



Appendix A

RF Test Data for BT (Conducted Measurement)

Product Name: Bluetooth audio

Test Model: M9

Environmental Conditions

Temperature:	23.8°C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Jay Luo
Supervised by:	Nick Peng



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A.1 -20dB Bandwidth

Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH5	2402	Ant1	0.956	N/A	Pass
NVNT	1-DH5	2441	Ant1	0.999	N/A	Pass
NVNT	1-DH5	2480	Ant1	0.945	N/A	Pass
NVNT	2-DH5	2402	Ant1	1.282	N/A	Pass
NVNT	2-DH5	2441	Ant1	1.285	N/A	Pass
NVNT	2-DH5	2480	Ant1	1.309	N/A	Pass
NVNT	3-DH5	2402	Ant1	1.297	N/A	Pass
NVNT	3-DH5	2441	Ant1	1.286	N/A	Pass
NVNT	3-DH5	2480	Ant1	1.299	N/A	Pass



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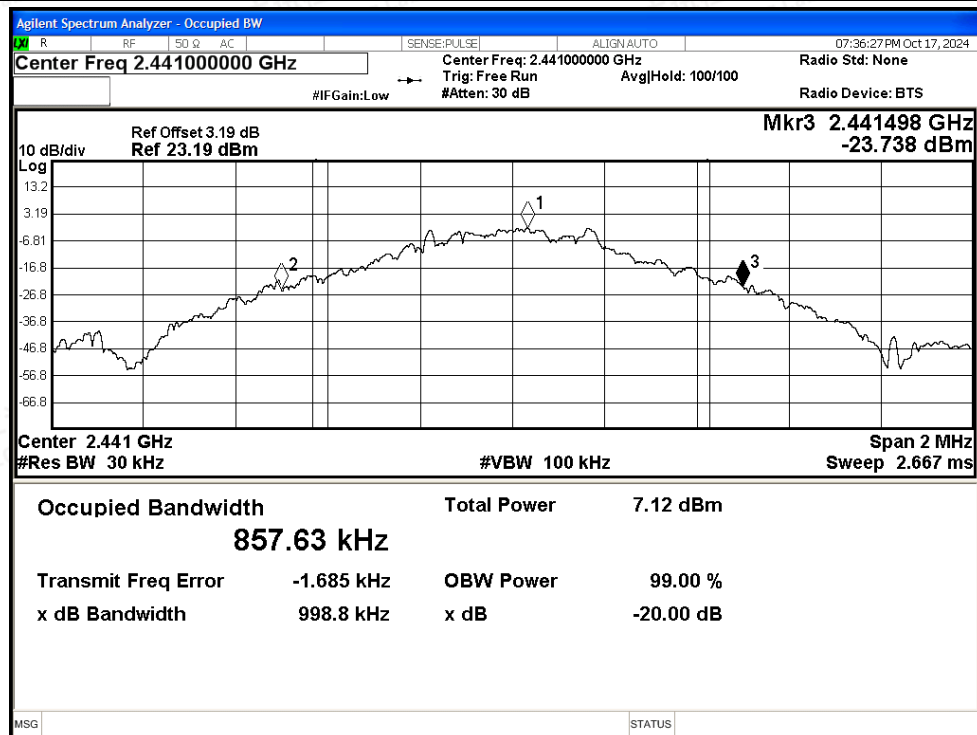


Test Graphs

-20dB Bandwidth NVNT 1-DH5 2402MHz Ant1



-20dB Bandwidth NVNT 1-DH5 2441MHz Ant1

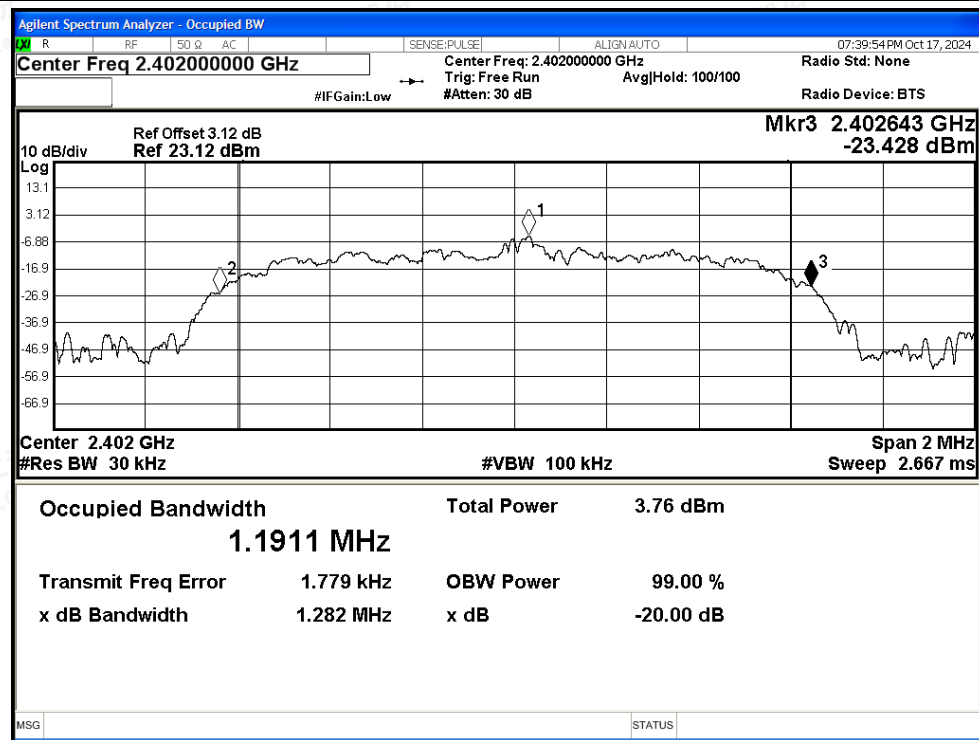




-20dB Bandwidth NVNT 1-DH5 2480MHz Ant1

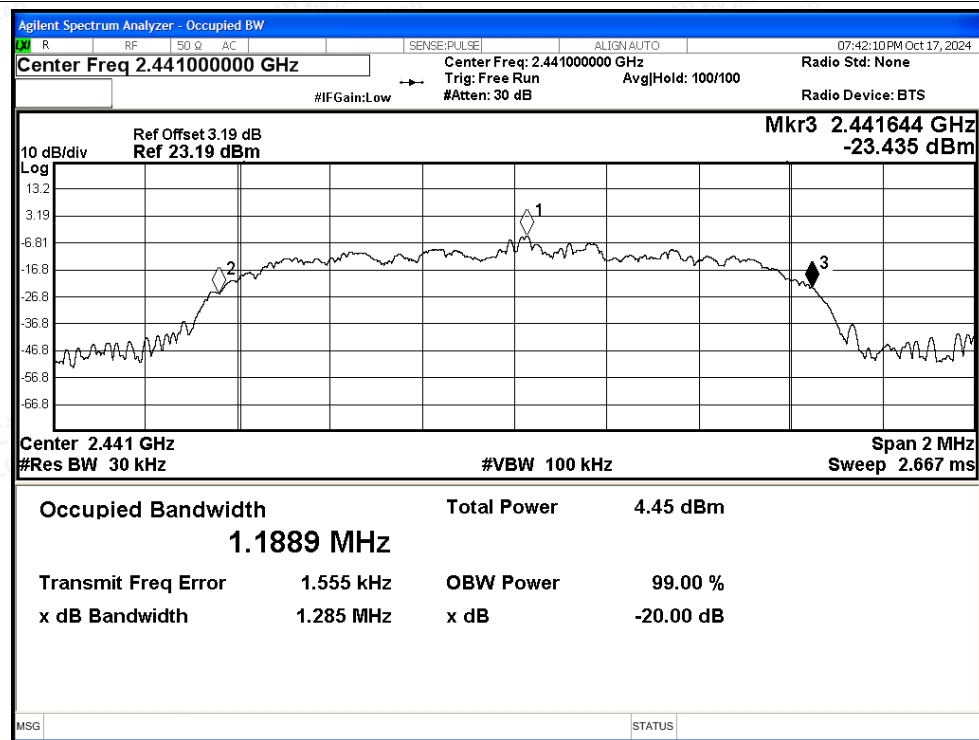


-20dB Bandwidth NVNT 2-DH5 2402MHz Ant1

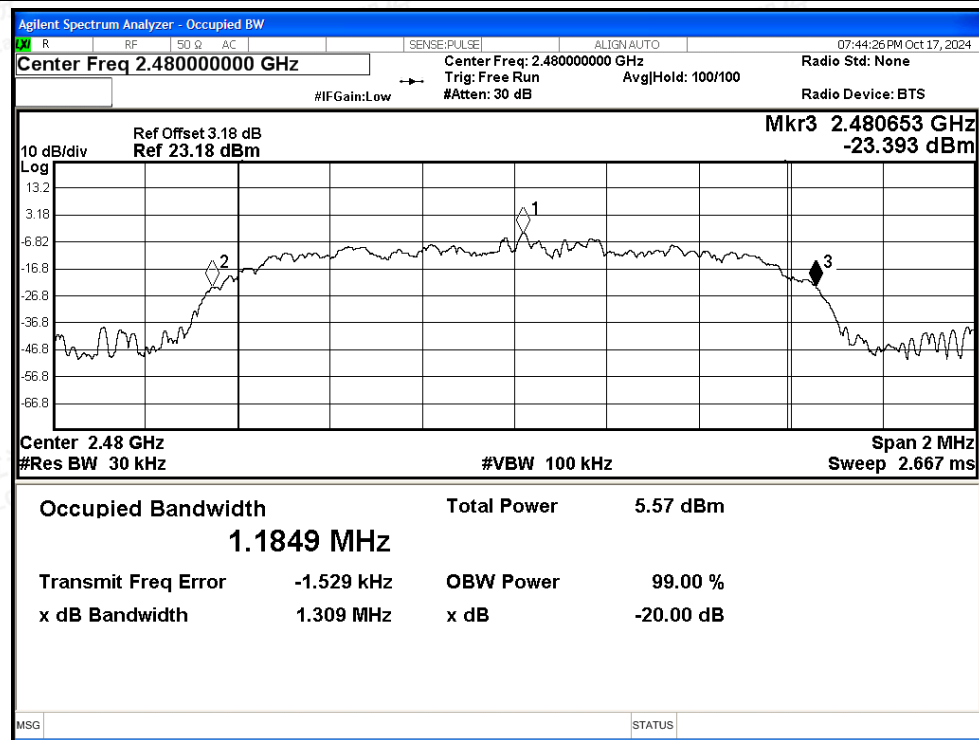




-20dB Bandwidth NVNT 2-DH5 2441MHz Ant1

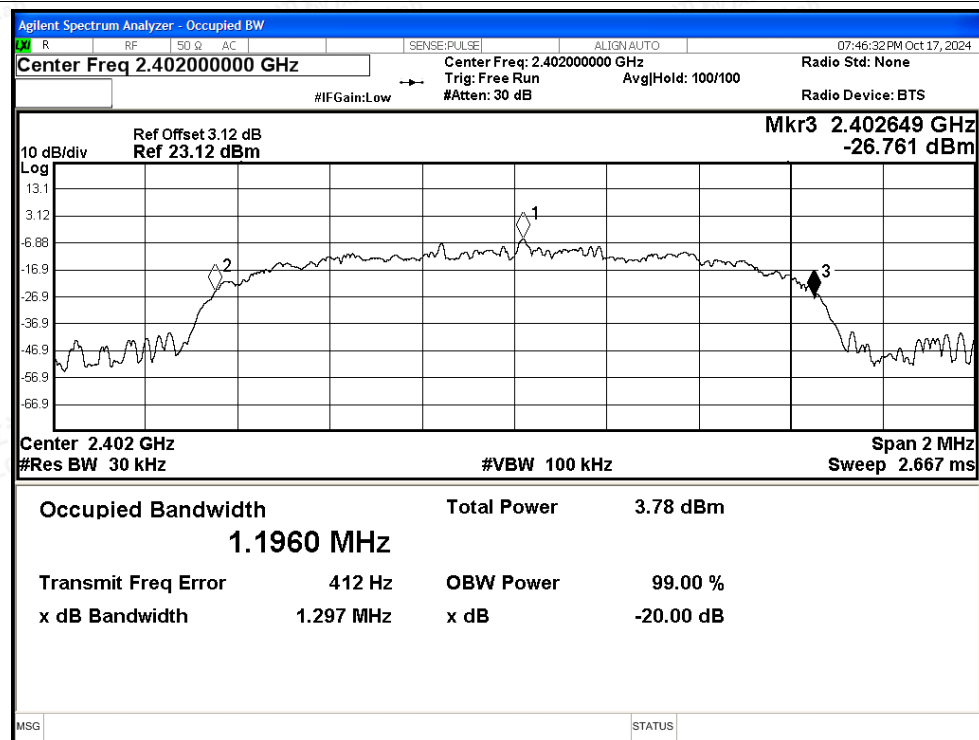


-20dB Bandwidth NVNT 2-DH5 2480MHz Ant1

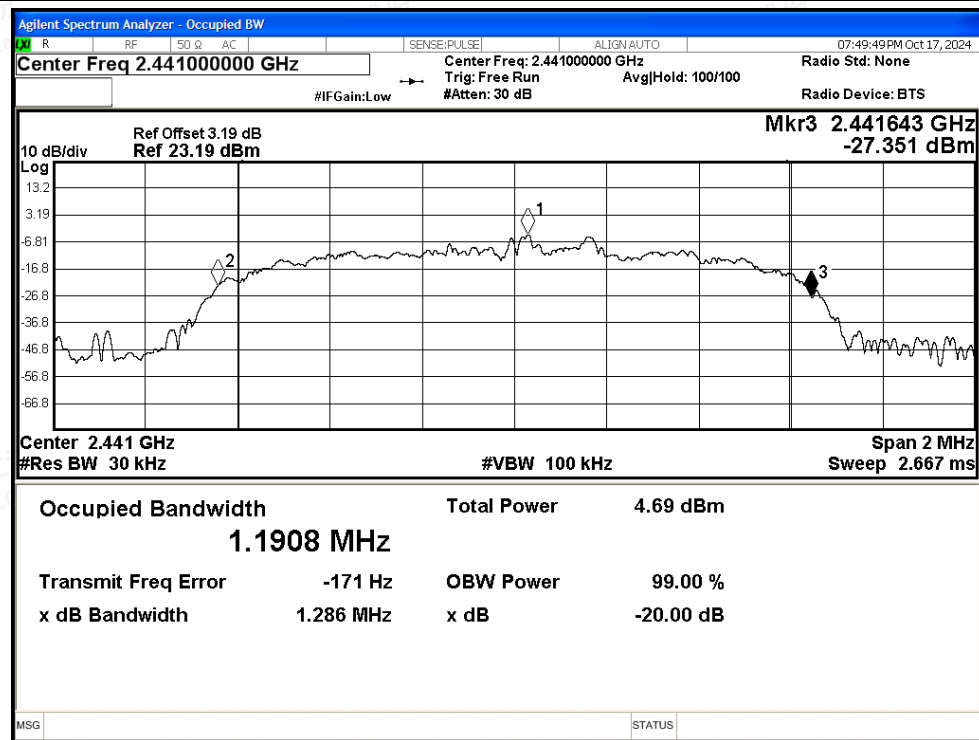


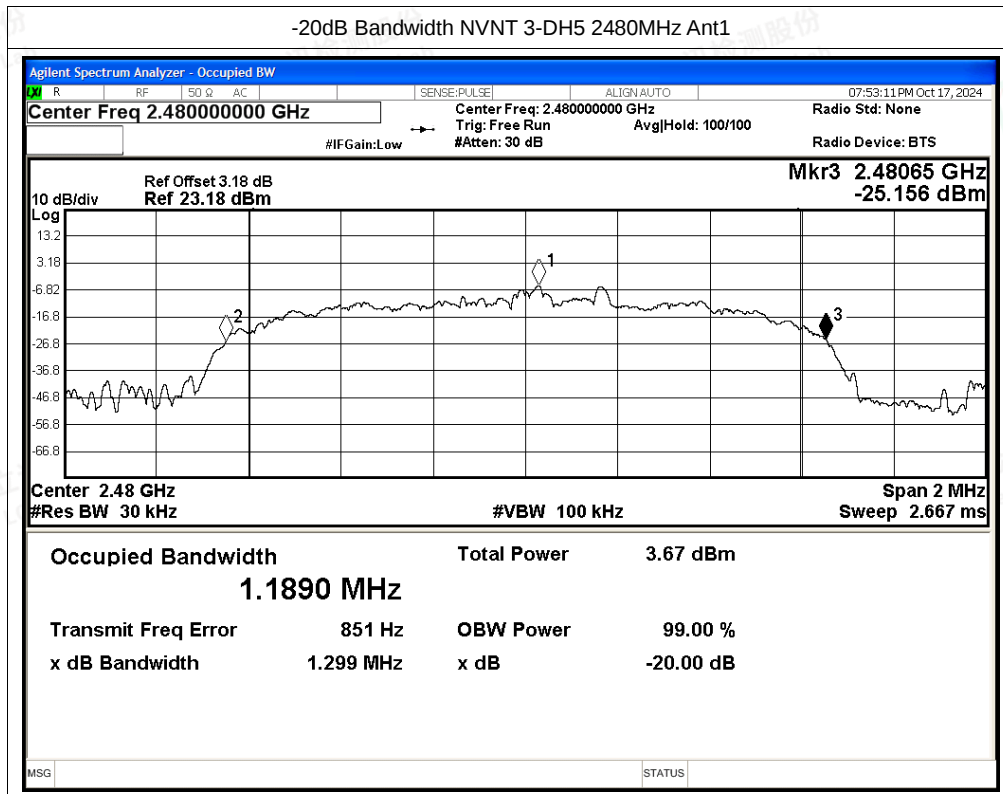


-20dB Bandwidth NVNT 3-DH5 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH5 2441MHz Ant1







A.2 Maximum Peak Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH5	2402	Ant1	0.24	21	Pass
NVNT	1-DH5	2441	Ant1	0.65	21	Pass
NVNT	1-DH5	2480	Ant1	-0.42	21	Pass
NVNT	2-DH5	2402	Ant1	-0.48	21	Pass
NVNT	2-DH5	2441	Ant1	-0.03	21	Pass
NVNT	2-DH5	2480	Ant1	1.34	21	Pass
NVNT	3-DH5	2402	Ant1	-0.2	21	Pass
NVNT	3-DH5	2441	Ant1	0.37	21	Pass
NVNT	3-DH5	2480	Ant1	-0.67	21	Pass

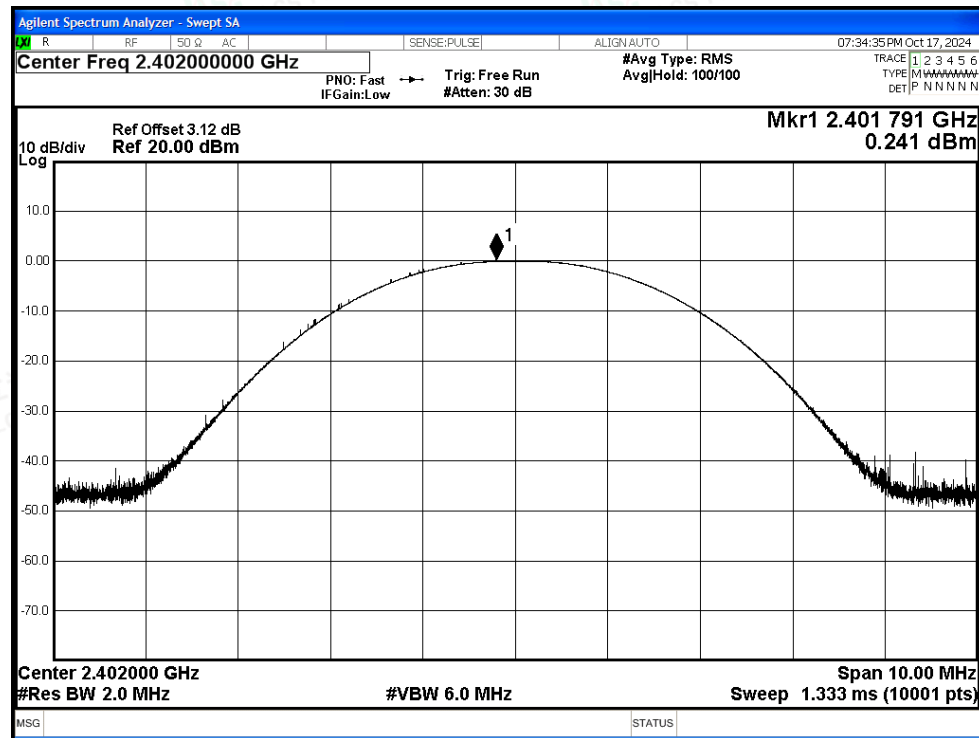


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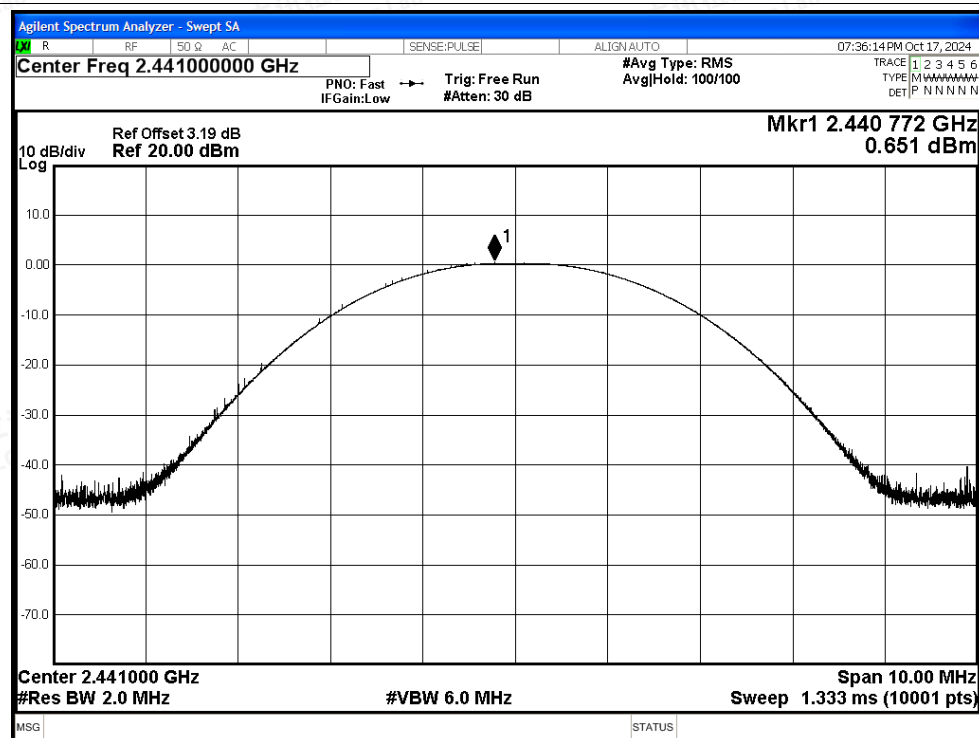


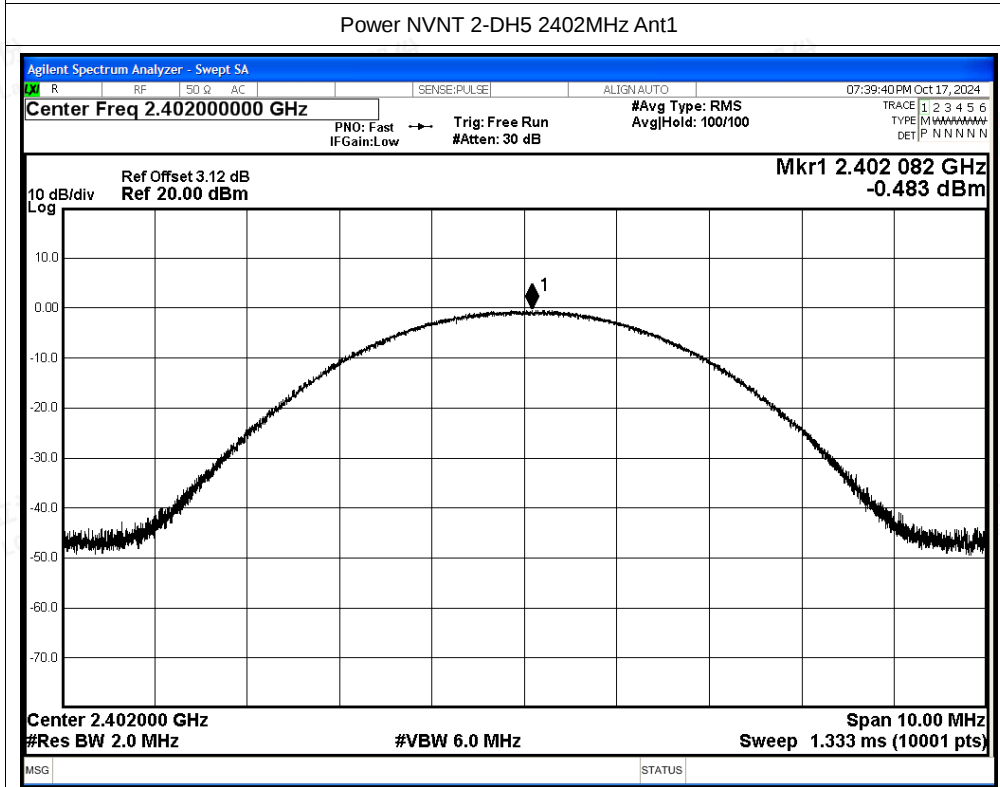
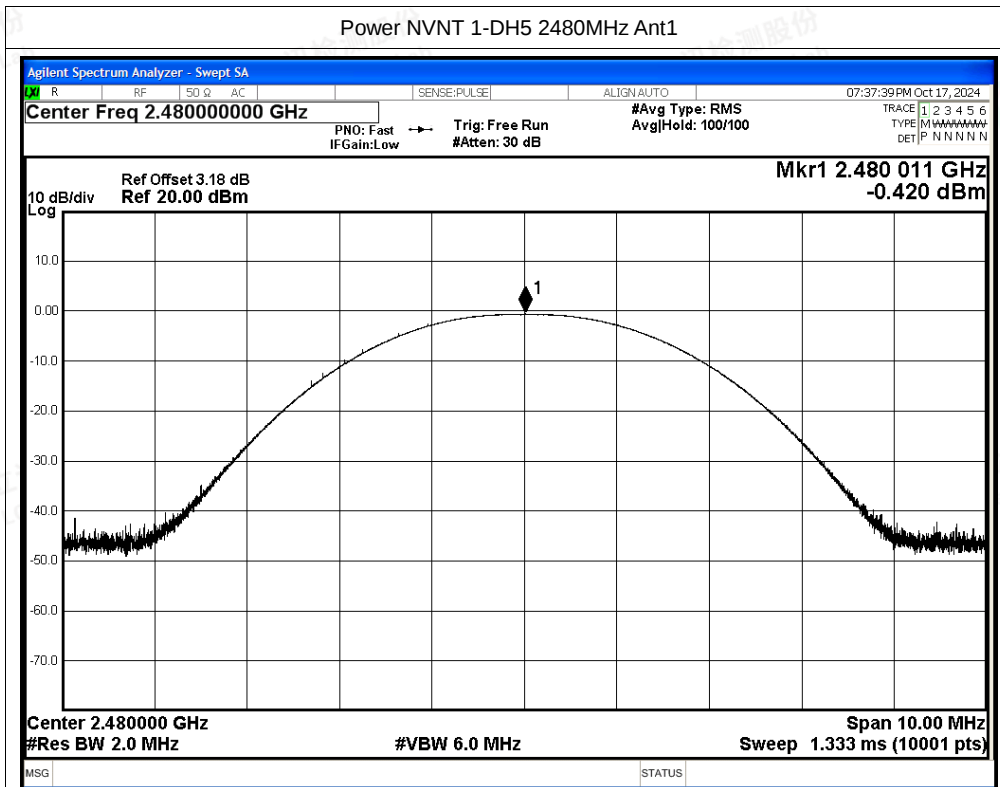
Test Graphs

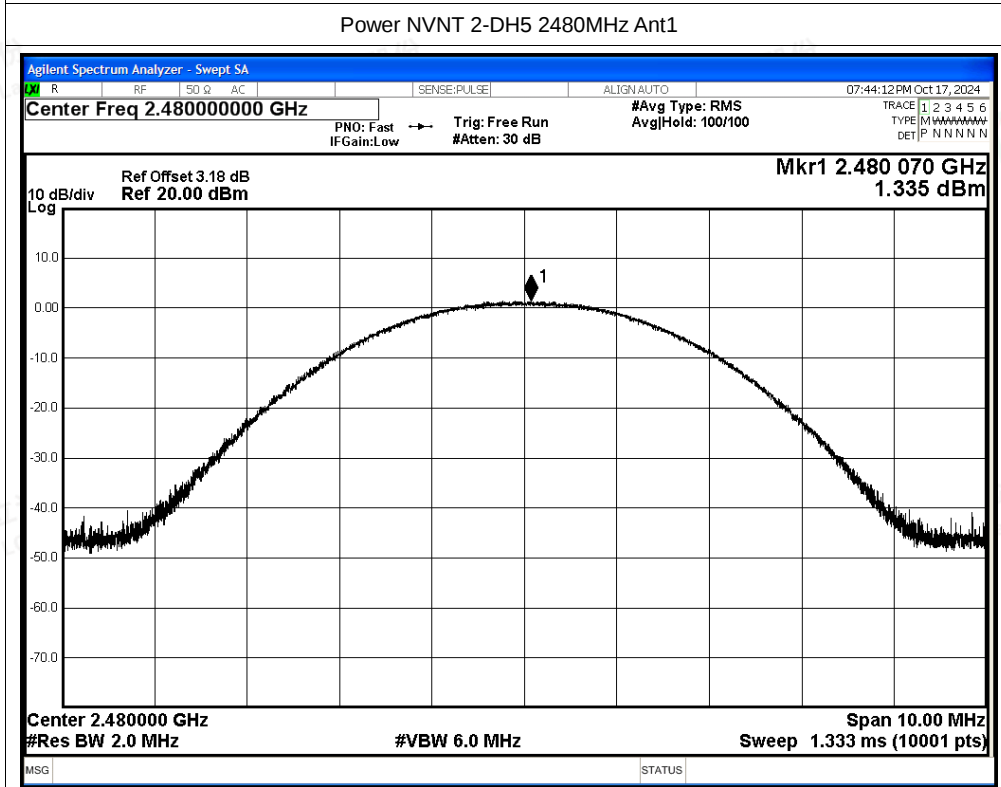
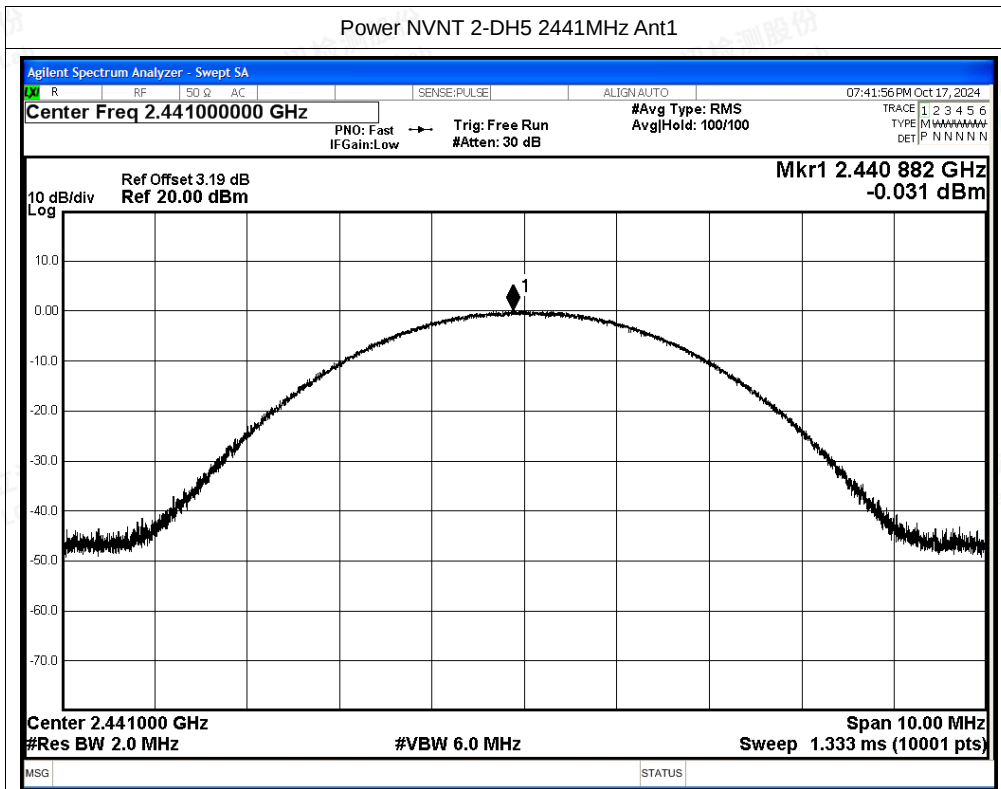
Power NVNT 1-DH5 2402MHz Ant1

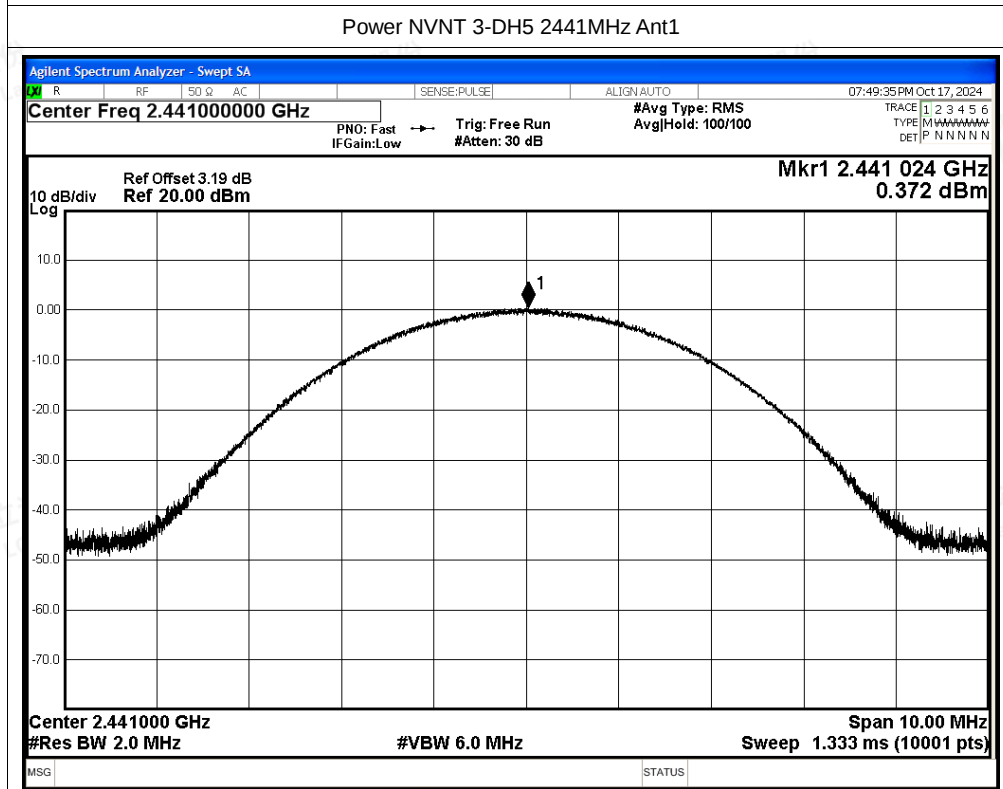
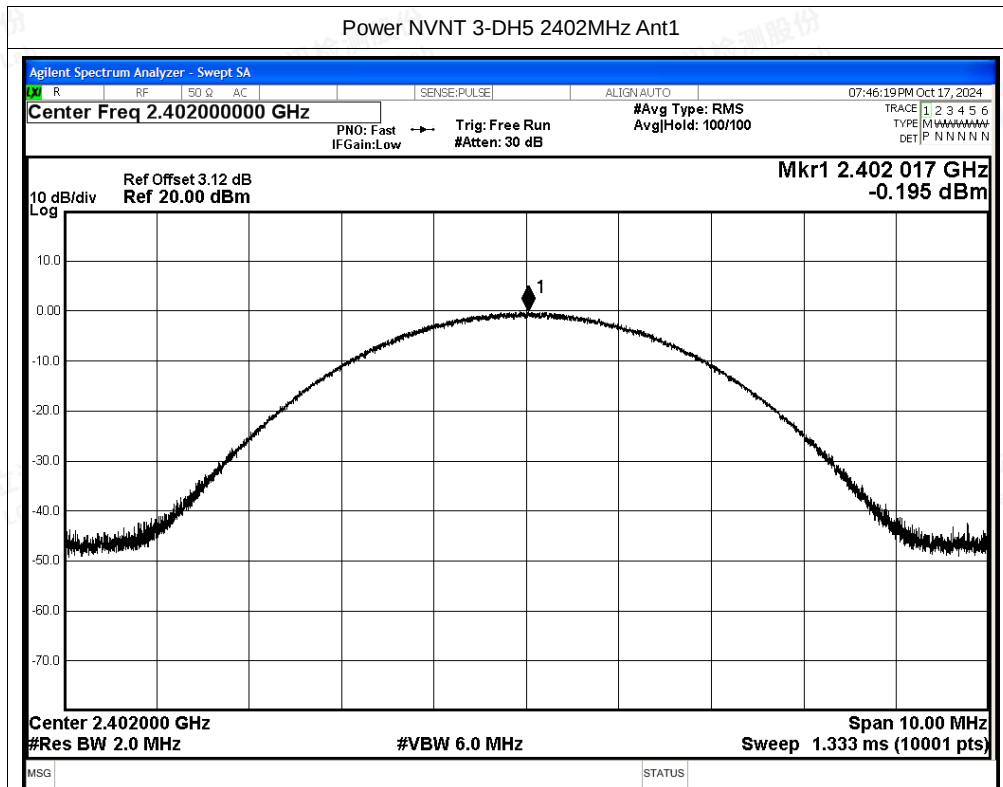


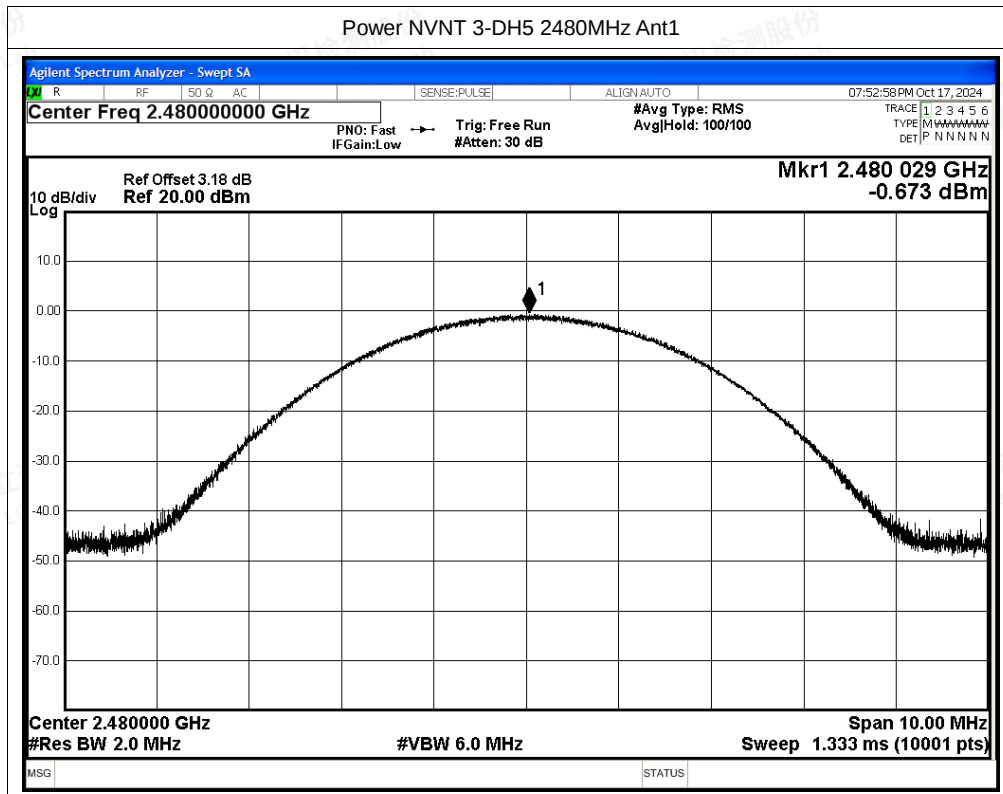
Power NVNT 1-DH5 2441MHz Ant1













A.3 Carrier Frequencies Separation

Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH5	Ant1	2402.17	2402.978	0.808	0.666	Pass
NVNT	2-DH5	Ant1	2402.026	2403.028	1.002	0.873	Pass
NVNT	3-DH5	Ant1	2402.016	2403.17	1.154	0.866	Pass

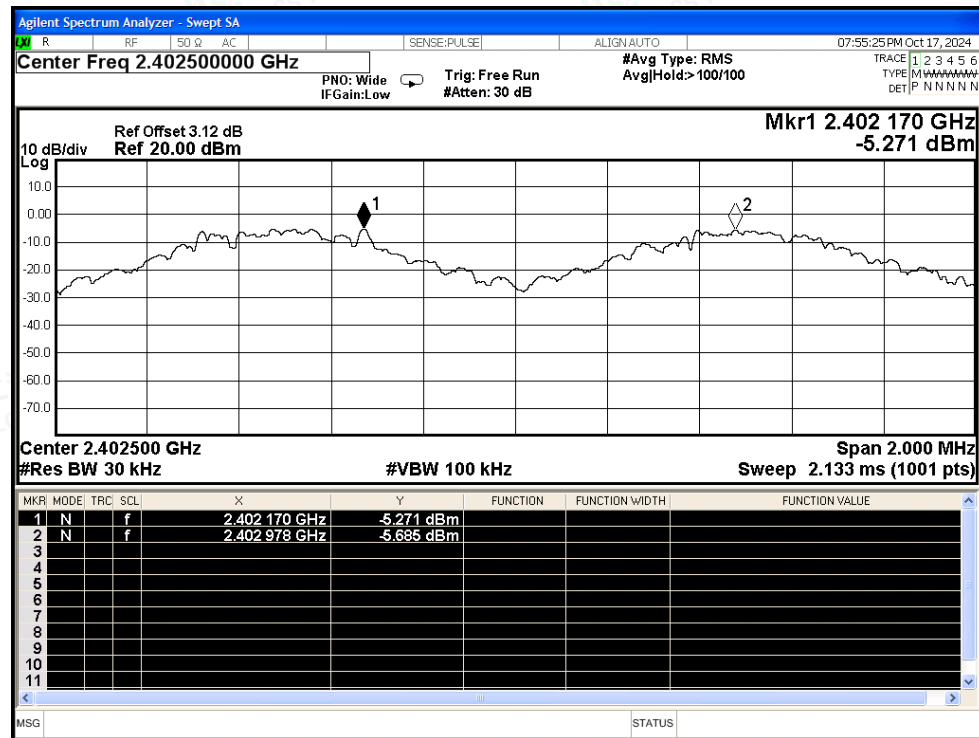


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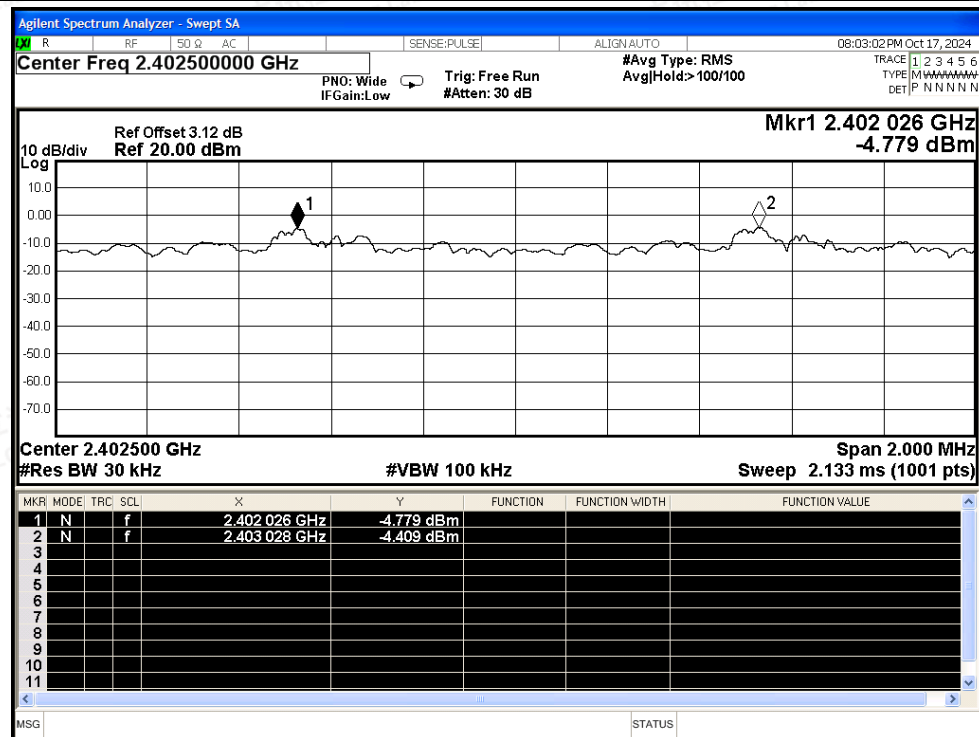


Test Graphs

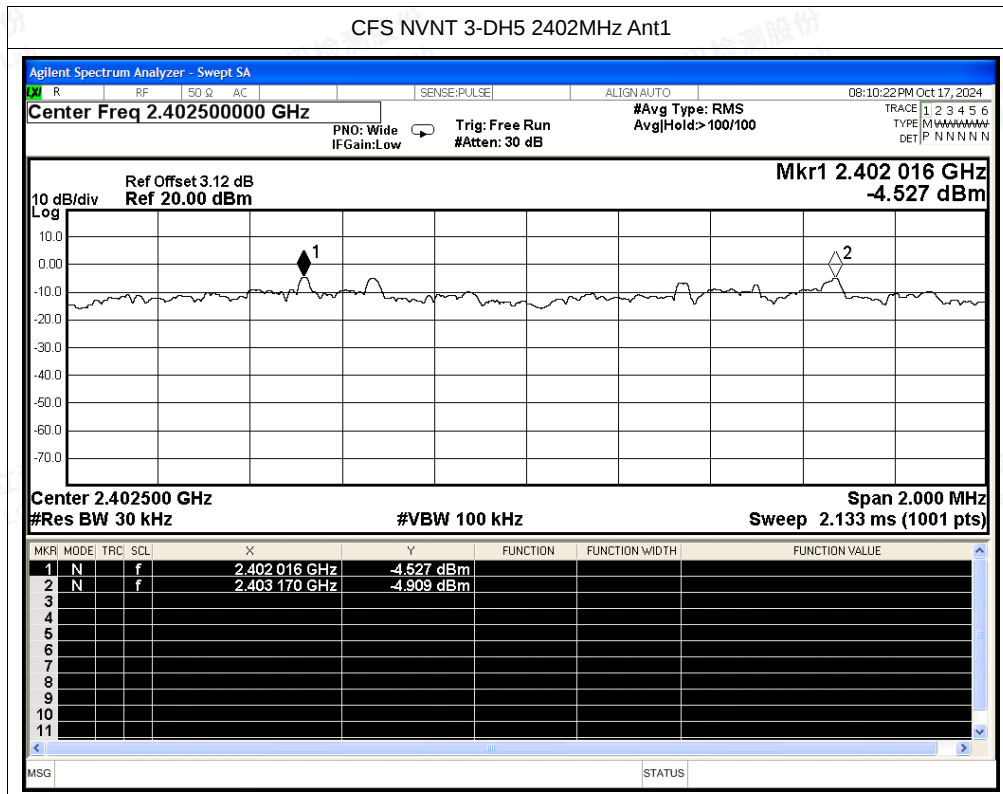
CFS NVNT 1-DH5 2402MHz Ant1



CFS NVNT 2-DH5 2402MHz Ant1



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A.4 Dwell Time

Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Burst Count	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH5	2402	Ant1	2.909	325.808	112	31600	400	Pass
NVNT	2-DH5	2402	Ant1	2.898	318.78	110	31600	400	Pass
NVNT	3-DH5	2402	Ant1	2.897	333.155	115	31600	400	Pass

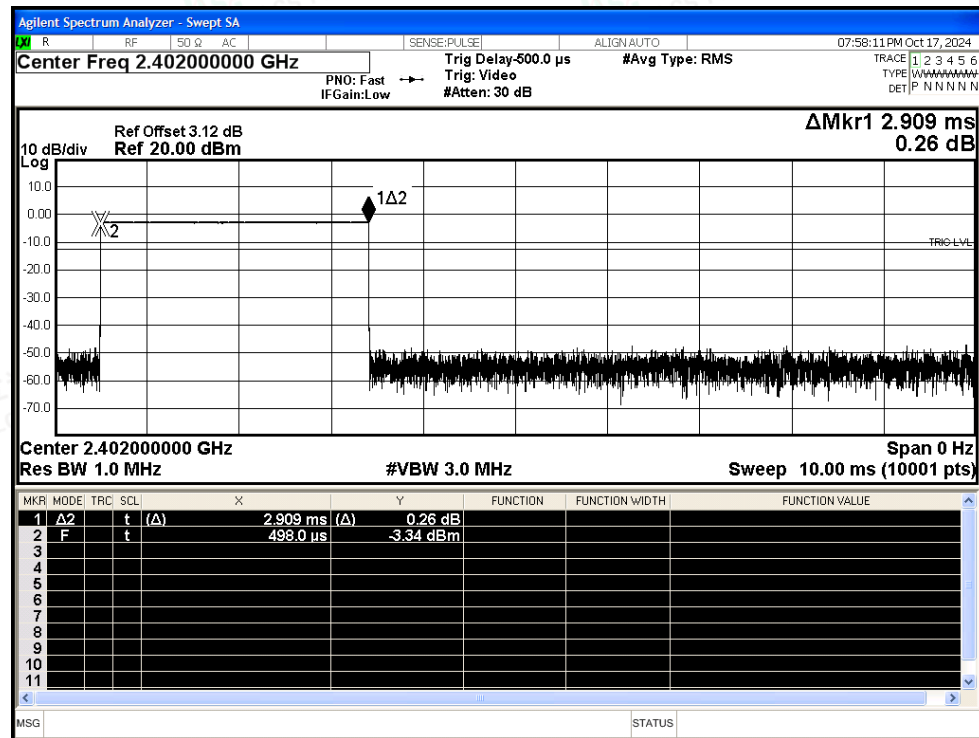


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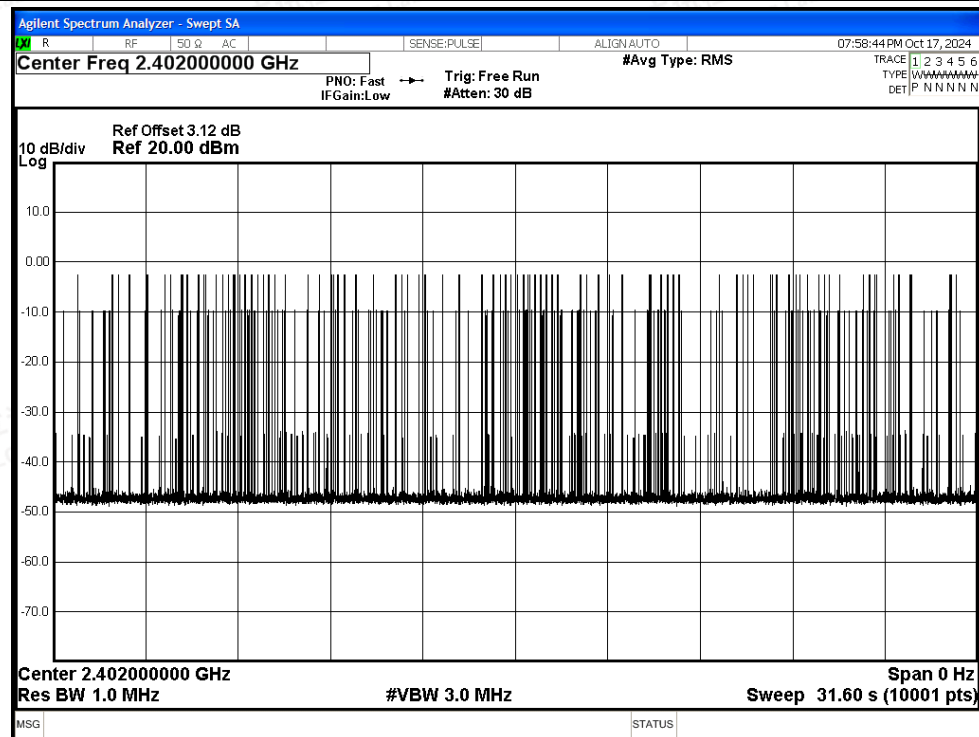


Test Graphs

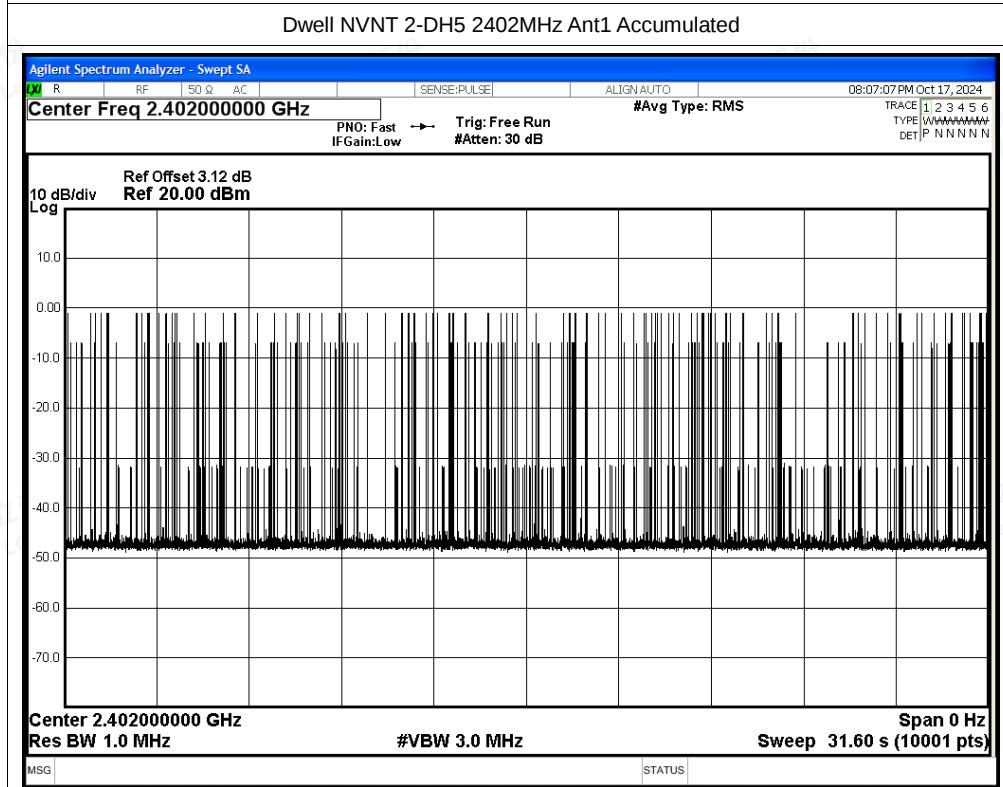
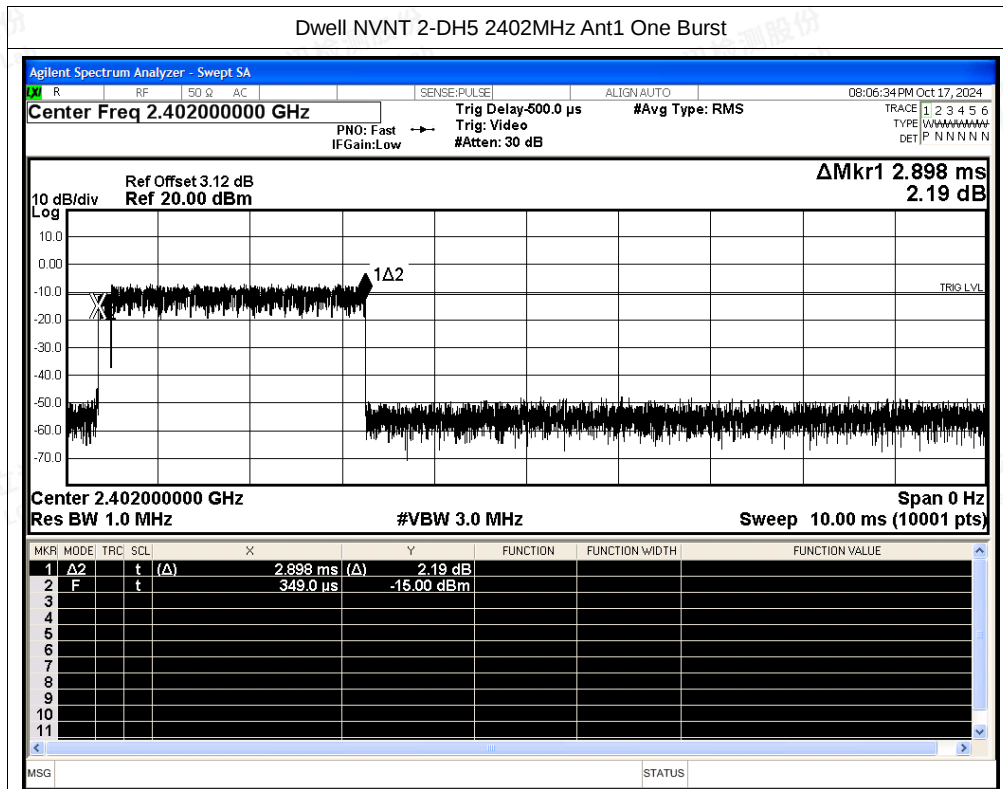
Dwell NVNT 1-DH5 2402MHz Ant1 One Burst

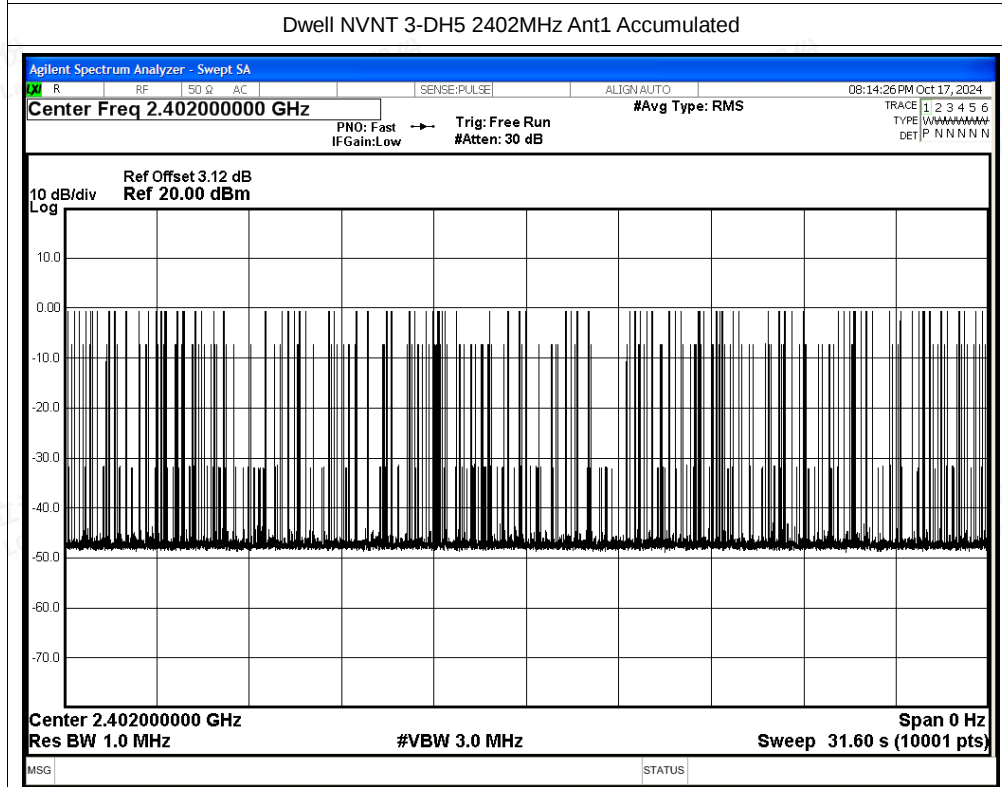
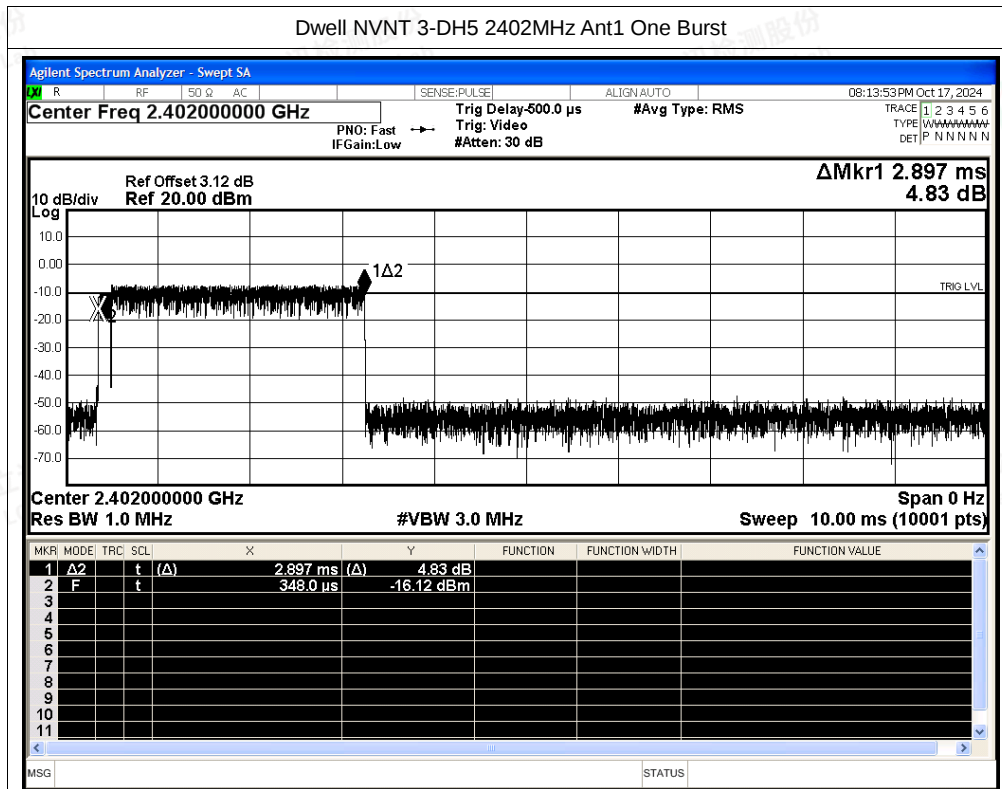


Dwell NVNT 1-DH5 2402MHz Ant1 Accumulated



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A.5 Number of Hopping Channel

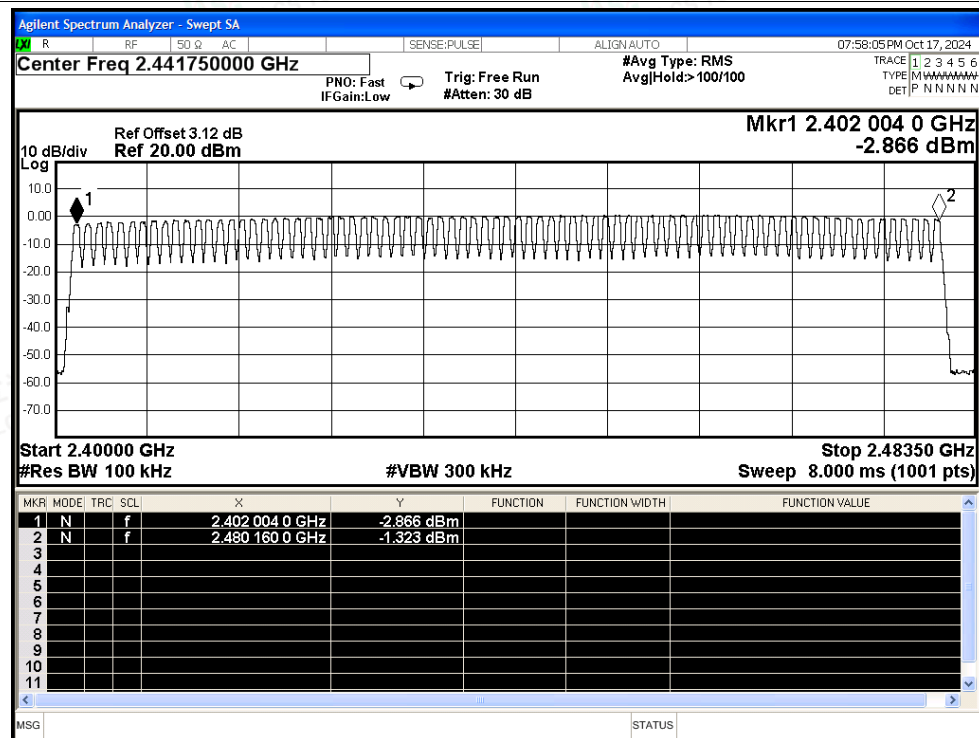
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH5	Ant1	79	15	Pass
NVNT	2-DH5	Ant1	79	15	Pass
NVNT	3-DH5	Ant1	79	15	Pass



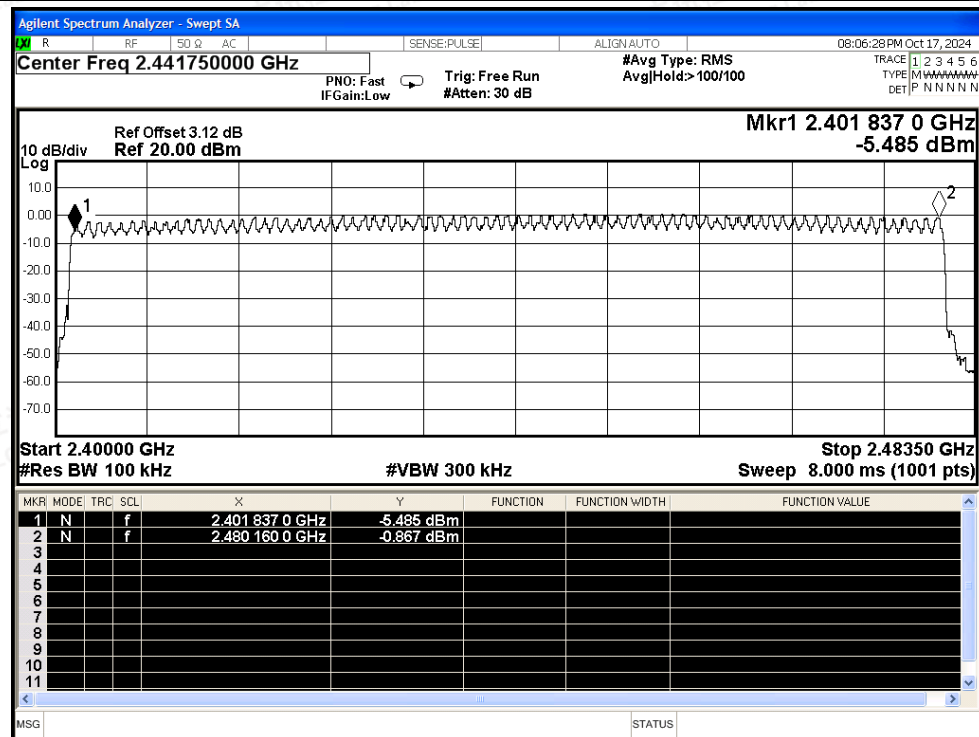


Test Graphs

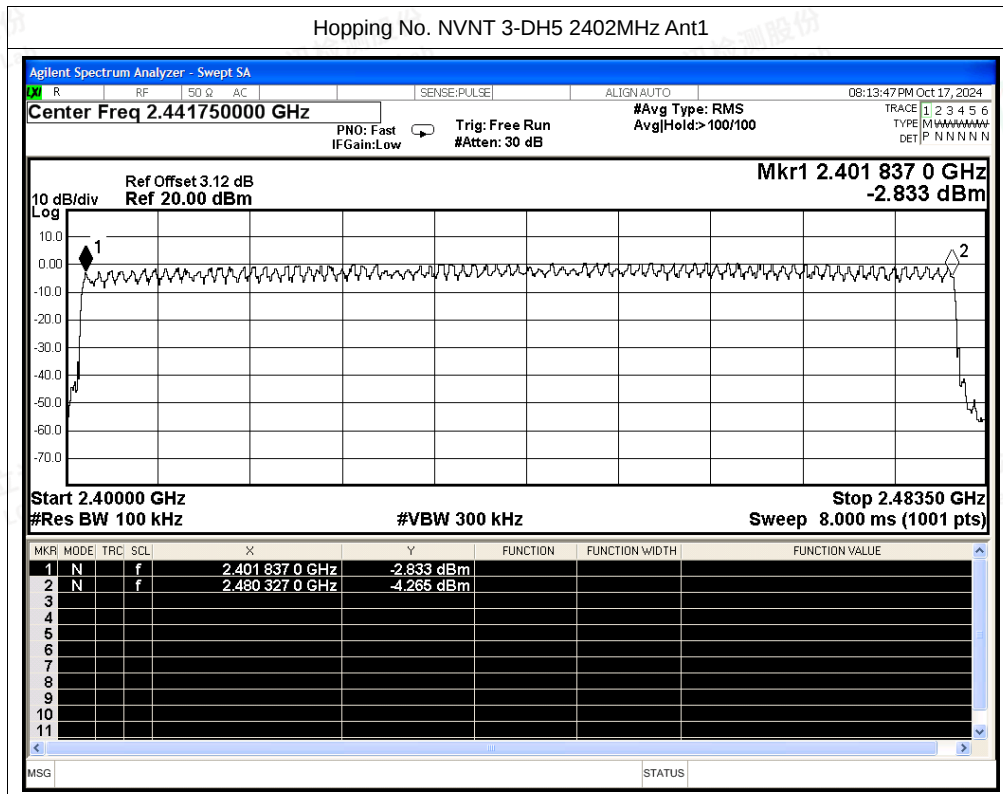
Hopping No. NVNT 1-DH5 2402MHz Ant1



Hopping No. NVNT 2-DH5 2402MHz Ant1



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A.6 Band Edge

Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	No-Hopping	-54.52	-20	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	-54.74	-20	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	-51.69	-20	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	-55.17	-20	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	-52.47	-20	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	-52.03	-20	Pass

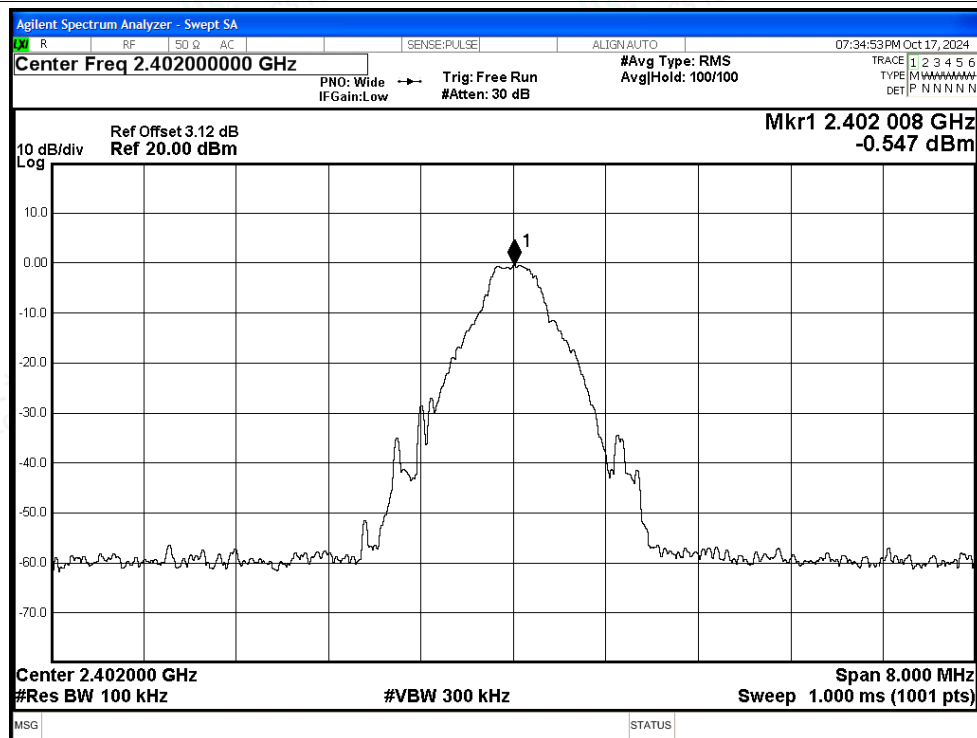


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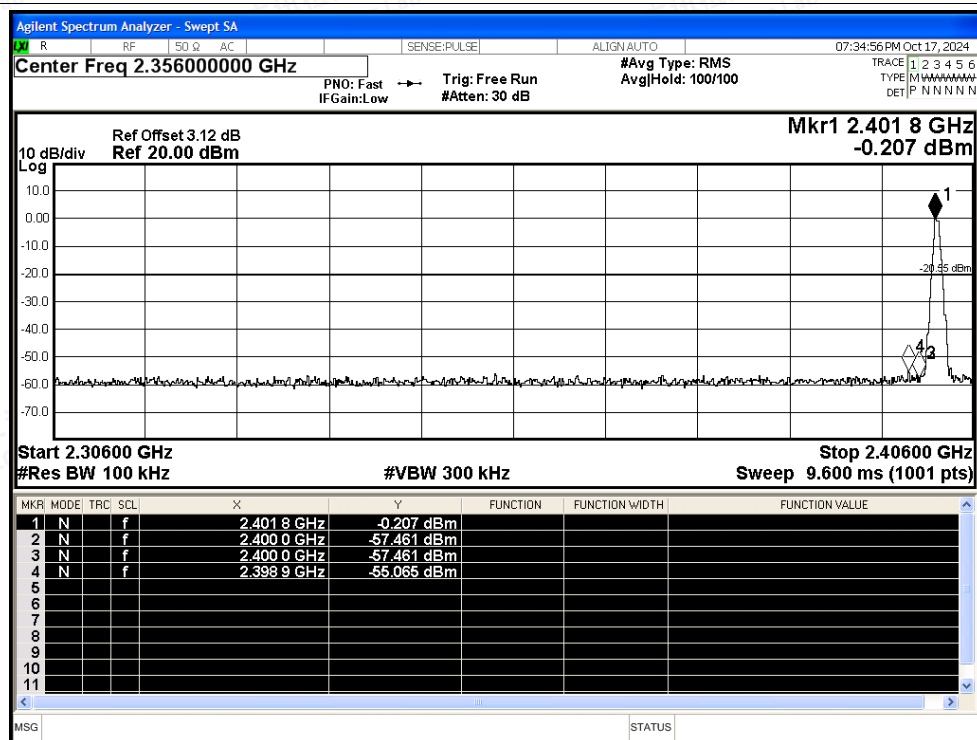


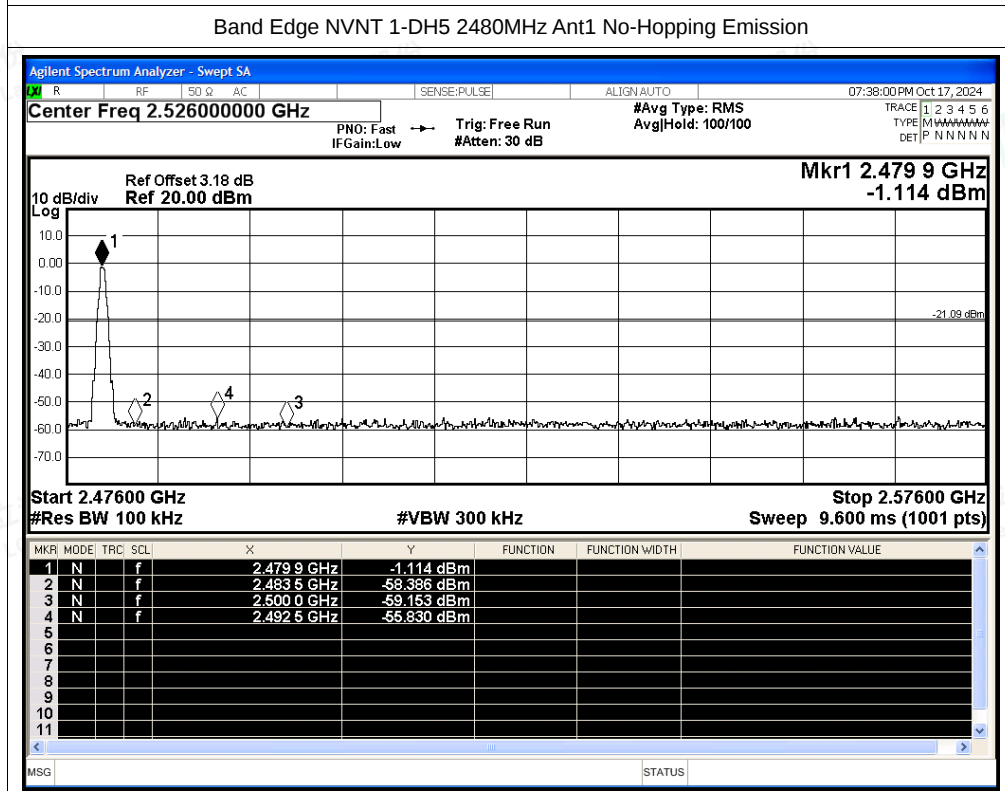
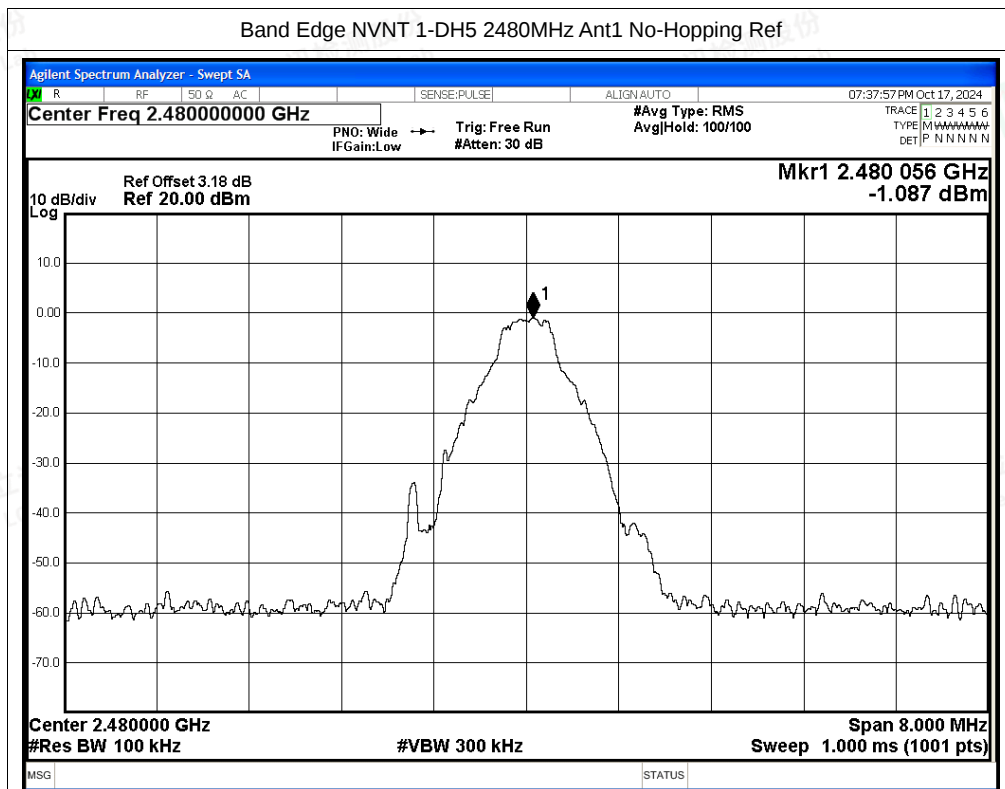
Test Graphs

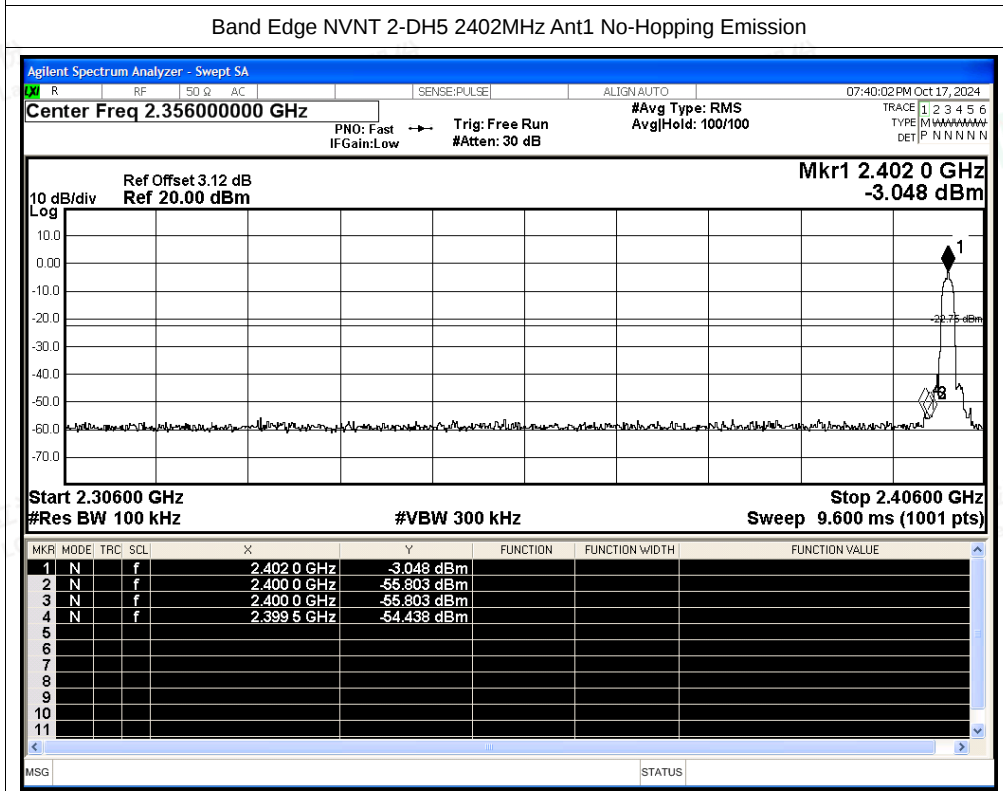
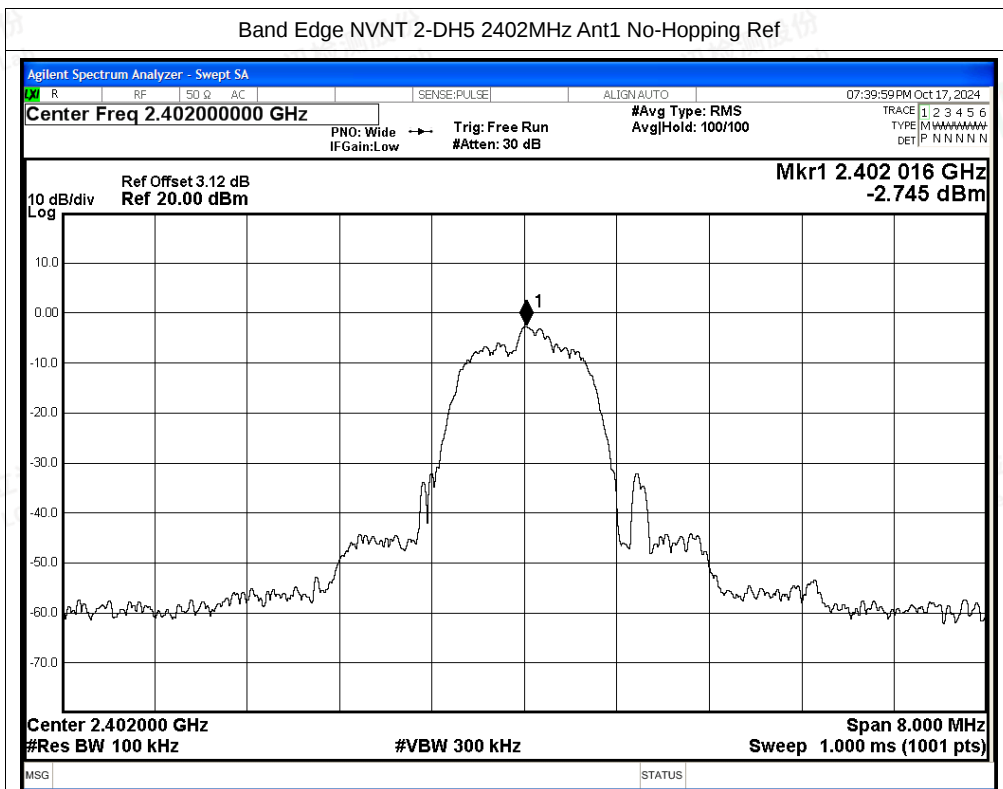
Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Ref

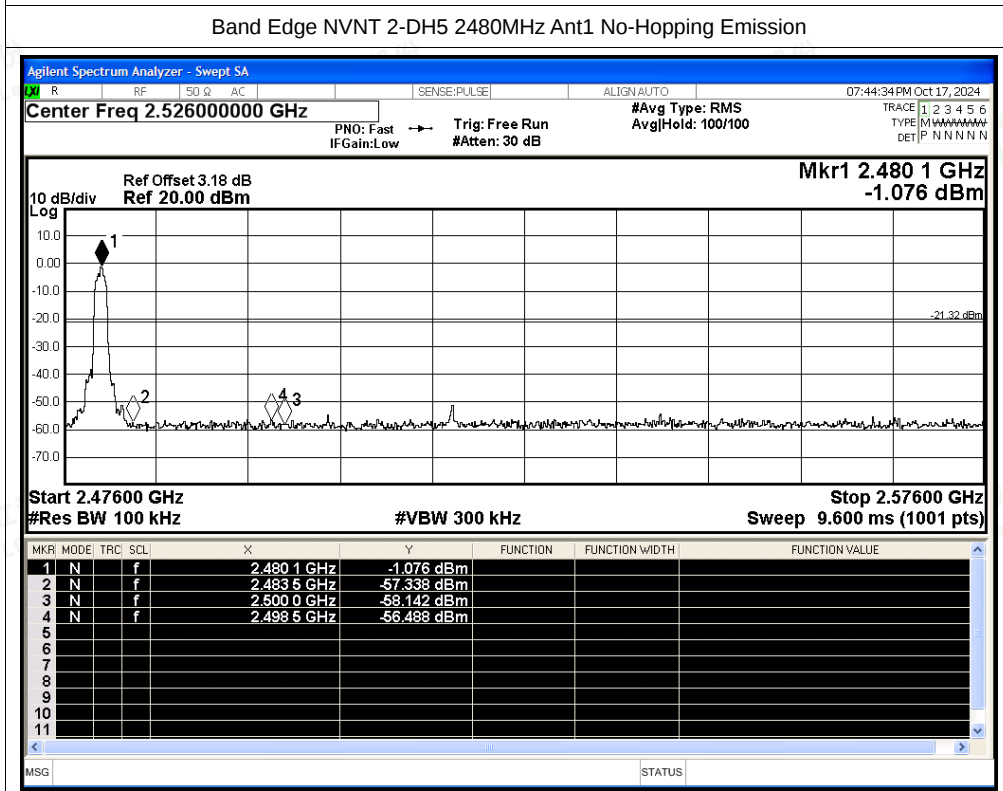
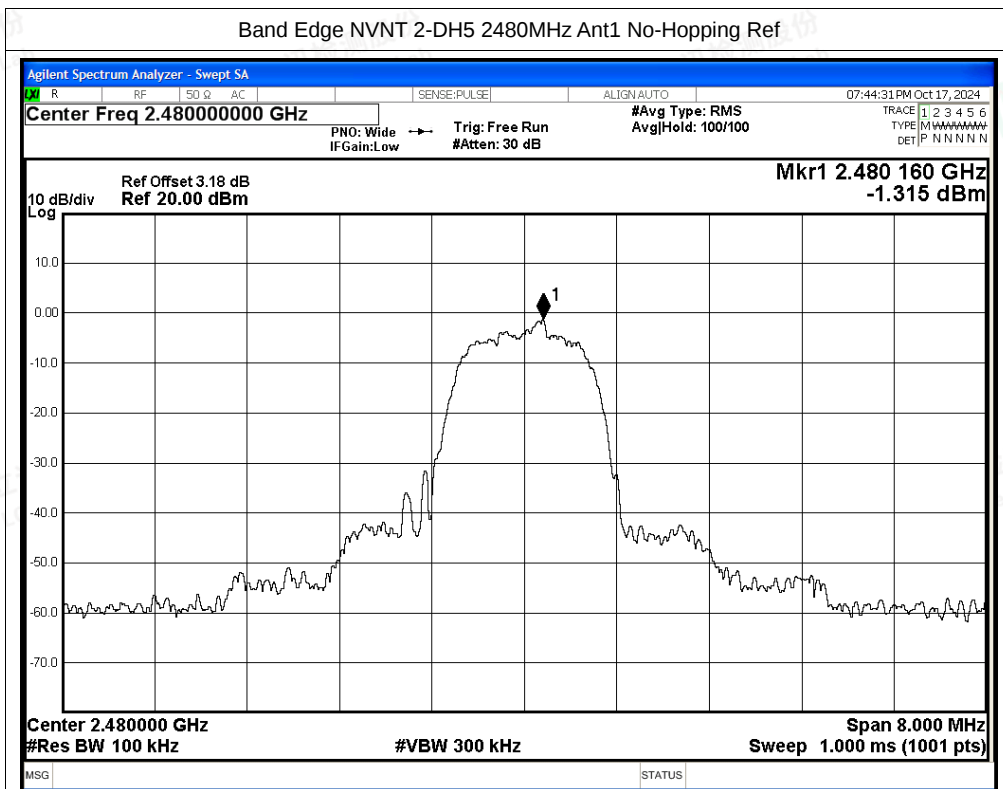


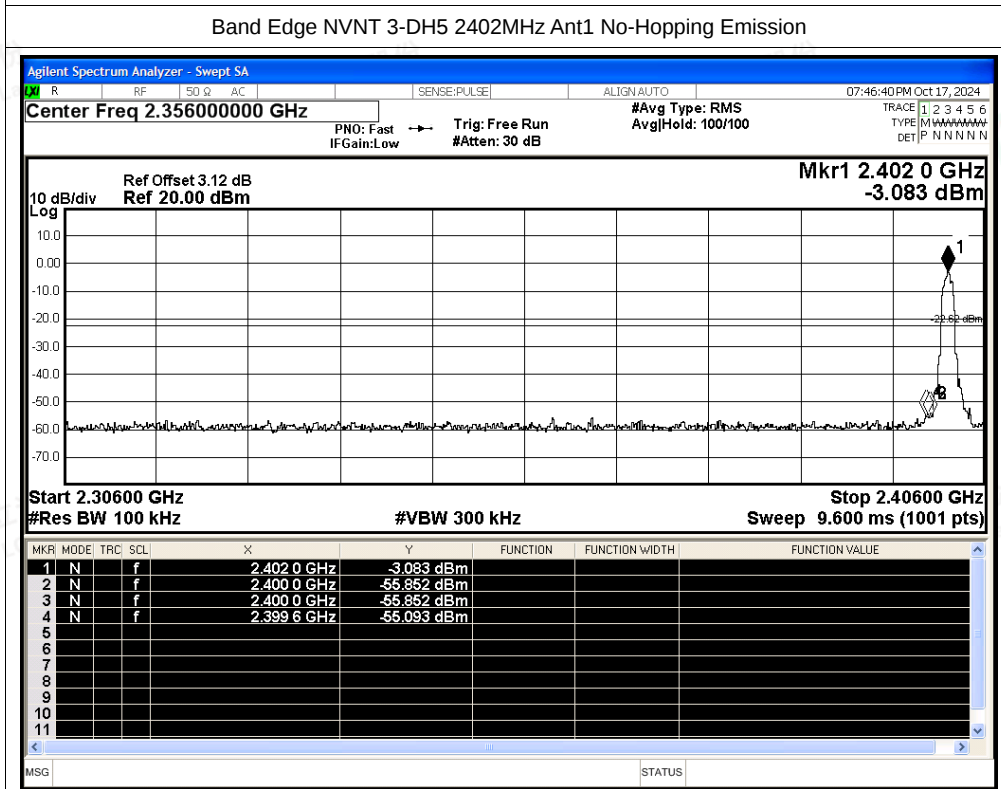
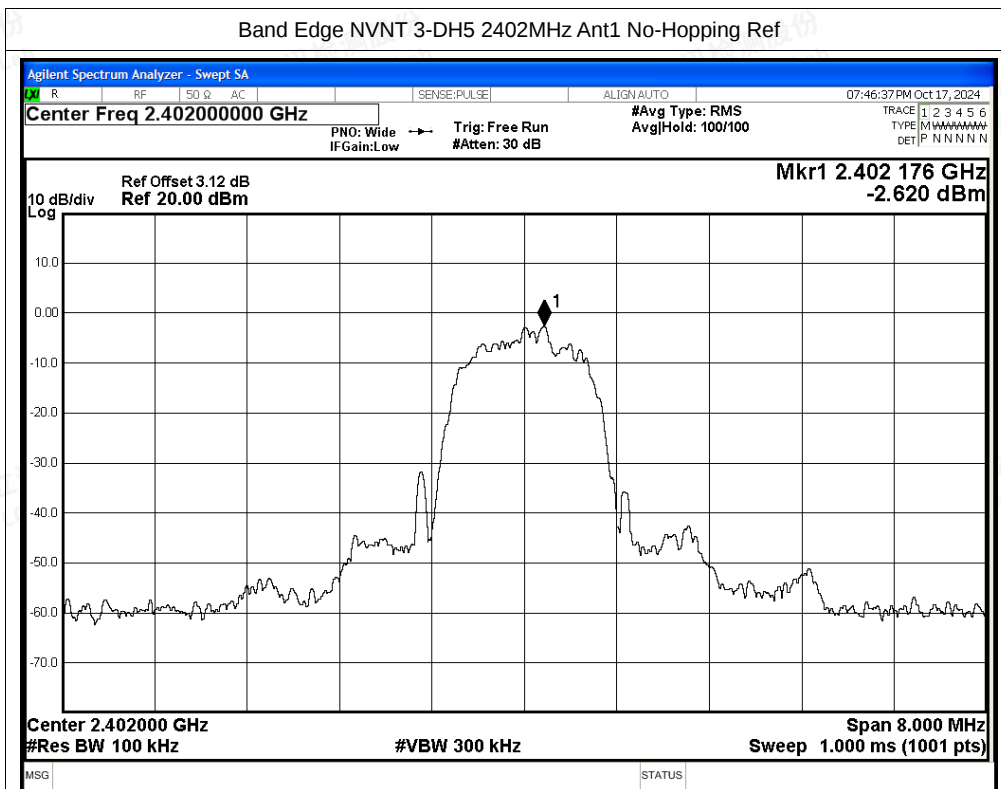
Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Emission

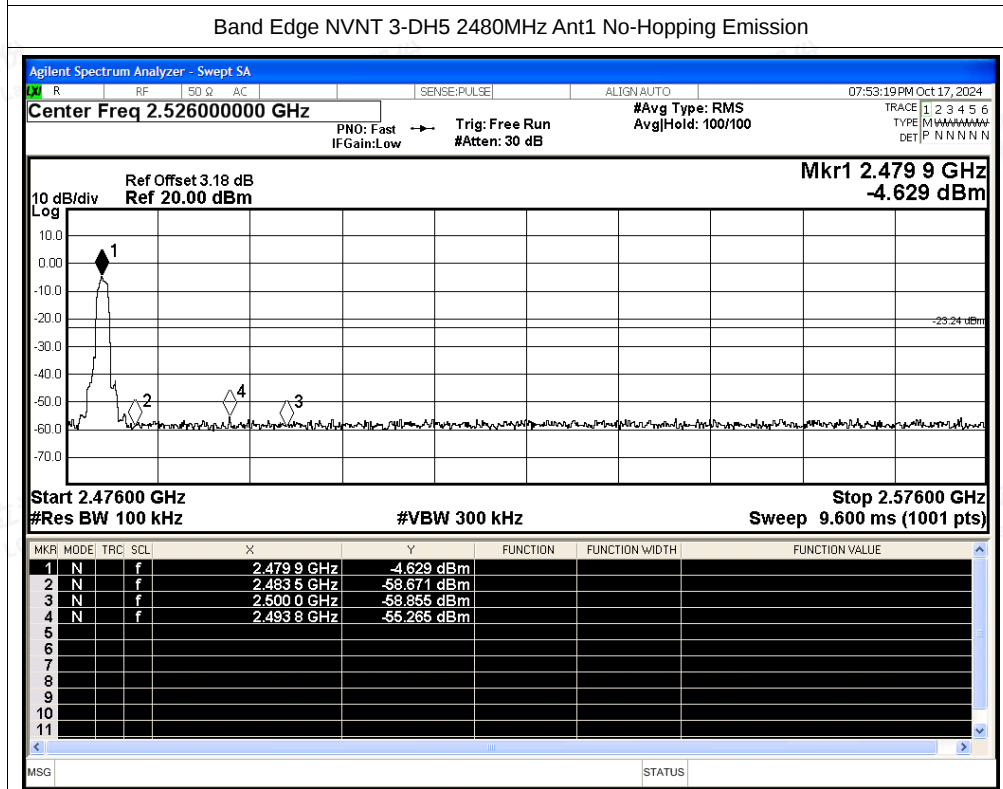
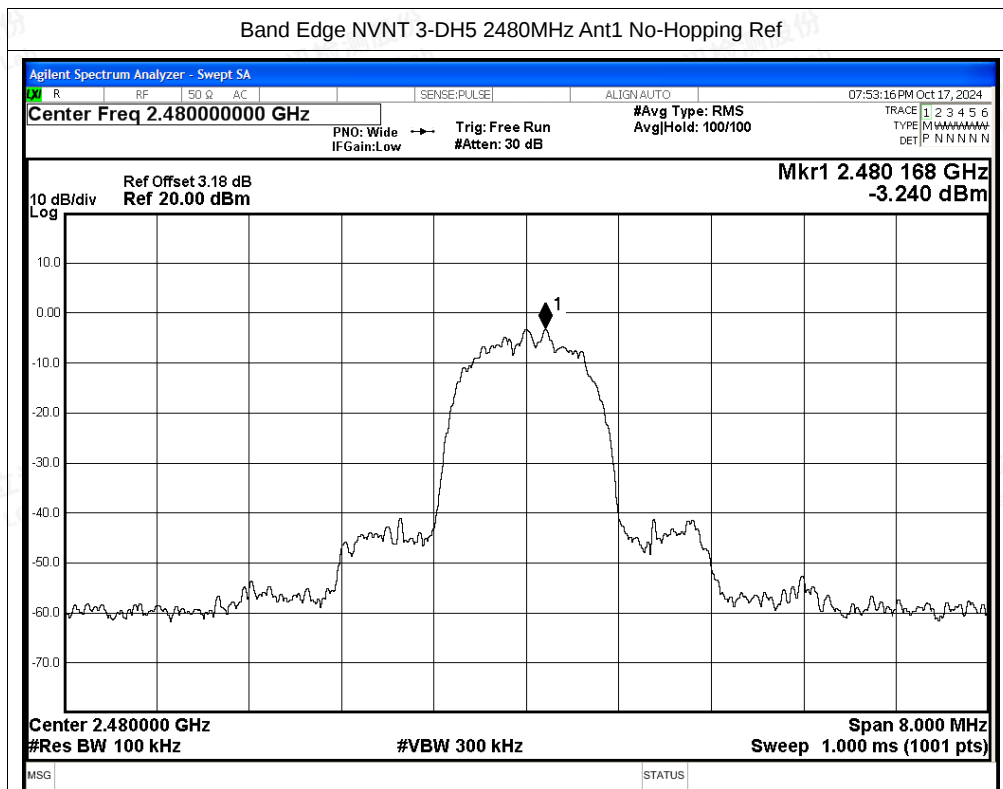














(Hopping)

Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	Hopping	-51.44	-20	Pass
NVNT	1-DH5	2480	Ant1	Hopping	-54.11	-20	Pass
NVNT	2-DH5	2402	Ant1	Hopping	-51.58	-20	Pass
NVNT	2-DH5	2480	Ant1	Hopping	-53.78	-20	Pass
NVNT	3-DH5	2402	Ant1	Hopping	-51.99	-20	Pass
NVNT	3-DH5	2480	Ant1	Hopping	-52.87	-20	Pass

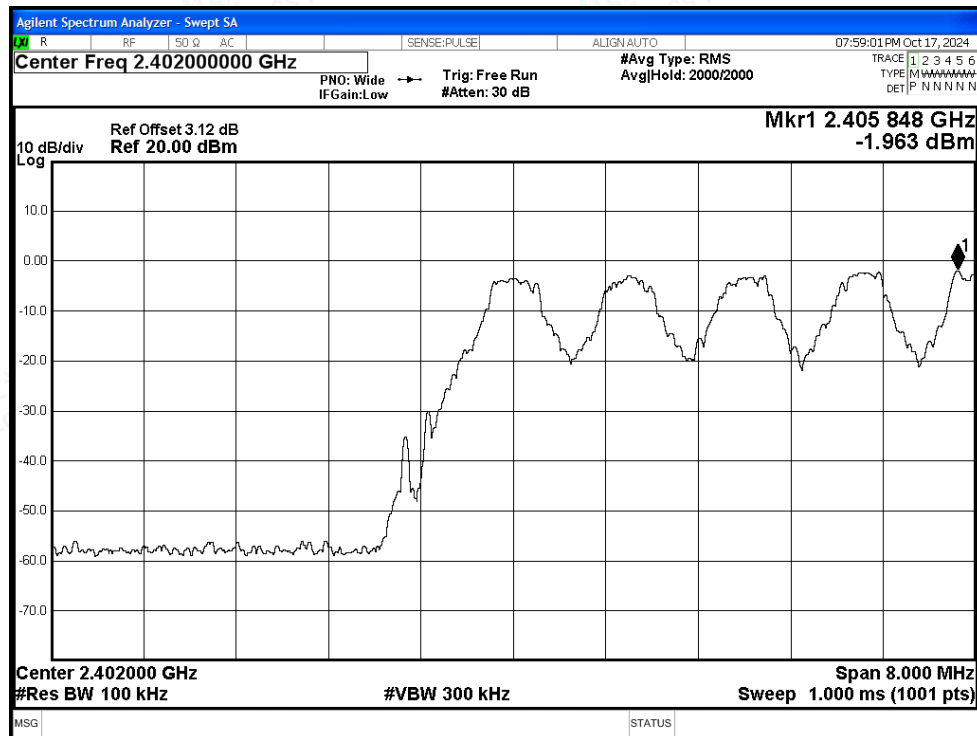


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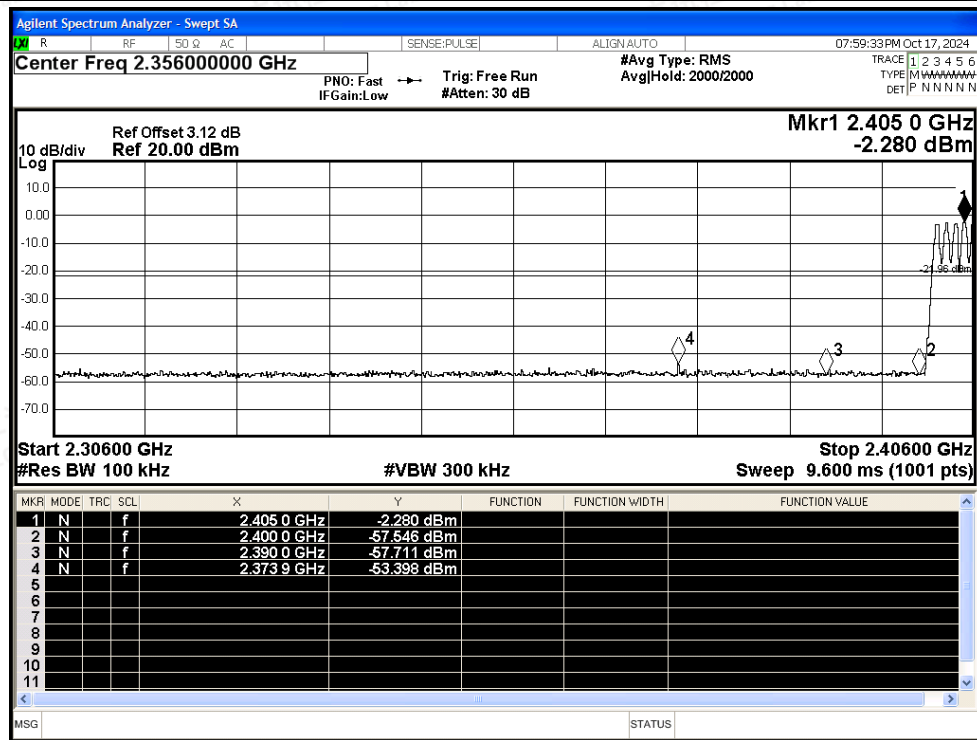


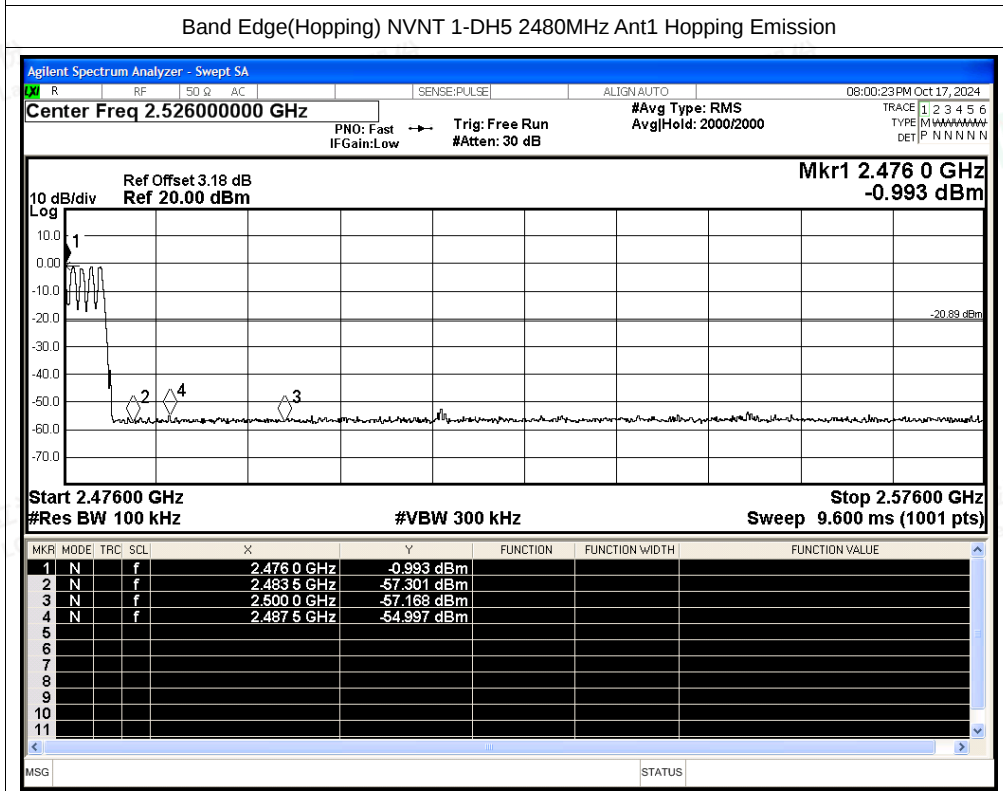
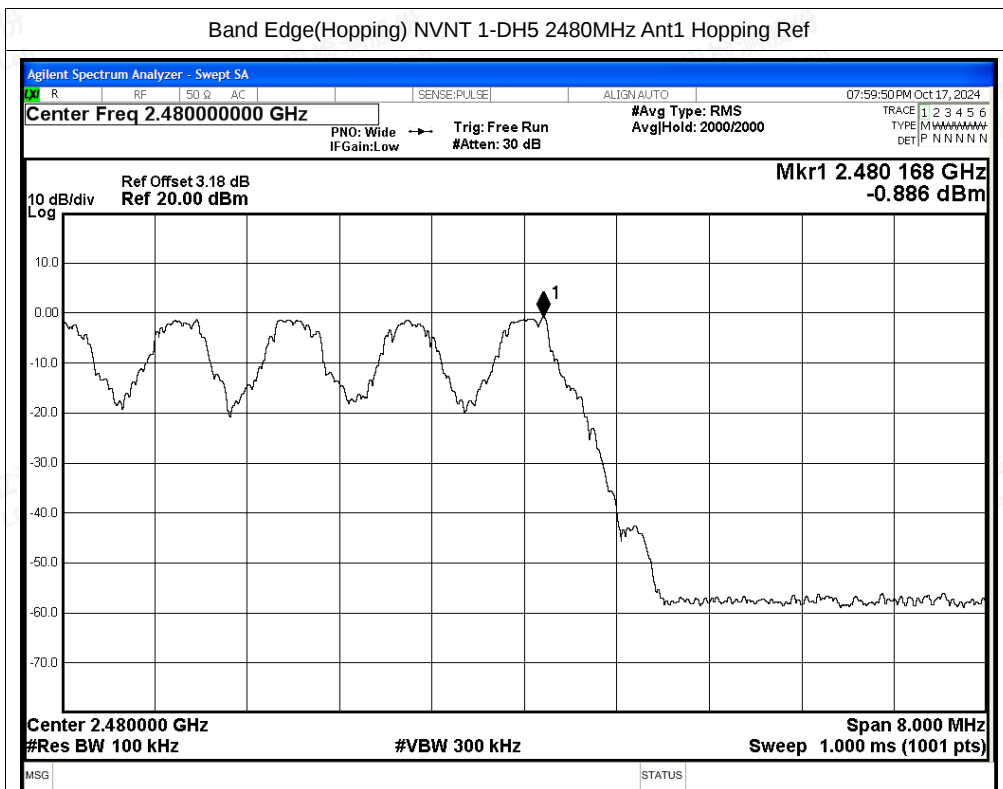
Test Graphs

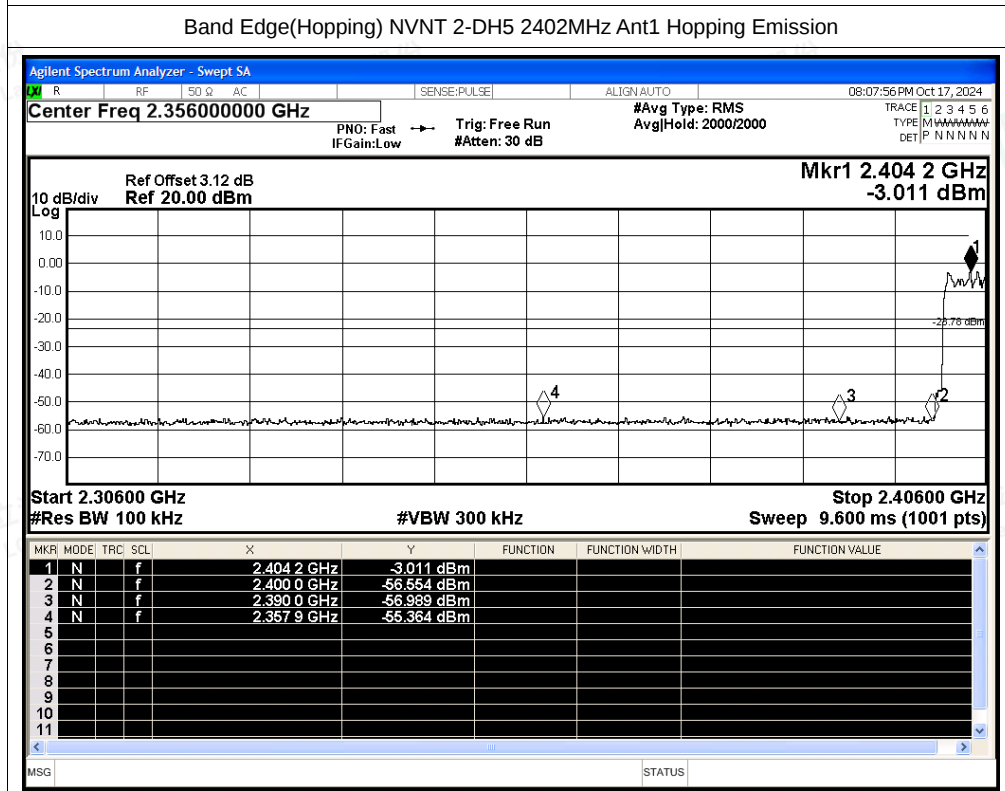
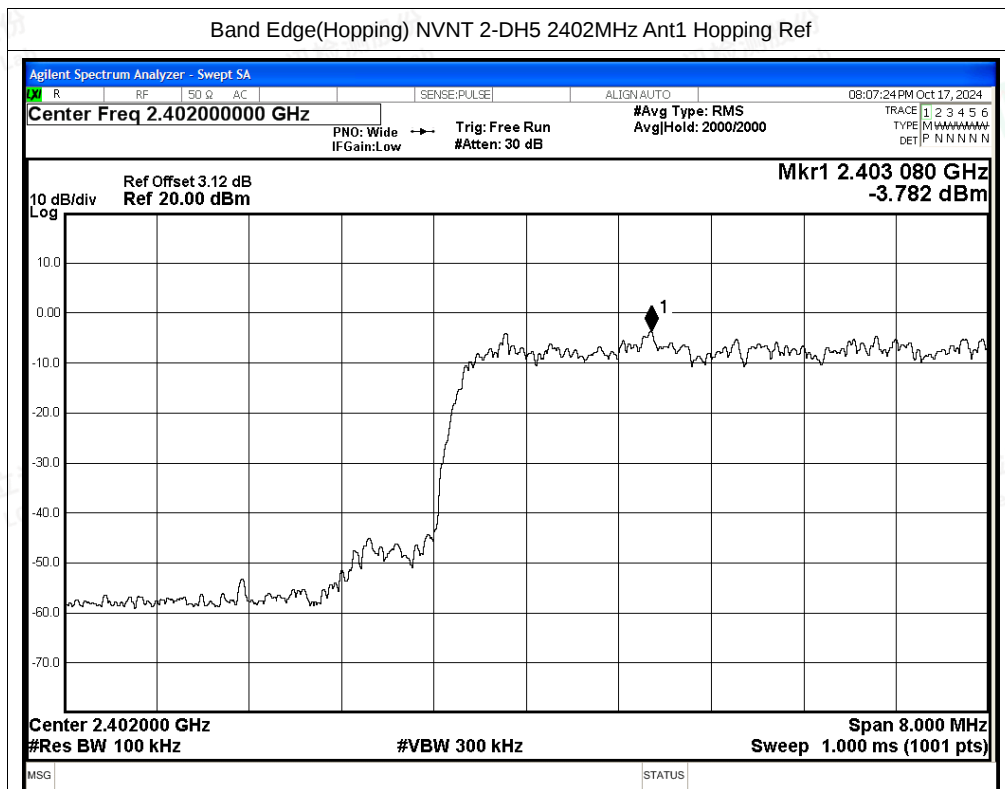
Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Ref

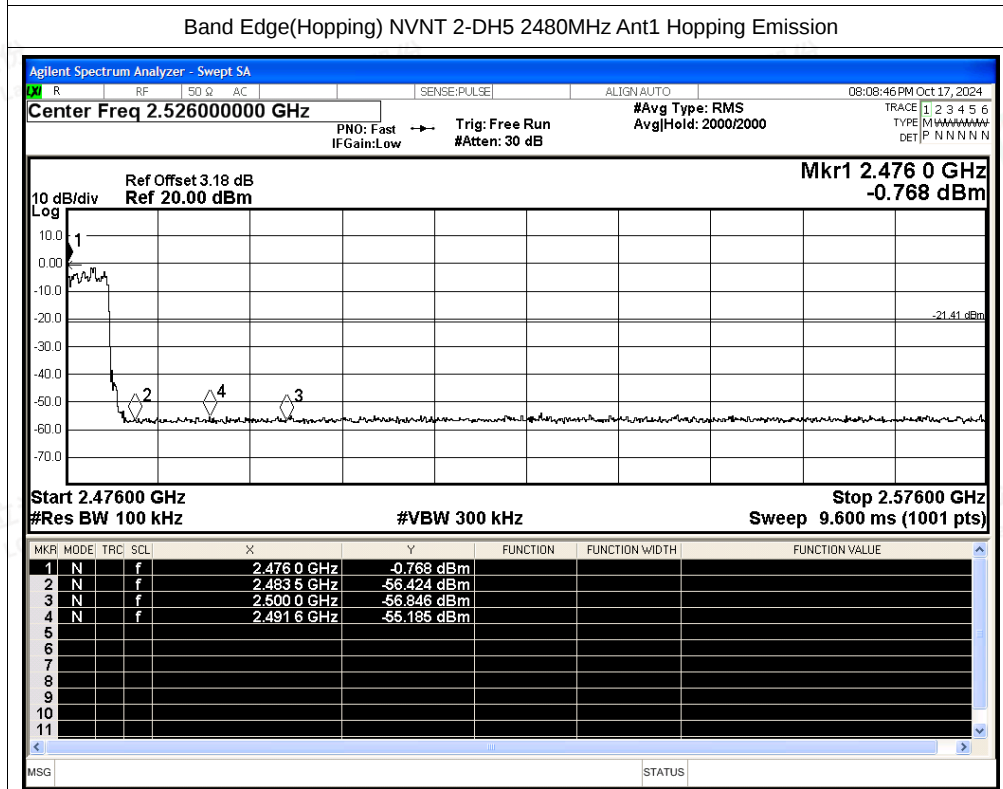
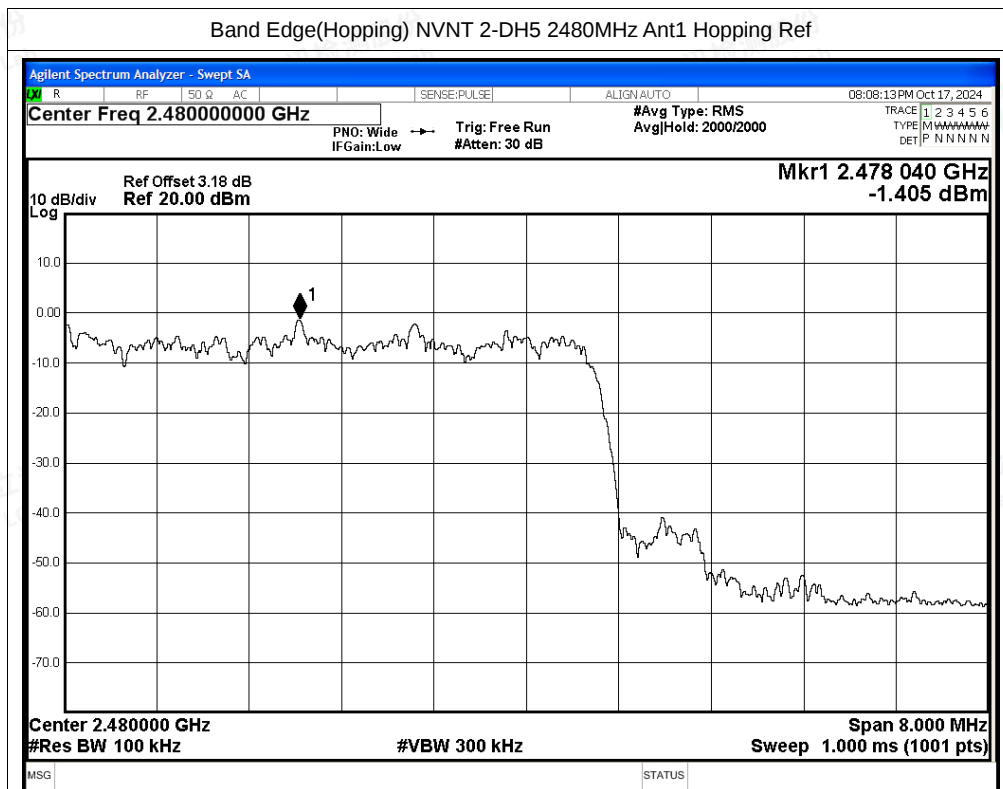


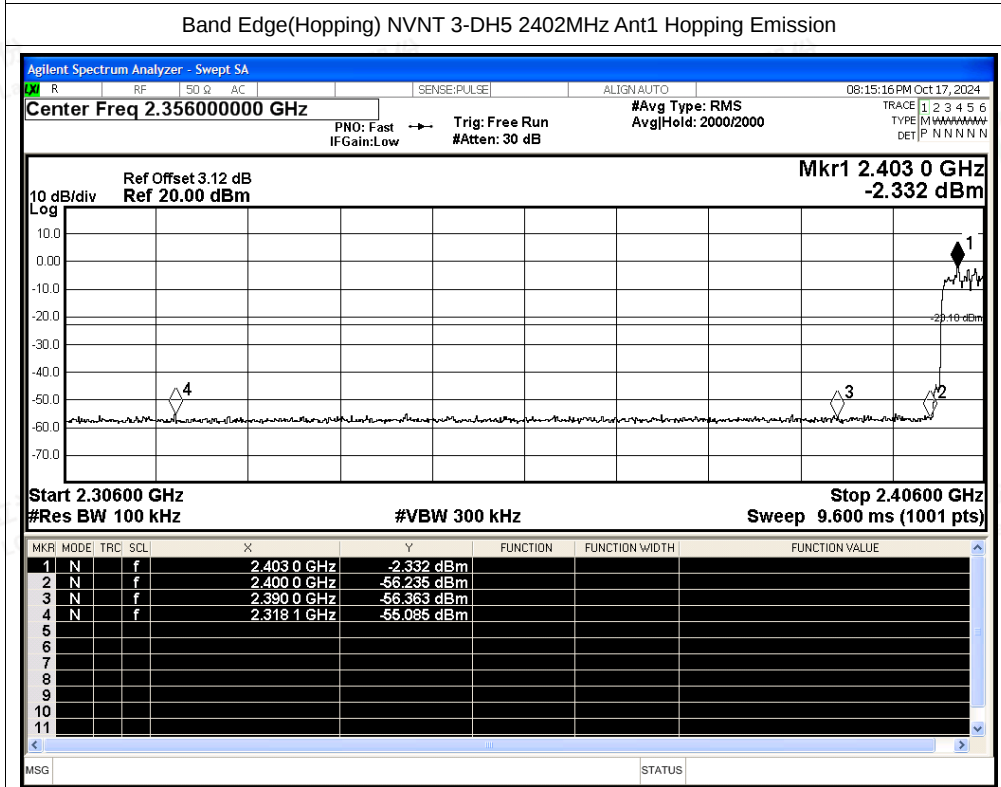
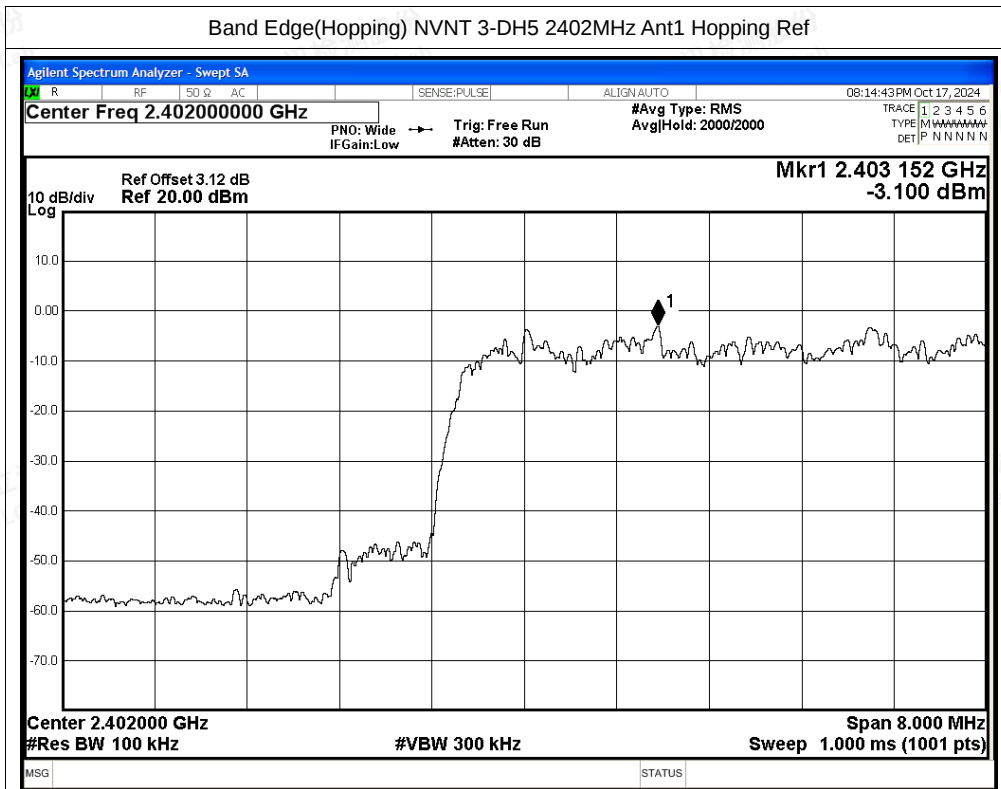
Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Emission

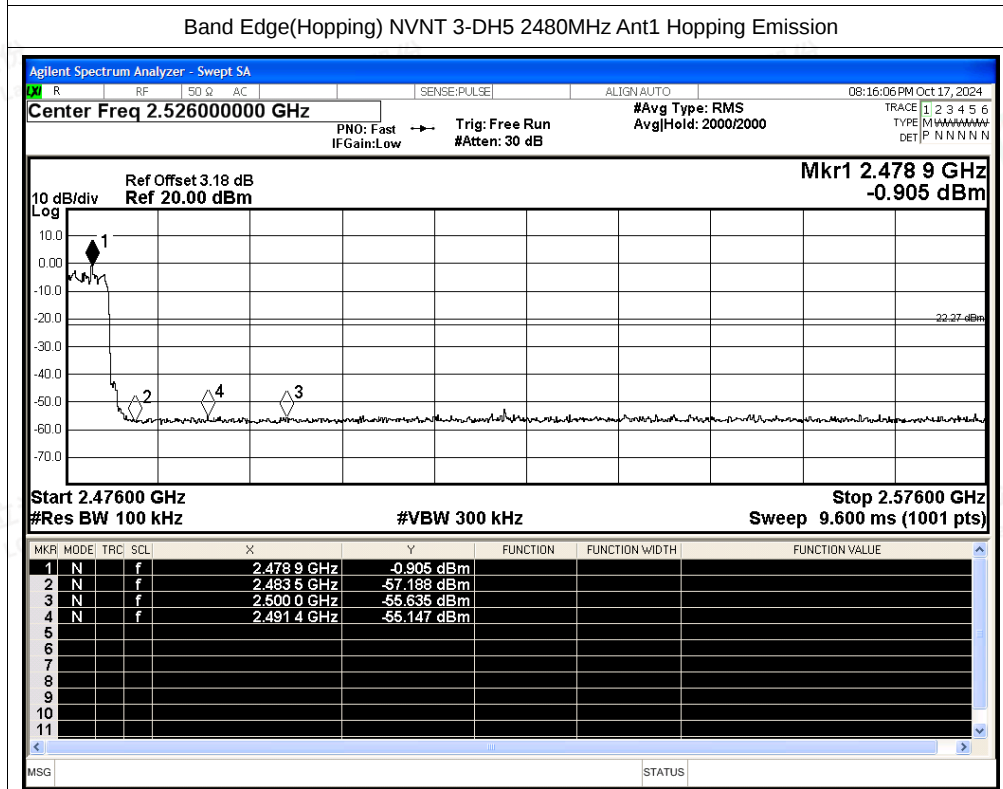
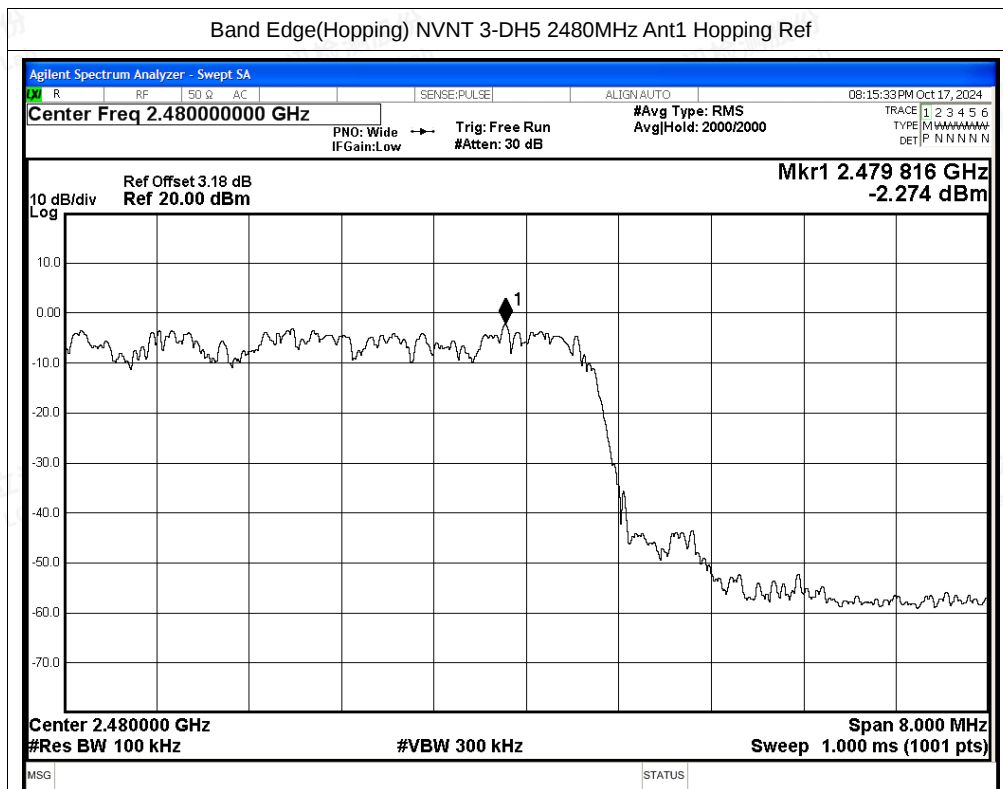














A.7 Conducted RF Spurious Emission

Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	-54.43	-20	Pass
NVNT	1-DH5	2441	Ant1	-54.31	-20	Pass
NVNT	1-DH5	2480	Ant1	-53.57	-20	Pass
NVNT	2-DH5	2402	Ant1	-52.22	-20	Pass
NVNT	2-DH5	2441	Ant1	-50.92	-20	Pass
NVNT	2-DH5	2480	Ant1	-53.72	-20	Pass
NVNT	3-DH5	2402	Ant1	-51.84	-20	Pass
NVNT	3-DH5	2441	Ant1	-50.44	-20	Pass
NVNT	3-DH5	2480	Ant1	-50.08	-20	Pass

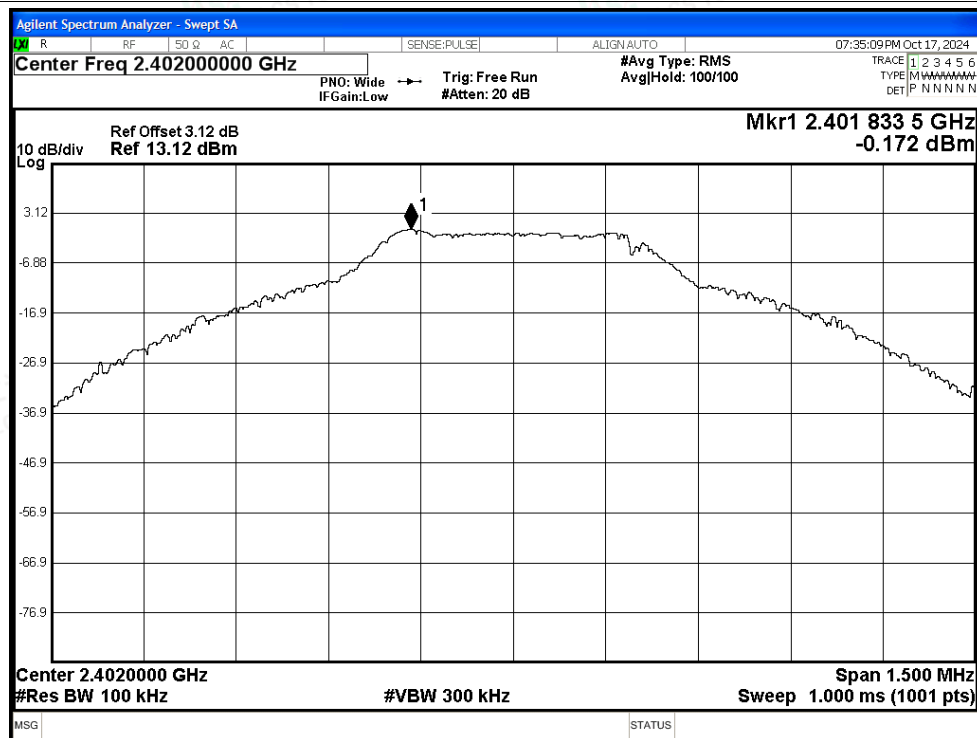


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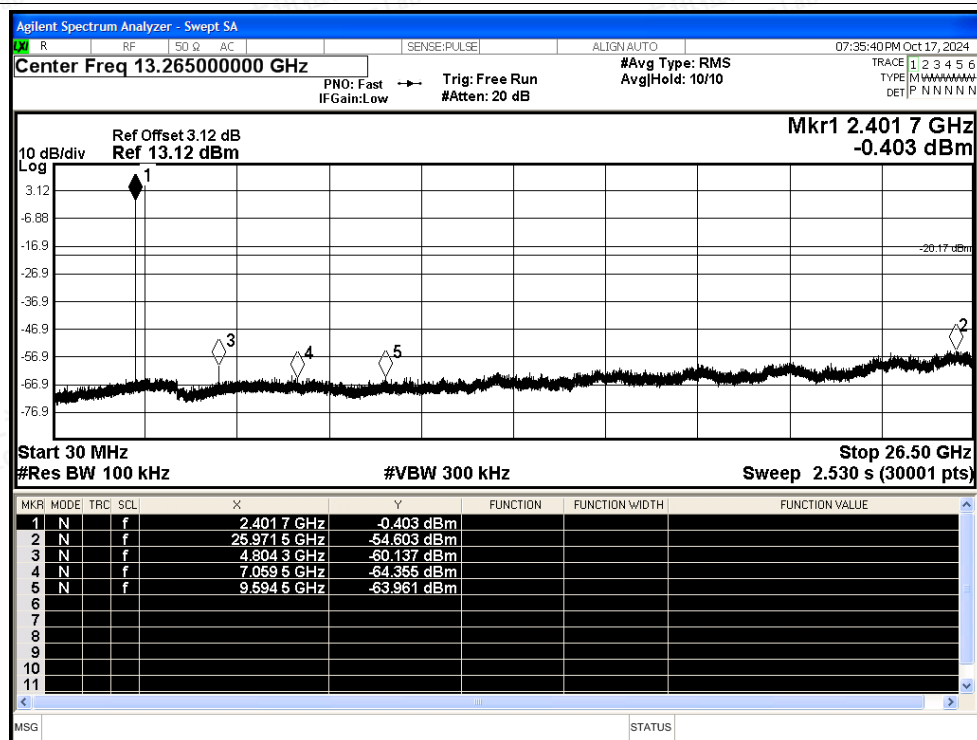


Test Graphs

Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Ref



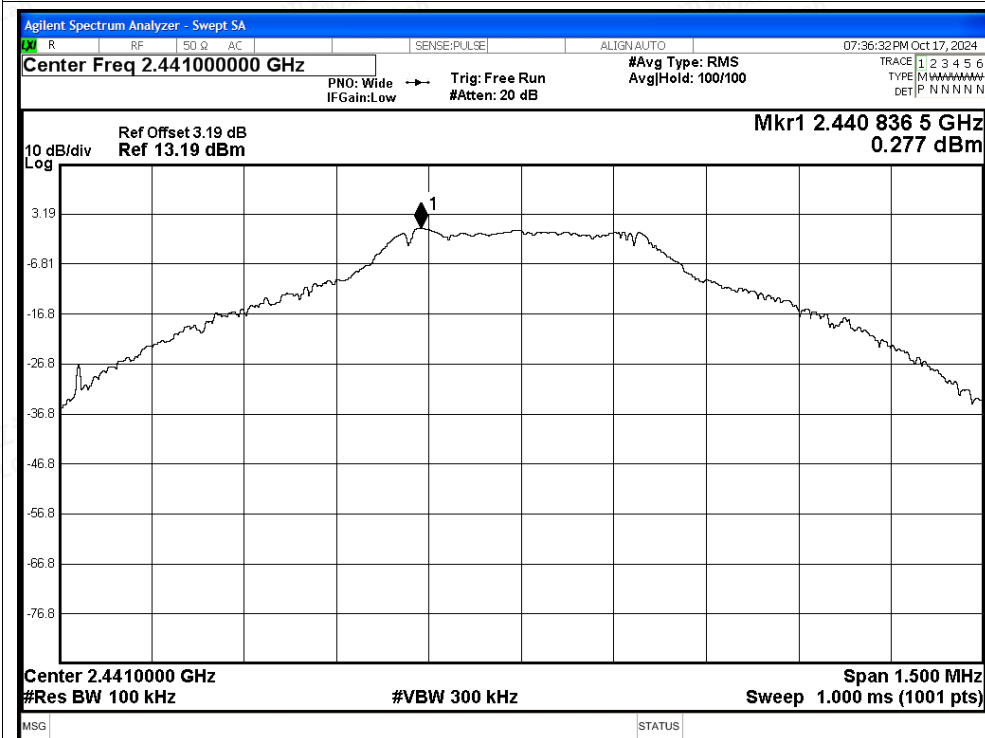
Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Emission



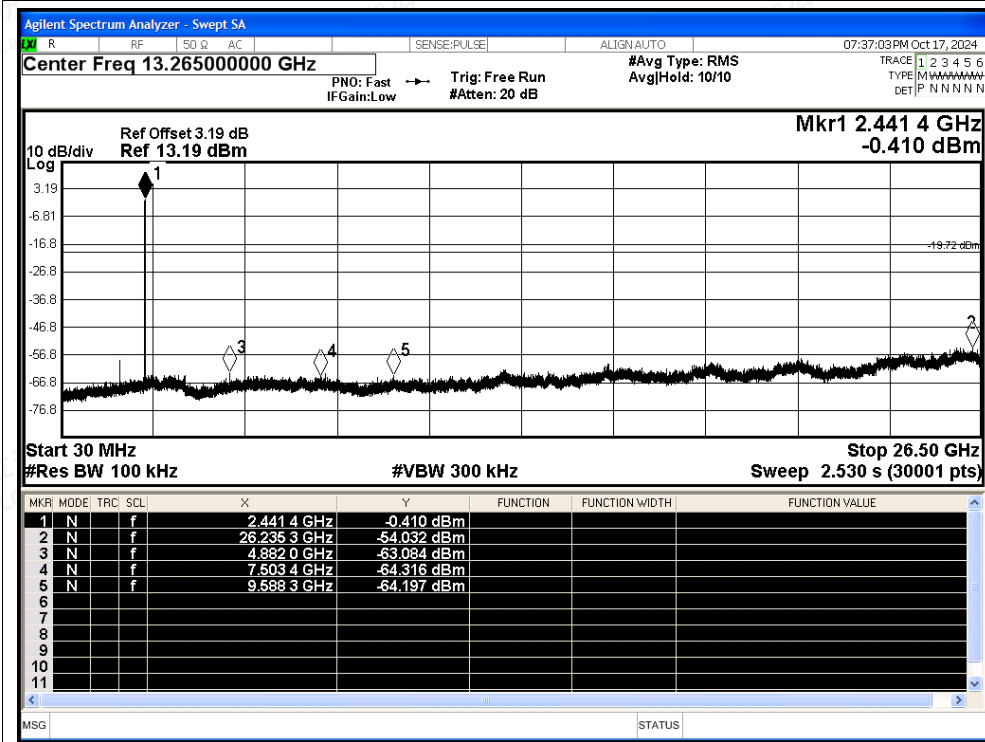
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Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Ref

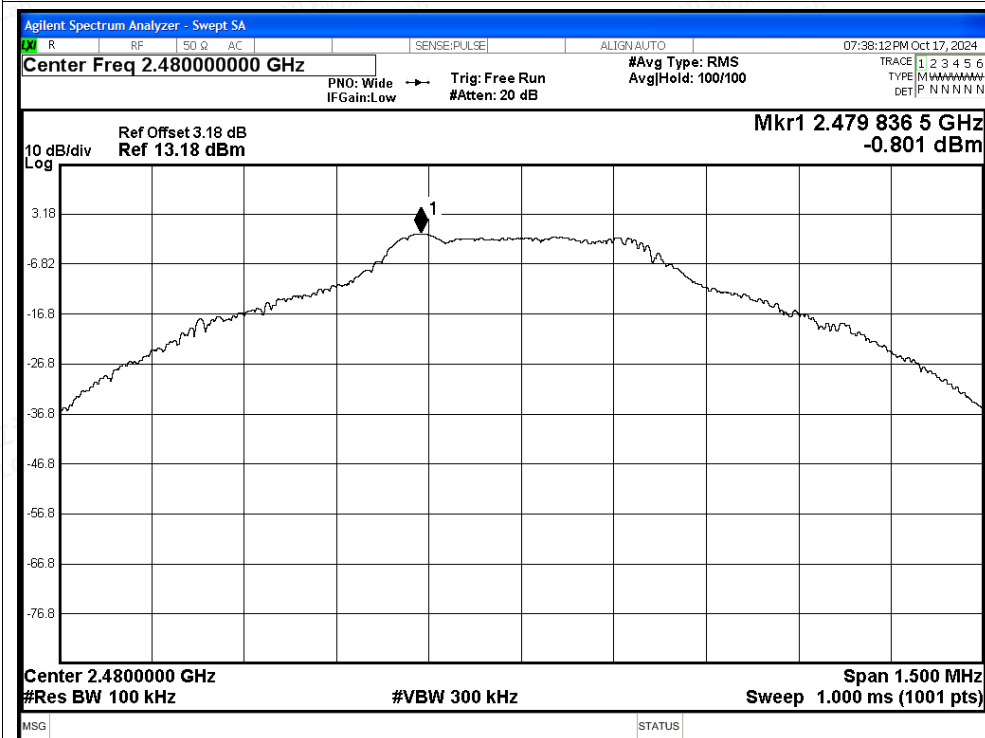


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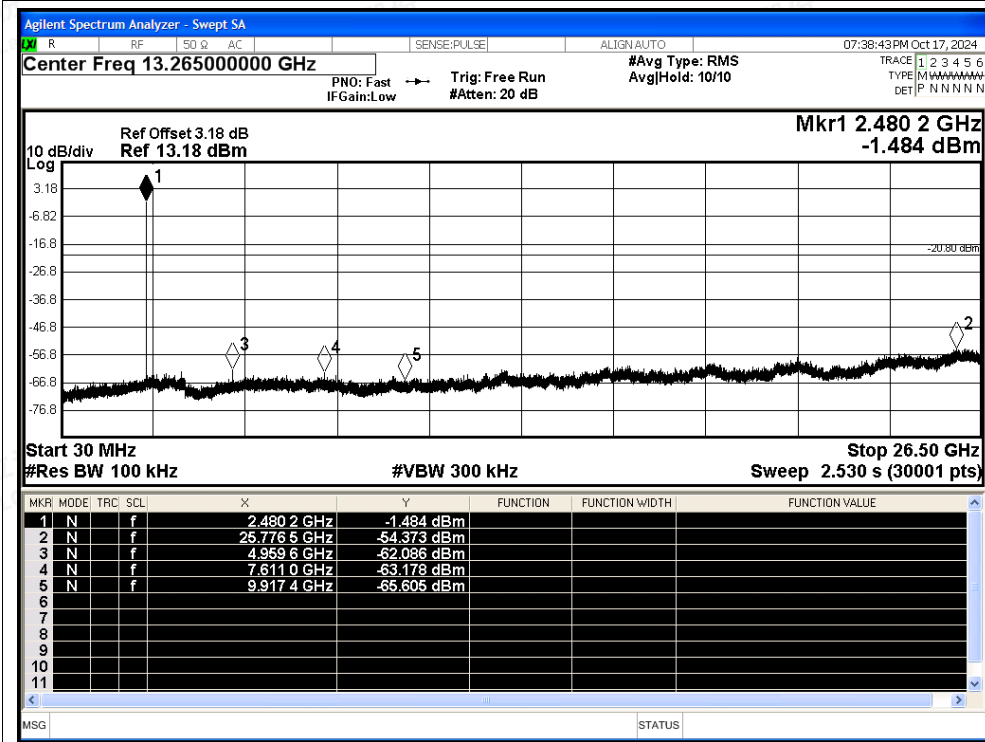




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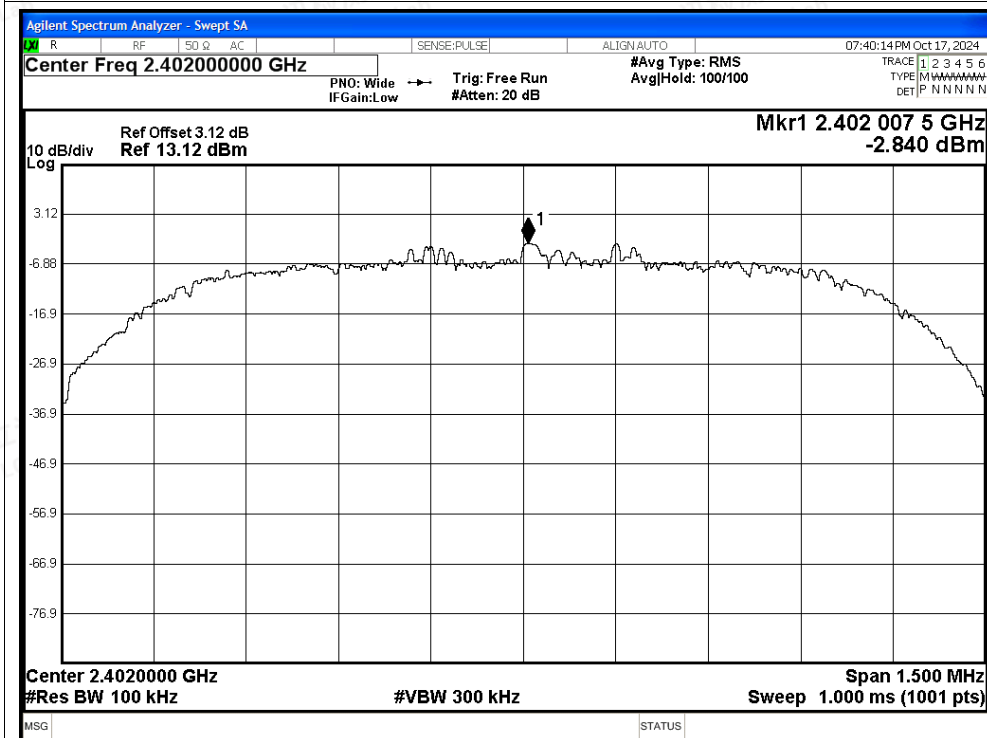


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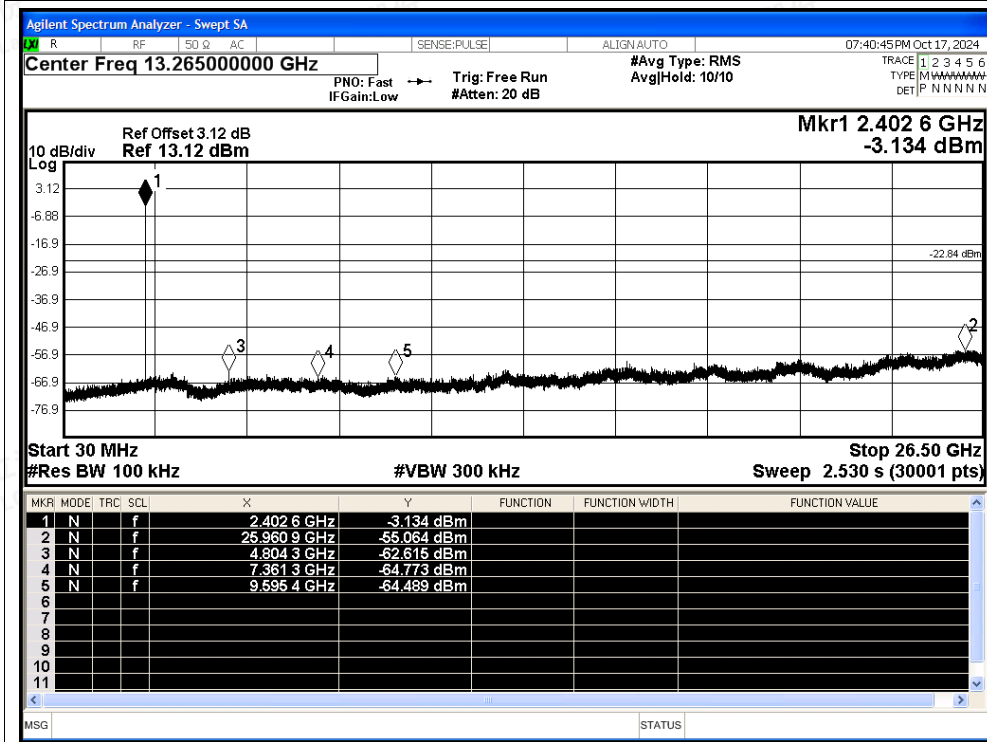




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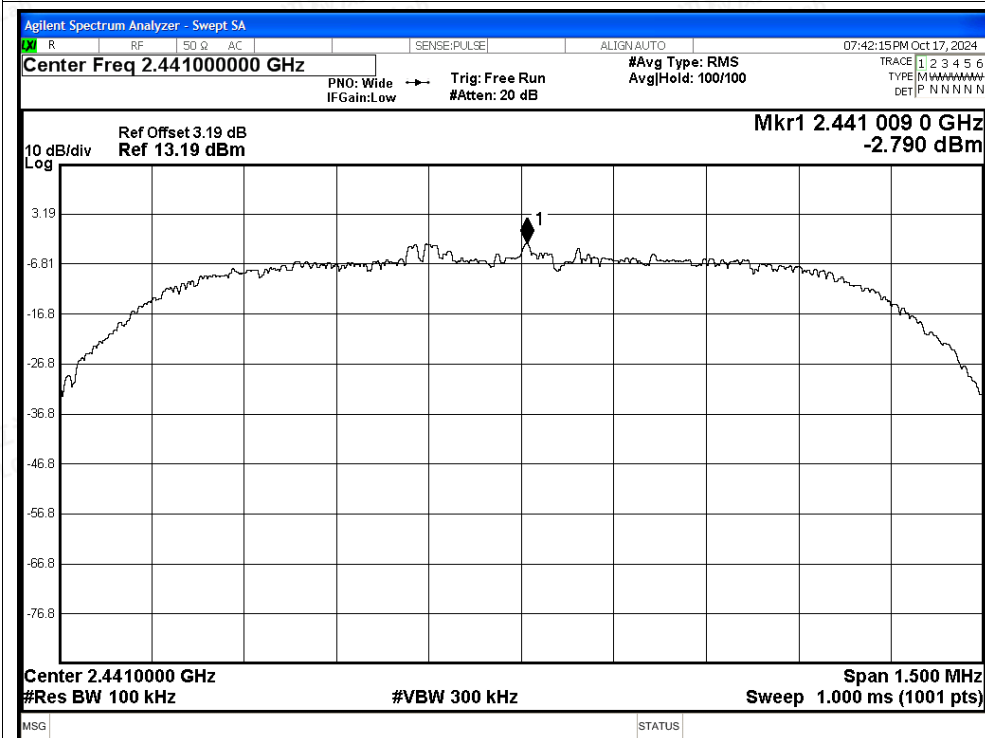


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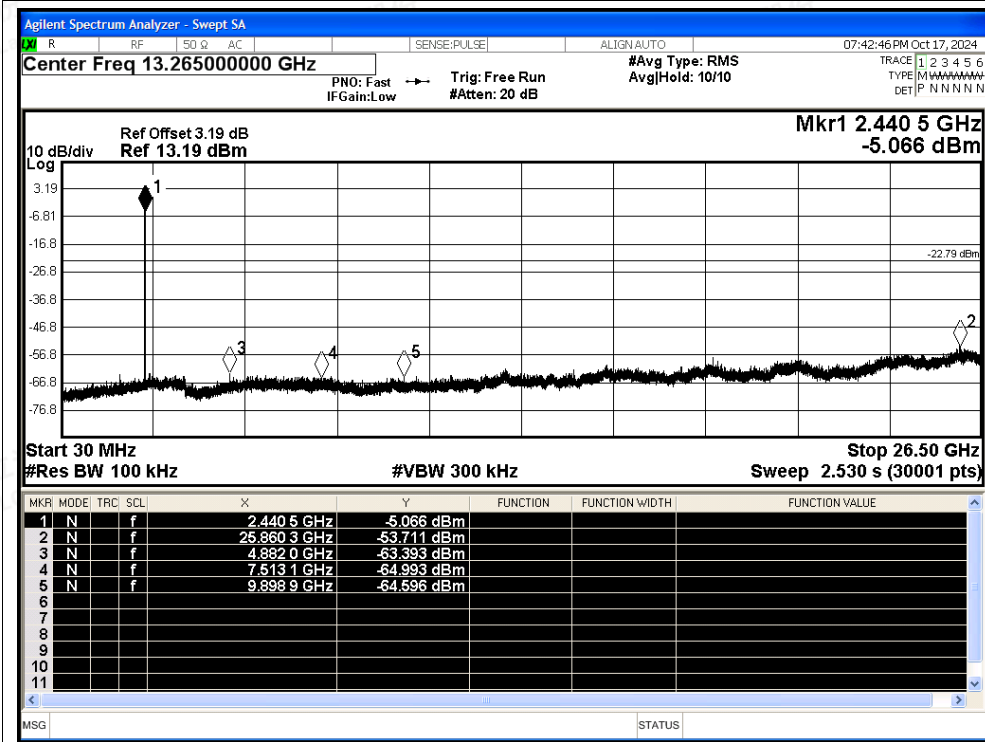




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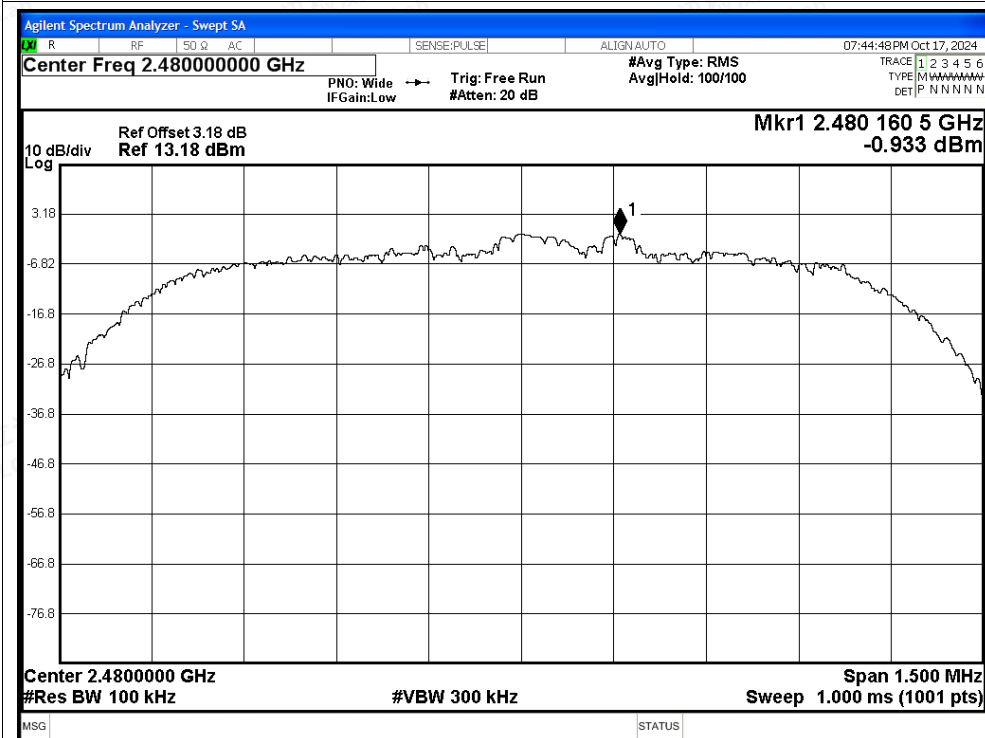


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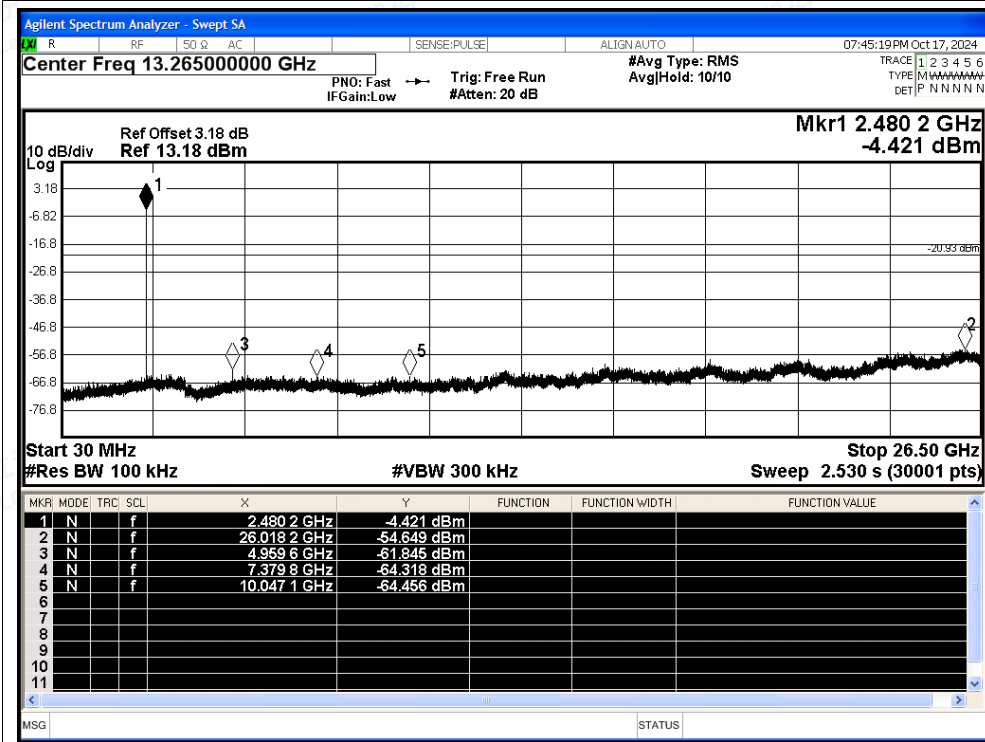




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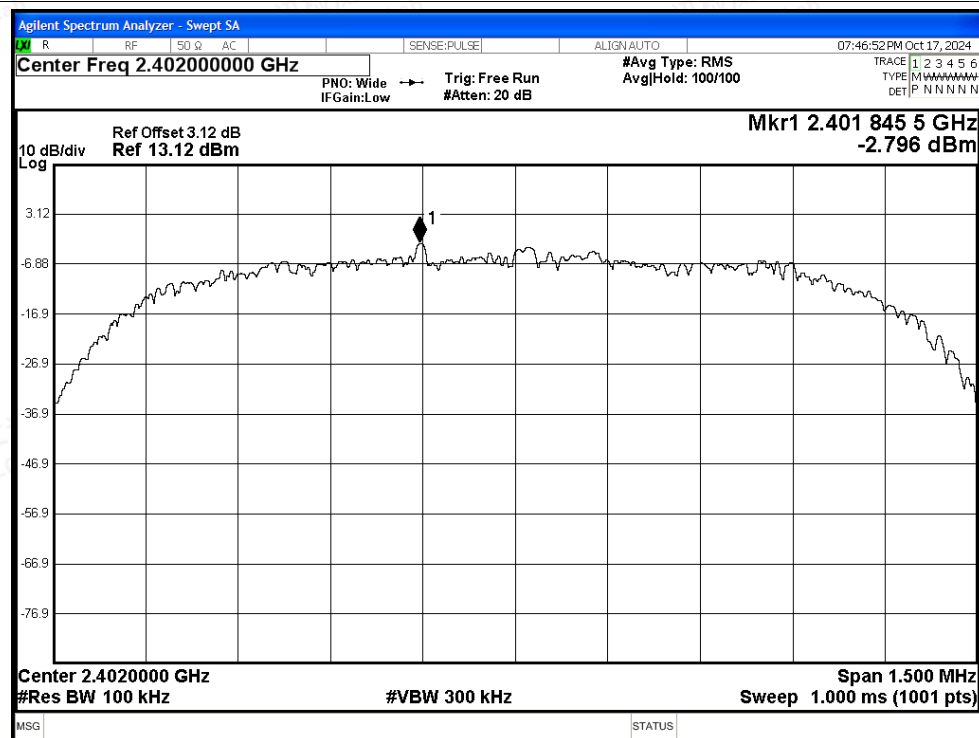


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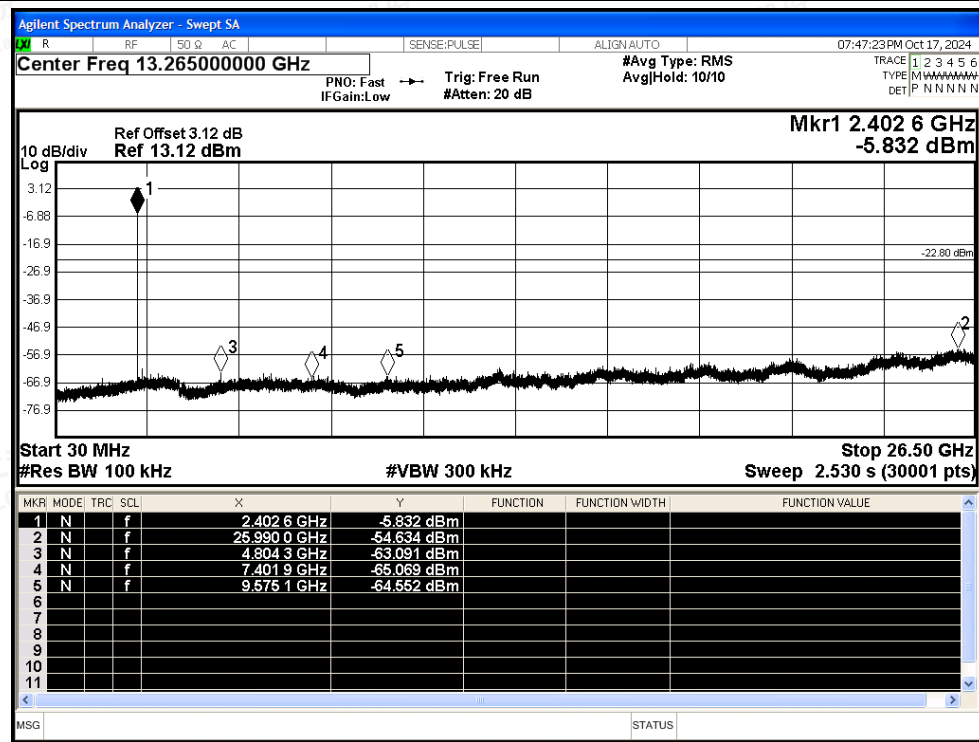




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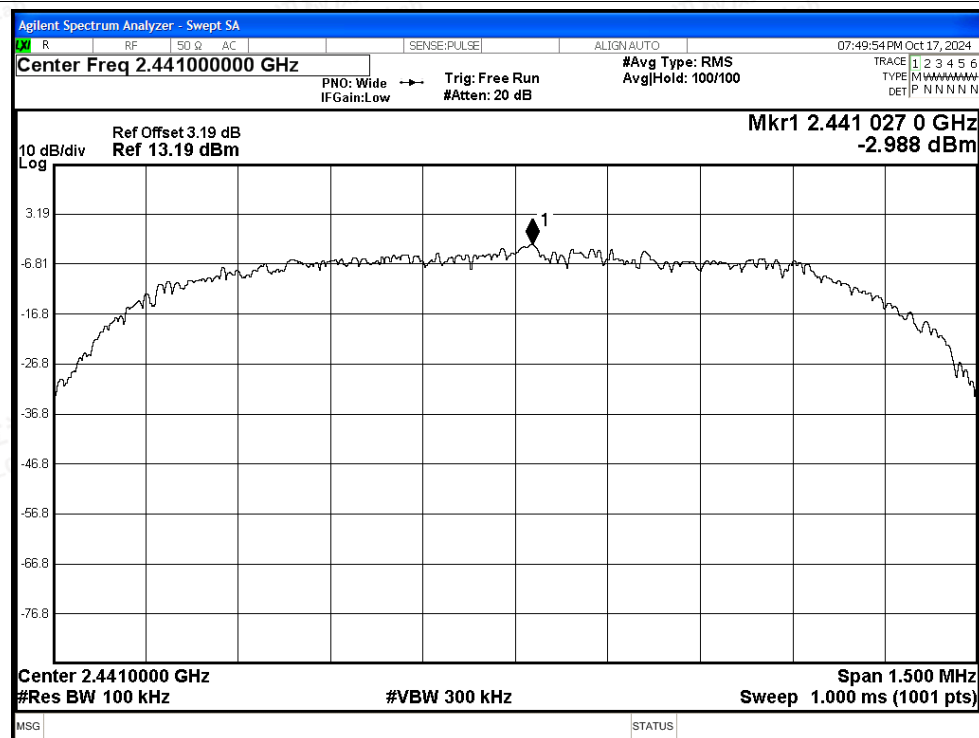


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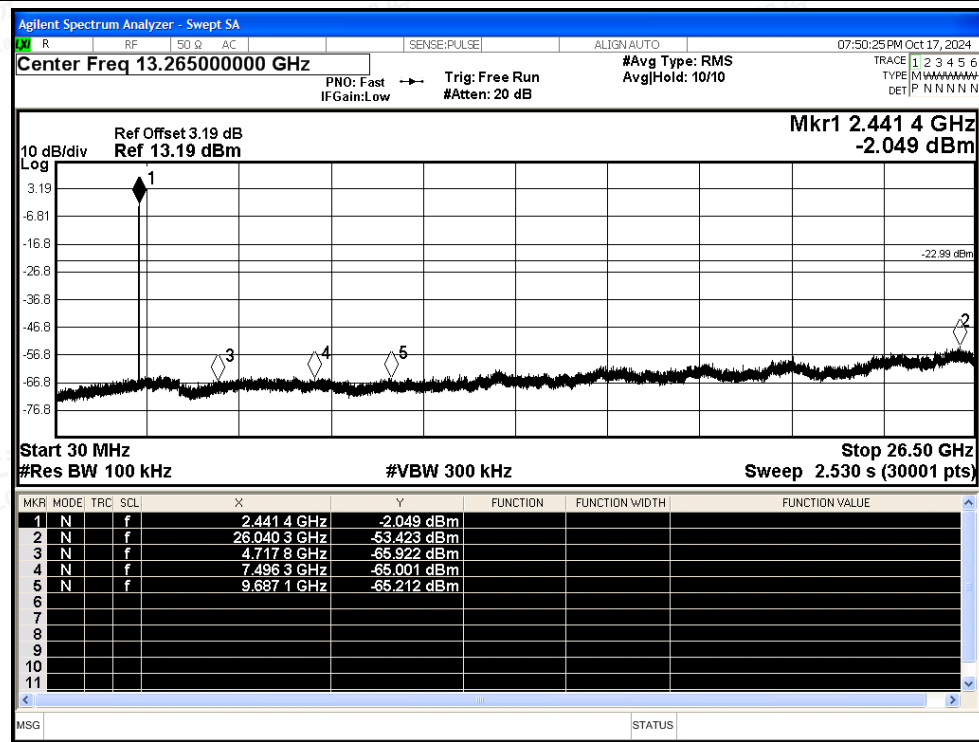




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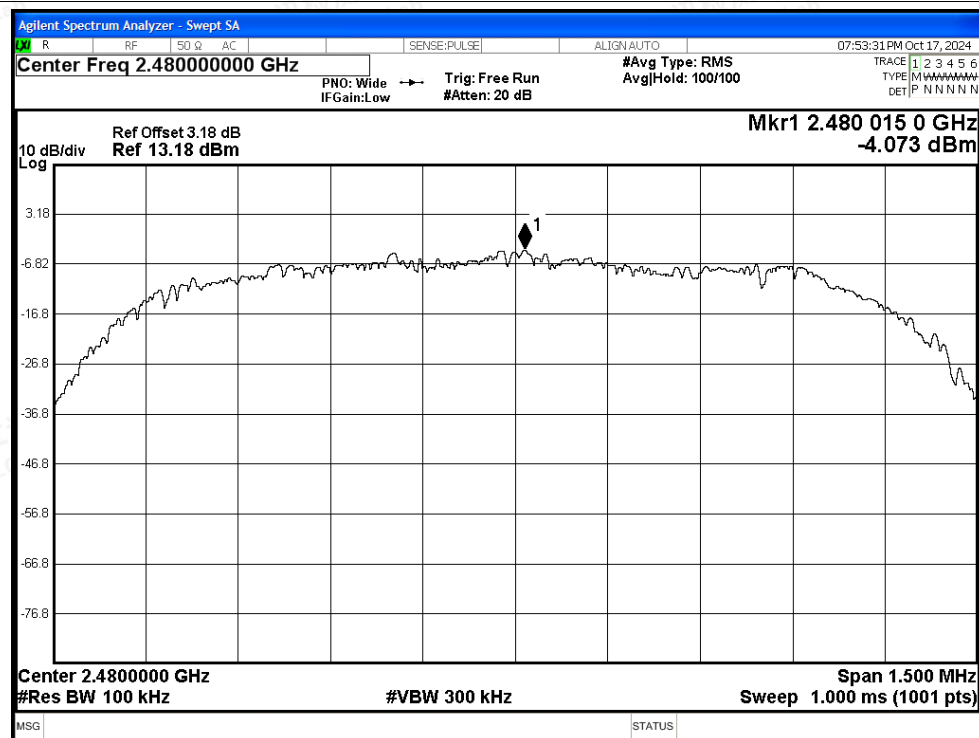


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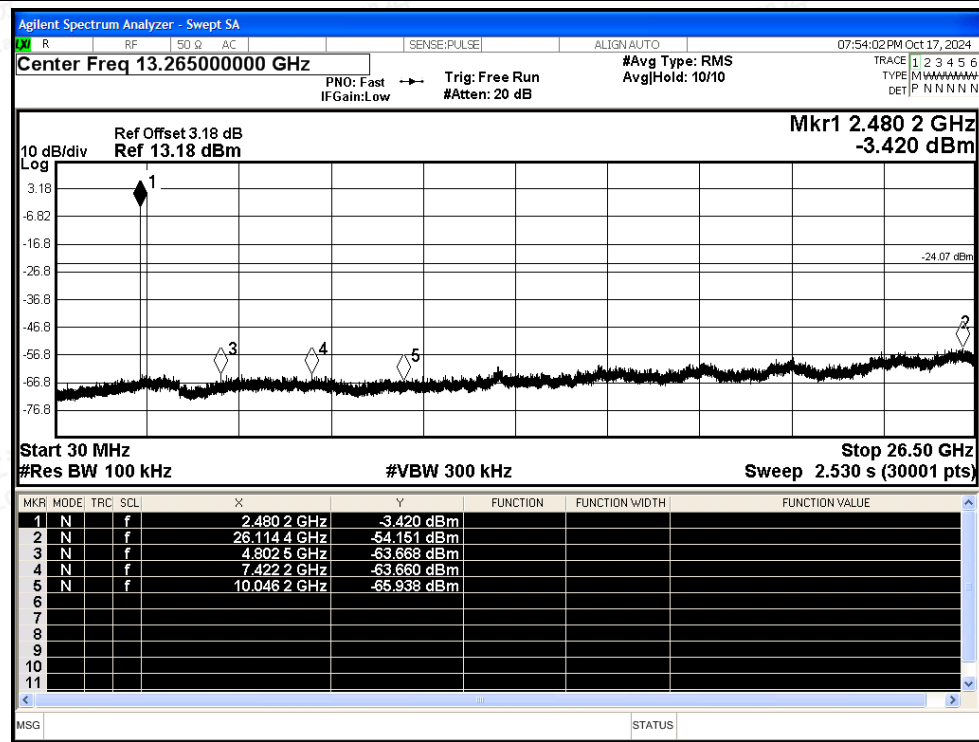




Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Emission





A.8 Duty Cycle

Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH5	2402	Ant1	77.63	1.1	0.34
NVNT	1-DH5	2441	Ant1	77.63	1.1	0.34
NVNT	1-DH5	2480	Ant1	77.6	1.1	0.34
NVNT	2-DH5	2402	Ant1	77.28	1.12	0.35
NVNT	2-DH5	2441	Ant1	77.28	1.12	0.35
NVNT	2-DH5	2480	Ant1	77.33	1.12	0.34
NVNT	3-DH5	2402	Ant1	77.28	1.12	0.35
NVNT	3-DH5	2441	Ant1	77.28	1.12	0.35
NVNT	3-DH5	2480	Ant1	77.28	1.12	0.35

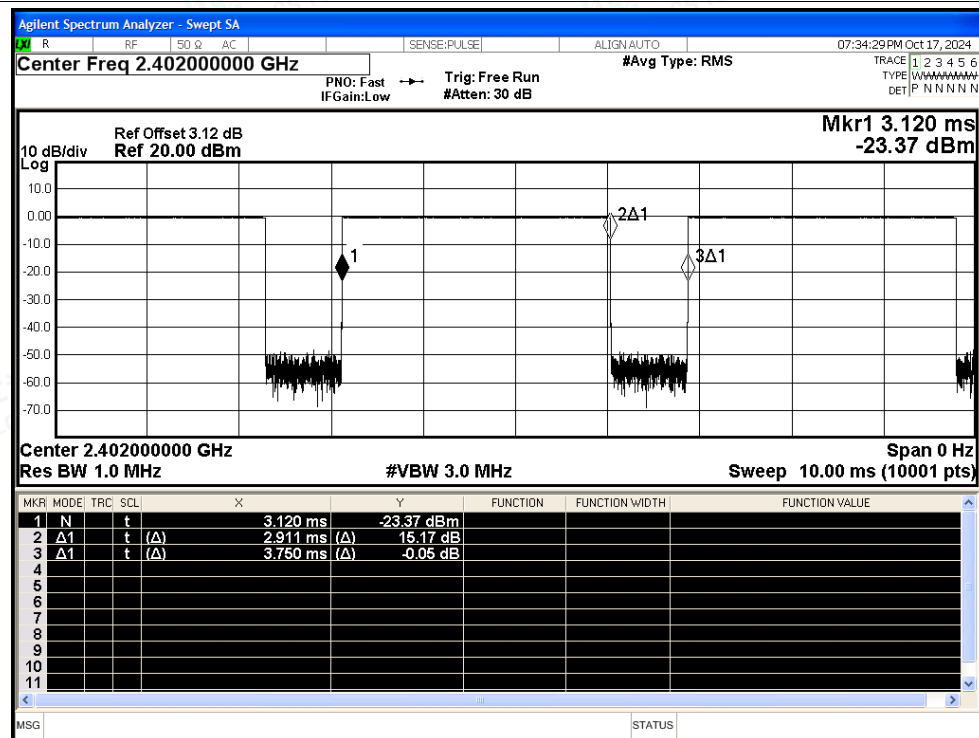


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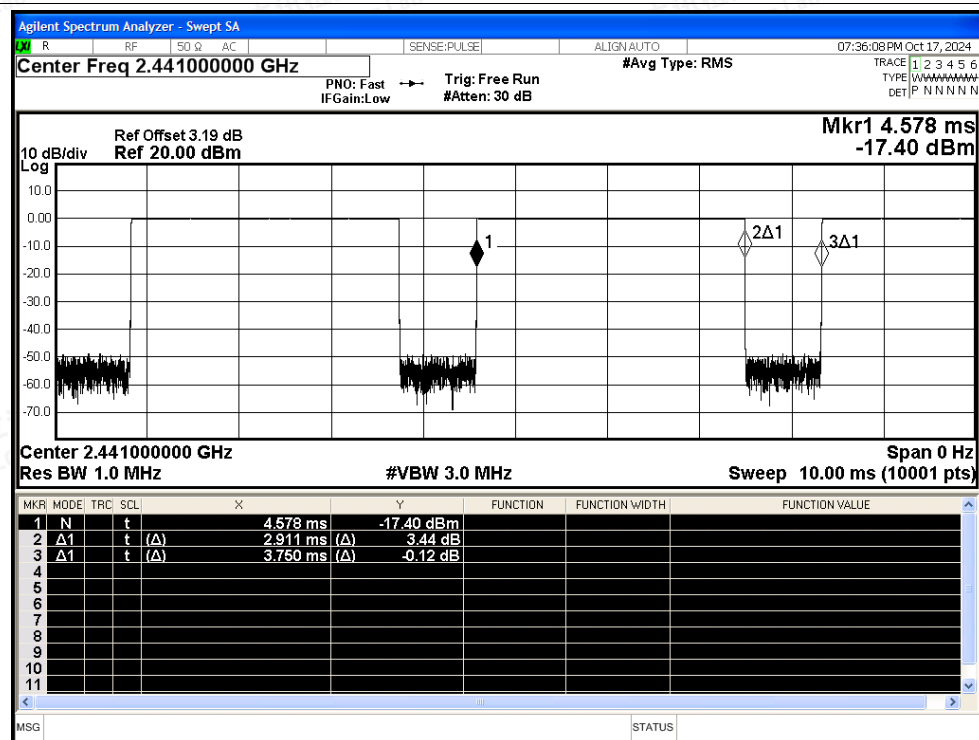


Test Graphs

Duty Cycle NVNT 1-DH5 2402MHz Ant1



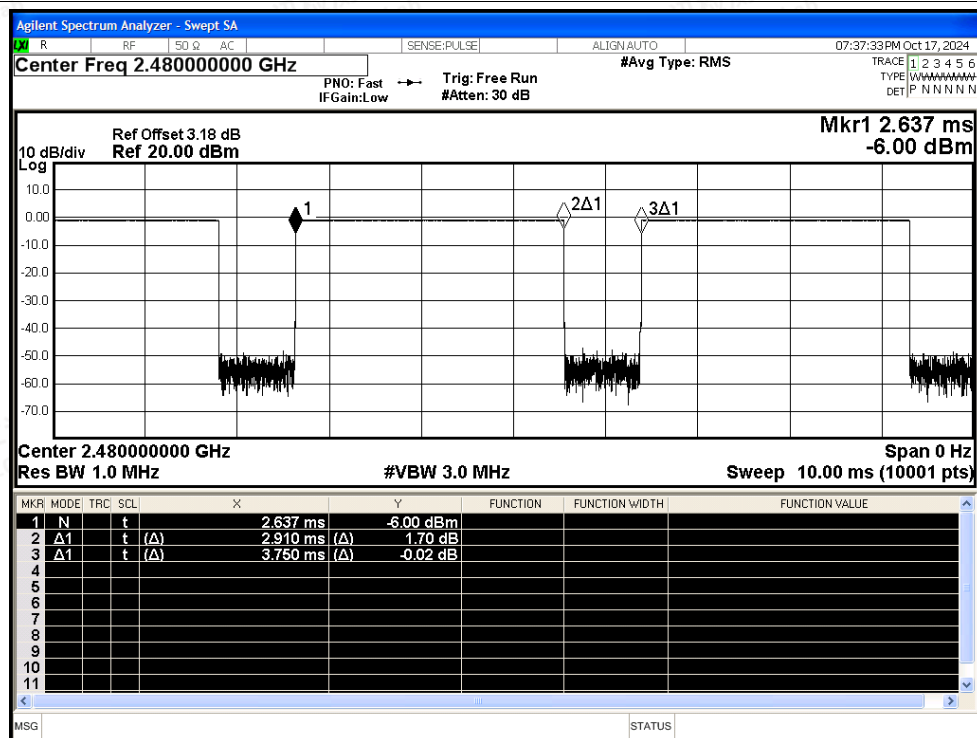
Duty Cycle NVNT 1-DH5 2441MHz Ant1



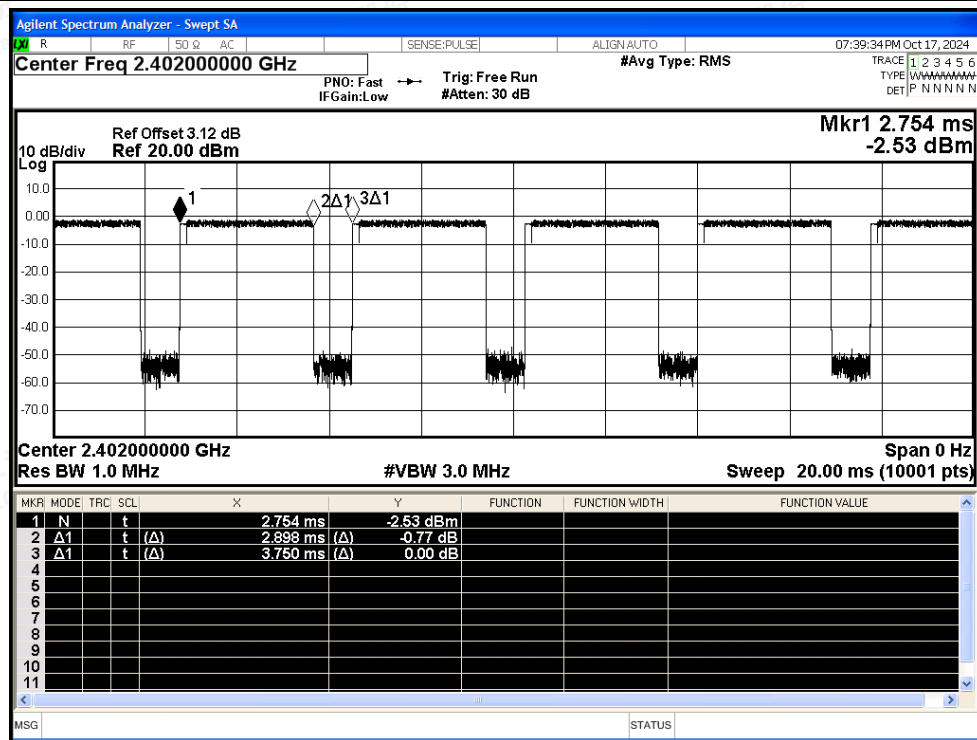
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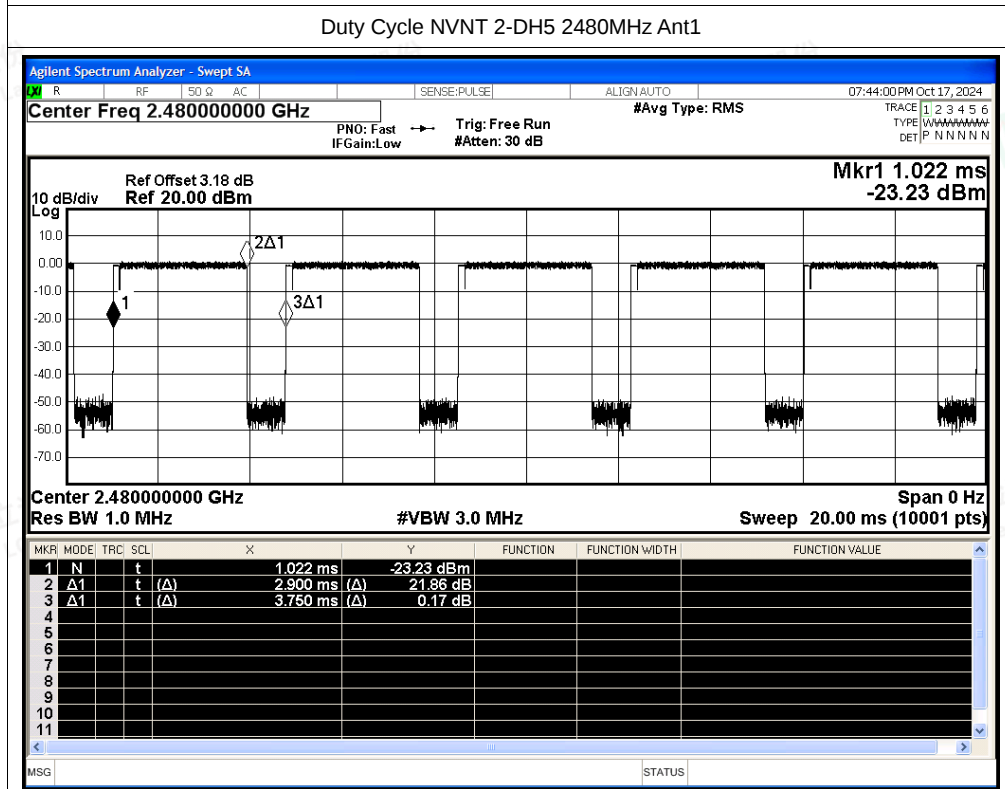
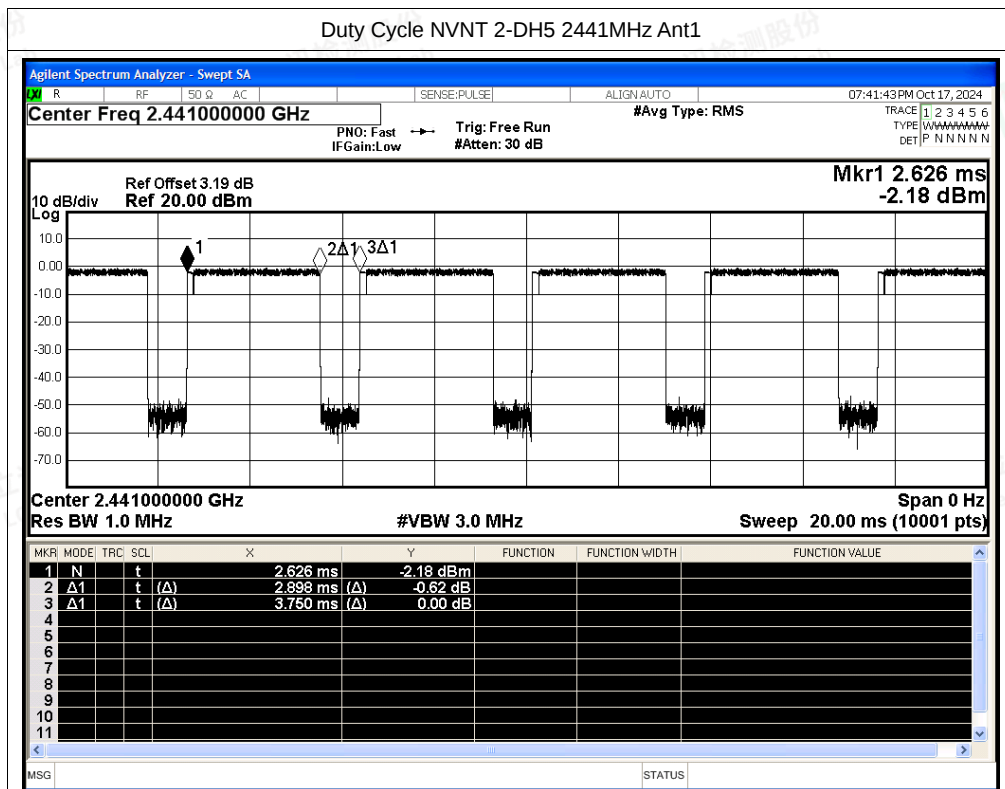


Duty Cycle NVNT 1-DH5 2480MHz Ant1



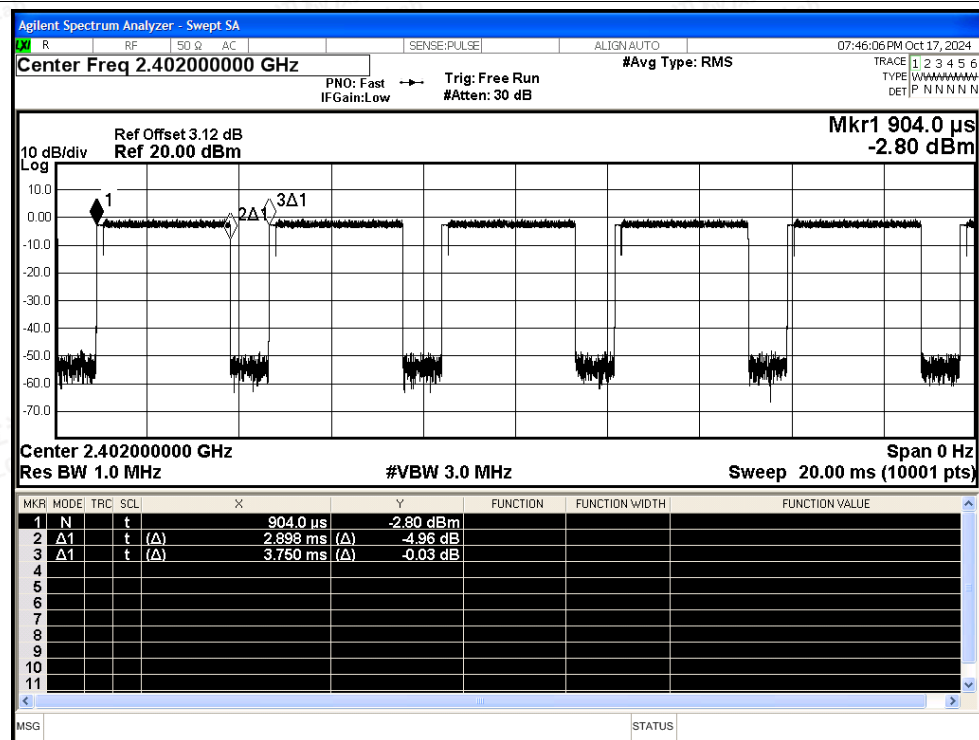
Duty Cycle NVNT 2-DH5 2402MHz Ant1



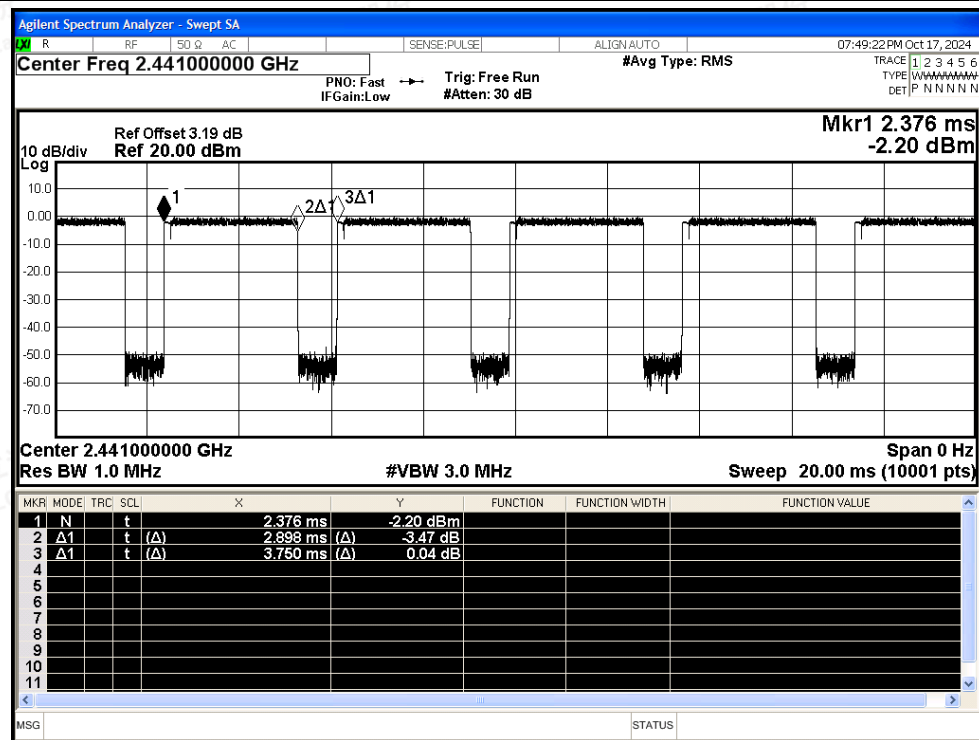


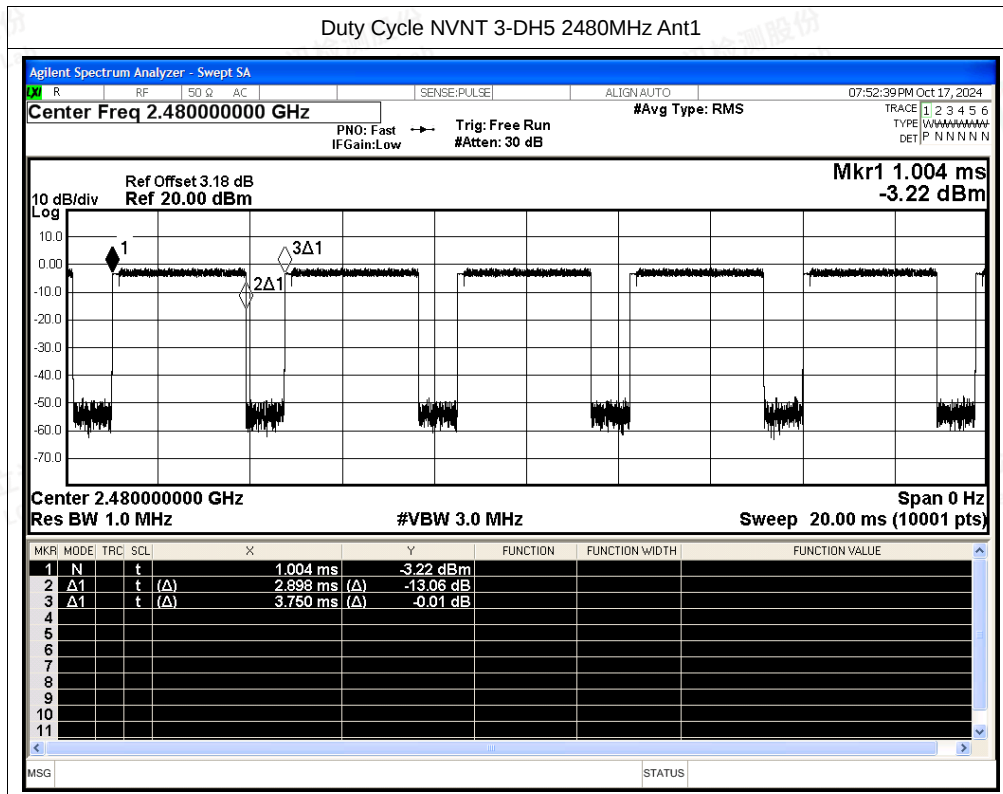


Duty Cycle NVNT 3-DH5 2402MHz Ant1



Duty Cycle NVNT 3-DH5 2441MHz Ant1







A.9 Restrict Band

Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH5	2402	Ant1	No-Hopping	2310	-49.72	2	-	47.54	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2310	-57.56	2	1.1	40.8	Average	54	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2370.288	-46.54	2	-	50.72	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2369.424	-56.53	2	1.1	41.83	Average	54	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2390	-49.65	2	-	47.61	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2390	-57.36	2	1.1	41	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.5	-48.44	2	-	48.82	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.5	-57.36	2	1.1	41	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2485.24	-45.67	2	-	51.59	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2484.352	-56.05	2	1.1	42.31	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2500	-48.23	2	-	49.03	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2500	-56.89	2	1.1	41.47	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2310	-48.88	2	-	48.38	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2310	-57.49	2	1.12	40.89	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2363.76	-46.78	2	-	50.48	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2389.008	-56.56	2	1.12	41.82	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2390	-49.62	2	-	47.64	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2390	-57.94	2	1.12	40.44	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.5	-49.21	2	-	48.05	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.5	-56.38	2	1.12	42	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2495.416	-46.22	2	-	51.04	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.728	-56.05	2	1.12	42.33	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2500	-48.58	2	-	48.68	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2500	-56.65	2	1.12	41.73	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2310	-49.91	2	-	47.35	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2310	-57.91	2	1.12	40.47	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2352.912	-46.59	2	-	50.67	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2377.104	-56.51	2	1.12	41.87	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2390	-48.92	2	-	48.34	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2390	-57.76	2	1.12	40.62	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.5	-47.62	2	-	49.64	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.5	-57.08	2	1.12	41.3	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2484.952	-45.77	2	-	51.49	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2498.872	-56.12	2	1.12	42.26	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2500	-48.49	2	-	48.77	Peak	74	Pass



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NVNT	3-DH5	2480	Ant1	No-Hopping	2500	-56.9	2	1.12	41.48	Average	54	Pass
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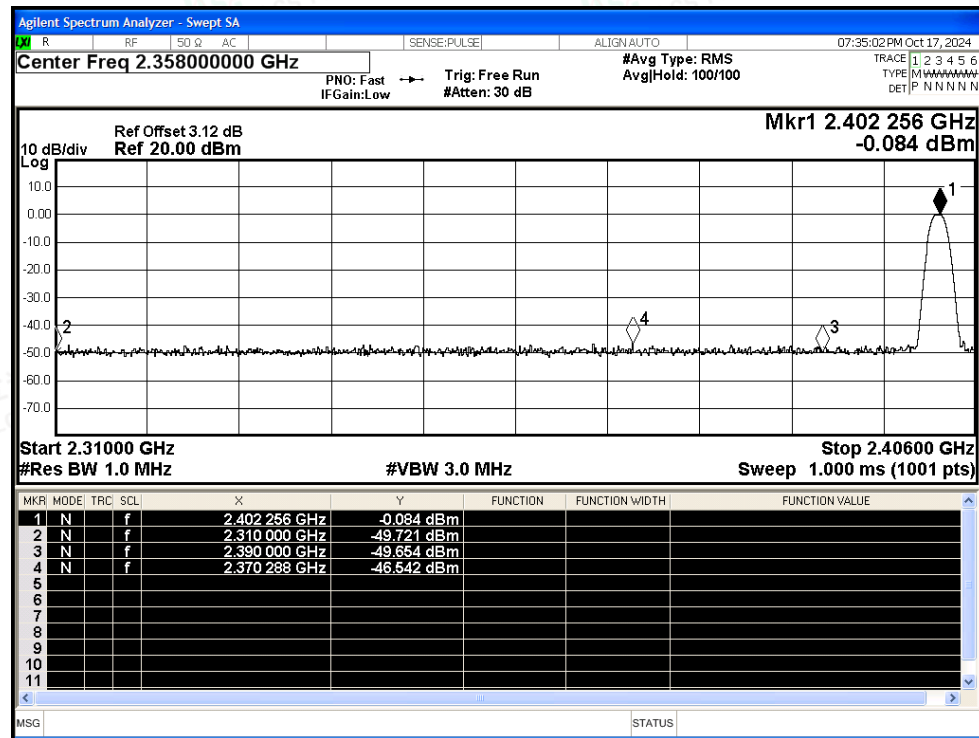


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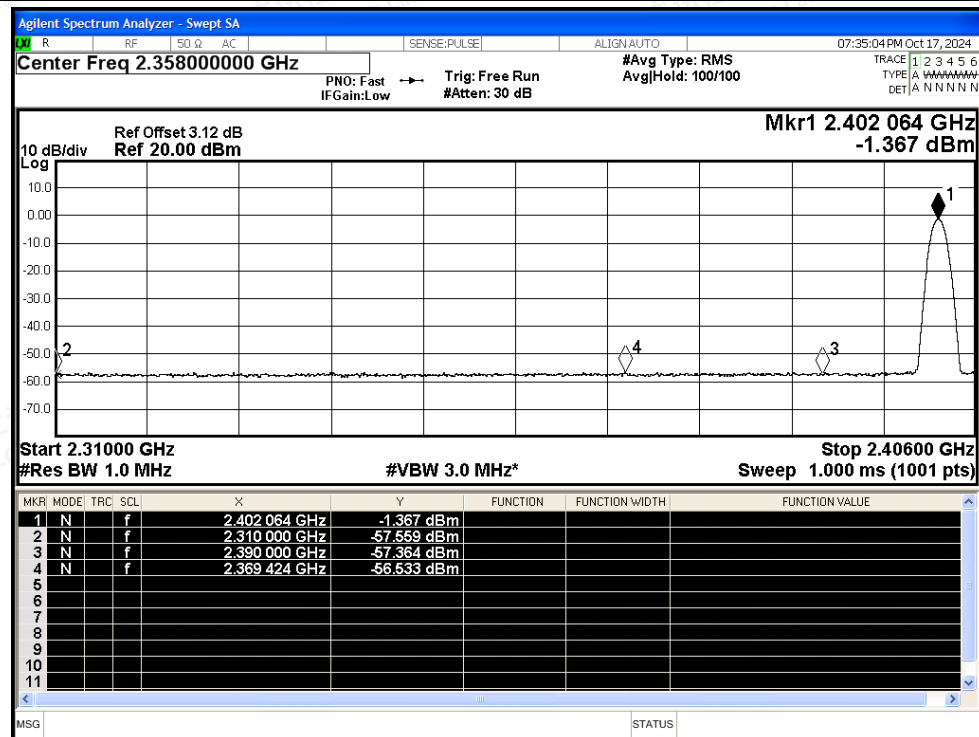


Test Graphs

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



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



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