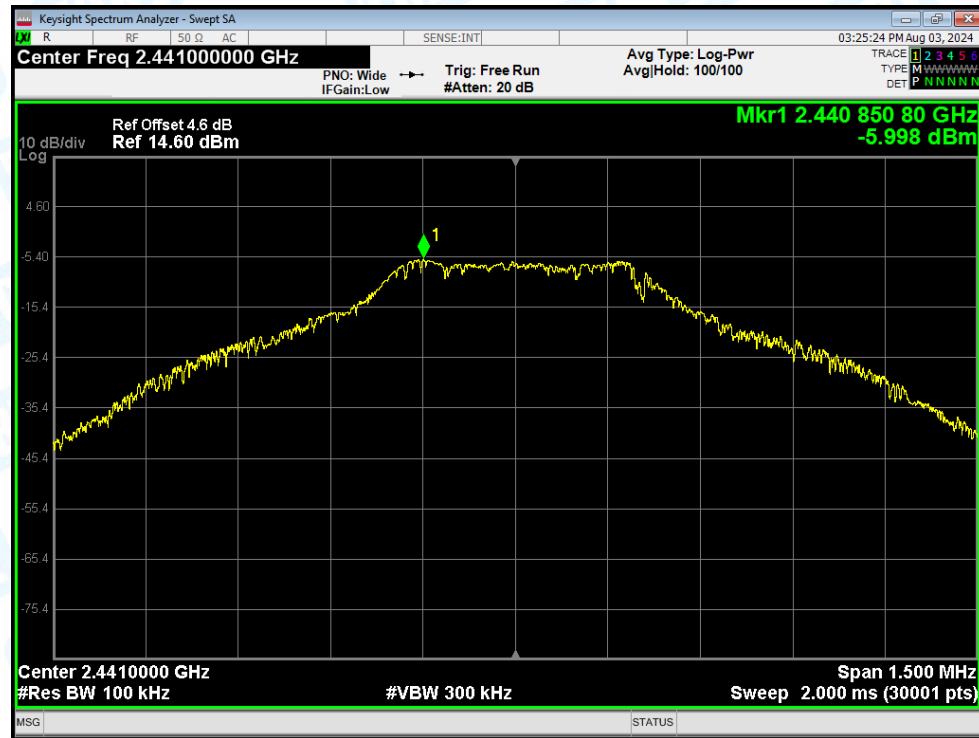
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Ref



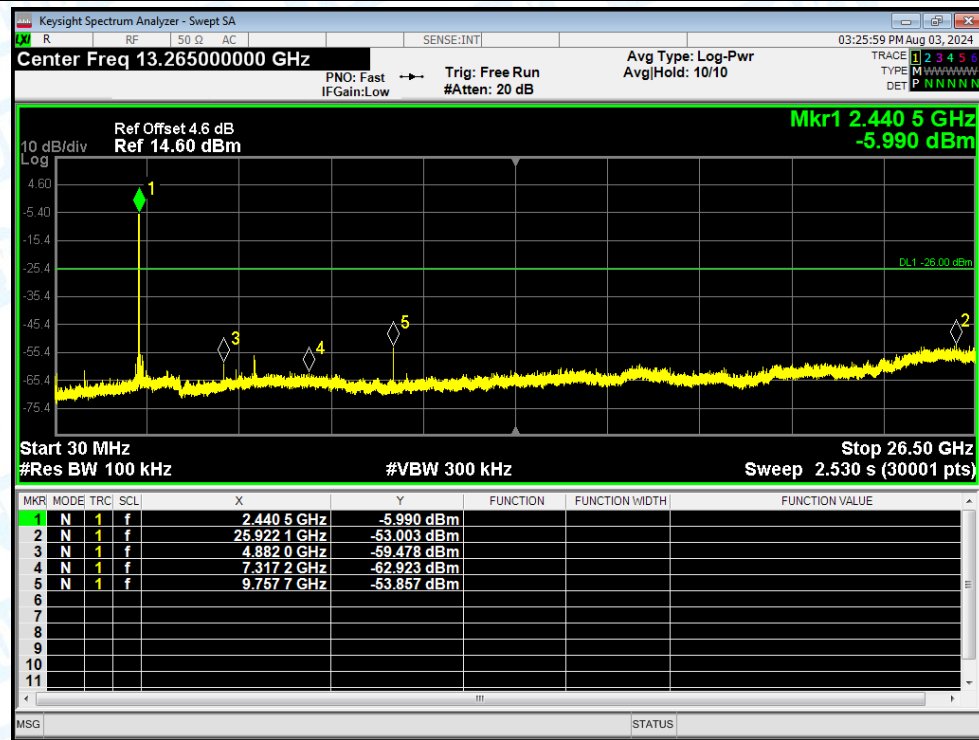
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Emission



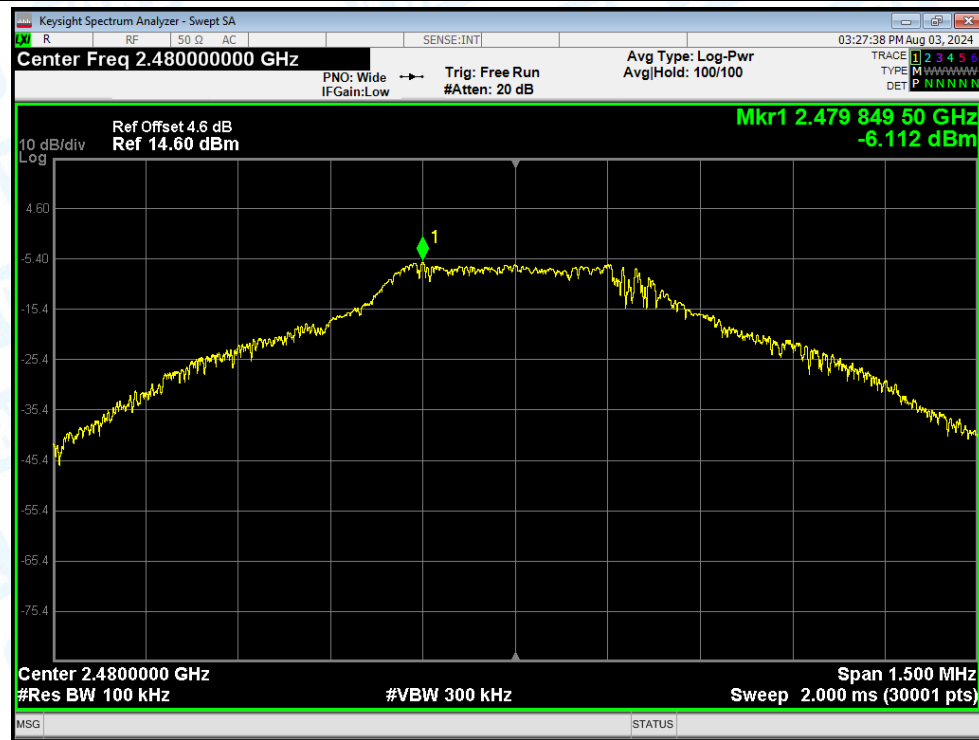
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Ref



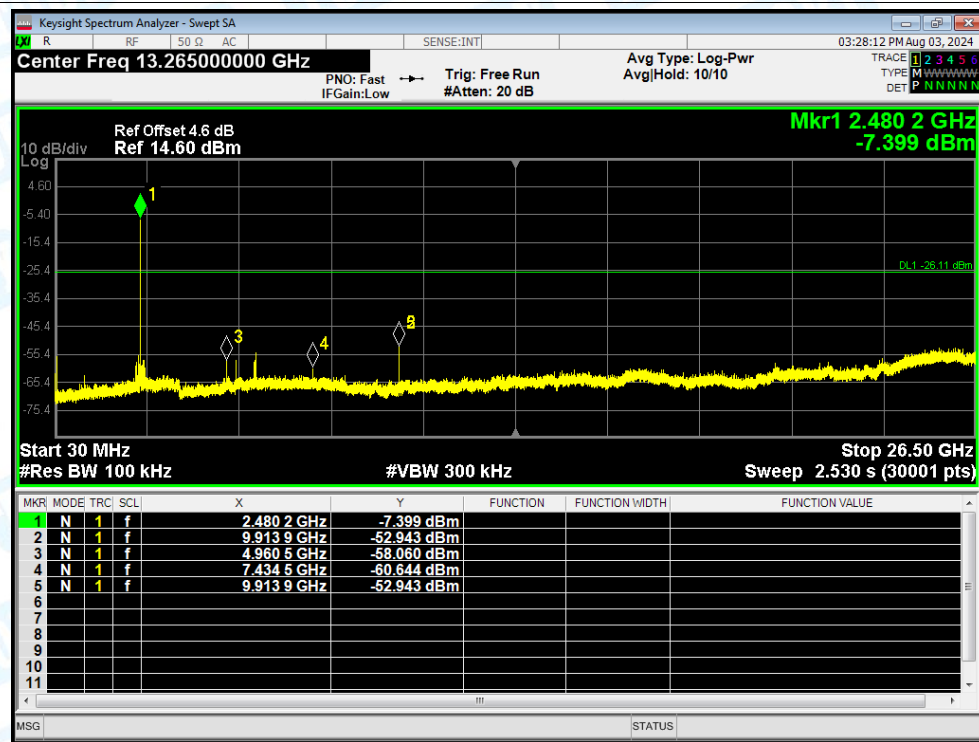
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Emission



Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Ref



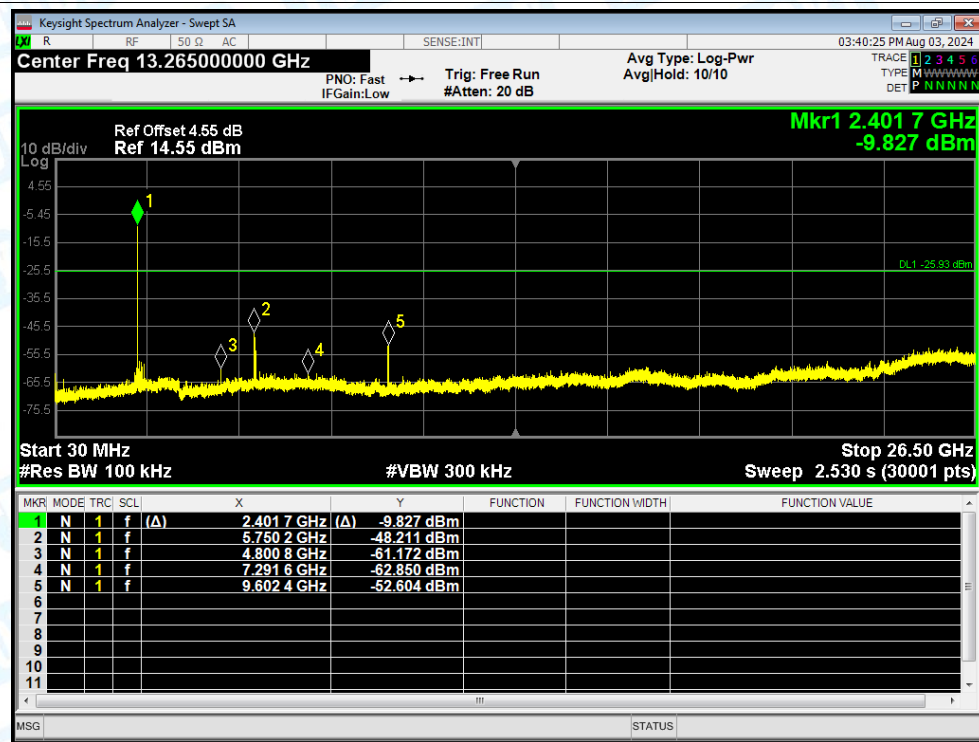
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Emission



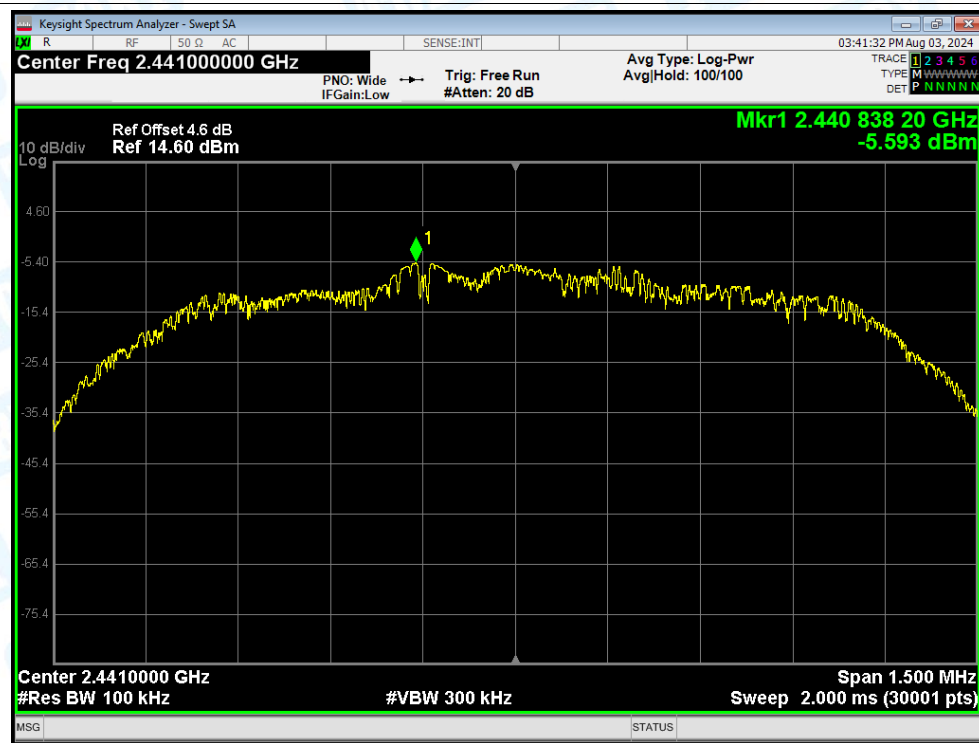
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Ref



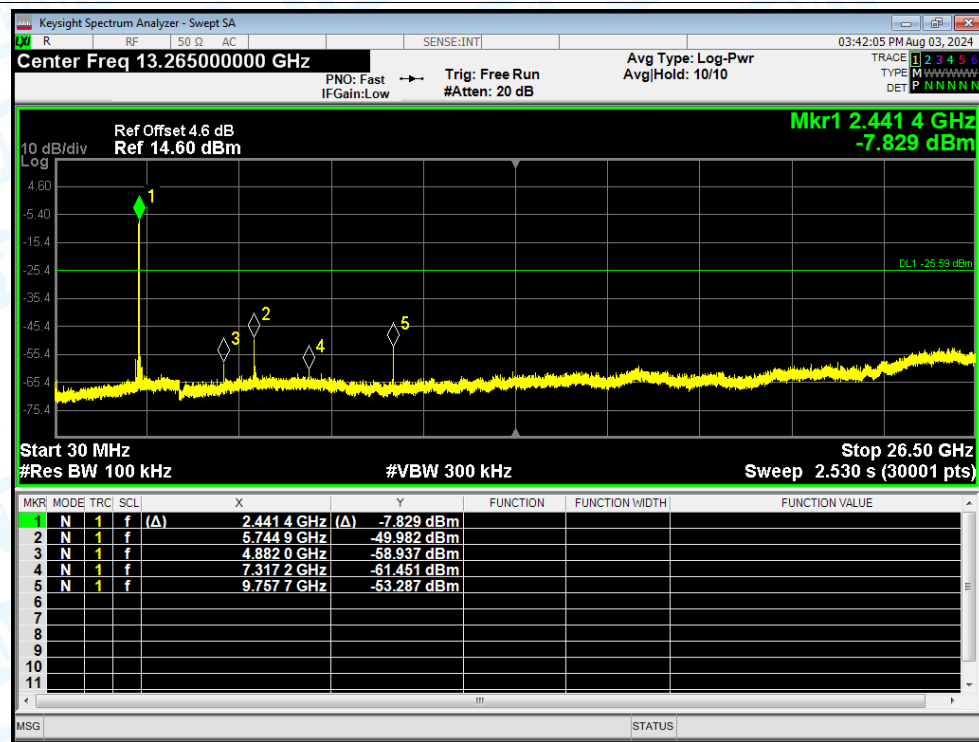
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Emission



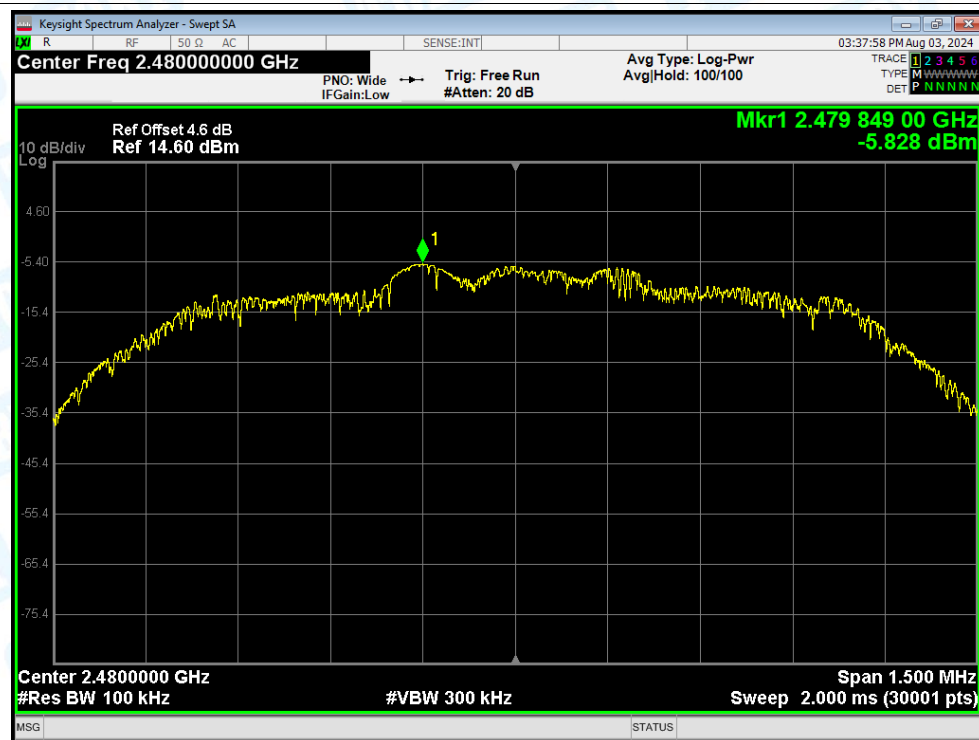
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Ref



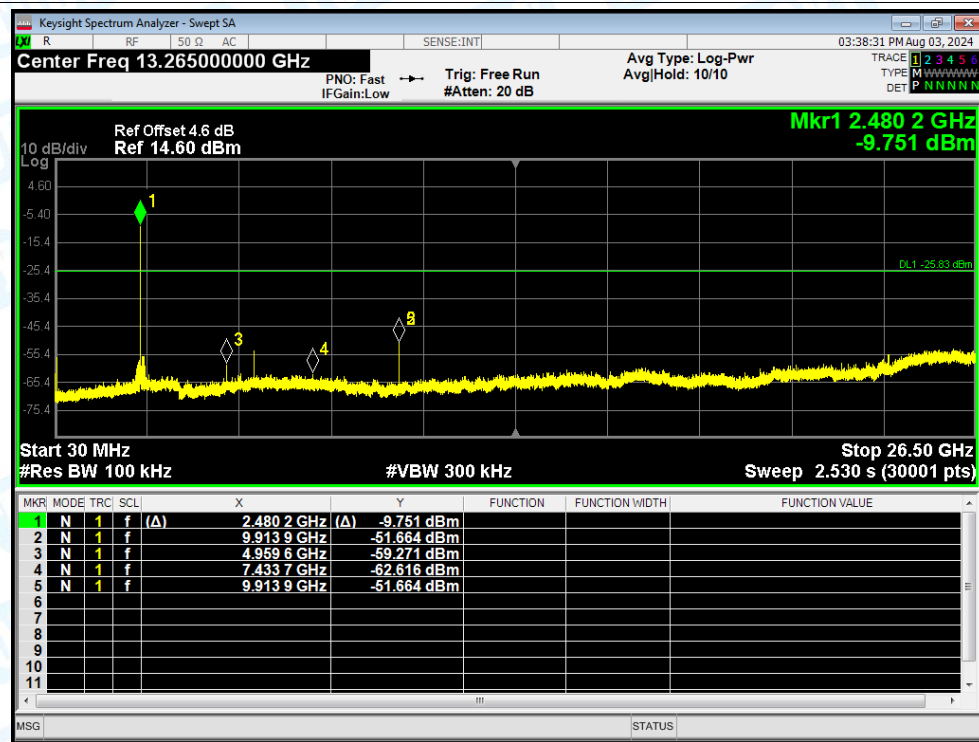
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Emission



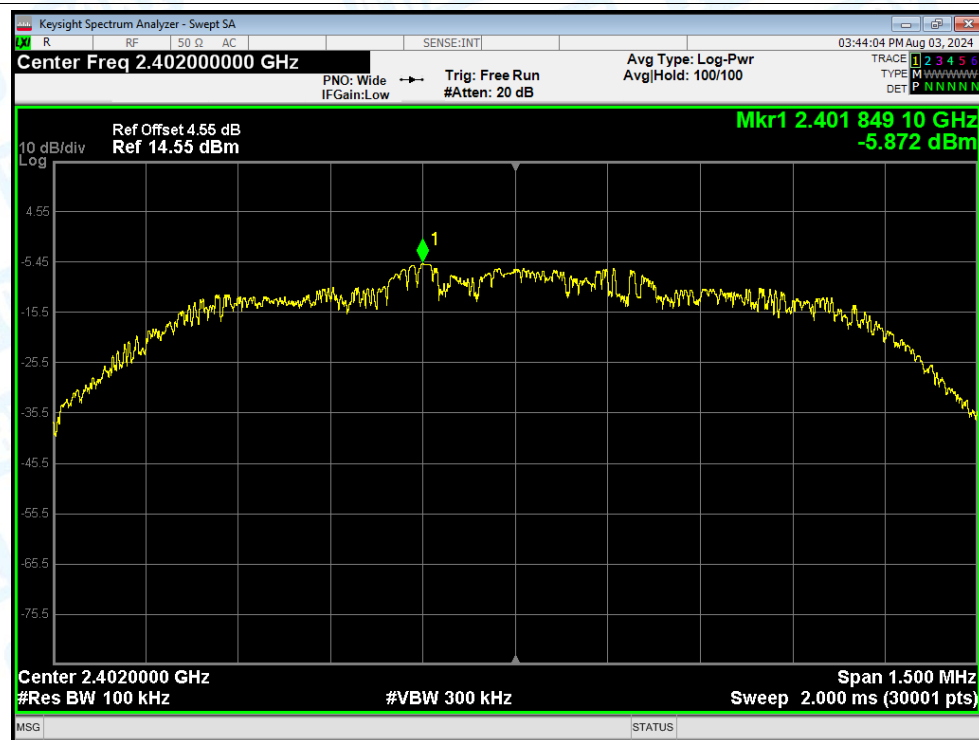
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Ref



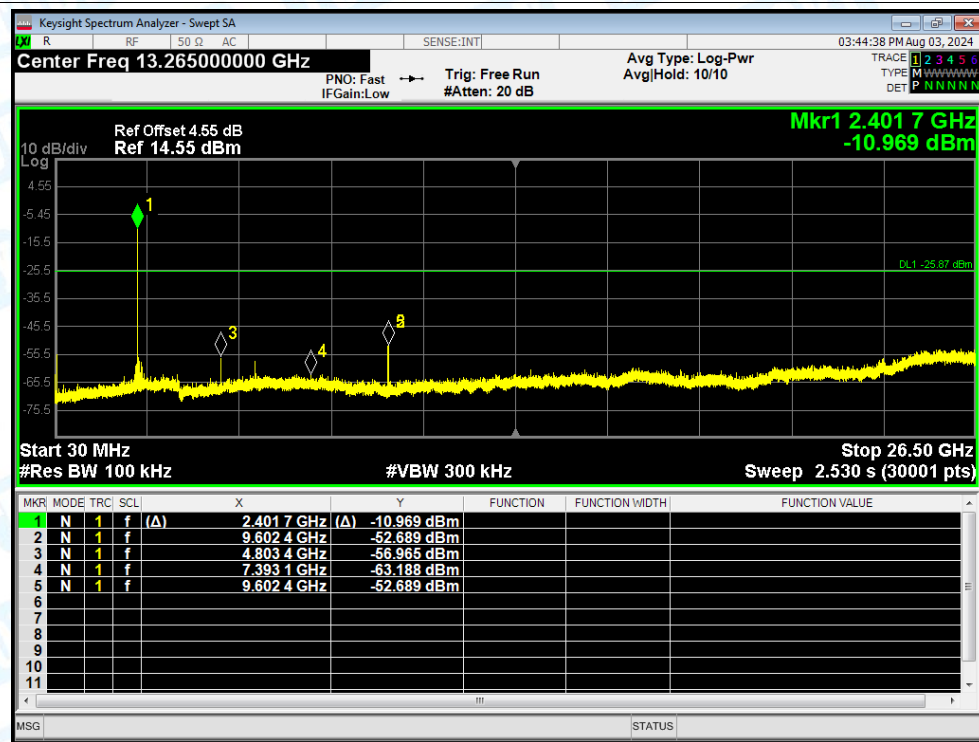
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Emission



Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Ref



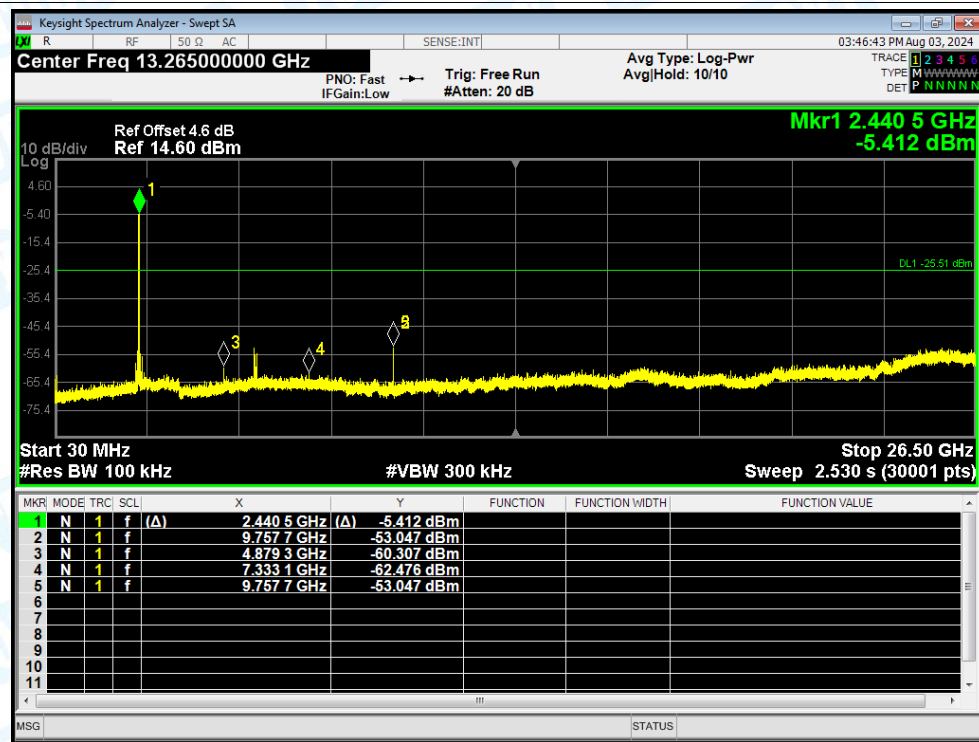
Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Emission



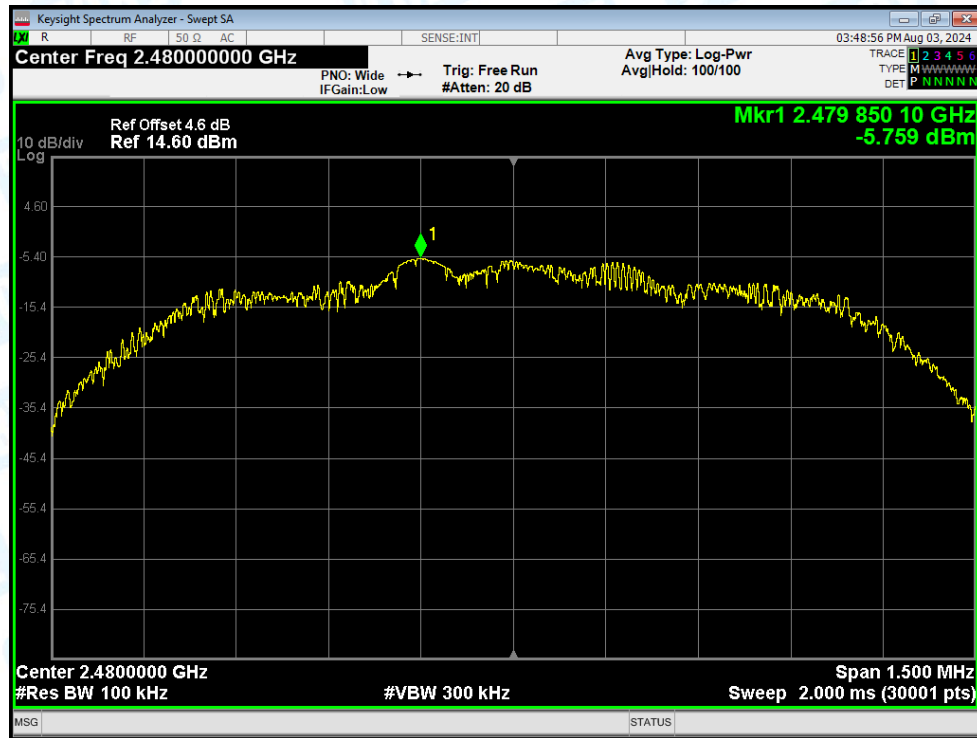
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Ref



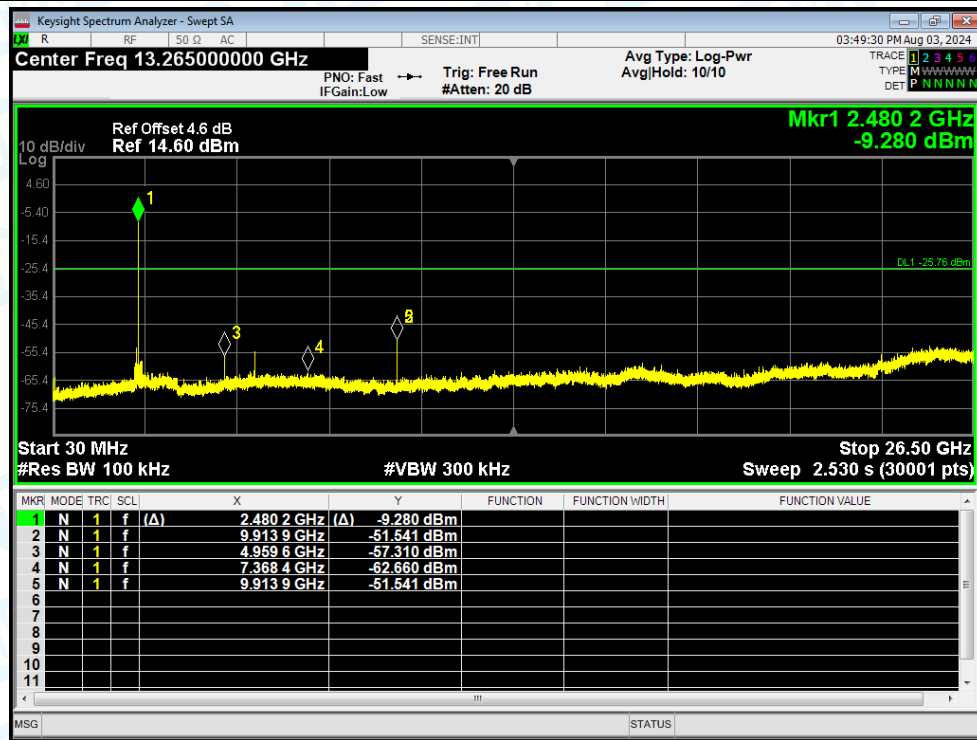
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Emission



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Emission

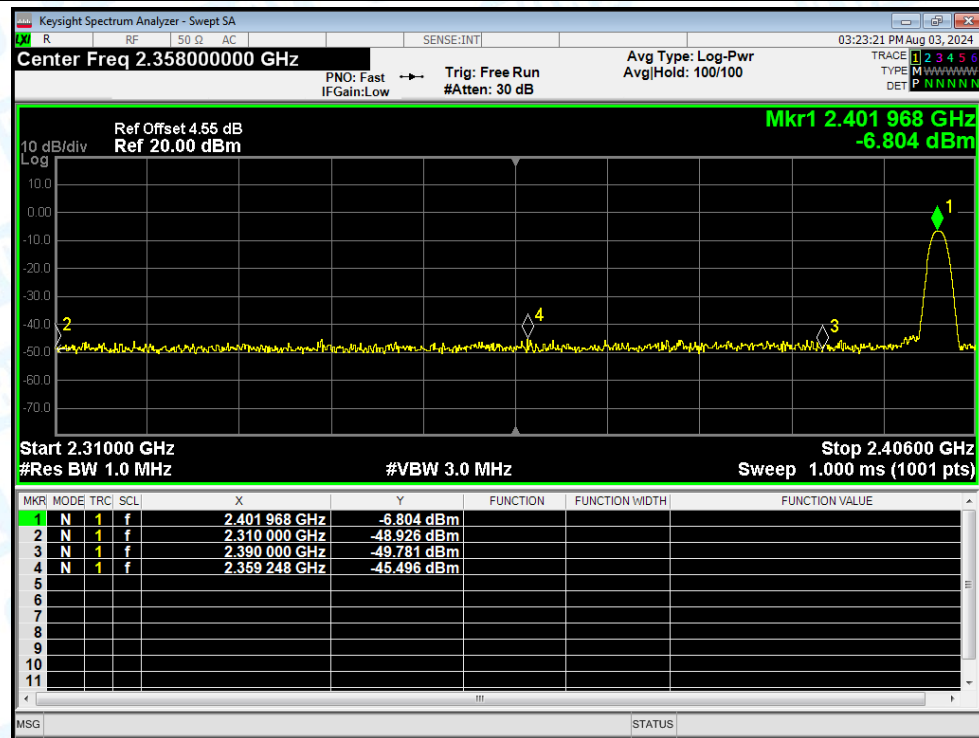


8. Restrict Band

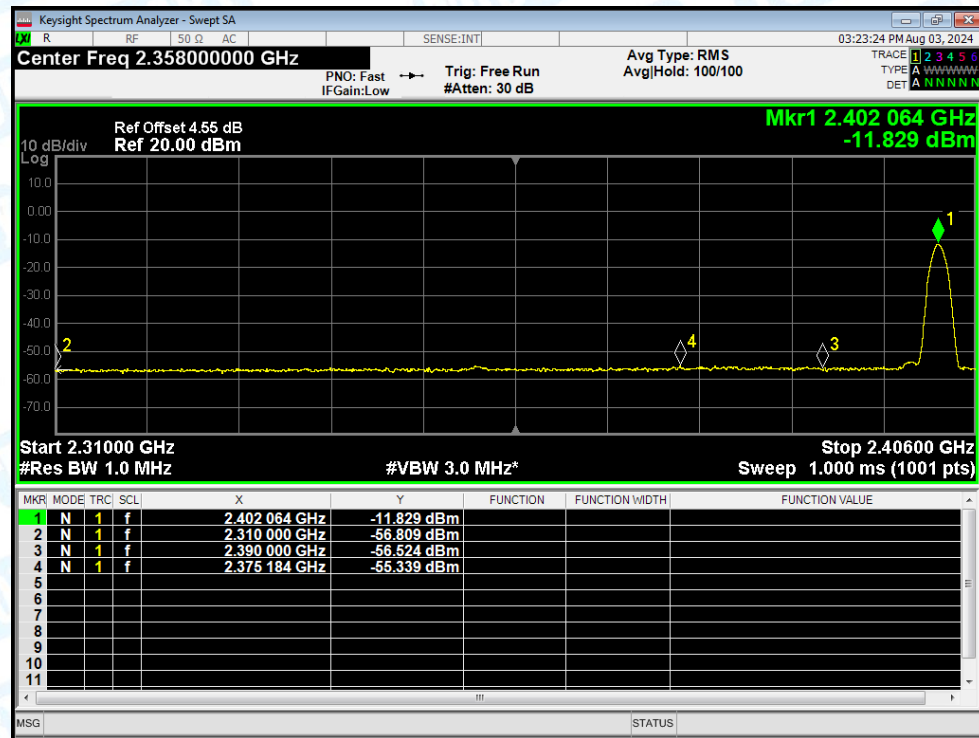
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-48.93	2	-	48.33	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-56.81	2	5.17	45.62	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2359.248	-45.5	2	-	51.76	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2375.184	-55.34	2	5.17	47.09	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-49.78	2	-	47.48	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-56.52	2	5.17	45.91	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-53.6	2	-	43.66	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-62.38	2	5.17	40.05	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2498.656	-48.61	2	-	48.65	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2498.152	-61.78	2	5.17	40.65	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-49.74	2	-	47.52	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-62.88	2	5.17	39.55	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-48.13	2	-	49.13	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-56.8	2	5.06	45.52	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2383.44	-45.07	2	-	52.19	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2354.256	-55.23	2	5.06	47.09	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-49	2	-	48.26	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-56.36	2	5.06	45.96	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-52.41	2	-	44.85	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-63.27	2	5.17	39.16	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2497.504	-48.86	2	-	48.4	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2494.432	-60.81	2	5.17	41.62	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-52.13	2	-	45.13	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-63.8	2	5.17	38.63	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-60.06	2	-	37.2	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-66.77	2	5.06	35.55	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2378.928	-49.51	2	-	47.75	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2378.352	-61.07	2	5.06	41.25	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-53.42	2	-	43.84	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-63.66	2	5.06	38.66	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-52.47	2	-	44.79	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-62.98	2	5.06	39.34	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2494.744	-48.14	2	-	49.12	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2497.96	-61.32	2	5.06	41	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-53.6	2	-	43.66	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-61.96	2	5.06	40.36	Average	54	Pass

Test Graphs

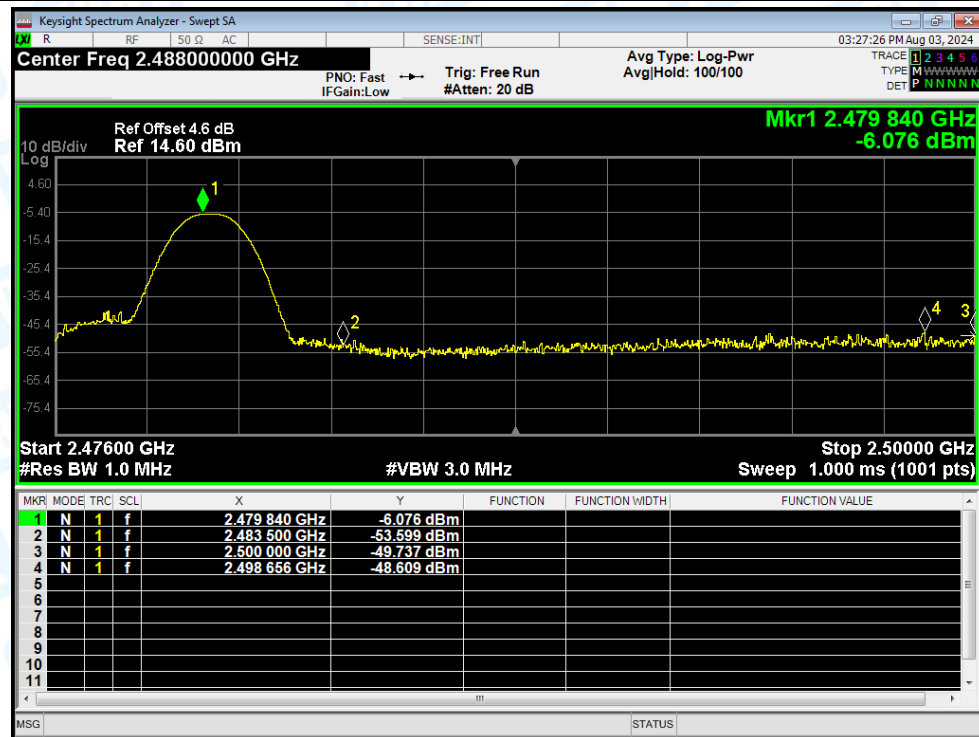
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Peak



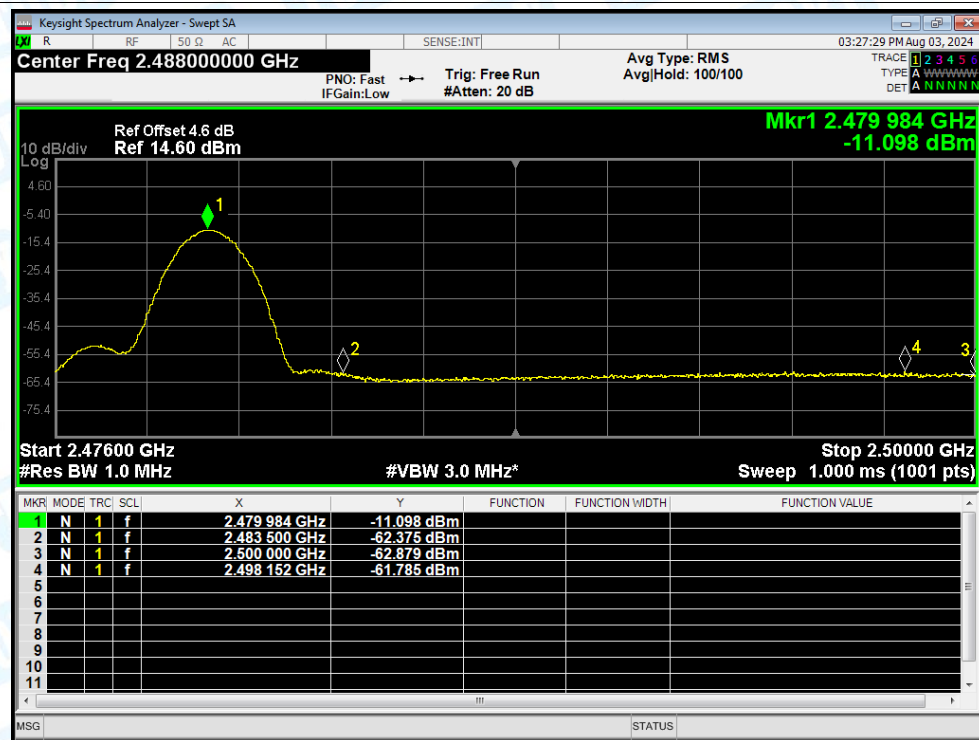
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Average



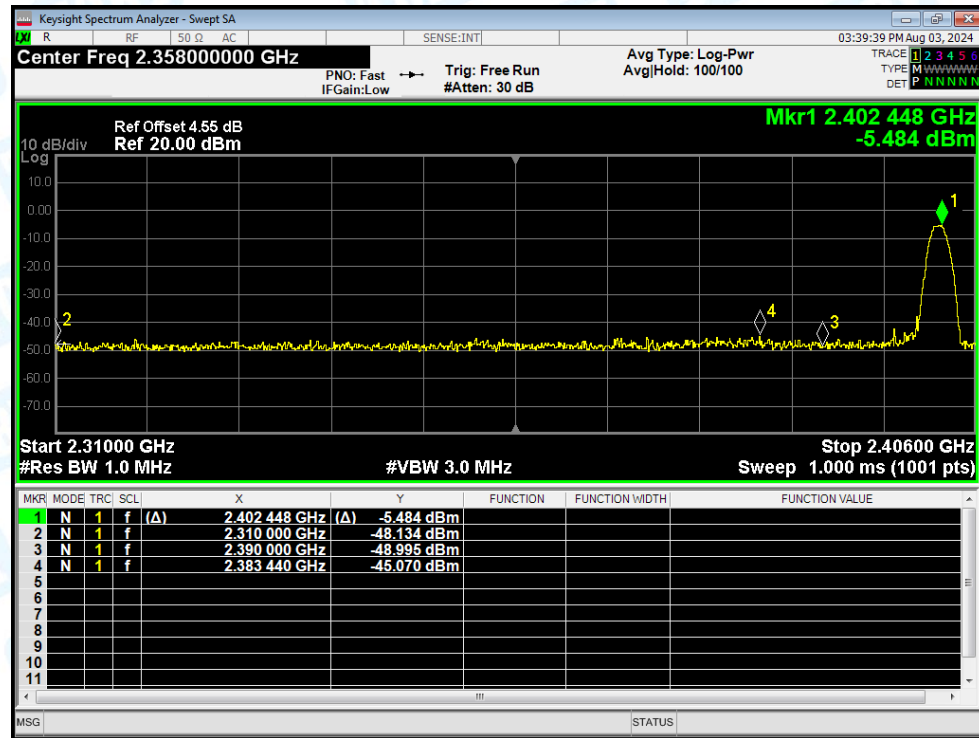
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Peak



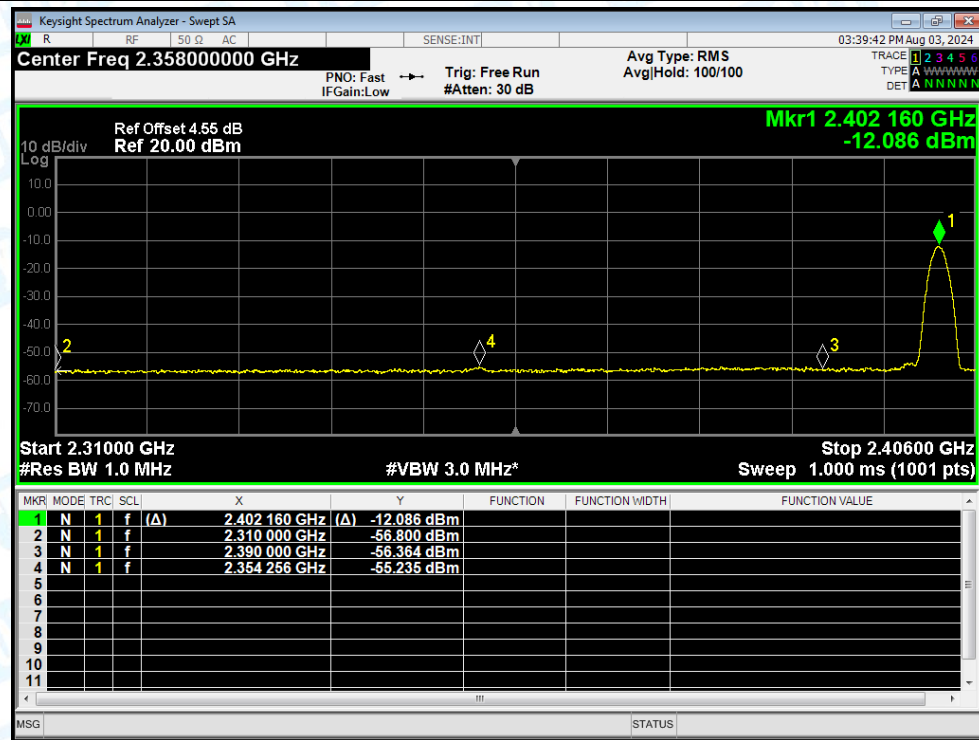
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Average



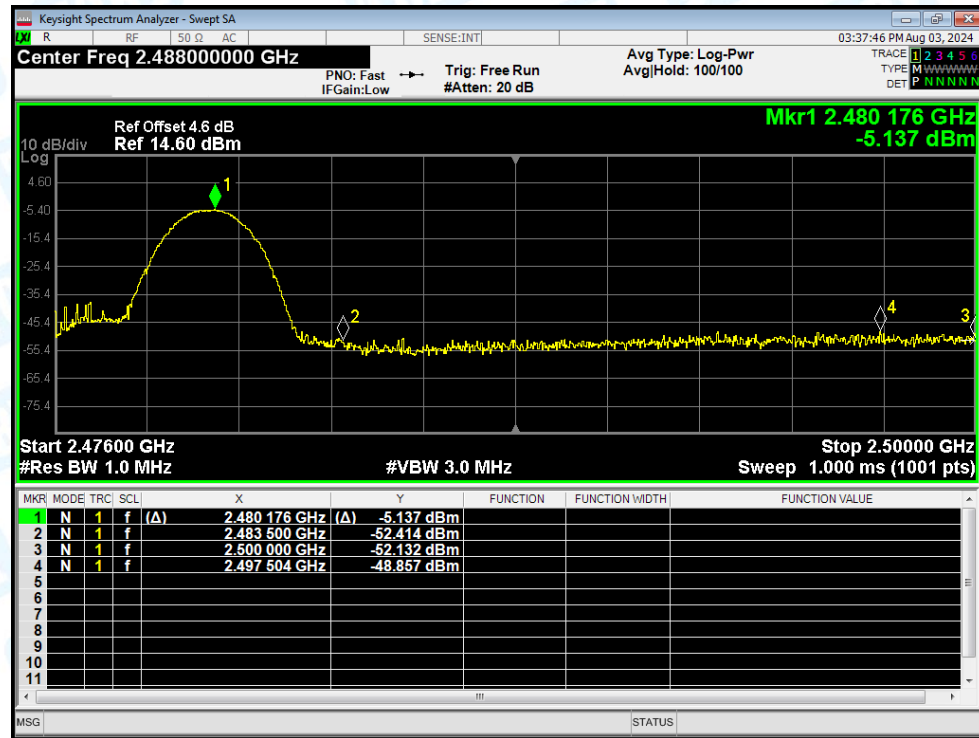
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Peak



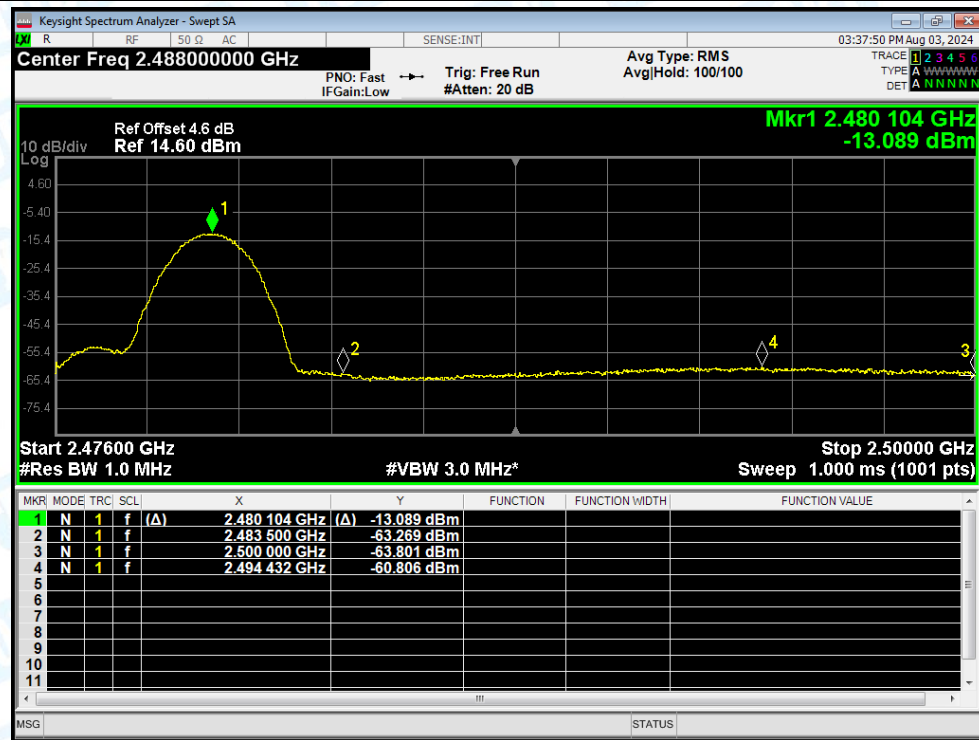
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Average



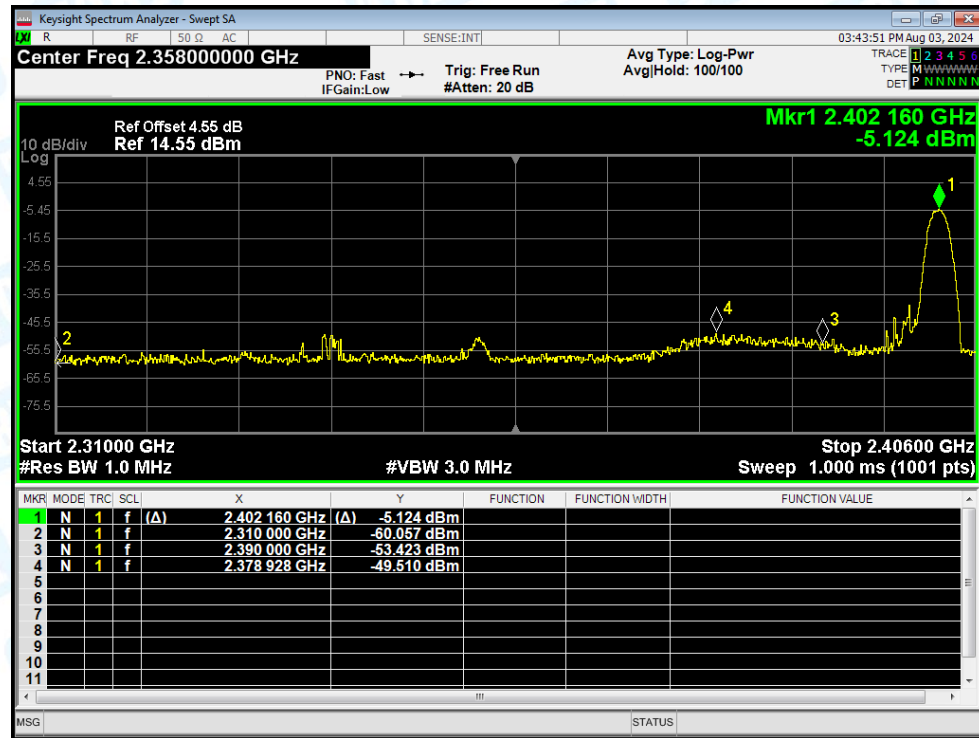
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Peak



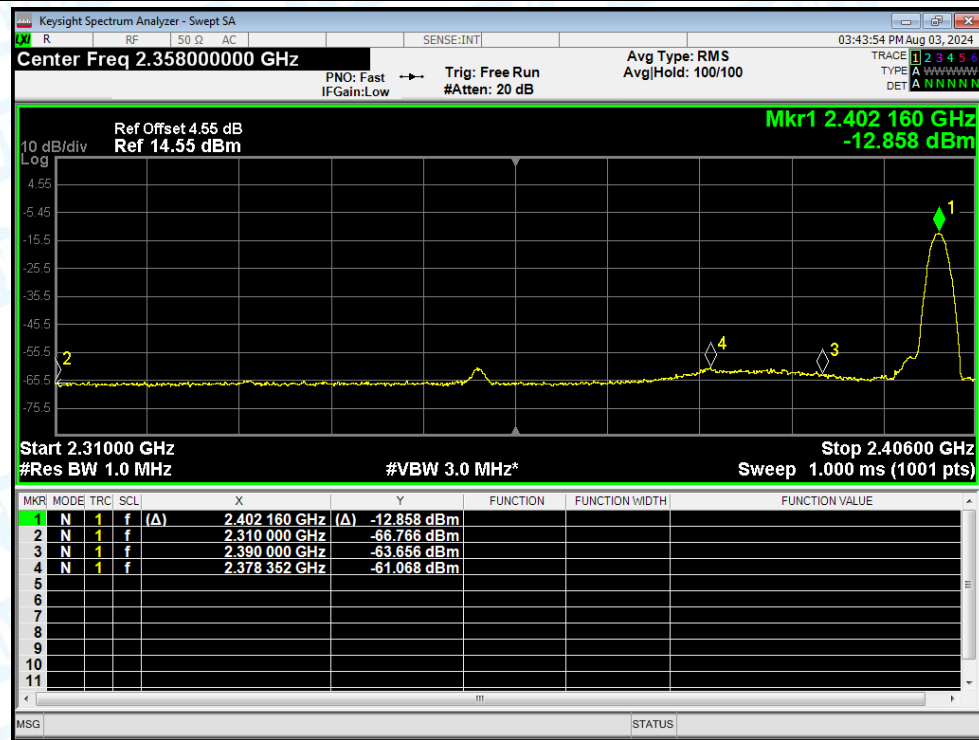
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Average



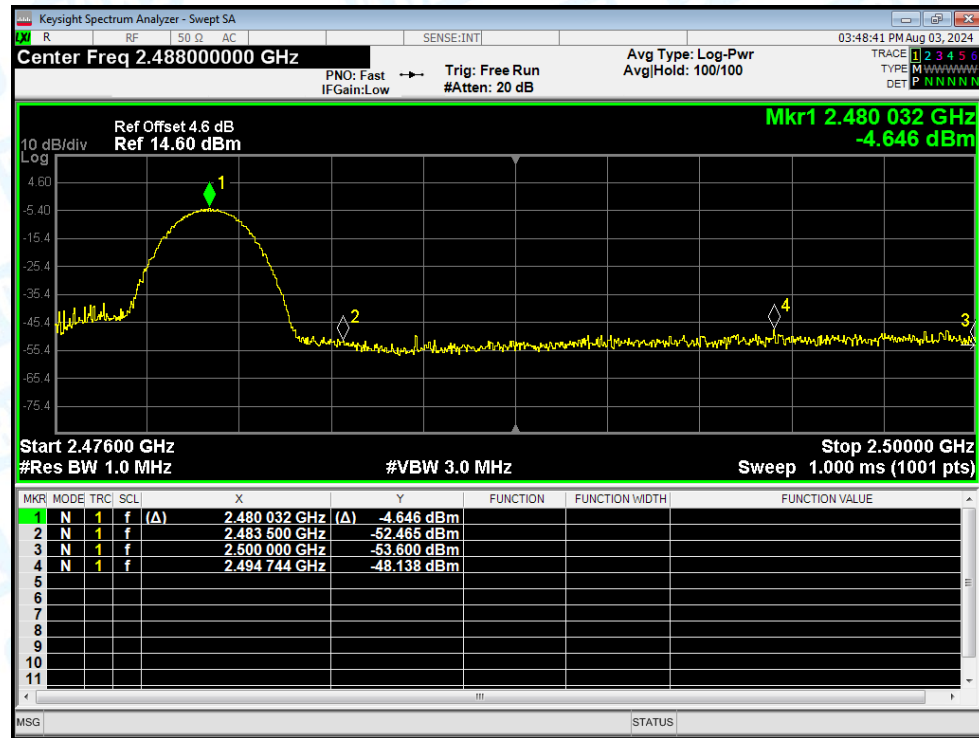
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Peak



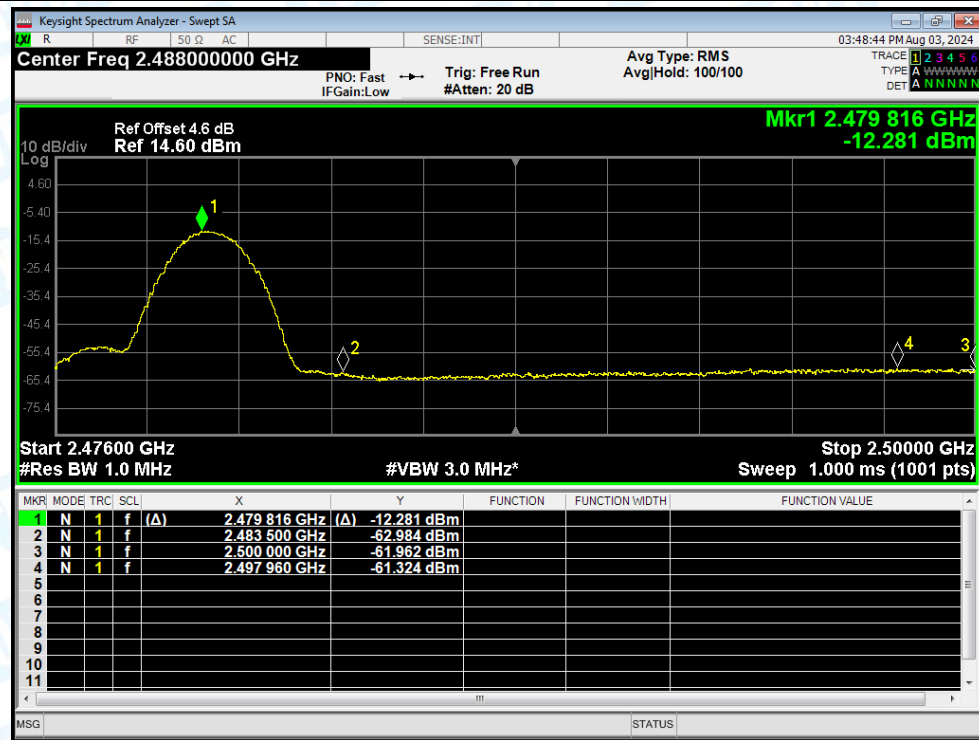
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Average



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



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

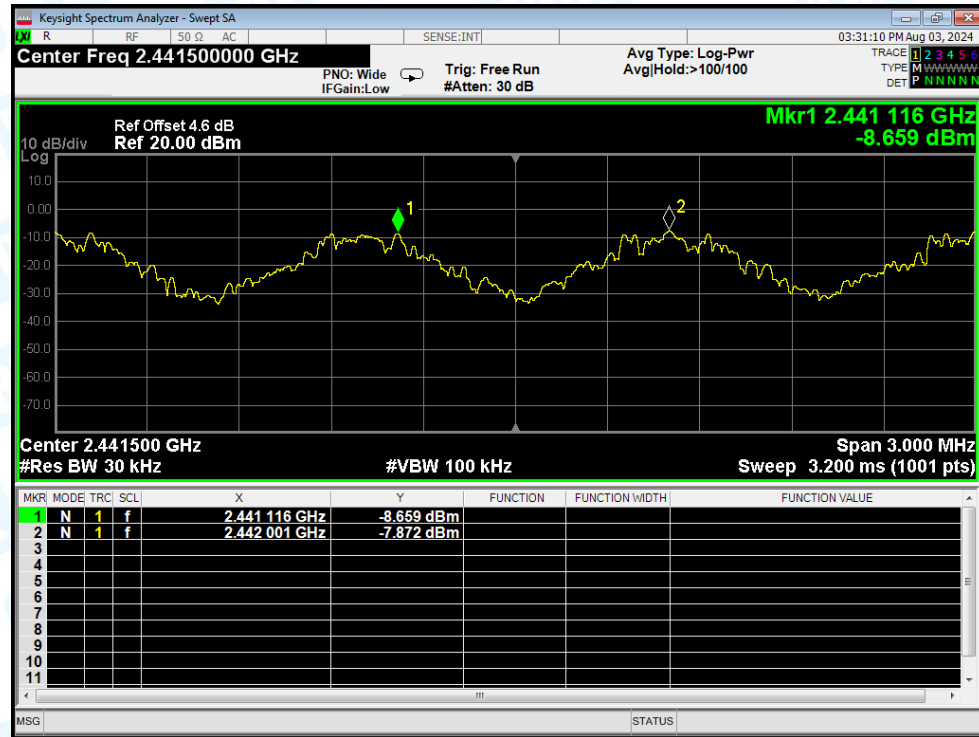


9. Carrier Frequencies Separation

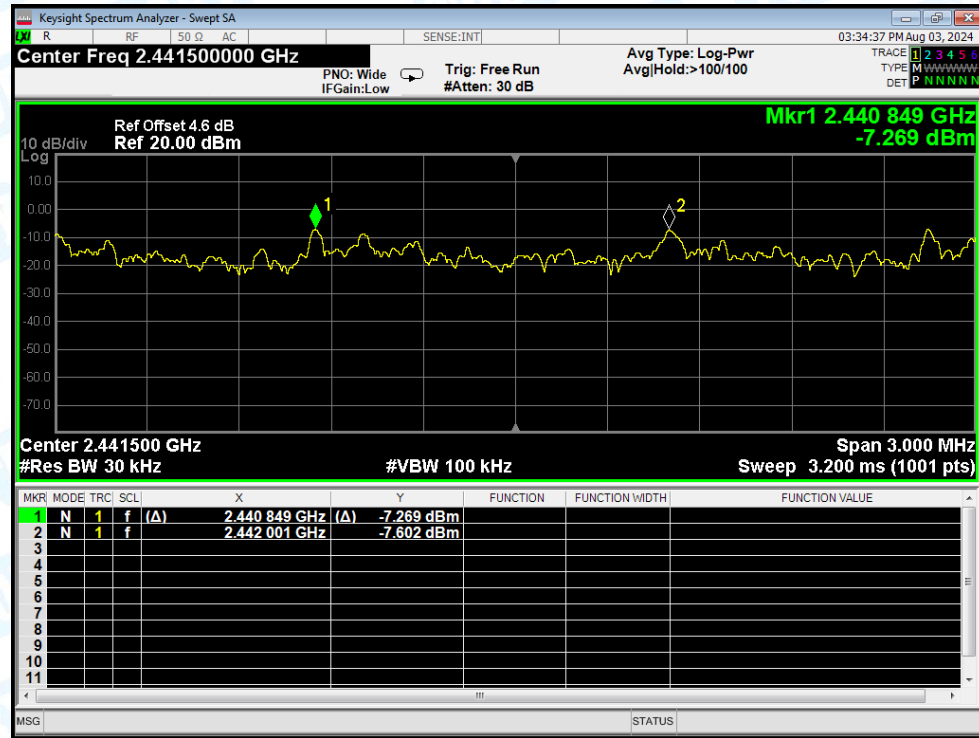
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH1	Ant1	2441.116	2442.001	0.885	0.025	Pass
NVNT	2-DH1	Ant1	2440.849	2442.001	1.152	0.025	Pass
NVNT	3-DH1	Ant1	2440.834	2441.995	1.161	0.827	Pass

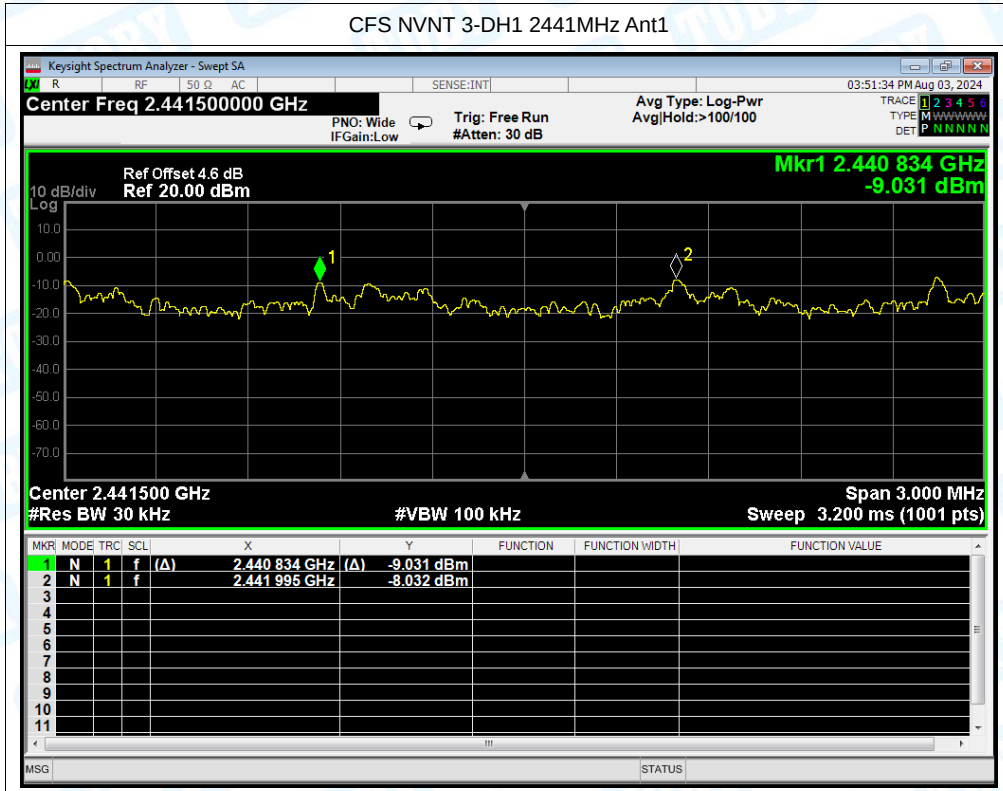
Test Graphs

CFS NVNT 1-DH1 2441MHz Ant1



CFS NVNT 2-DH1 2441MHz Ant1



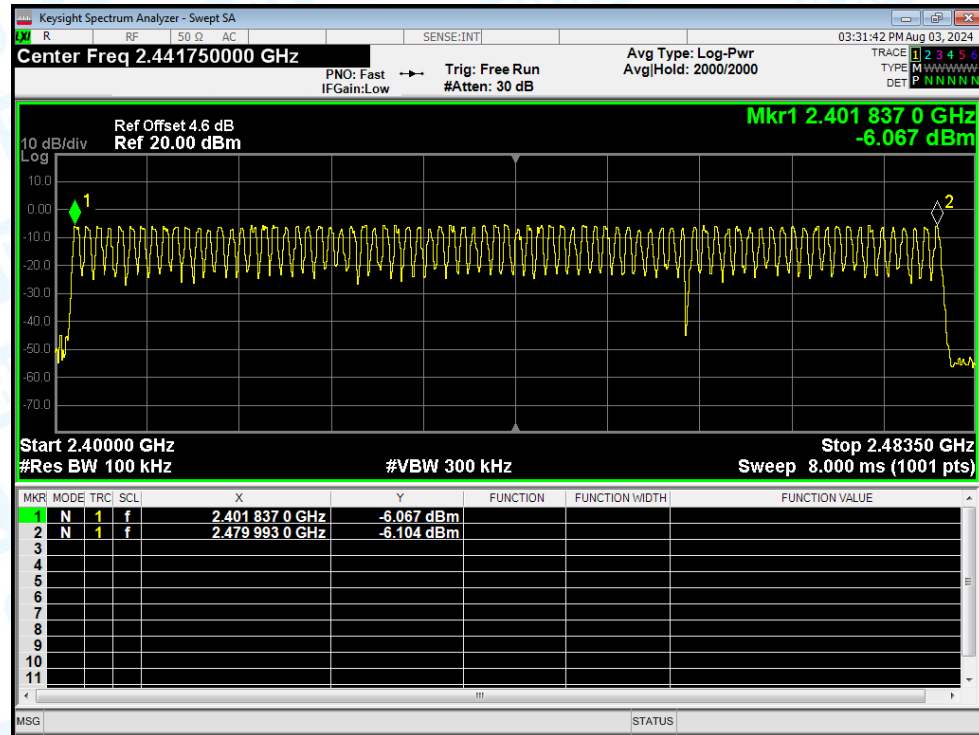


10. Number of Hopping Channel

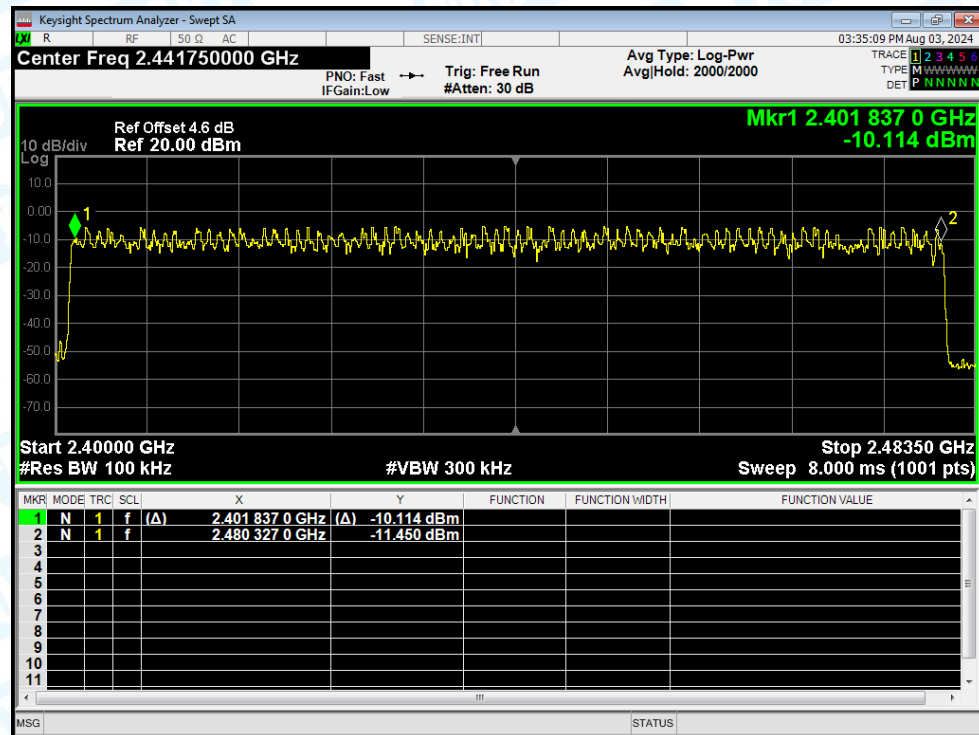
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH1	Ant1	79	15	Pass
NVNT	2-DH1	Ant1	79	15	Pass
NVNT	3-DH1	Ant1	79	15	Pass

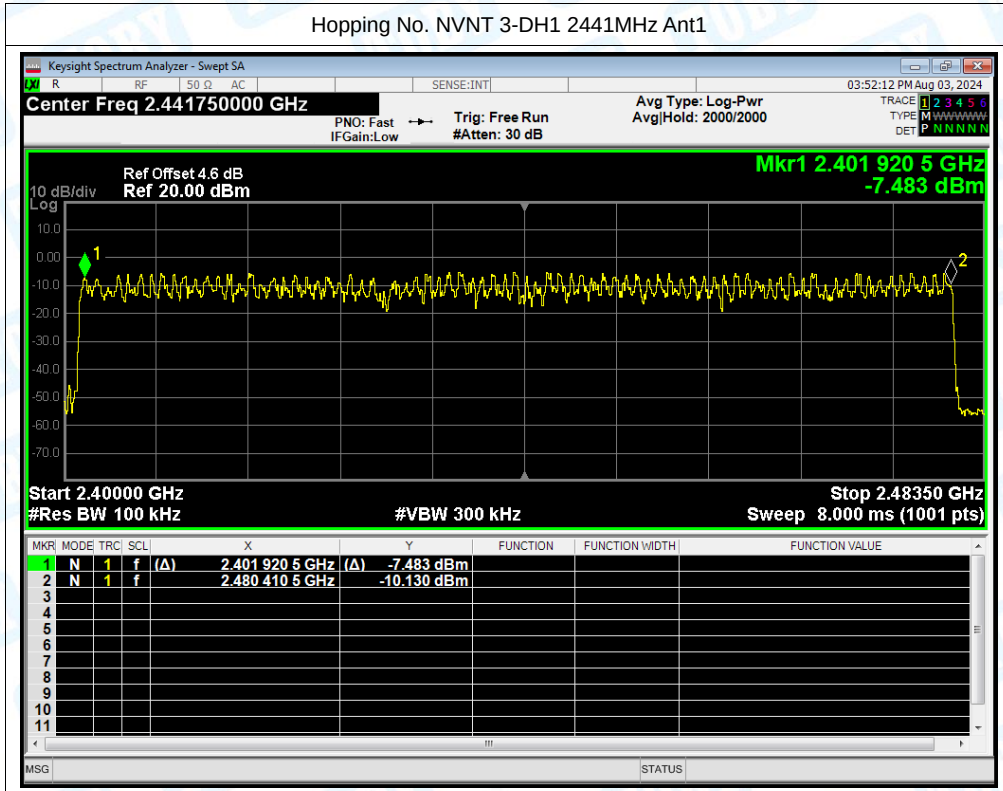
Test Graphs

Hopping No. NVNT 1-DH1 2441MHz Ant1



Hopping No. NVNT 2-DH1 2441MHz Ant1



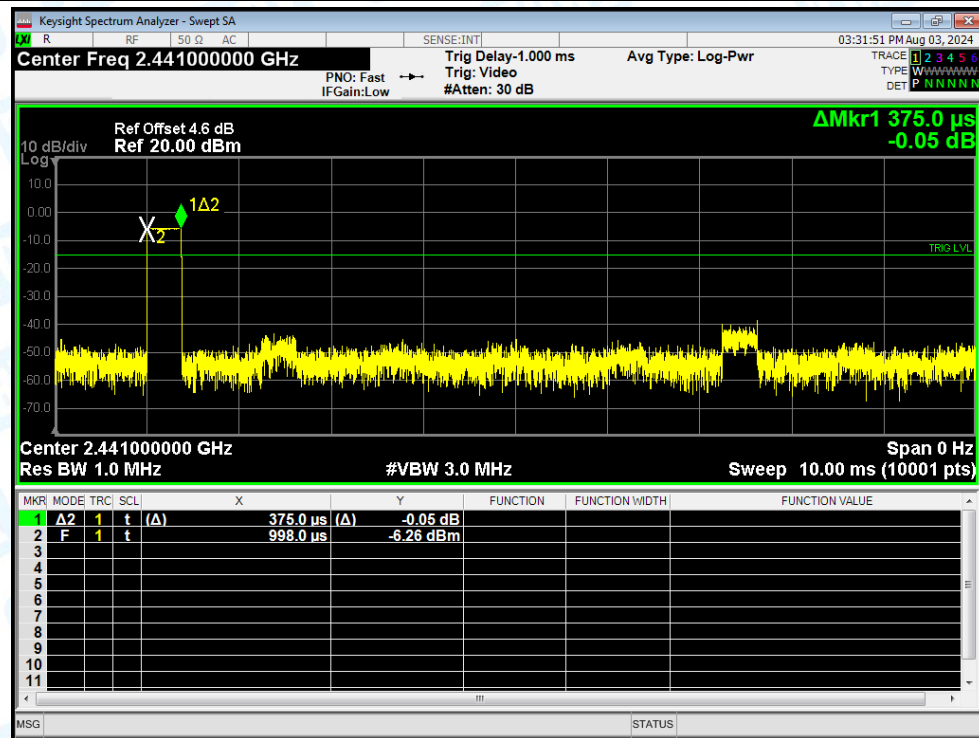


11. Dwell Time

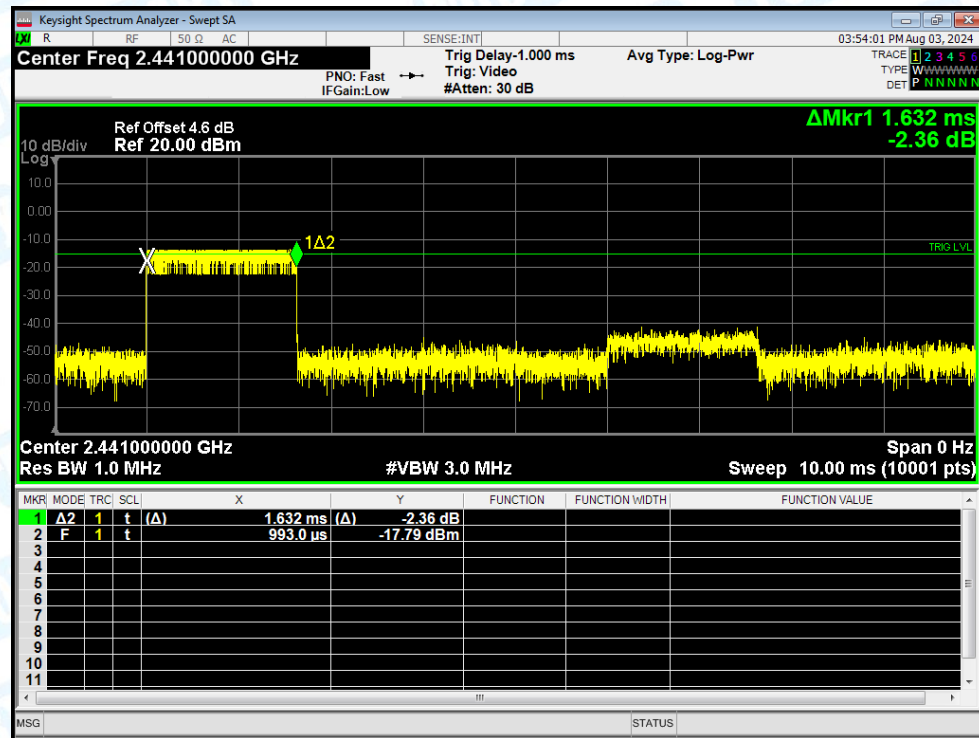
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	Ant1	0.375	120	31600	400	Pass
NVNT	1-DH3	2441	Ant1	1.632	261.12	31600	400	Pass
NVNT	1-DH5	2441	Ant1	2.88	307.2	31600	400	Pass
NVNT	2-DH1	2441	Ant1	0.386	123.52	31600	400	Pass
NVNT	2-DH3	2441	Ant1	1.629	260.64	31600	400	Pass
NVNT	2-DH5	2441	Ant1	2.886	307.84	31600	400	Pass
NVNT	3-DH1	2441	Ant1	0.386	123.52	31600	400	Pass
NVNT	3-DH3	2441	Ant1	1.636	261.76	31600	400	Pass
NVNT	3-DH5	2441	Ant1	2.888	308.053	31600	400	Pass

Test Graphs

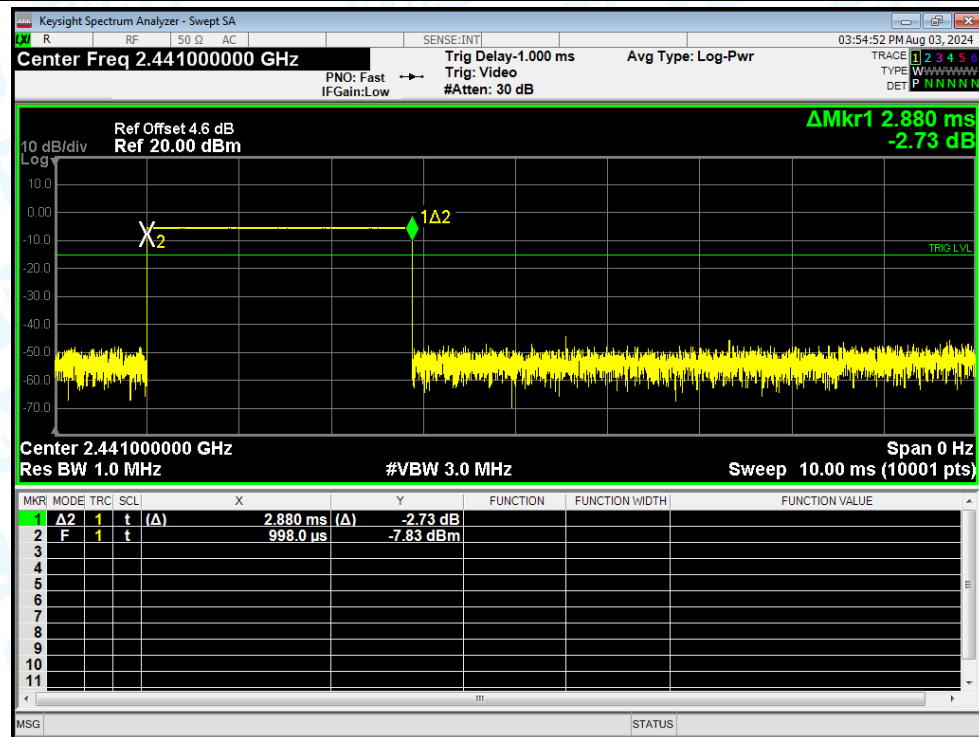
Dwell NVNT 1-DH1 2441MHz Ant1



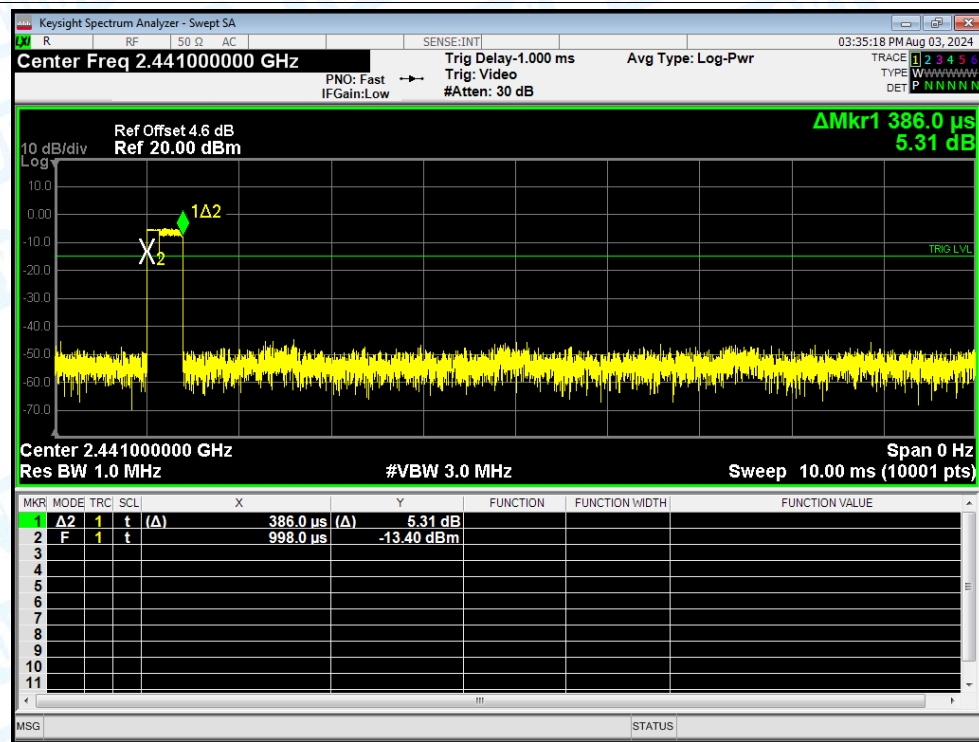
Dwell NVNT 1-DH3 2441MHz Ant1



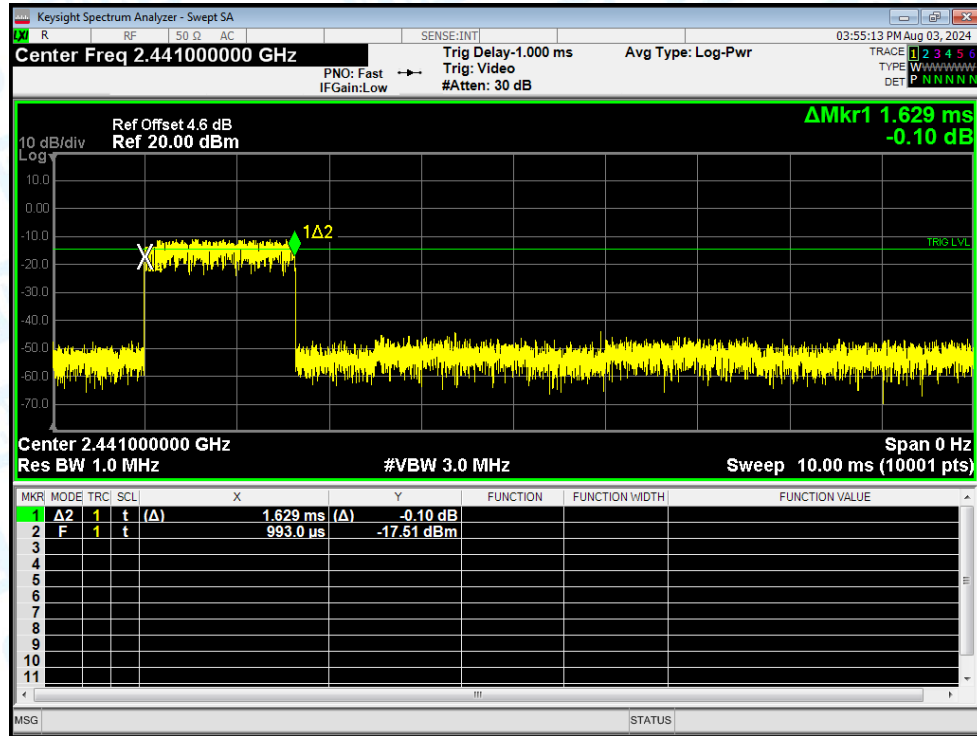
Dwell NVNT 1-DH5 2441MHz Ant1



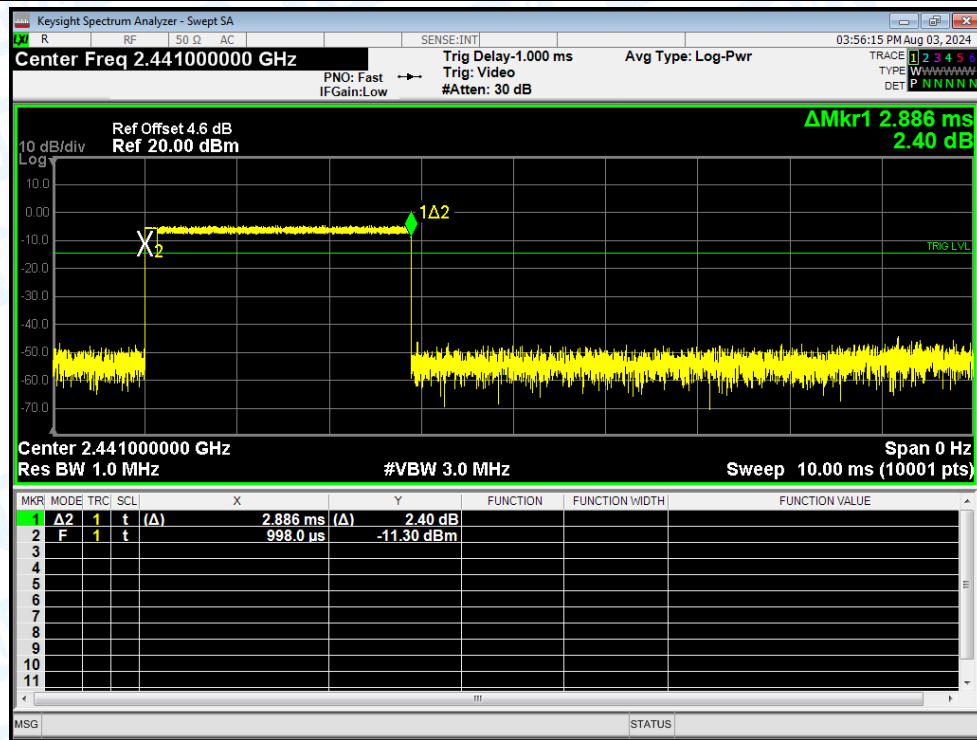
Dwell NVNT 2-DH1 2441MHz Ant1



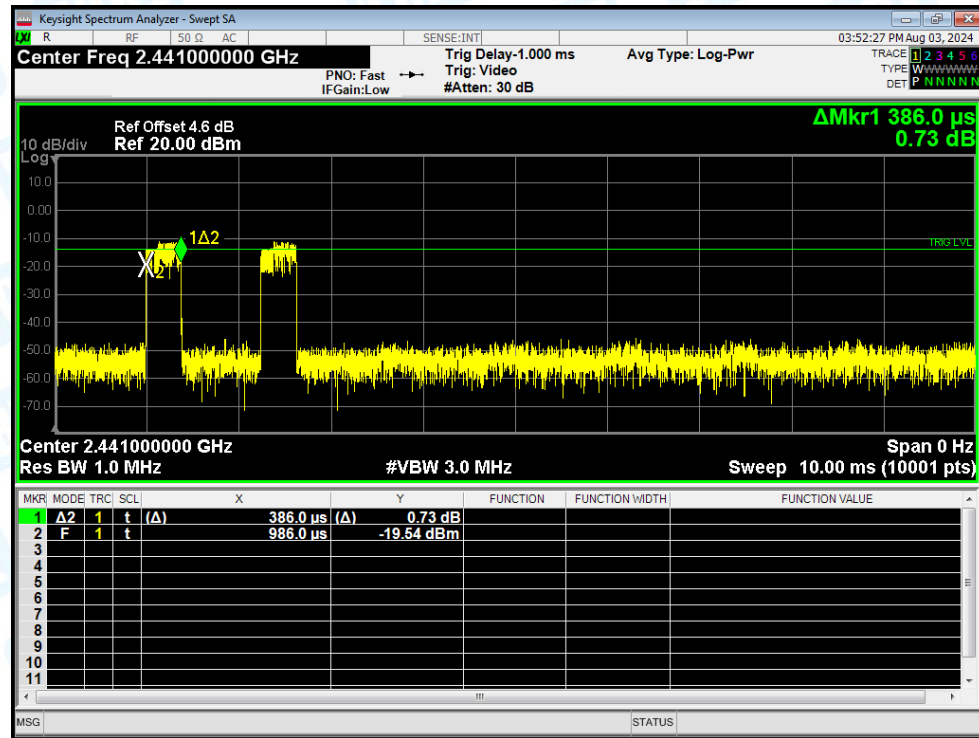
Dwell NVNT 2-DH3 2441MHz Ant1



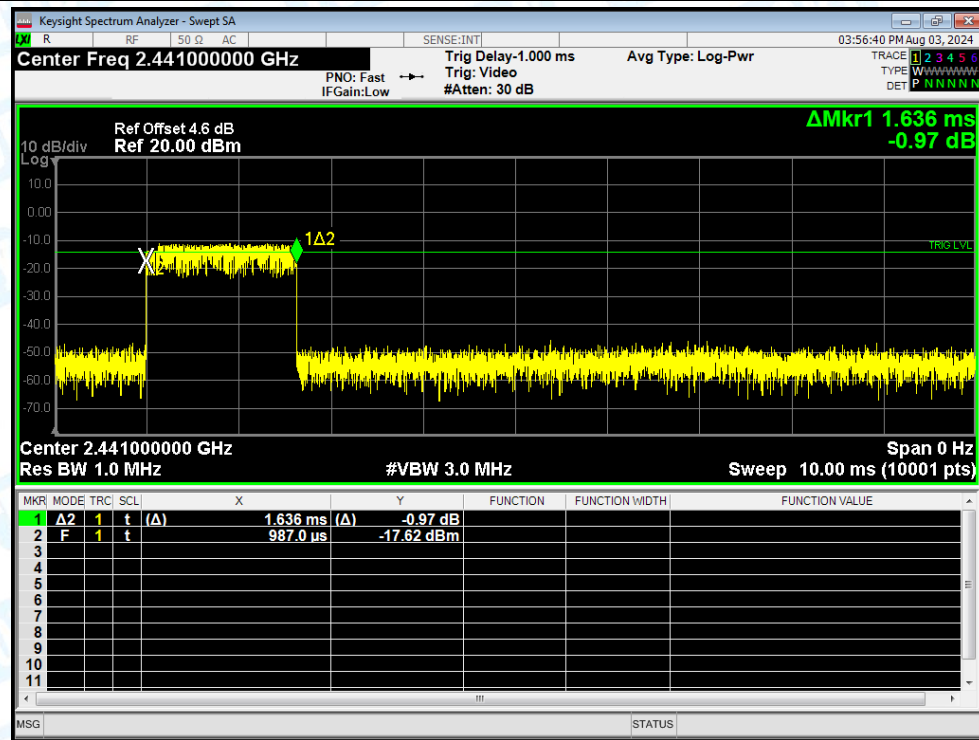
Dwell NVNT 2-DH5 2441MHz Ant1

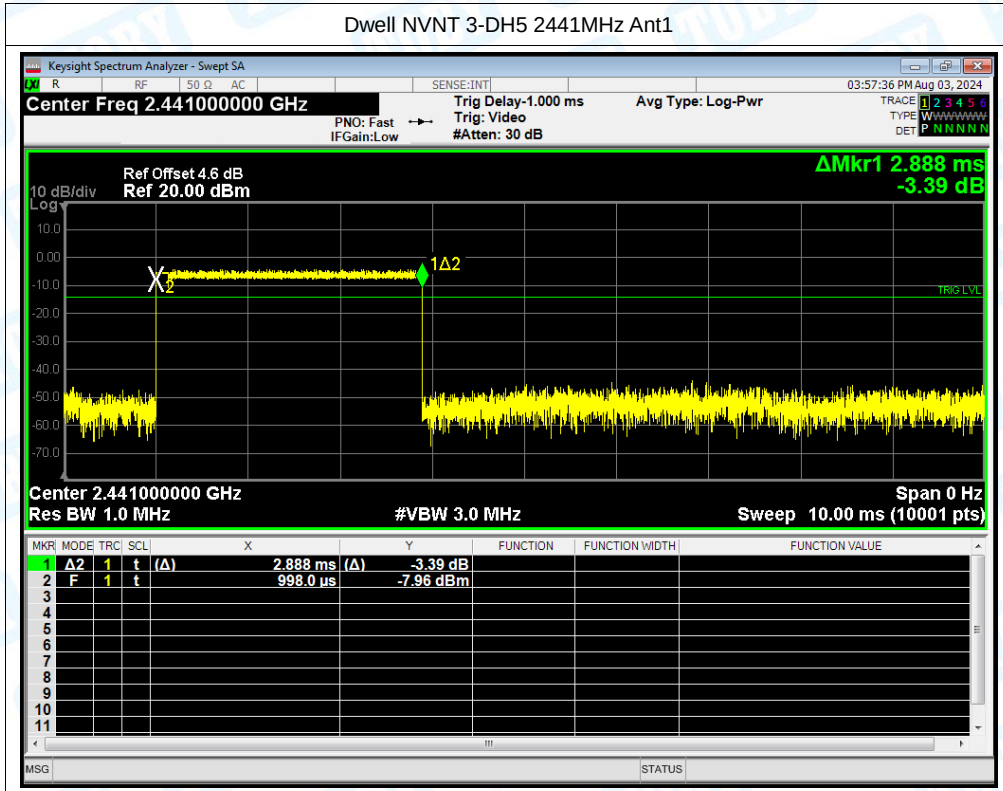


Dwell NVNT 3-DH1 2441MHz Ant1



Dwell NVNT 3-DH3 2441MHz Ant1





---- END OF REPORT ----