

RF Test Data for Bluetooth (Conducted Measurements)

General Description of EUT	
Product Name:	Mini Bluetooth digital power amplifier
Test Model:	M19 BT
Sample ID:	HC-C-202407-0104-02-01
Environmental Conditions	
Temperature:	24.6℃
Relative Humidity:	52.1%
Test Voltage:	DC 5V
Test Engineer:	Mike Yan
Note: For a more detailed features description, please refer to the report TBR-C-202407-0104-1 The report only show the worst case data.	

Contents

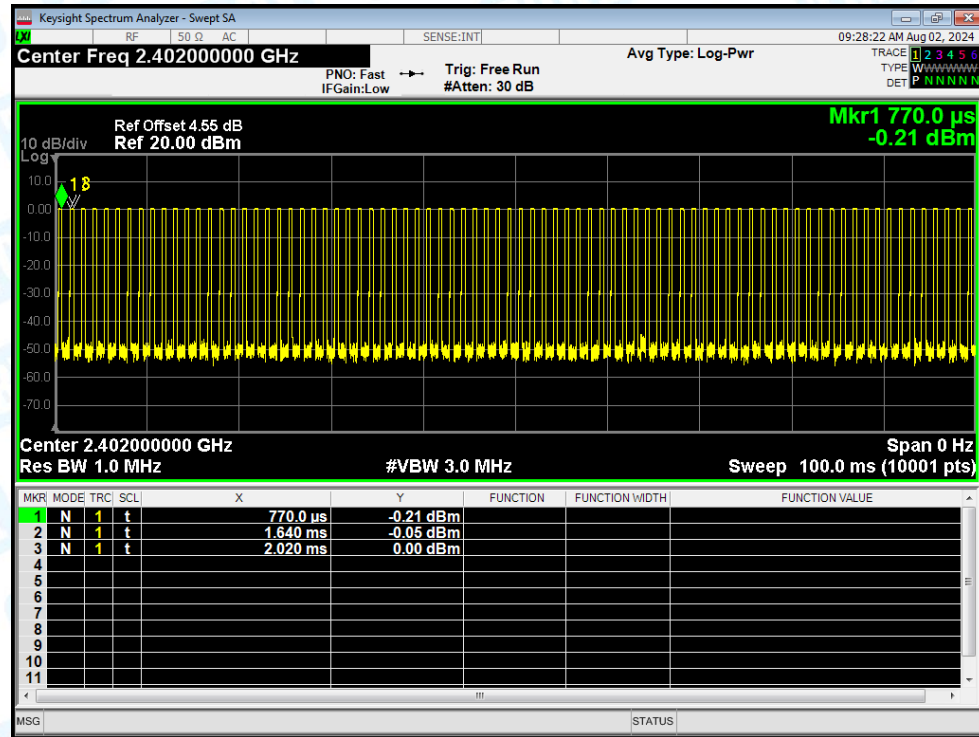
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1. Duty Cycle

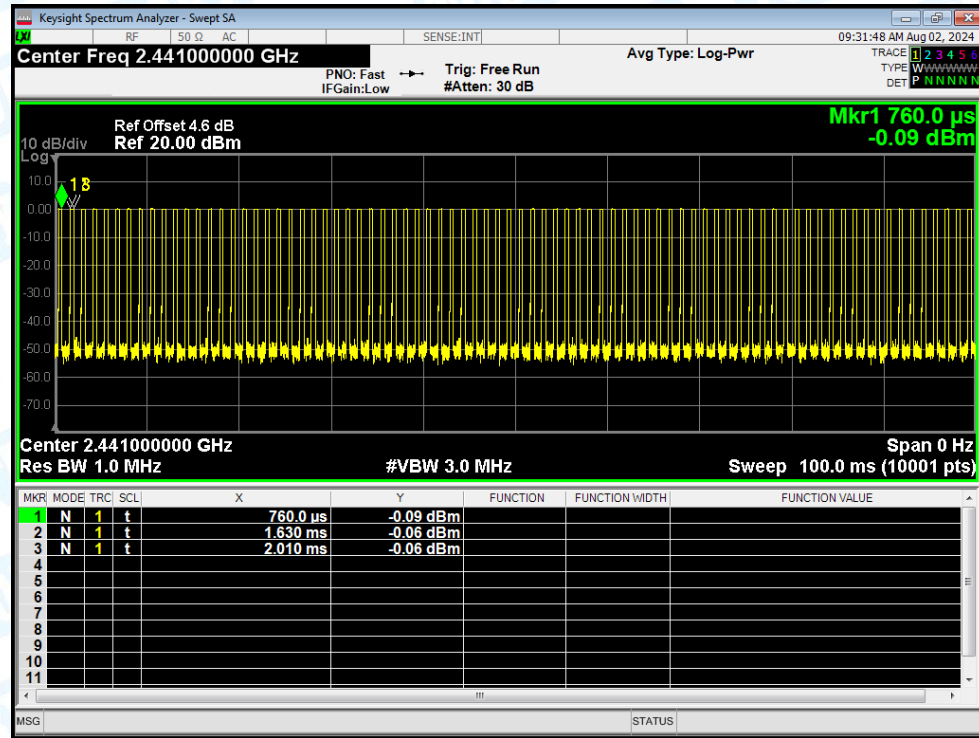
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH1	2402	Ant1	30.4	5.17	2.63
NVNT	1-DH1	2441	Ant1	30.4	5.17	2.63
NVNT	1-DH1	2480	Ant1	30.4	5.17	2.63
NVNT	2-DH1	2402	Ant1	30.4	5.17	2.63
NVNT	2-DH1	2441	Ant1	31.2	5.06	2.56
NVNT	2-DH1	2480	Ant1	31.2	5.06	2.56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

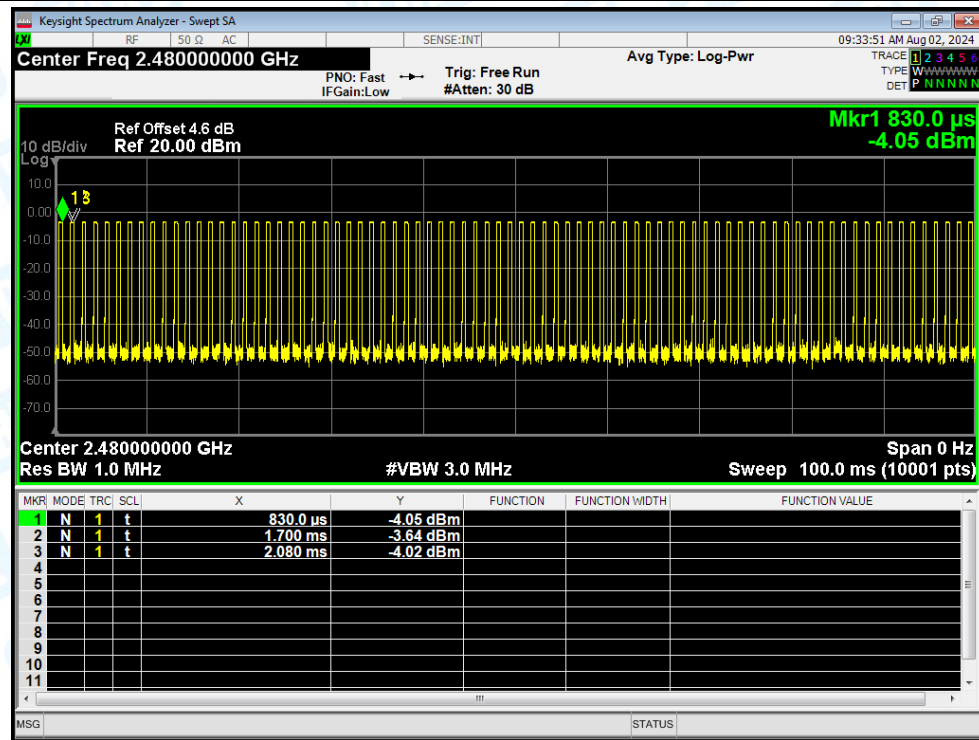
Duty Cycle NVNT 1-DH1 2402MHz Ant1



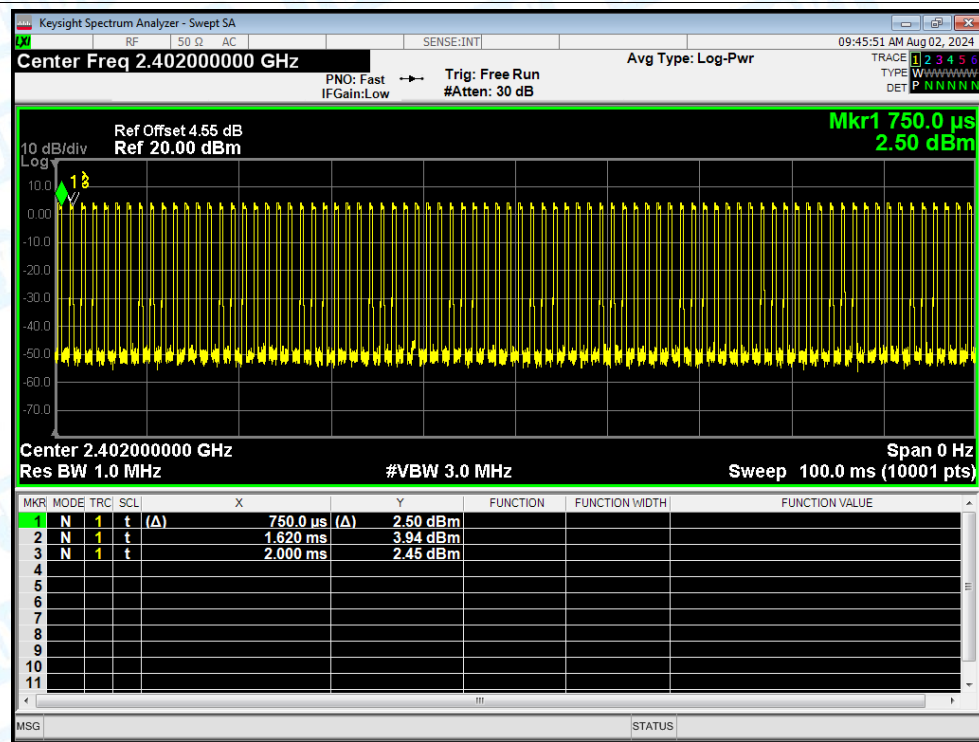
Duty Cycle NVNT 1-DH1 2441MHz Ant1



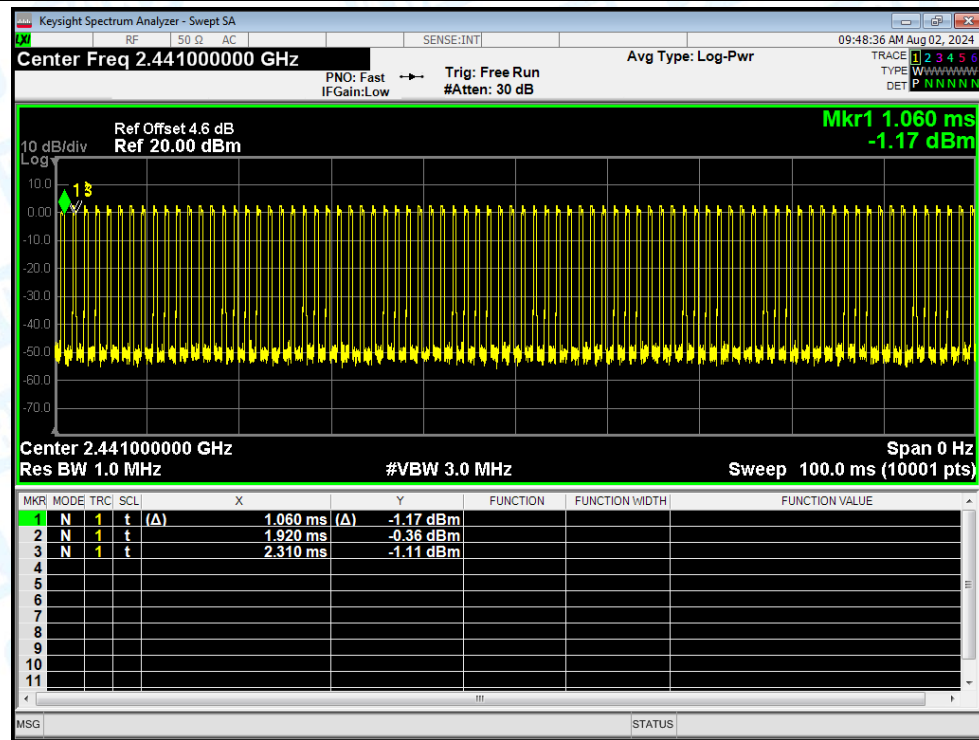
Duty Cycle NVNT 1-DH1 2480MHz Ant1



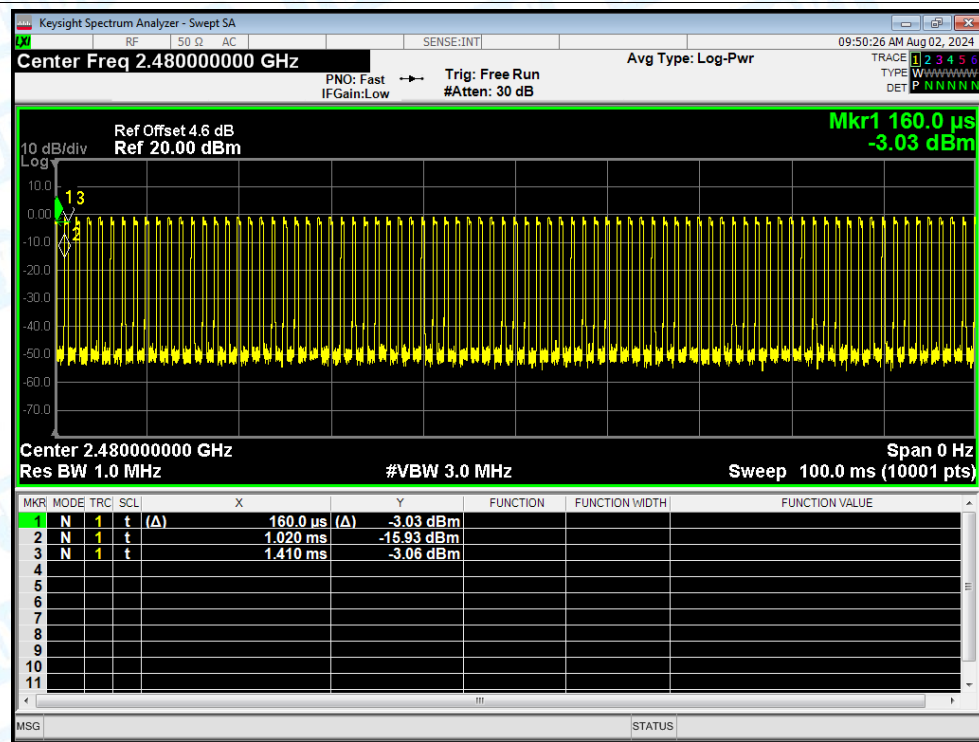
Duty Cycle NVNT 2-DH1 2402MHz Ant1



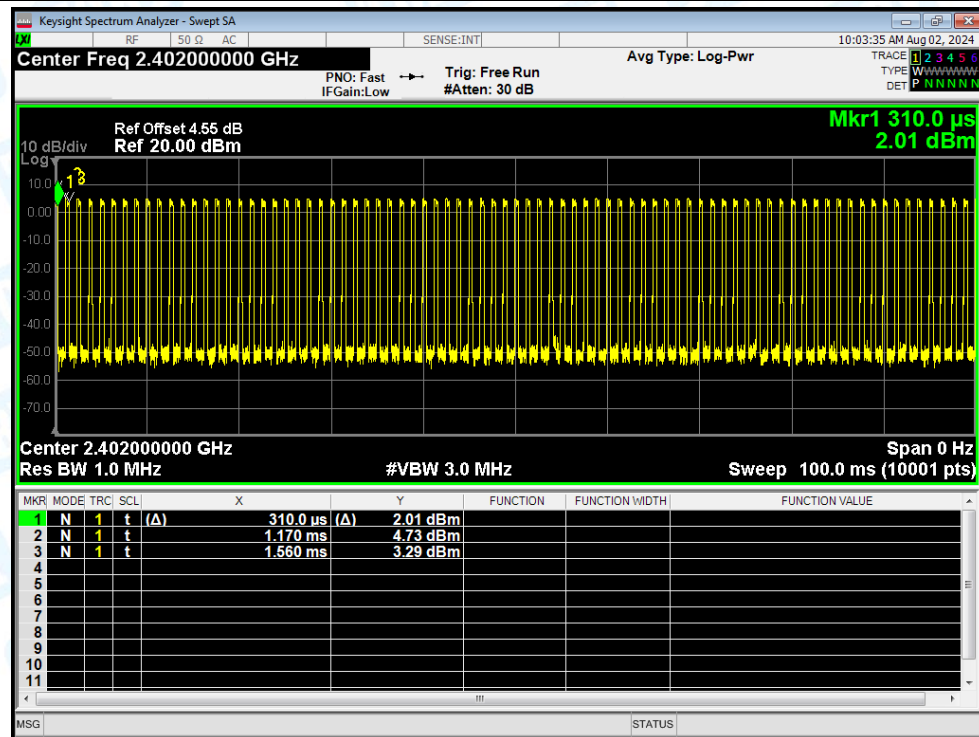
Duty Cycle NVNT 2-DH1 2441MHz Ant1



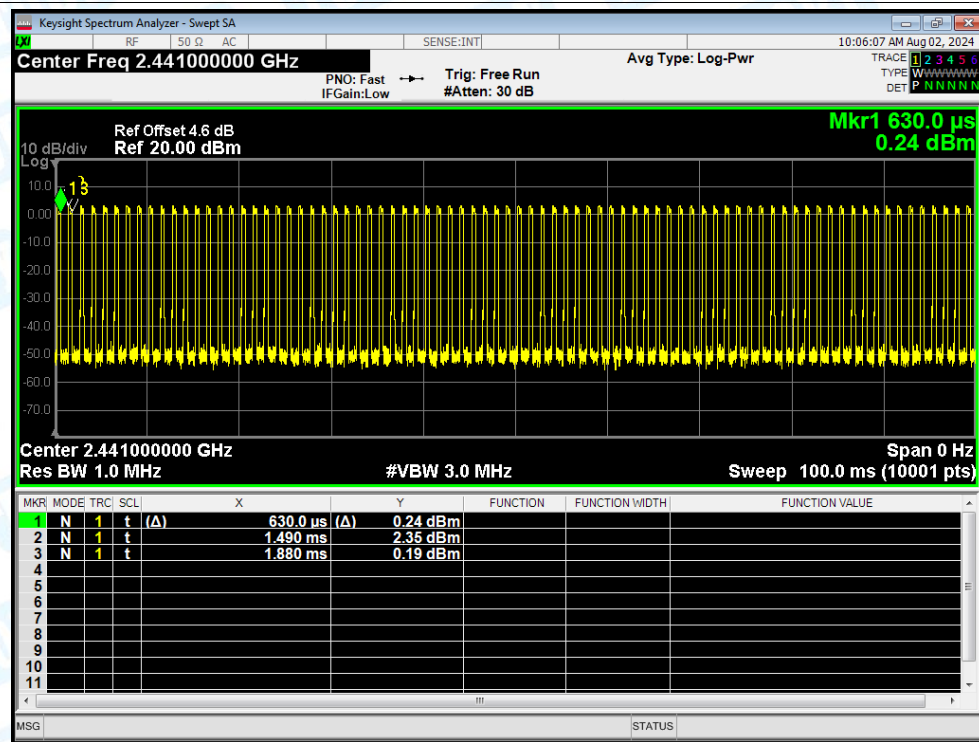
Duty Cycle NVNT 2-DH1 2480MHz Ant1

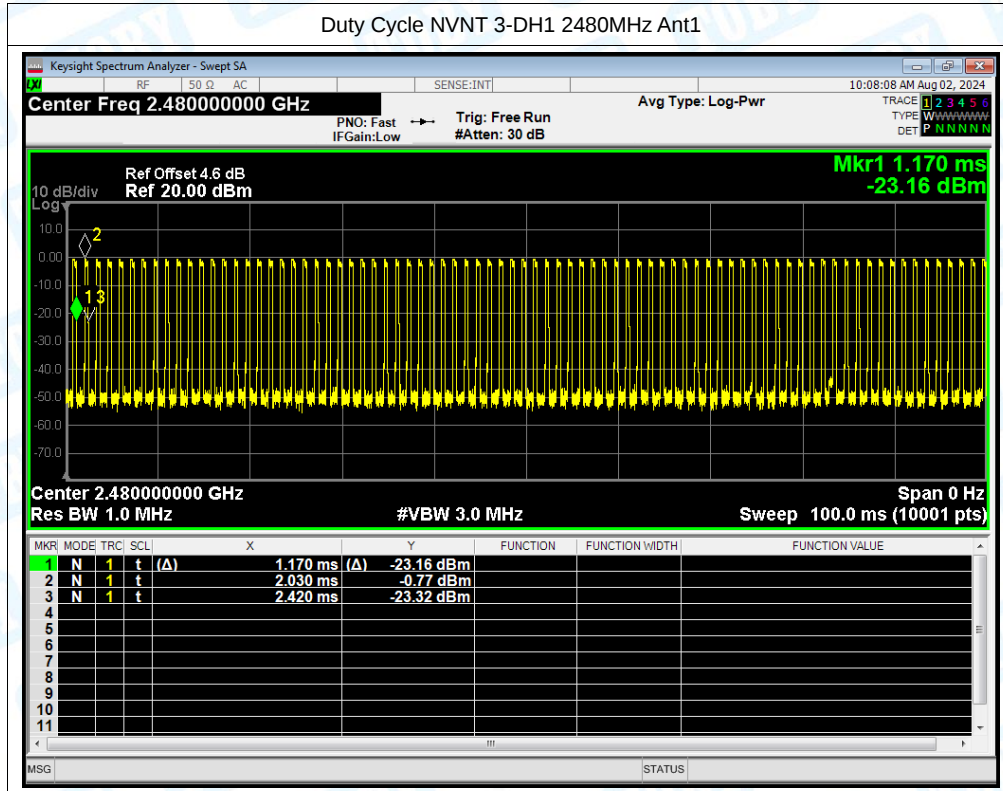


Duty Cycle NVNT 3-DH1 2402MHz Ant1



Duty Cycle NVNT 3-DH1 2441MHz Ant1



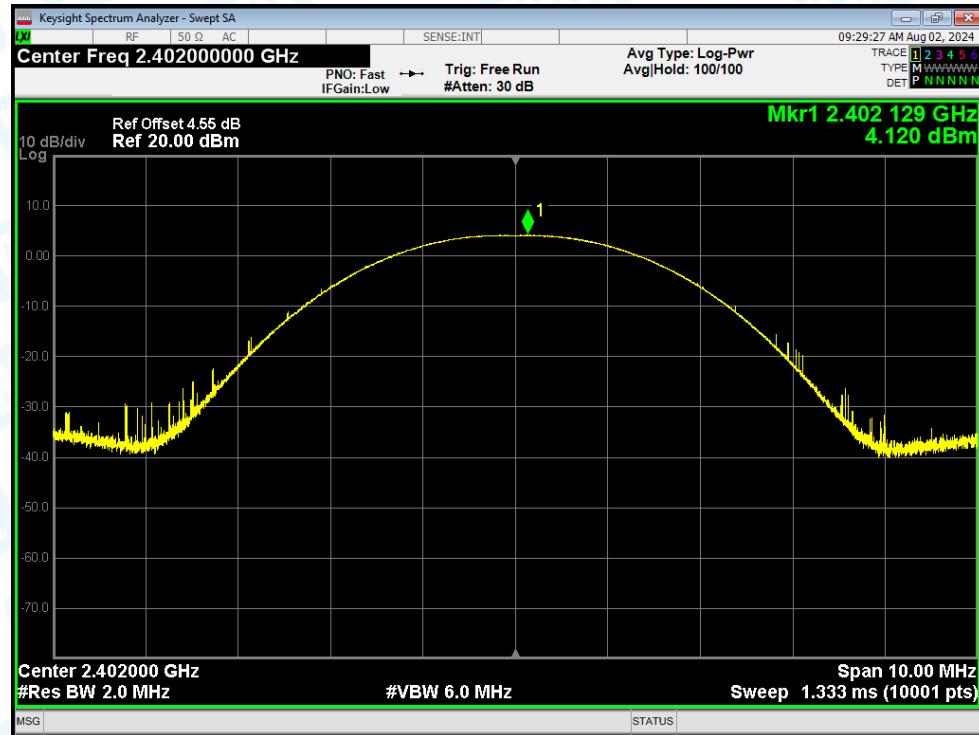


2. Maximum Conducted Output Power

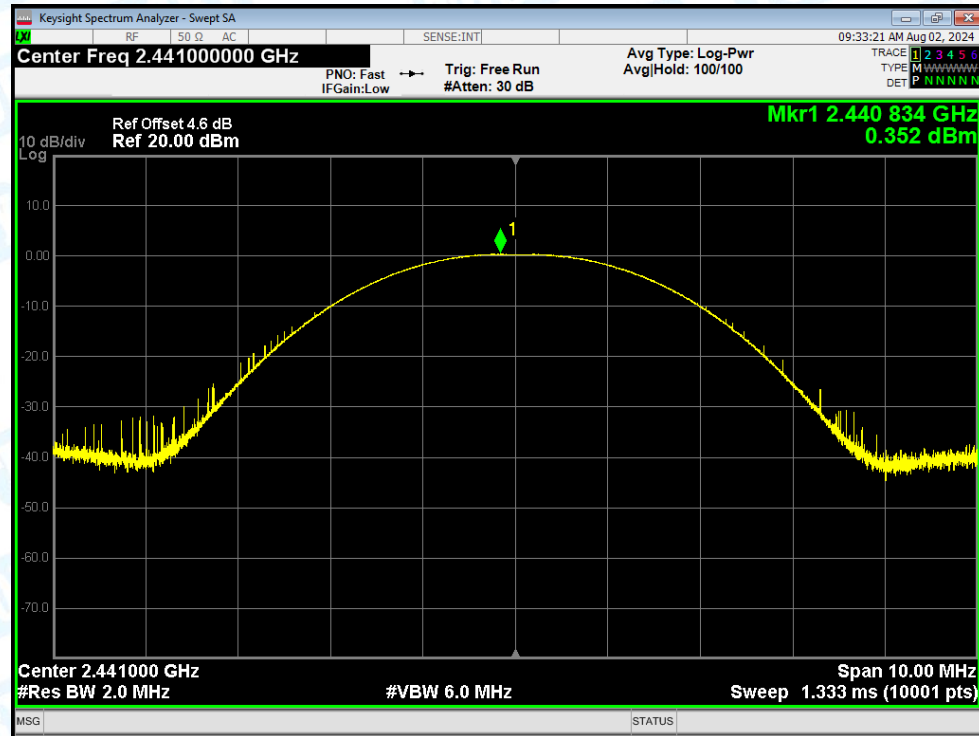
Condition	Mode	Frequency (MHz)	Antenna	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH1	2402	Ant1	4.12	21	Pass
NVNT	1-DH1	2441	Ant1	0.352	21	Pass
NVNT	1-DH1	2480	Ant1	-1.165	21	Pass
NVNT	1-DH3	2441	Ant1	2.999	21	Pass
NVNT	1-DH5	2441	Ant1	2.892	21	Pass
NVNT	2-DH1	2402	Ant1	4.268	21	Pass
NVNT	2-DH1	2441	Ant1	2.506	21	Pass
NVNT	2-DH1	2480	Ant1	-0.925	21	Pass
NVNT	2-DH3	2441	Ant1	2.934	21	Pass
NVNT	2-DH5	2441	Ant1	2.929	21	Pass
NVNT	3-DH1	2402	Ant1	4.961	21	Pass
NVNT	3-DH1	2441	Ant1	3.118	21	Pass
NVNT	3-DH1	2480	Ant1	-0.47	21	Pass
NVNT	3-DH3	2441	Ant1	3.019	21	Pass
NVNT	3-DH5	2441	Ant1	2.943	21	Pass

Test Graphs

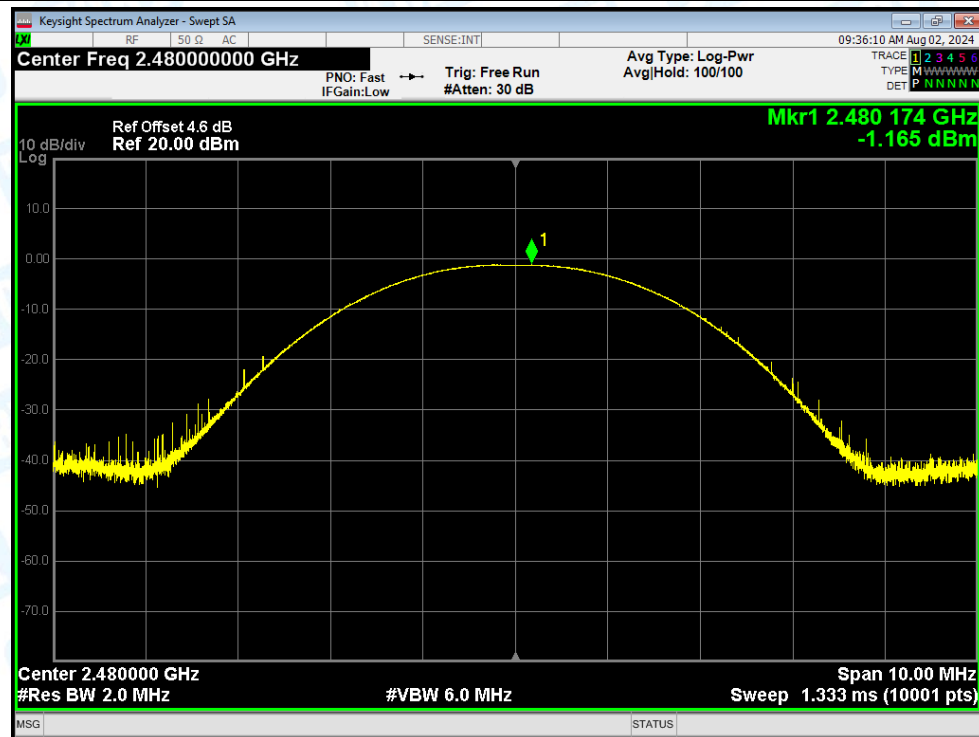
Power NVNT 1-DH1 2402MHz Ant1



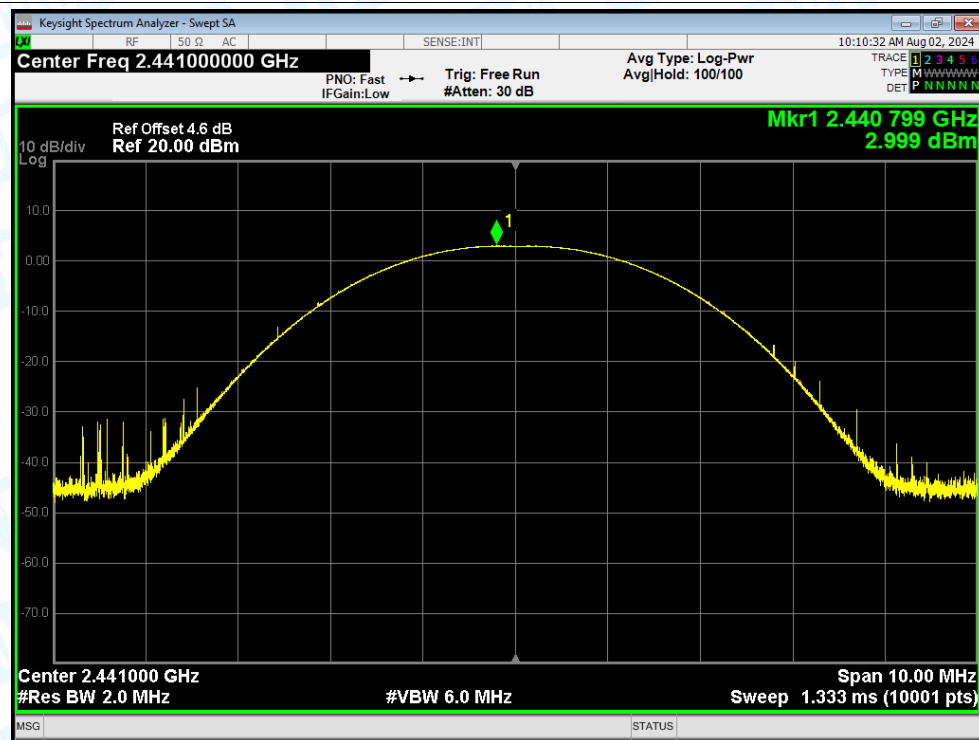
Power NVNT 1-DH1 2441MHz Ant1

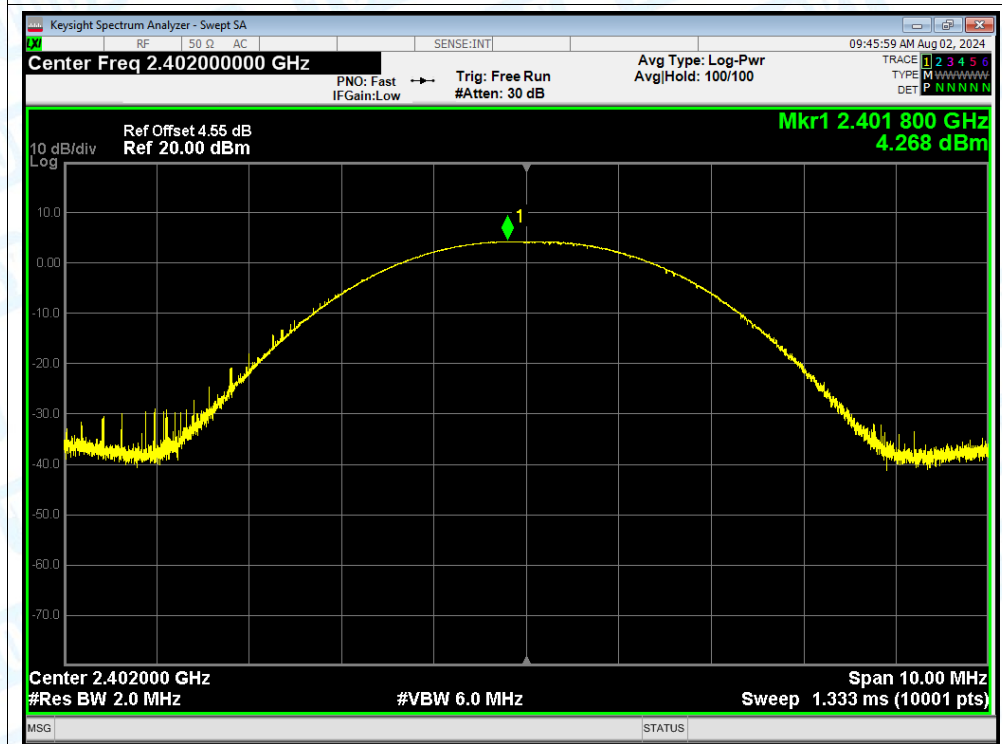


Power NVNT 1-DH1 2480MHz Ant1

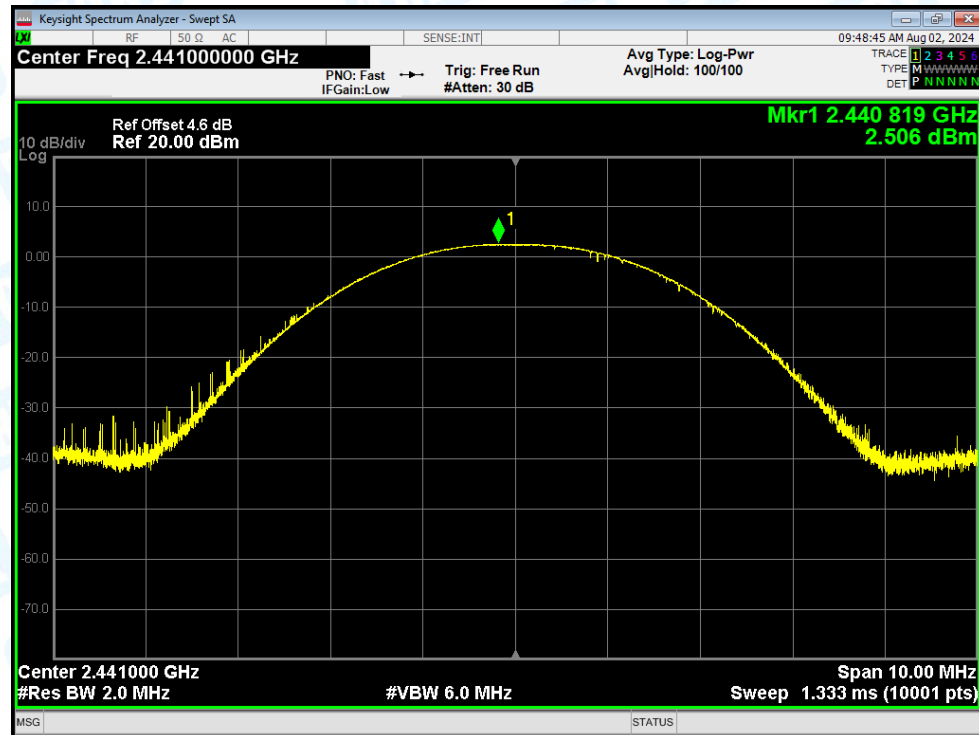


Power NVNT 1-DH3 2441MHz Ant1

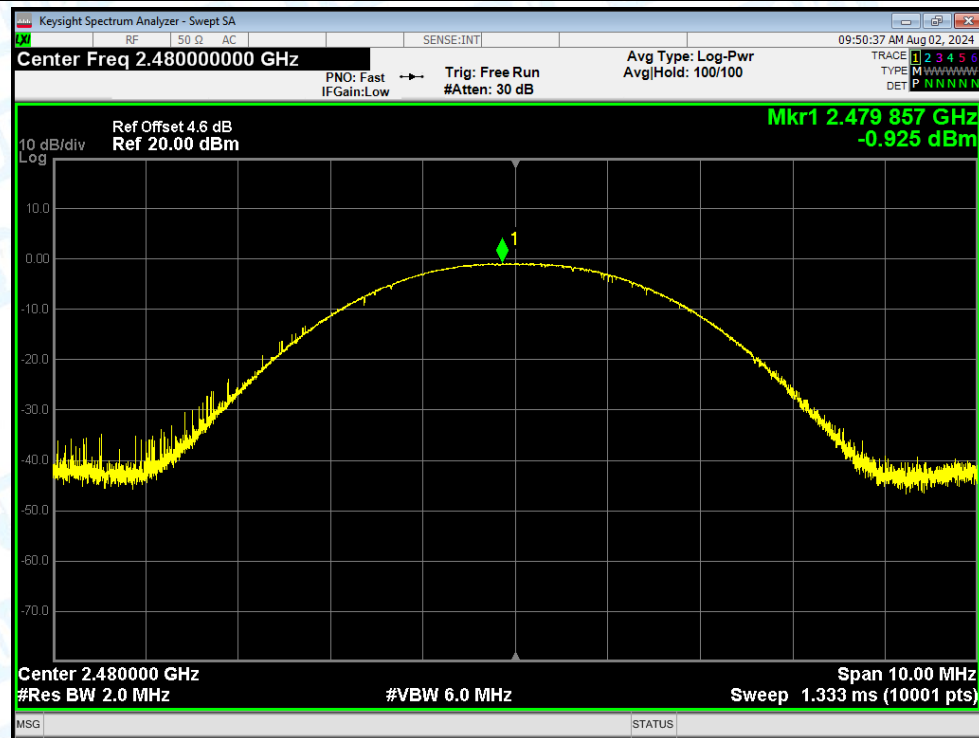




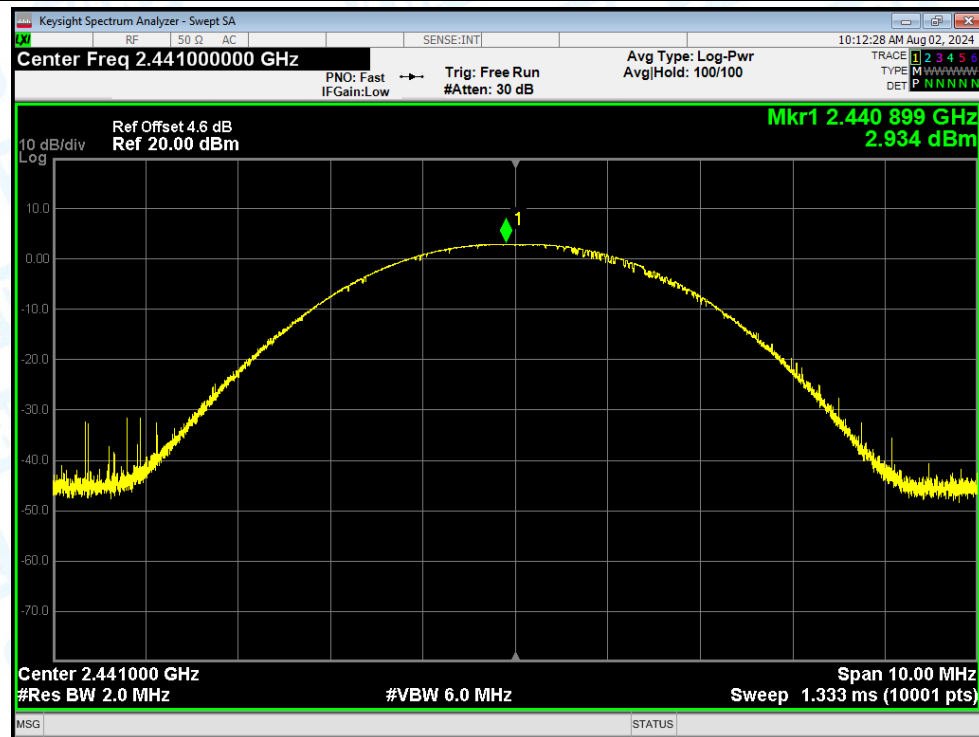
Power NVNT 2-DH1 2441MHz Ant1



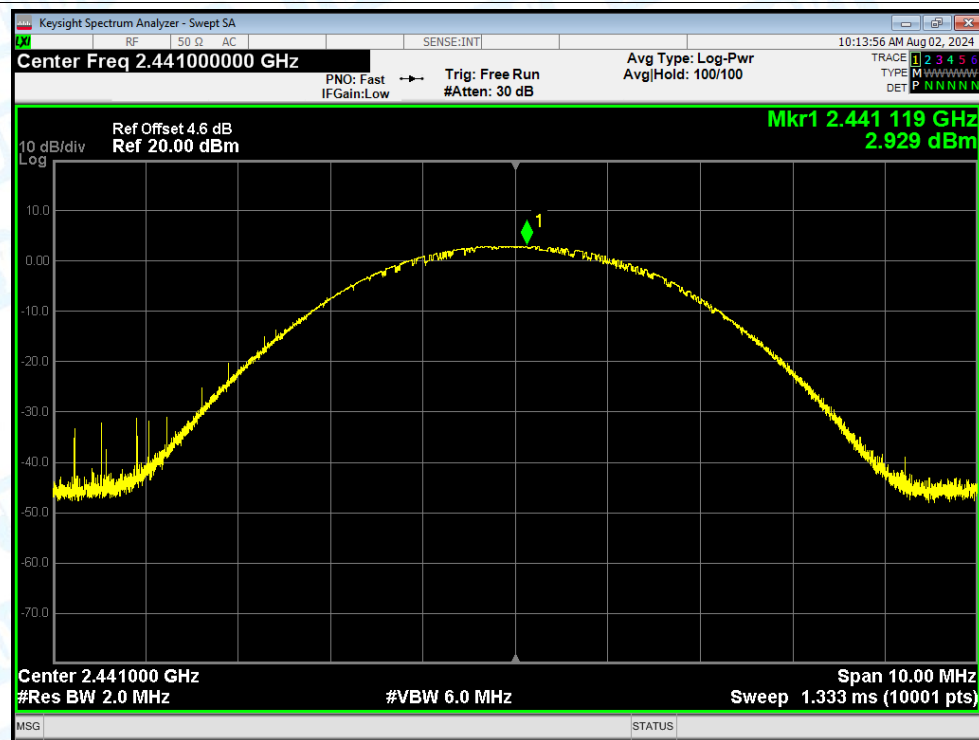
Power NVNT 2-DH1 2480MHz Ant1



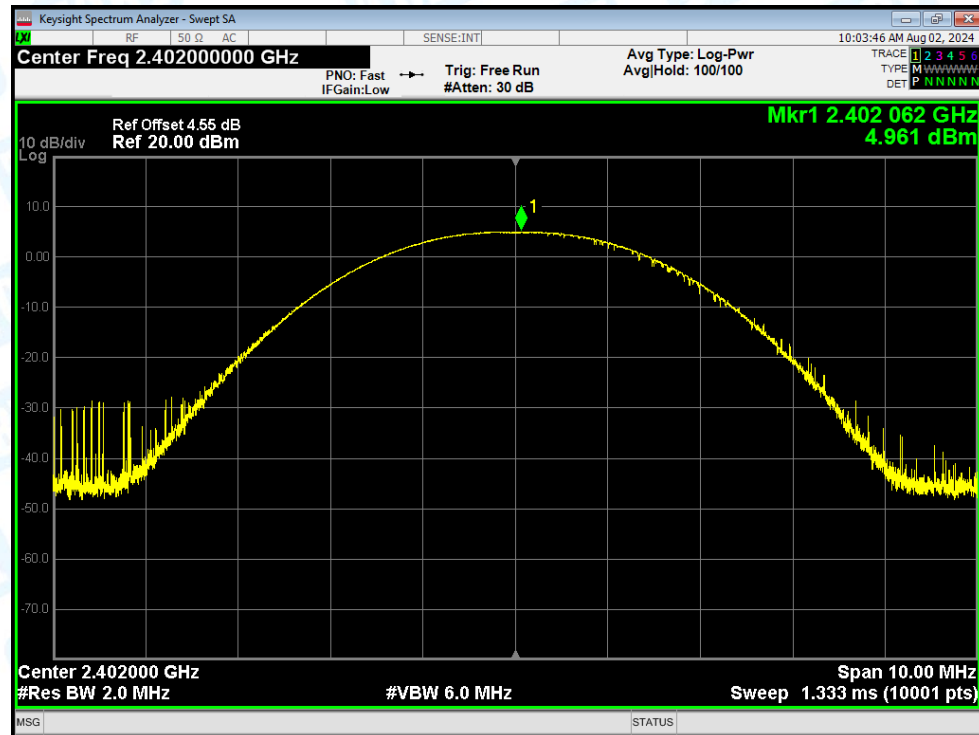
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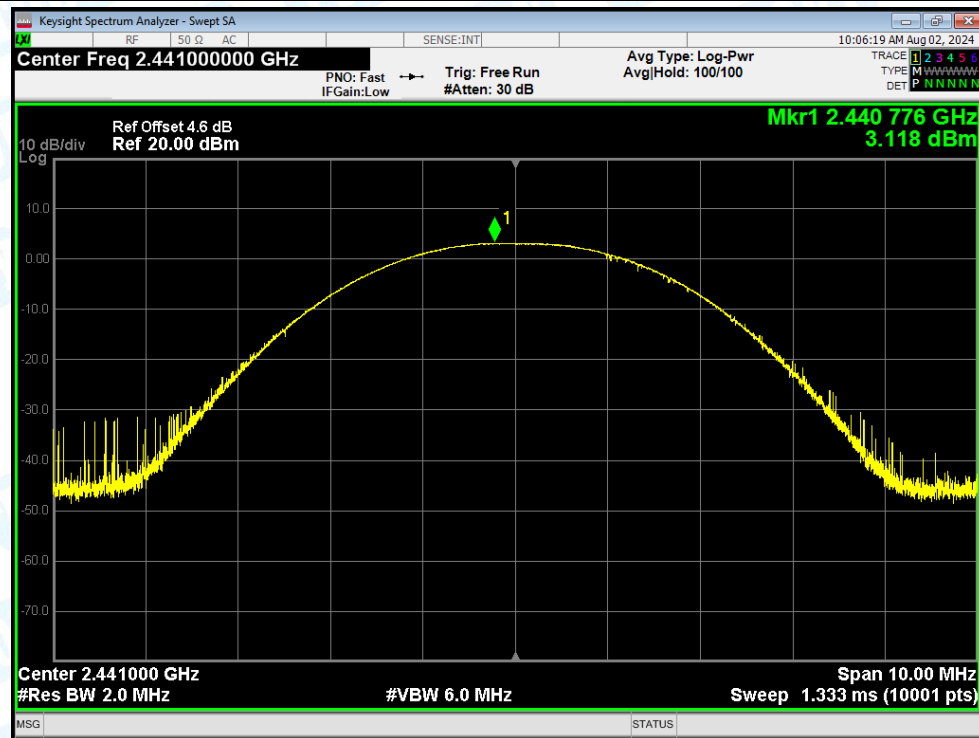
Power NVNT 2-DH5 2441MHz Ant1



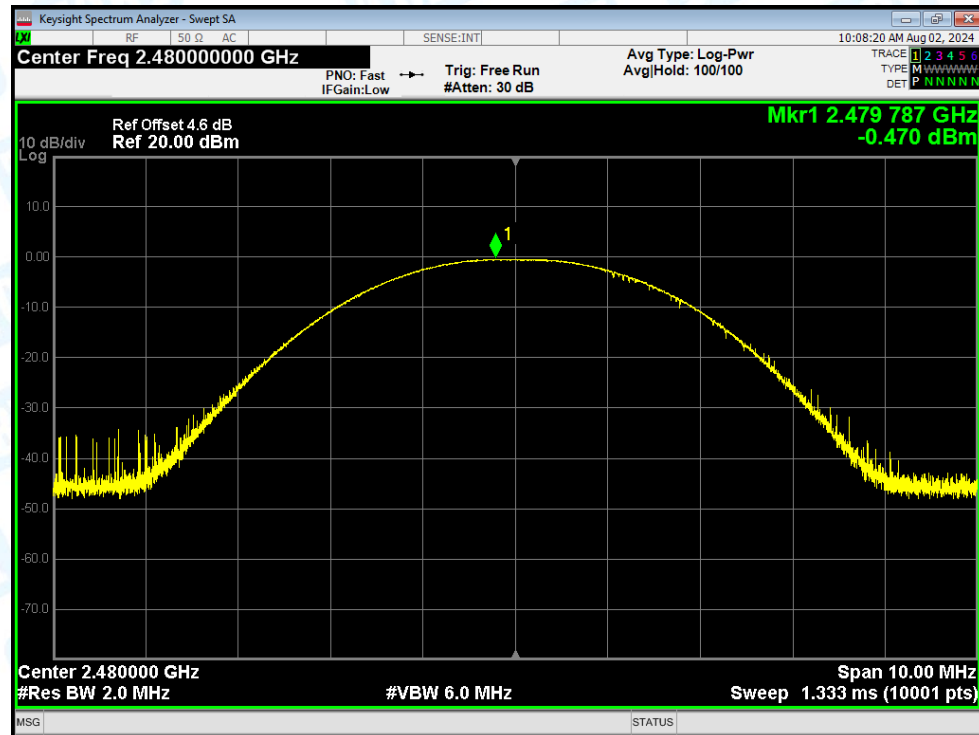
Power NVNT 3-DH1 2402MHz Ant1



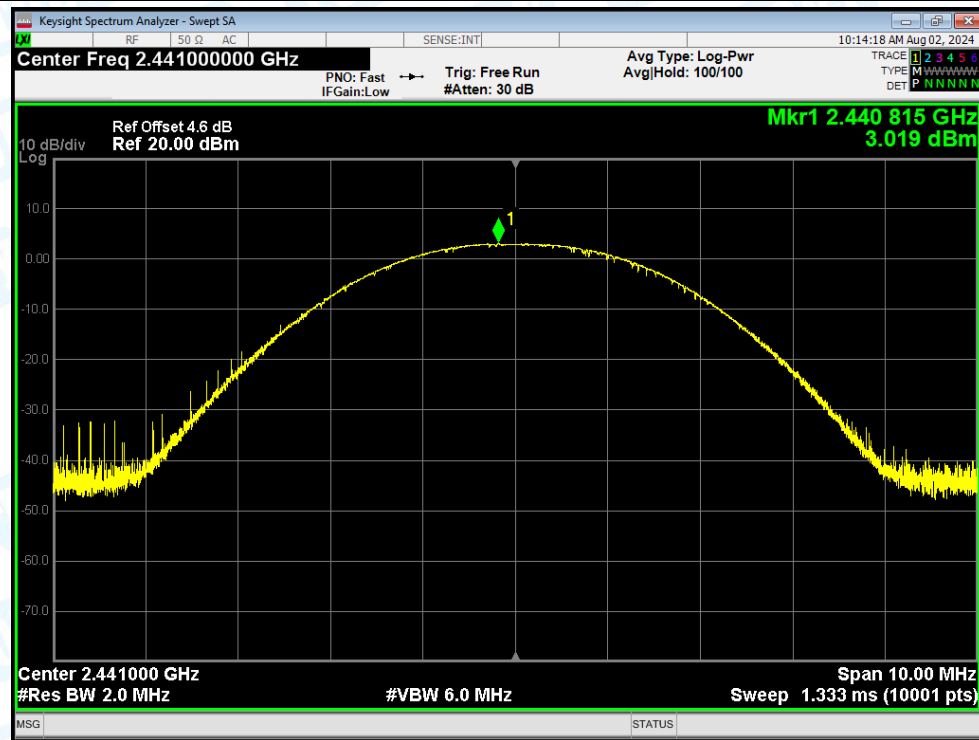
Power NVNT 3-DH1 2441MHz Ant1

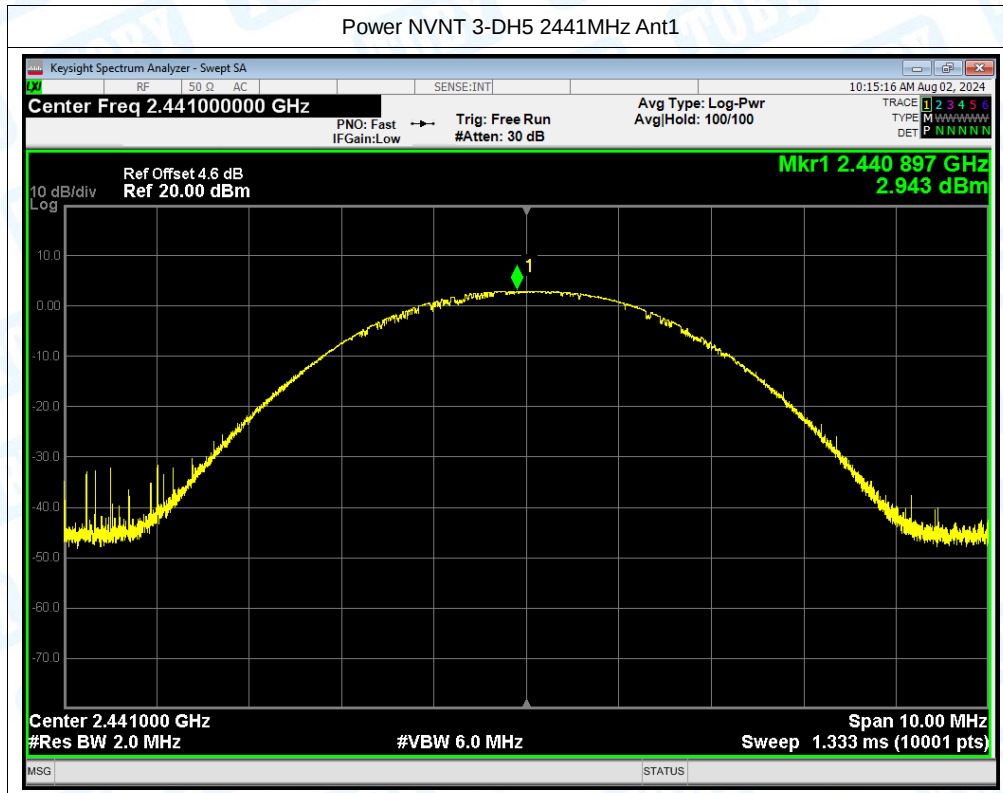


Power NVNT 3-DH1 2480MHz Ant1



Power NVNT 3-DH3 2441MHz Ant1



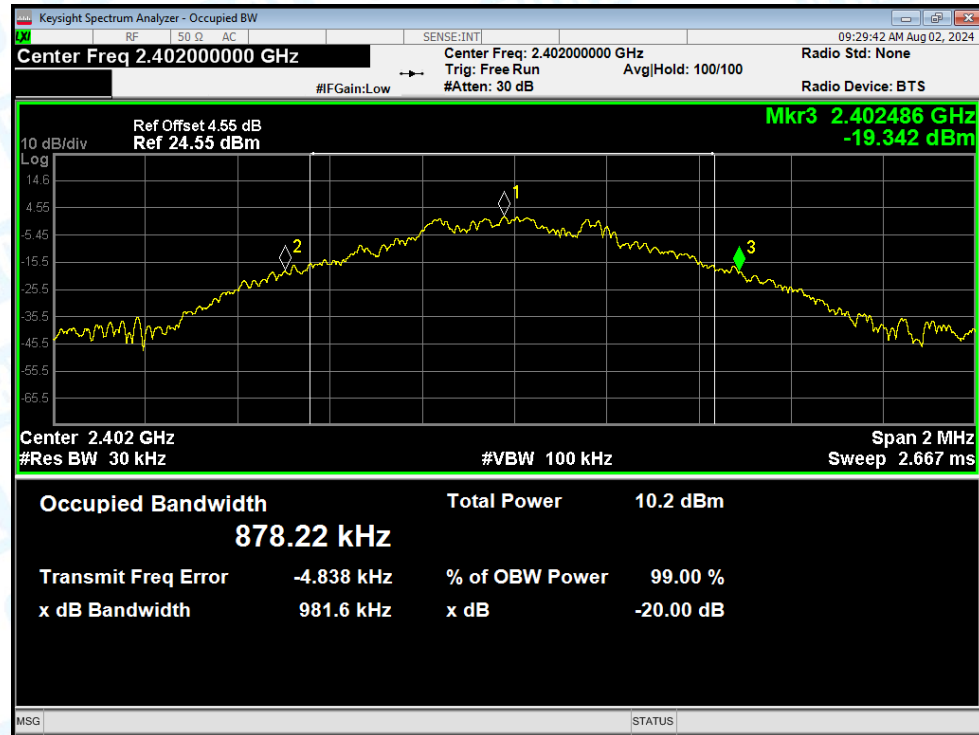


3. -20dB Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH1	2402	Ant1	0.98	0	Pass
NVNT	1-DH1	2441	Ant1	0.96	0	Pass
NVNT	1-DH1	2480	Ant1	0.96	0	Pass
NVNT	2-DH1	2402	Ant1	1.28	0	Pass
NVNT	2-DH1	2441	Ant1	1.26	0	Pass
NVNT	2-DH1	2480	Ant1	1.27	0	Pass
NVNT	3-DH1	2402	Ant1	1.22	0	Pass
NVNT	3-DH1	2441	Ant1	1.24	0	Pass
NVNT	3-DH1	2480	Ant1	1.24	0	Pass

Test Graphs

-20dB Bandwidth NVNT 1-DH1 2402MHz Ant1



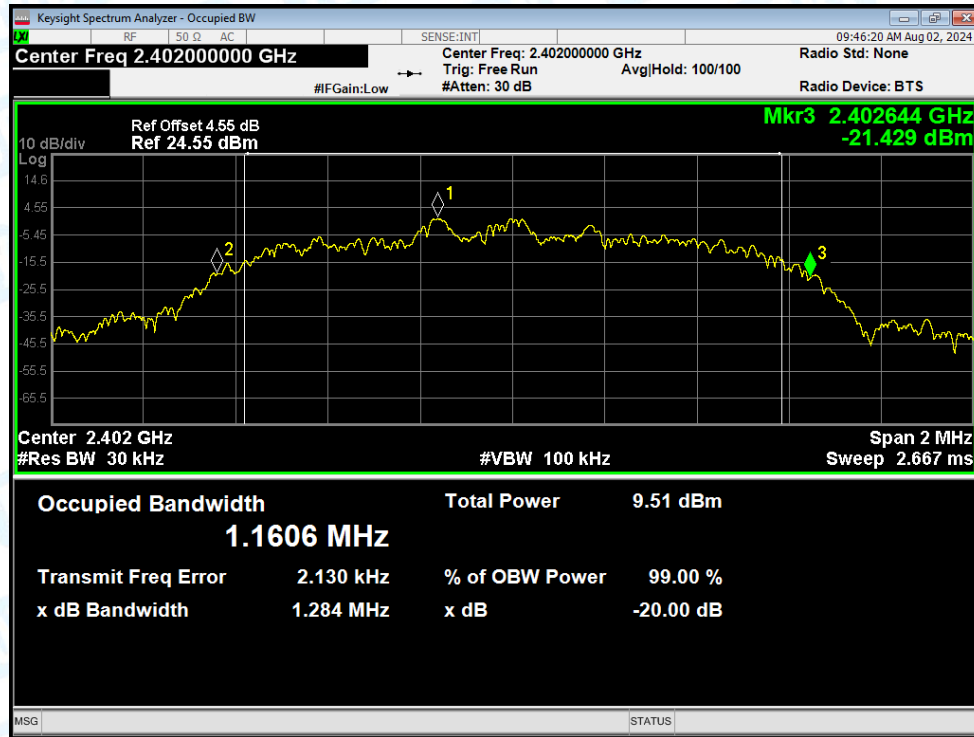
-20dB Bandwidth NVNT 1-DH1 2441MHz Ant1



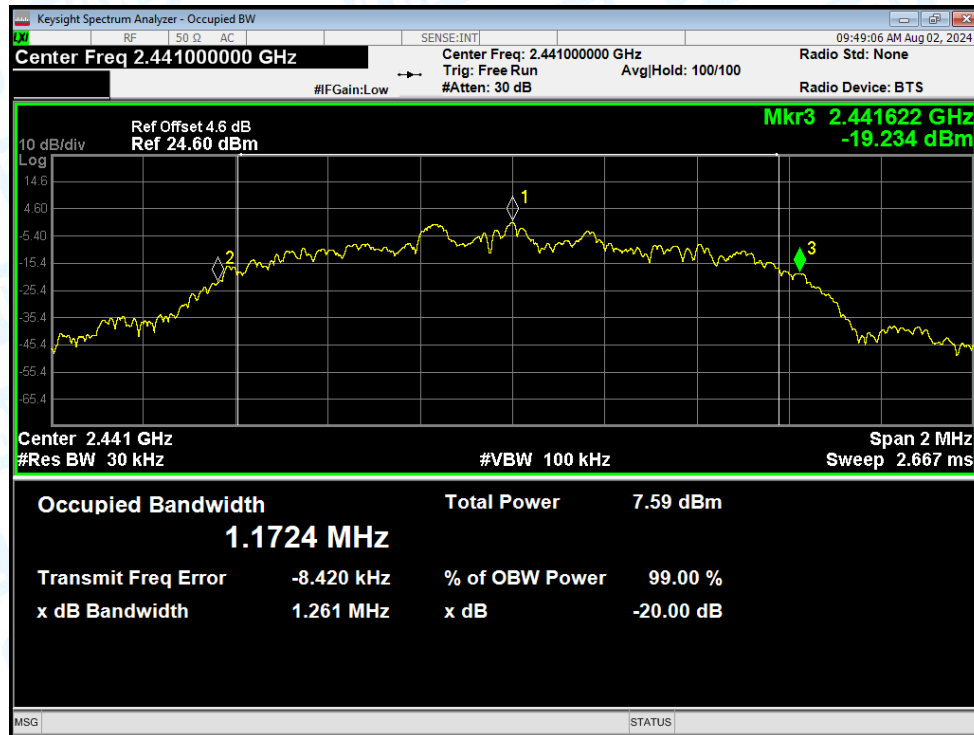
-20dB Bandwidth NVNT 1-DH1 2480MHz Ant1



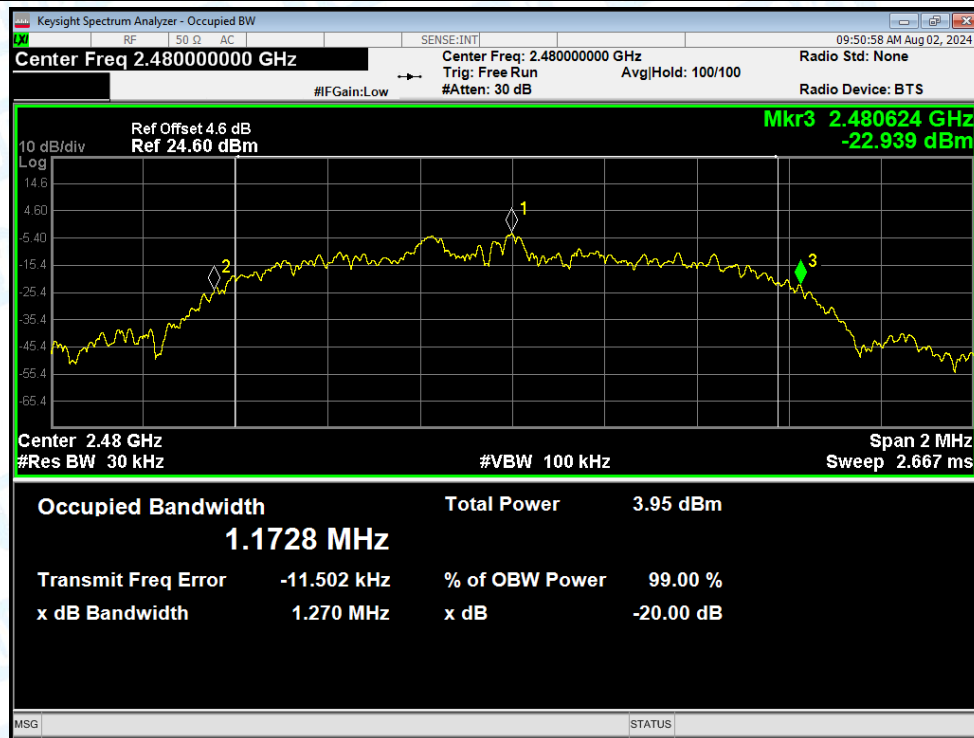
-20dB Bandwidth NVNT 2-DH1 2402MHz Ant1



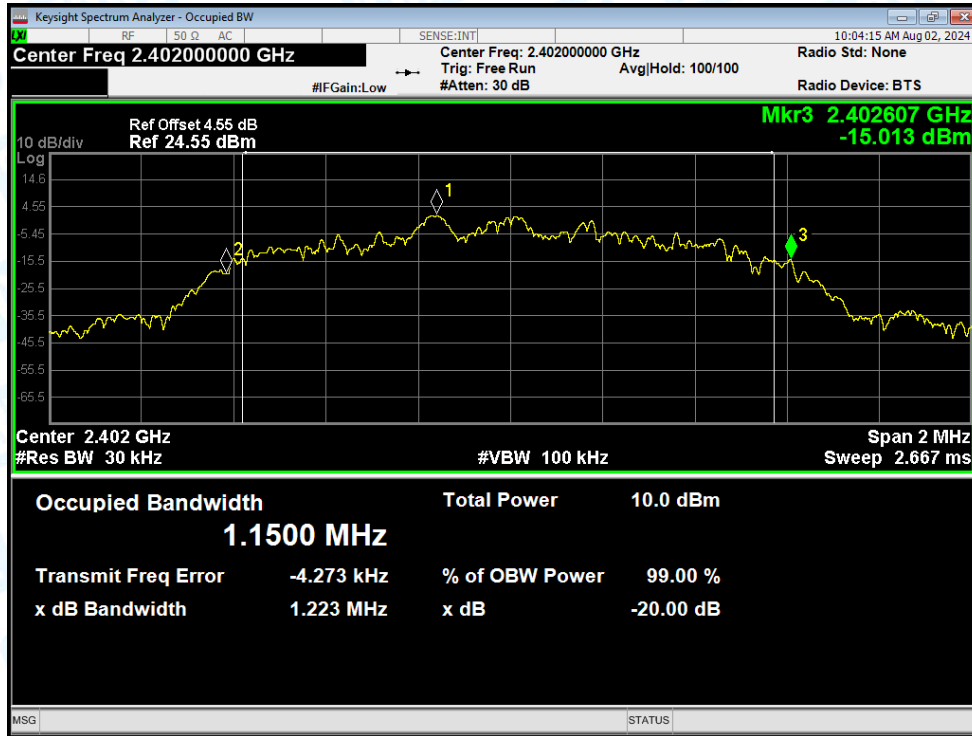
-20dB Bandwidth NVNT 2-DH1 2441MHz Ant1



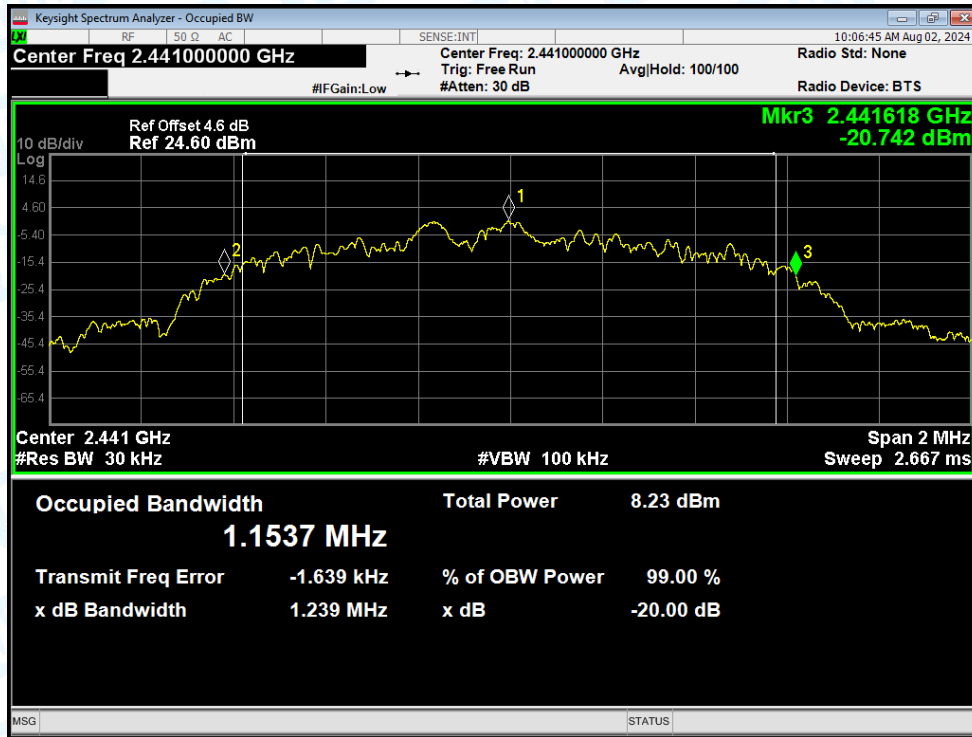
-20dB Bandwidth NVNT 2-DH1 2480MHz Ant1

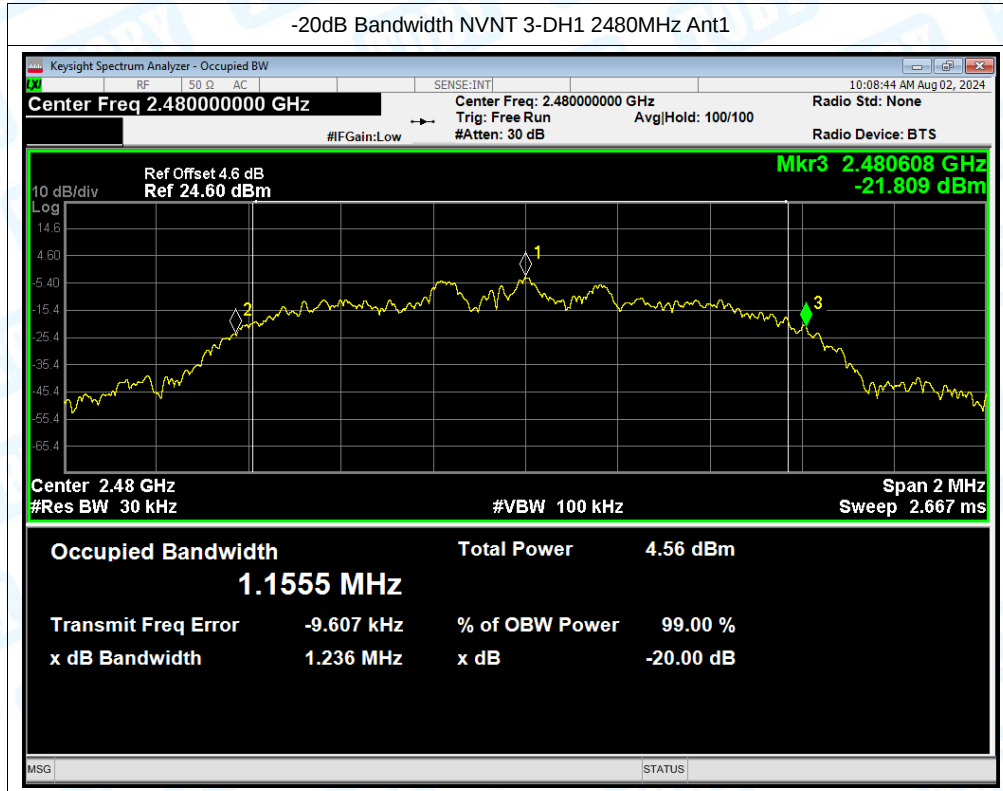


-20dB Bandwidth NVNT 3-DH1 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH1 2441MHz Ant1



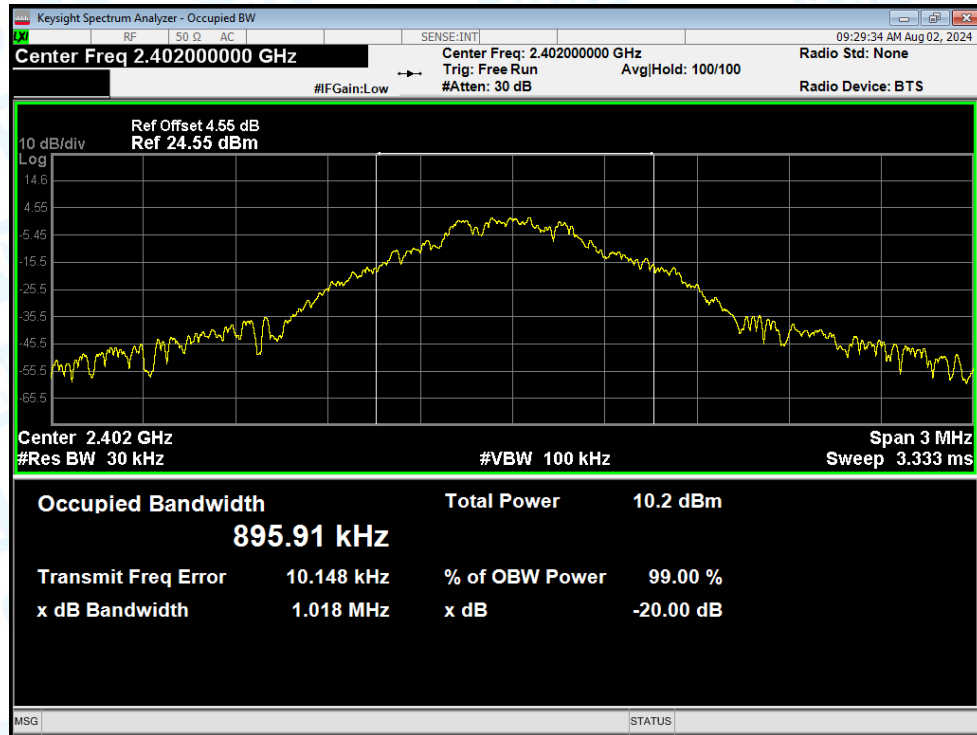


4. Occupied Channel Bandwidth

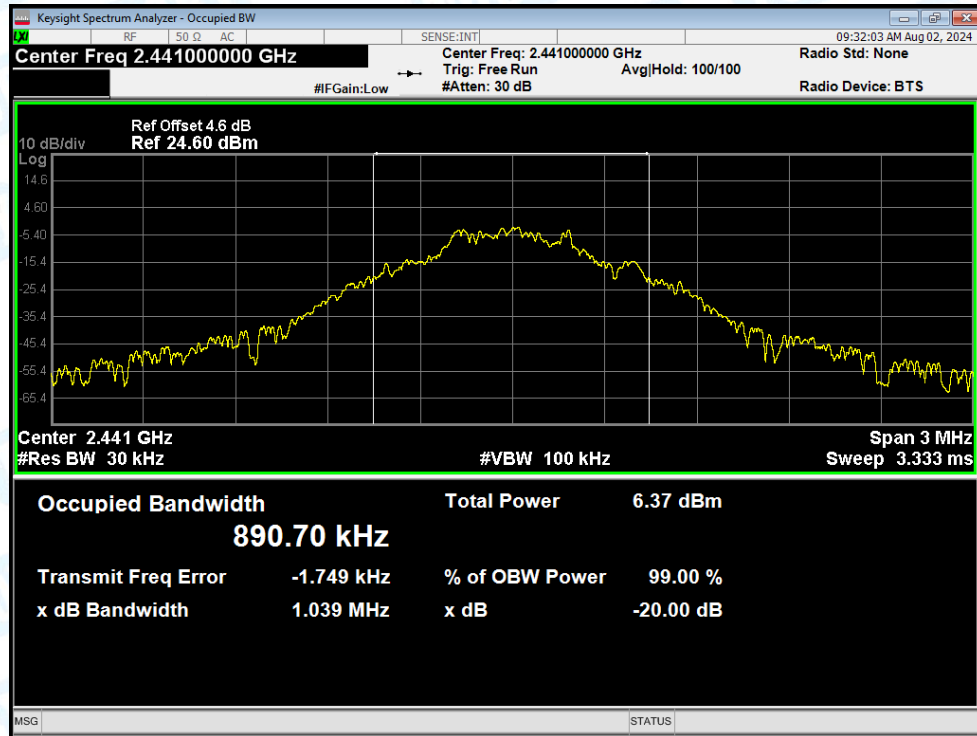
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	1-DH1	2402	Ant1	0.896
NVNT	1-DH1	2441	Ant1	0.891
NVNT	1-DH1	2480	Ant1	0.897
NVNT	2-DH1	2402	Ant1	1.145
NVNT	2-DH1	2441	Ant1	1.168
NVNT	2-DH1	2480	Ant1	1.169
NVNT	3-DH1	2402	Ant1	1.169
NVNT	3-DH1	2441	Ant1	1.16
NVNT	3-DH1	2480	Ant1	1.147

Test Graphs

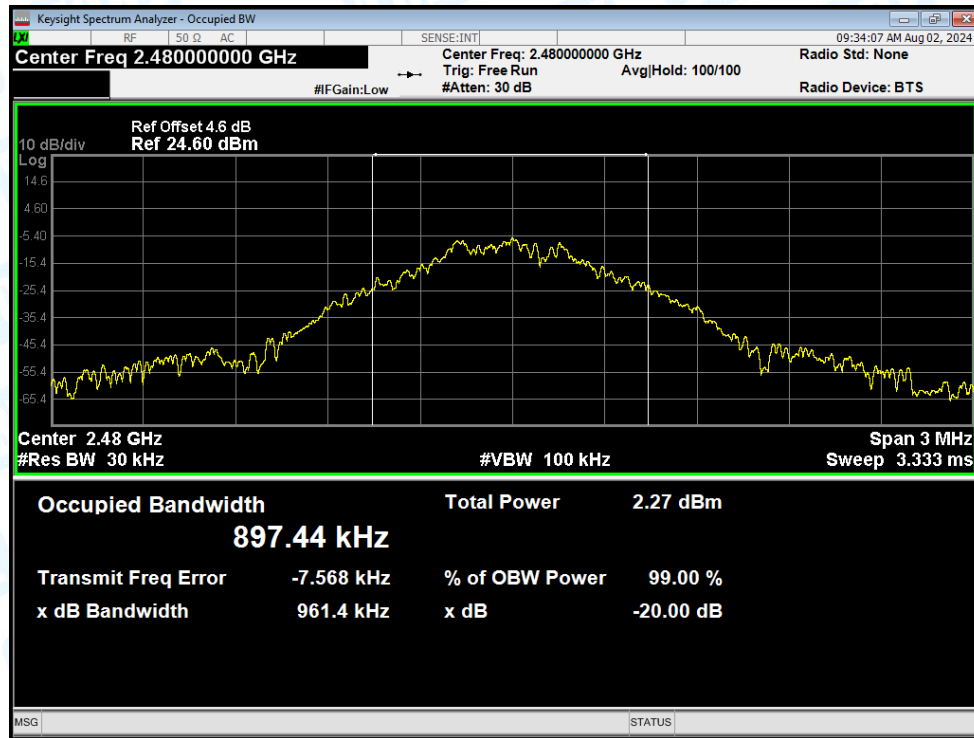
OBW NVNT 1-DH1 2402MHz Ant1



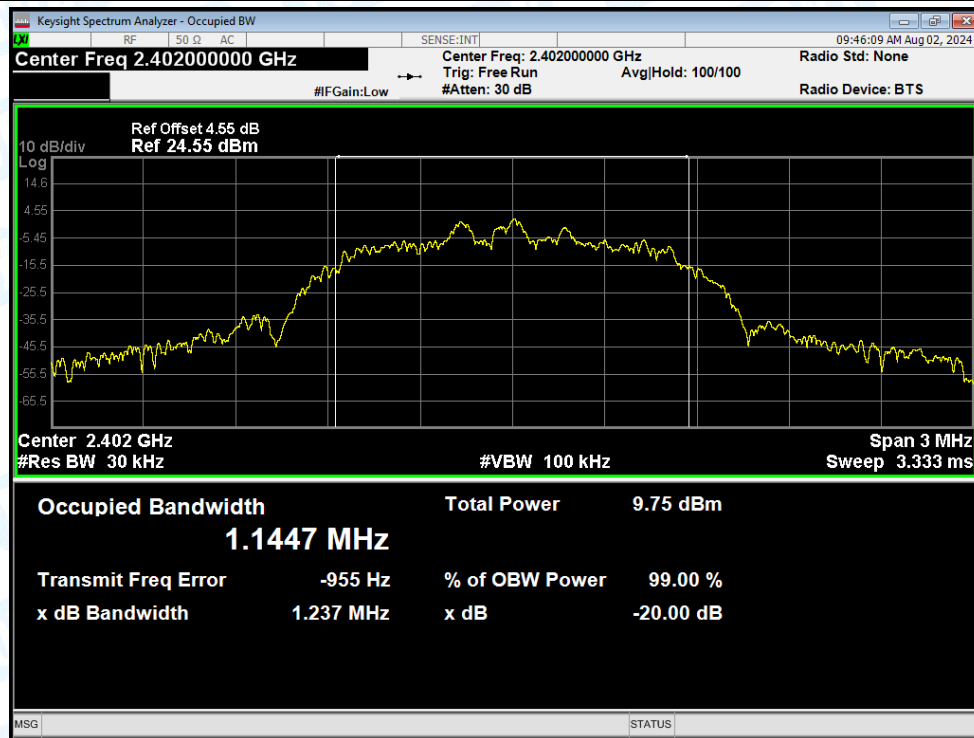
OBW NVNT 1-DH1 2441MHz Ant1



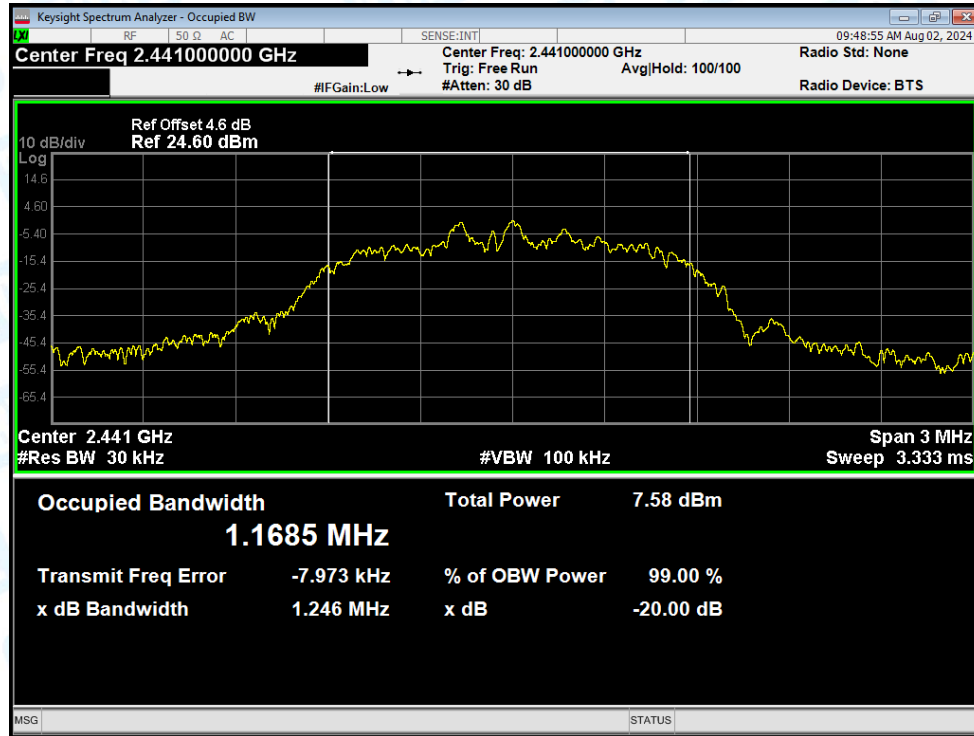
OBW NVNT 1-DH1 2480MHz Ant1



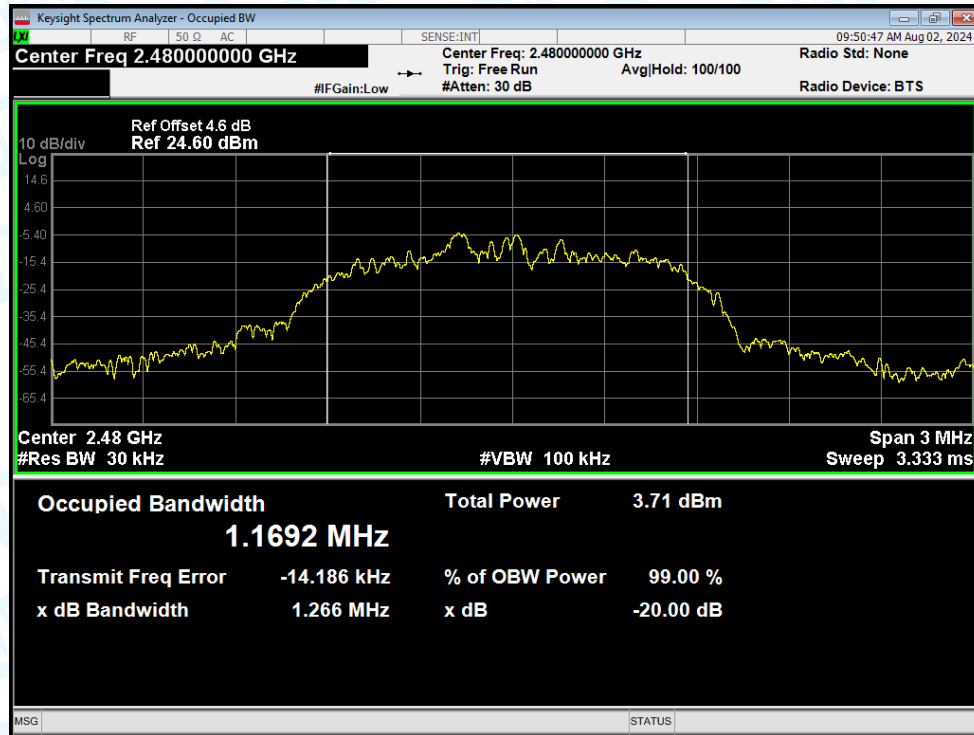
OBW NVNT 2-DH1 2402MHz Ant1



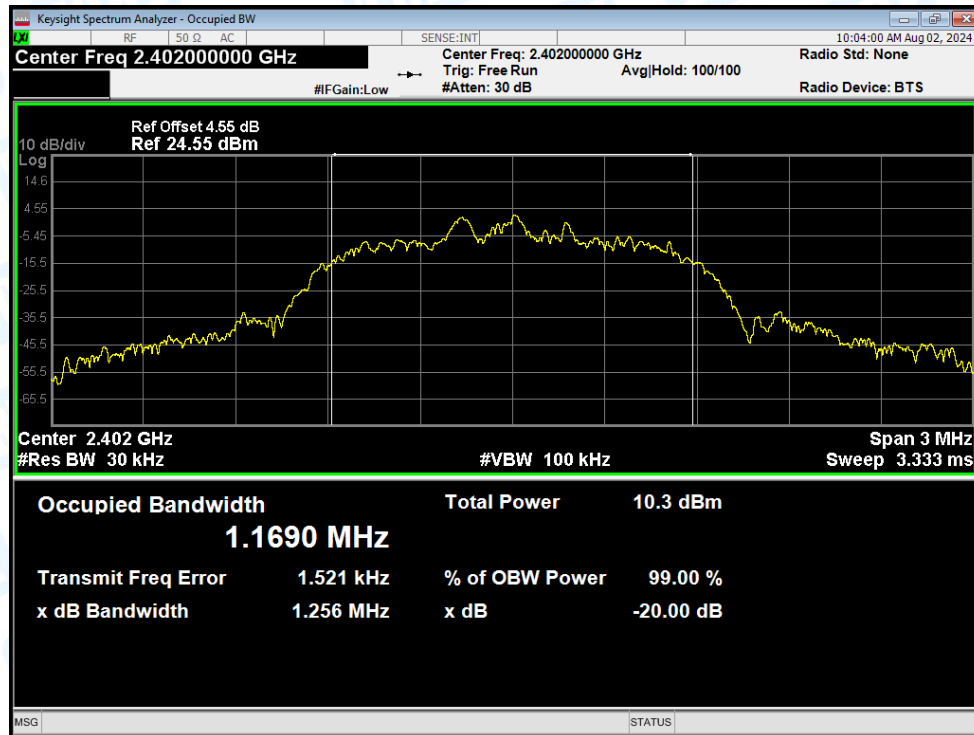
OBW NVNT 2-DH1 2441MHz Ant1



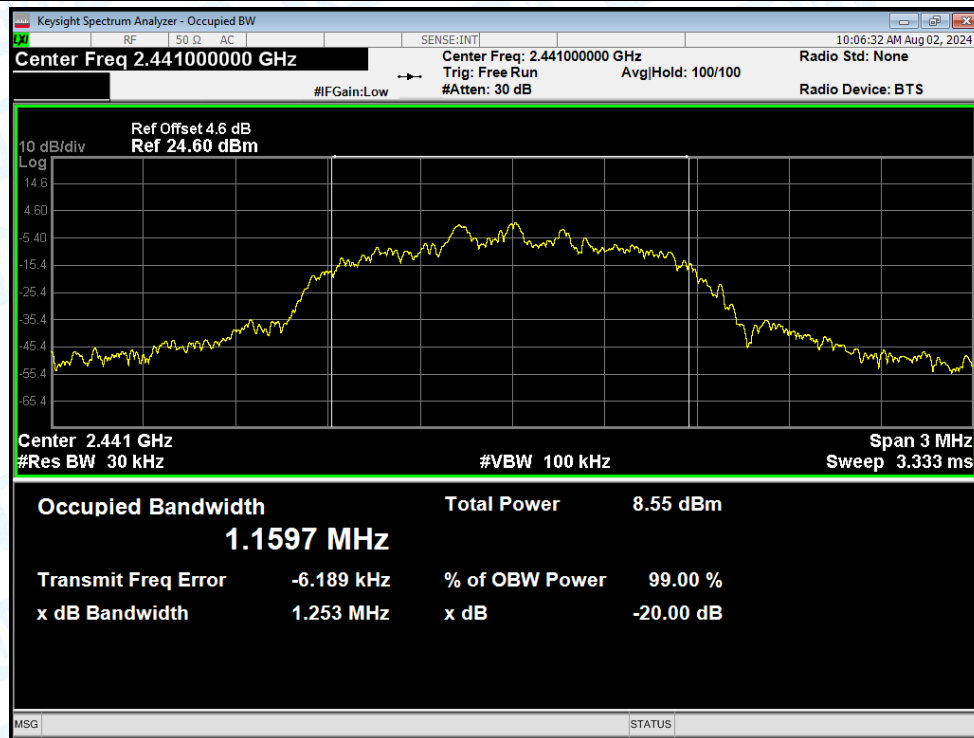
OBW NVNT 2-DH1 2480MHz Ant1

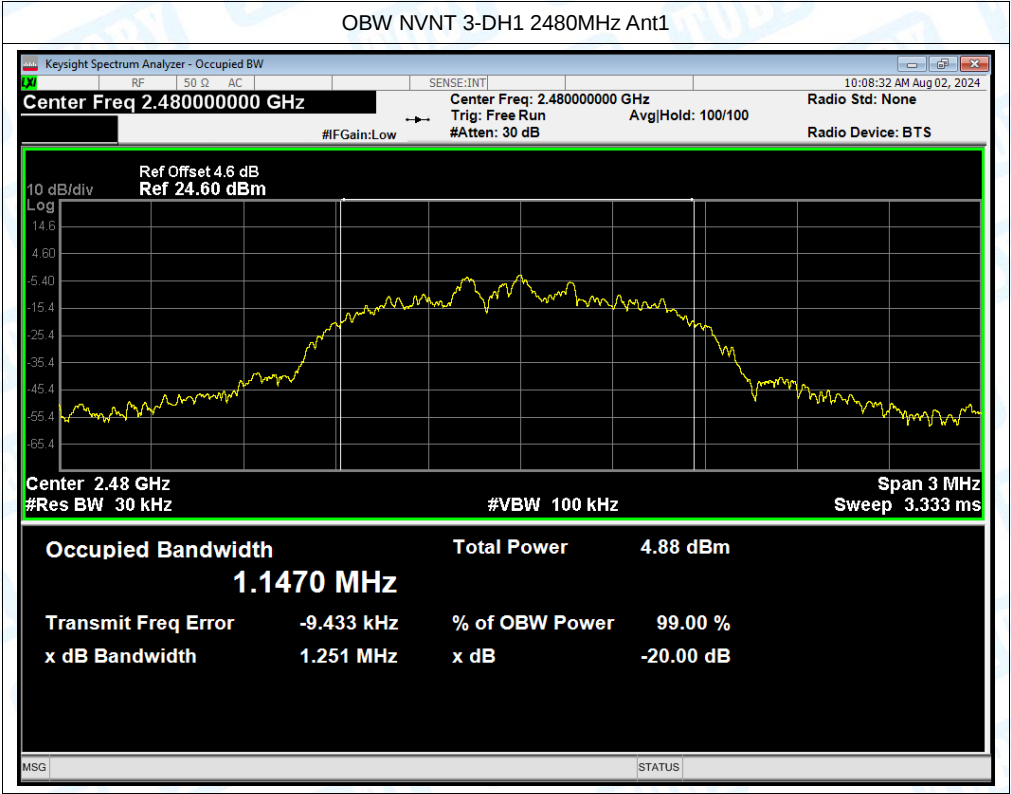


OBW NVNT 3-DH1 2402MHz Ant1



OBW NVNT 3-DH1 2441MHz Ant1



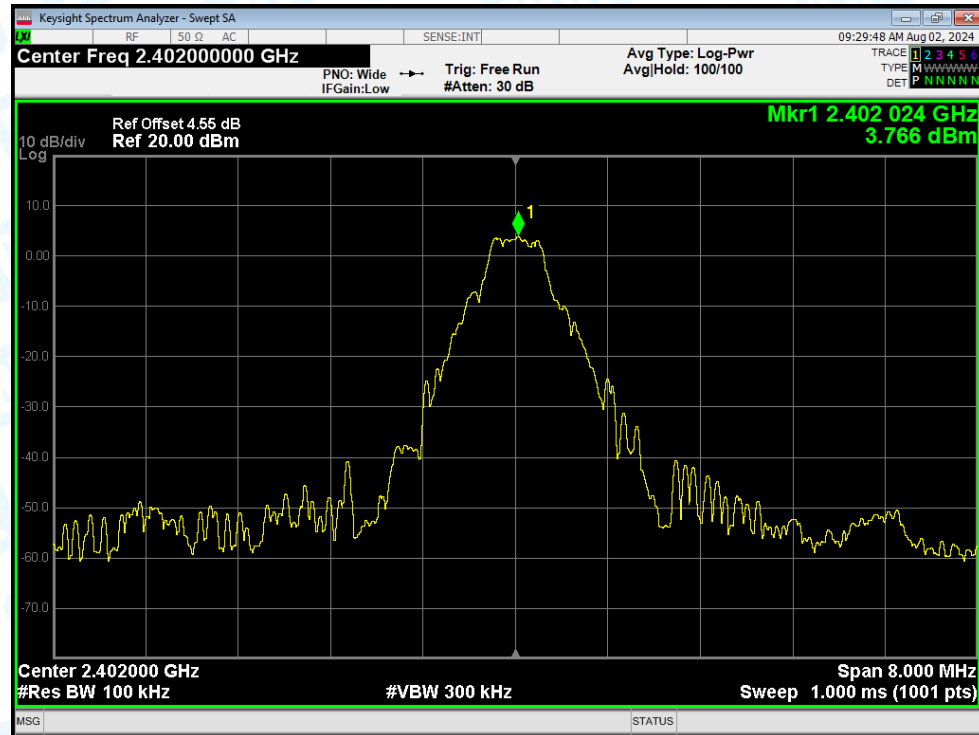


5. Band Edge

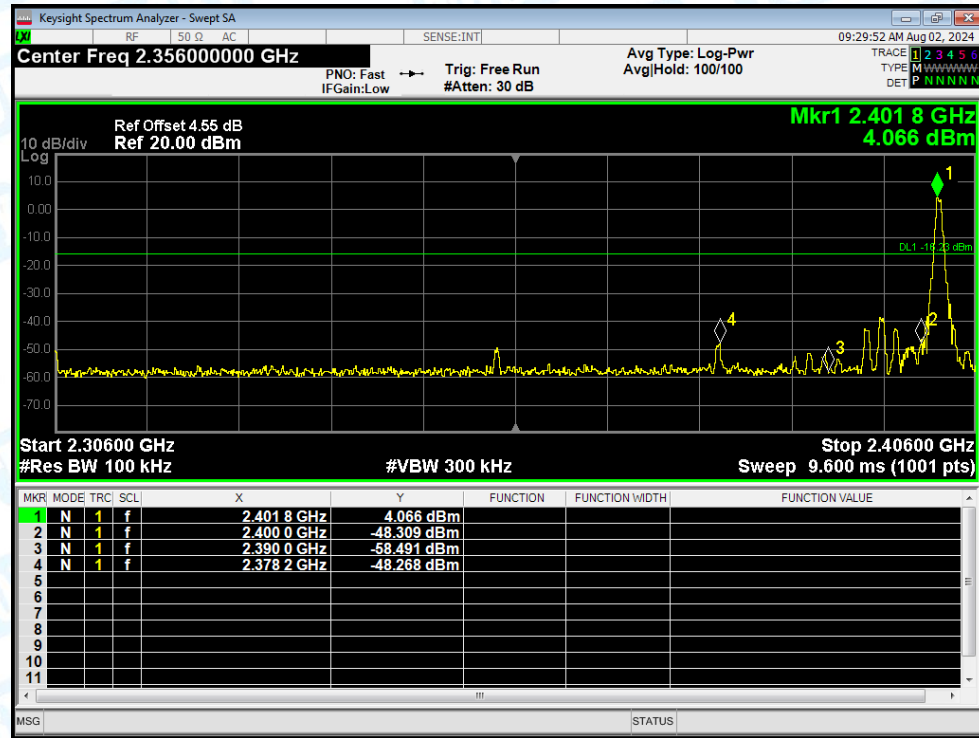
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	-52.04	-20	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	-44.47	-20	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	-52.33	-20	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	-44.97	-20	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	-52.13	-20	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	-53.94	-20	Pass

Test Graphs

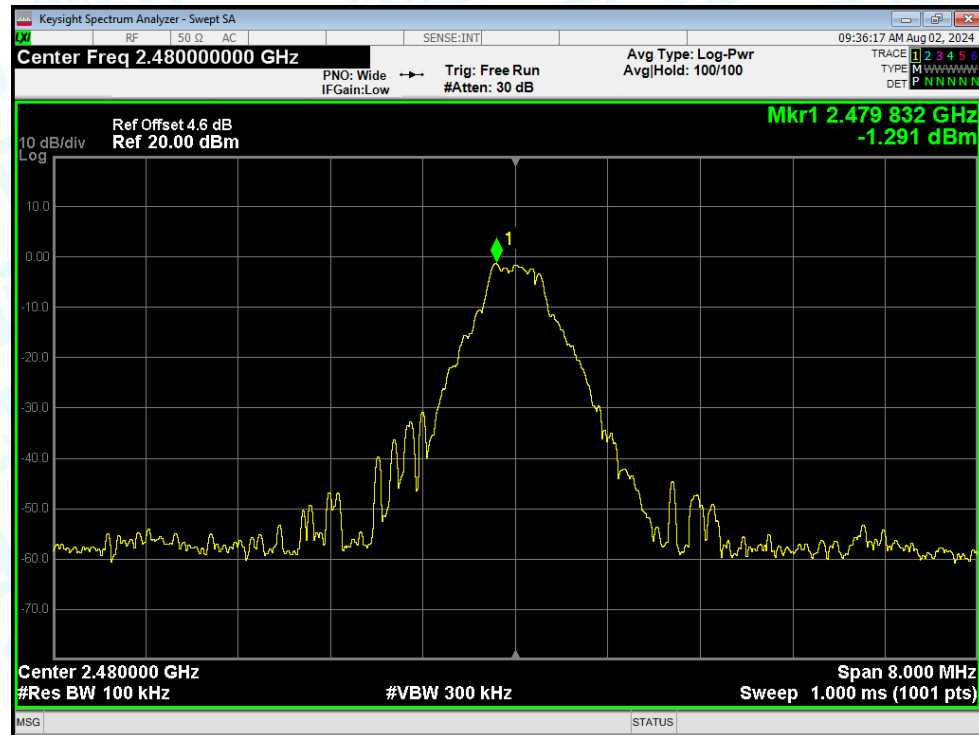
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Ref



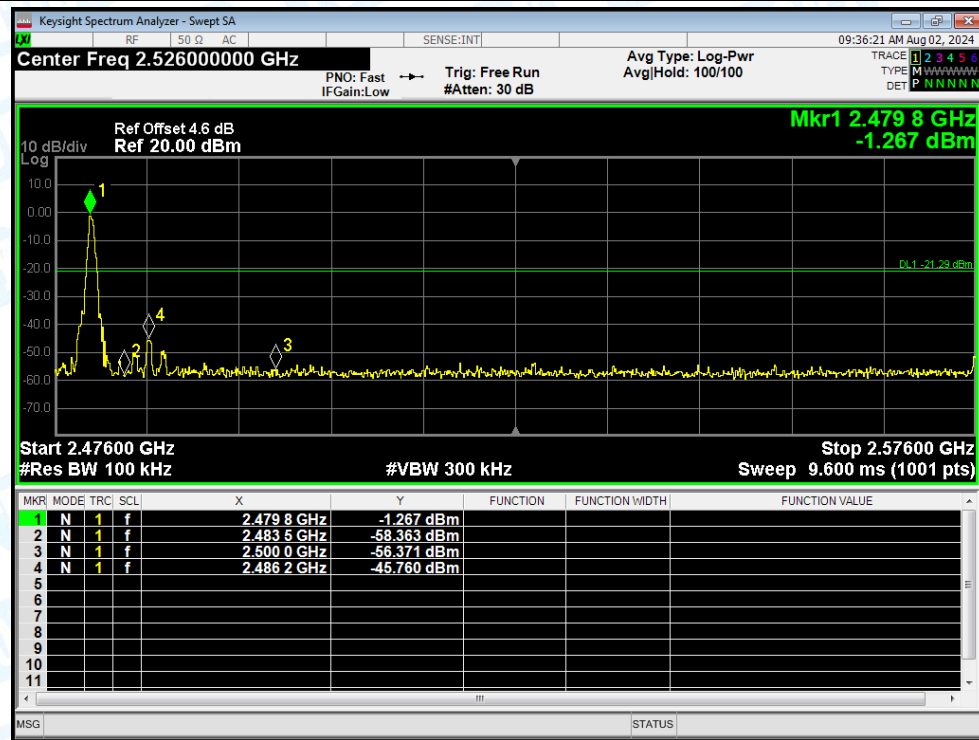
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Emission



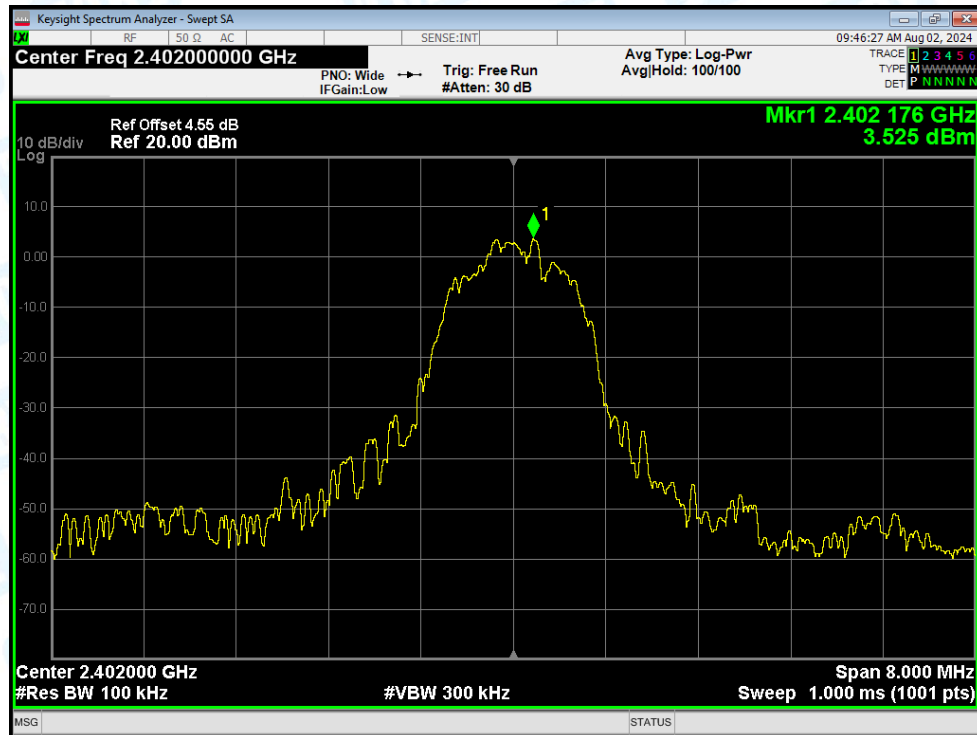
Band Edge NVNT 1-DH1 2480MHz Ant1 No-Hopping Ref



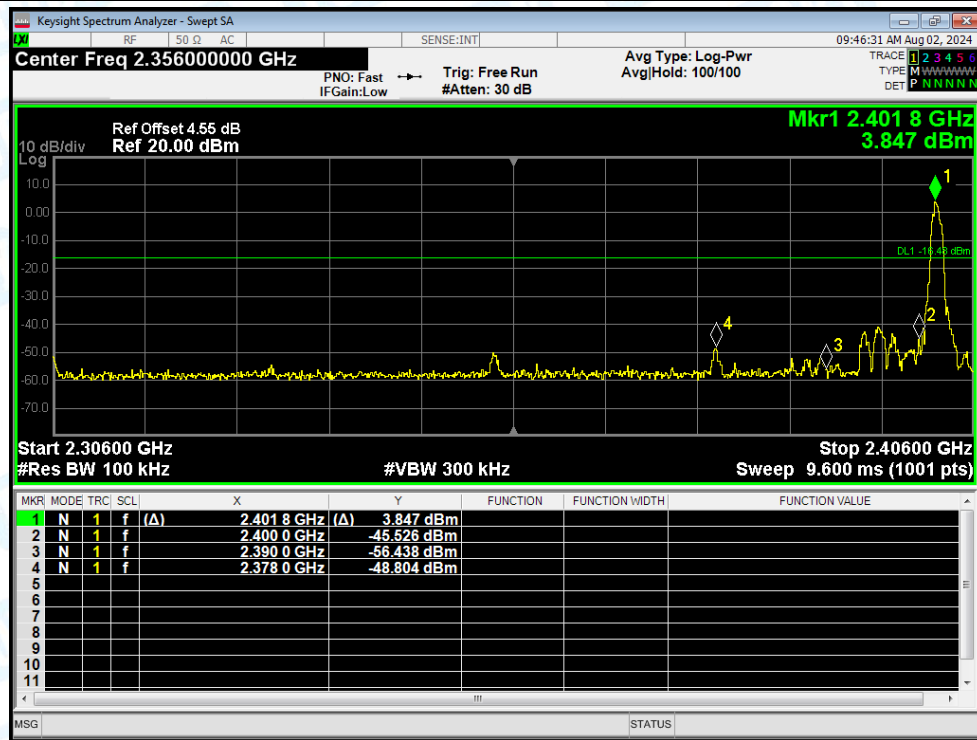
Band Edge NVNT 1-DH1 2480MHz Ant1 No-Hopping Emission



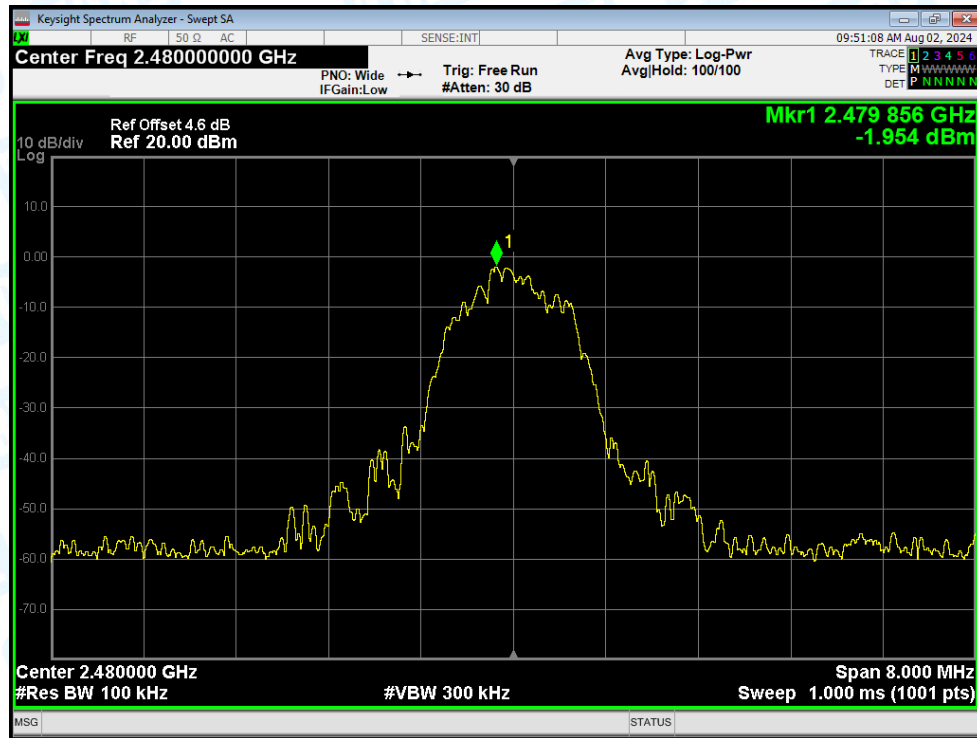
Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Ref



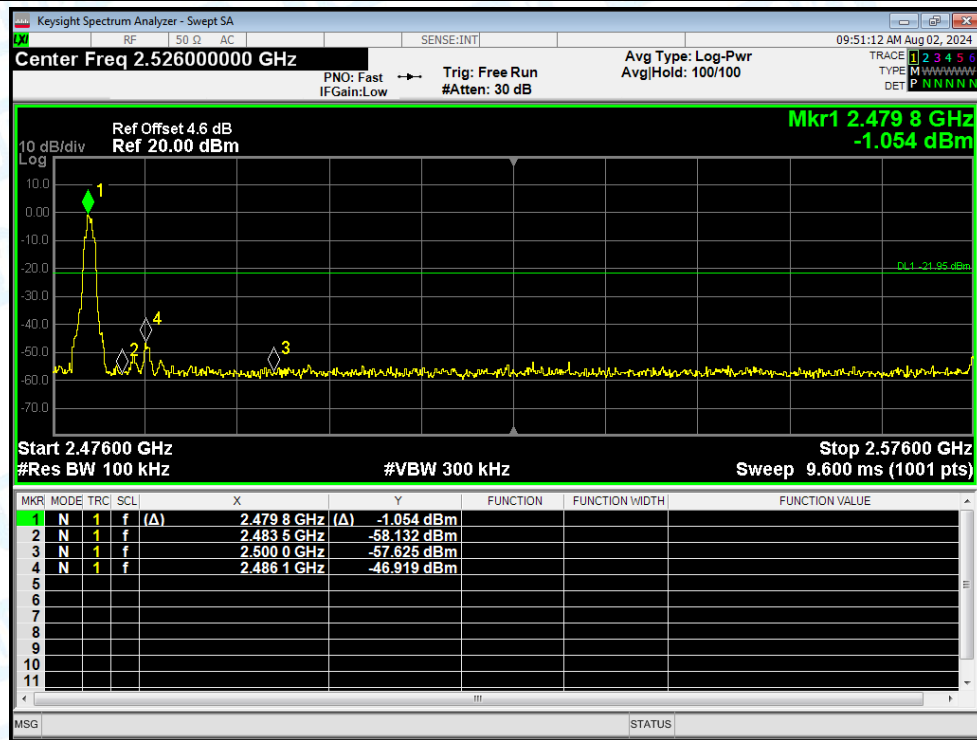
Band Edge NVNT 2-DH1 2402MHz Ant1 No-Hopping Emission

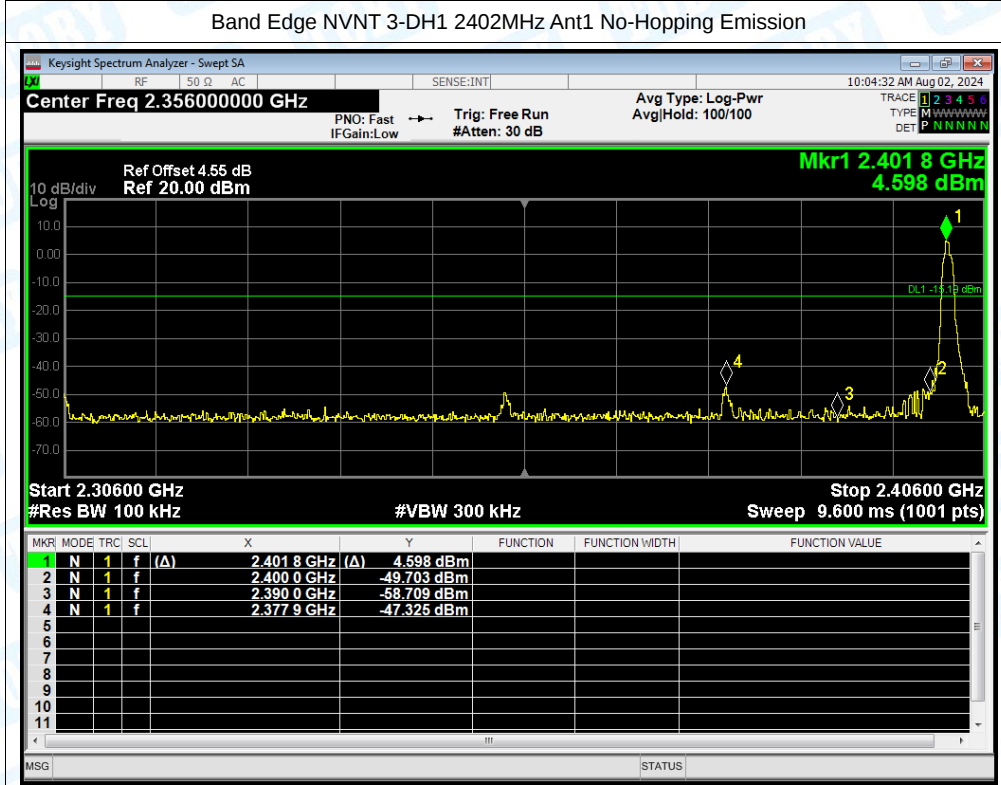
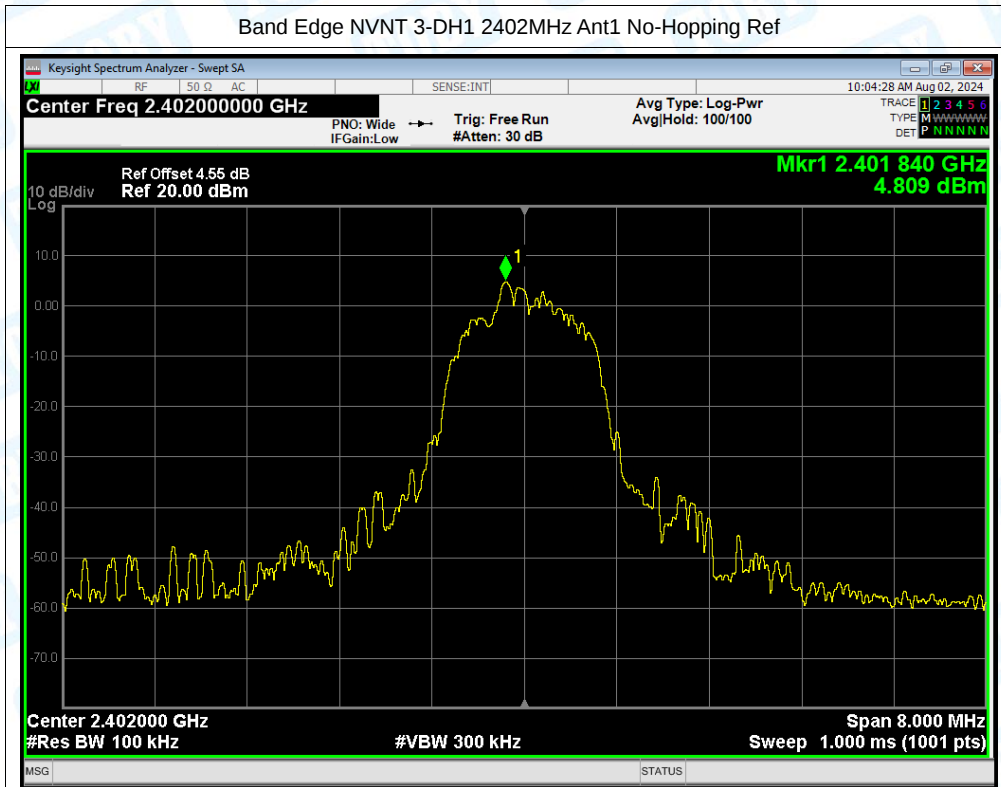


Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Ref

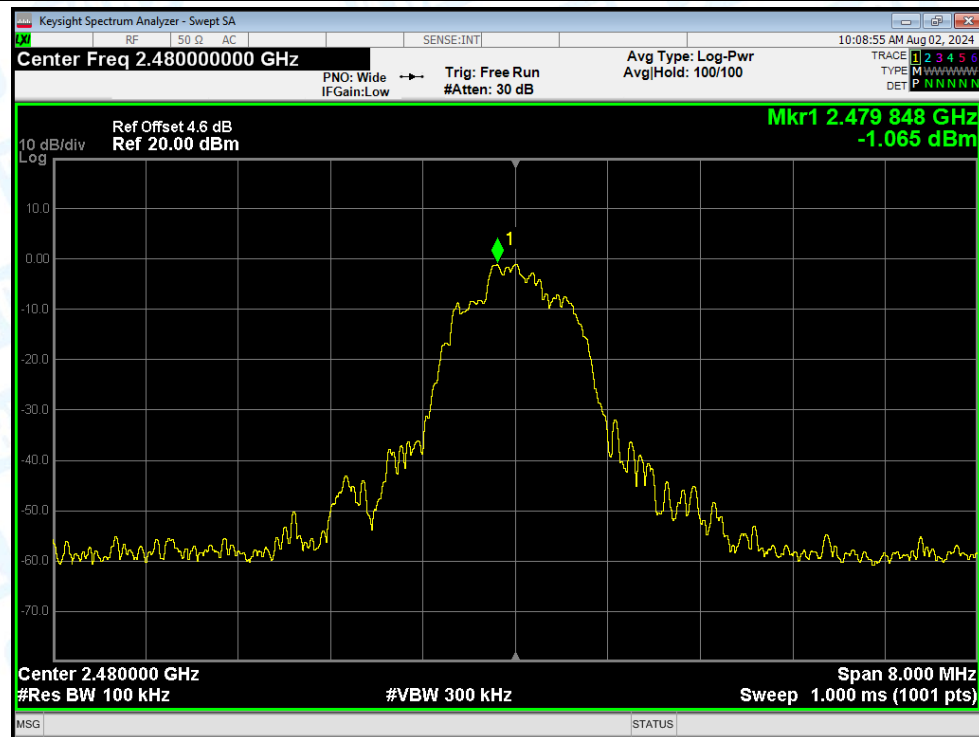


Band Edge NVNT 2-DH1 2480MHz Ant1 No-Hopping Emission

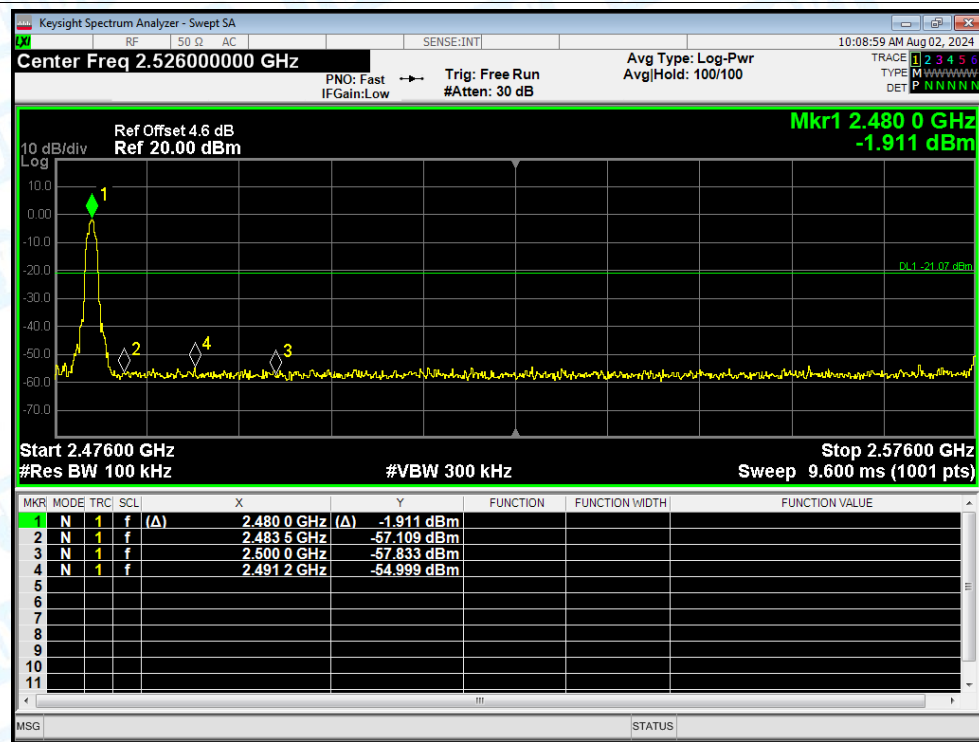




Band Edge NVNT 3-DH1 2480MHz Ant1 No-Hopping Ref



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



6. Band Edge(Hopping)

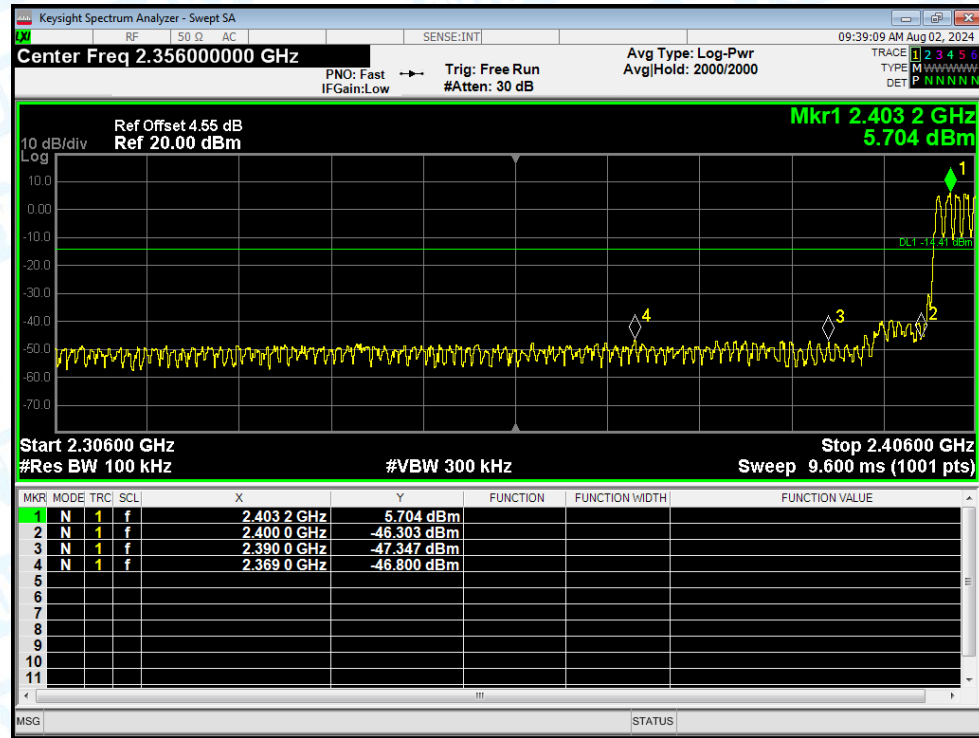
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	Hopping	-52.39	-20	Pass
NVNT	1-DH1	2480	Ant1	Hopping	-45.16	-20	Pass
NVNT	2-DH1	2402	Ant1	Hopping	-52.9	-20	Pass
NVNT	2-DH1	2480	Ant1	Hopping	-50.18	-20	Pass
NVNT	3-DH1	2402	Ant1	Hopping	-53.33	-20	Pass
NVNT	3-DH1	2480	Ant1	Hopping	-51.04	-20	Pass

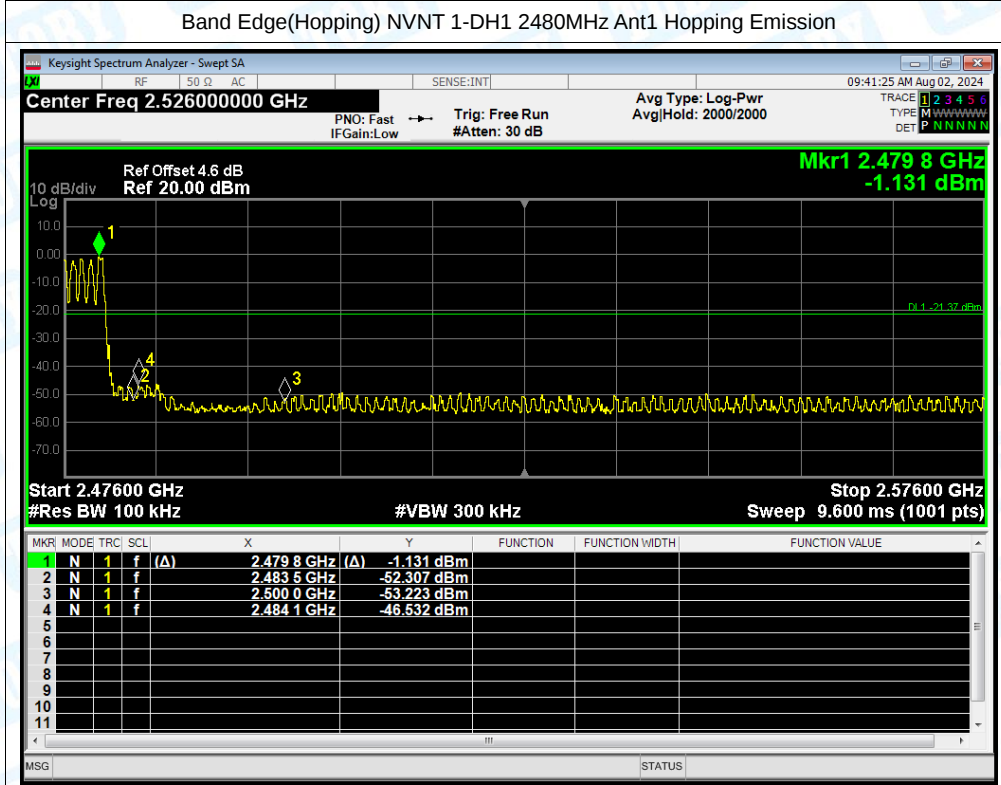
Test Graphs

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



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

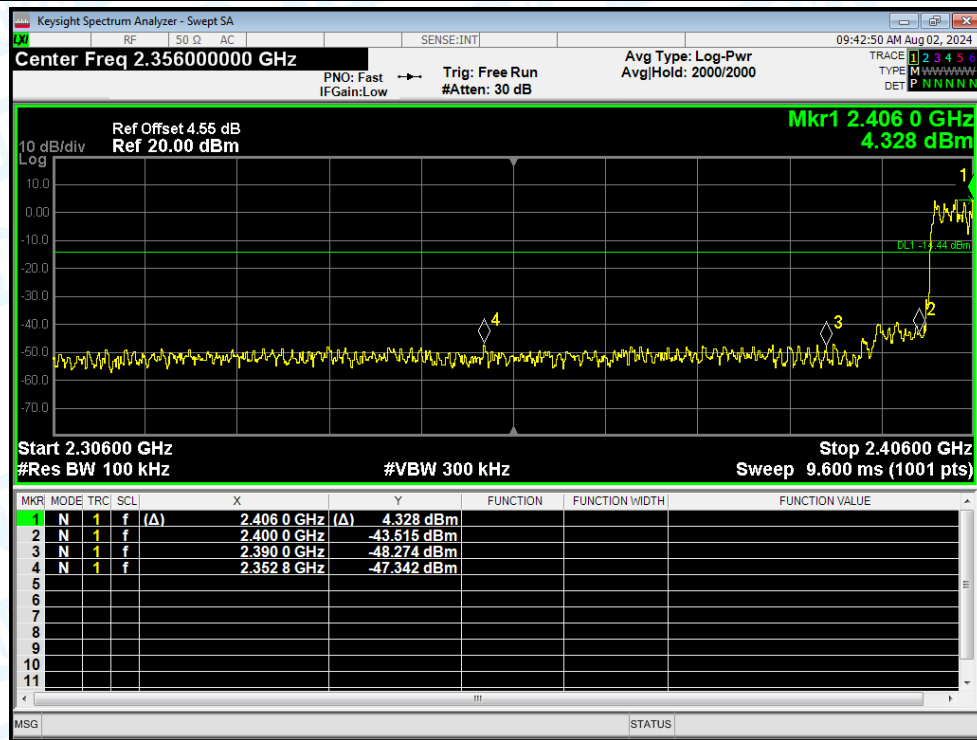




Band Edge(Hopping) NVNT 2-DH1 2402MHz Ant1 Hopping Ref



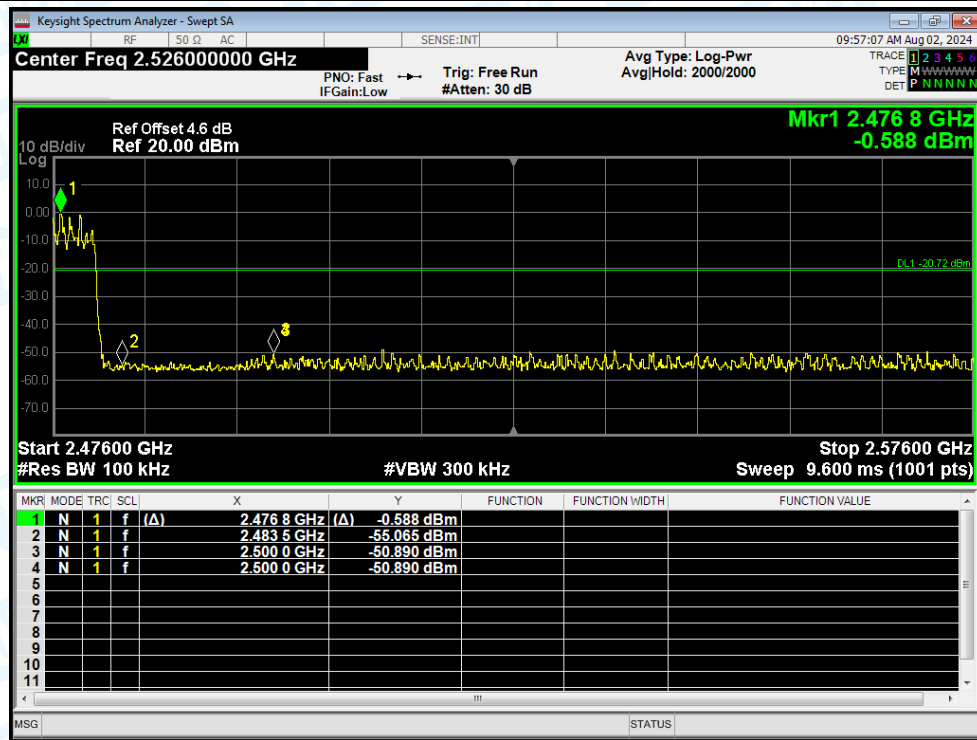
Band Edge(Hopping) NVNT 2-DH1 2402MHz Ant1 Hopping Emission

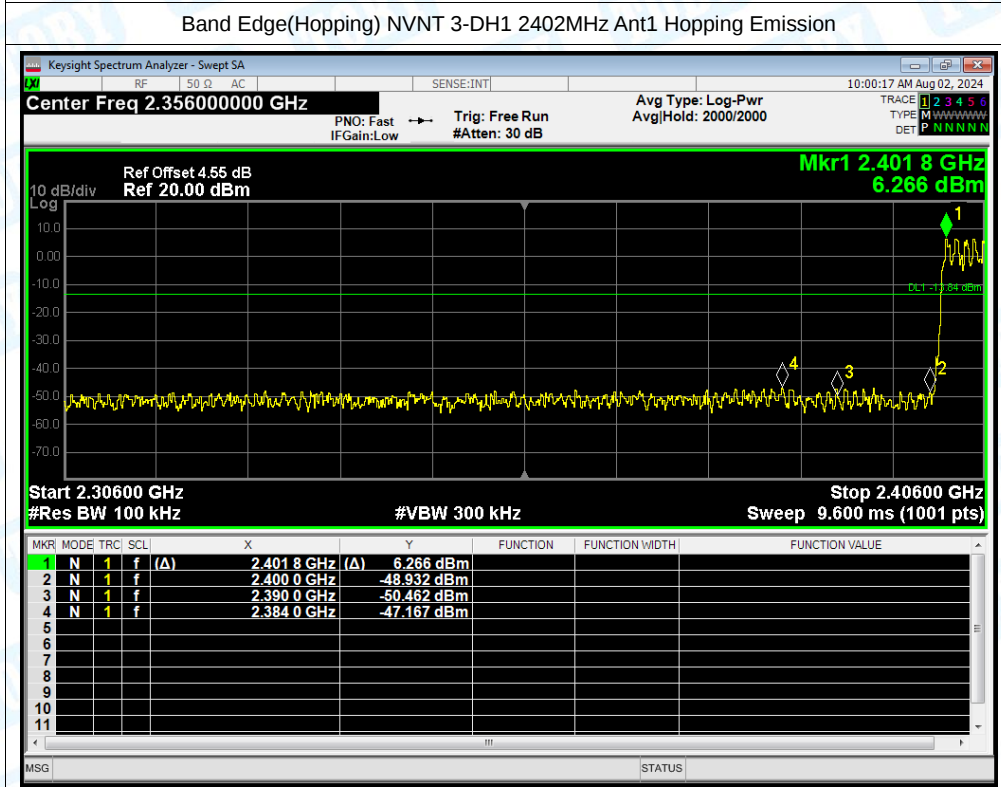
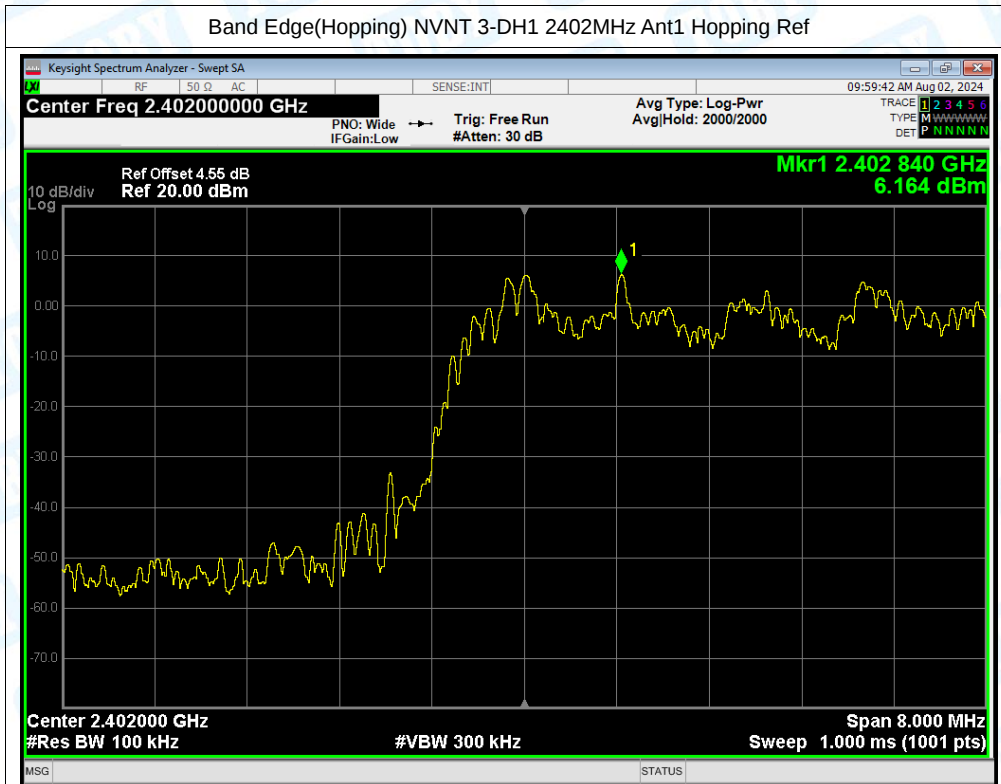


Band Edge(Hopping) NVNT 2-DH1 2480MHz Ant1 Hopping Ref



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

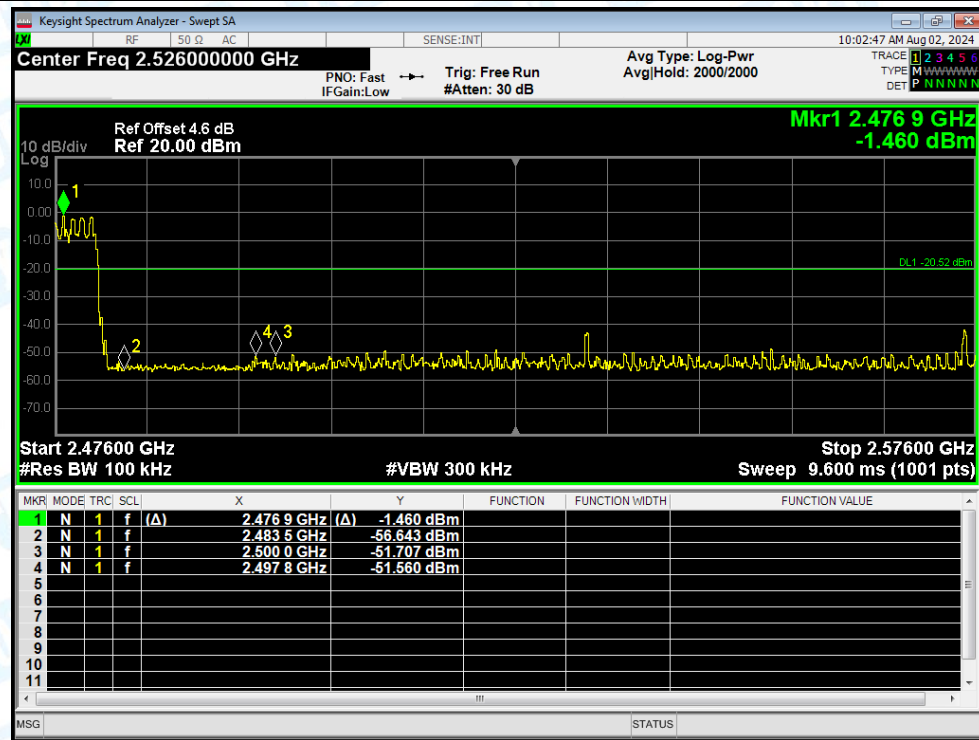




Band Edge(Hopping) NVNT 3-DH1 2480MHz Ant1 Hopping Ref



Band Edge(Hopping) NVNT 3-DH1 2480MHz Ant1 Hopping Emission

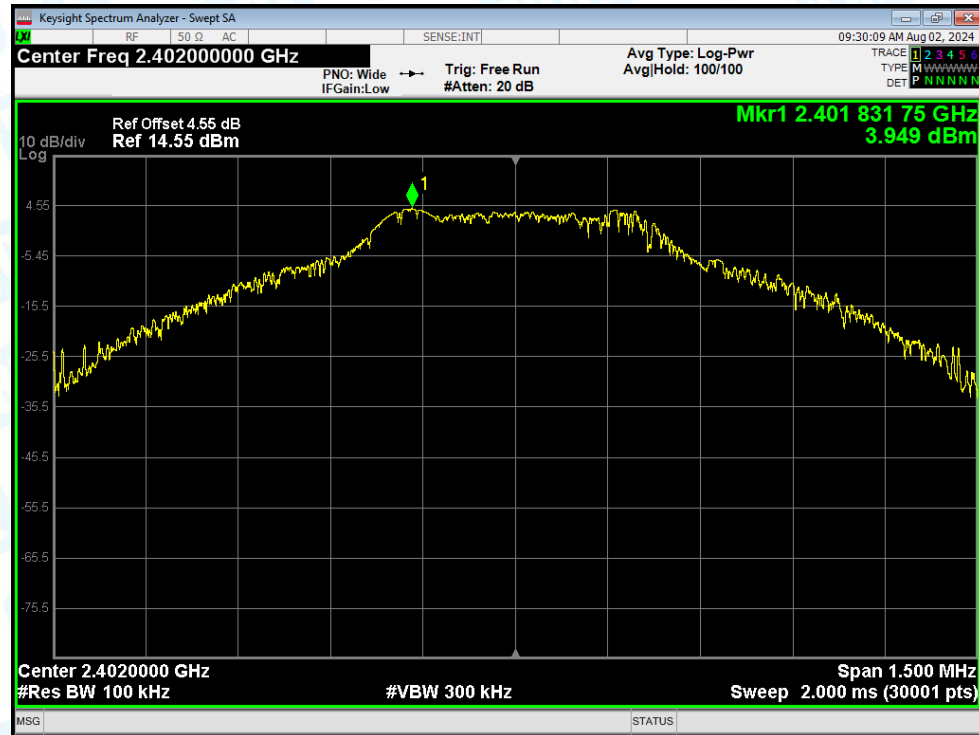


7. Conducted RF Spurious Emission

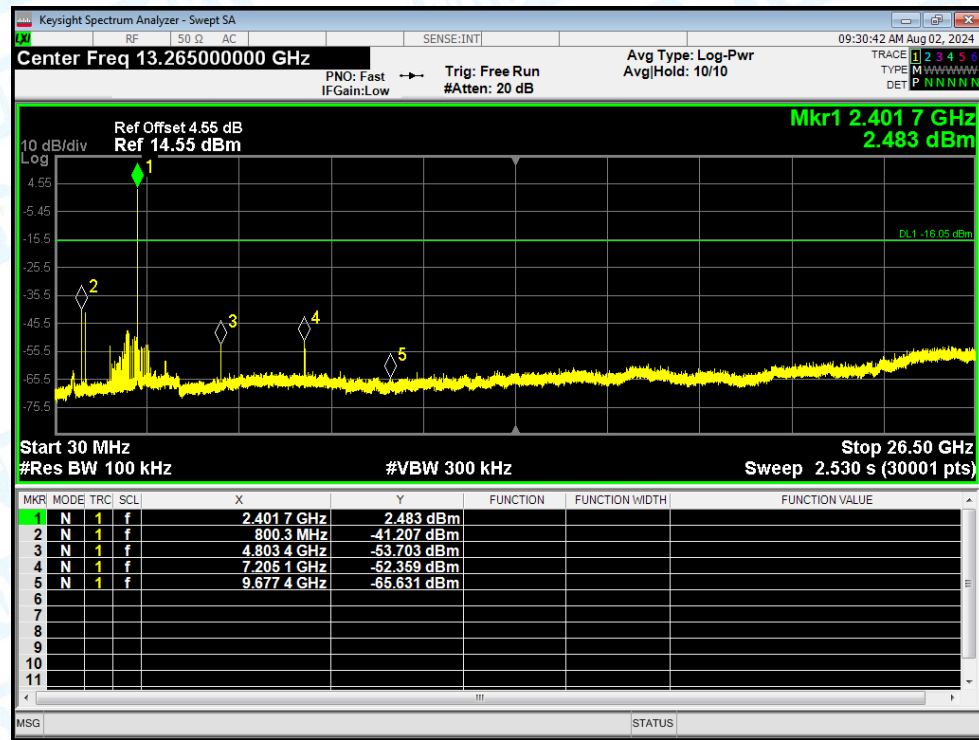
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	-45.16	-20	Pass
NVNT	1-DH1	2441	Ant1	-42.5	-20	Pass
NVNT	1-DH1	2480	Ant1	-40.86	-20	Pass
NVNT	2-DH1	2402	Ant1	-42.54	-20	Pass
NVNT	2-DH1	2441	Ant1	-43.29	-20	Pass
NVNT	2-DH1	2480	Ant1	-42.5	-20	Pass
NVNT	3-DH1	2402	Ant1	-50.48	-20	Pass
NVNT	3-DH1	2441	Ant1	-44.18	-20	Pass
NVNT	3-DH1	2480	Ant1	-47.11	-20	Pass

Test Graphs

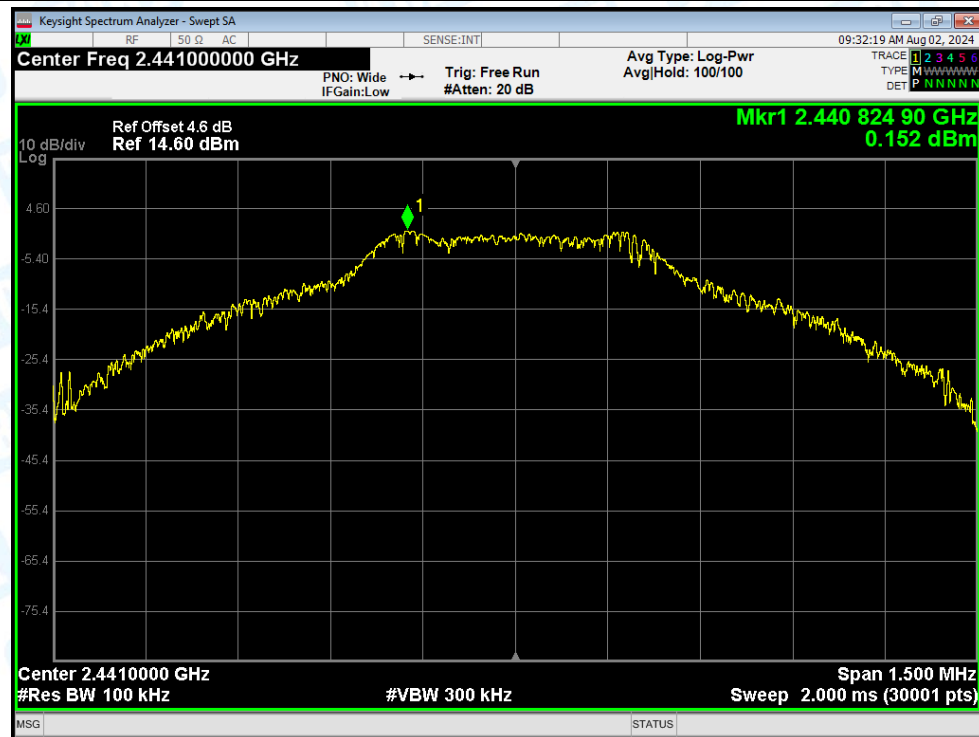
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Ref



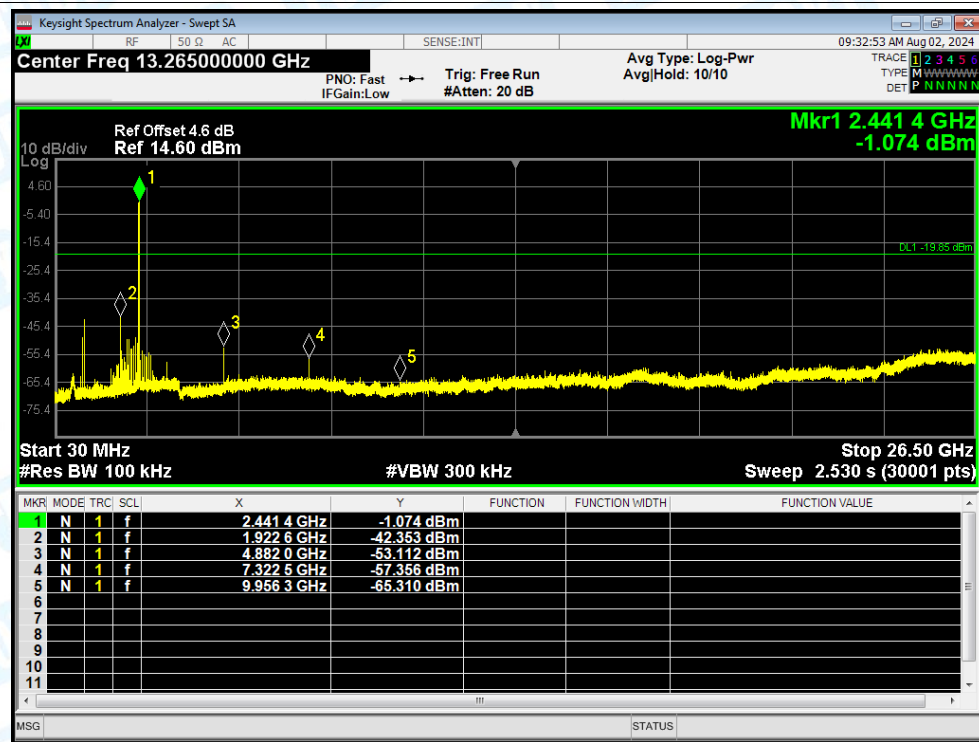
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Emission



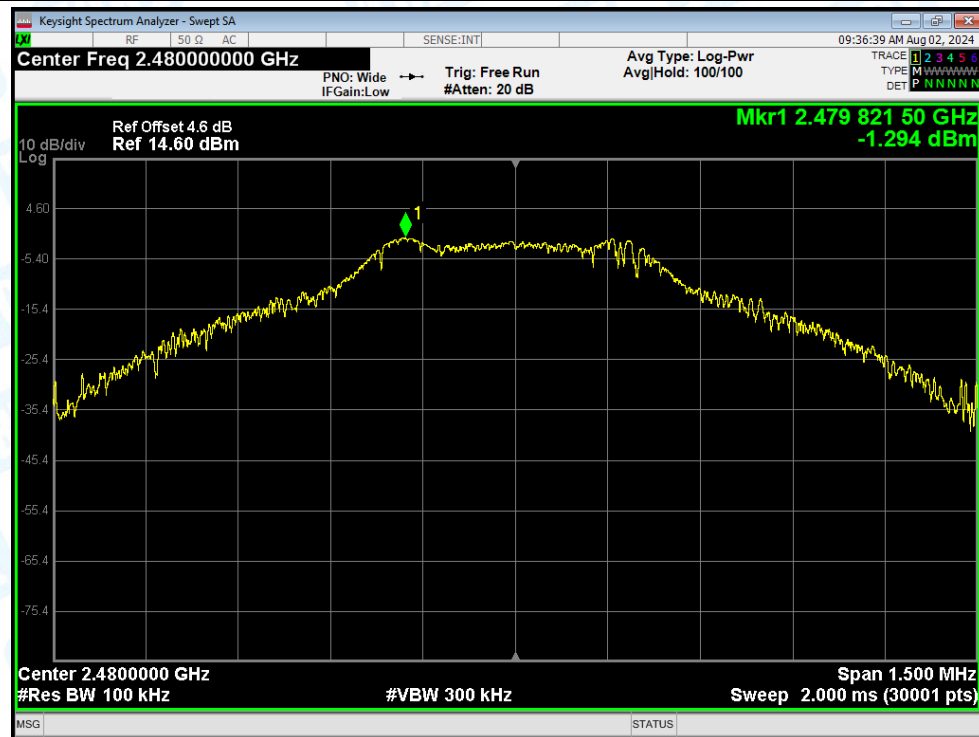
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Ref



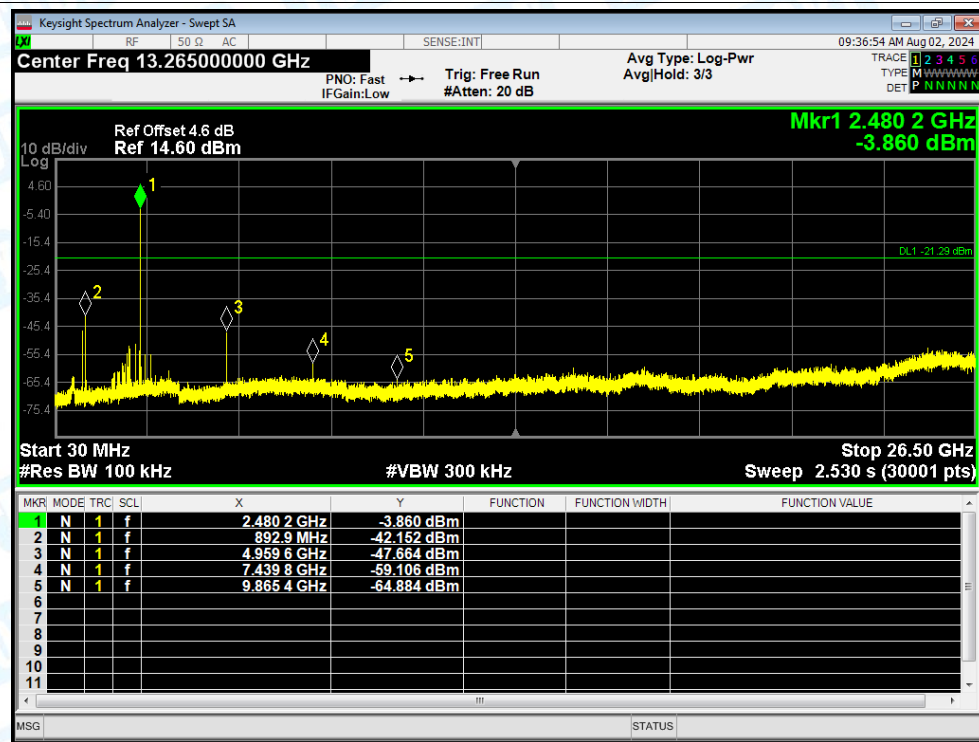
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Emission



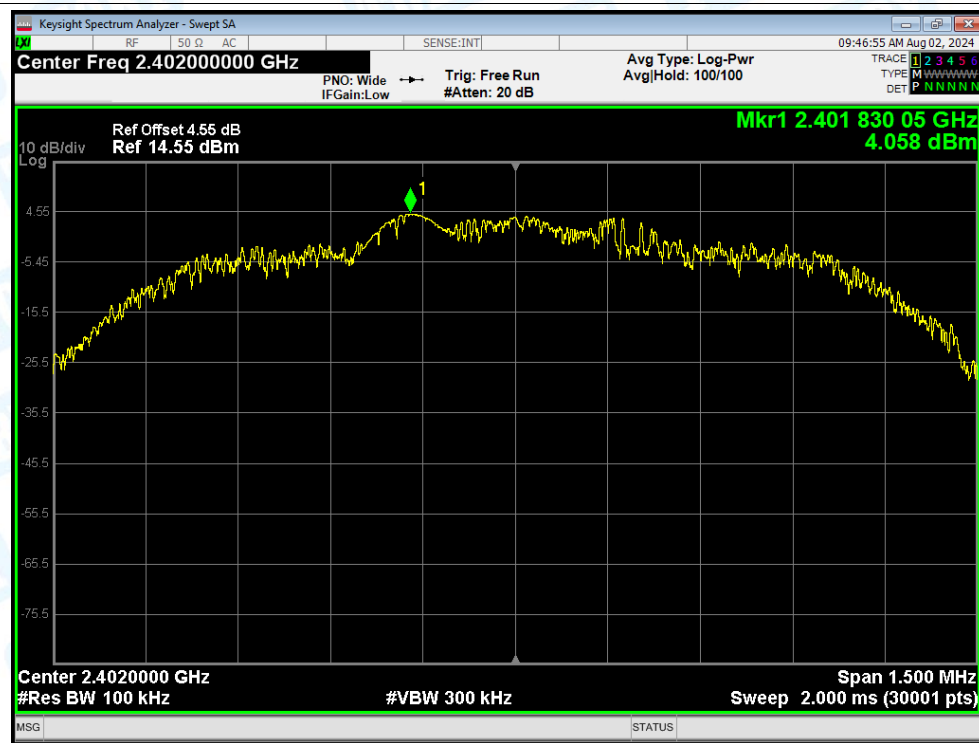
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Ref



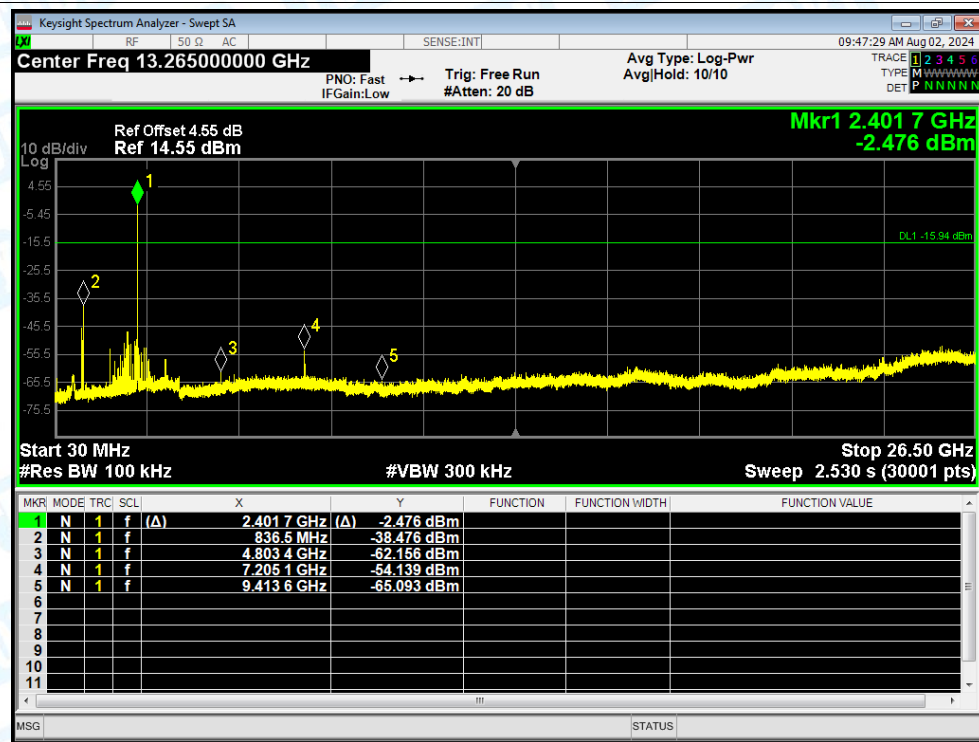
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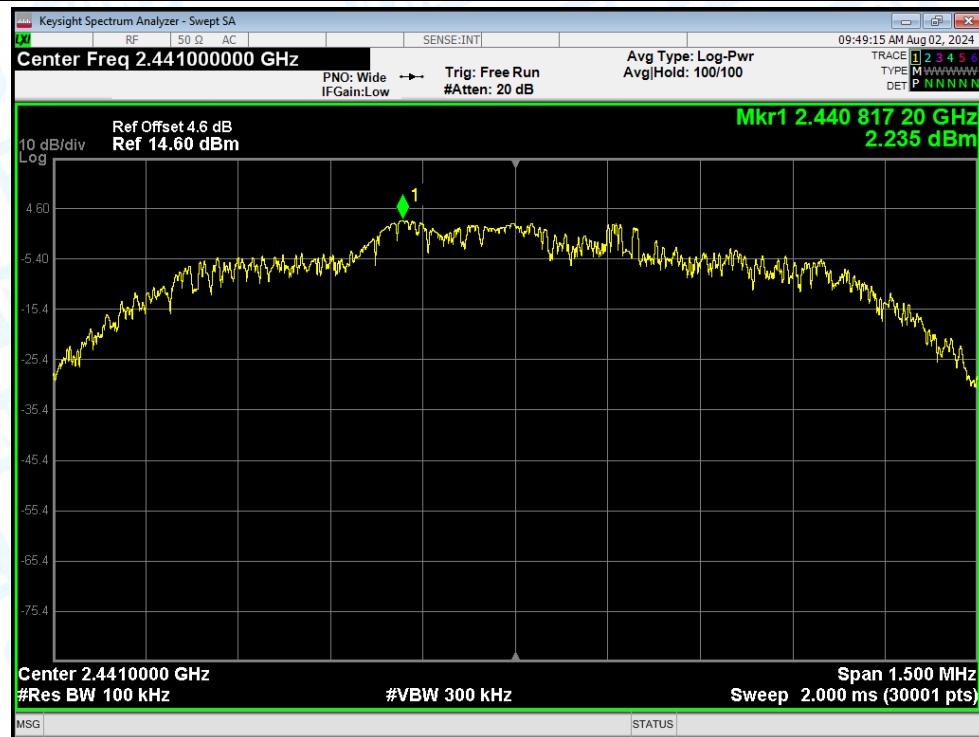
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Ref



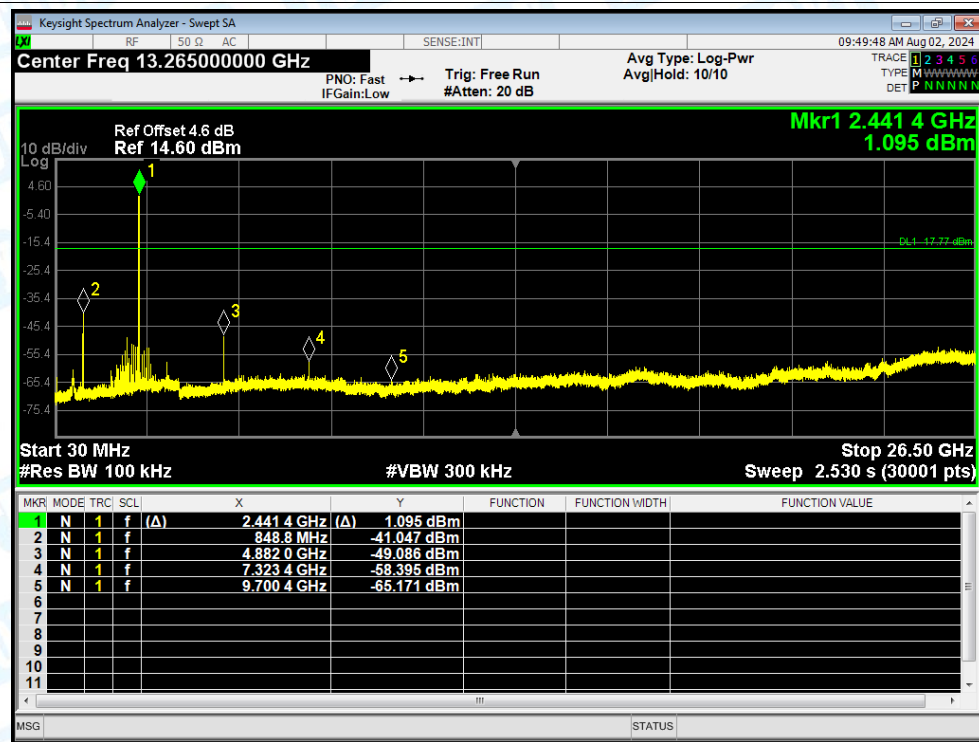
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Emission



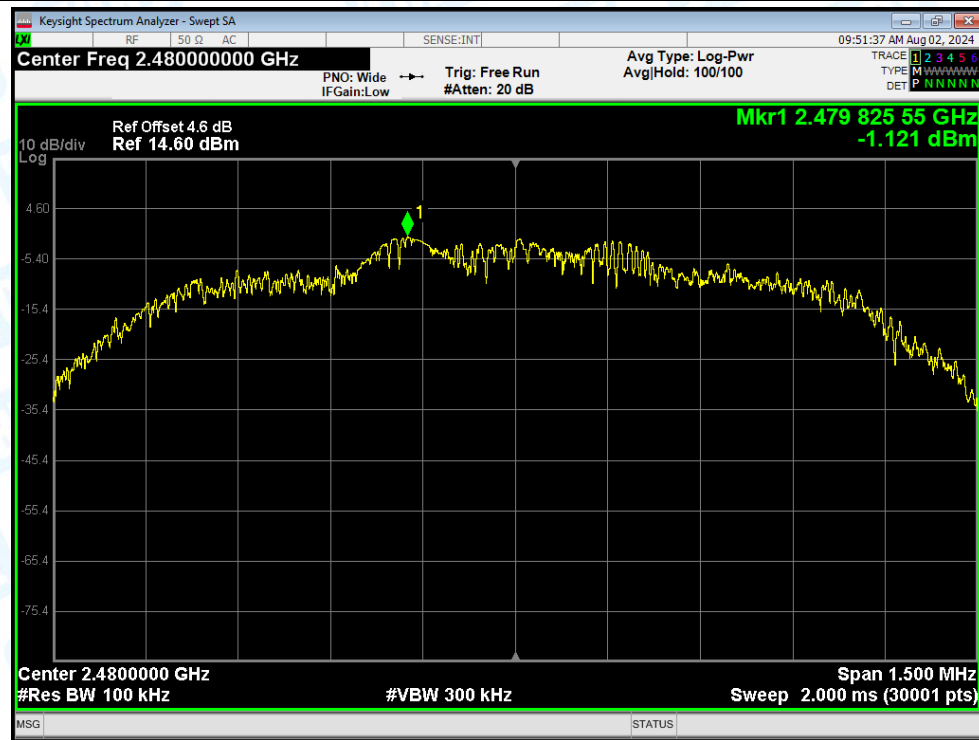
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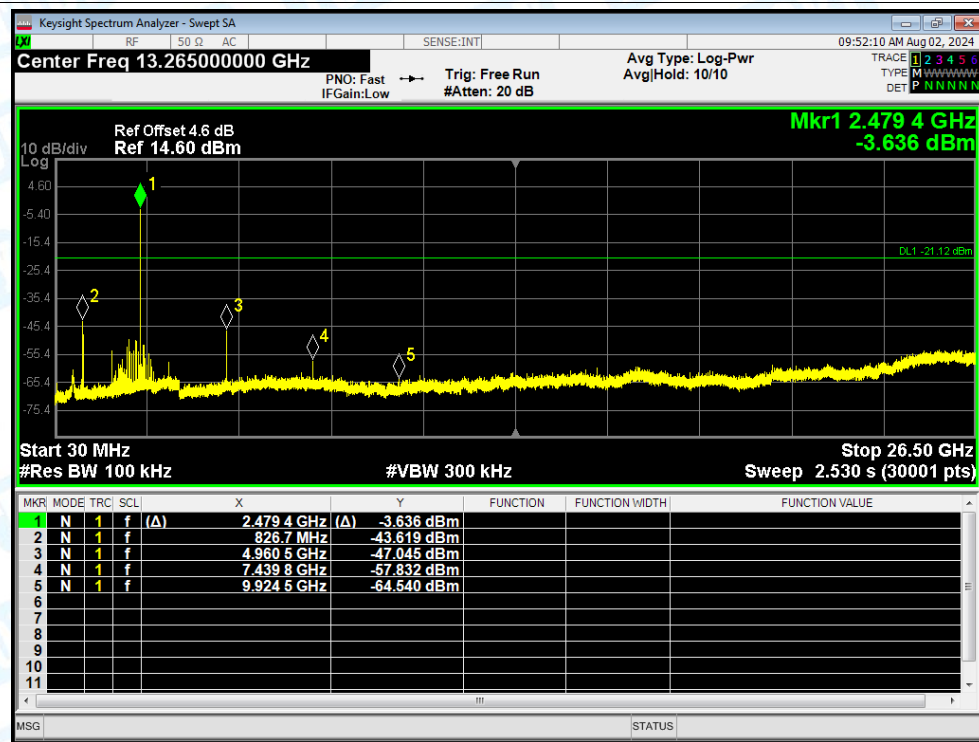
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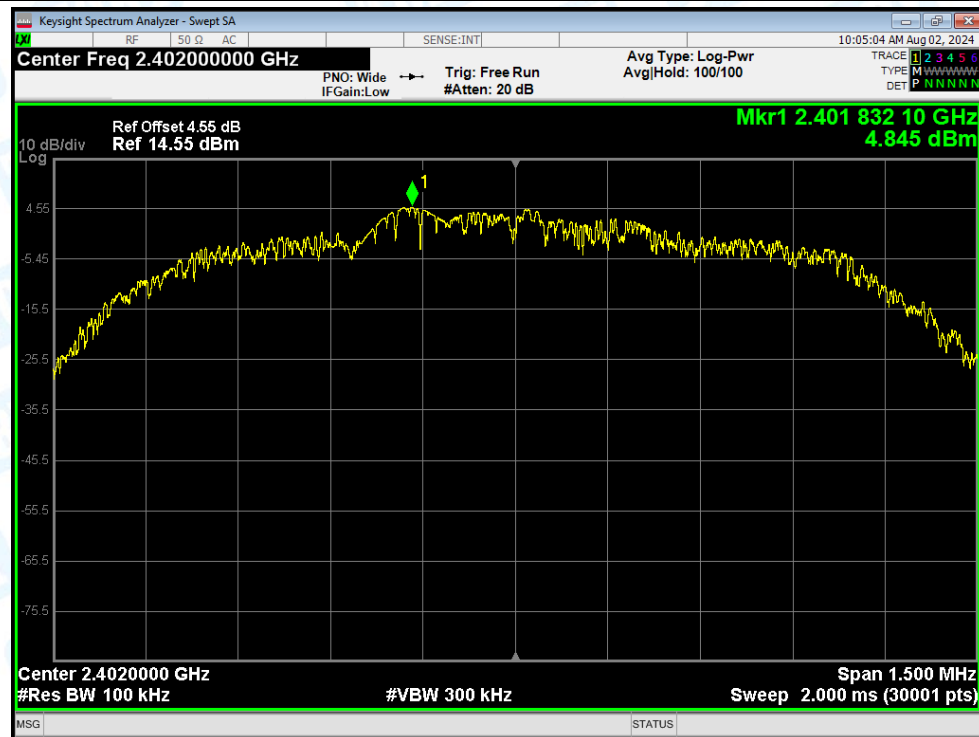
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Ref



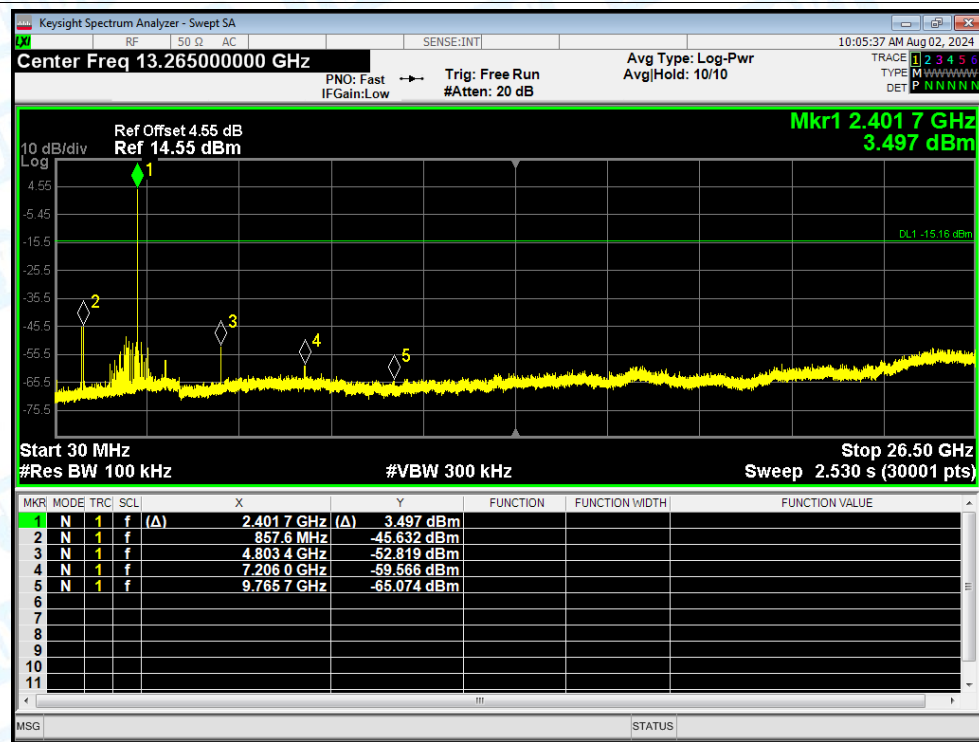
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Emission



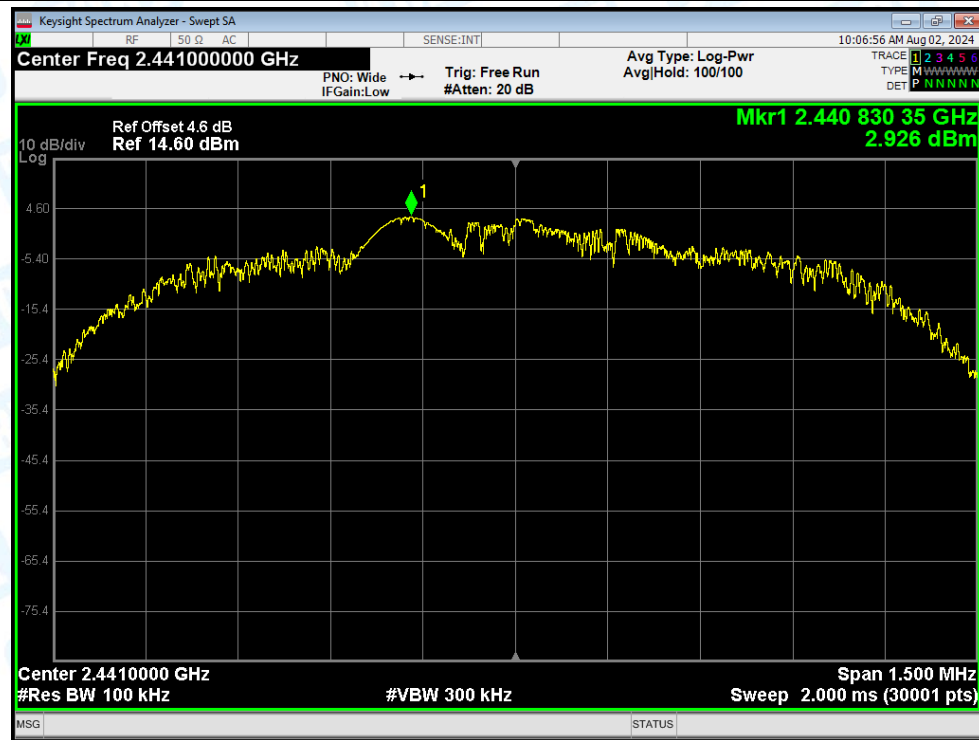
Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Ref



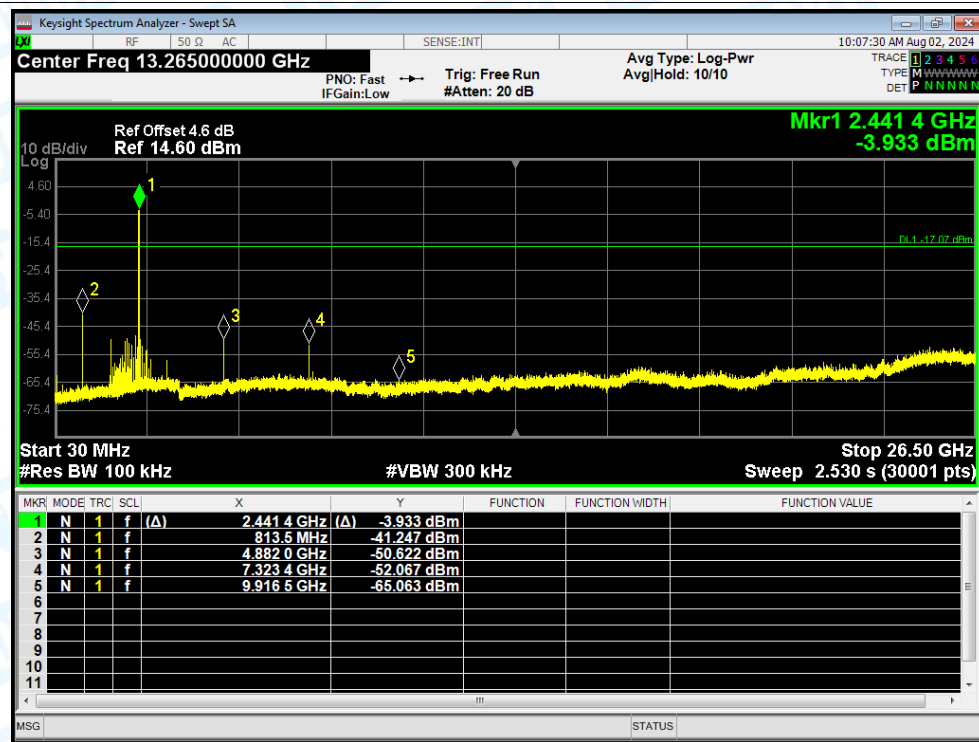
Tx. Spurious NVNT 3-DH1 2402MHz Ant1 Emission



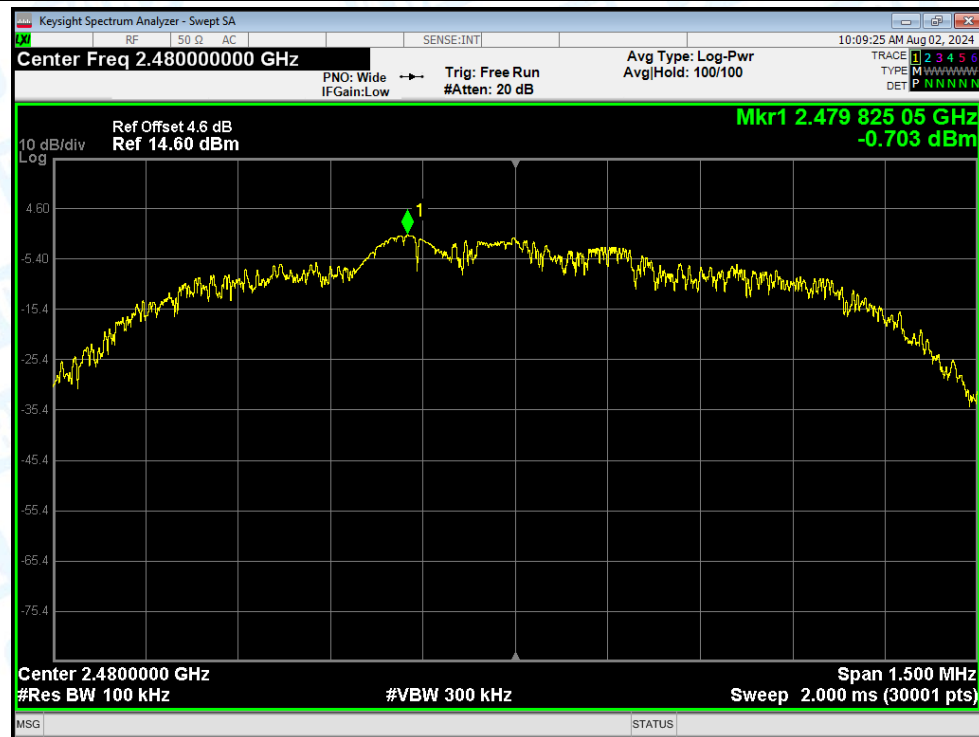
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Ref



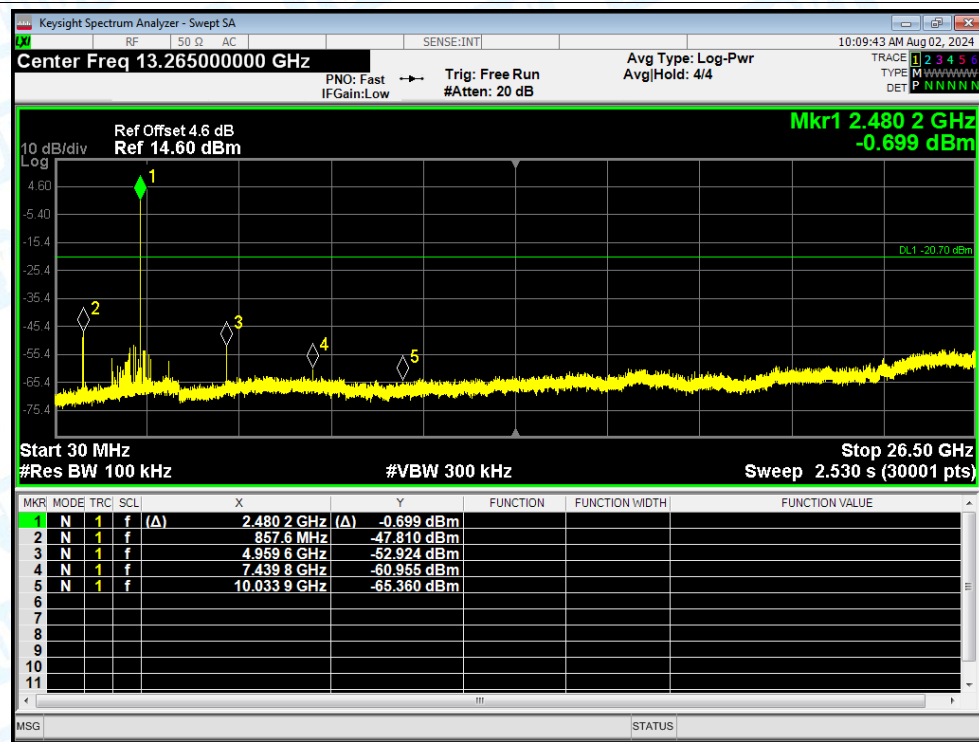
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Emission



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Emission

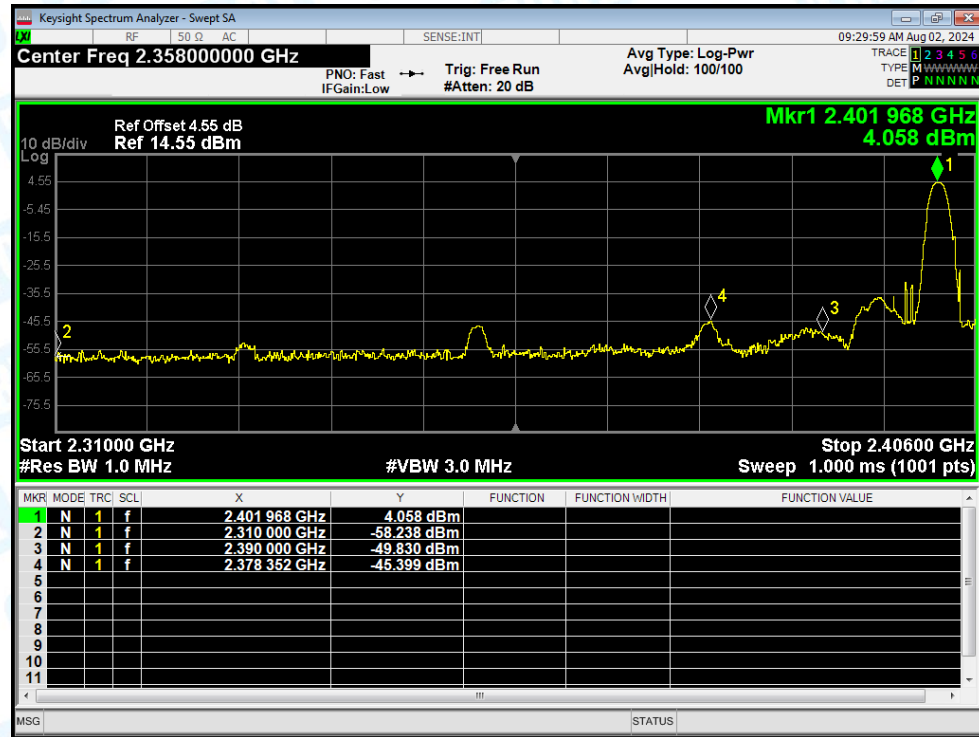


8. Restrict Band

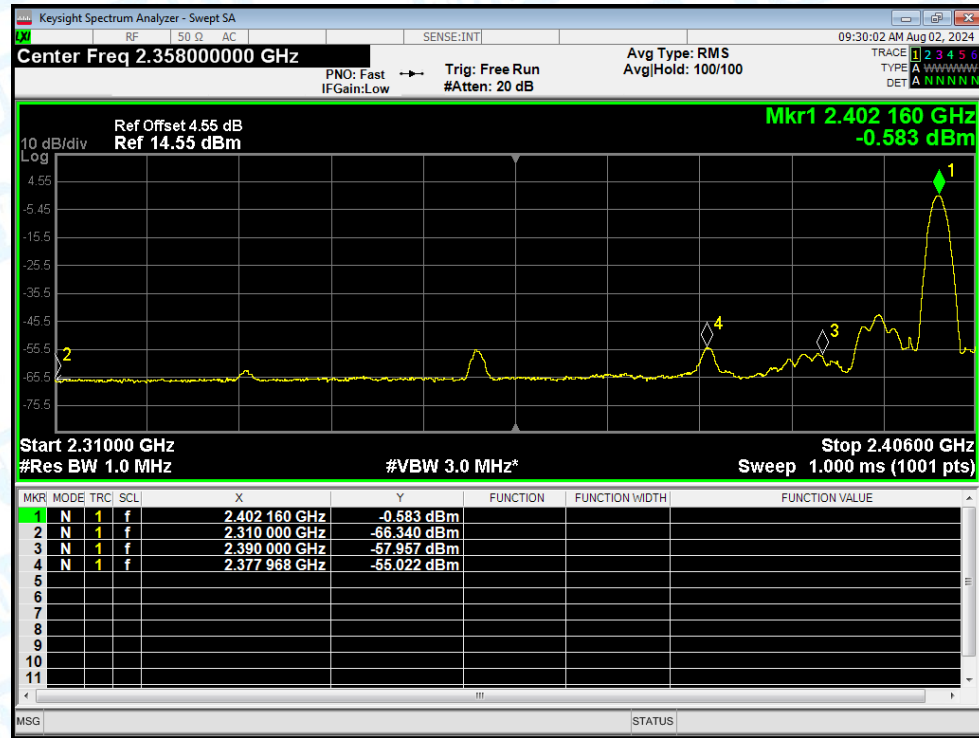
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-58.24	2	-	39.02	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-66.34	2	5.17	36.09	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2378.352	-45.4	2	-	51.86	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2377.968	-55.02	2	5.17	47.41	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-49.83	2	-	47.43	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-57.96	2	5.17	44.47	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-52.34	2	-	44.92	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-62.31	2	5.17	40.12	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2486.128	-44.05	2	-	53.21	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2486.248	-51.83	2	5.17	50.6	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-57.34	2	-	39.92	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-65.91	2	5.17	36.52	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-49.35	2	-	47.91	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-56.55	2	5.17	45.88	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2377.968	-42.88	2	-	54.38	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2378.256	-51.96	2	5.17	50.47	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-45.97	2	-	51.29	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-55.34	2	5.17	47.09	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-46.07	2	-	51.19	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-55.88	2	5.06	46.44	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2486.104	-41.95	2	-	55.31	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2486.44	-51.89	2	5.06	50.43	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-48.52	2	-	48.74	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-55.9	2	5.06	46.42	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-59.08	2	-	38.18	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-66.8	2	5.06	35.52	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2353.68	-46	2	-	51.26	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2354.064	-55.14	2	5.06	47.18	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-57.17	2	-	40.09	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-65.66	2	5.06	36.66	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-56.46	2	-	40.8	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-65.37	2	5.06	36.95	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.56	-49.06	2	-	48.2	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2485.96	-64.13	2	5.06	38.19	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-57.05	2	-	40.21	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-65.76	2	5.06	36.56	Average	54	Pass

Test Graphs

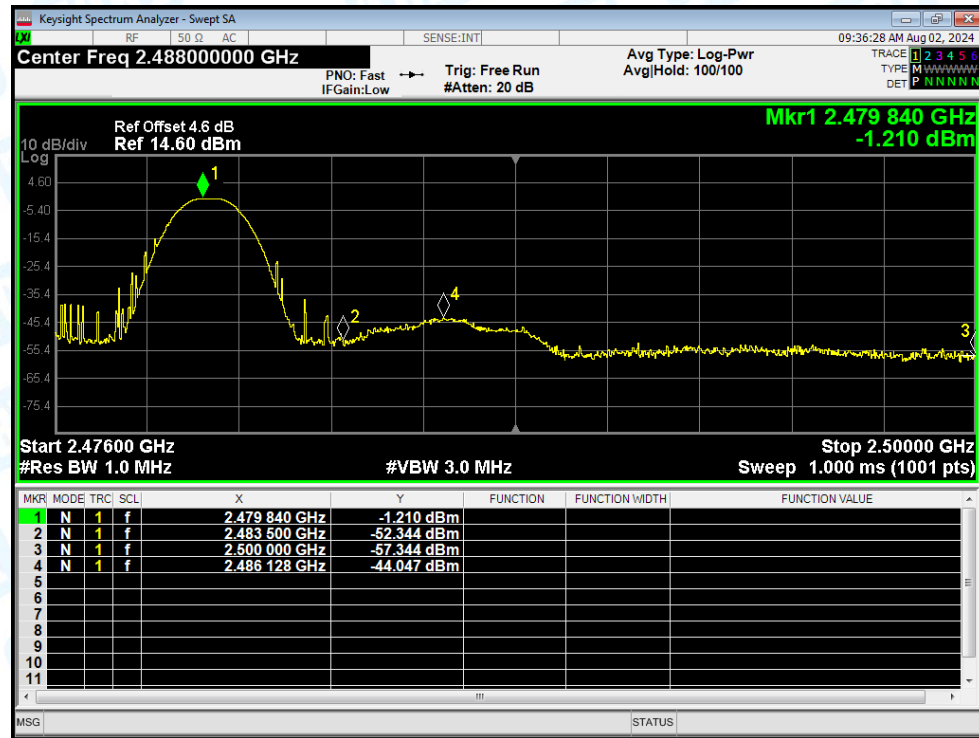
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Peak



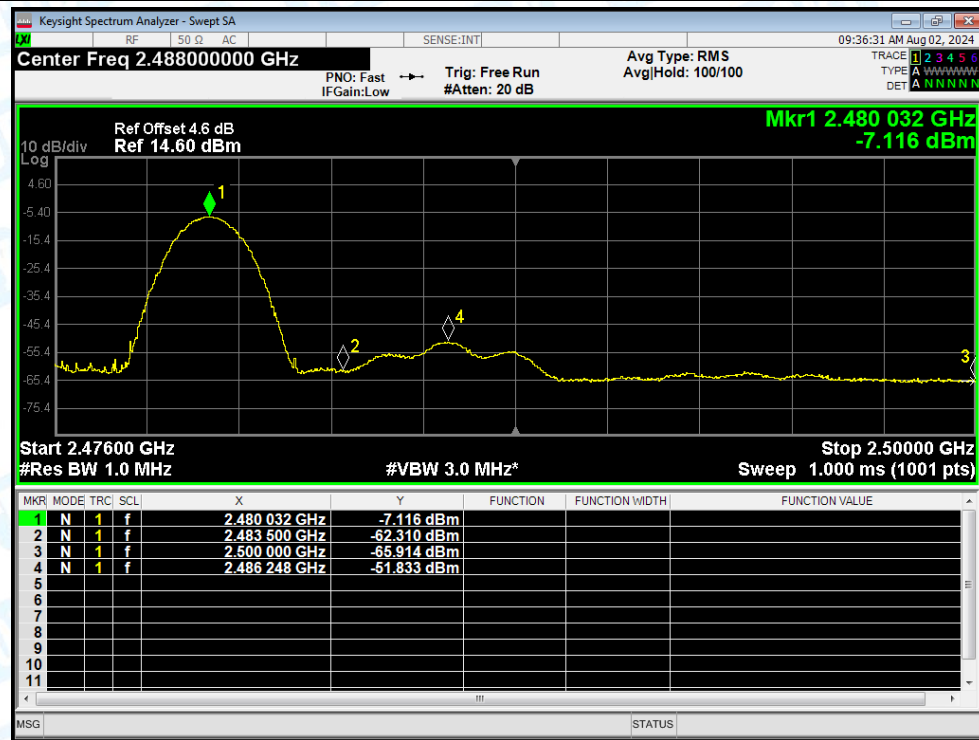
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Average



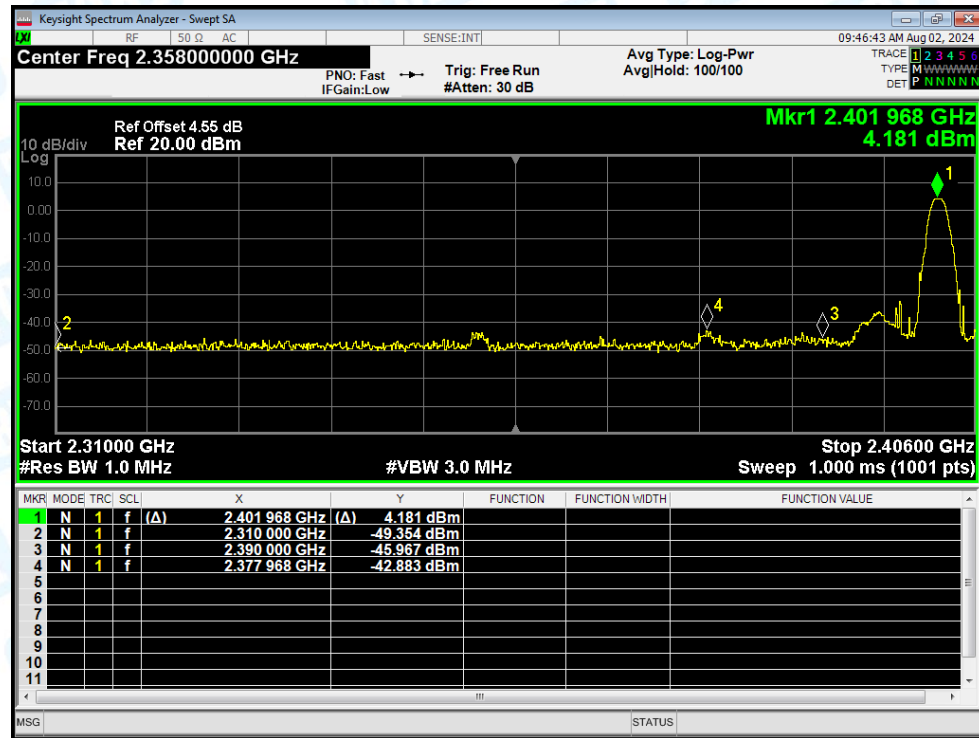
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Peak



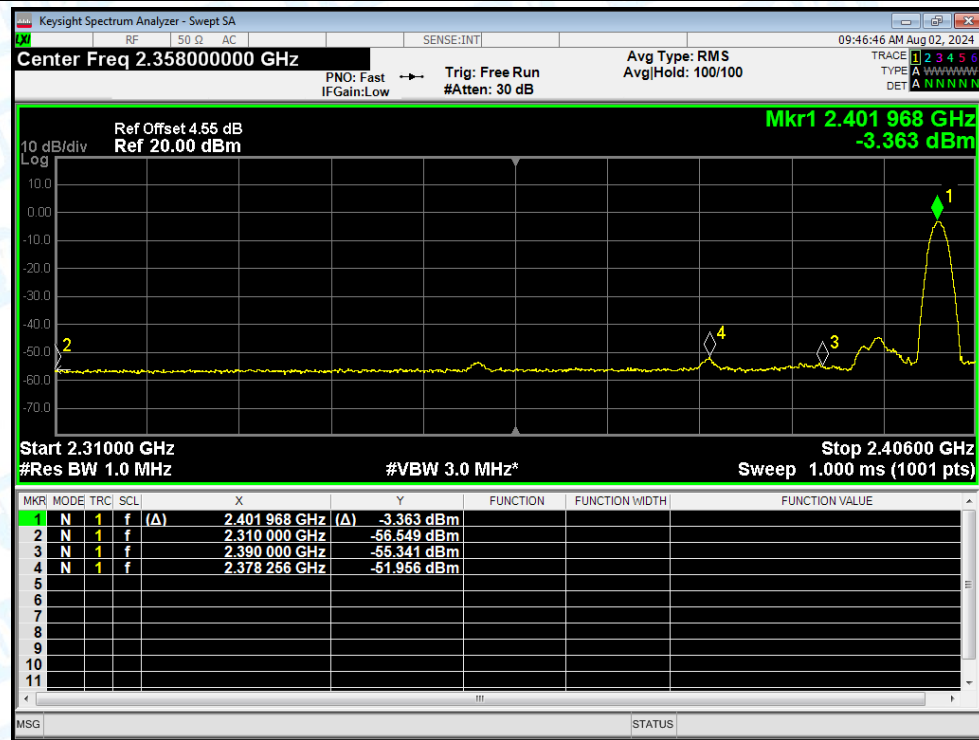
Restrict Band NVNT 1-DH1 2480MHz Ant1 No-Hopping Average



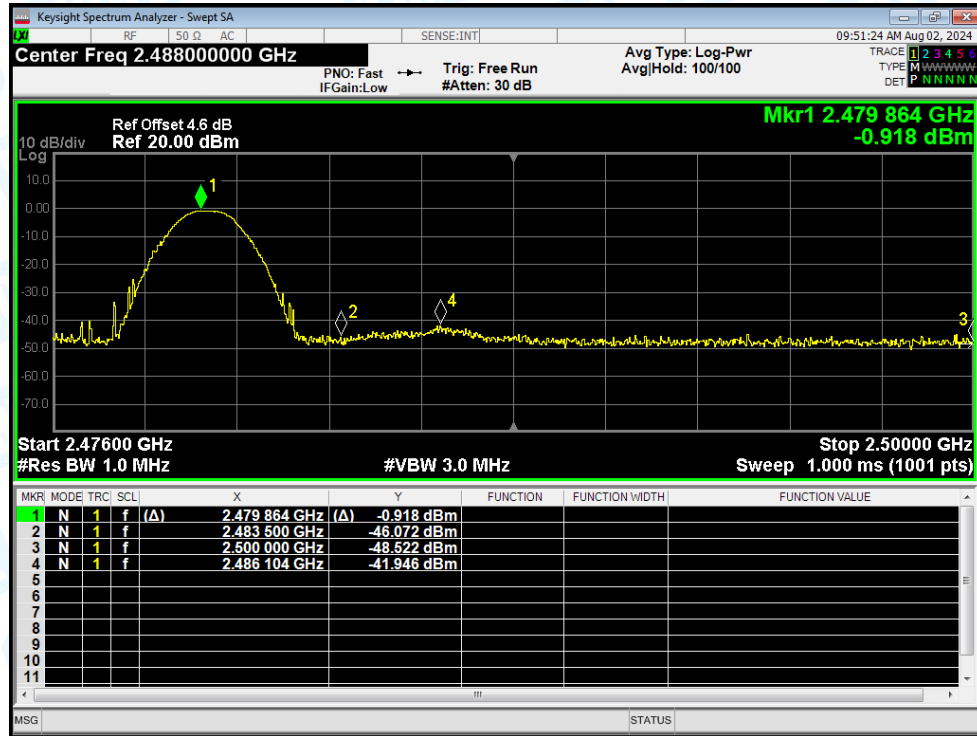
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Peak



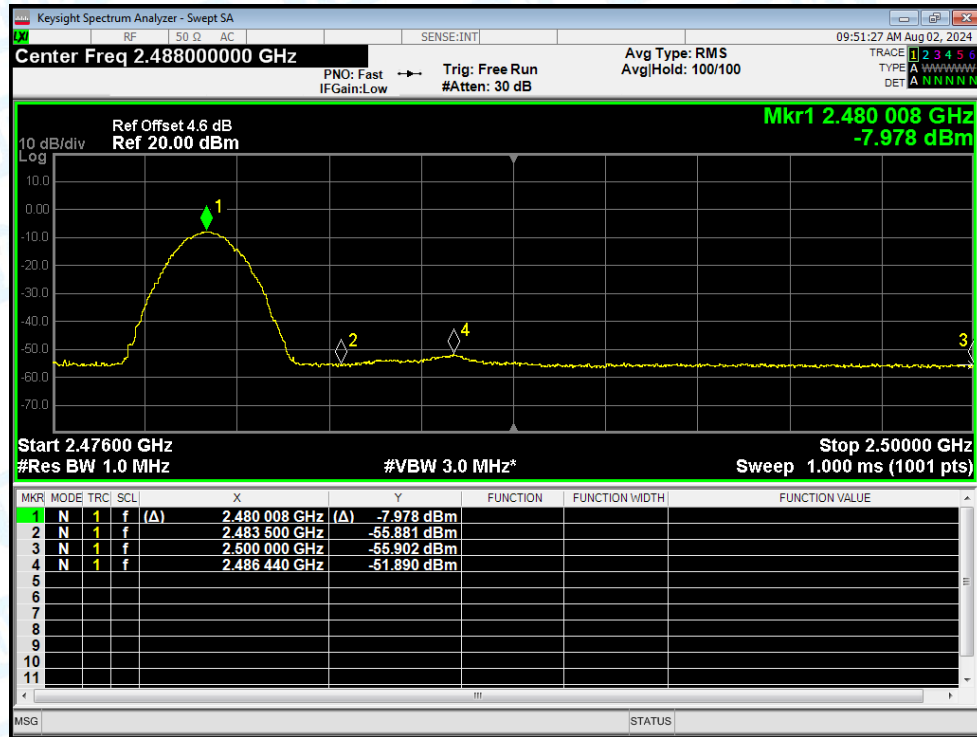
Restrict Band NVNT 2-DH1 2402MHz Ant1 No-Hopping Average



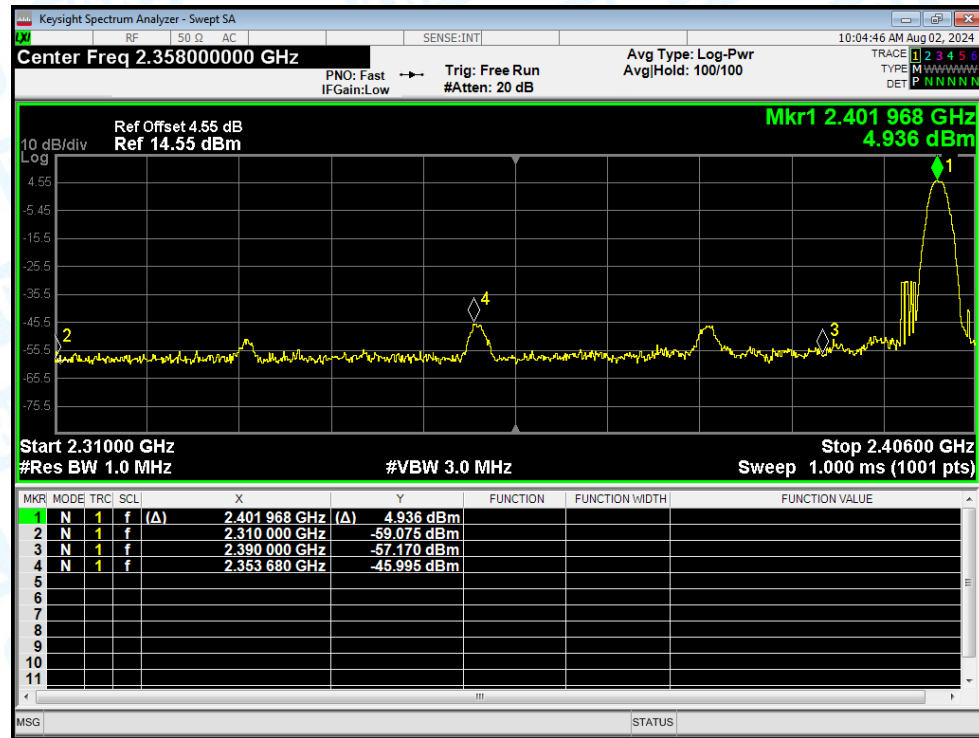
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Peak



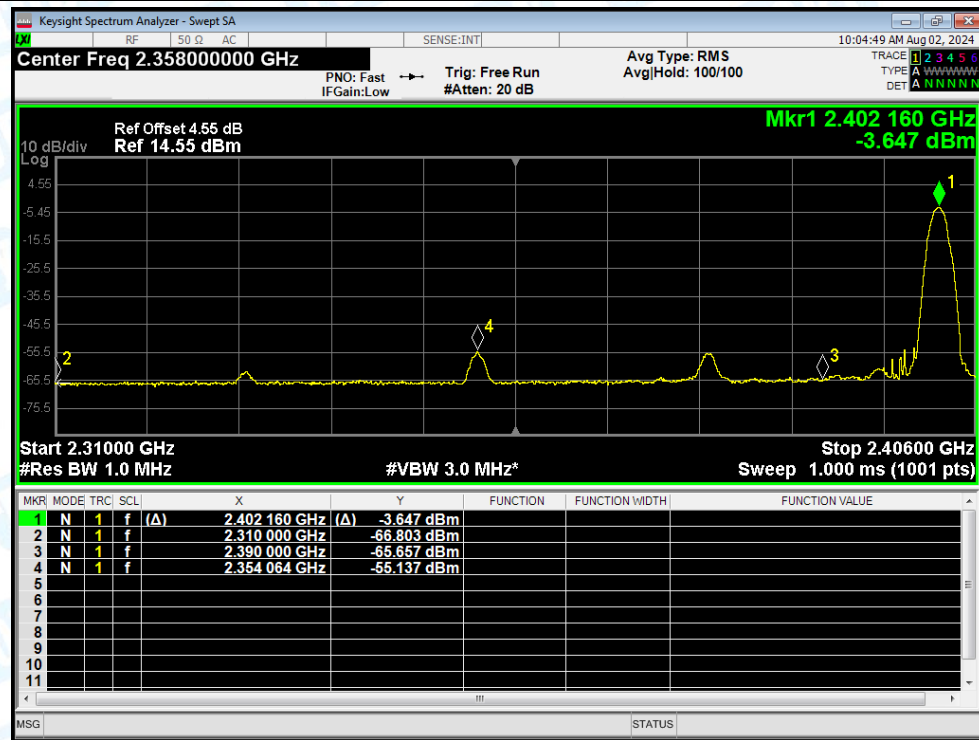
Restrict Band NVNT 2-DH1 2480MHz Ant1 No-Hopping Average



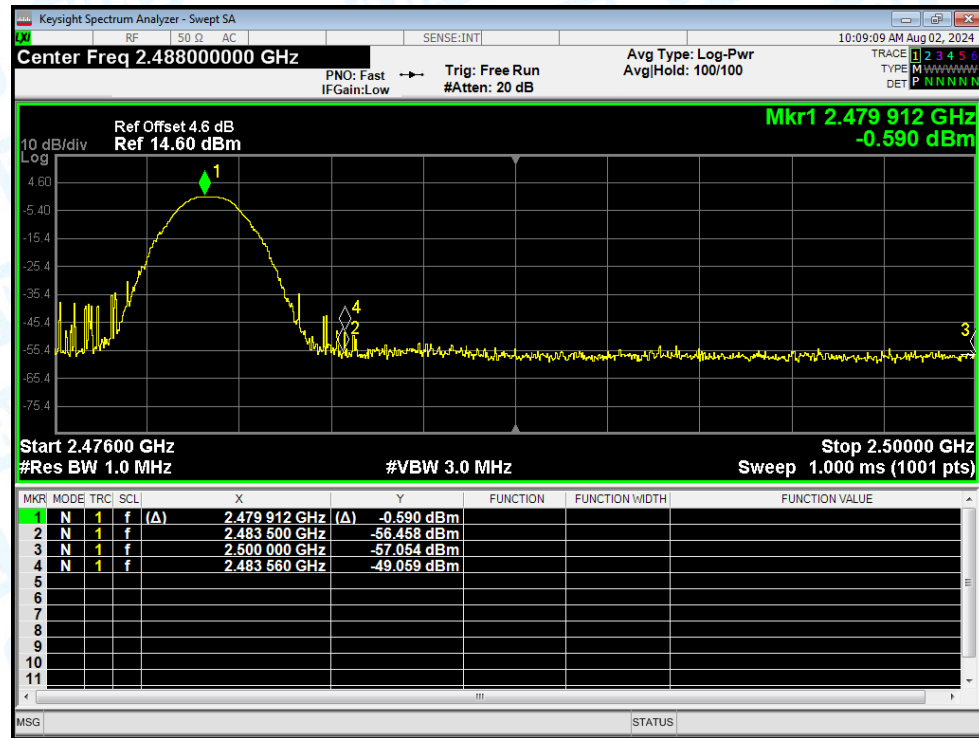
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Peak



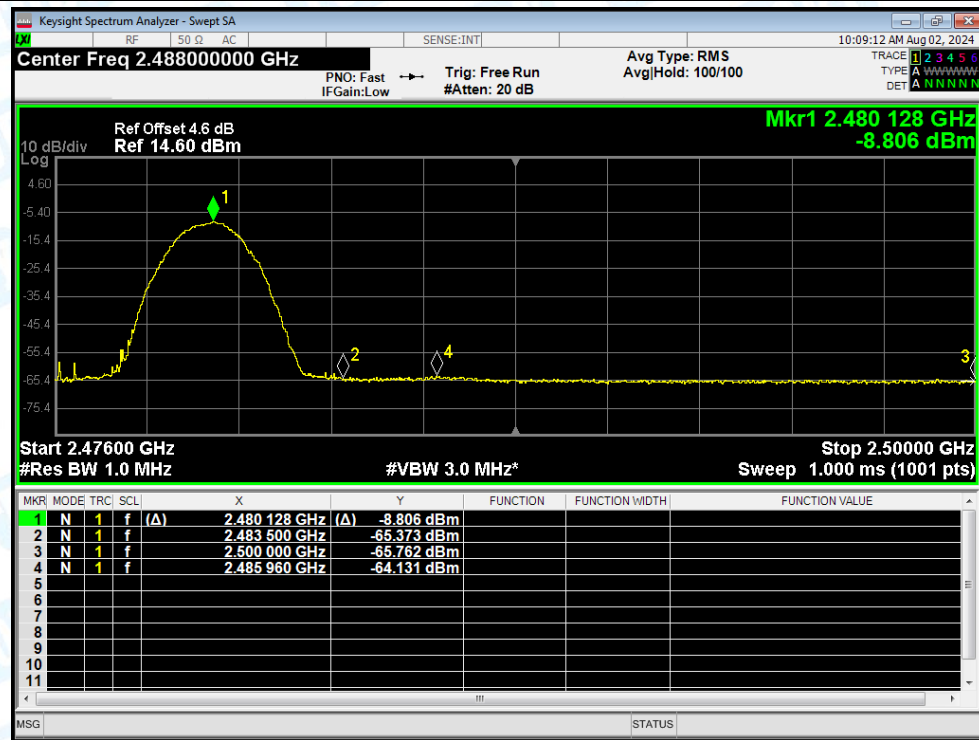
Restrict Band NVNT 3-DH1 2402MHz Ant1 No-Hopping Average



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



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



9. Carrier Frequencies Separation

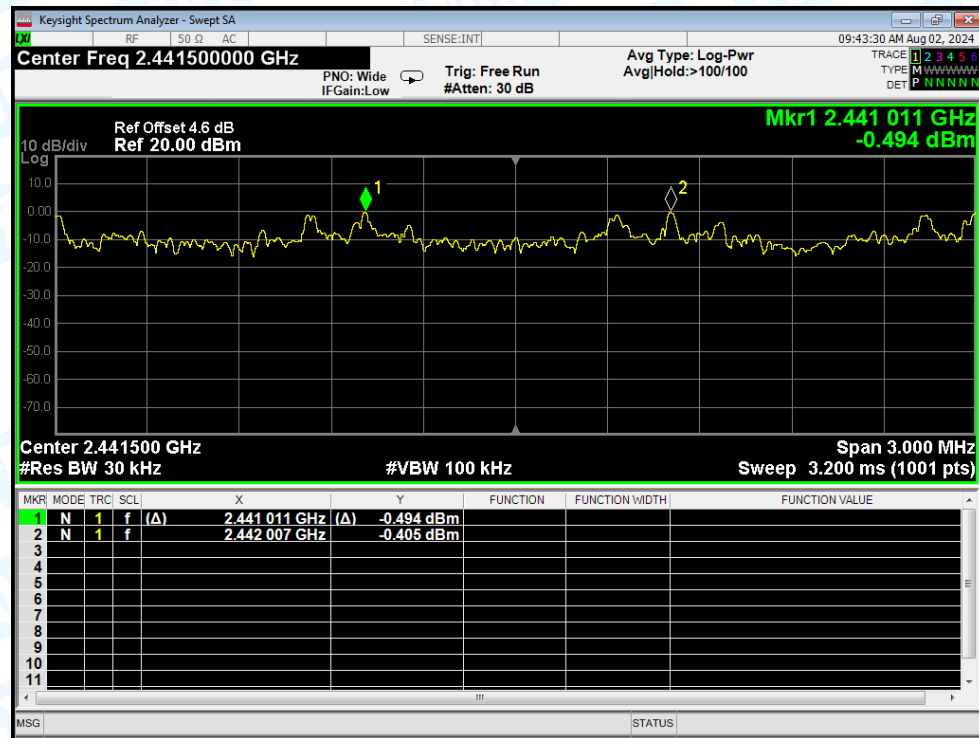
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH1	Ant1	2441.008	2441.827	0.819	0.025	Pass
NVNT	2-DH1	Ant1	2441.011	2442.007	0.996	0.025	Pass
NVNT	3-DH1	Ant1	2441.002	2441.992	0.99	0.025	Pass

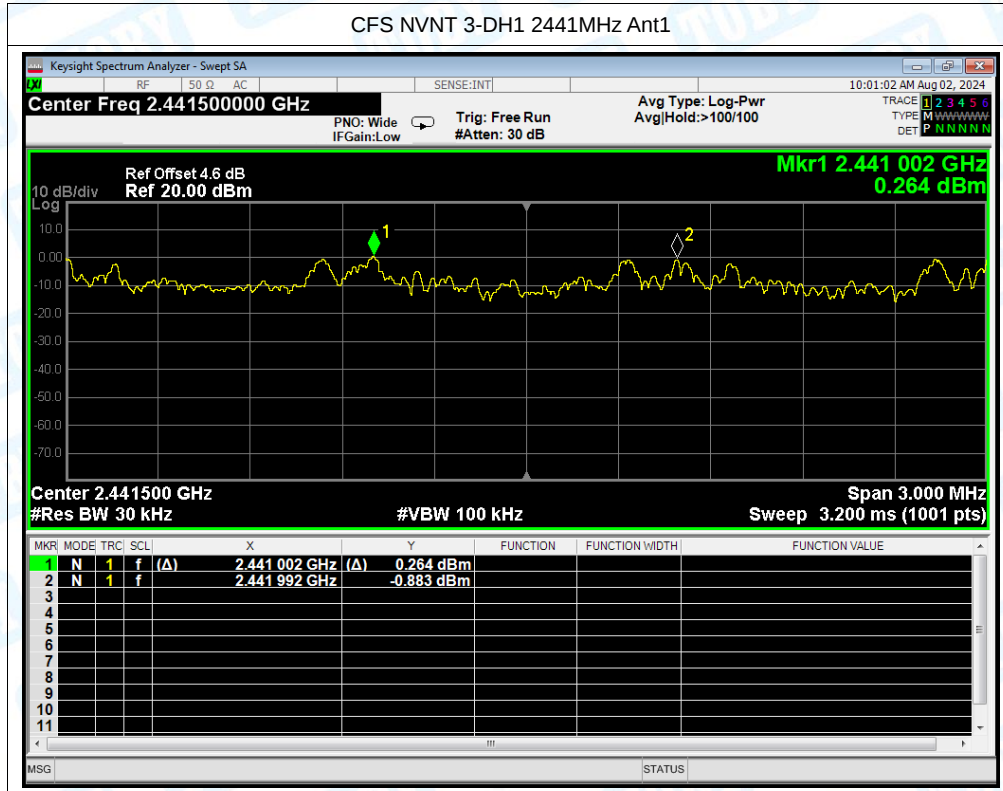
Test Graphs

CFS NVNT 1-DH1 2441MHz Ant1



CFS NVNT 2-DH1 2441MHz Ant1



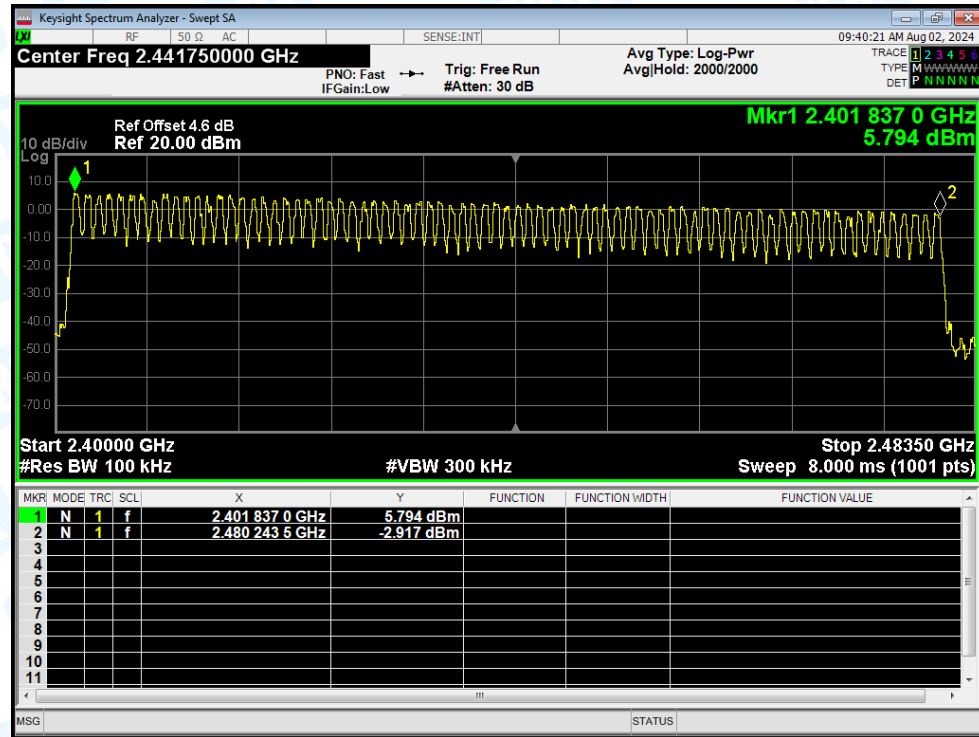


10. Number of Hopping Channel

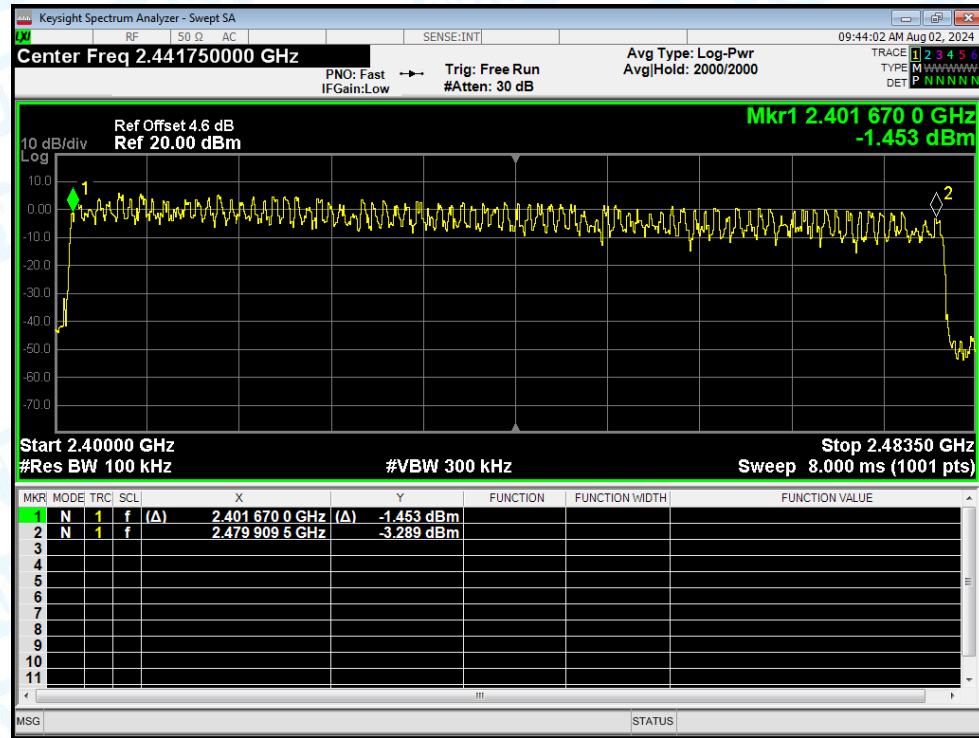
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH1	Ant1	79	15	Pass
NVNT	2-DH1	Ant1	79	15	Pass
NVNT	3-DH1	Ant1	79	15	Pass

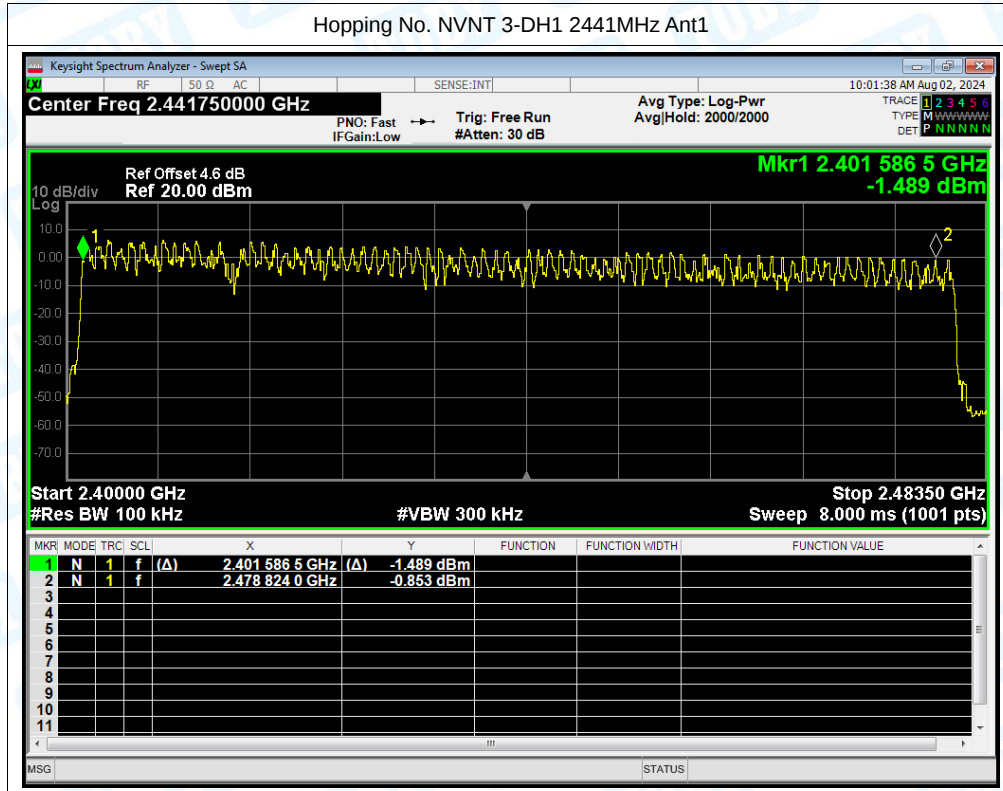
Test Graphs

Hopping No. NVNT 1-DH1 2441MHz Ant1



Hopping No. NVNT 2-DH1 2441MHz Ant1



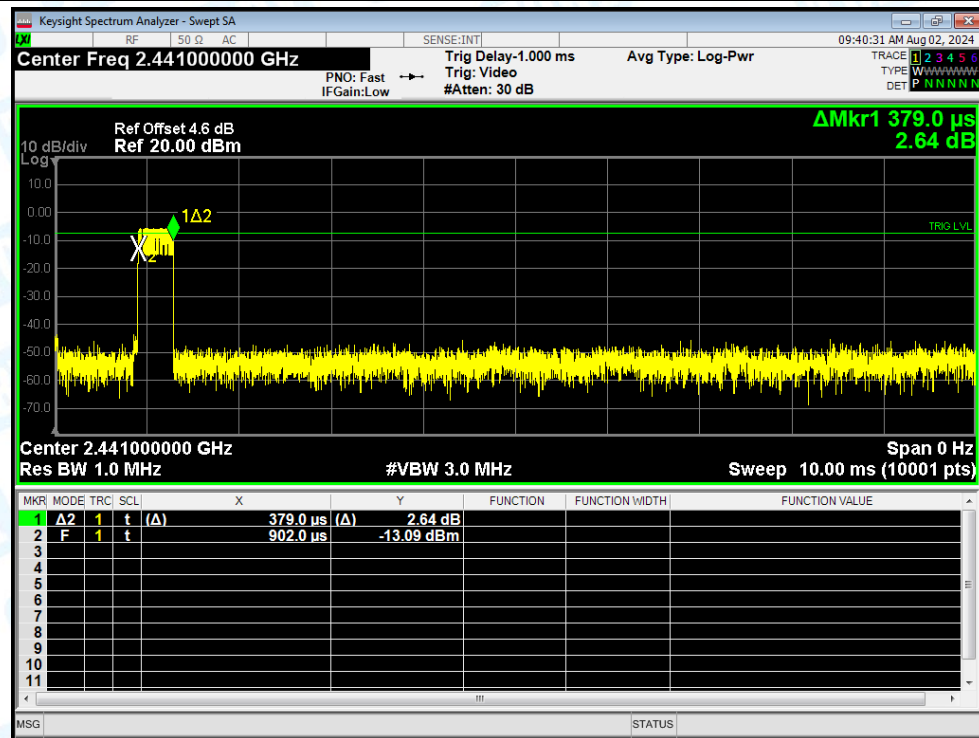


11. Dwell Time

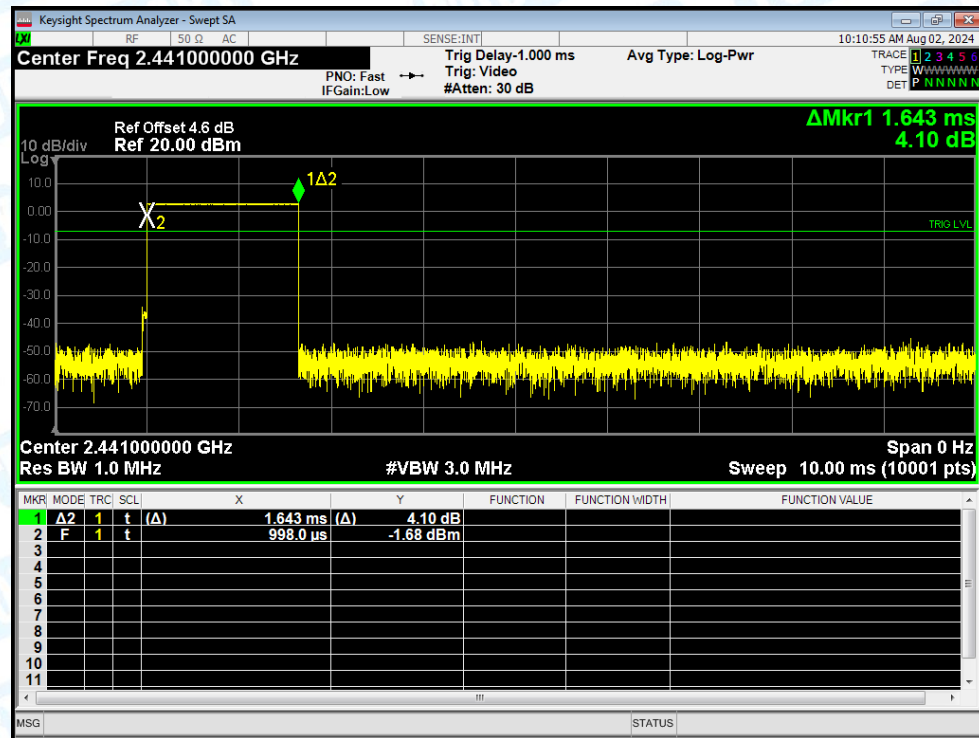
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	Ant1	0.379	121.28	31600	400	Pass
NVNT	1-DH3	2441	Ant1	1.643	262.88	31600	400	Pass
NVNT	1-DH5	2441	Ant1	2.892	308.48	31600	400	Pass
NVNT	2-DH1	2441	Ant1	0.386	123.52	31600	400	Pass
NVNT	2-DH3	2441	Ant1	1.638	262.08	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	2.886	307.84	31600	400	Pass

Test Graphs

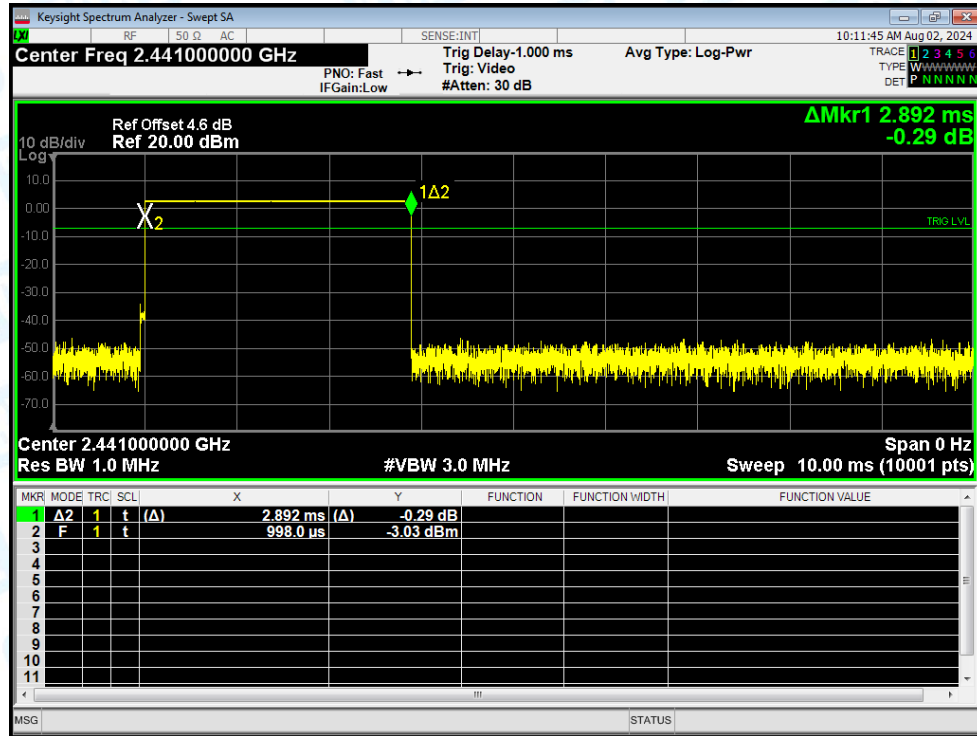
Dwell NVNT 1-DH1 2441MHz Ant1



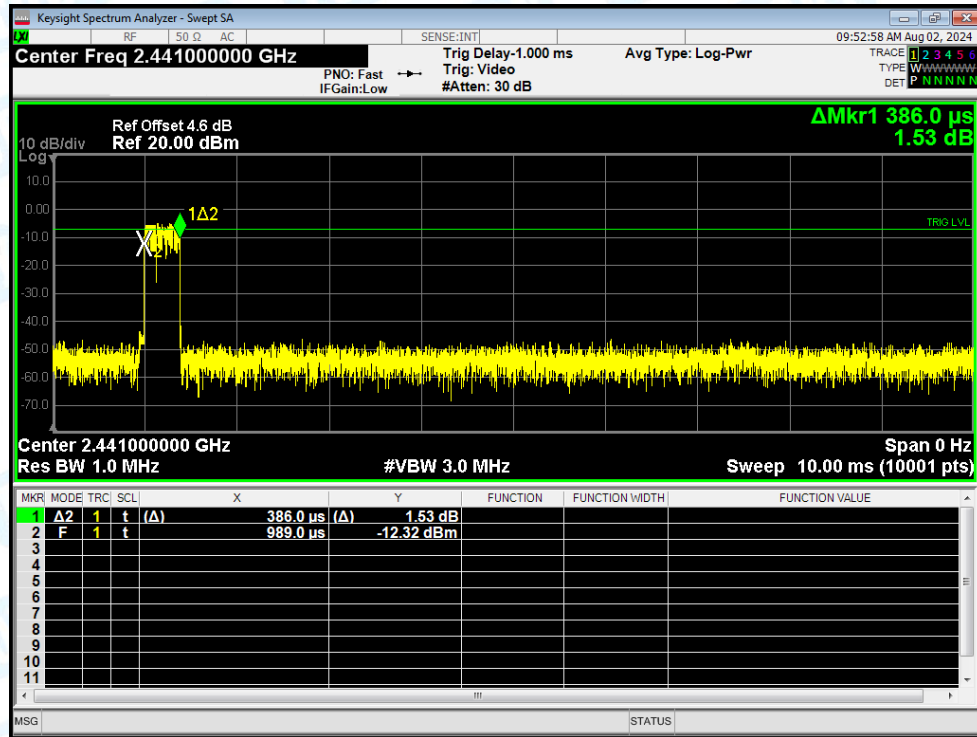
Dwell NVNT 1-DH3 2441MHz Ant1



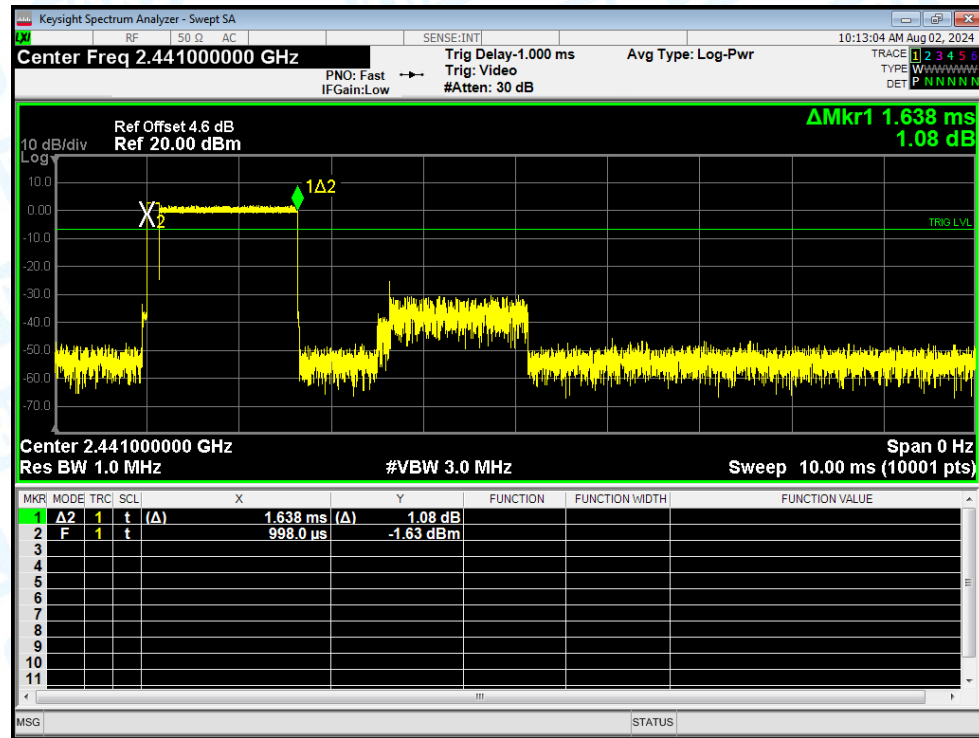
Dwell NVNT 1-DH5 2441MHz Ant1



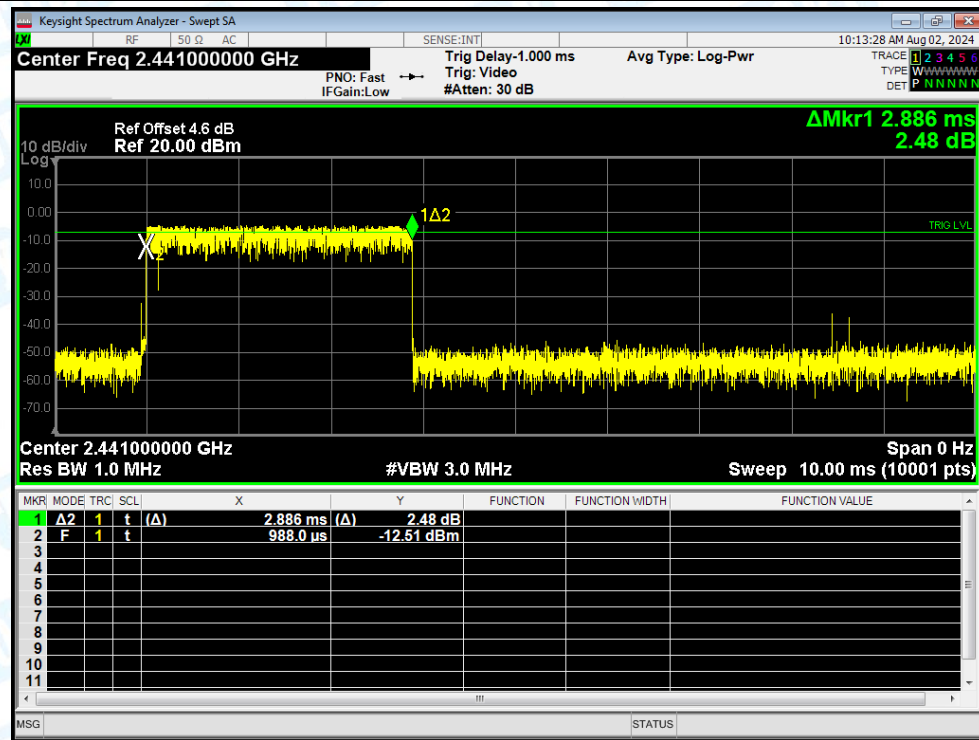
Dwell NVNT 2-DH1 2441MHz Ant1



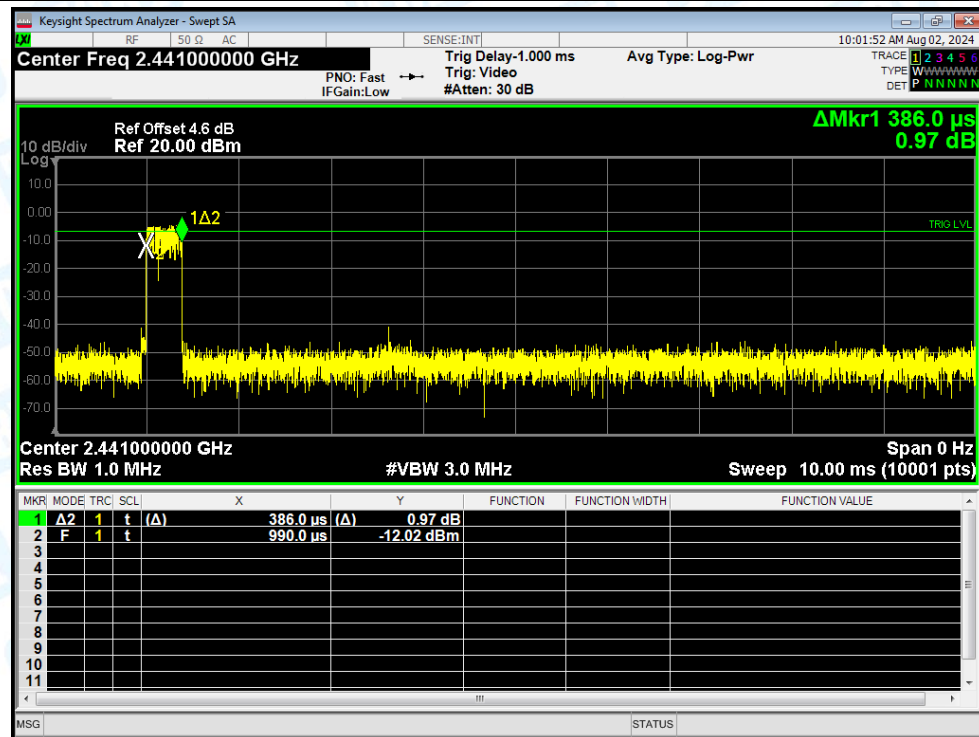
Dwell NVNT 2-DH3 2441MHz Ant1



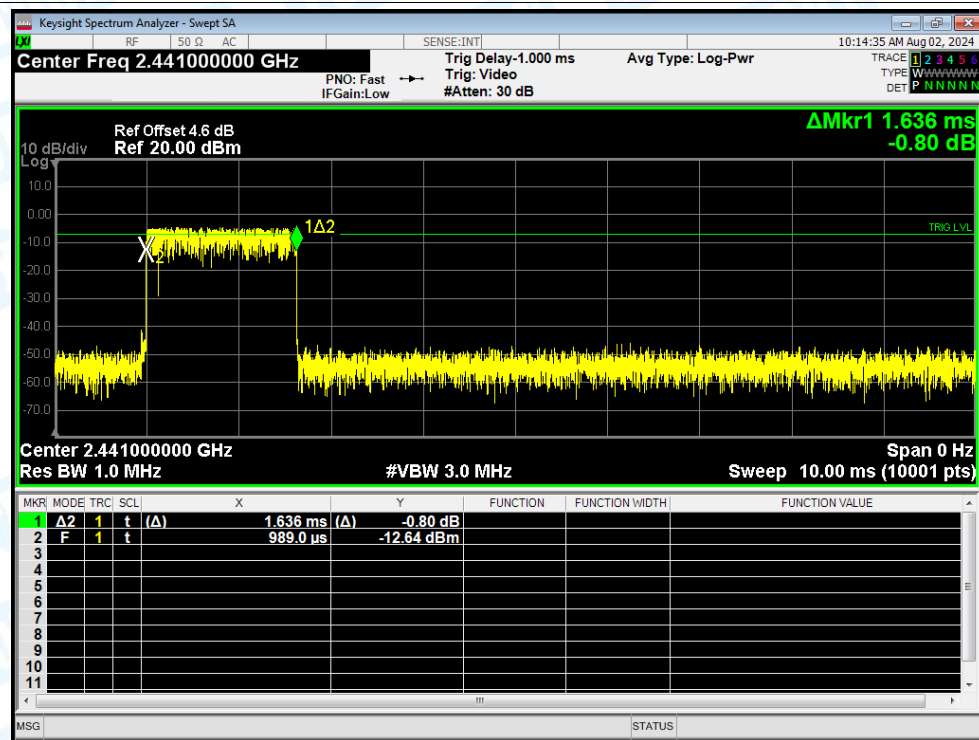
Dwell NVNT 2-DH5 2441MHz Ant1

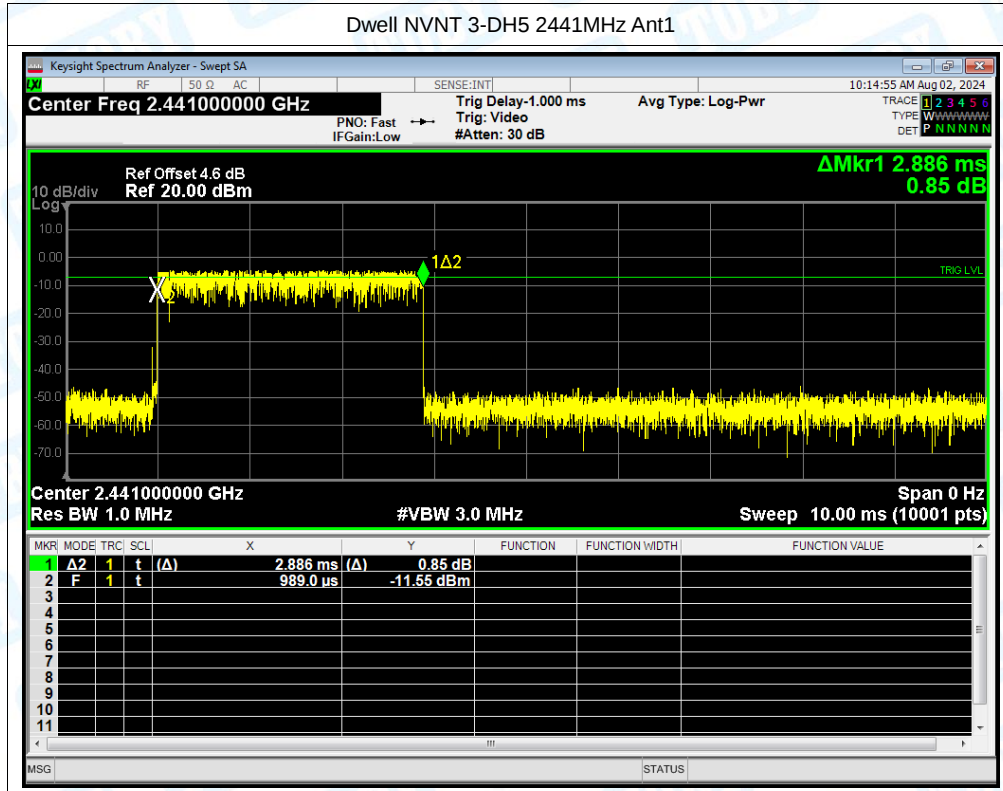


Dwell NVNT 3-DH1 2441MHz Ant1



Dwell NVNT 3-DH3 2441MHz Ant1





---- END OF REPORT ----