

RF Test Data for Bluetooth (Conducted Measurements)

General Description of EUT	
Product Name:	TOWER SPEAKER
Test Model:	4001975
Sample ID:	HC-C-202407-0205-02-01
Environmental Conditions	
Temperature:	24.6°C
Relative Humidity:	52.6%
Test Voltage:	DC 5V
Test Engineer:	Mike Yan
Note: For a more detailed features description, please refer to the report TBR-C-202407-0205-20 The report only show the worst case data.	

Contents

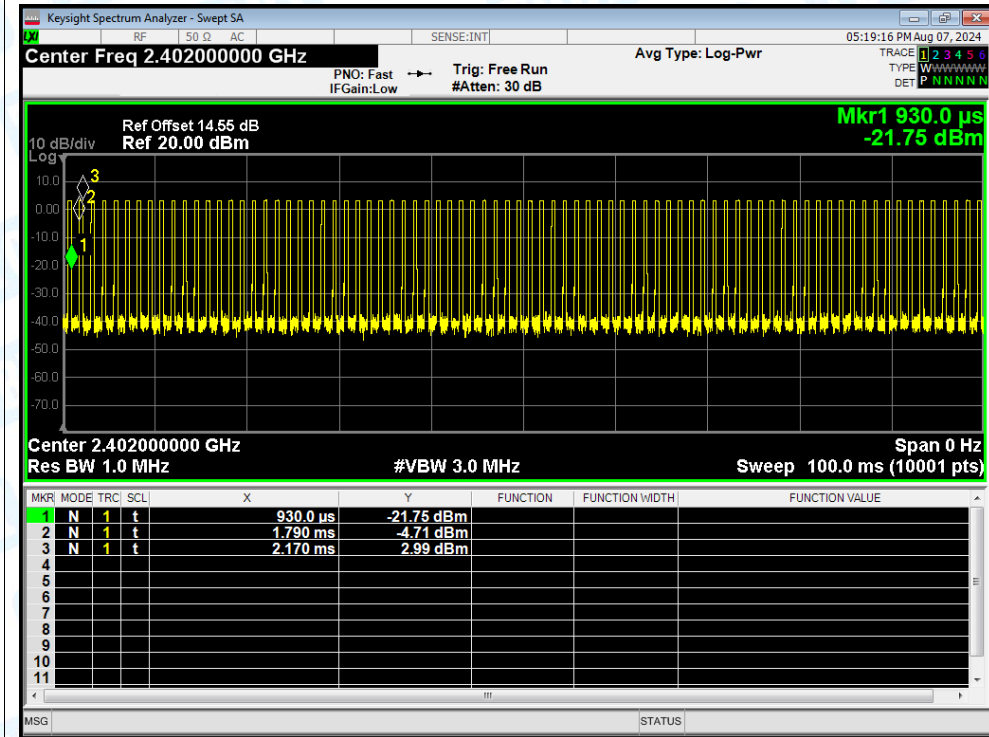
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1. Duty Cycle

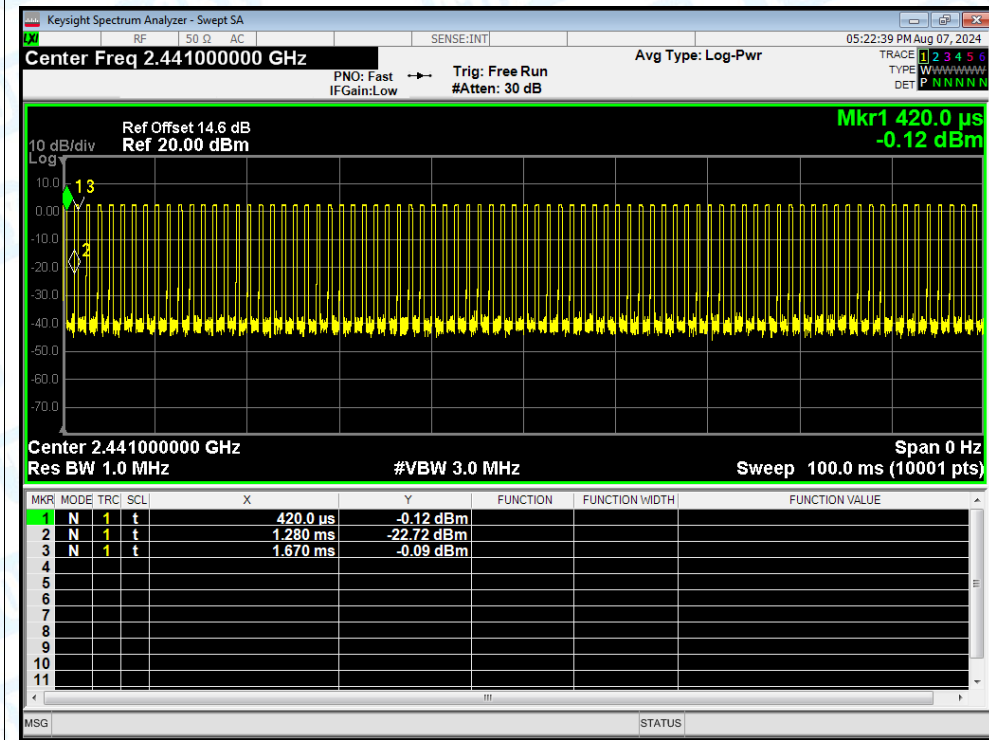
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH1	2402	Ant1	30.65	5.14	2.63
NVNT	1-DH1	2441	Ant1	31.2	5.06	2.56
NVNT	1-DH1	2480	Ant1	30.4	5.17	2.63
NVNT	2-DH1	2402	Ant1	31.2	5.06	2.56
NVNT	2-DH1	2441	Ant1	31.2	5.06	2.56
NVNT	2-DH1	2480	Ant1	31.2	5.06	2.56
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	30.4	5.17	2.63

Test Graphs

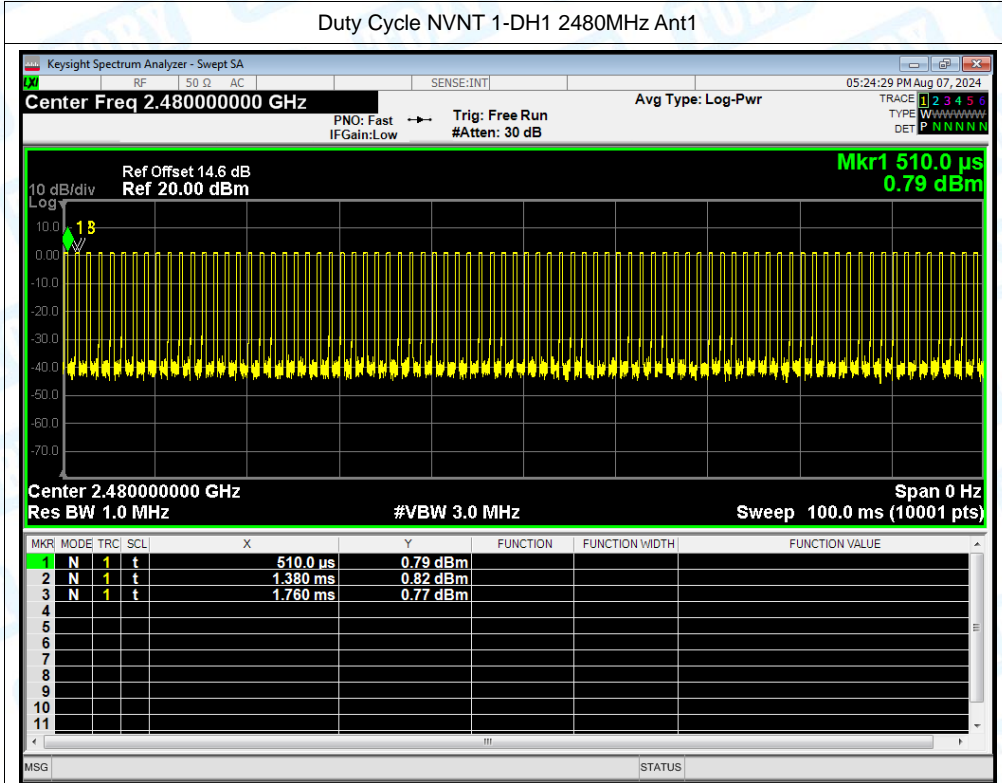
Duty Cycle NVNT 1-DH1 2402MHz Ant1



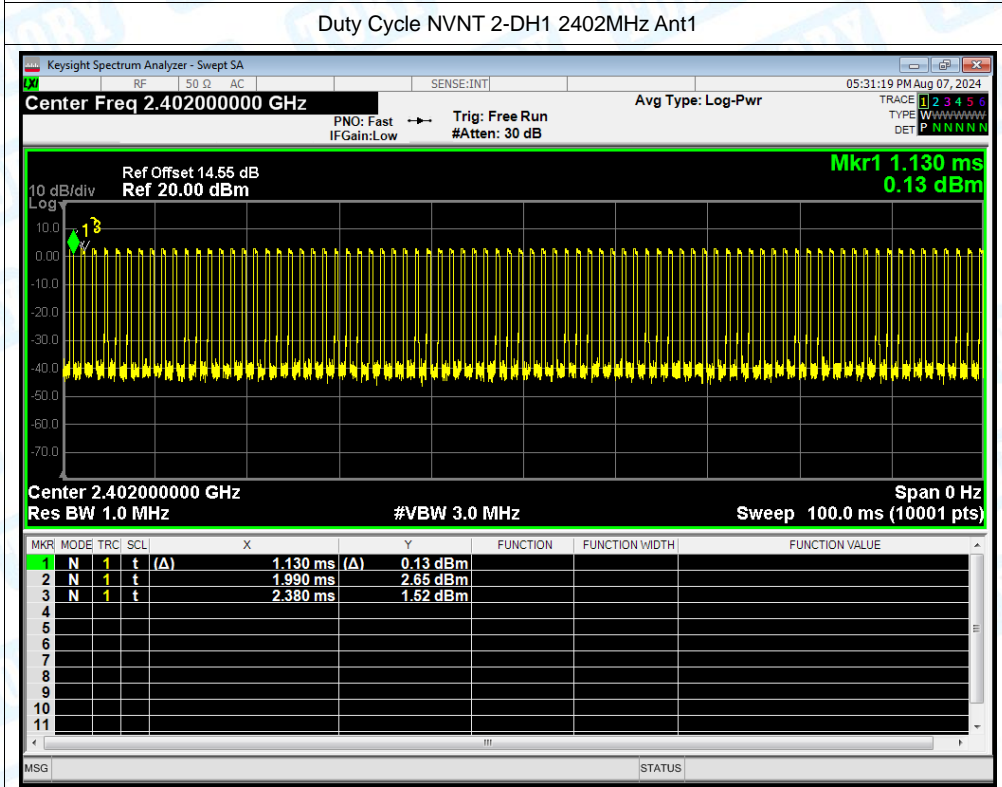
Duty Cycle NVNT 1-DH1 2441MHz Ant1



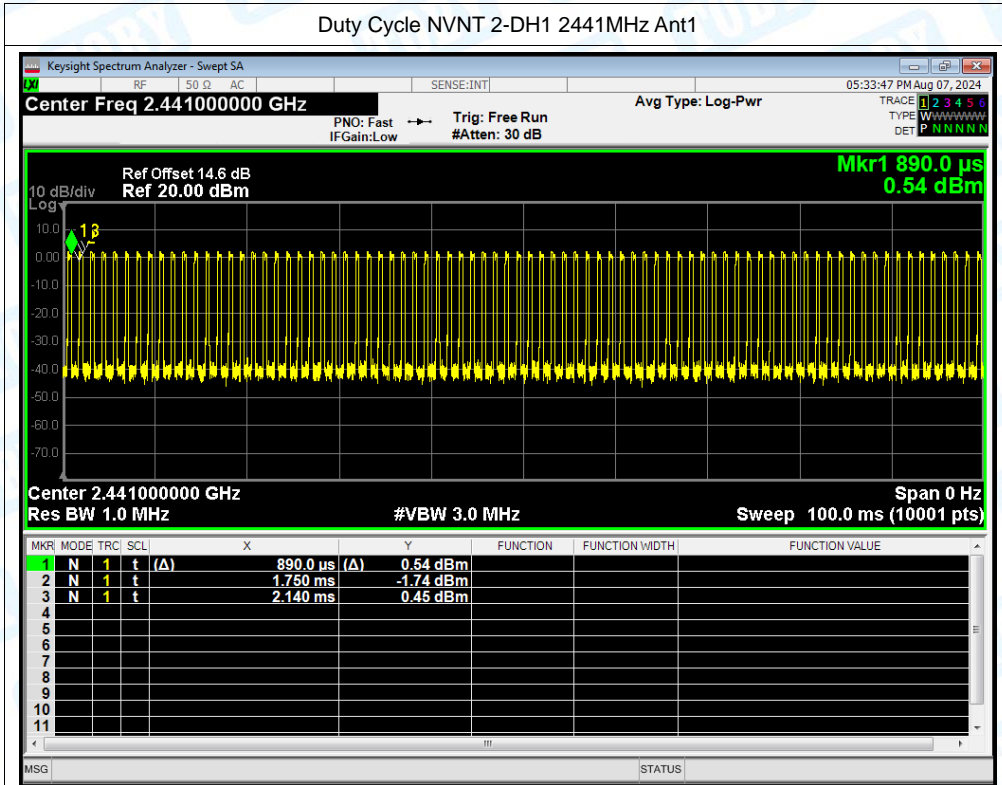
Duty Cycle NVNT 1-DH1 2480MHz Ant1



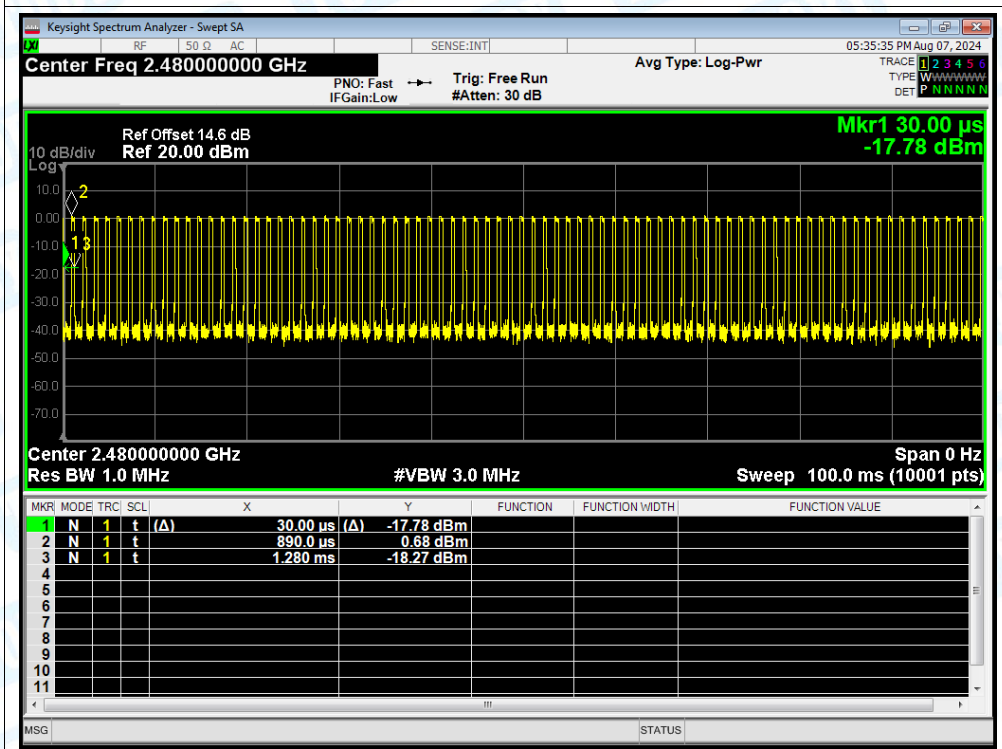
Duty Cycle NVNT 2-DH1 2402MHz Ant1



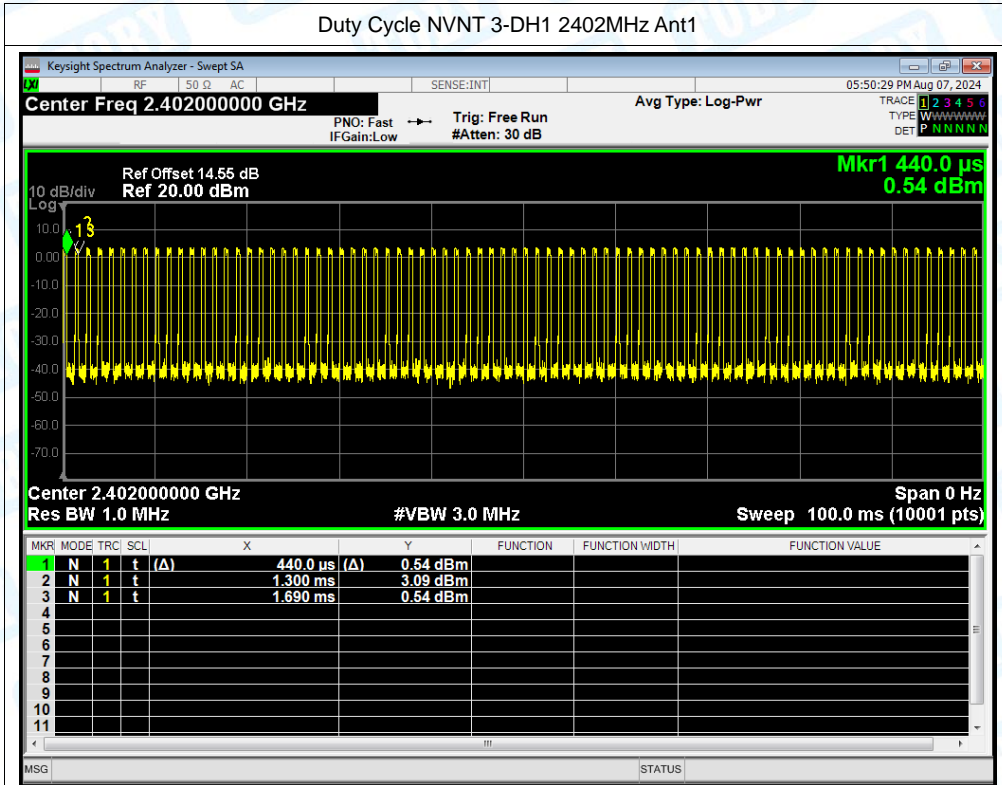
Duty Cycle NVNT 2-DH1 2441MHz Ant1



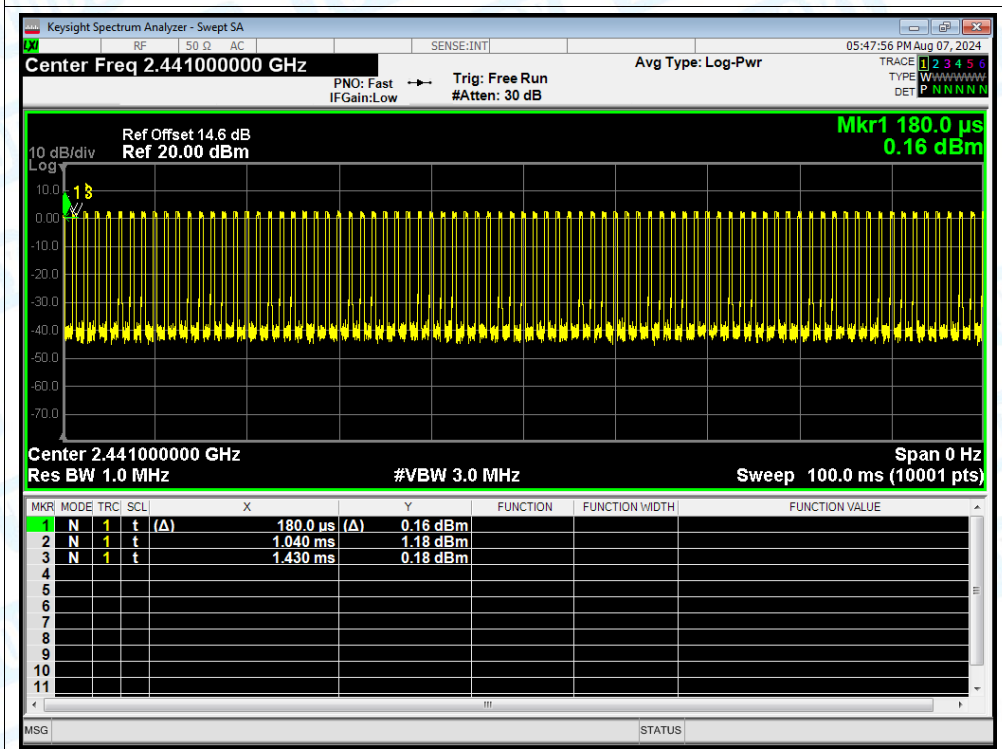
Duty Cycle NVNT 2-DH1 2480MHz Ant1

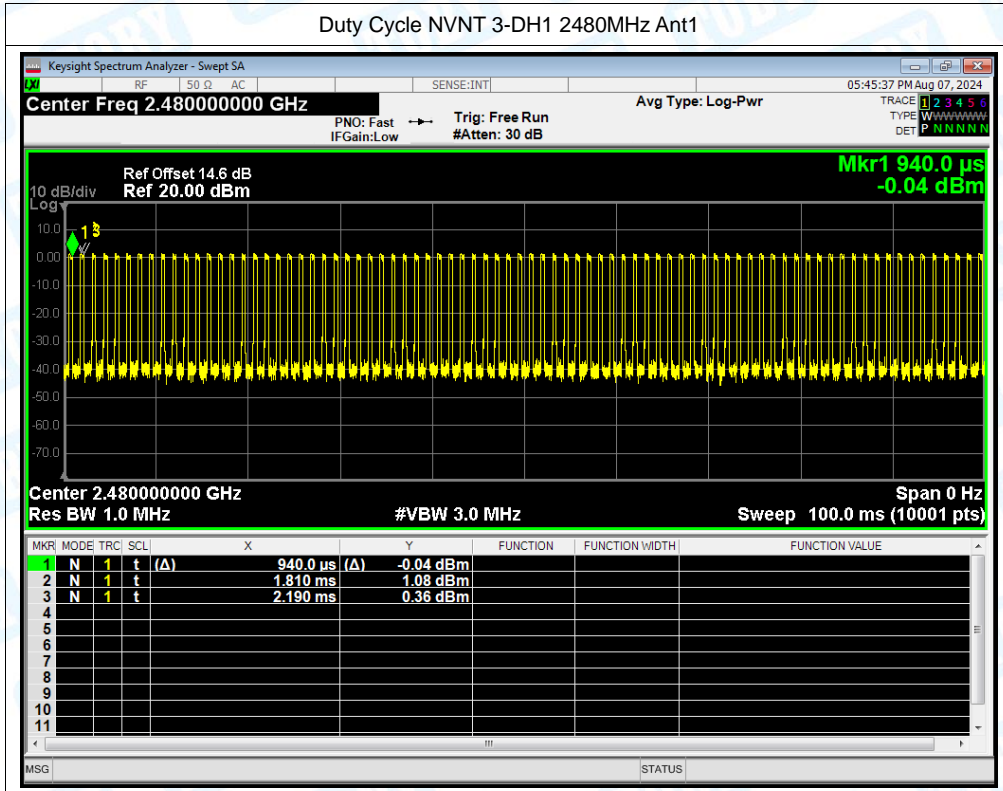


Duty Cycle NVNT 3-DH1 2402MHz Ant1



Duty Cycle NVNT 3-DH1 2441MHz Ant1



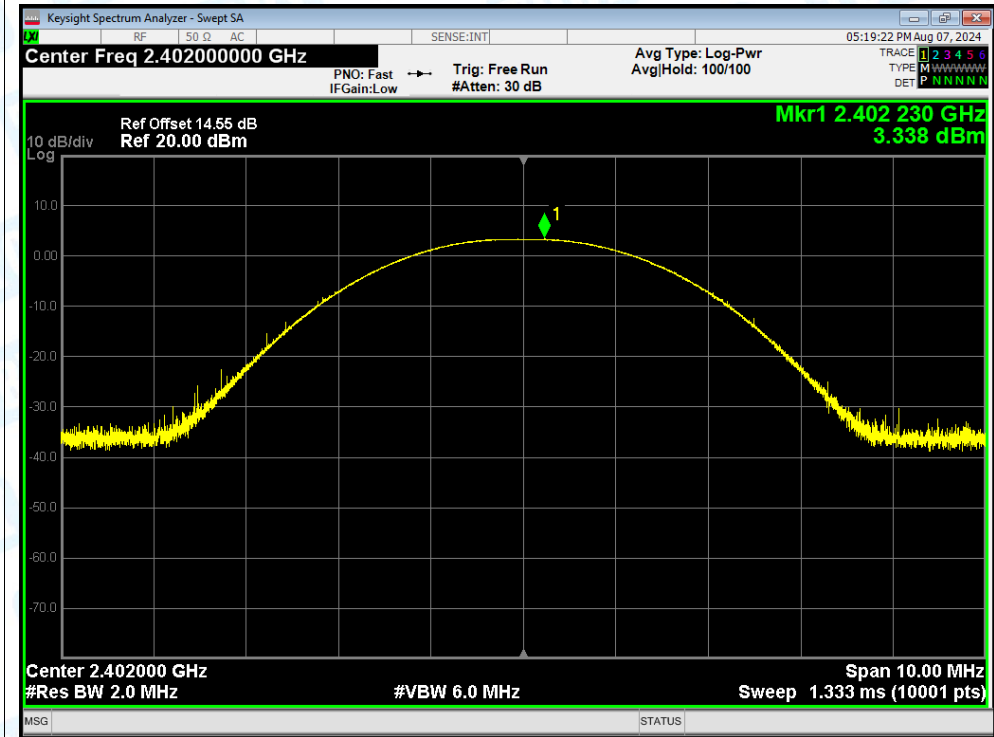


2. Maximum Conducted Output Power

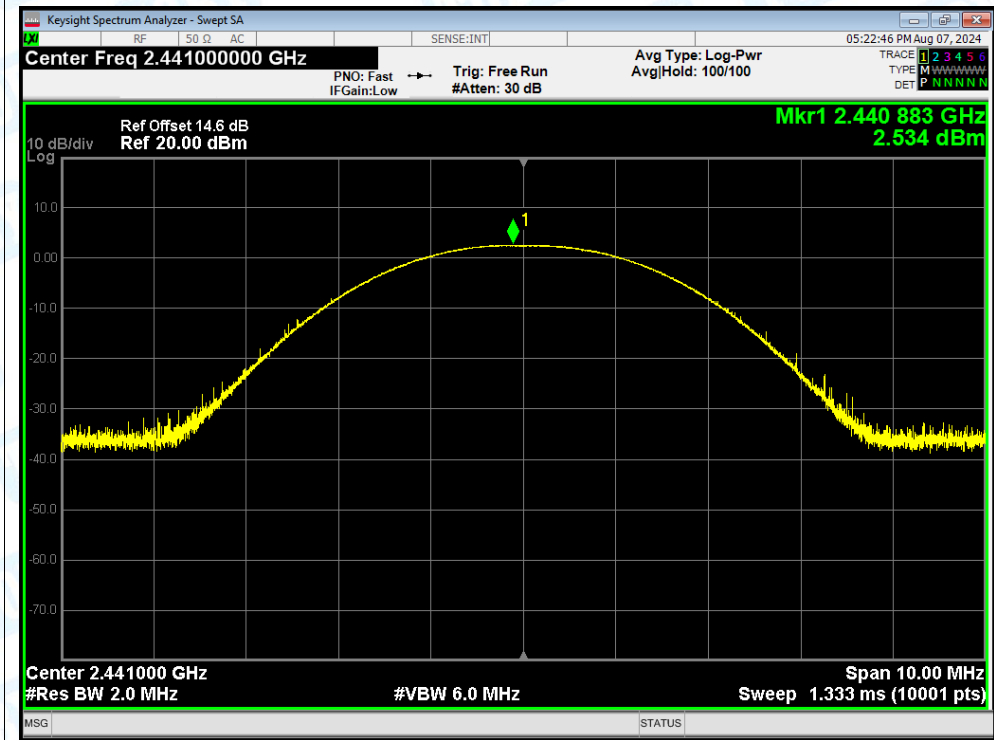
Condition	Mode	Frequency (MHz)	Antenna	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH1	2402	Ant1	3.338	21	Pass
NVNT	1-DH1	2441	Ant1	2.534	21	Pass
NVNT	1-DH1	2480	Ant1	1.184	21	Pass
NVNT	1-DH3	2441	Ant1	2.716	21	Pass
NVNT	1-DH5	2441	Ant1	2.649	21	Pass
NVNT	2-DH1	2402	Ant1	2.966	21	Pass
NVNT	2-DH1	2441	Ant1	2.19	21	Pass
NVNT	2-DH1	2480	Ant1	1.087	21	Pass
NVNT	2-DH3	2441	Ant1	2.628	21	Pass
NVNT	2-DH5	2441	Ant1	2.622	21	Pass
NVNT	3-DH1	2402	Ant1	3.639	21	Pass
NVNT	3-DH1	2441	Ant1	2.799	21	Pass
NVNT	3-DH1	2480	Ant1	1.497	21	Pass
NVNT	3-DH3	2441	Ant1	2.871	21	Pass
NVNT	3-DH5	2441	Ant1	2.844	21	Pass

Test Graphs

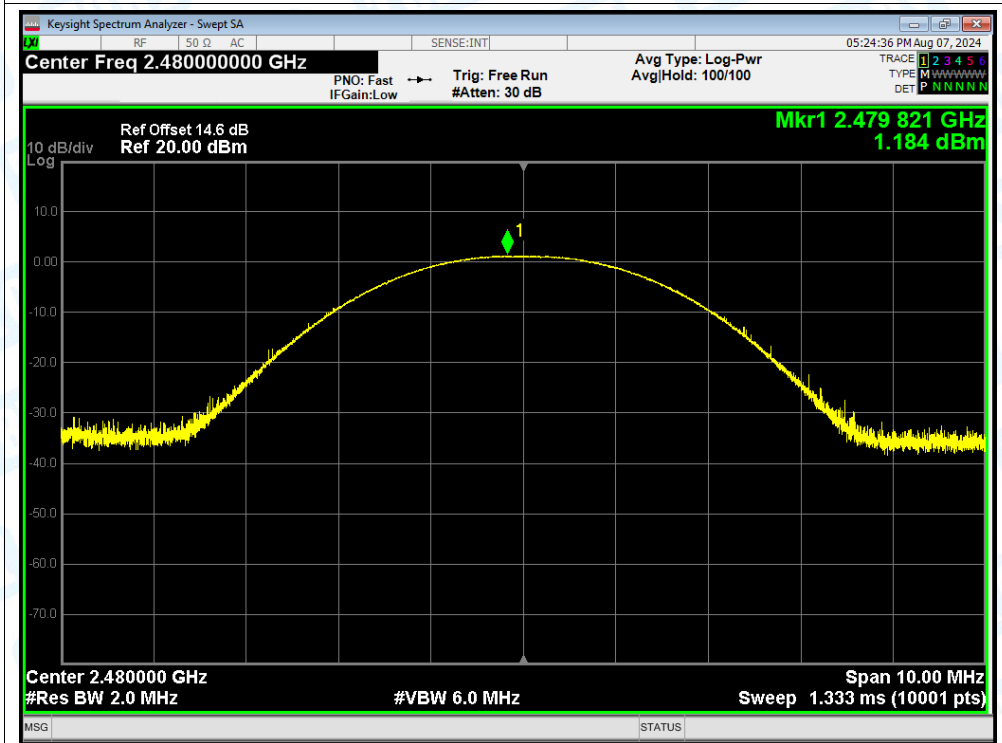
Power NVNT 1-DH1 2402MHz Ant1



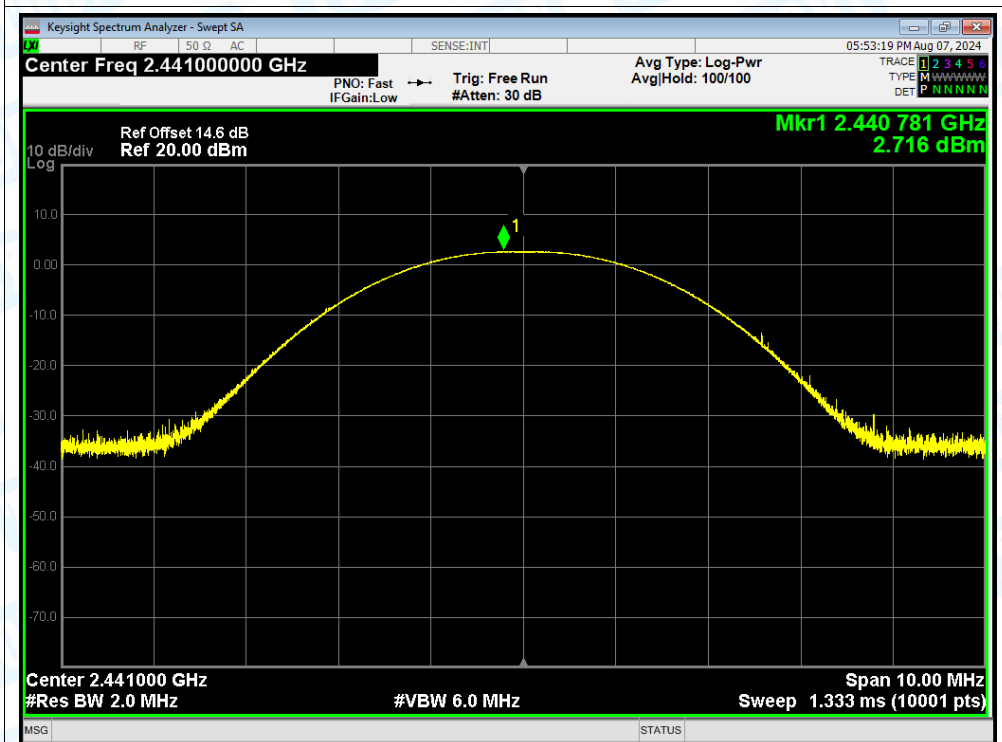
Power NVNT 1-DH1 2441MHz Ant1



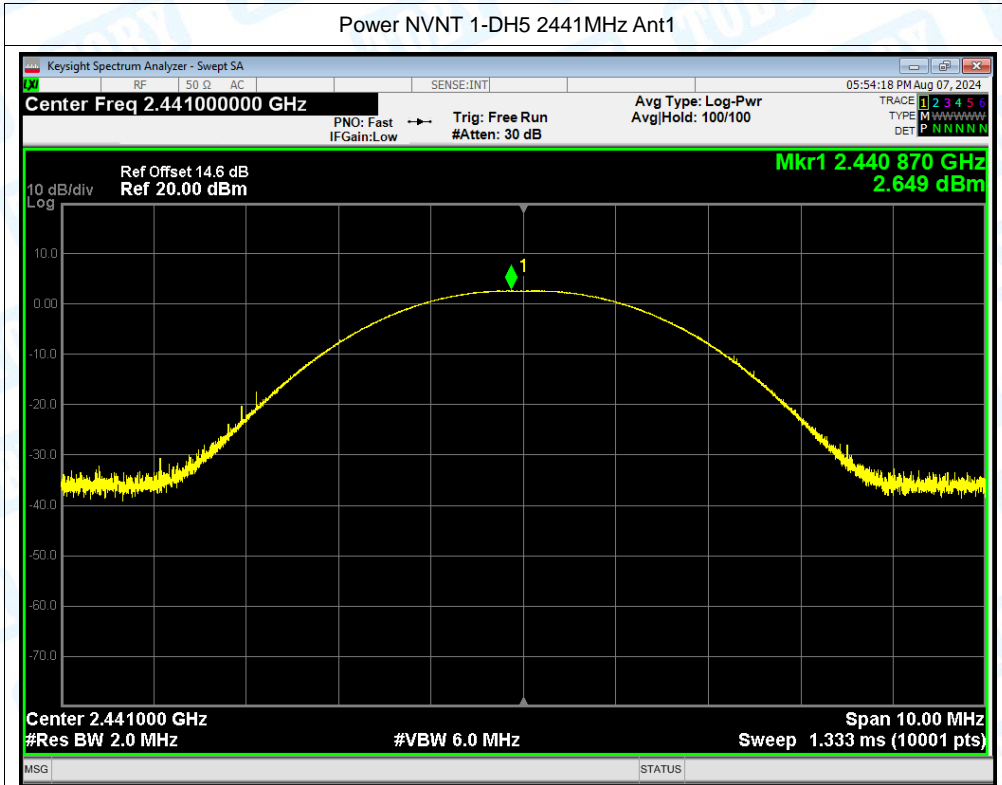
Power NVNT 1-DH1 2480MHz Ant1



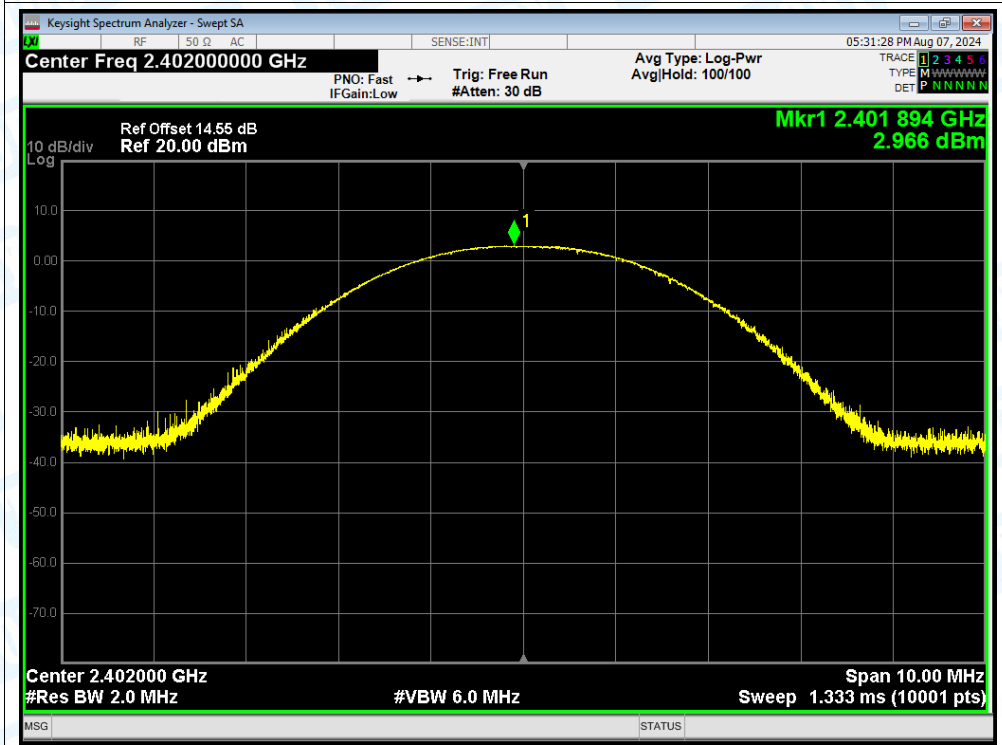
Power NVNT 1-DH3 2441MHz Ant1

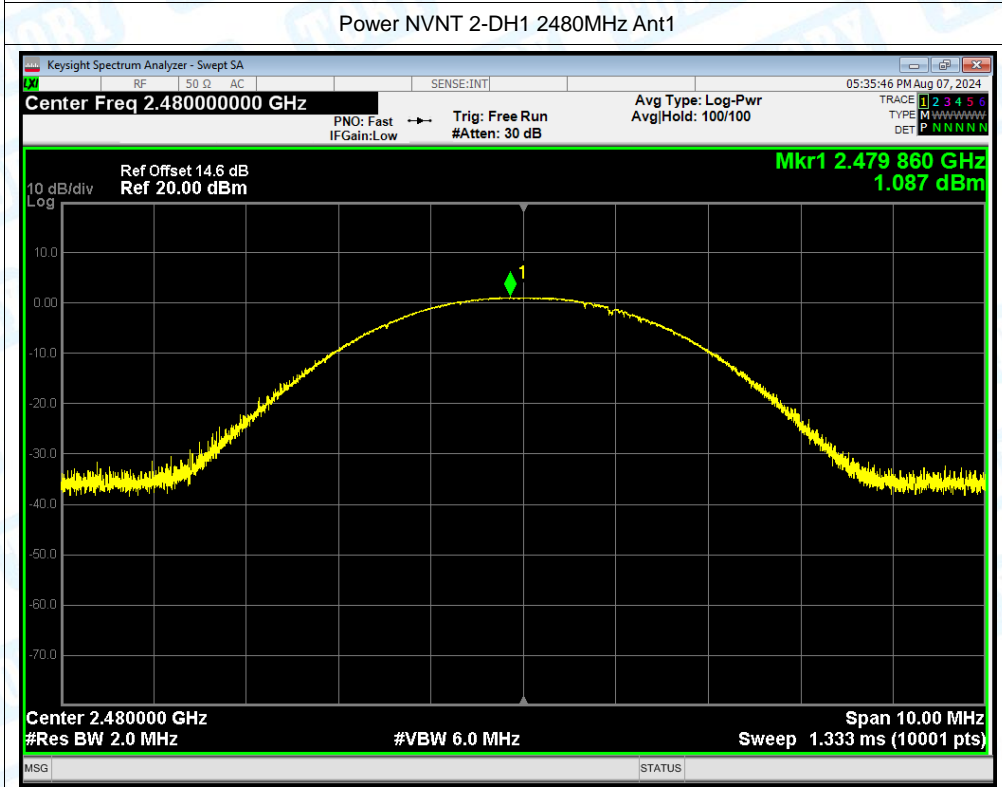
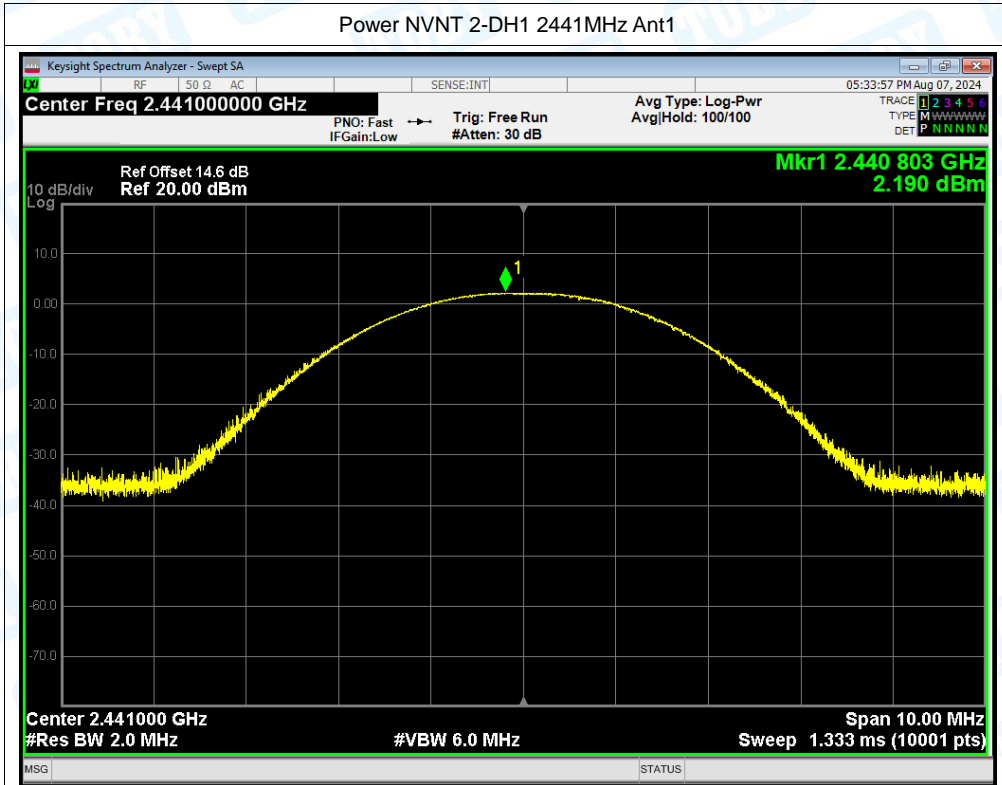


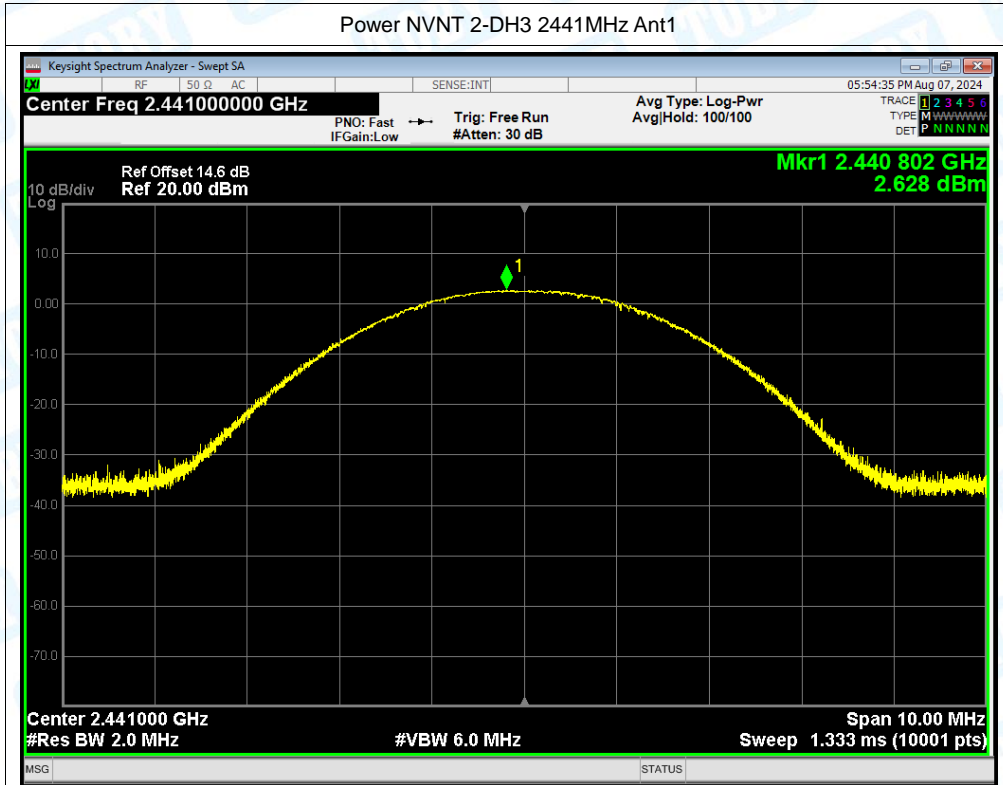
Power NVNT 1-DH5 2441MHz Ant1

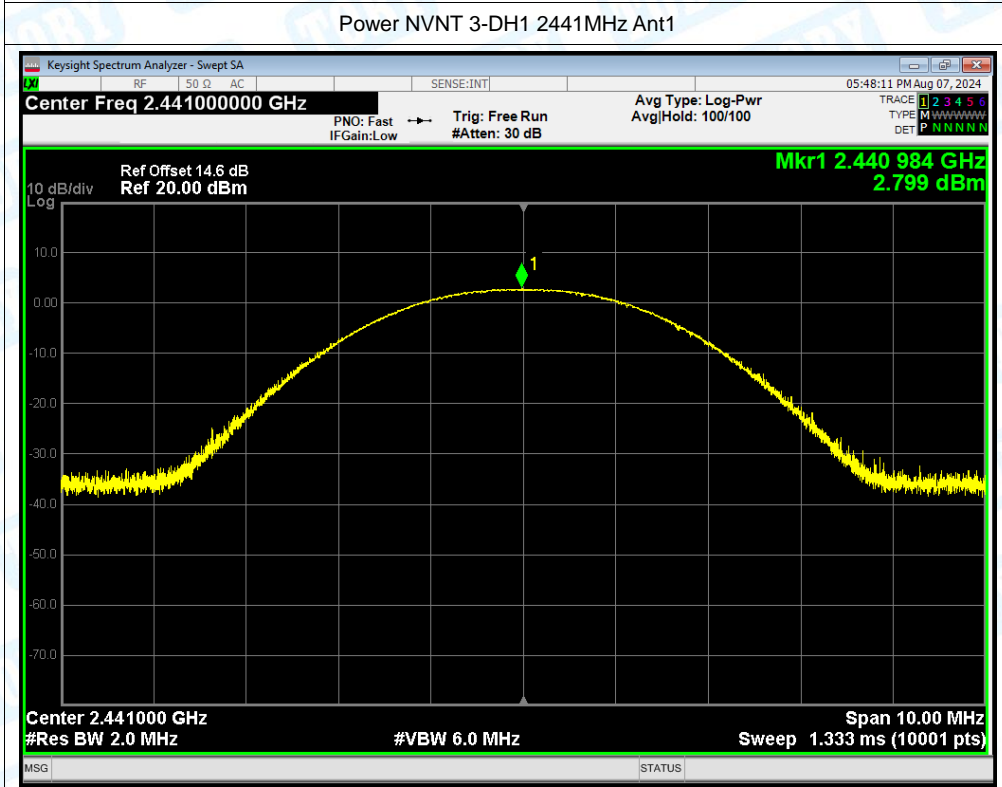
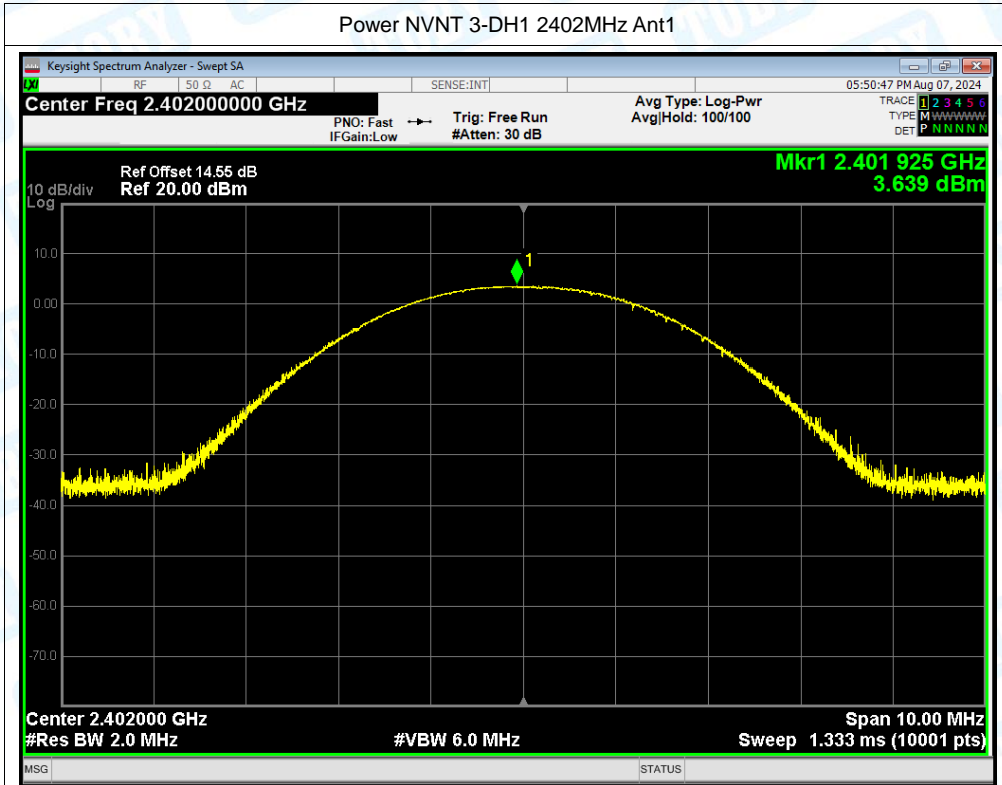


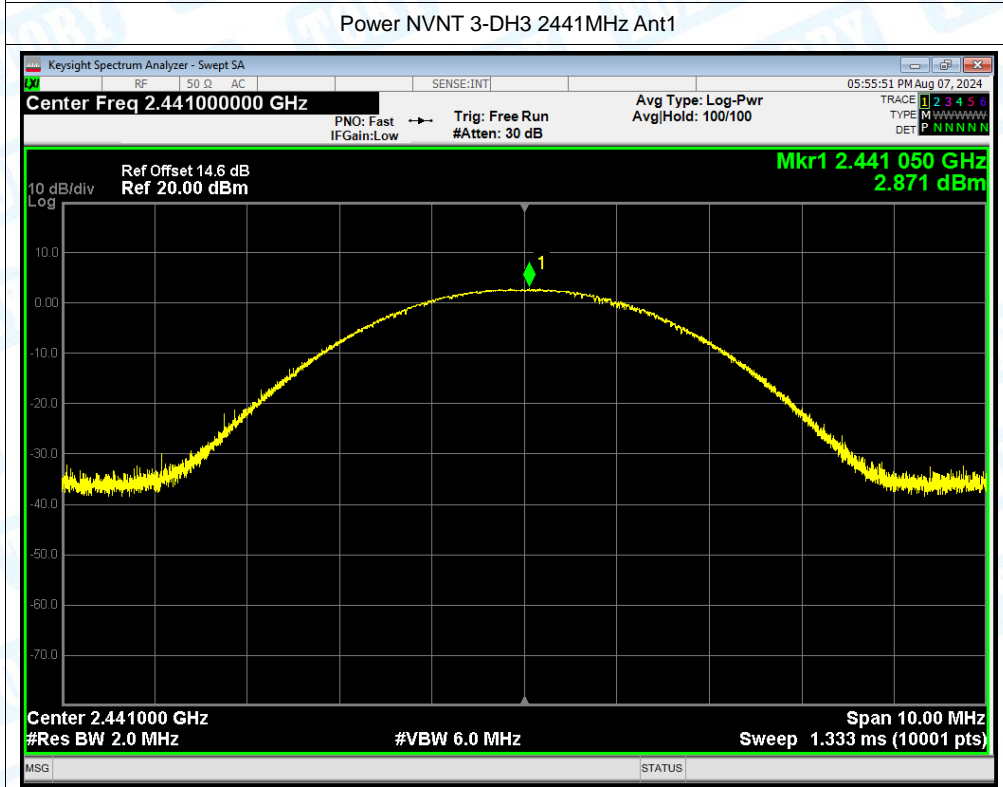
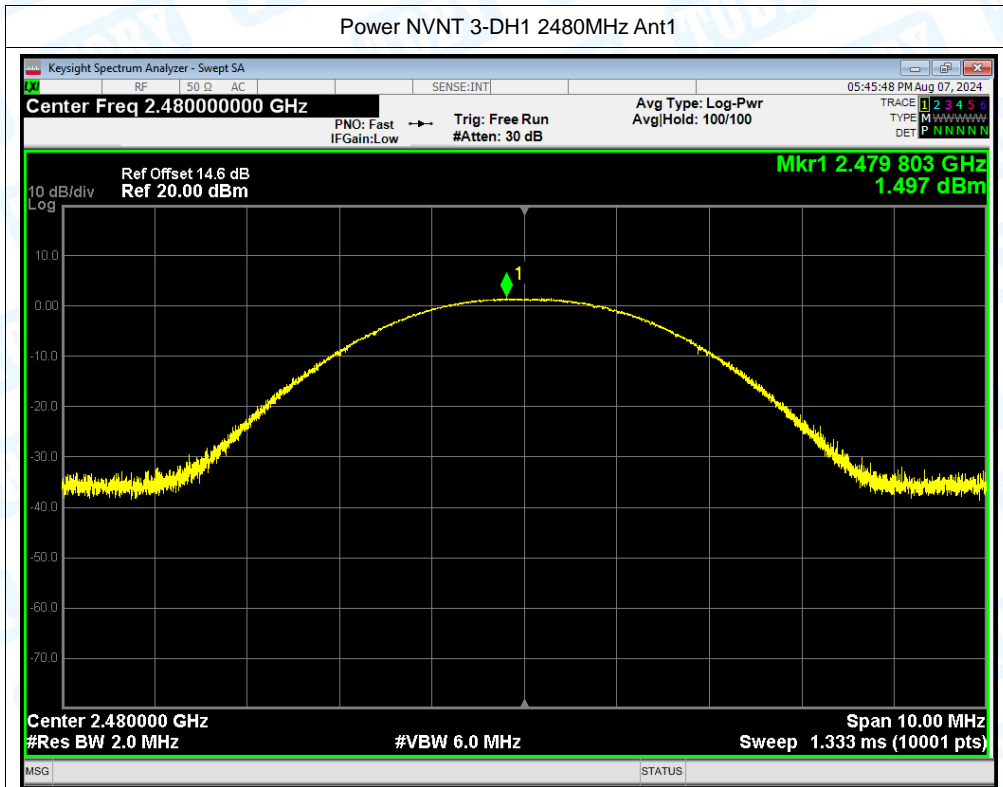
Power NVNT 2-DH1 2402MHz Ant1

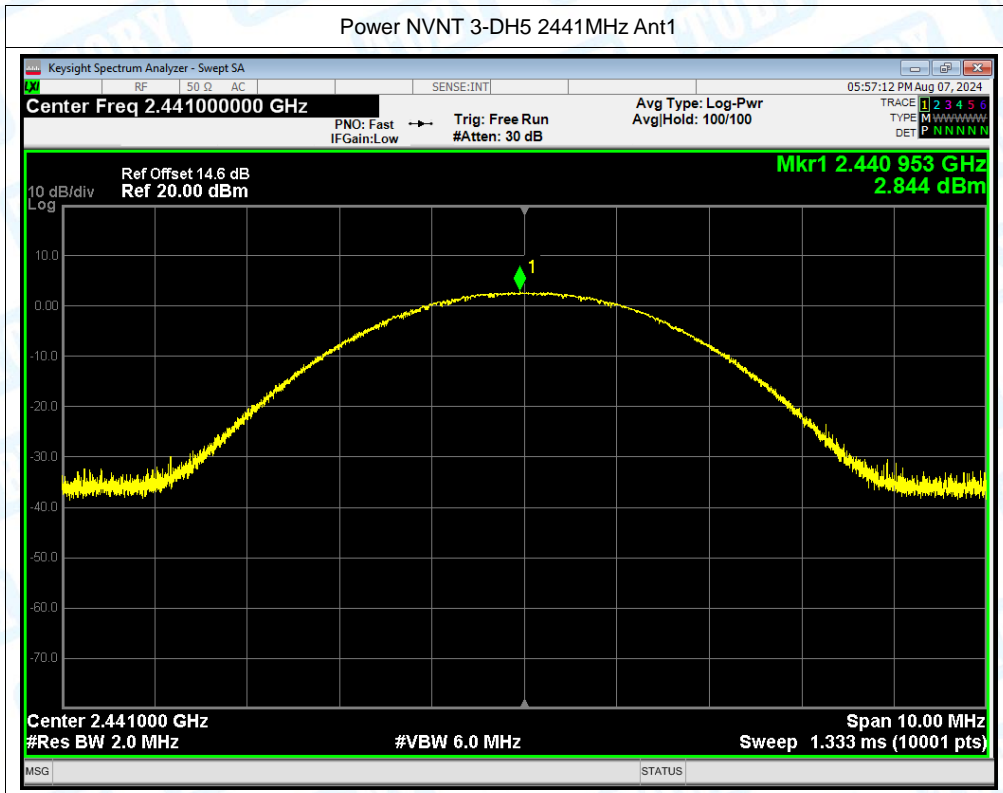










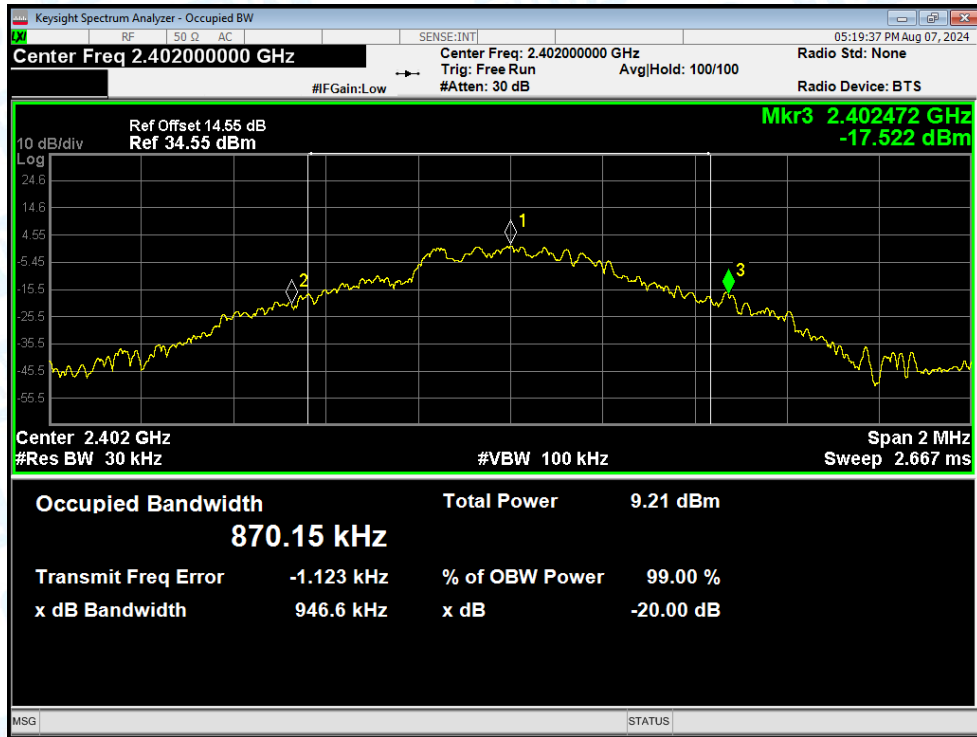


3. -20dB Bandwidth

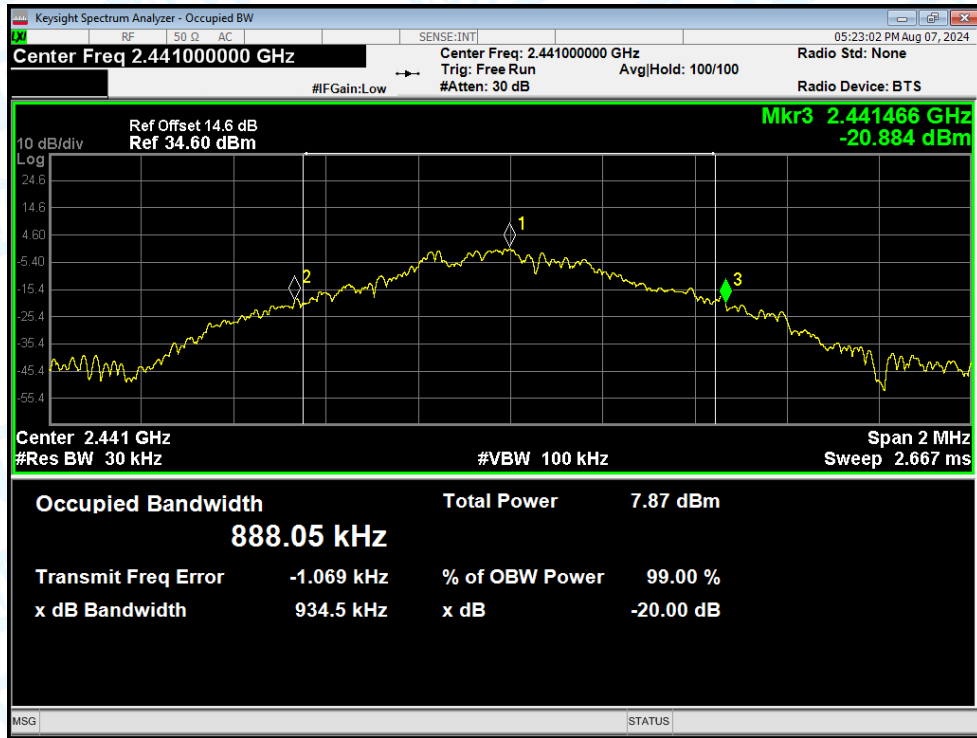
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH1	2402	Ant1	0.95	0	Pass
NVNT	1-DH1	2441	Ant1	0.93	0	Pass
NVNT	1-DH1	2480	Ant1	0.94	0	Pass
NVNT	2-DH1	2402	Ant1	1.27	0	Pass
NVNT	2-DH1	2441	Ant1	1.23	0	Pass
NVNT	2-DH1	2480	Ant1	1.26	0	Pass
NVNT	3-DH1	2402	Ant1	1.26	0	Pass
NVNT	3-DH1	2441	Ant1	1.25	0	Pass
NVNT	3-DH1	2480	Ant1	1.26	0	Pass

Test Graphs

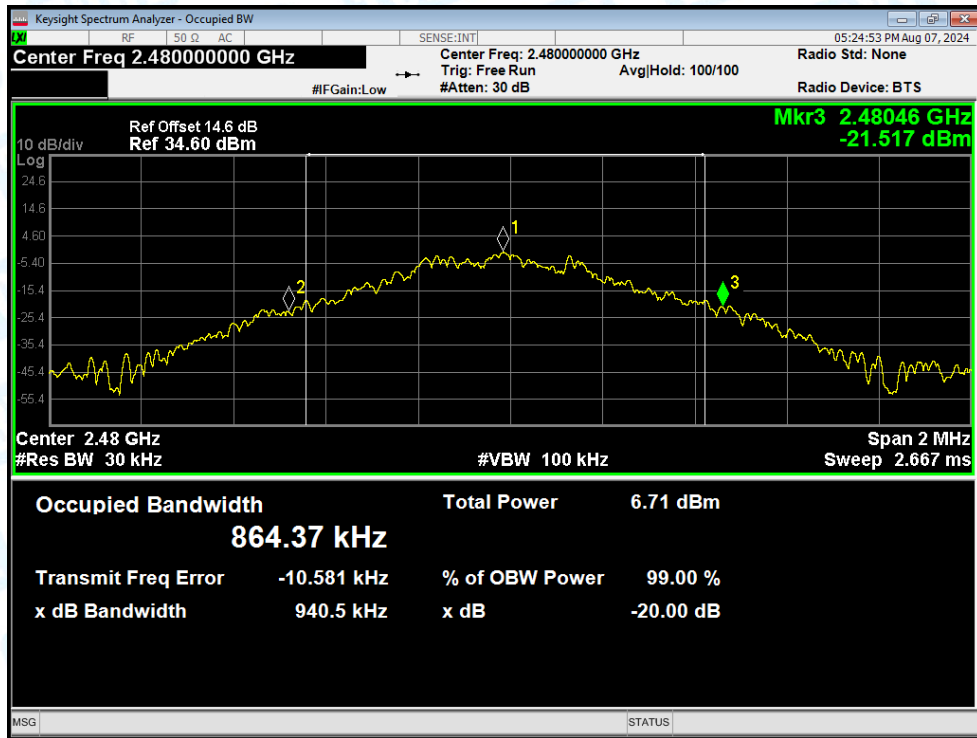
-20dB Bandwidth NVNT 1-DH1 2402MHz Ant1



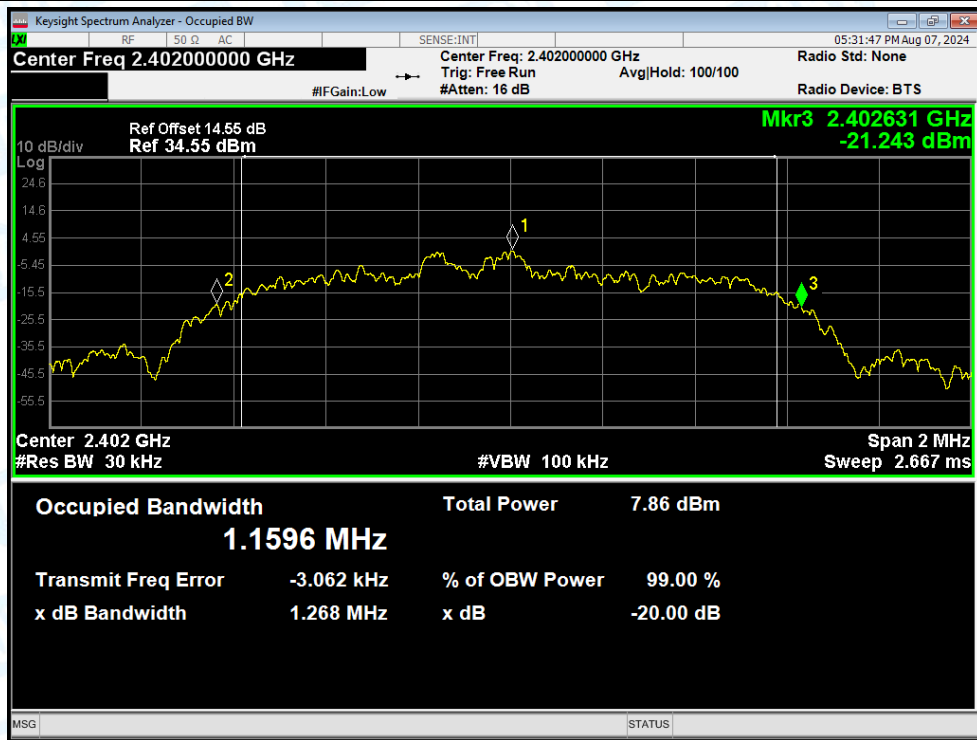
-20dB Bandwidth NVNT 1-DH1 2441MHz Ant1



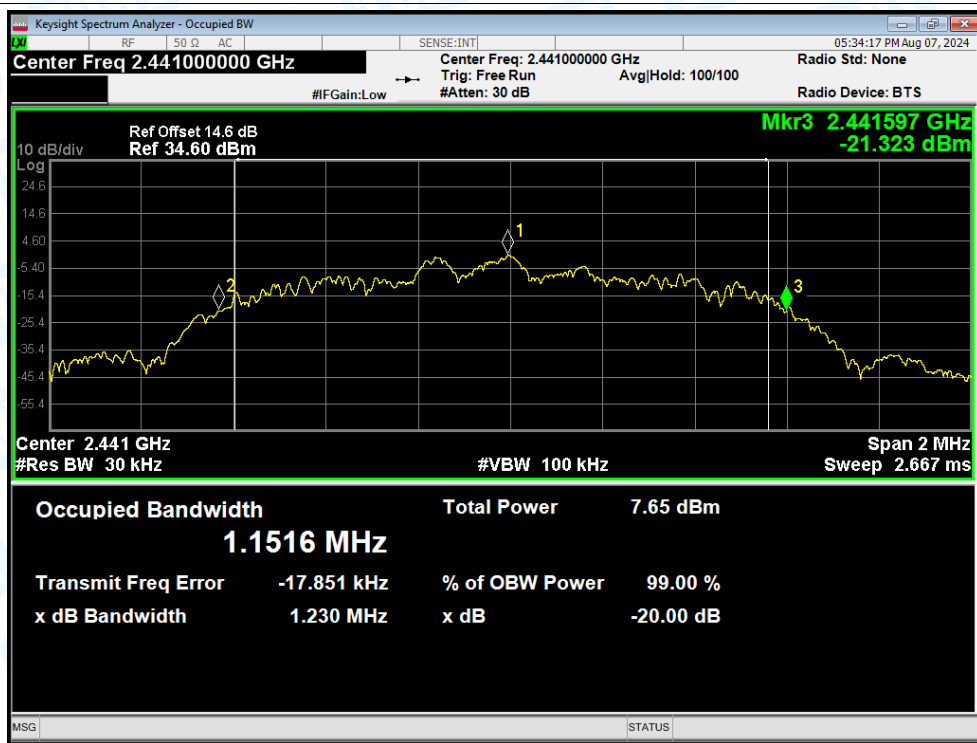
-20dB Bandwidth NVNT 1-DH1 2480MHz Ant1



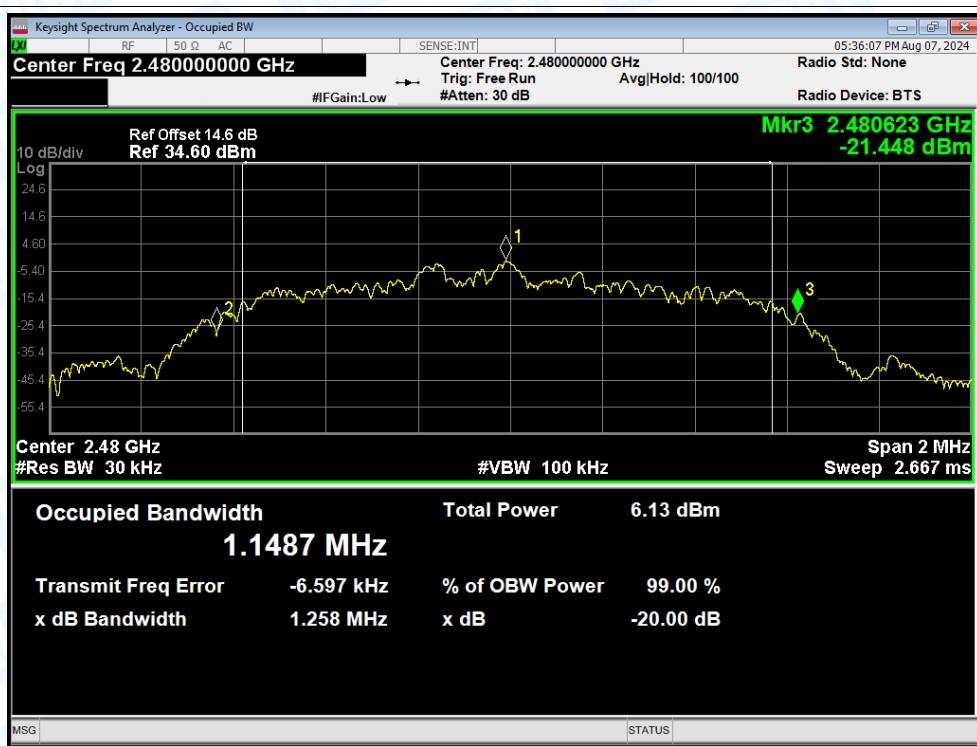
-20dB Bandwidth NVNT 2-DH1 2402MHz Ant1



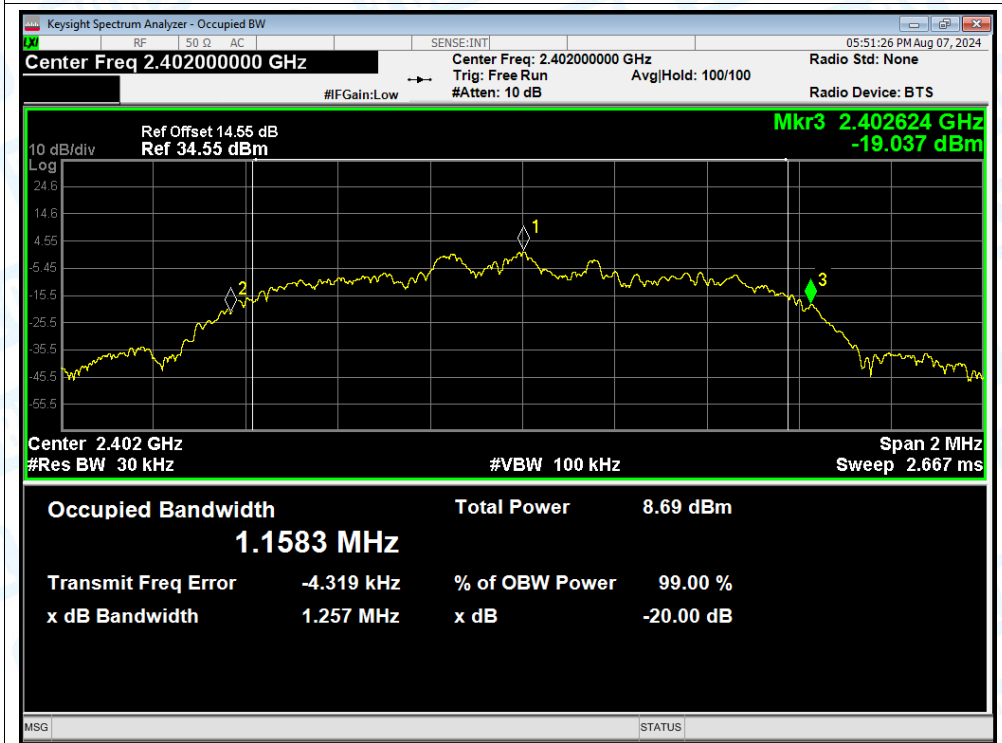
-20dB Bandwidth NVNT 2-DH1 2441MHz Ant1



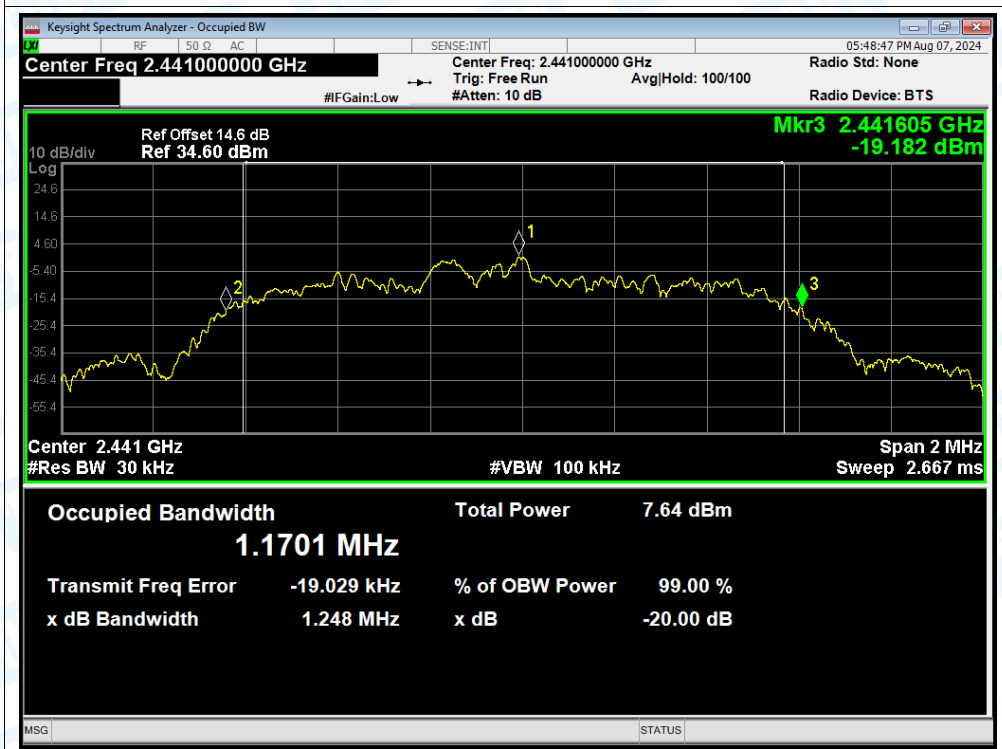
-20dB Bandwidth NVNT 2-DH1 2480MHz Ant1

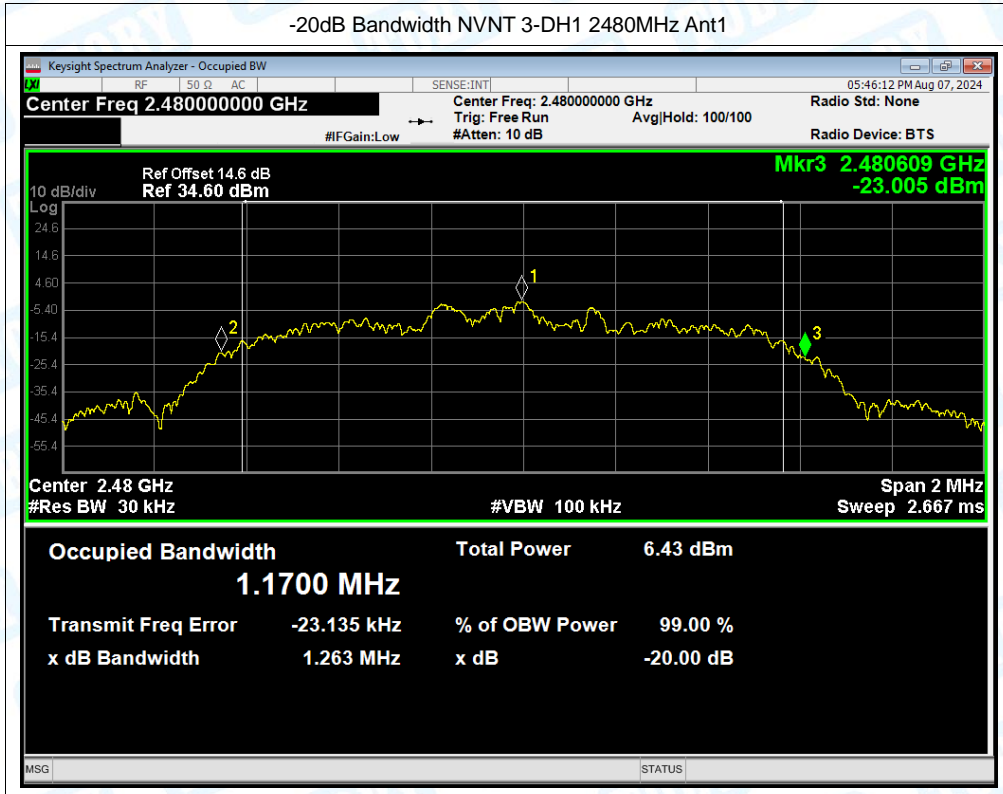


-20dB Bandwidth NVNT 3-DH1 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH1 2441MHz Ant1



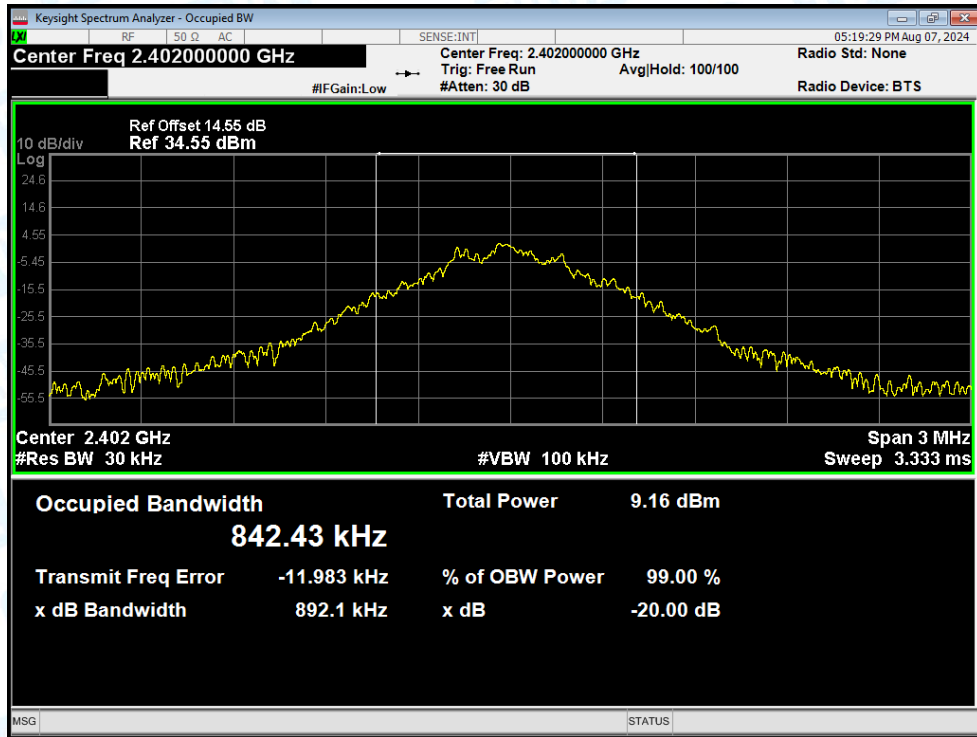


4. Occupied Channel Bandwidth

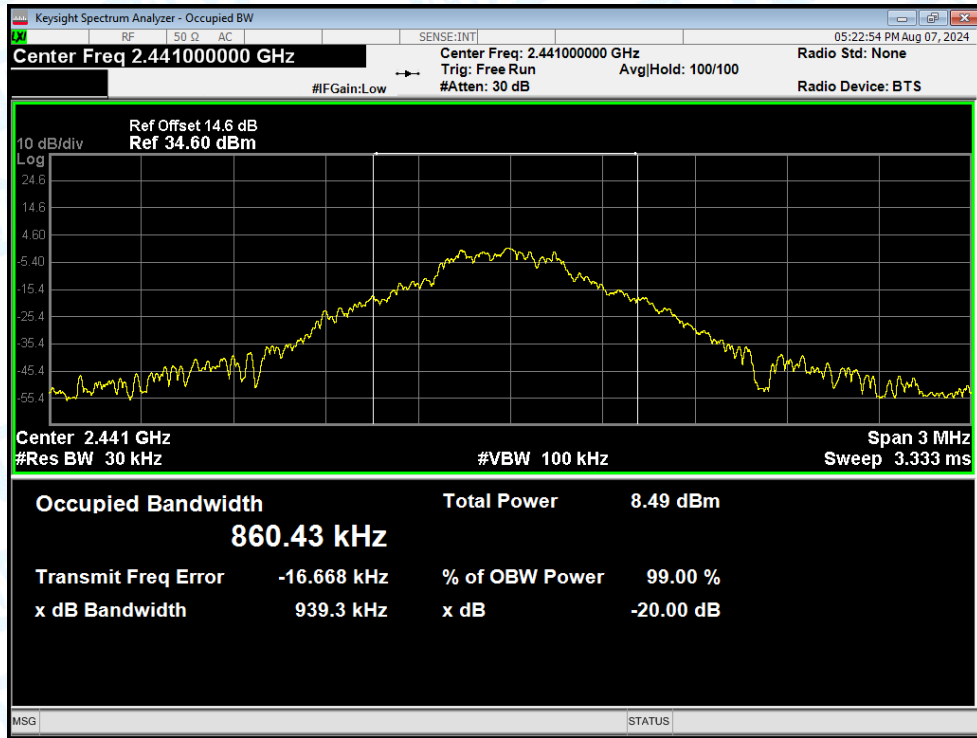
Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	1-DH1	2402	Ant1	0.842
NVNT	1-DH1	2441	Ant1	0.86
NVNT	1-DH1	2480	Ant1	0.861
NVNT	2-DH1	2402	Ant1	1.173
NVNT	2-DH1	2441	Ant1	1.172
NVNT	2-DH1	2480	Ant1	1.177
NVNT	3-DH1	2402	Ant1	1.152
NVNT	3-DH1	2441	Ant1	1.157
NVNT	3-DH1	2480	Ant1	1.175

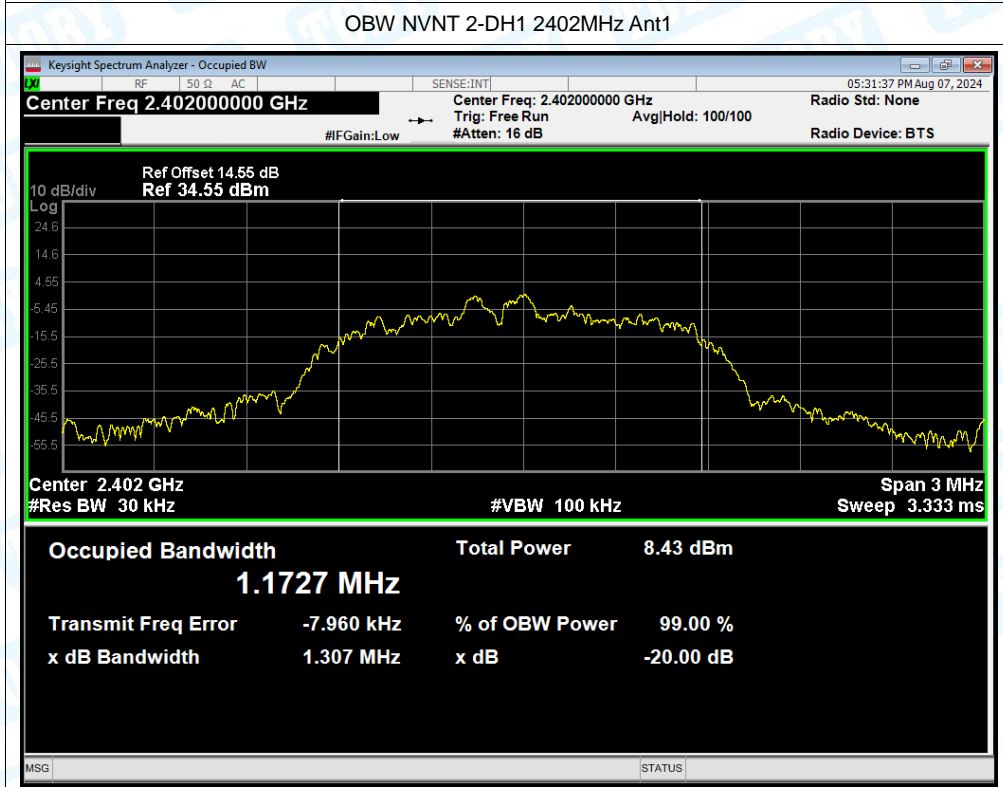
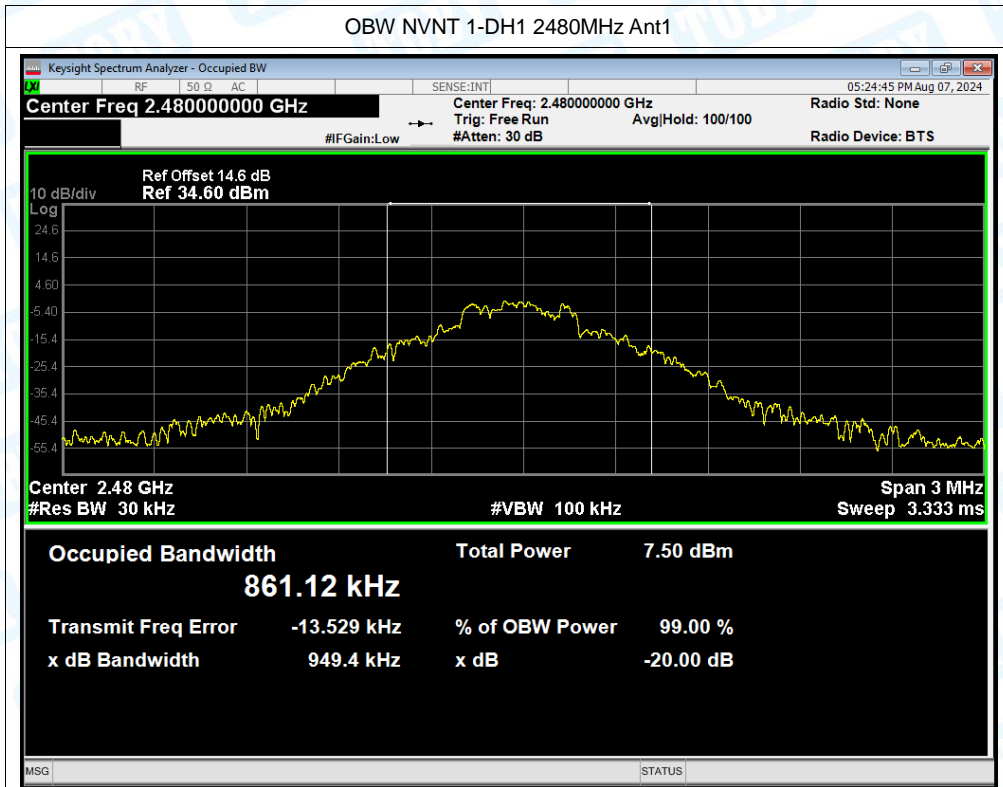
Test Graphs

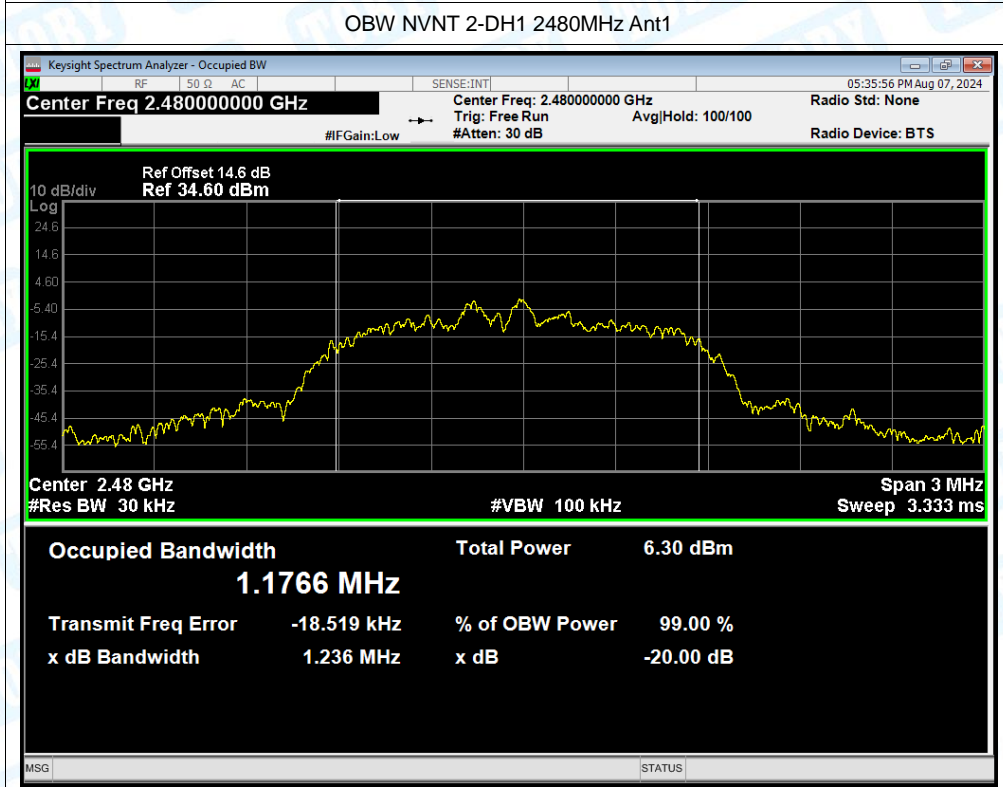
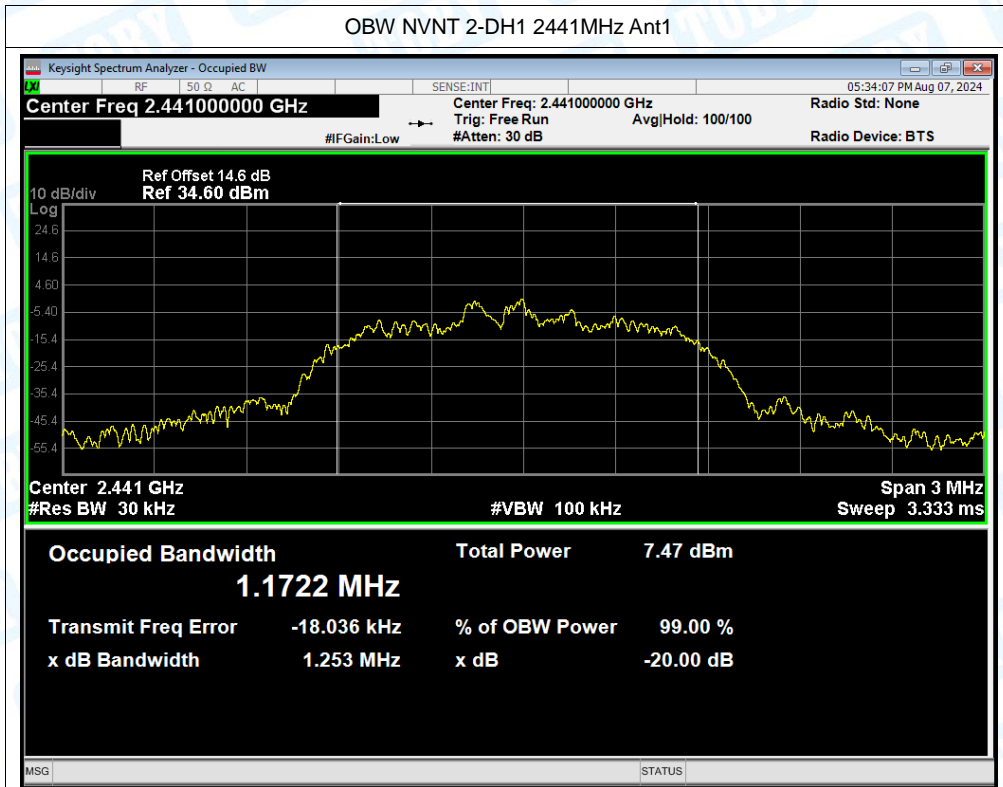
OBW NVNT 1-DH1 2402MHz Ant1

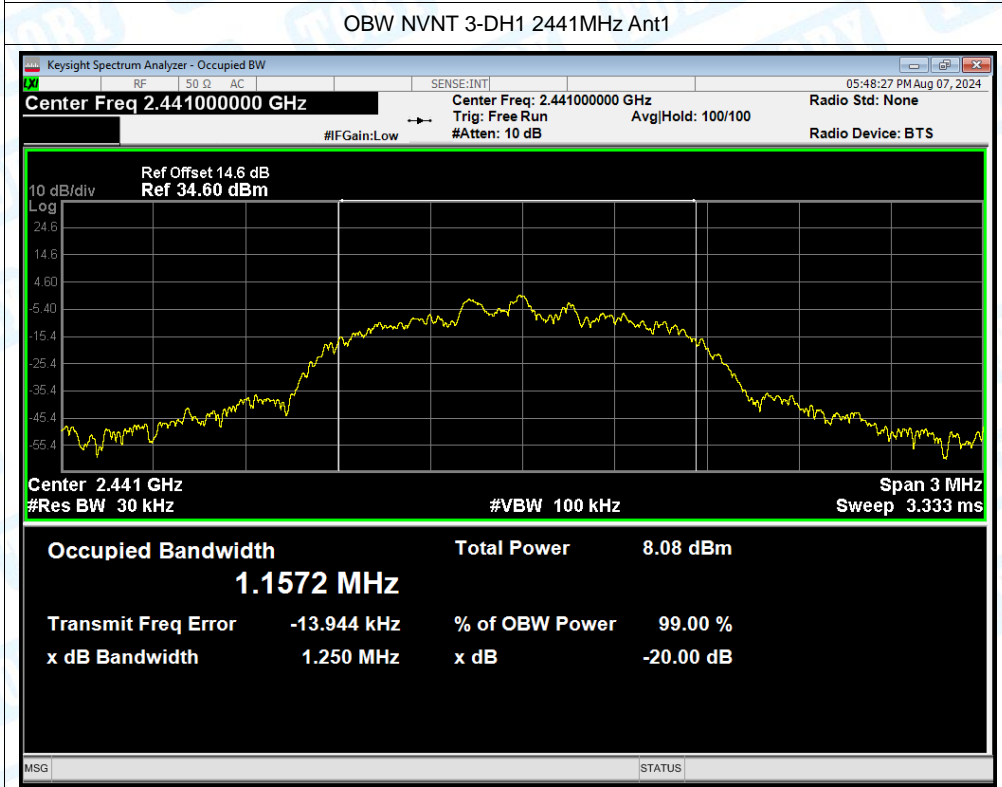
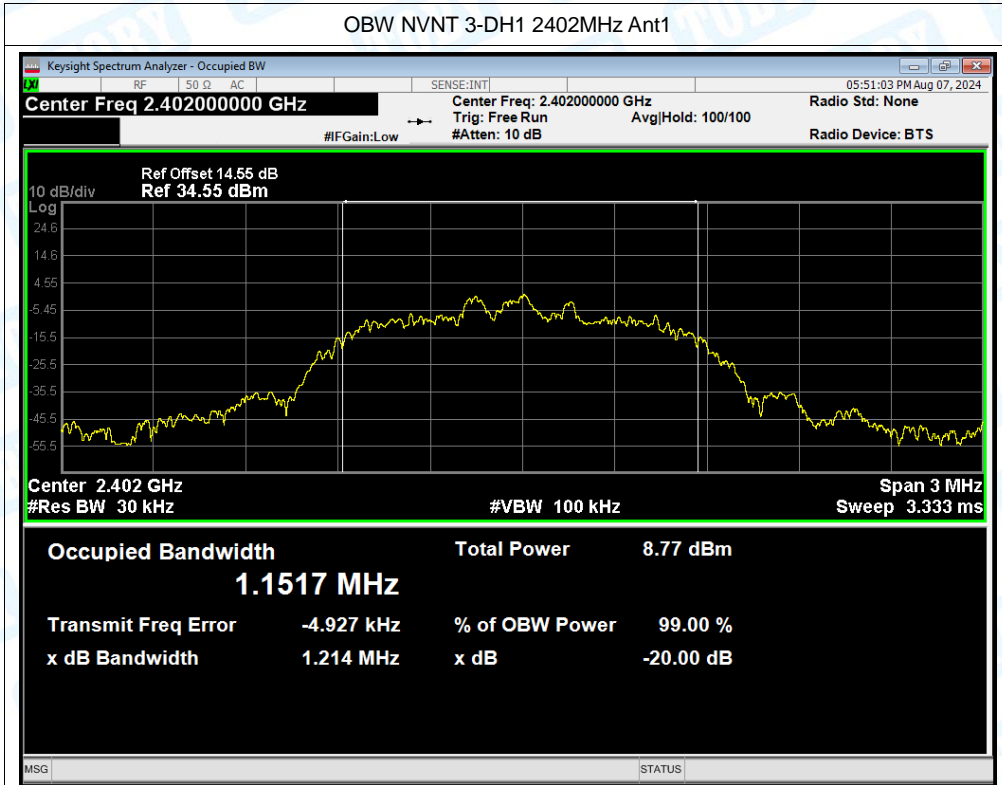


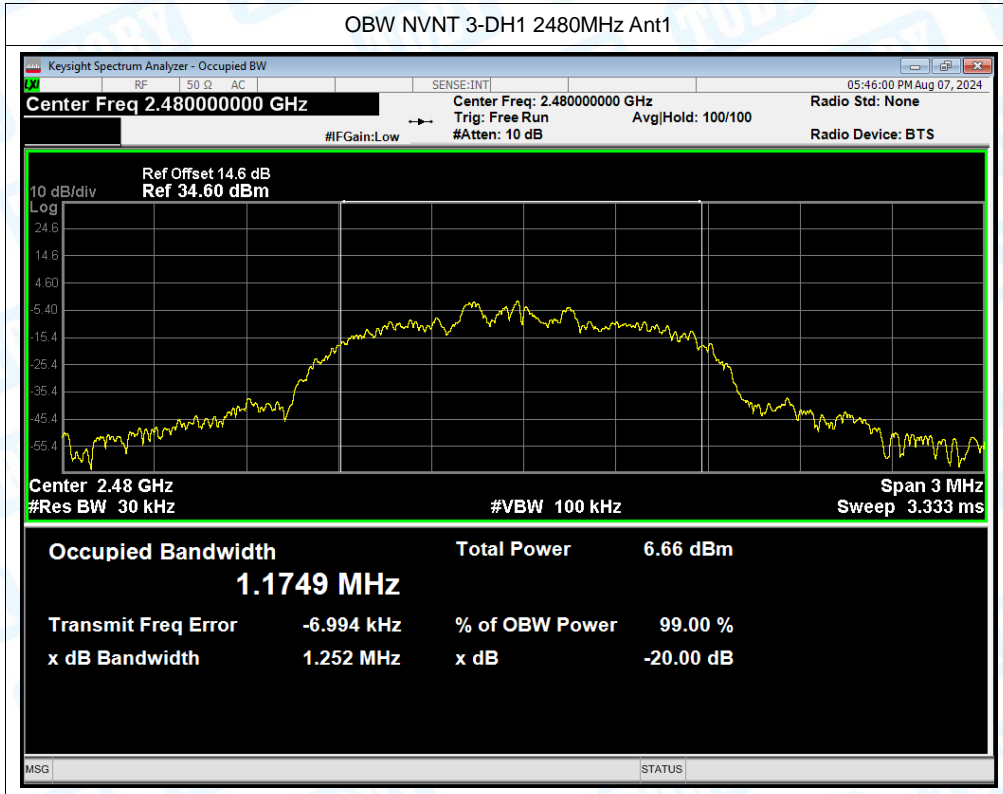
OBW NVNT 1-DH1 2441MHz Ant1









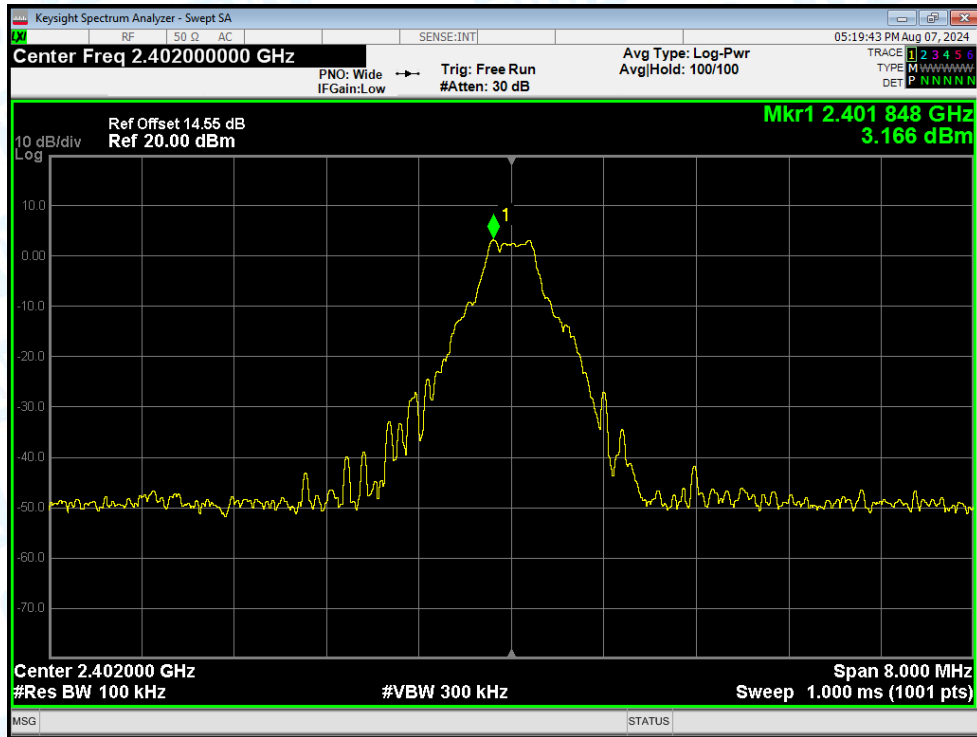


5. Band Edge

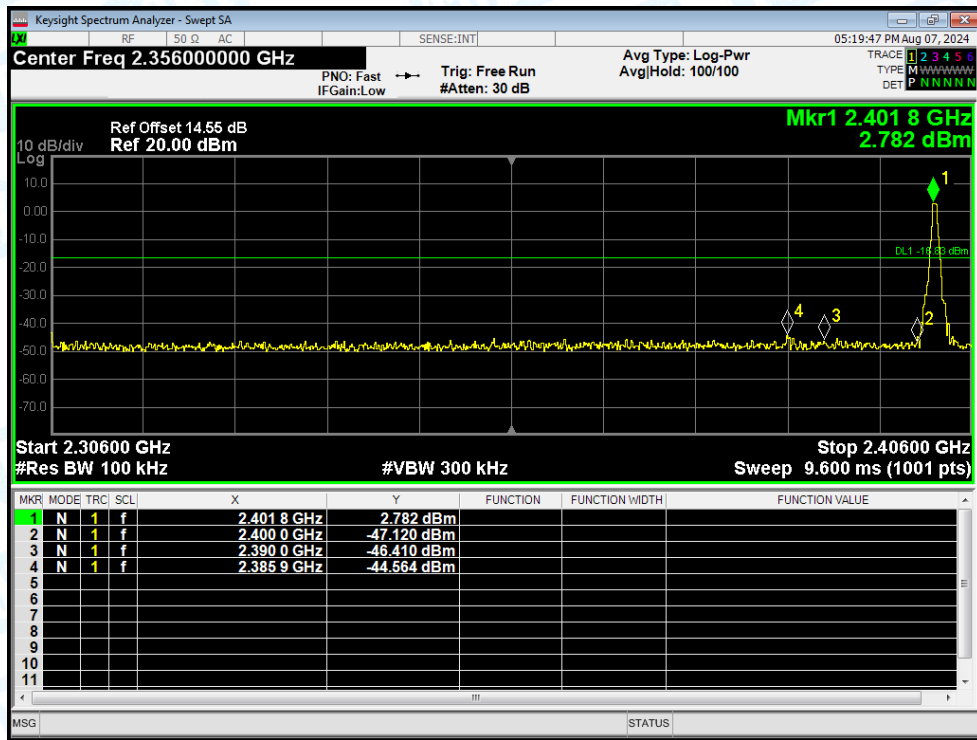
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	-47.73	-20	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	-46.6	-20	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	-46.82	-20	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	-45.17	-20	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	-47.33	-20	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	-46.15	-20	Pass

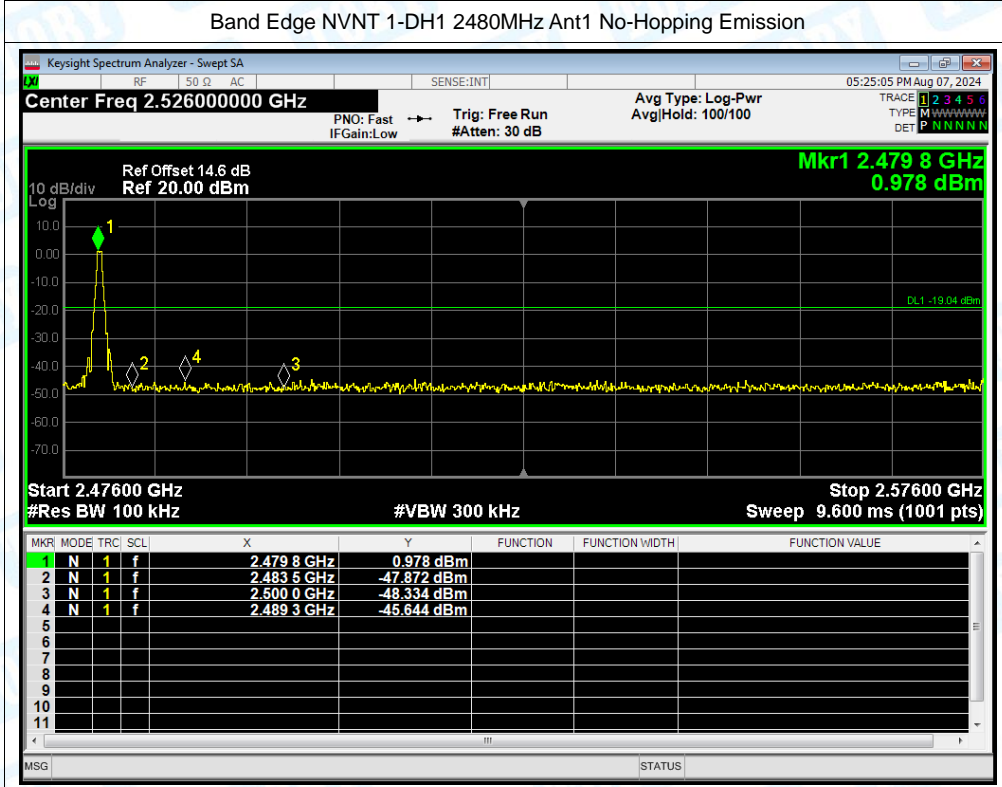
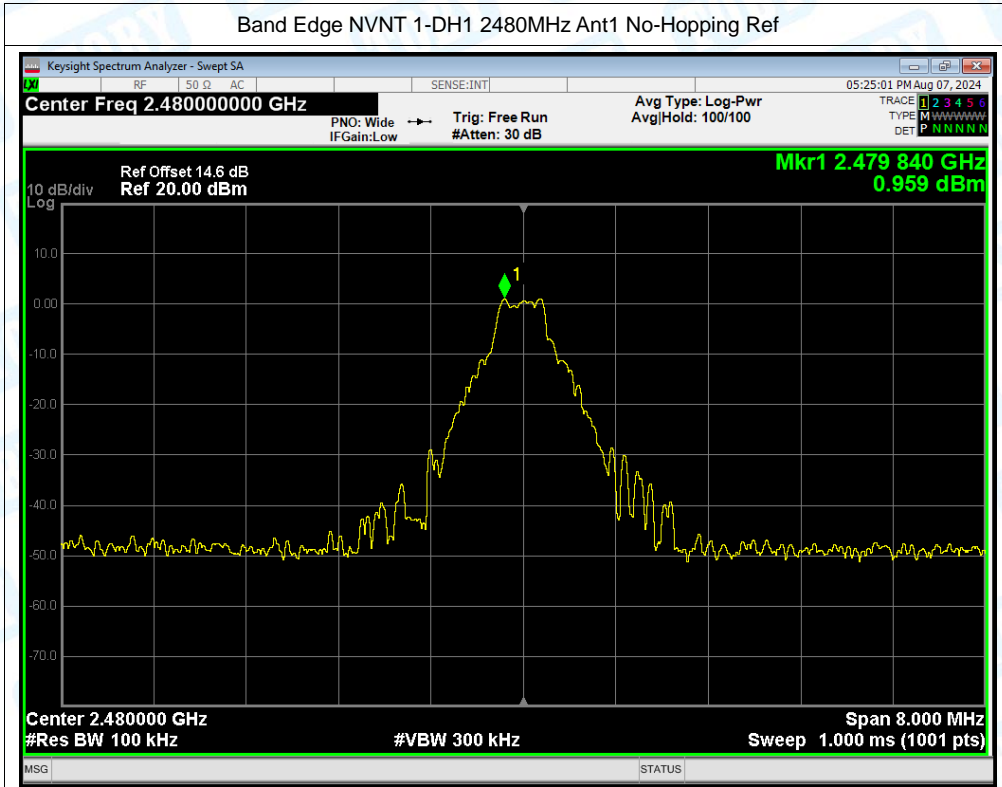
Test Graphs

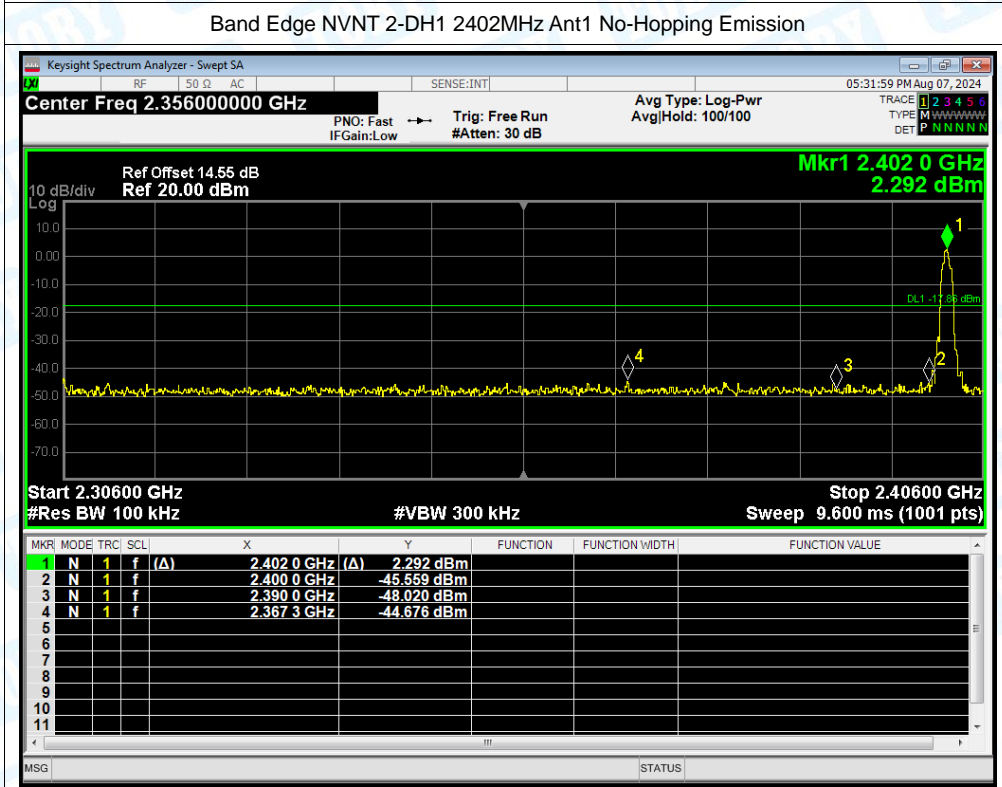
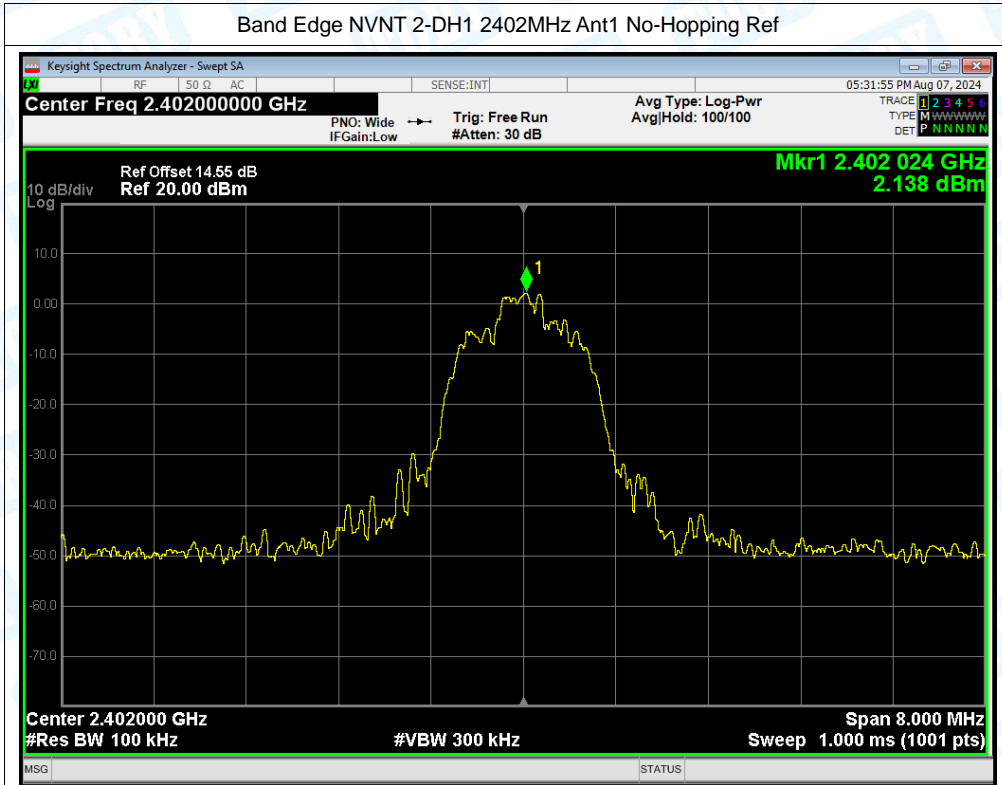
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Ref

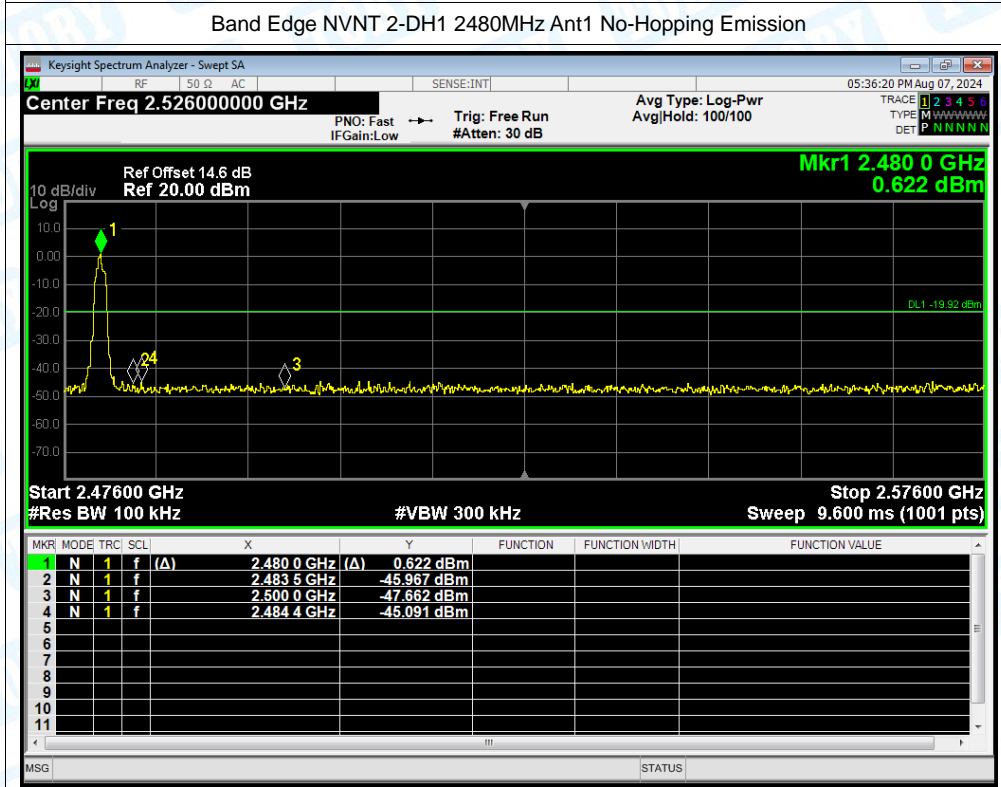
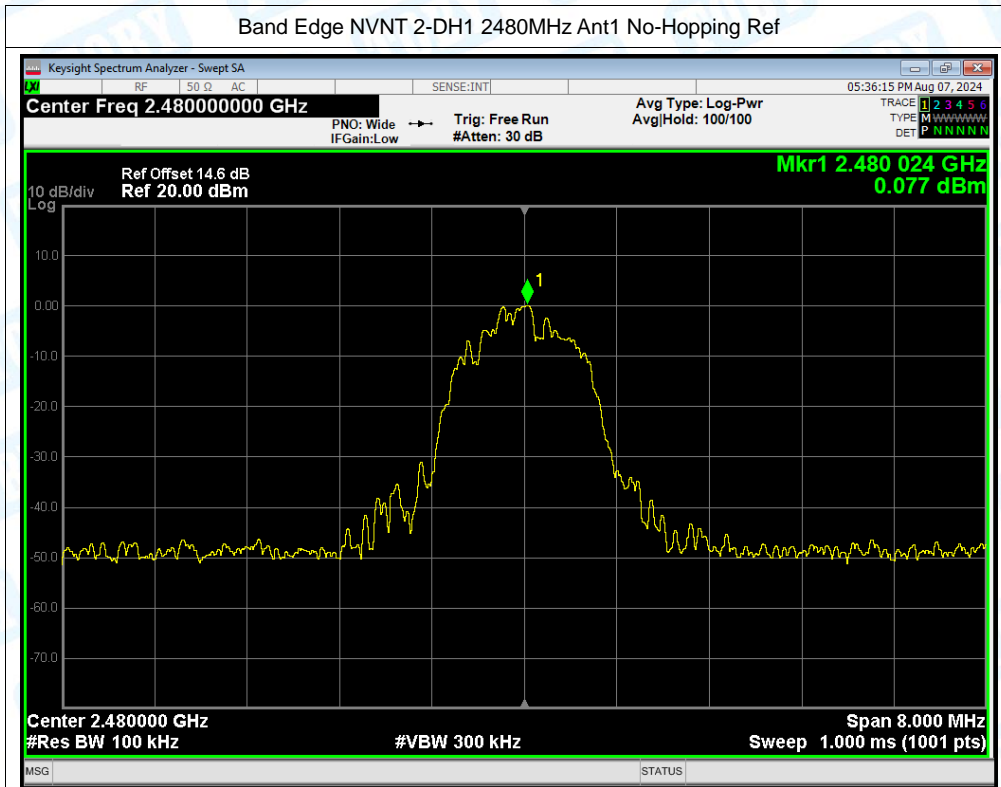


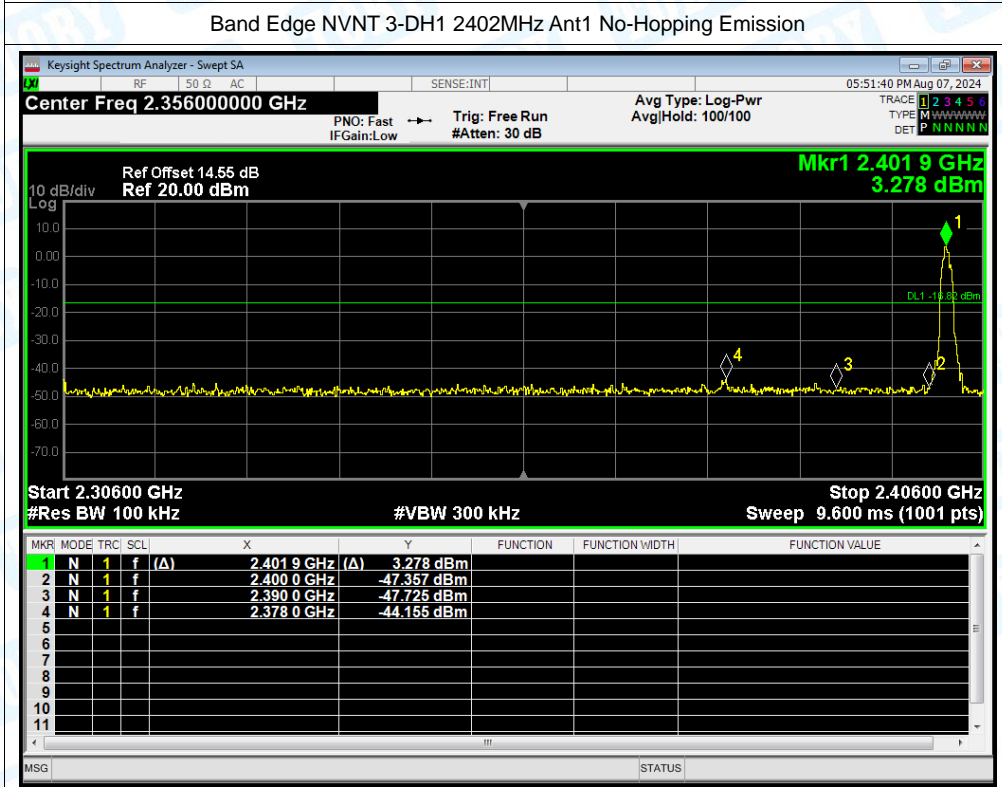
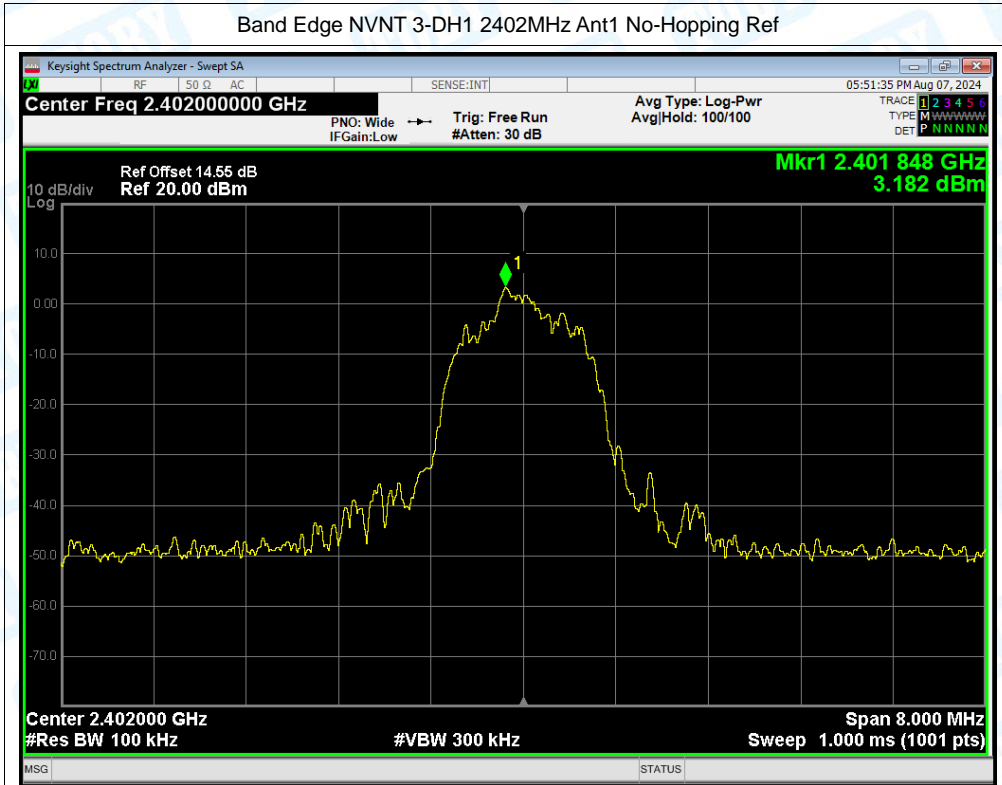
Band Edge NVNT 1-DH1 2402MHz Ant1 No-Hopping Emission

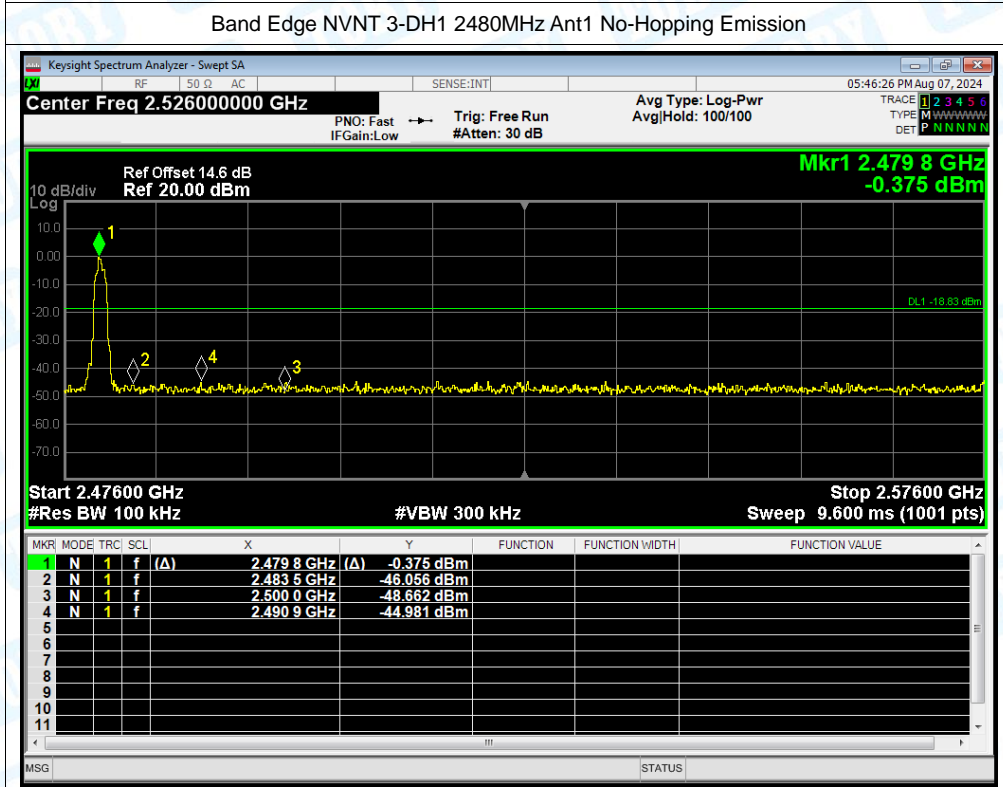
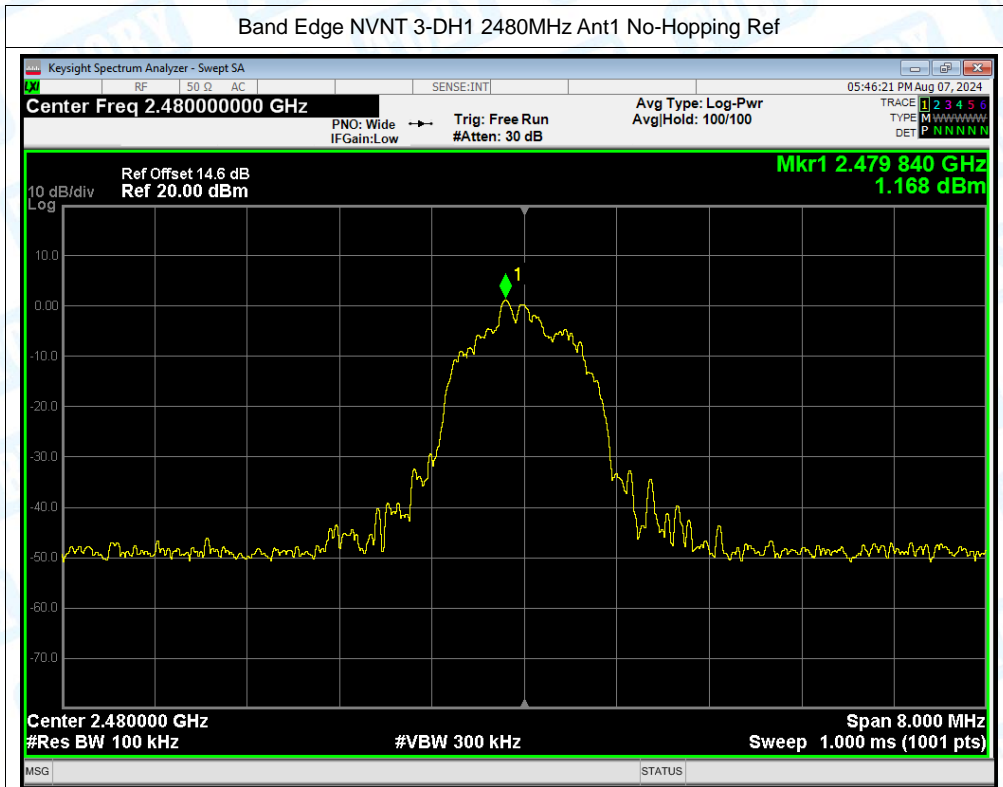










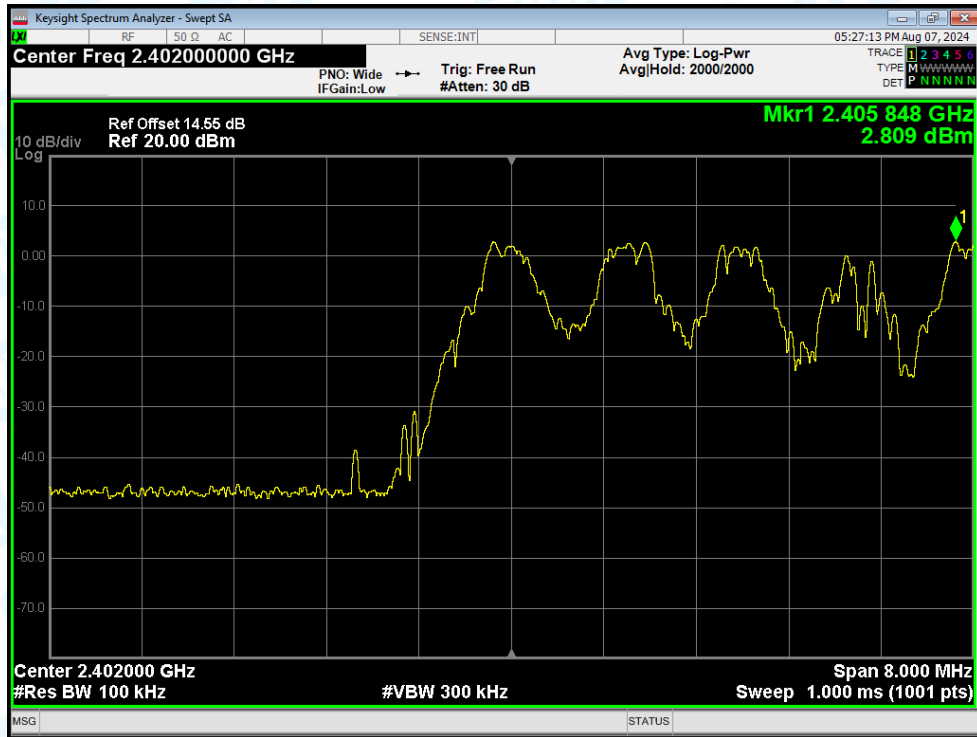


6. Band Edge(Hopping)

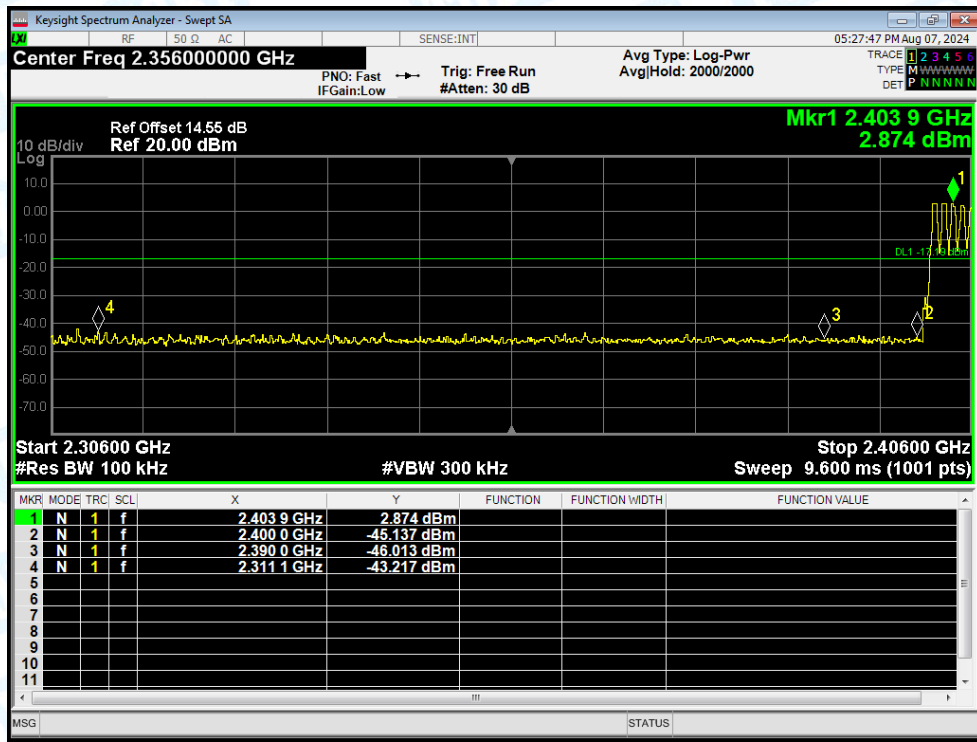
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	Hopping	-46.03	-20	Pass
NVNT	1-DH1	2480	Ant1	Hopping	-42.89	-20	Pass
NVNT	2-DH1	2402	Ant1	Hopping	-47.92	-20	Pass
NVNT	2-DH1	2480	Ant1	Hopping	-46.02	-20	Pass
NVNT	3-DH1	2402	Ant1	Hopping	-47.14	-20	Pass
NVNT	3-DH1	2480	Ant1	Hopping	-45.38	-20	Pass

Test Graphs

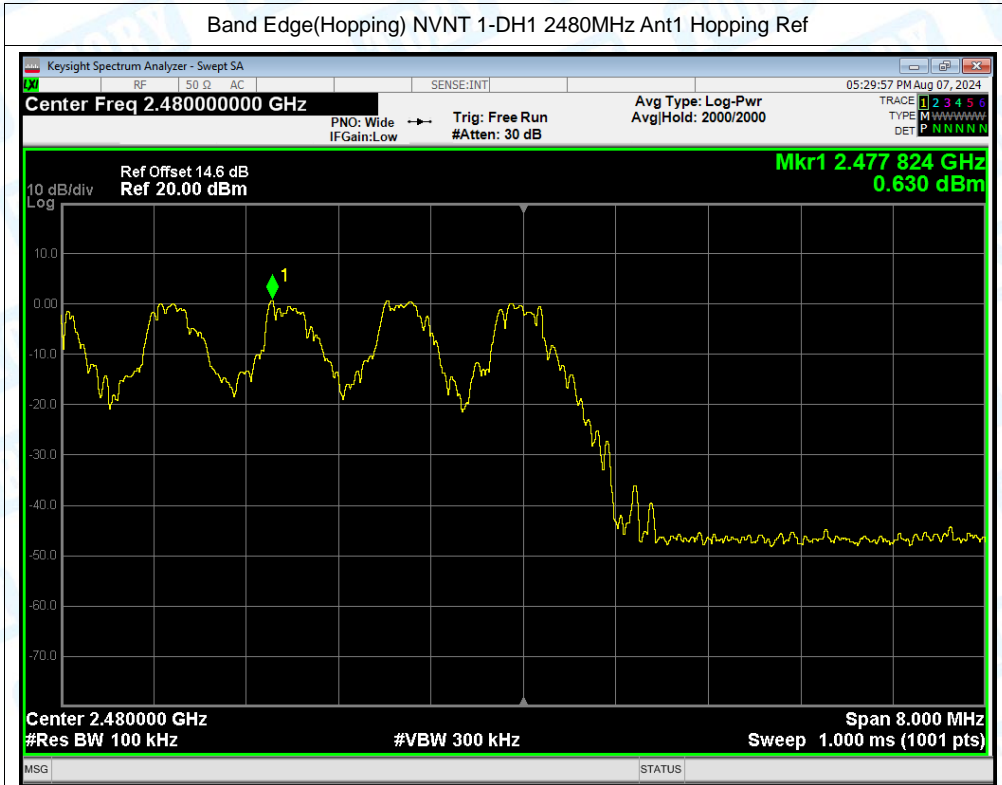
Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Ref



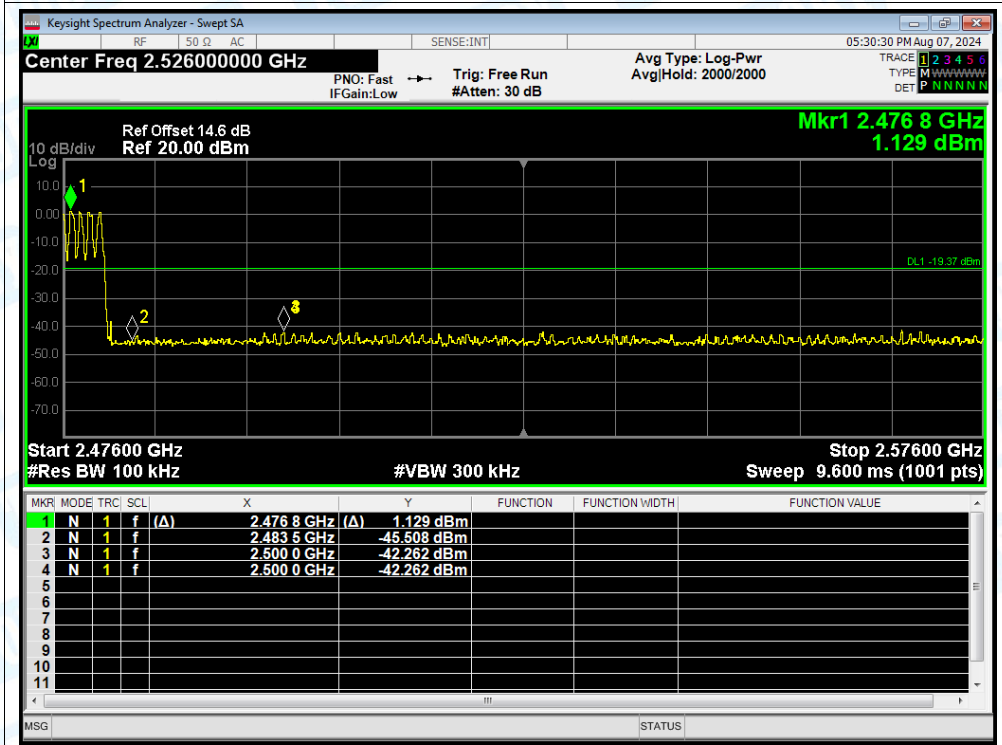
Band Edge(Hopping) NVNT 1-DH1 2402MHz Ant1 Hopping Emission

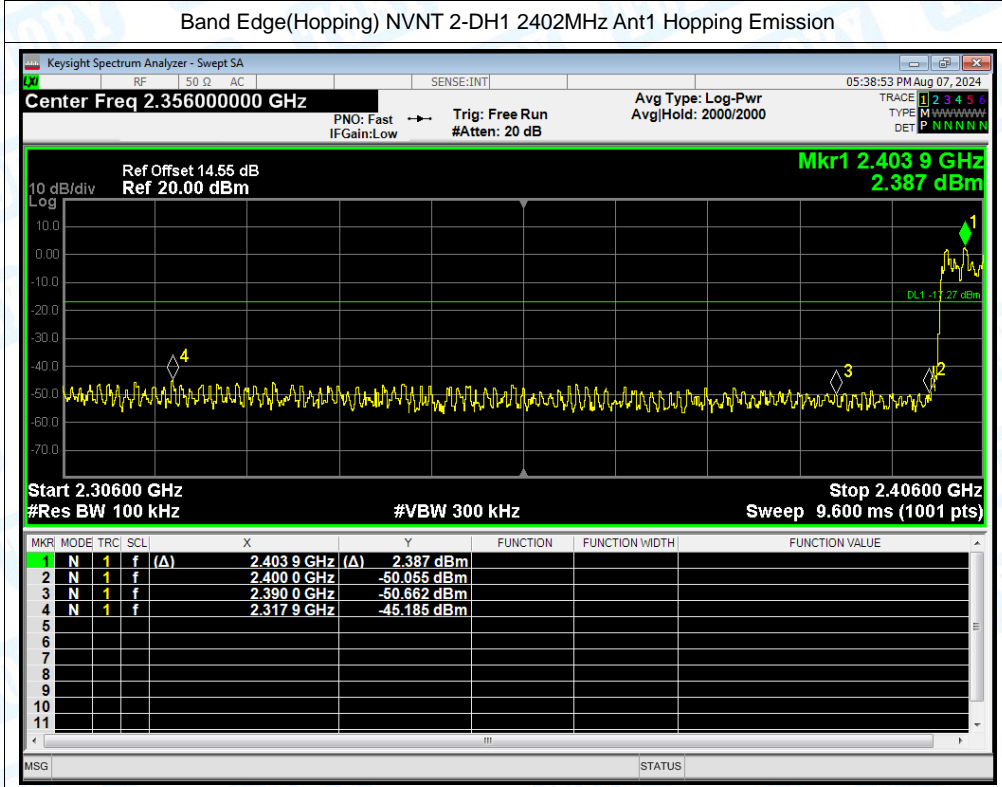
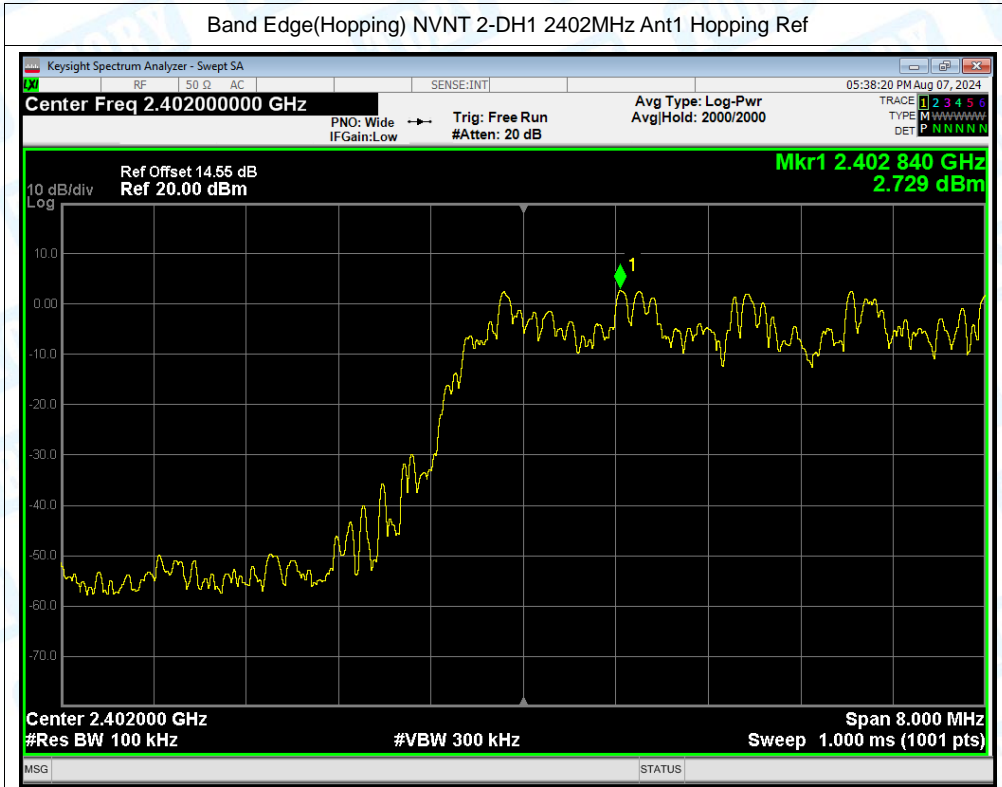


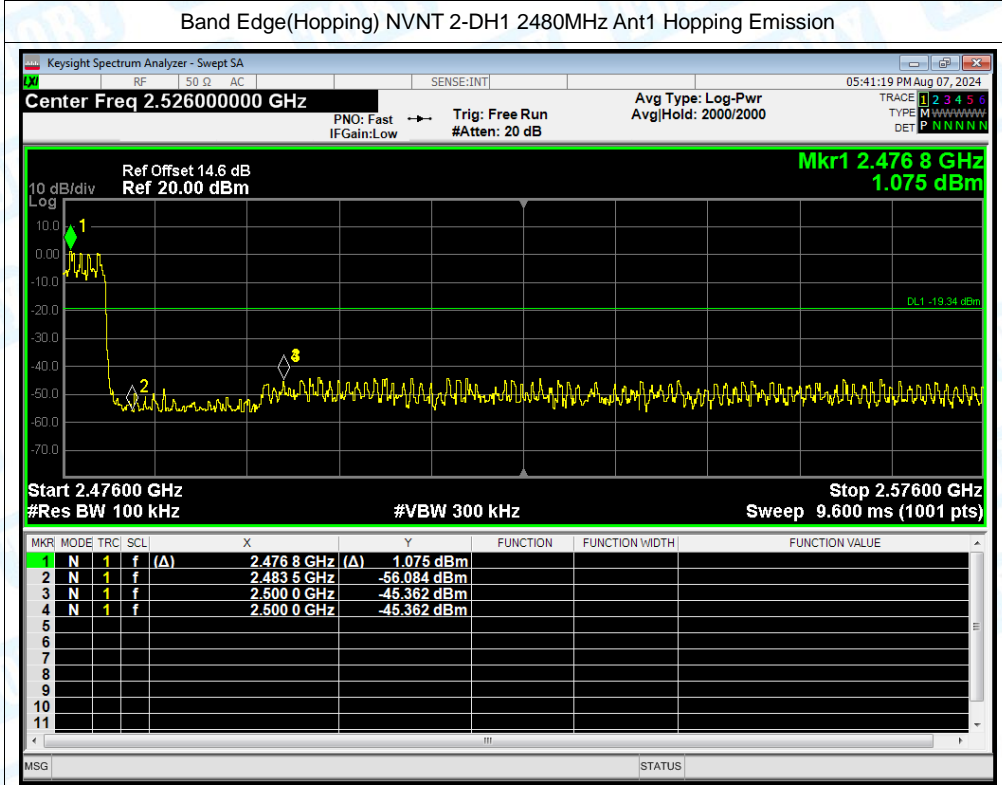
Band Edge(Hopping) NVNT 1-DH1 2480MHz Ant1 Hopping Ref

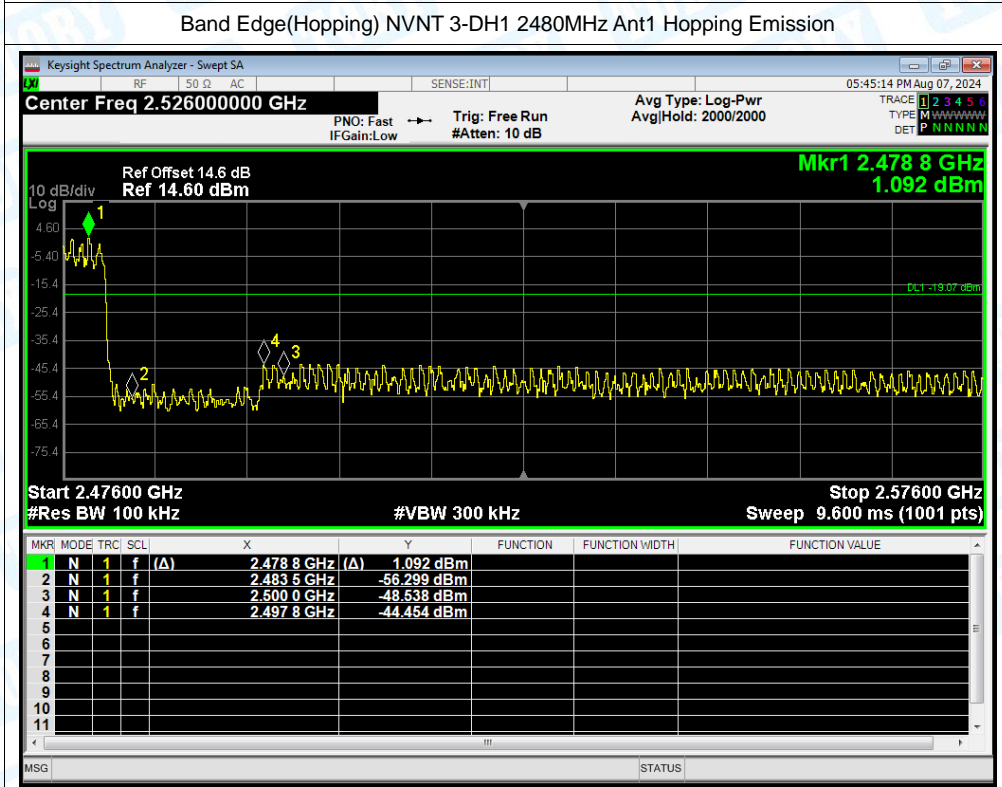


Band Edge(Hopping) NVNT 1-DH1 2480MHz Ant1 Hopping Emission







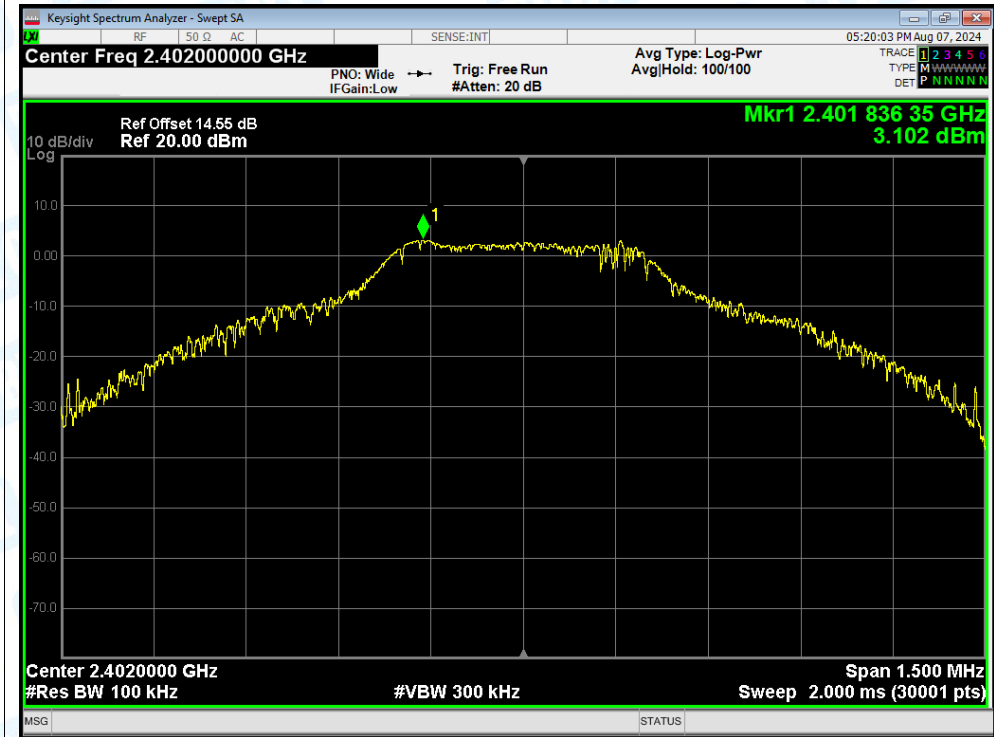


7. Conducted RF Spurious Emission

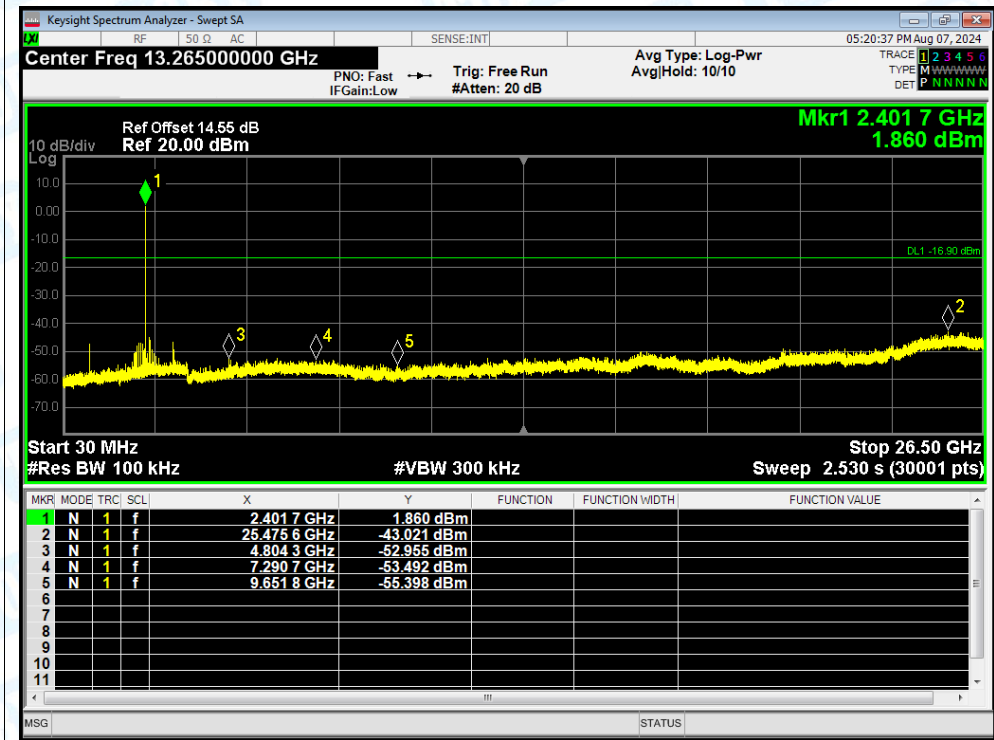
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Ant1	-46.12	-20	Pass
NVNT	1-DH1	2441	Ant1	-45.66	-20	Pass
NVNT	1-DH1	2480	Ant1	-40.91	-20	Pass
NVNT	2-DH1	2402	Ant1	-46.24	-20	Pass
NVNT	2-DH1	2441	Ant1	-45.13	-20	Pass
NVNT	2-DH1	2480	Ant1	-43.35	-20	Pass
NVNT	3-DH1	2402	Ant1	-42.11	-20	Pass
NVNT	3-DH1	2441	Ant1	-41.61	-20	Pass
NVNT	3-DH1	2480	Ant1	-44.15	-20	Pass

Test Graphs

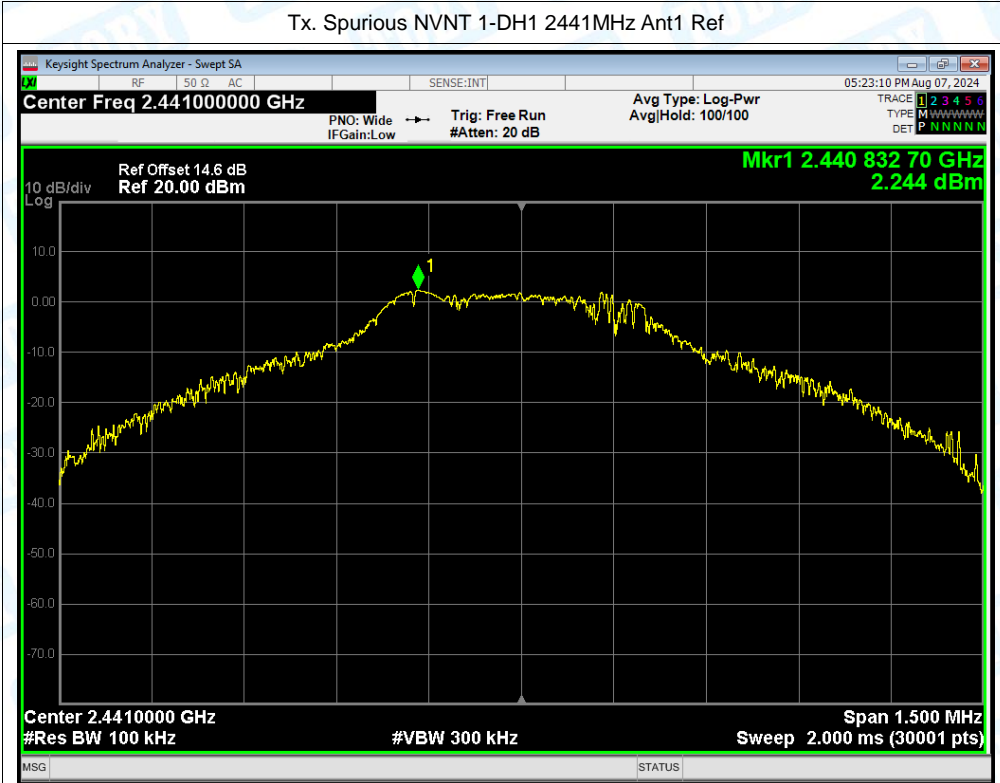
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Ref



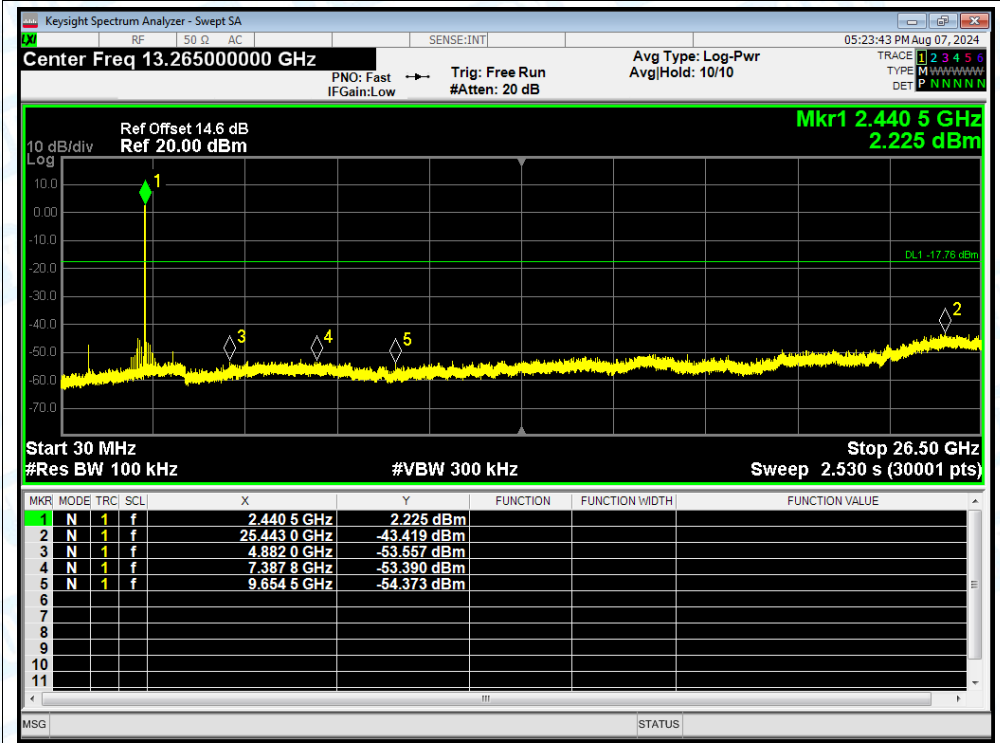
Tx. Spurious NVNT 1-DH1 2402MHz Ant1 Emission



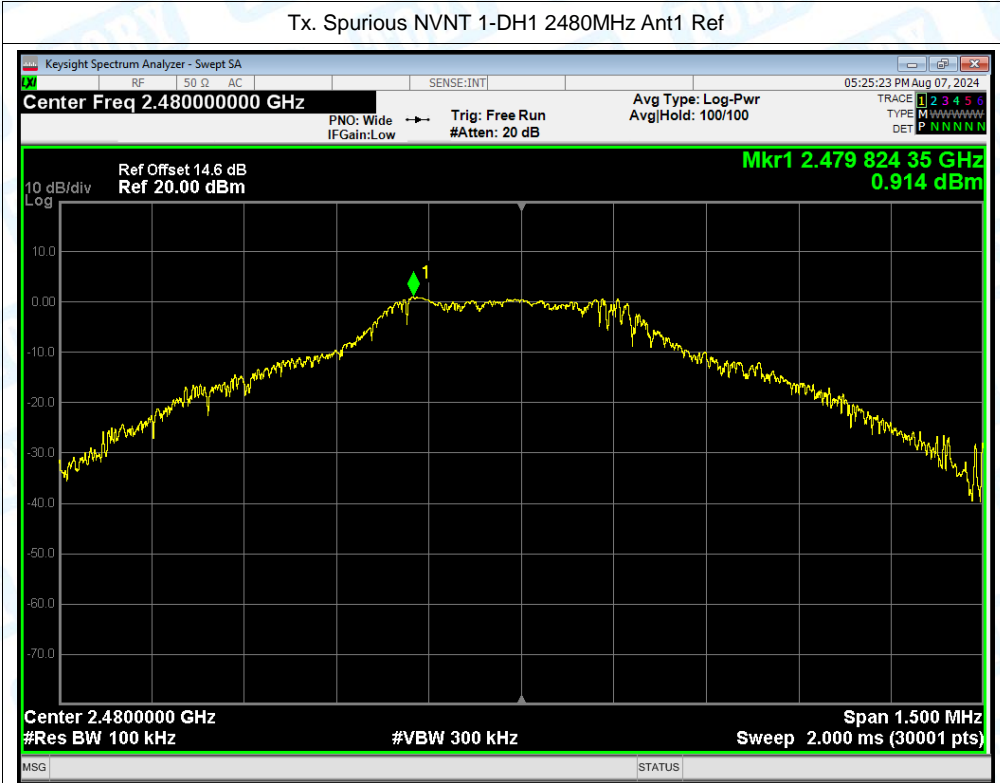
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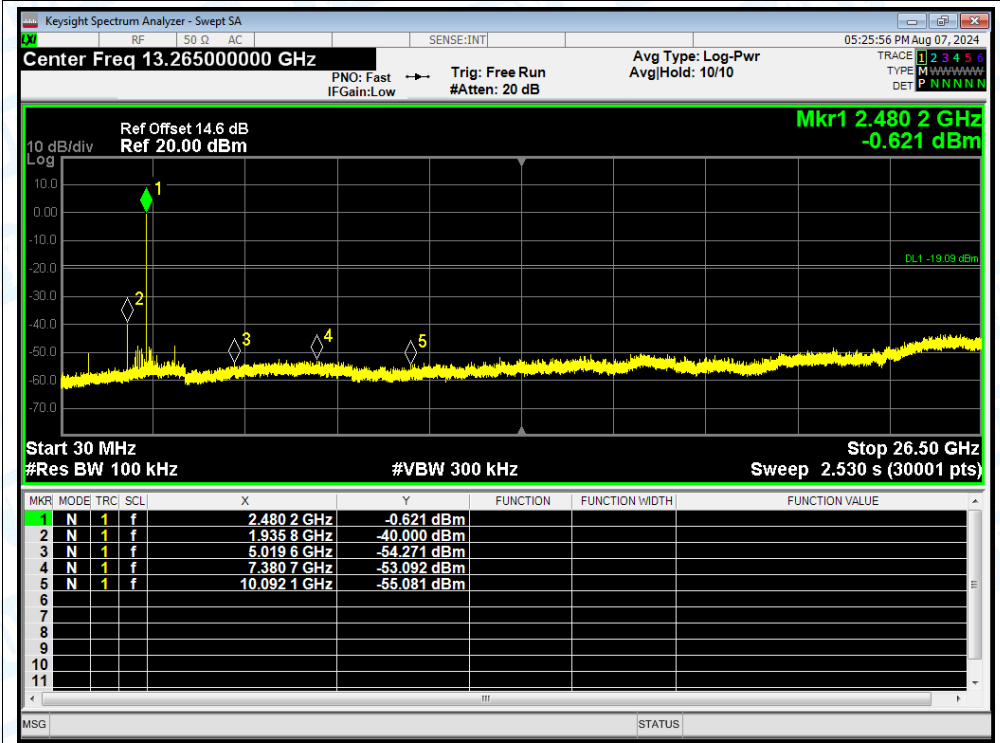
Tx. Spurious NVNT 1-DH1 2441MHz Ant1 Emission



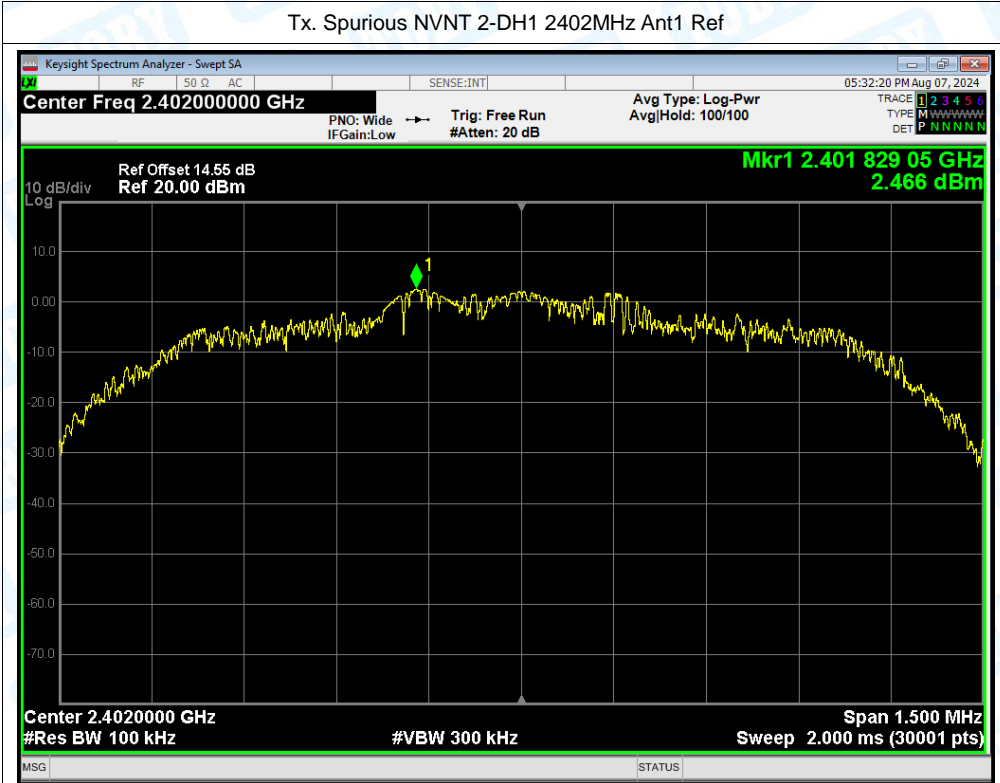
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Ref



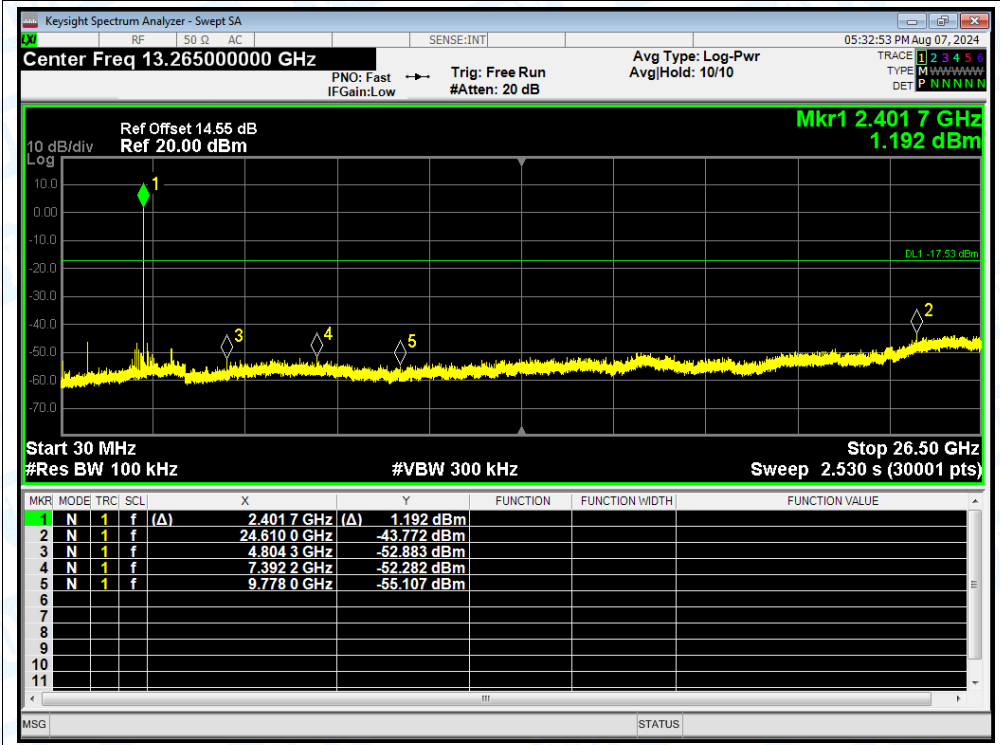
Tx. Spurious NVNT 1-DH1 2480MHz Ant1 Emission



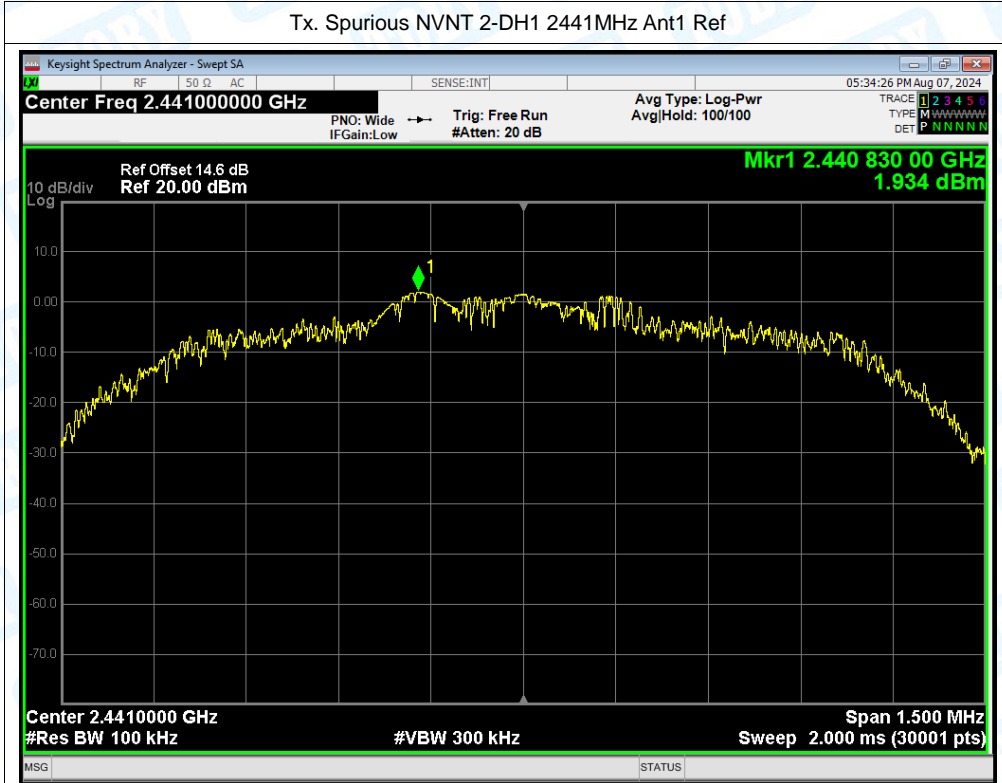
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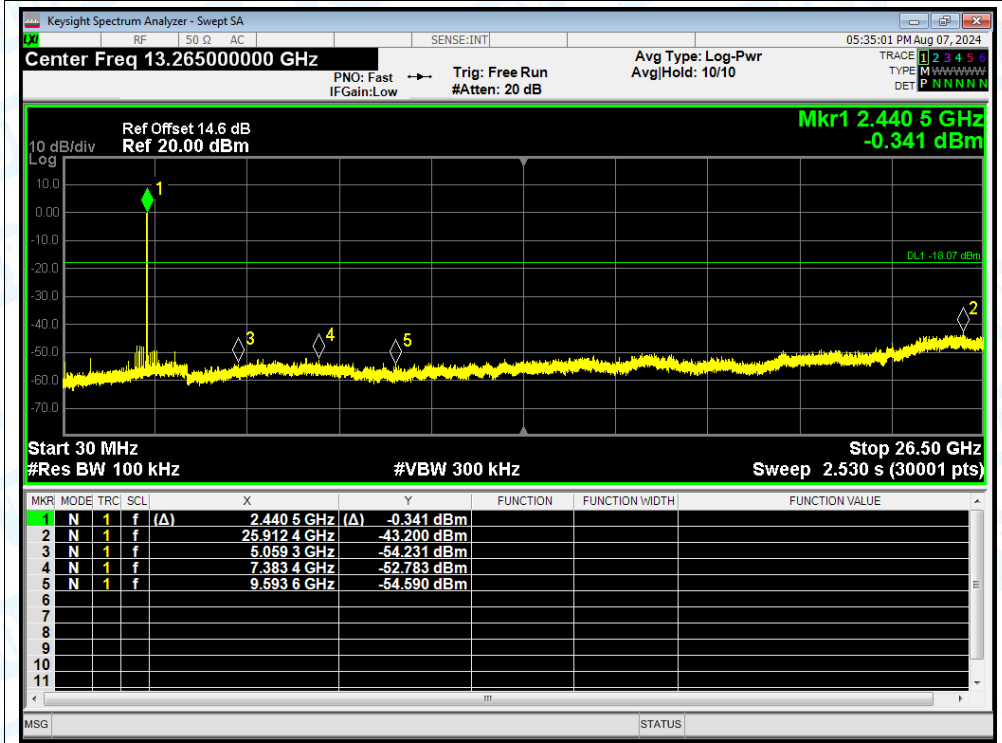
Tx. Spurious NVNT 2-DH1 2402MHz Ant1 Emission



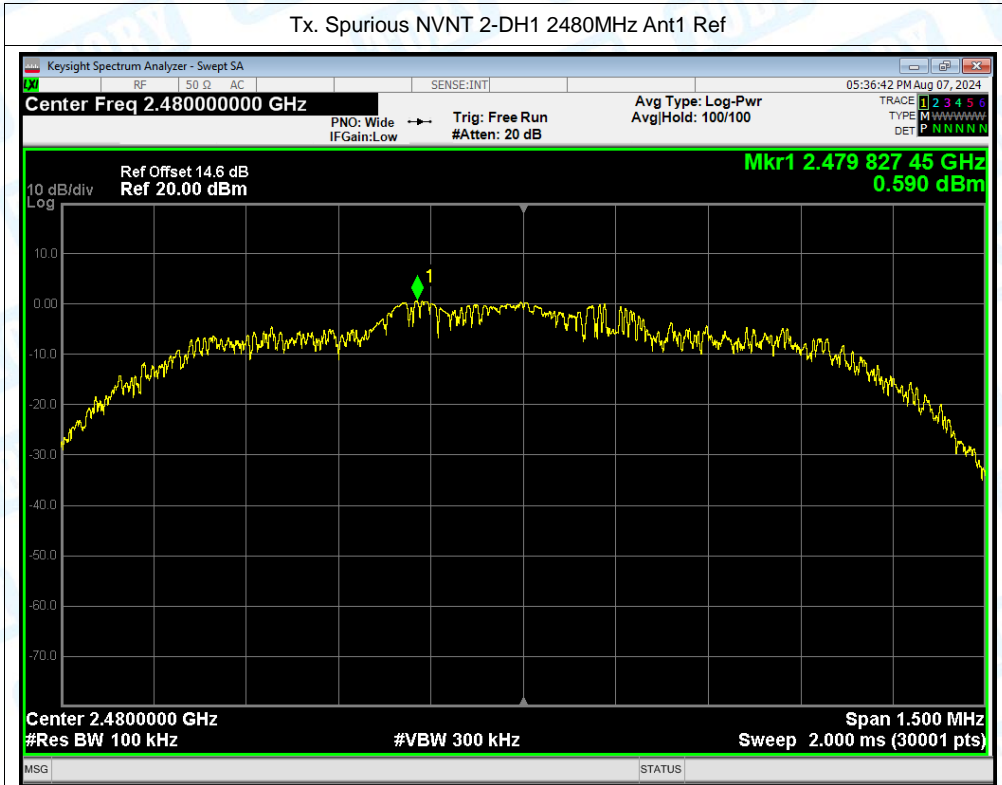
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Ref



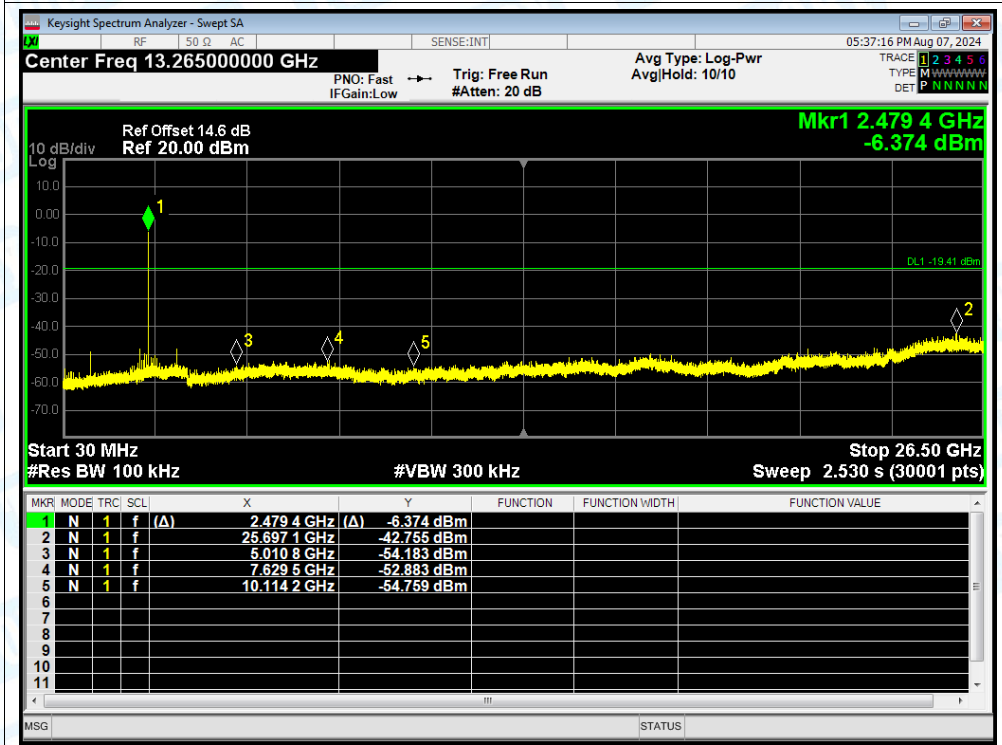
Tx. Spurious NVNT 2-DH1 2441MHz Ant1 Emission



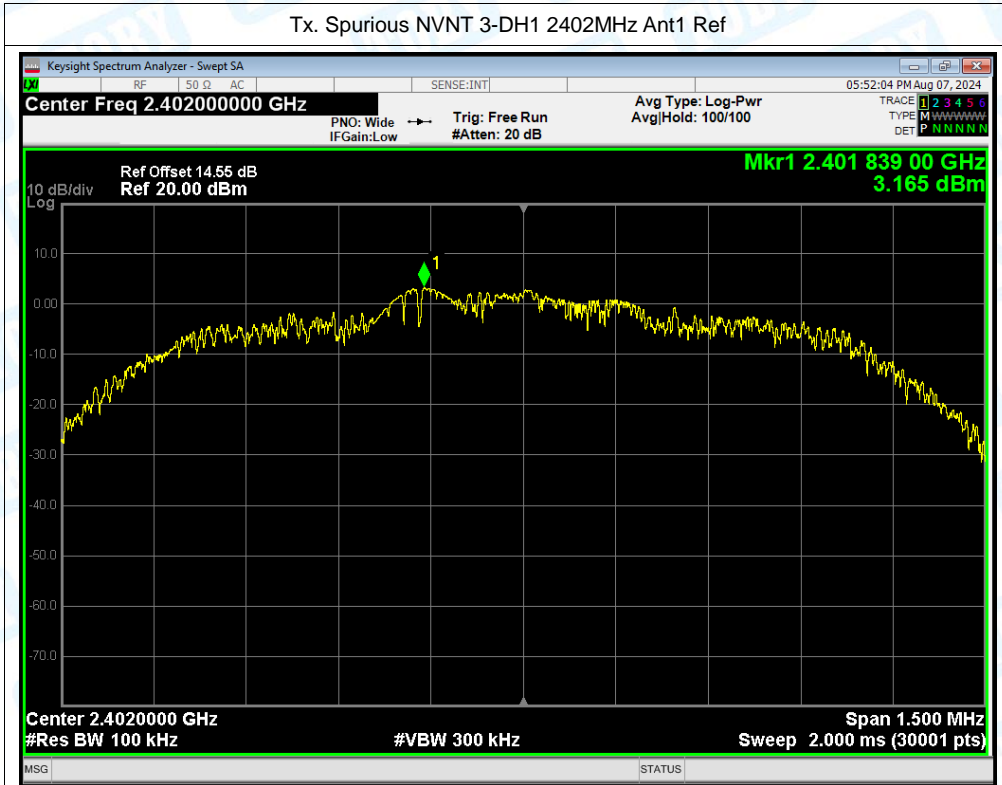
Tx. Spurious NVNT 2-DH1 2480MHz Ant1 Ref



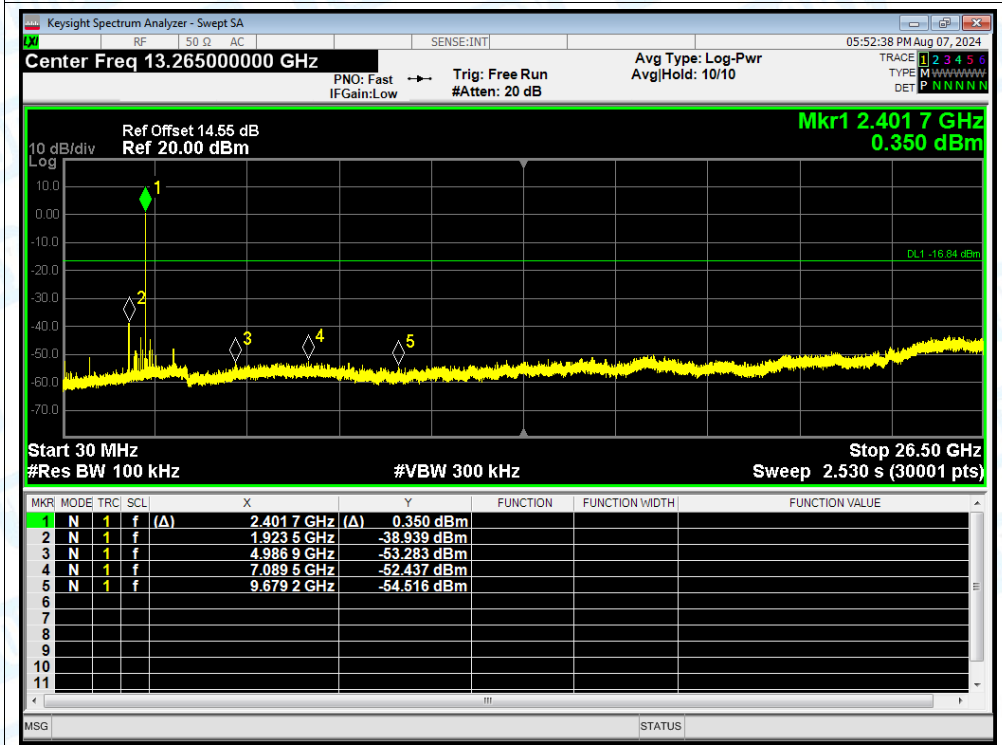
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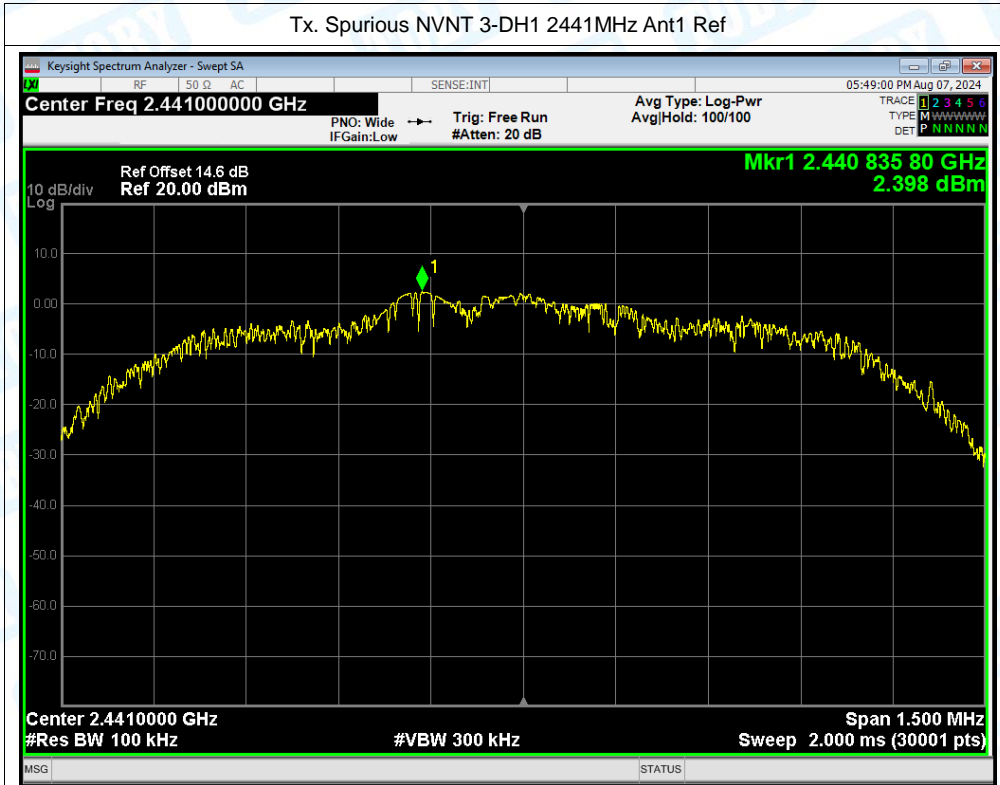
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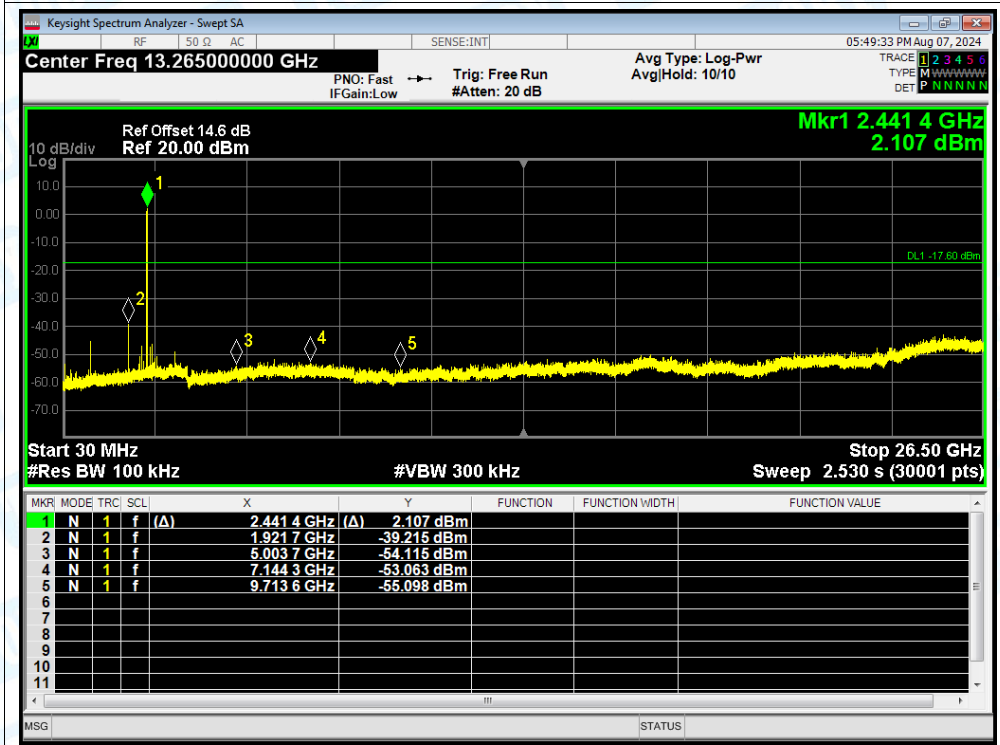
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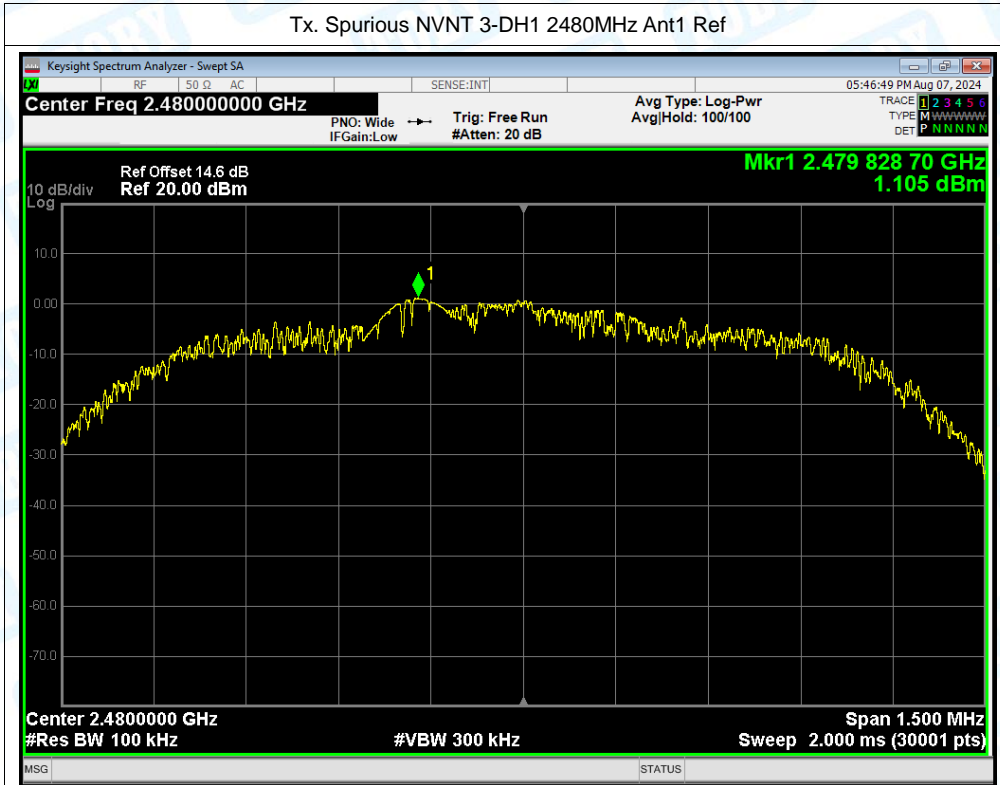
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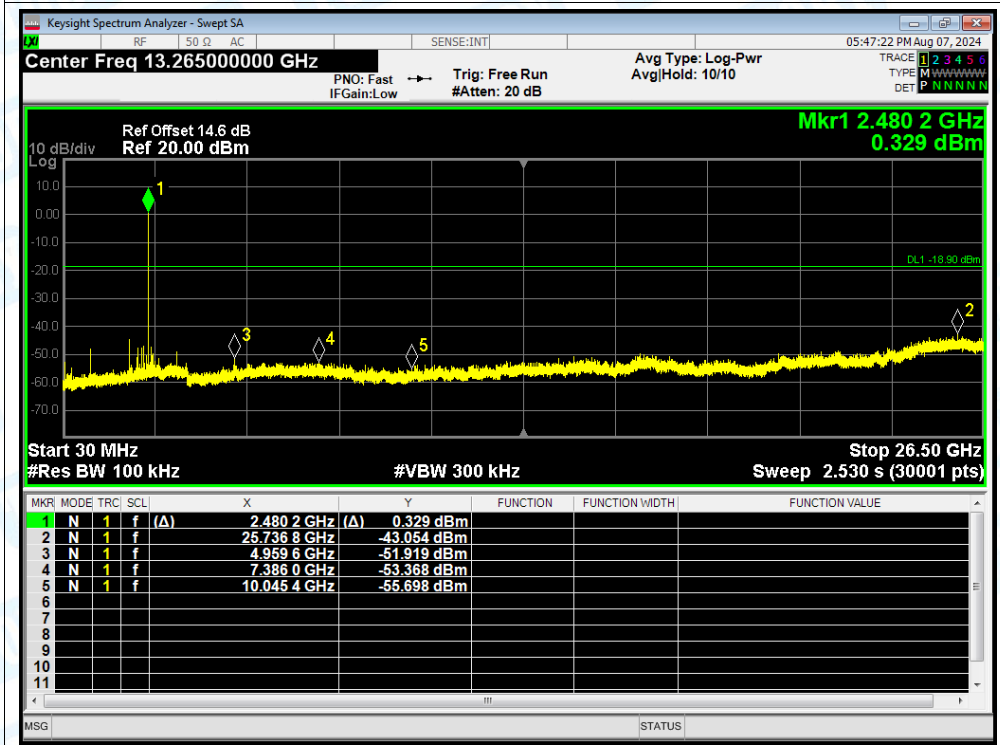
Tx. Spurious NVNT 3-DH1 2441MHz Ant1 Emission



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH1 2480MHz Ant1 Emission

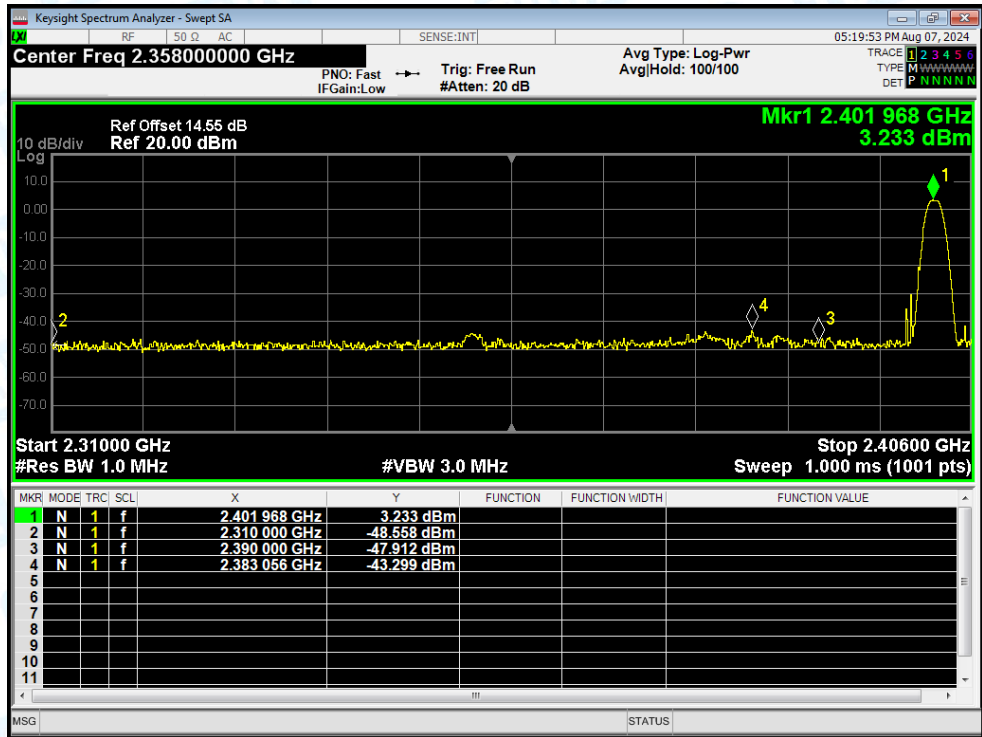


8. Restrict Band

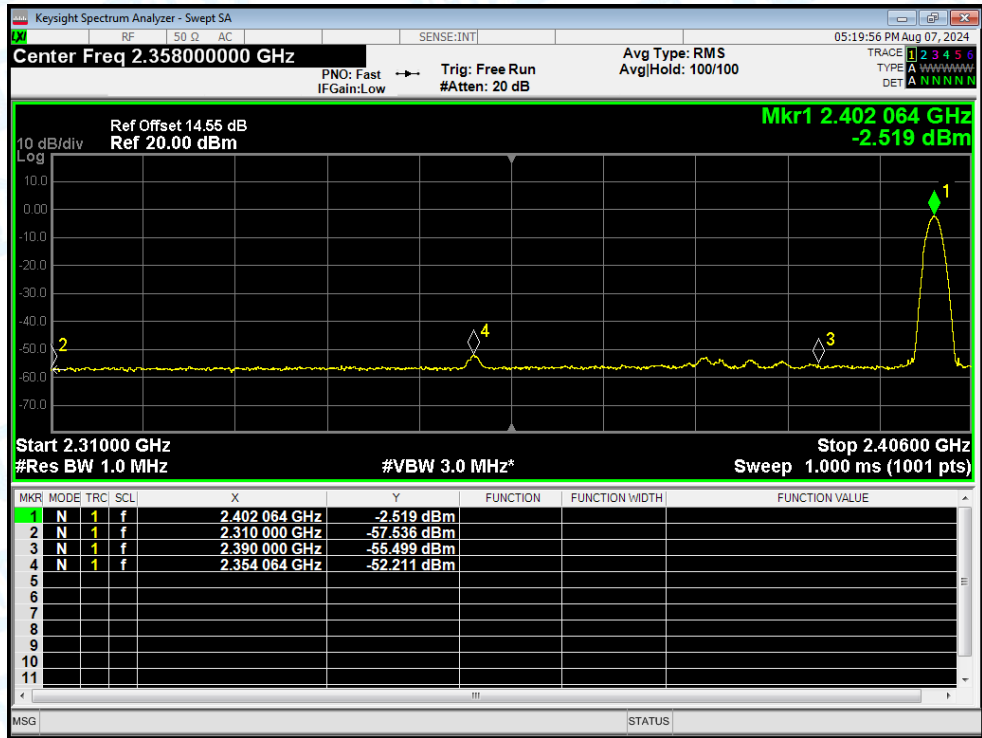
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-48.56	2	-	48.7	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2310	-57.54	2	5.14	44.86	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2383.056	-43.3	2	-	53.96	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2354.064	-52.21	2	5.14	50.19	Average	54	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-47.91	2	-	49.35	Peak	74	Pass
NVNT	1-DH1	2402	Ant1	No-Hopping	2390	-55.5	2	5.14	46.9	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-45.22	2	-	52.04	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.5	-55.97	2	5.17	46.46	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2483.776	-45.05	2	-	52.21	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2499.376	-54.54	2	5.17	47.89	Average	54	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-47.01	2	-	50.25	Peak	74	Pass
NVNT	1-DH1	2480	Ant1	No-Hopping	2500	-55.68	2	5.17	46.75	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-49.44	2	-	47.82	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2310	-57.53	2	5.06	44.79	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2354.064	-43.51	2	-	53.75	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2378.064	-53.26	2	5.06	49.06	Average	54	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-48.05	2	-	49.21	Peak	74	Pass
NVNT	2-DH1	2402	Ant1	No-Hopping	2390	-56.19	2	5.06	46.13	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-47.52	2	-	49.74	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2483.5	-55.46	2	5.06	46.86	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2491.936	-45.09	2	-	52.17	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2498.92	-54.96	2	5.06	47.36	Average	54	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-48.51	2	-	48.75	Peak	74	Pass
NVNT	2-DH1	2480	Ant1	No-Hopping	2500	-56.05	2	5.06	46.27	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-48.48	2	-	48.78	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2310	-57.11	2	5.06	45.21	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2378.16	-42.81	2	-	54.45	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2378.064	-53.11	2	5.06	49.21	Average	54	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-48.06	2	-	49.2	Peak	74	Pass
NVNT	3-DH1	2402	Ant1	No-Hopping	2390	-56.1	2	5.06	46.22	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-49.05	2	-	48.21	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2483.5	-55.85	2	5.17	46.58	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2494.48	-44.62	2	-	52.64	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2499.328	-54.65	2	5.17	47.78	Average	54	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-48.39	2	-	48.87	Peak	74	Pass
NVNT	3-DH1	2480	Ant1	No-Hopping	2500	-55.49	2	5.17	46.94	Average	54	Pass

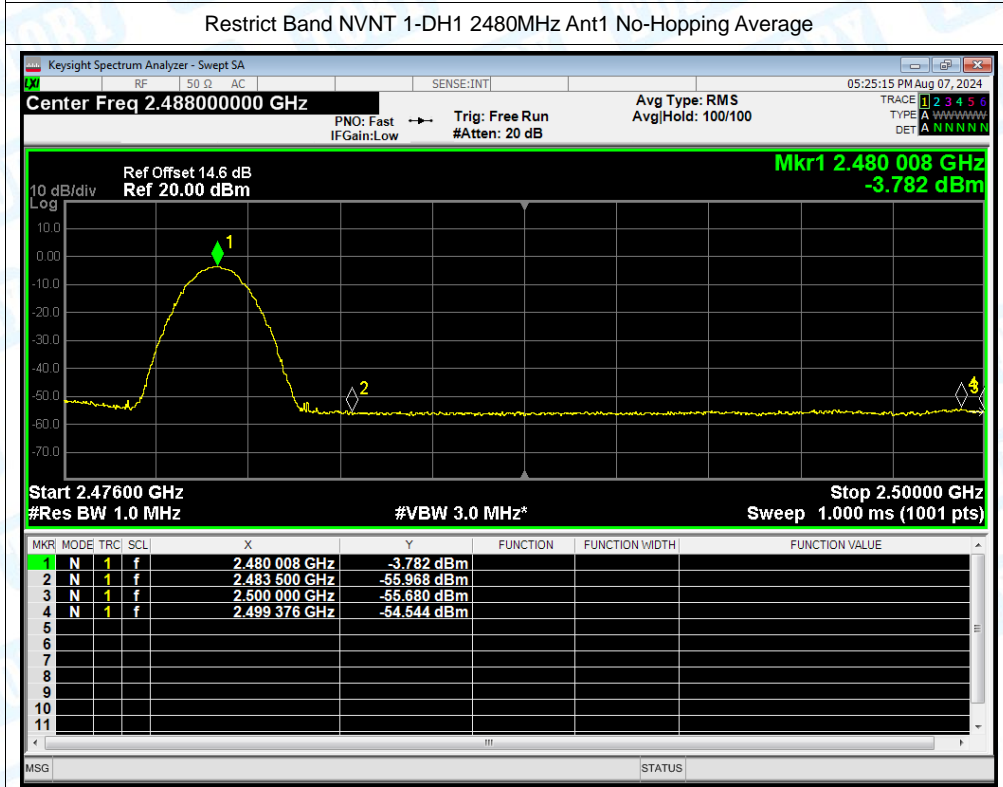
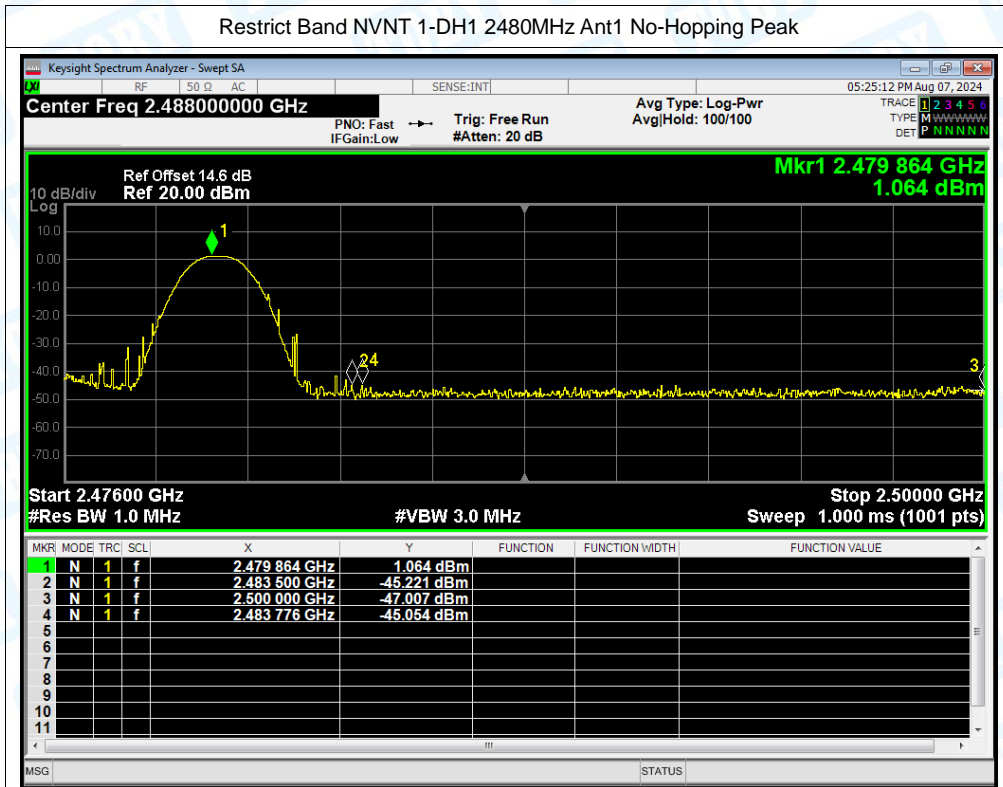
Test Graphs

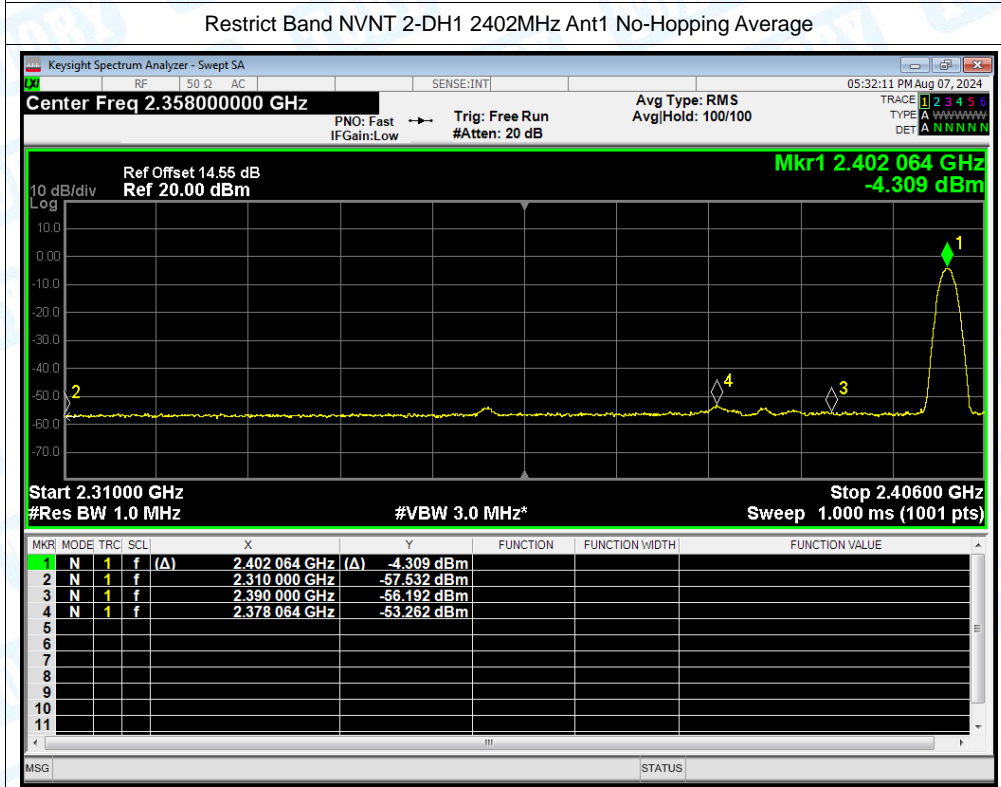
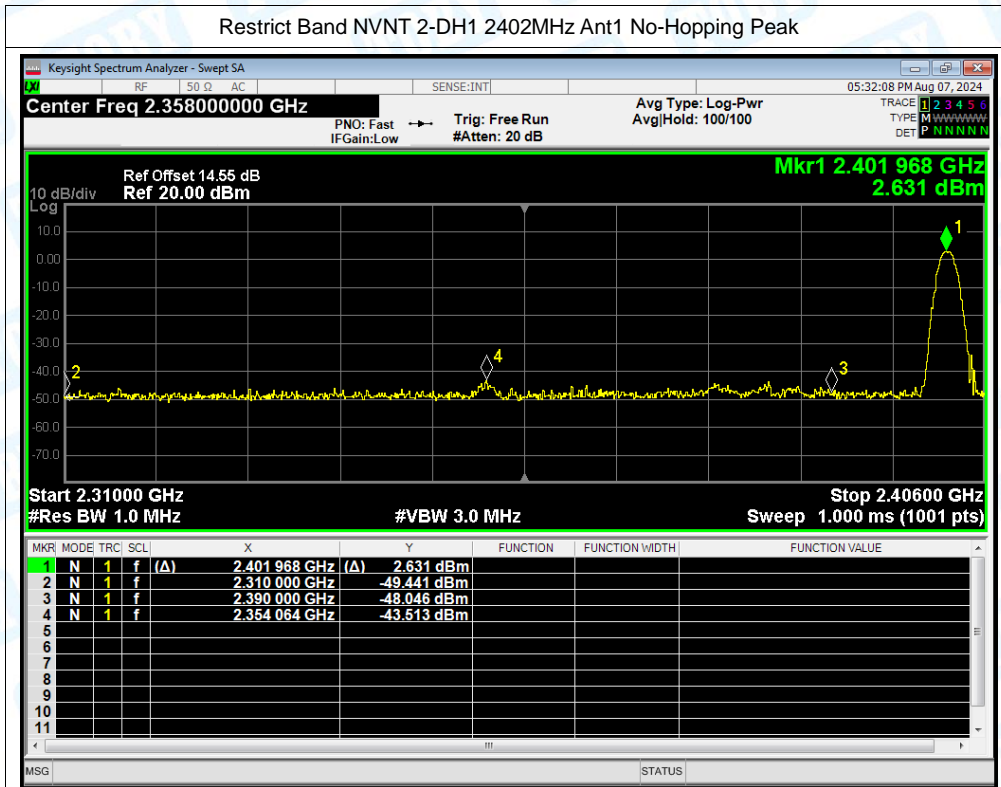
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Peak

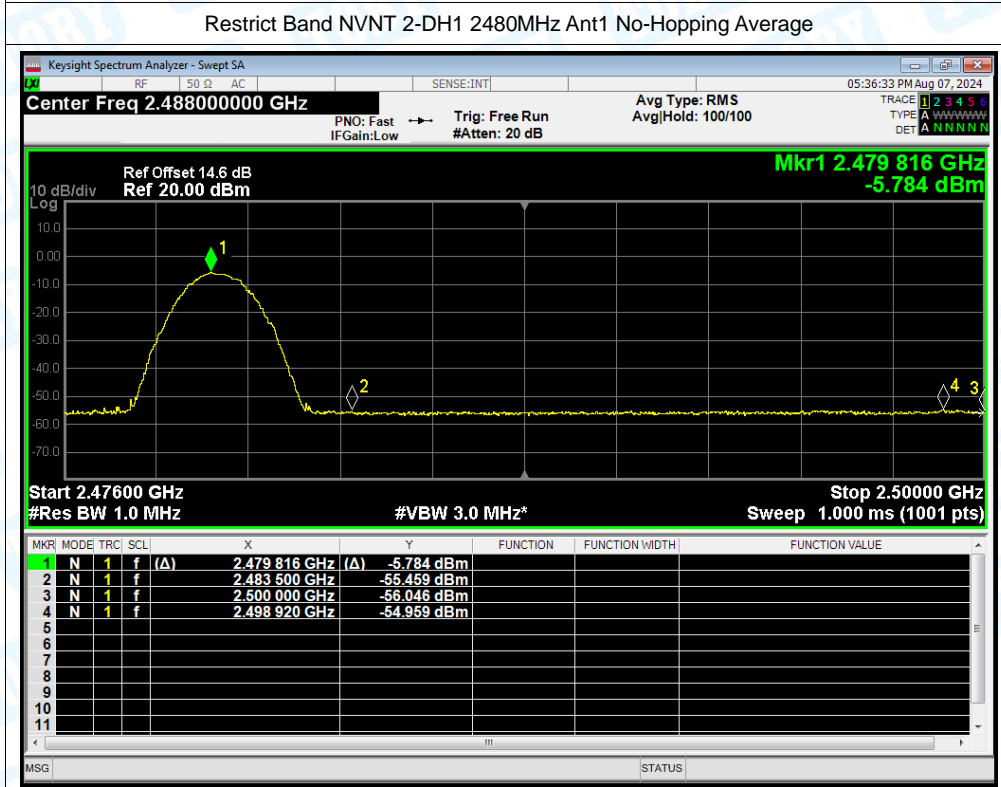
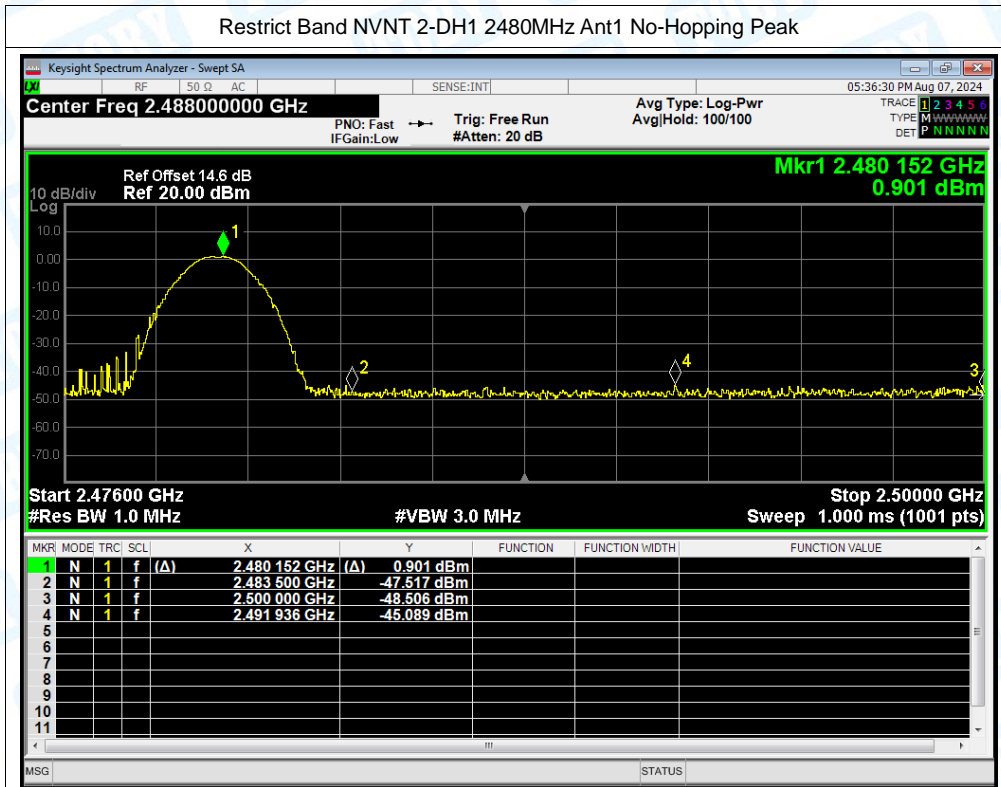


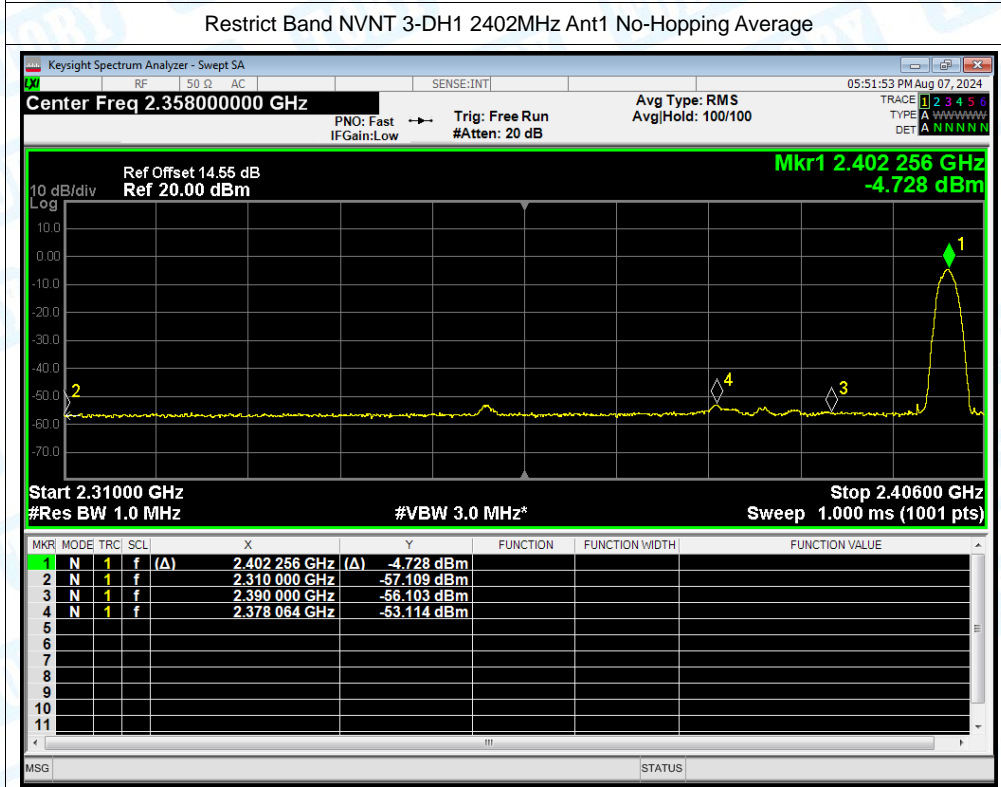
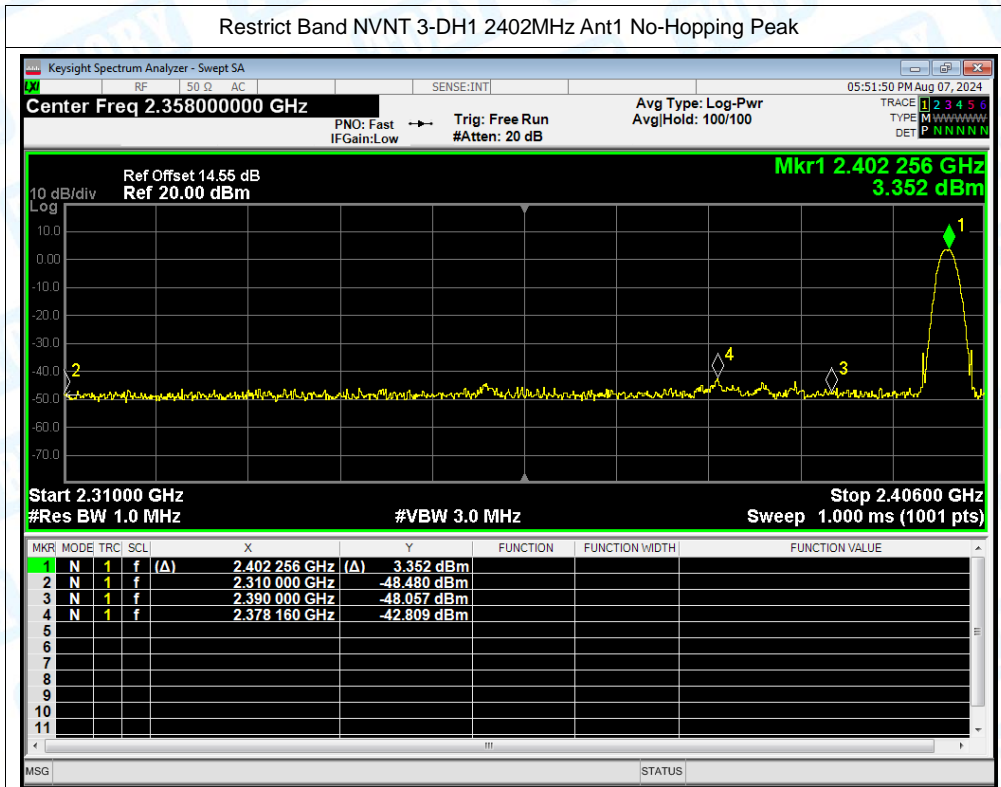
Restrict Band NVNT 1-DH1 2402MHz Ant1 No-Hopping Average

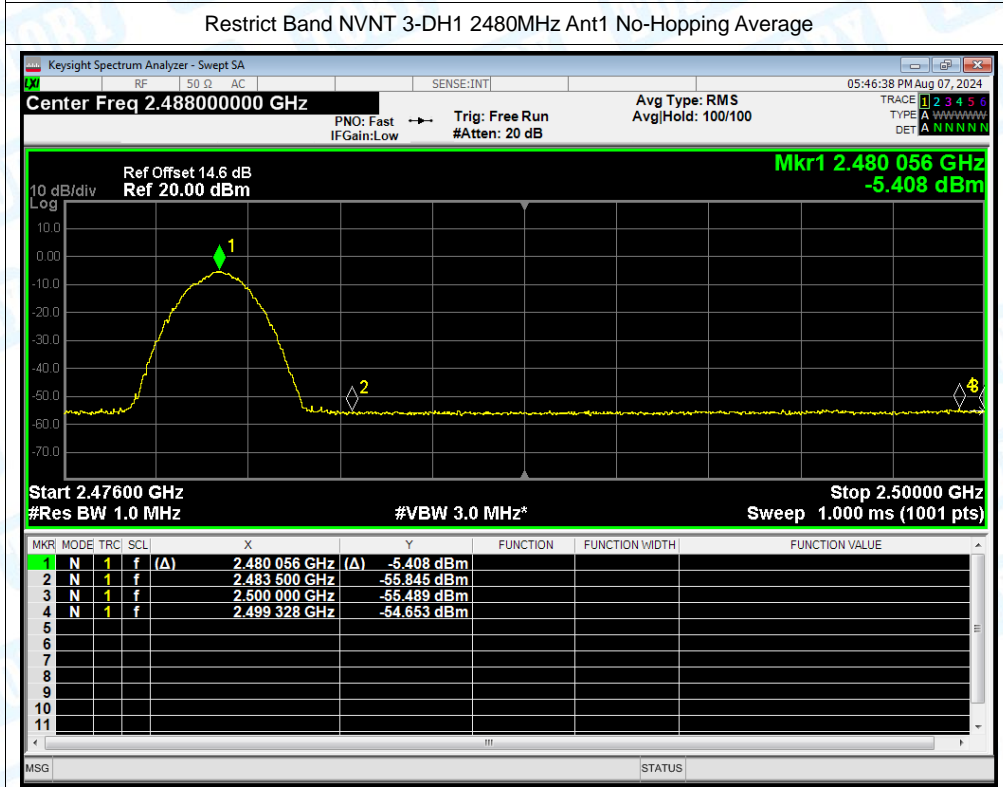
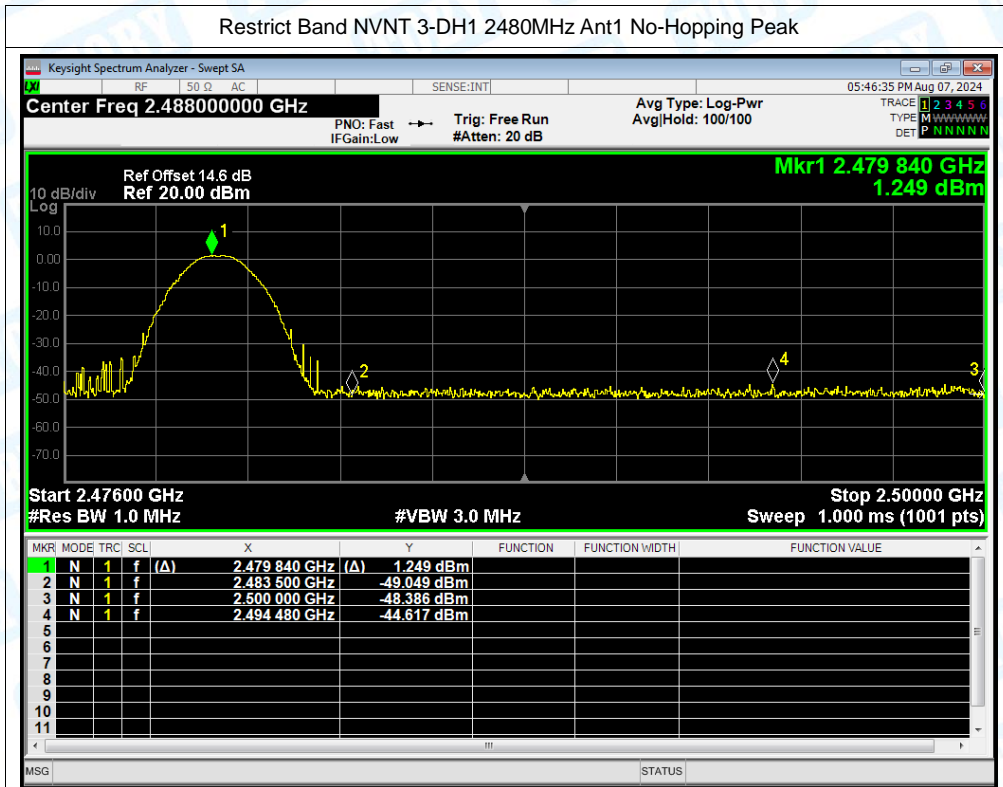










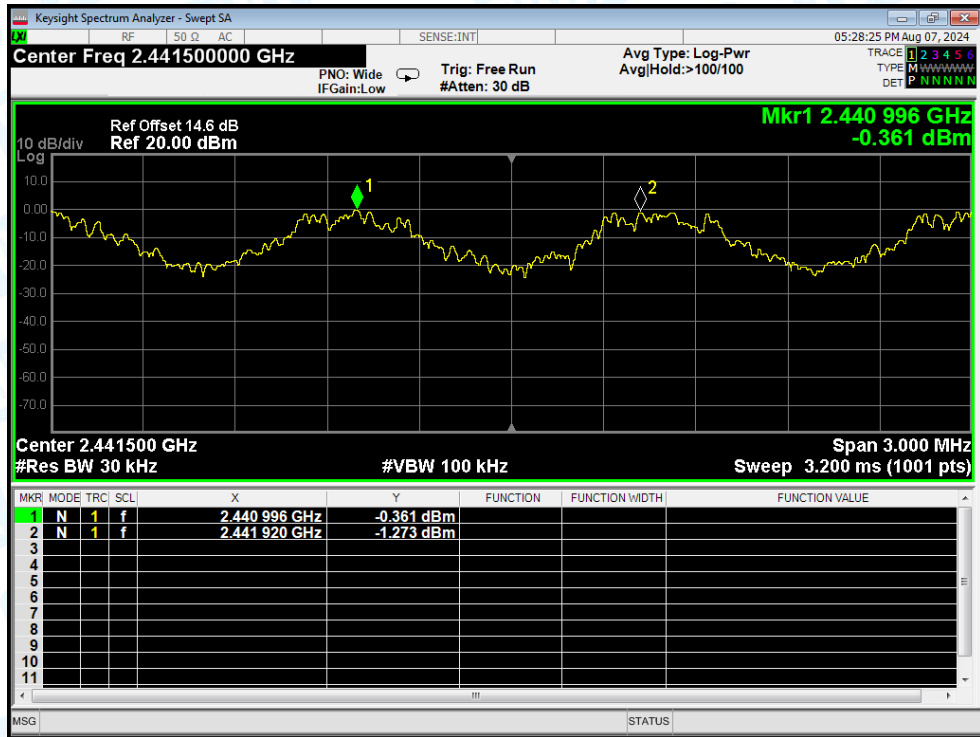


9. Carrier Frequencies Separation

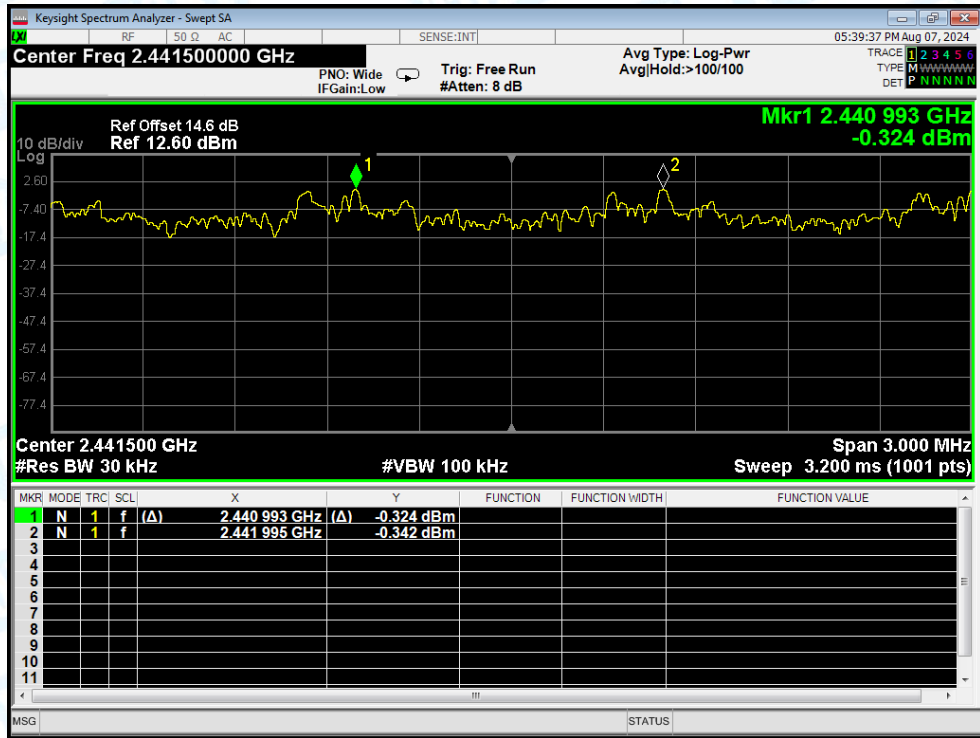
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH1	Ant1	2440.996	2441.92	0.924	0.62	Pass
NVNT	2-DH1	Ant1	2440.993	2441.995	1.002	0.82	Pass
NVNT	3-DH1	Ant1	2440.849	2441.998	1.149	0.025	Pass

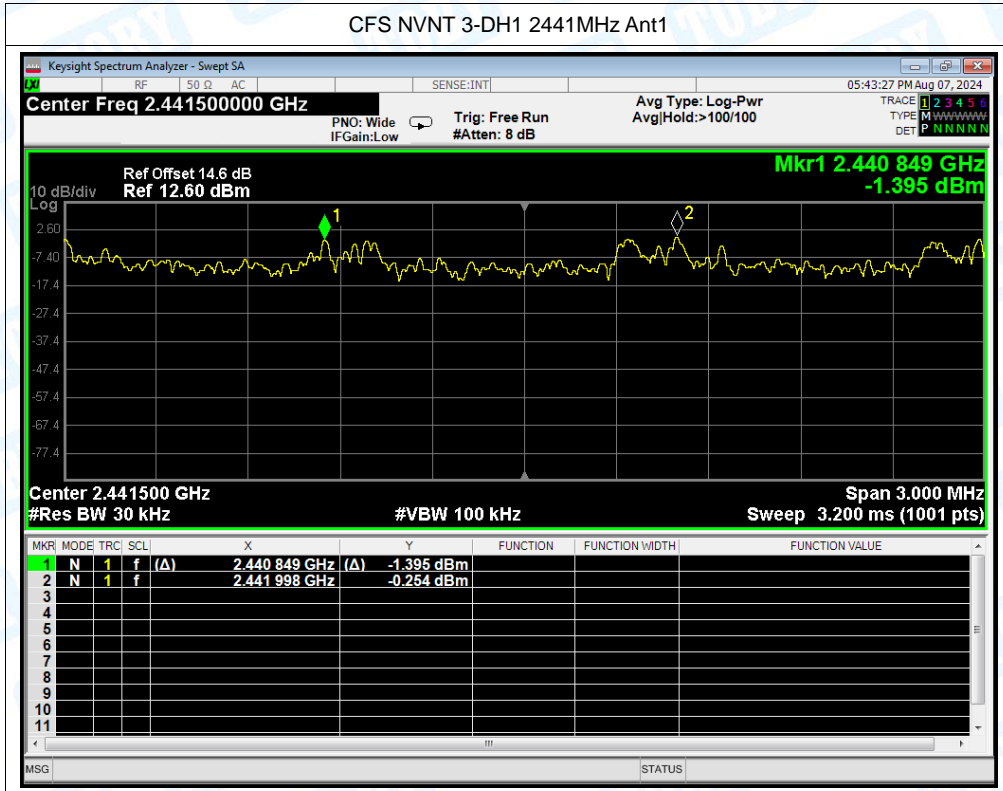
Test Graphs

CFS NVNT 1-DH1 2441MHz Ant1



CFS NVNT 2-DH1 2441MHz Ant1



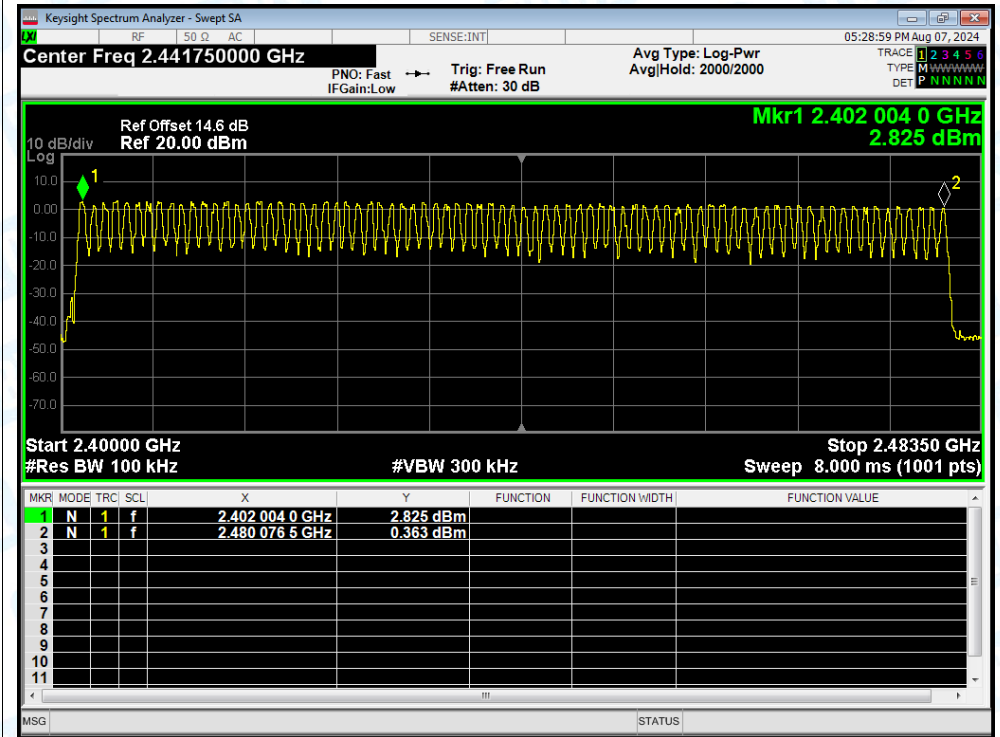


10. Number of Hopping Channel

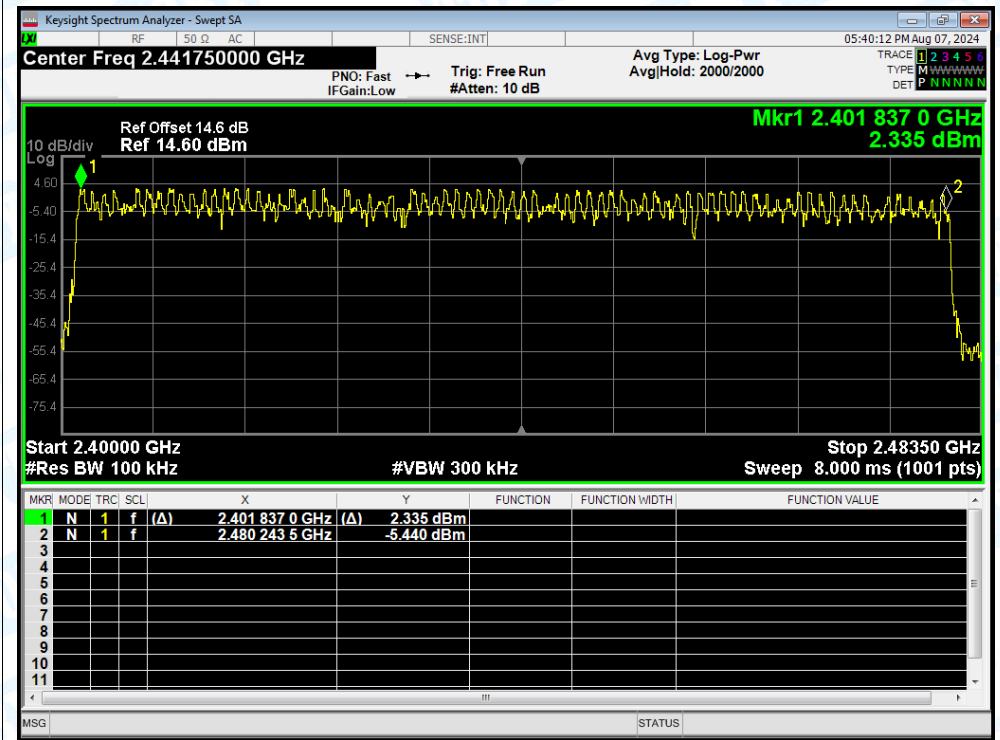
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH1	Ant1	79	15	Pass
NVNT	2-DH1	Ant1	79	15	Pass
NVNT	3-DH1	Ant1	79	15	Pass

Test Graphs

Hopping No. NVNT 1-DH1 2441MHz Ant1



Hopping No. NVNT 2-DH1 2441MHz Ant1

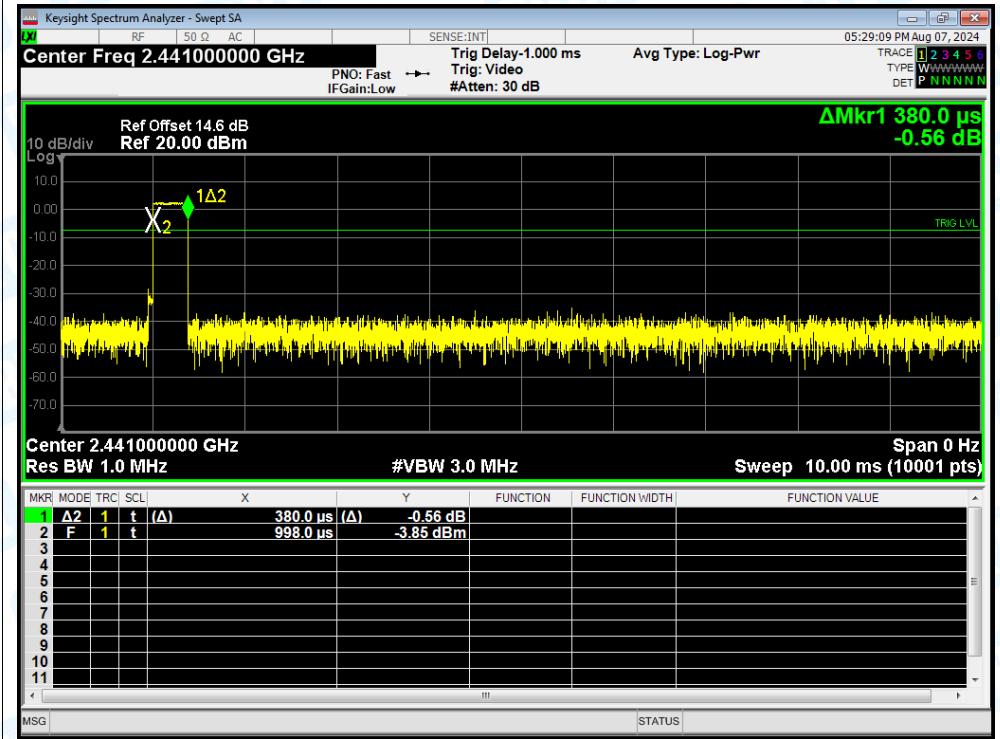


11. Dwell Time

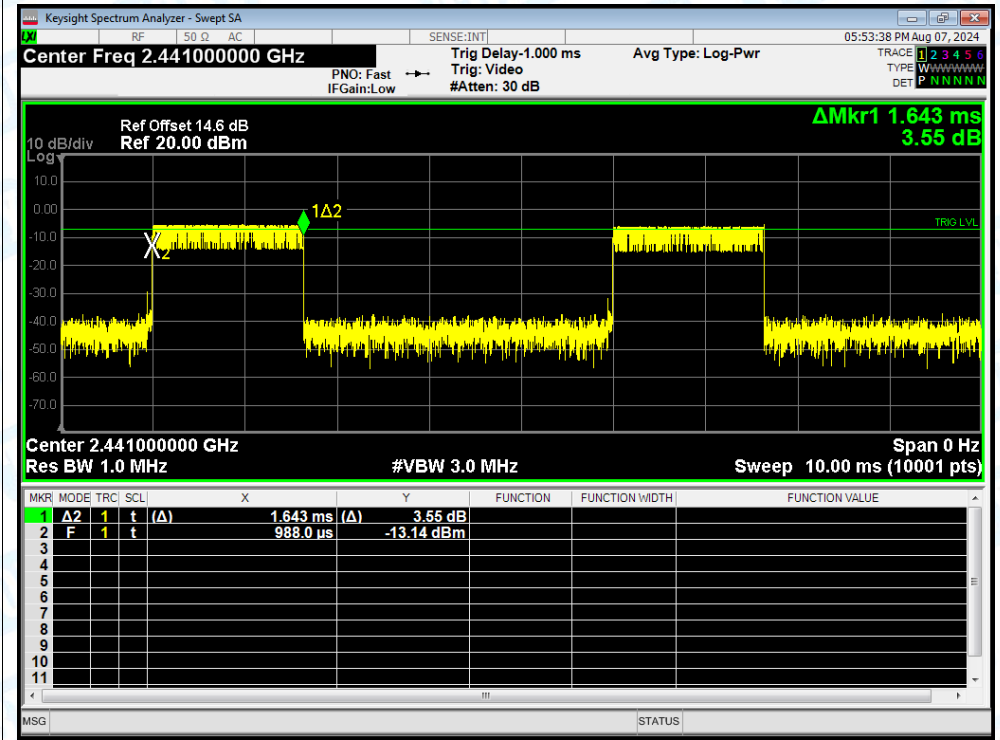
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	Ant1	0.38	121.6	31600	400	Pass
NVNT	1-DH3	2441	Ant1	1.643	262.88	31600	400	Pass
NVNT	1-DH5	2441	Ant1	2.891	308.373	31600	400	Pass
NVNT	2-DH1	2441	Ant1	0.387	123.84	31600	400	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

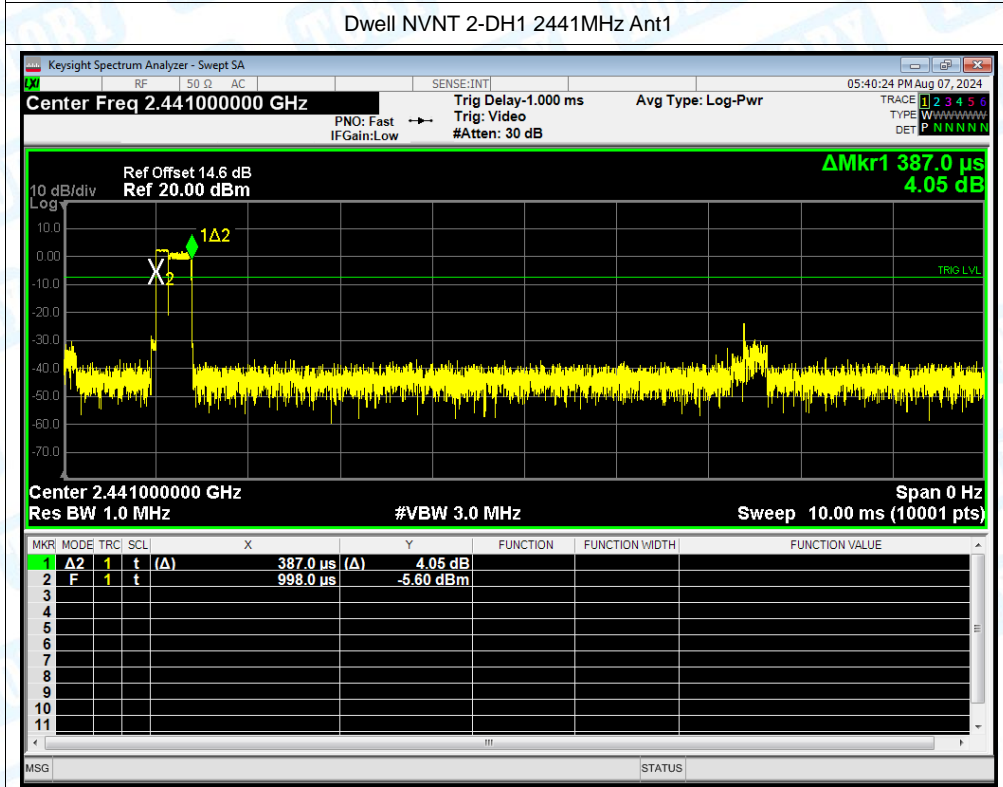
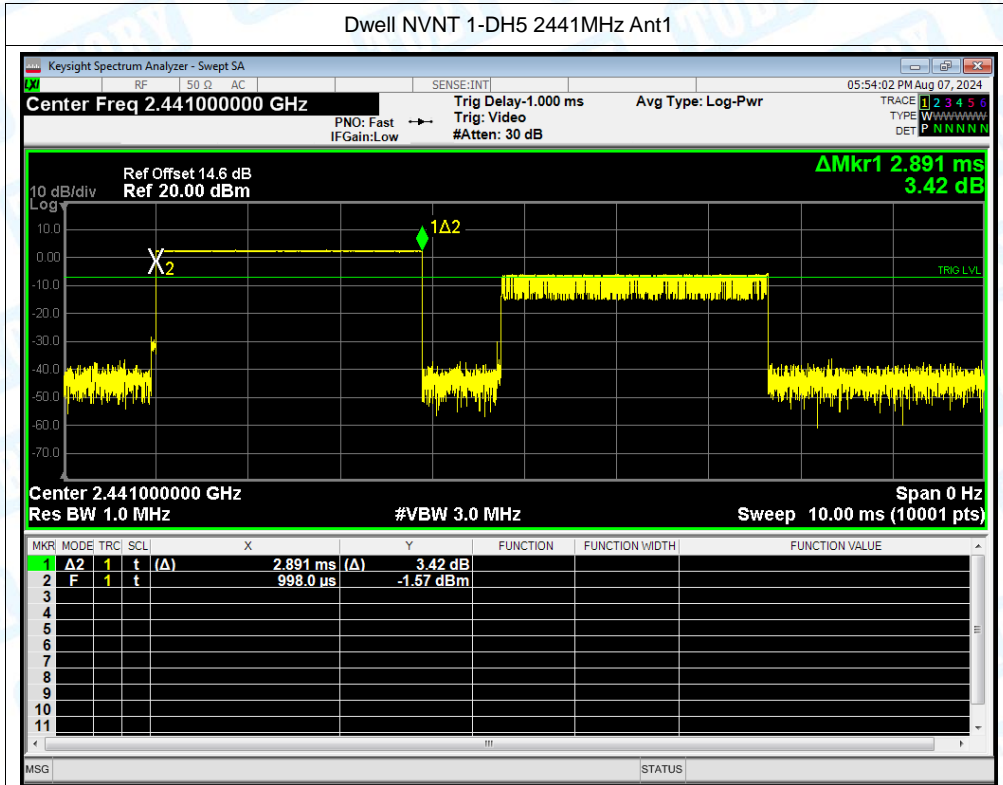
Test Graphs

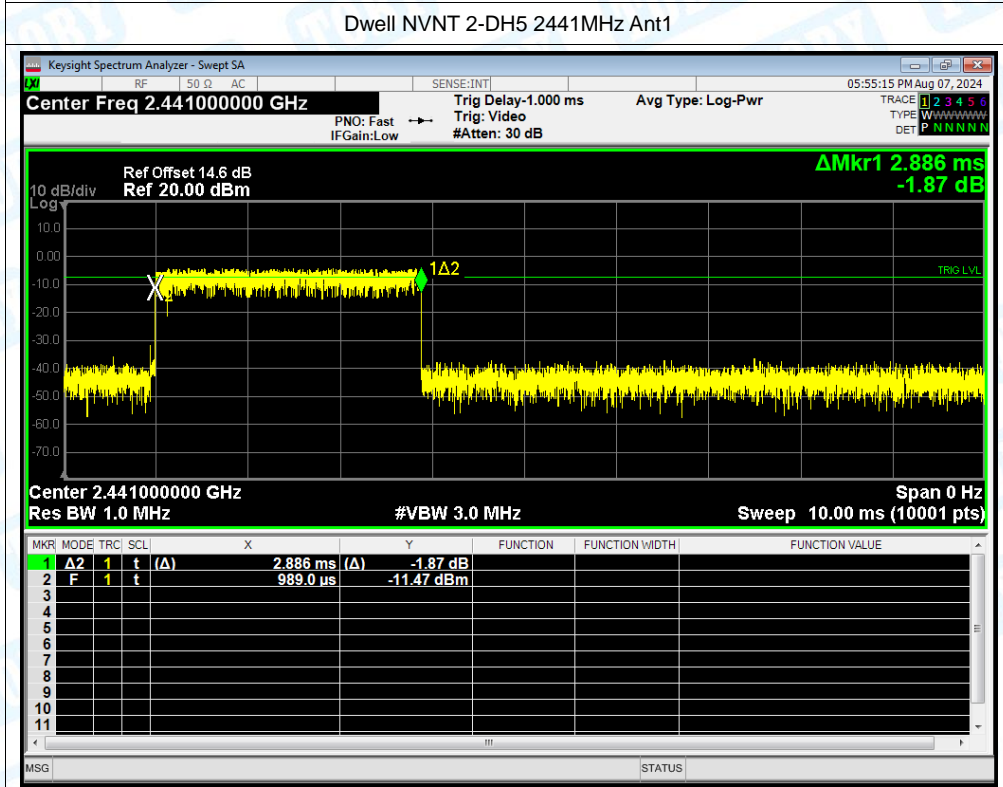
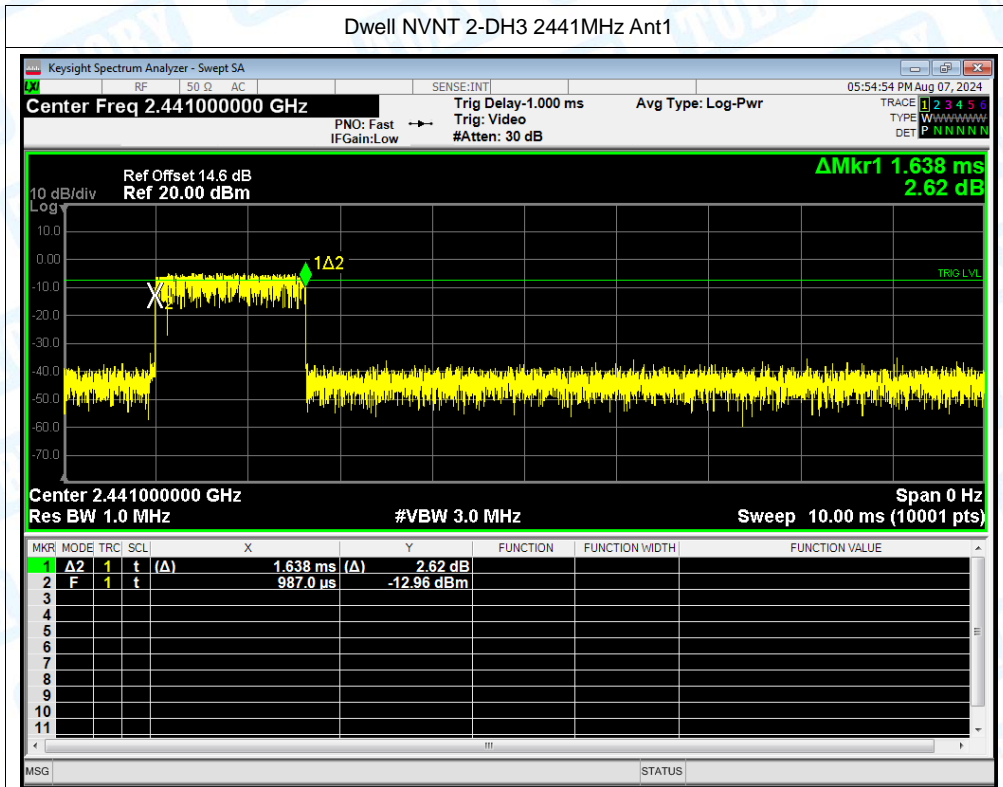
Dwell NVNT 1-DH1 2441MHz Ant1

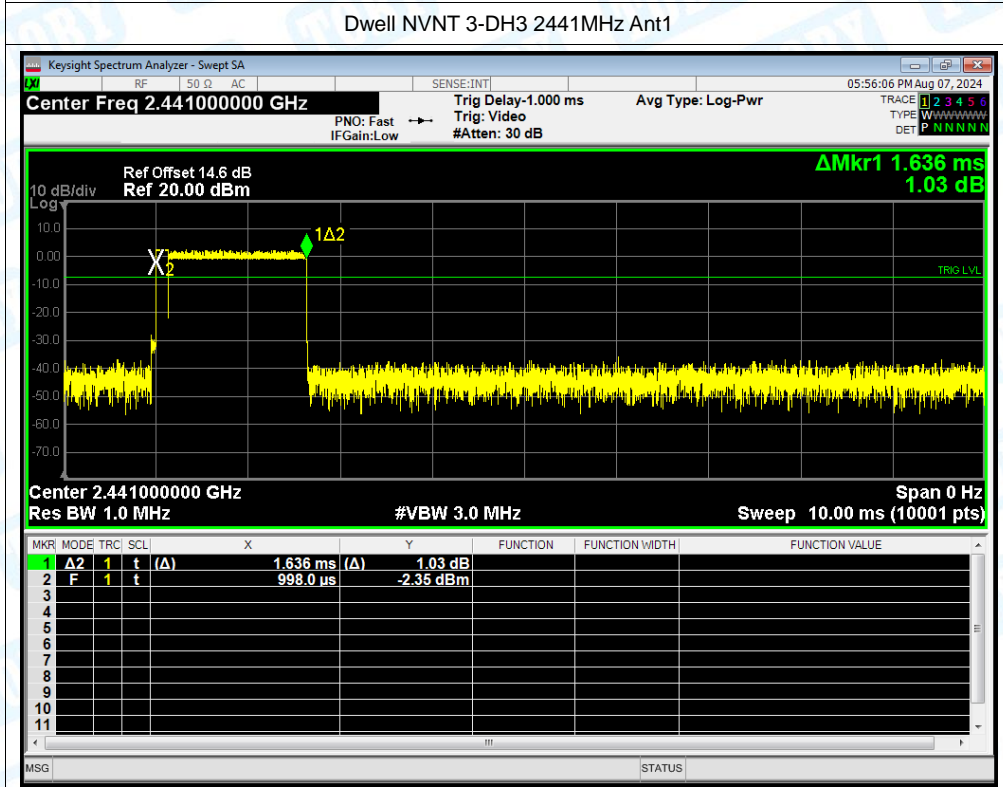
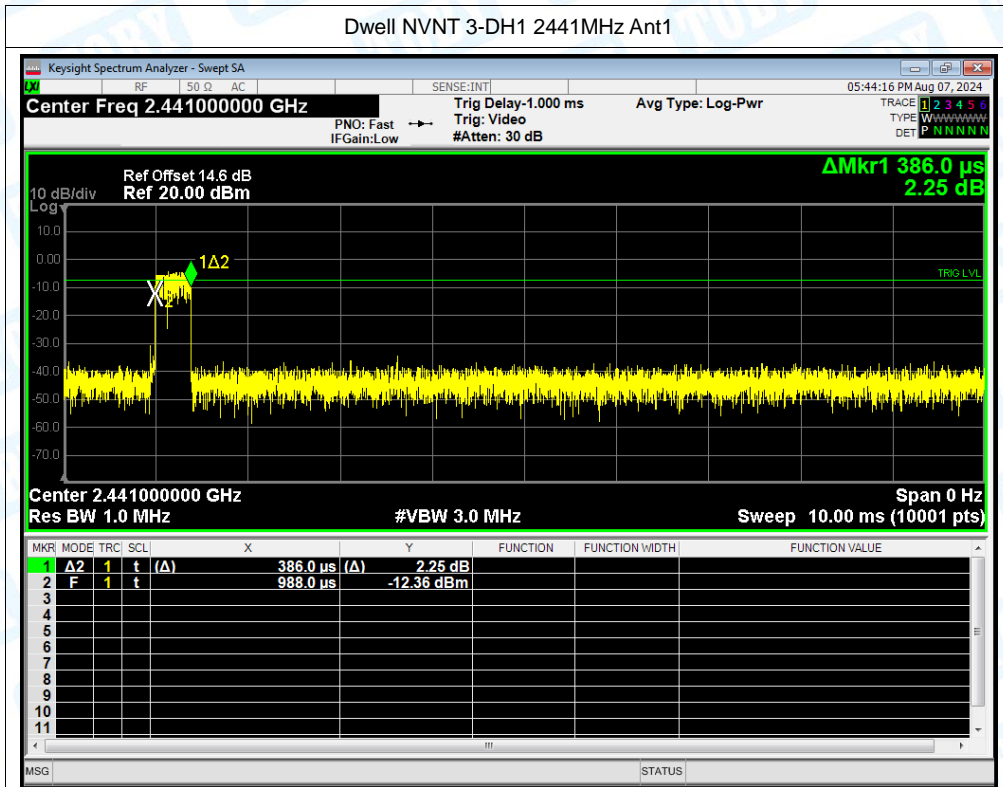


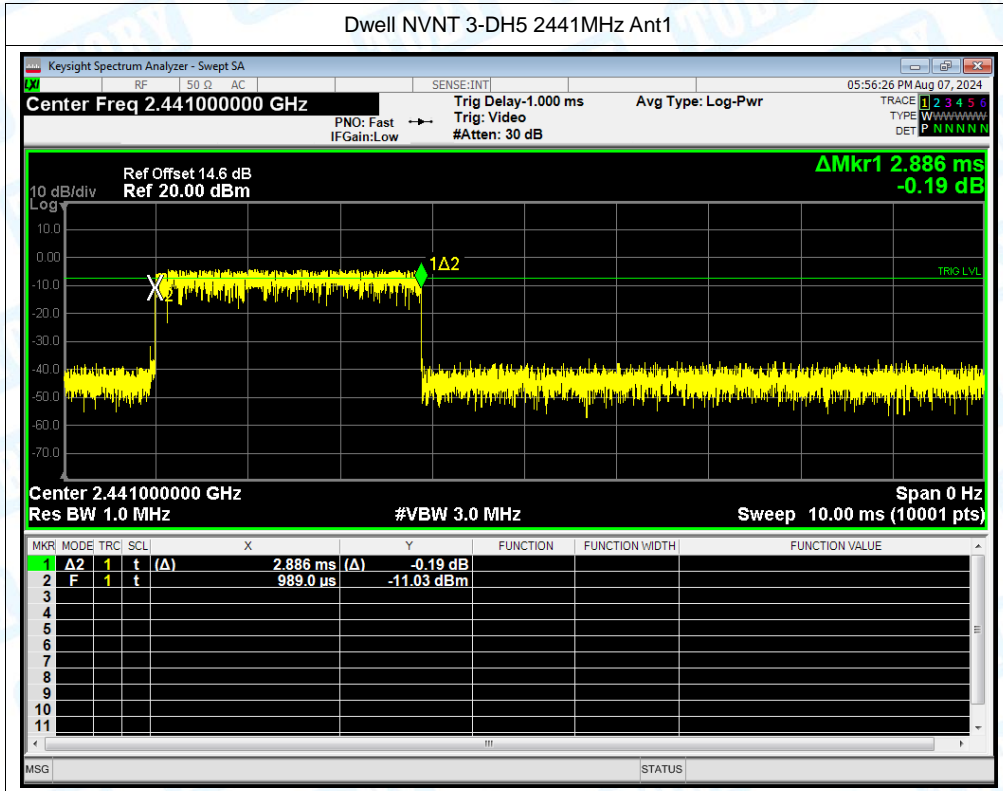
Dwell NVNT 1-DH3 2441MHz Ant1











---- END OF REPORT ----