



## Appendix A

### RF Test Data for BT (Conducted Measurement)

Product Name: WIRELESS SPEAKER

Test Model: ZEALOT-S79

#### Environmental Conditions

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





### A.1 -20dB Bandwidth

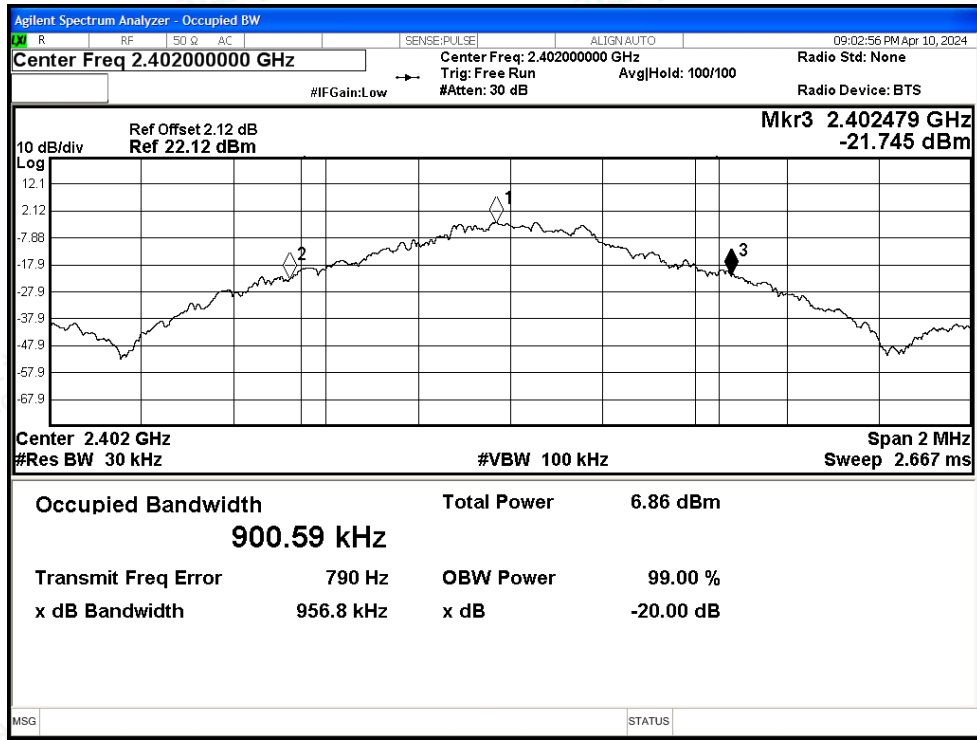
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH5	2402	Ant	0.957	N/A	Pass
NVNT	1-DH5	2441	Ant	0.964	N/A	Pass
NVNT	1-DH5	2480	Ant	1.011	N/A	Pass
NVNT	2-DH5	2402	Ant	1.314	N/A	Pass
NVNT	2-DH5	2441	Ant	1.28	N/A	Pass
NVNT	2-DH5	2480	Ant	1.284	N/A	Pass
NVNT	3-DH5	2402	Ant	1.28	N/A	Pass
NVNT	3-DH5	2441	Ant	1.287	N/A	Pass
NVNT	3-DH5	2480	Ant	1.3	N/A	Pass



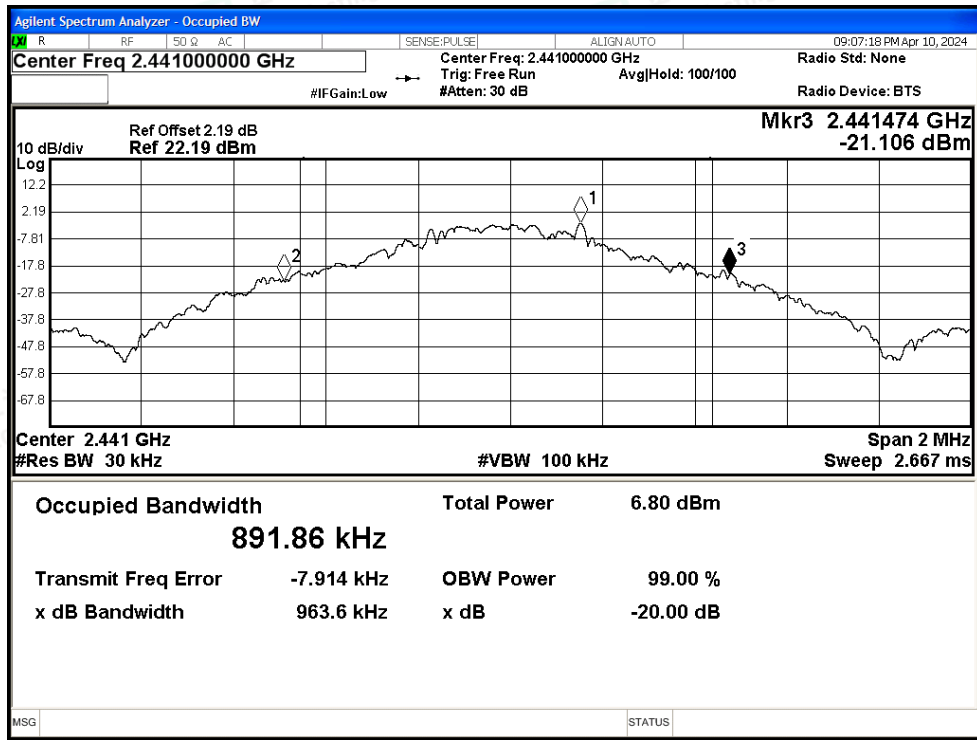


Test Graphs

-20dB Bandwidth NVNT 1-DH5 2402MHz Ant

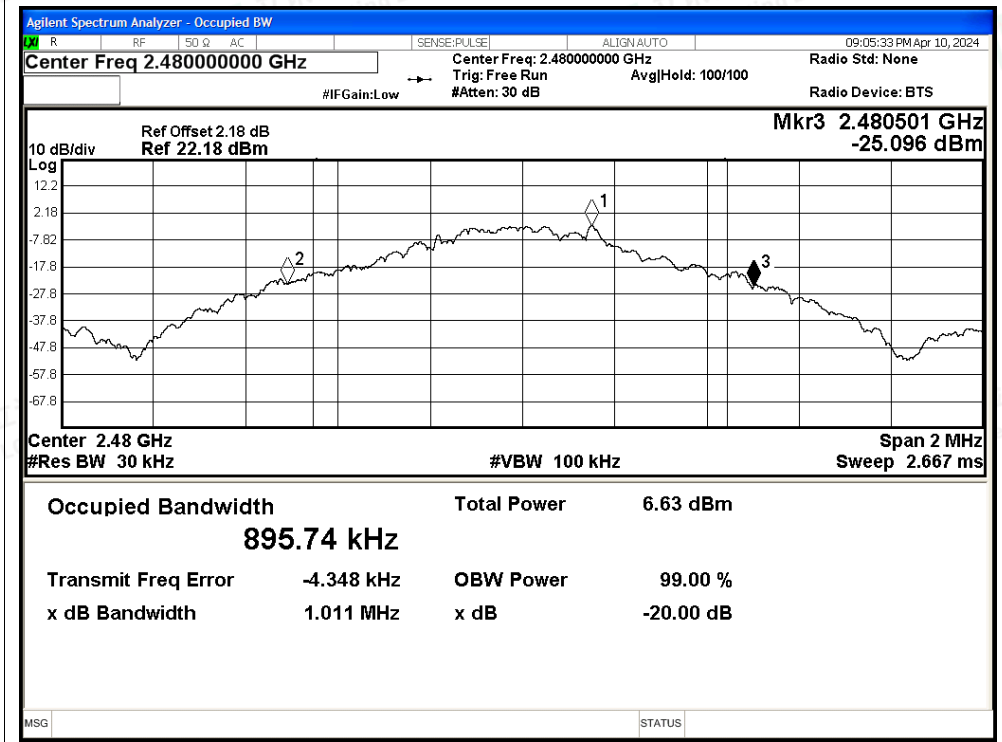


-20dB Bandwidth NVNT 1-DH5 2441MHz Ant

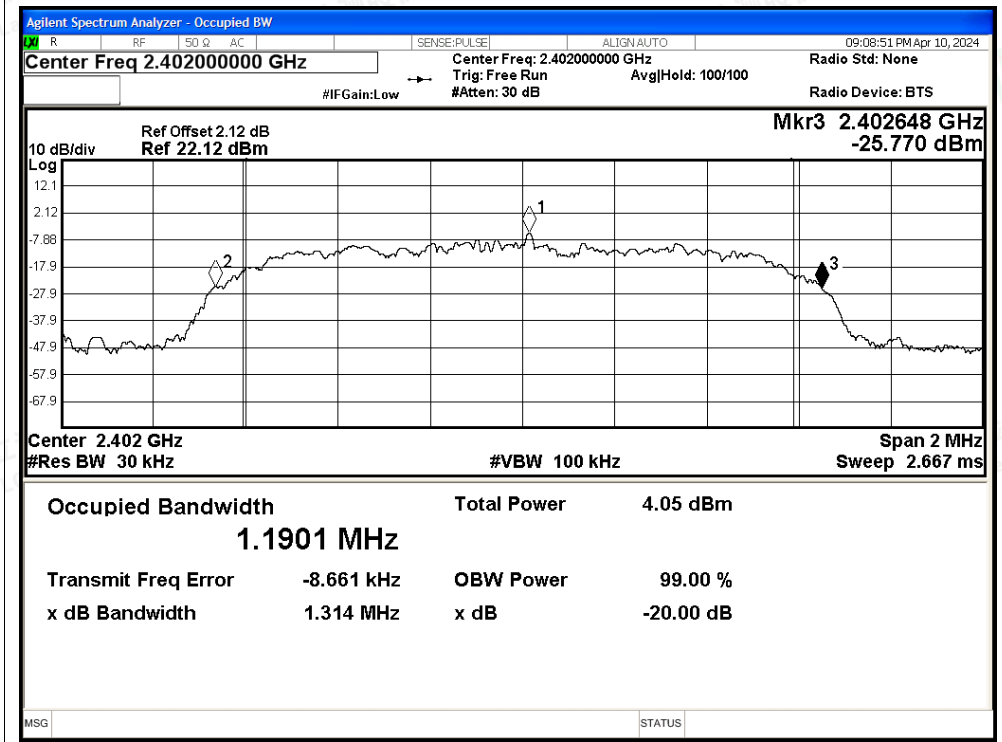




-20dB Bandwidth NVNT 1-DH5 2480MHz Ant

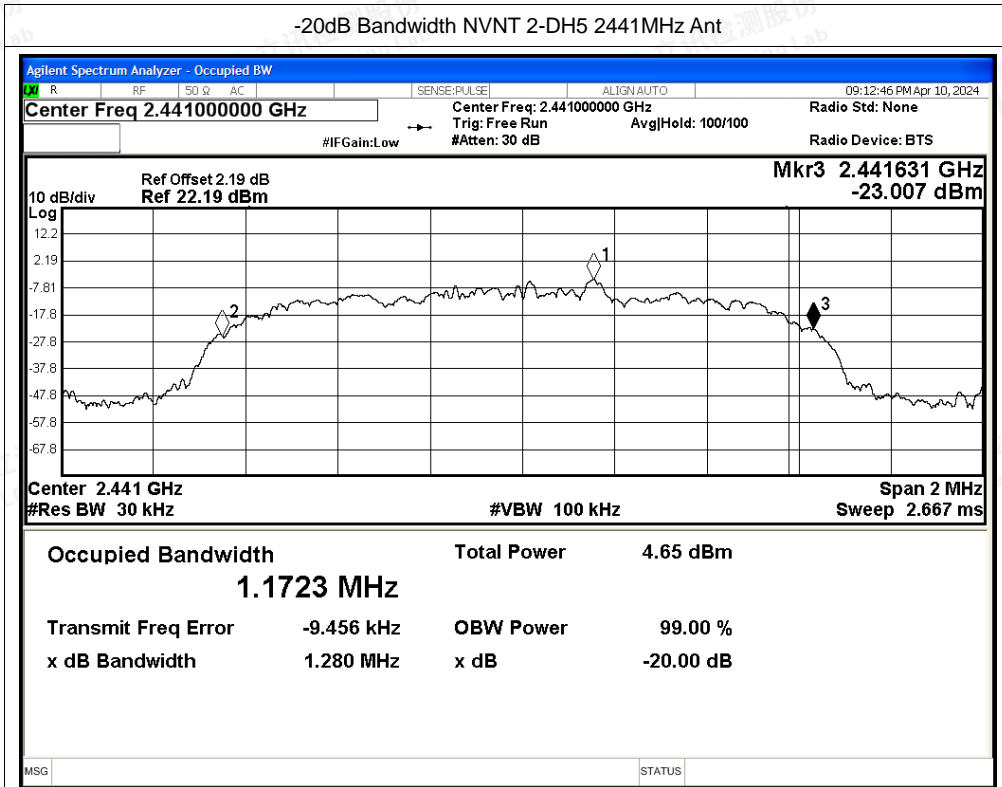


-20dB Bandwidth NVNT 2-DH5 2402MHz Ant

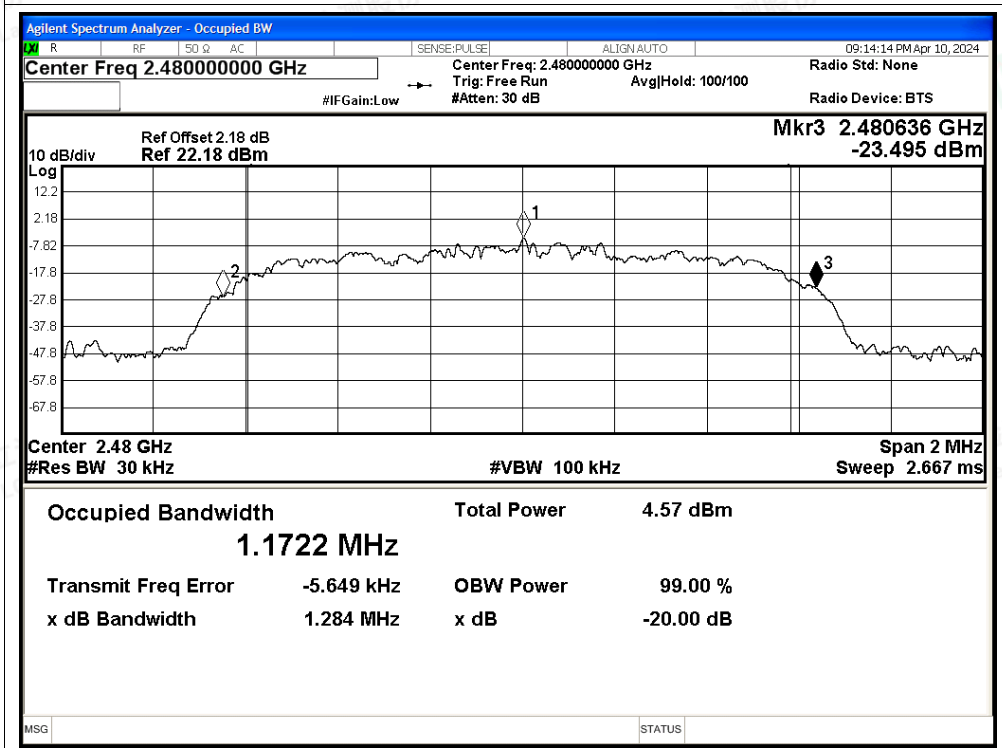




-20dB Bandwidth NVNT 2-DH5 2441MHz Ant

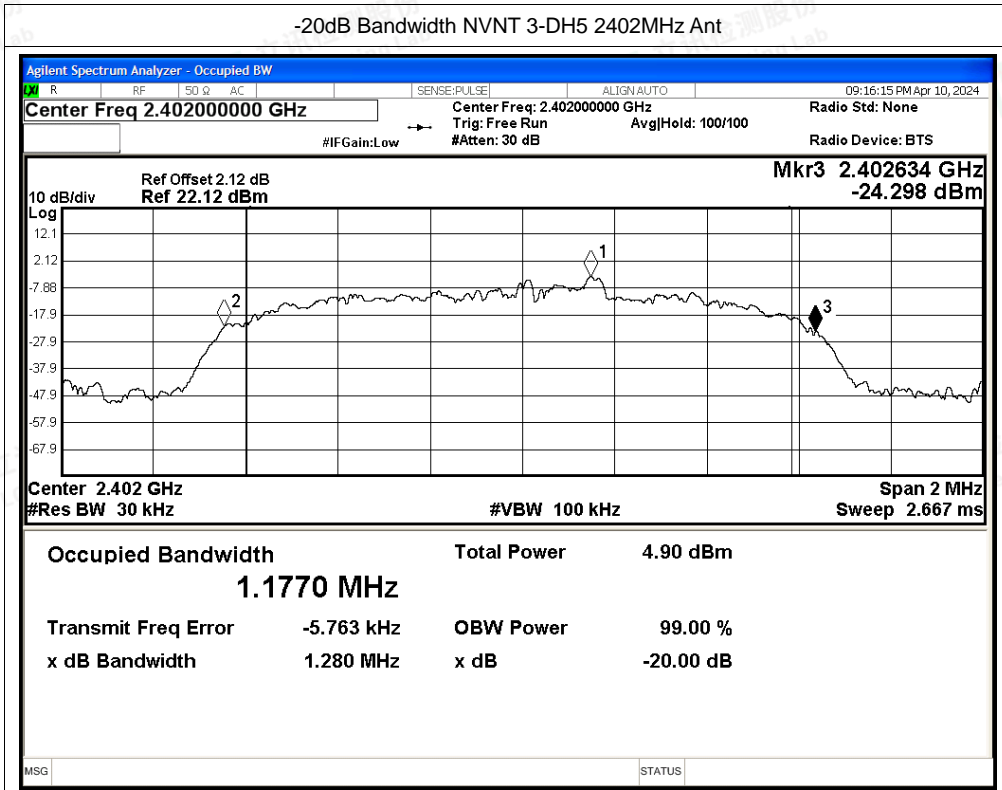


-20dB Bandwidth NVNT 2-DH5 2480MHz Ant

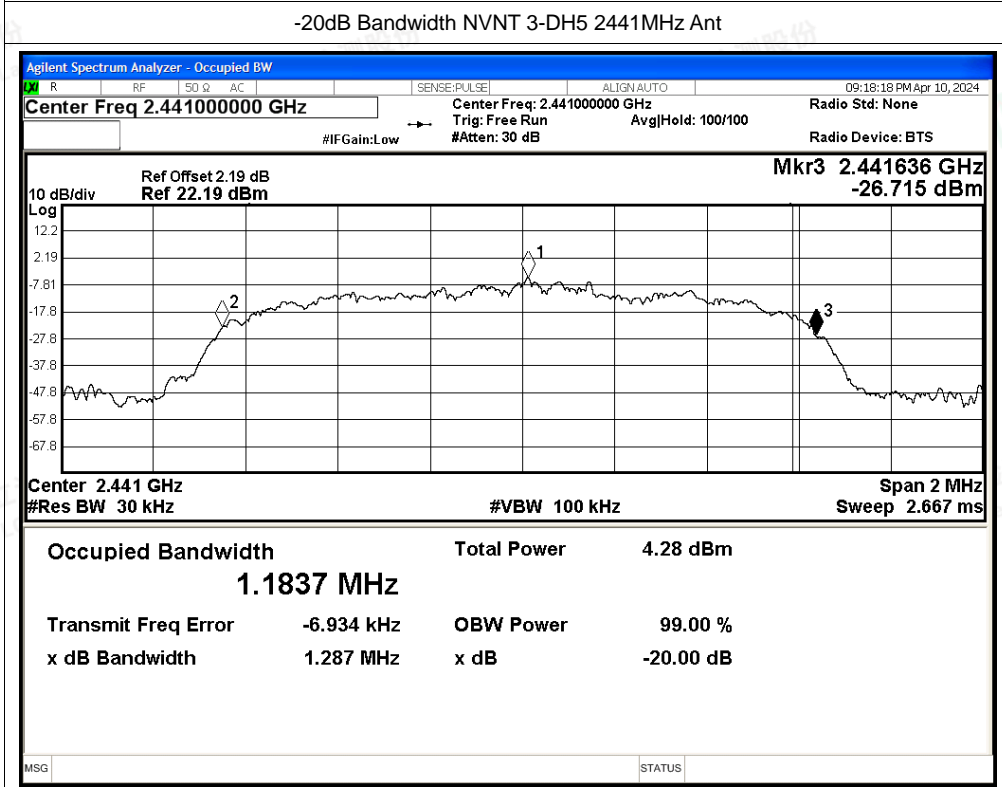


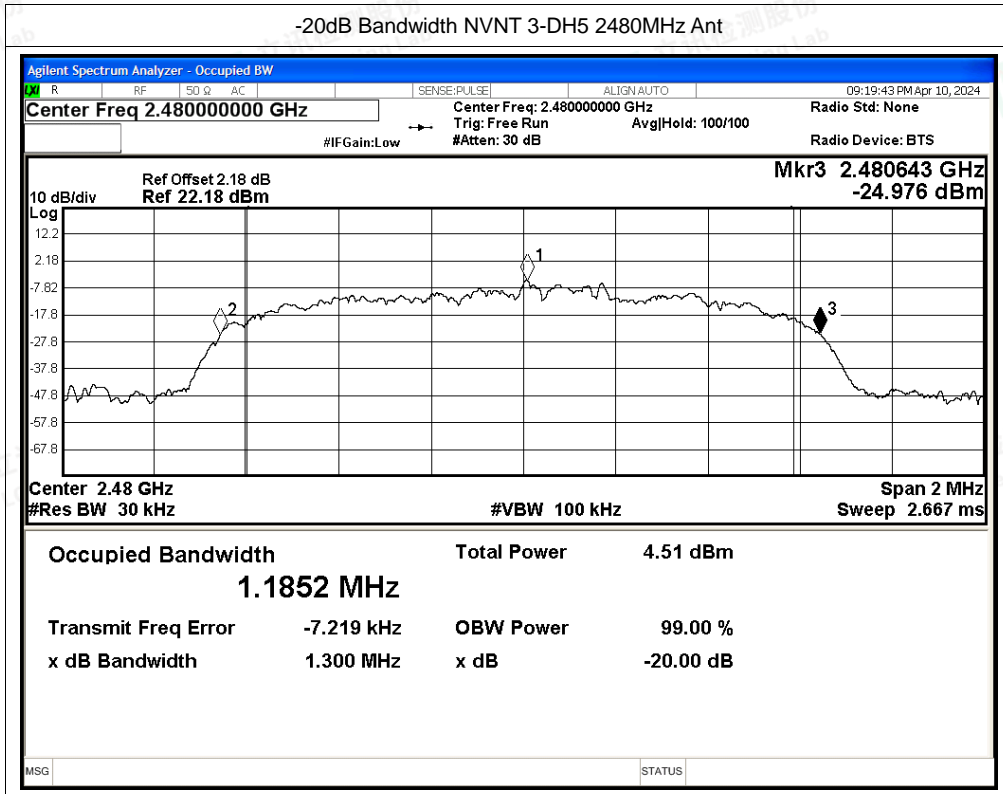


-20dB Bandwidth NVNT 3-DH5 2402MHz Ant



-20dB Bandwidth NVNT 3-DH5 2441MHz Ant







## A.2 Maximum Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH5	2402	Ant	0.86	21	Pass
NVNT	1-DH5	2441	Ant	0.39	21	Pass
NVNT	1-DH5	2480	Ant	0.17	21	Pass
NVNT	2-DH5	2402	Ant	-0.08	21	Pass
NVNT	2-DH5	2441	Ant	0.23	21	Pass
NVNT	2-DH5	2480	Ant	-0.46	21	Pass
NVNT	3-DH5	2402	Ant	-0.24	21	Pass
NVNT	3-DH5	2441	Ant	-0.04	21	Pass
NVNT	3-DH5	2480	Ant	0.01	21	Pass

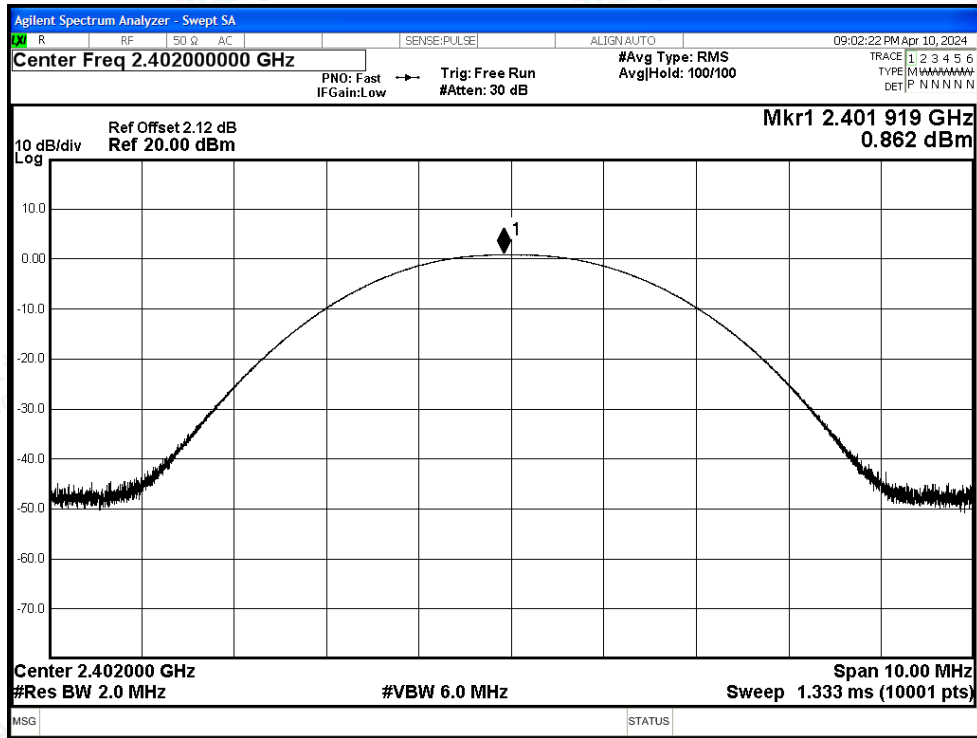




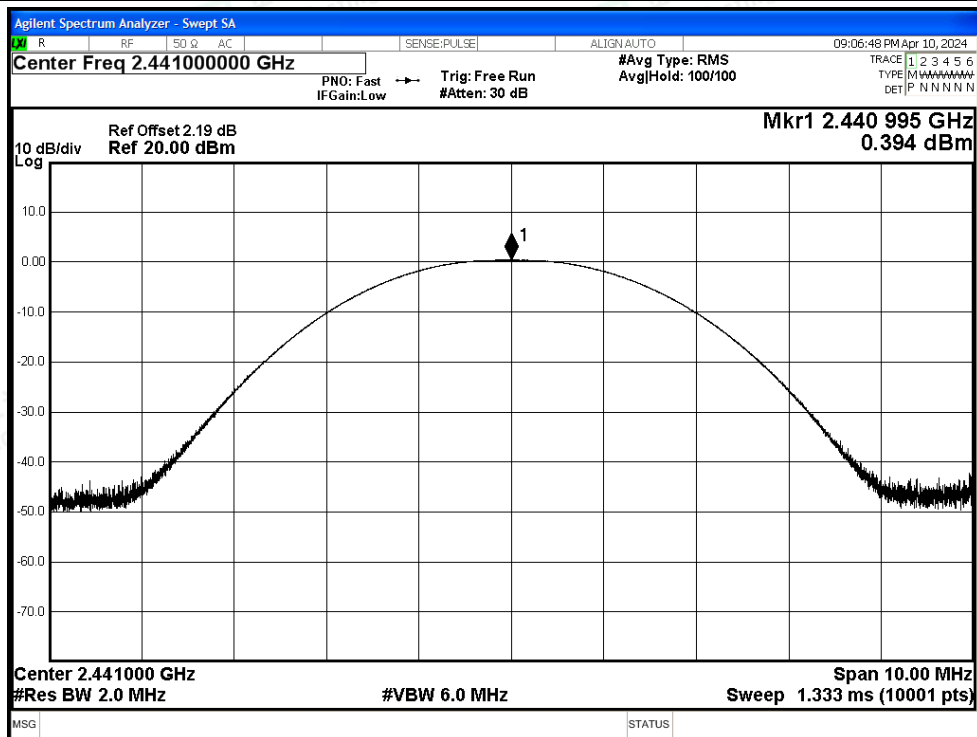


Test Graphs

Power NVNT 1-DH5 2402MHz Ant

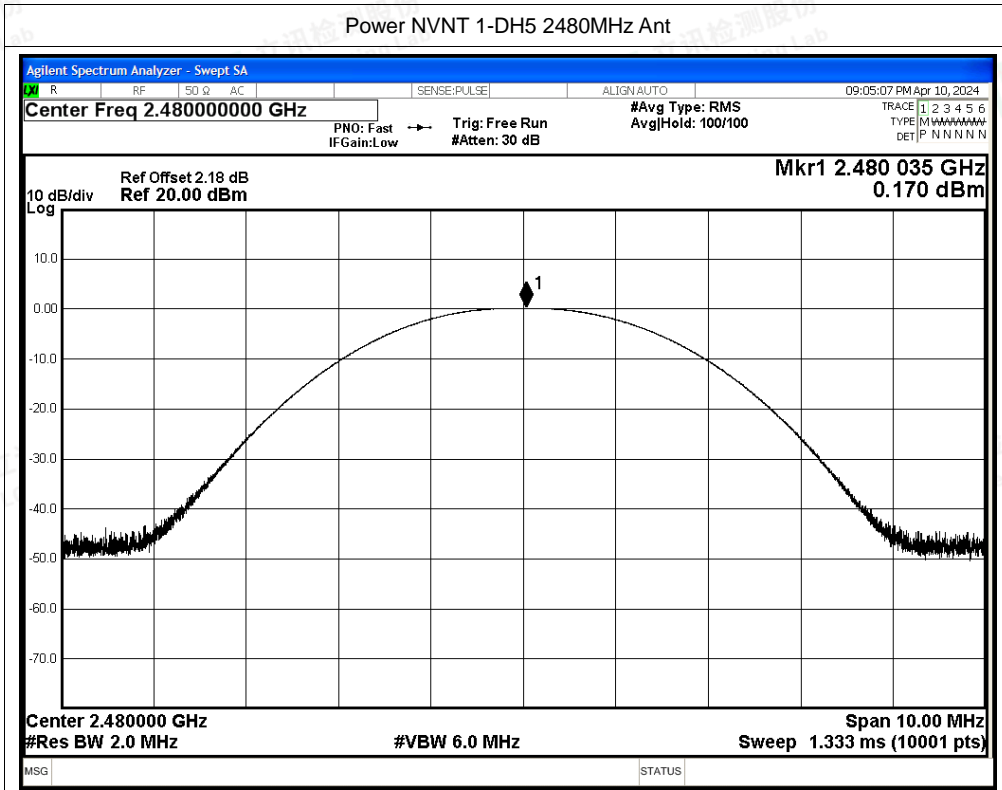


Power NVNT 1-DH5 2441MHz Ant

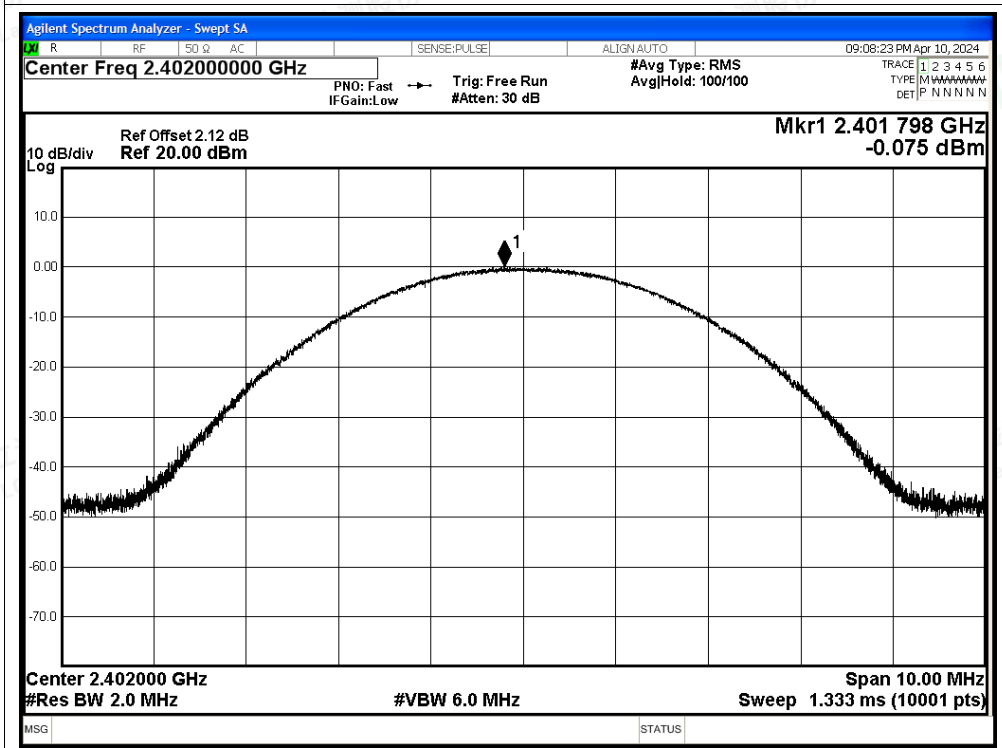




Power NVNT 1-DH5 2480MHz Ant

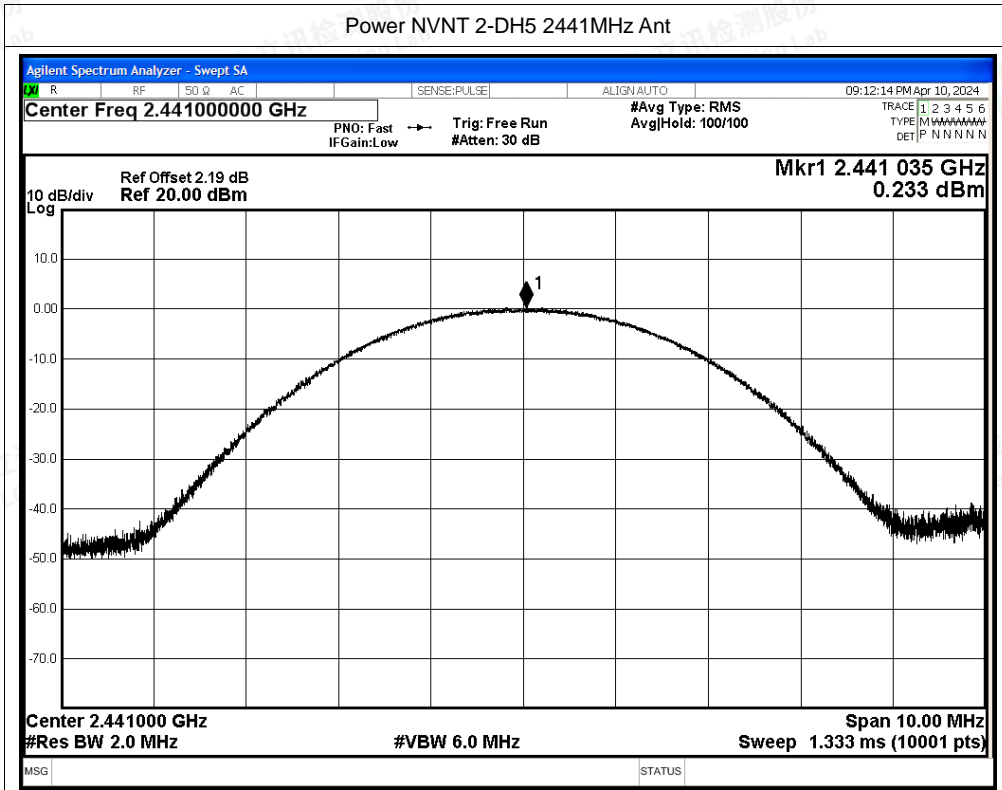


Power NVNT 2-DH5 2402MHz Ant

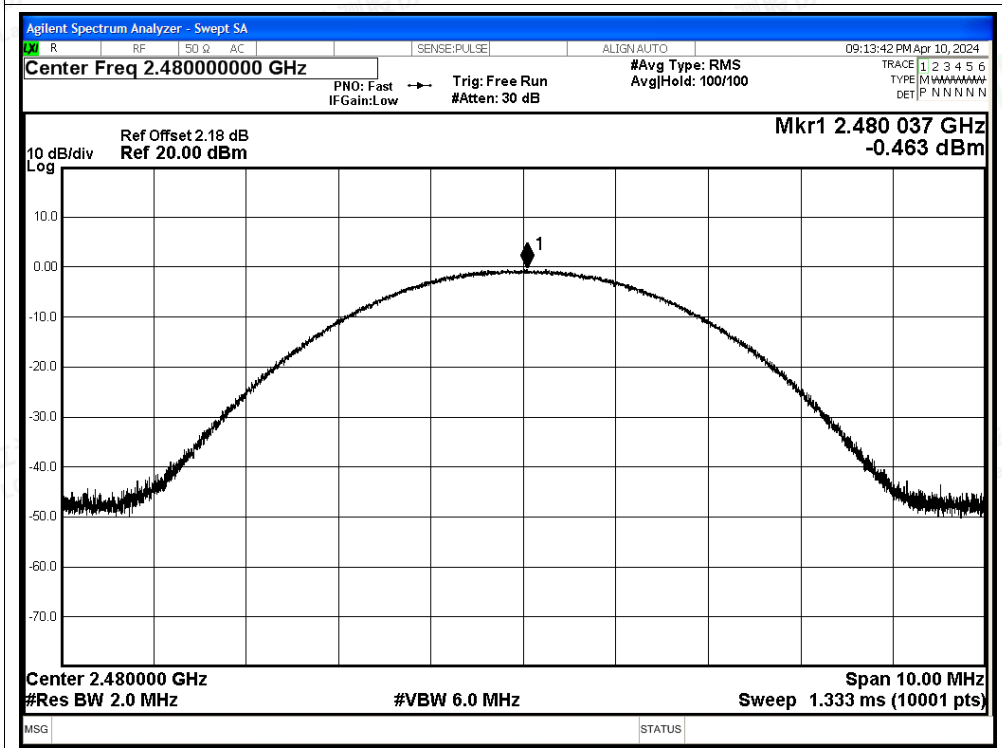




Power NVNT 2-DH5 2441MHz Ant

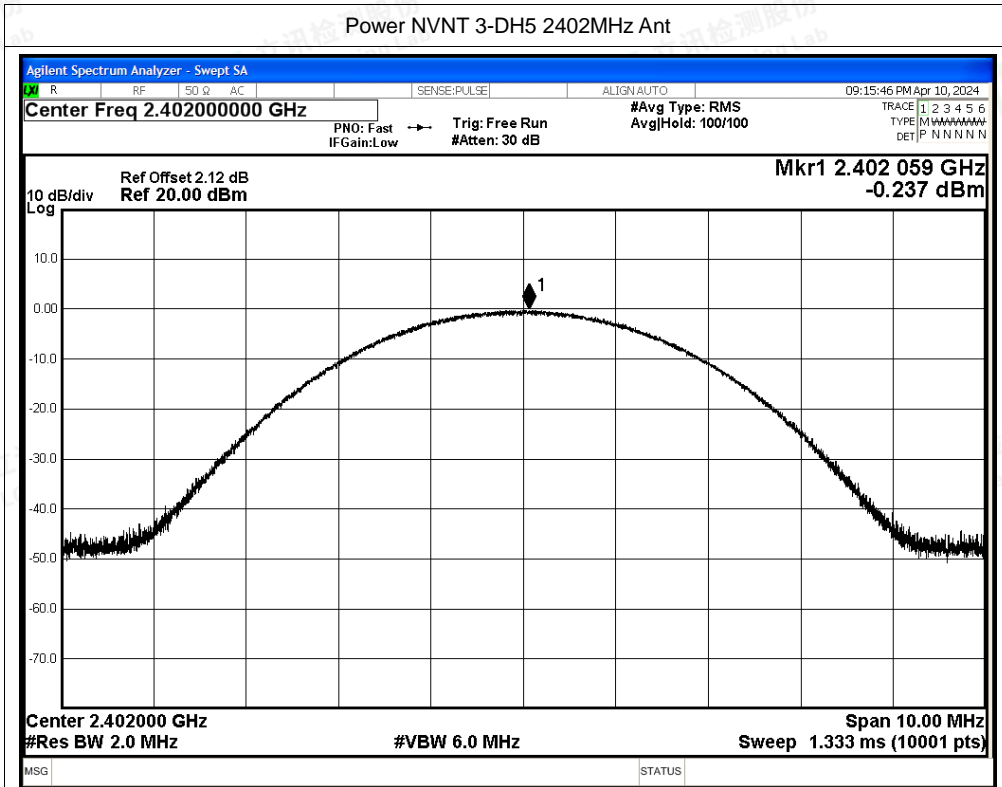


Power NVNT 2-DH5 2480MHz Ant

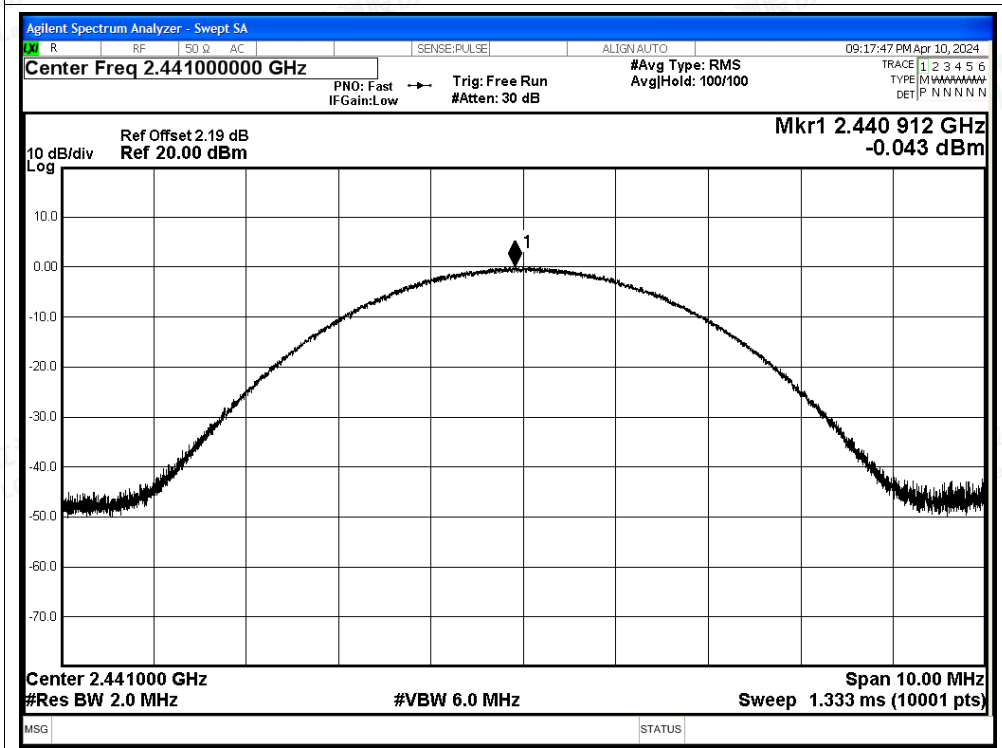


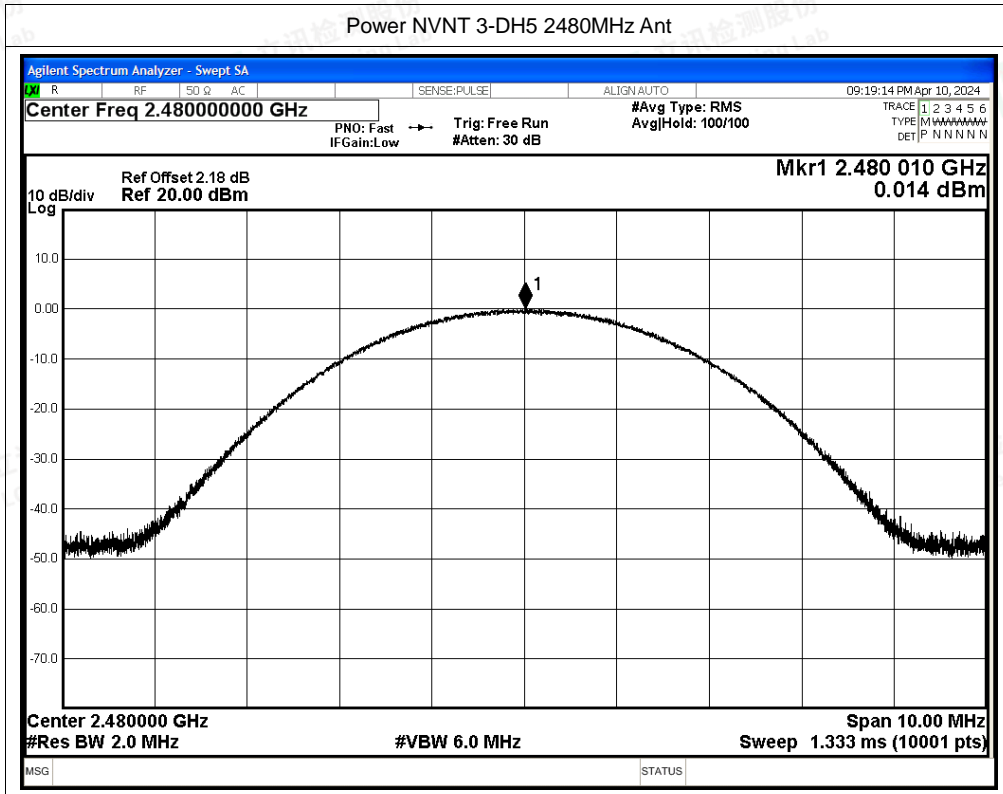


Power NVNT 3-DH5 2402MHz Ant



Power NVNT 3-DH5 2441MHz Ant







### A.3 Carrier Frequencies Separation

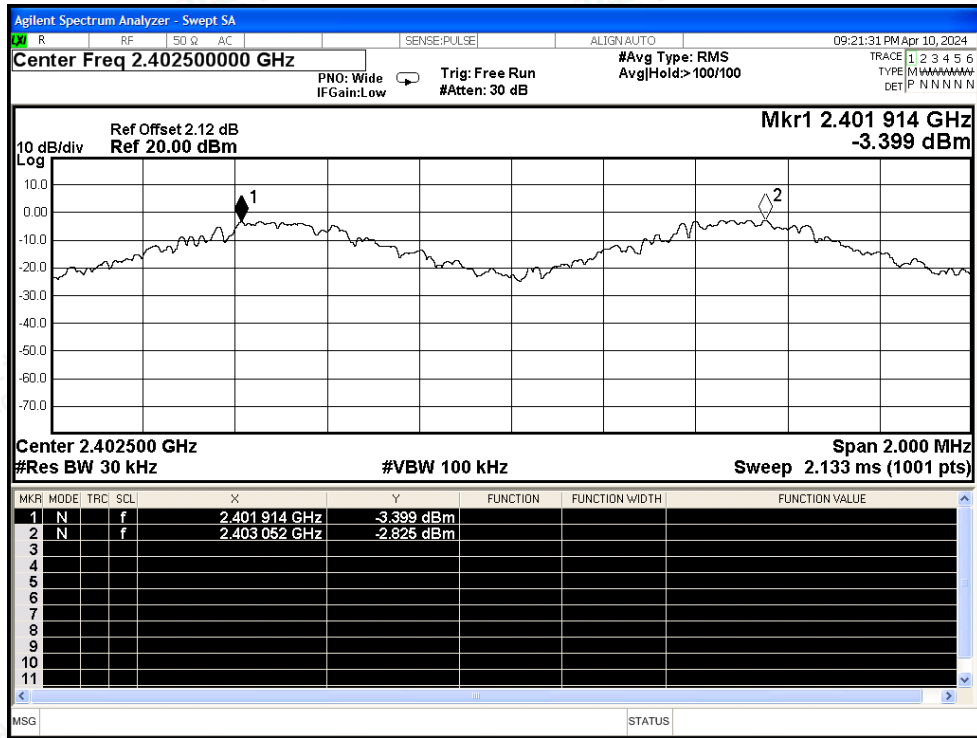
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH5	Ant	2401.914	2403.052	1.138	0.674	Pass
NVNT	2-DH5	Ant	2401.838	2403.156	1.318	0.876	Pass
NVNT	3-DH5	Ant	2401.846	2402.994	1.148	0.867	Pass



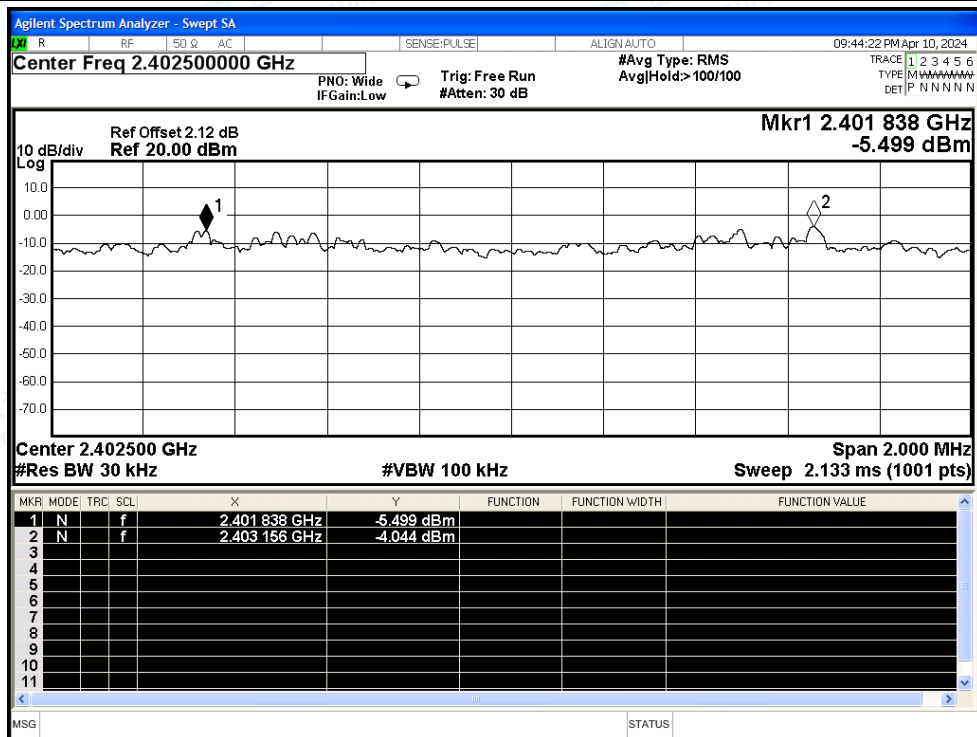


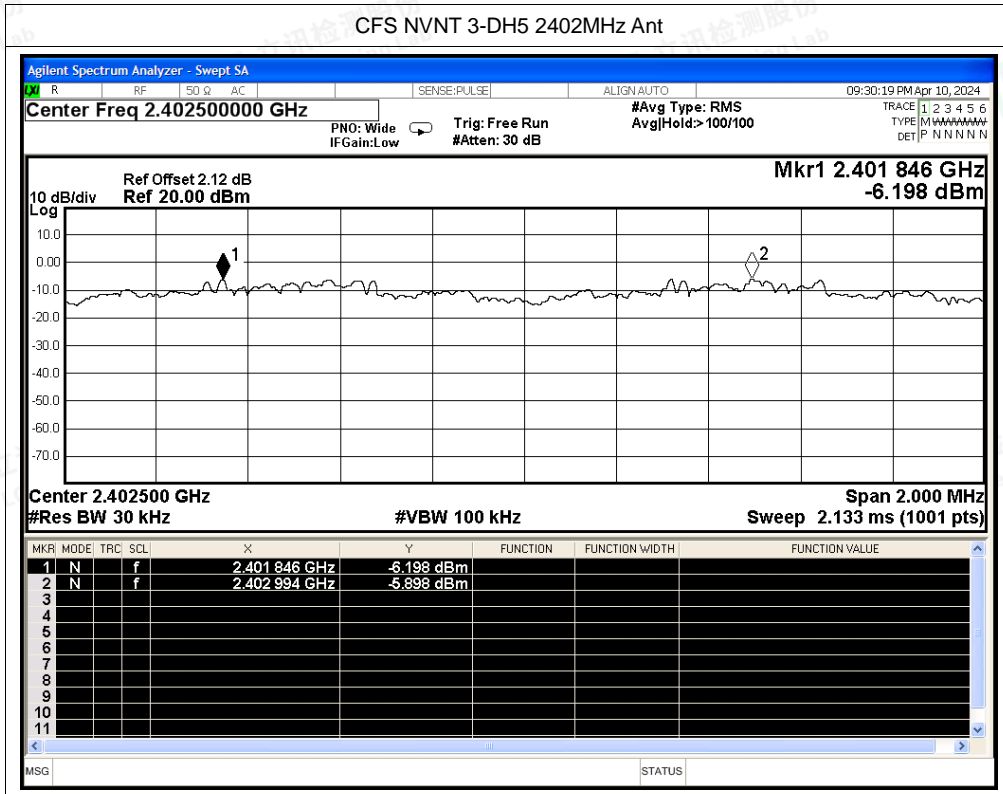
Test Graphs

CFS NVNT 1-DH5 2402MHz Ant



CFS NVNT 2-DH5 2402MHz Ant









### A.4 Dwell Time

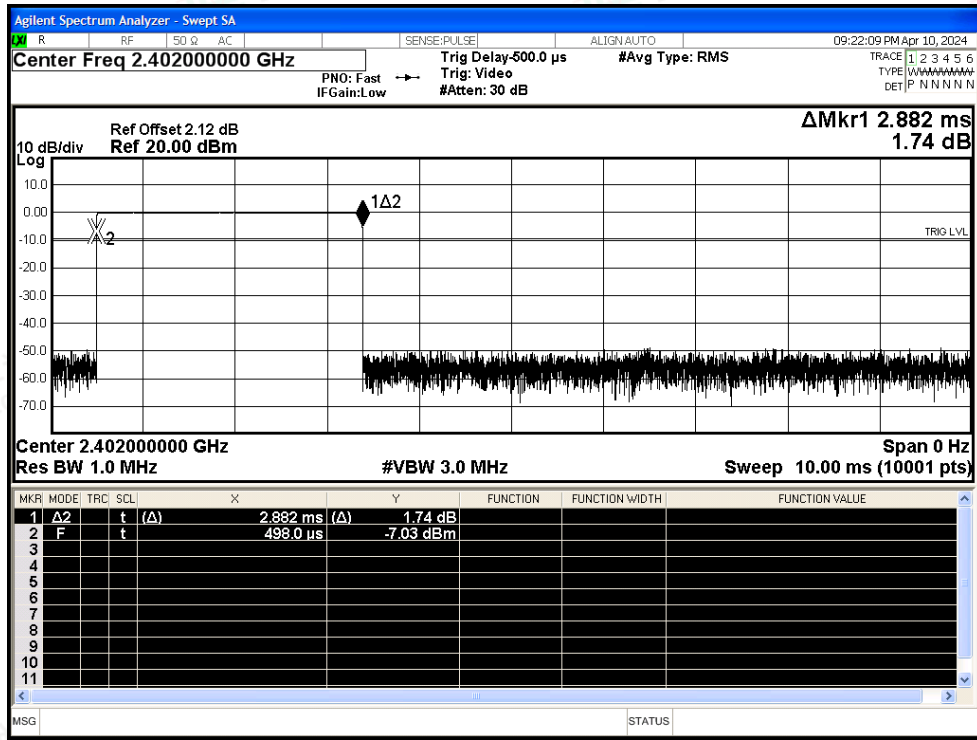
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Burst Count	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH5	2402	Ant	2.882	296.846	103	31600	400	Pass
NVNT	2-DH5	2402	Ant	2.885	314.465	109	31600	400	Pass
NVNT	3-DH5	2402	Ant	2.887	291.587	101	31600	400	Pass



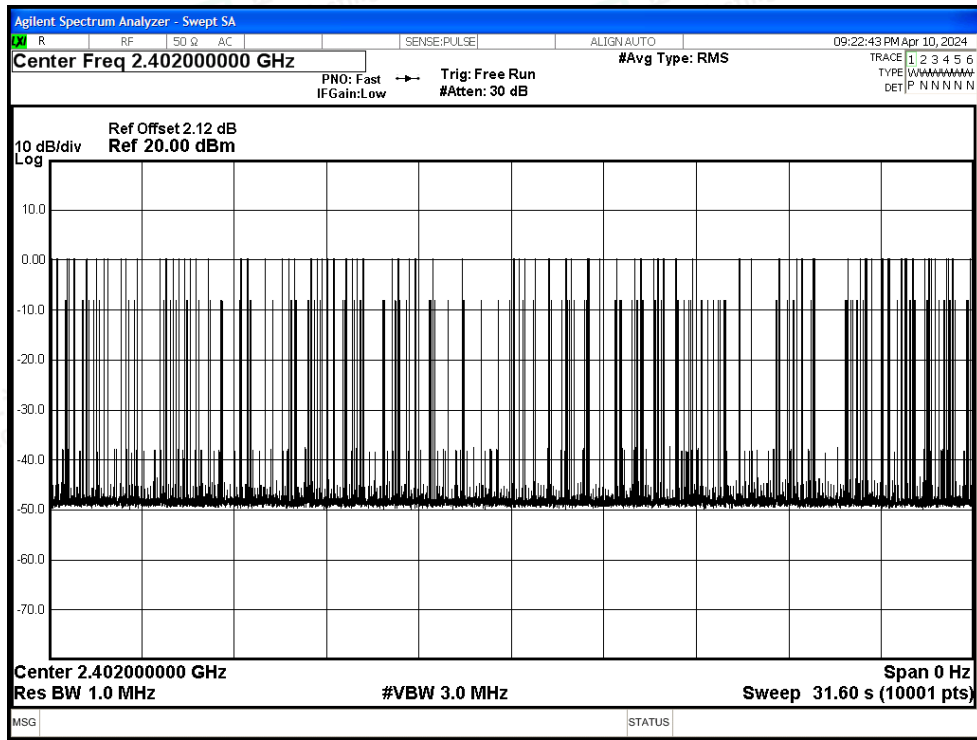


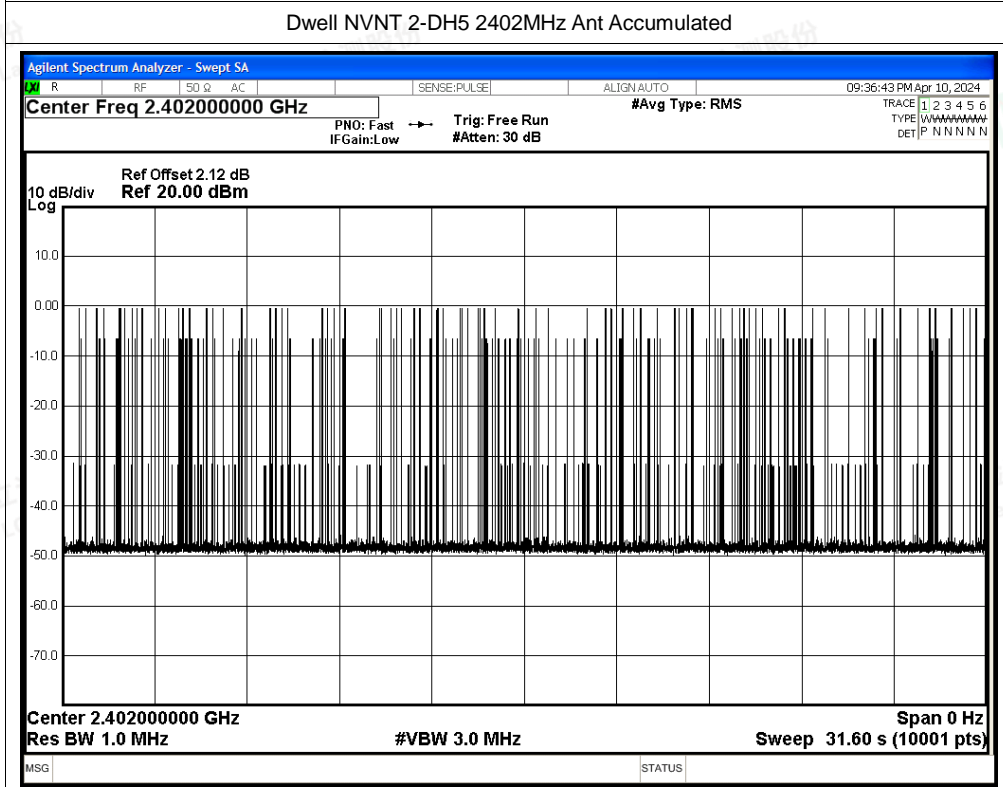
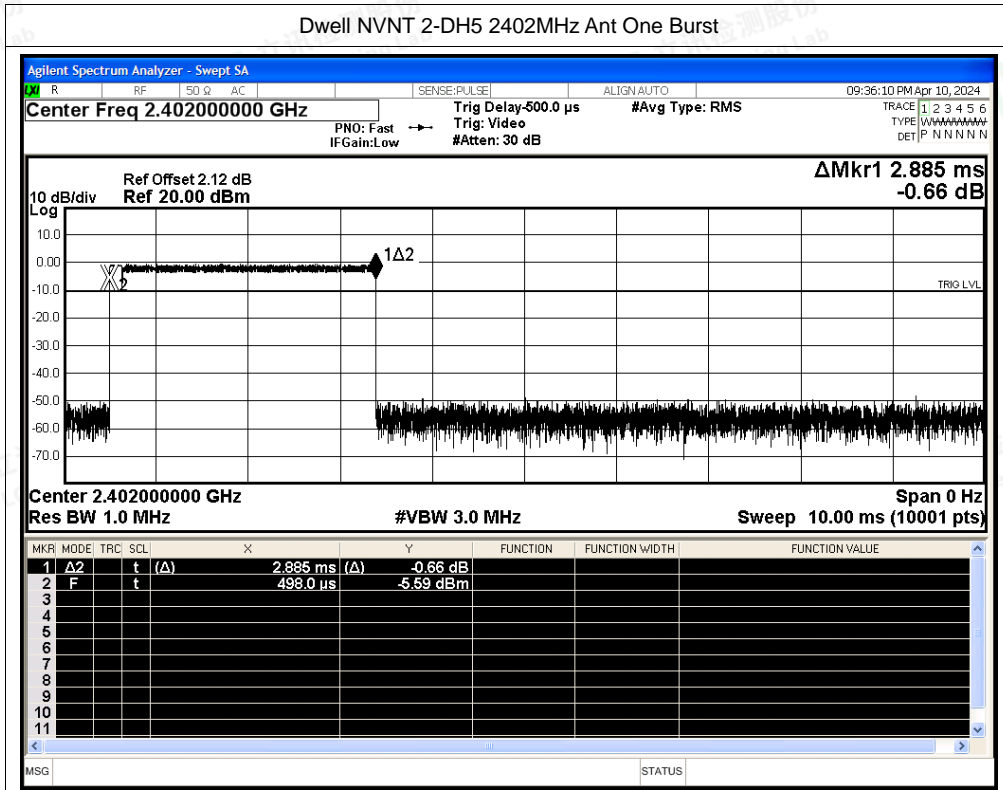
Test Graphs

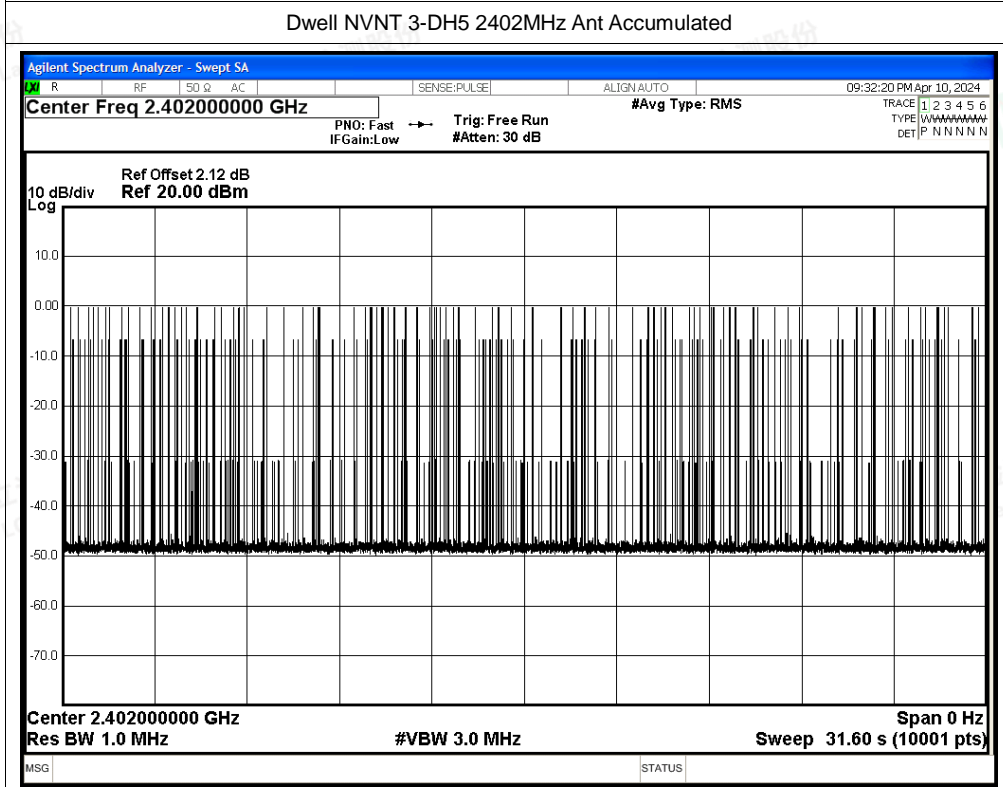
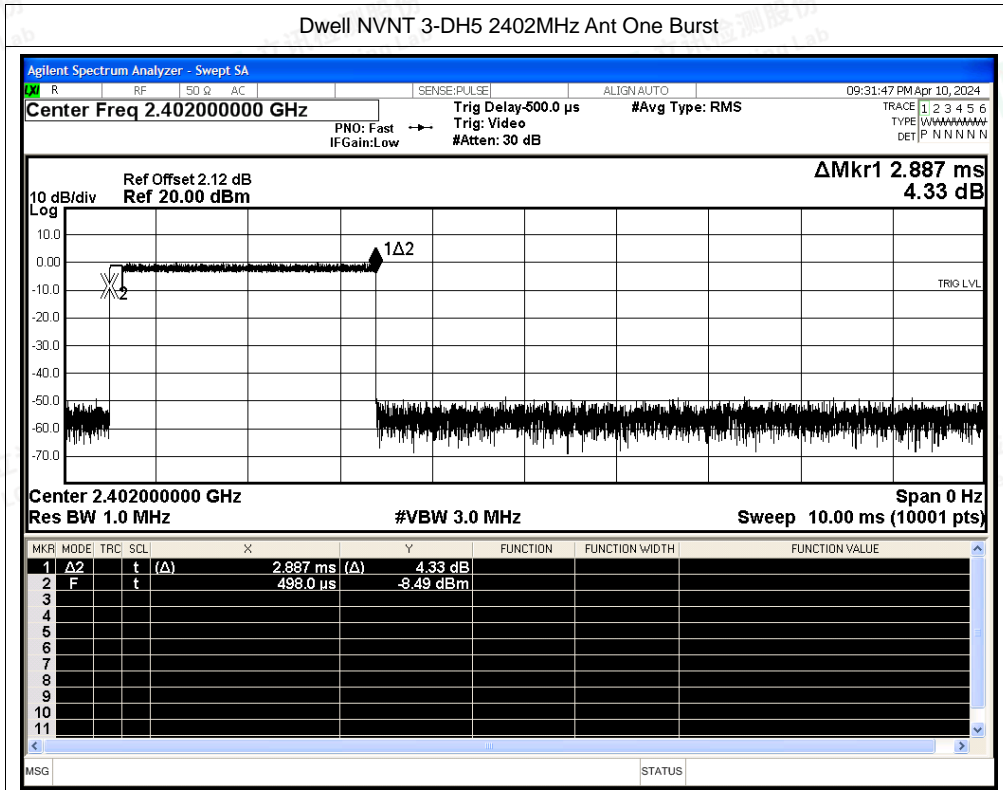
Dwell NVNT 1-DH5 2402MHz Ant One Burst



Dwell NVNT 1-DH5 2402MHz Ant Accumulated









## A.5 Number of Hopping Channel

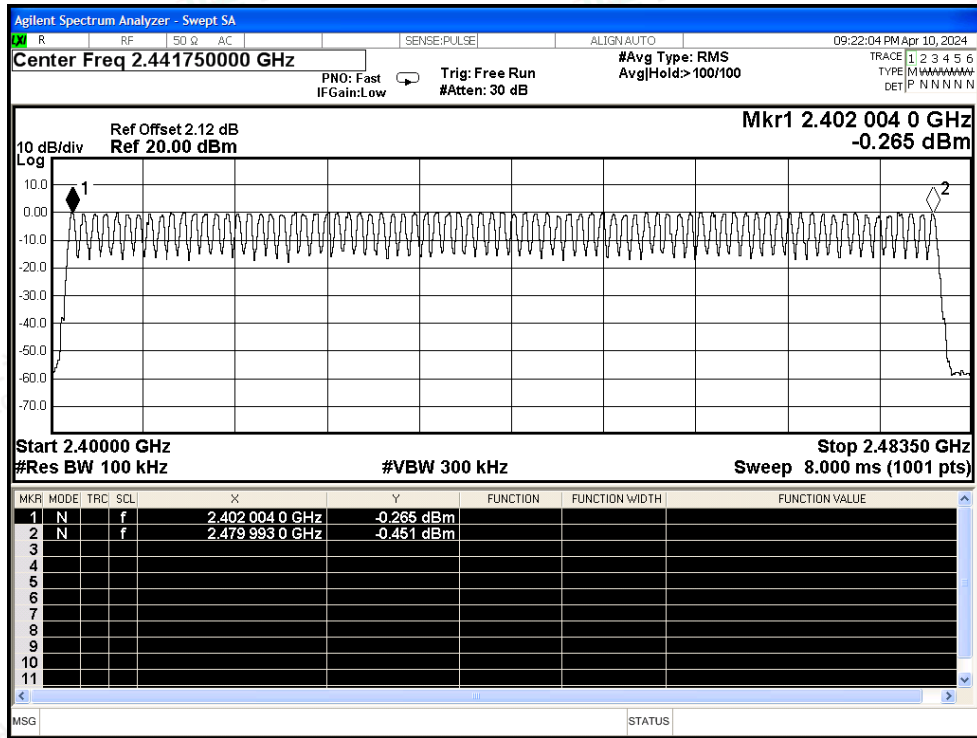
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH5	Ant	79	15	Pass
NVNT	2-DH5	Ant	79	15	Pass
NVNT	3-DH5	Ant	79	15	Pass



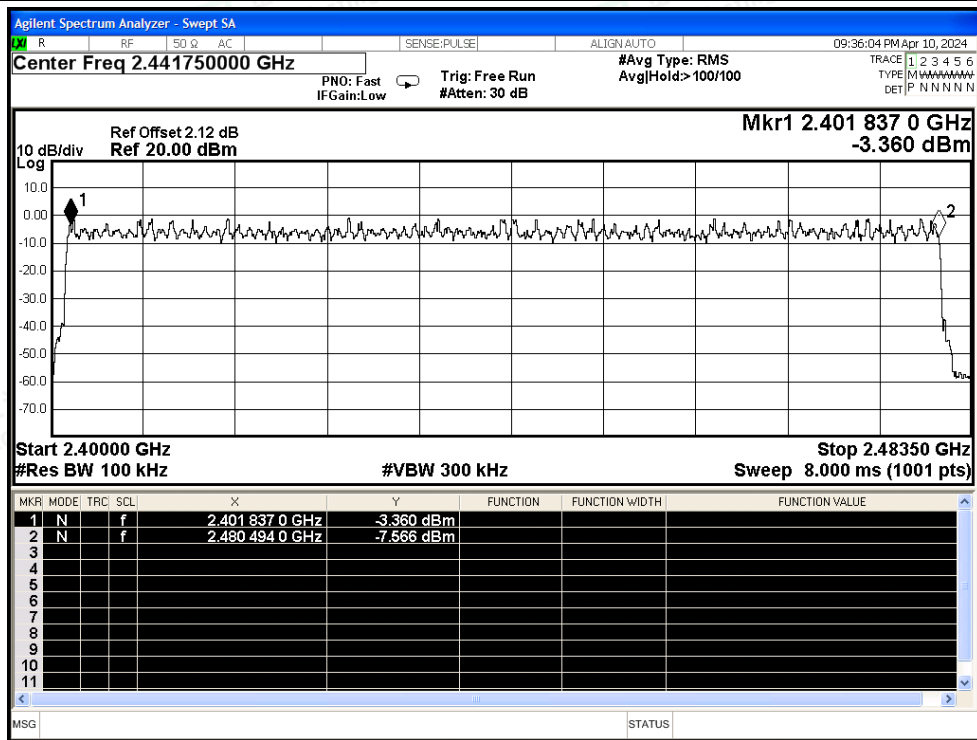


Test Graphs

Hopping No. NVNT 1-DH5 2402MHz Ant

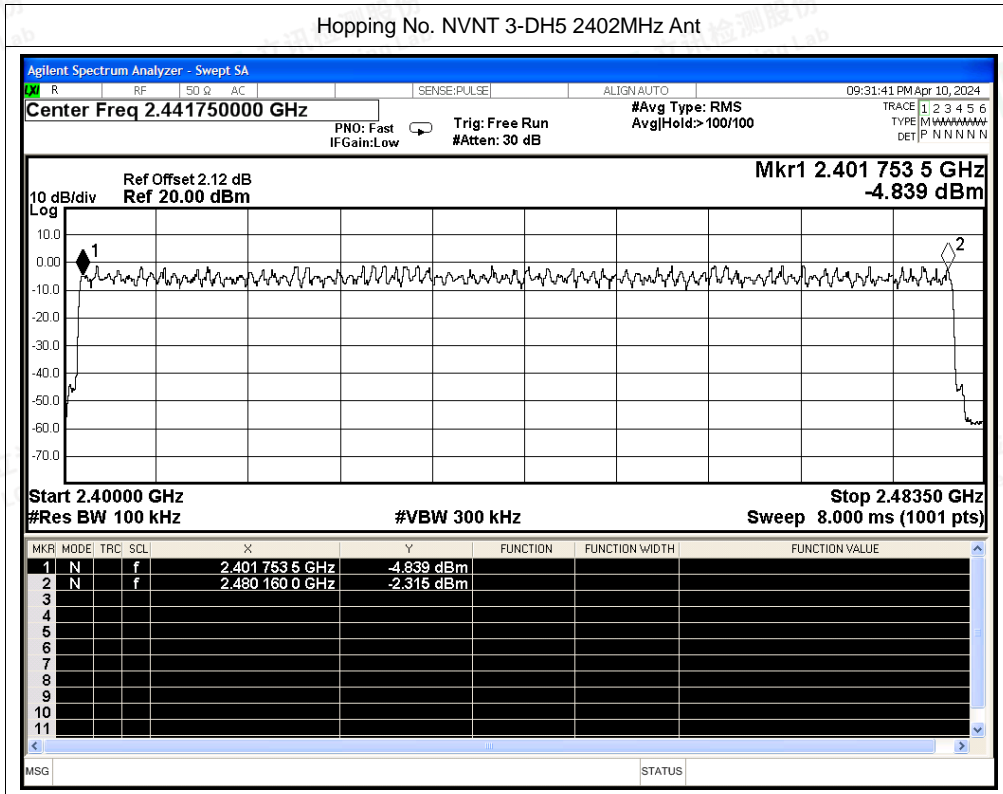


Hopping No. NVNT 2-DH5 2402MHz Ant





Hopping No. NVNT 3-DH5 2402MHz Ant





## A.6 Band Edge

Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant	No-Hopping	-57.04	-20	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	-56.72	-20	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	-53.63	-20	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	-53.68	-20	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	-54.44	-20	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	-54.83	-20	Pass

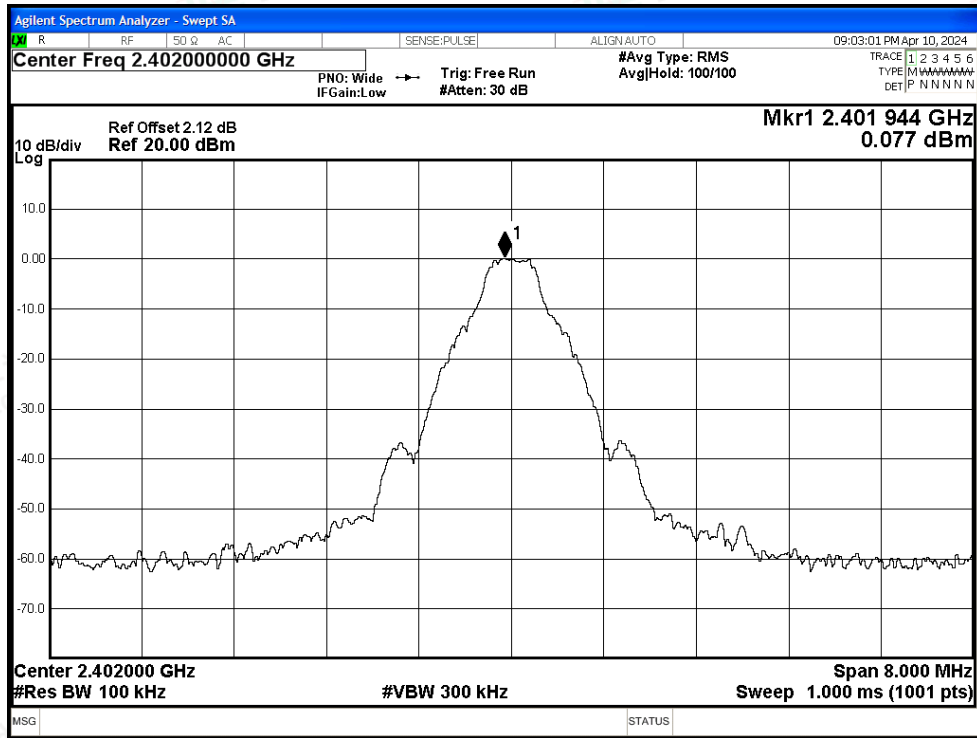




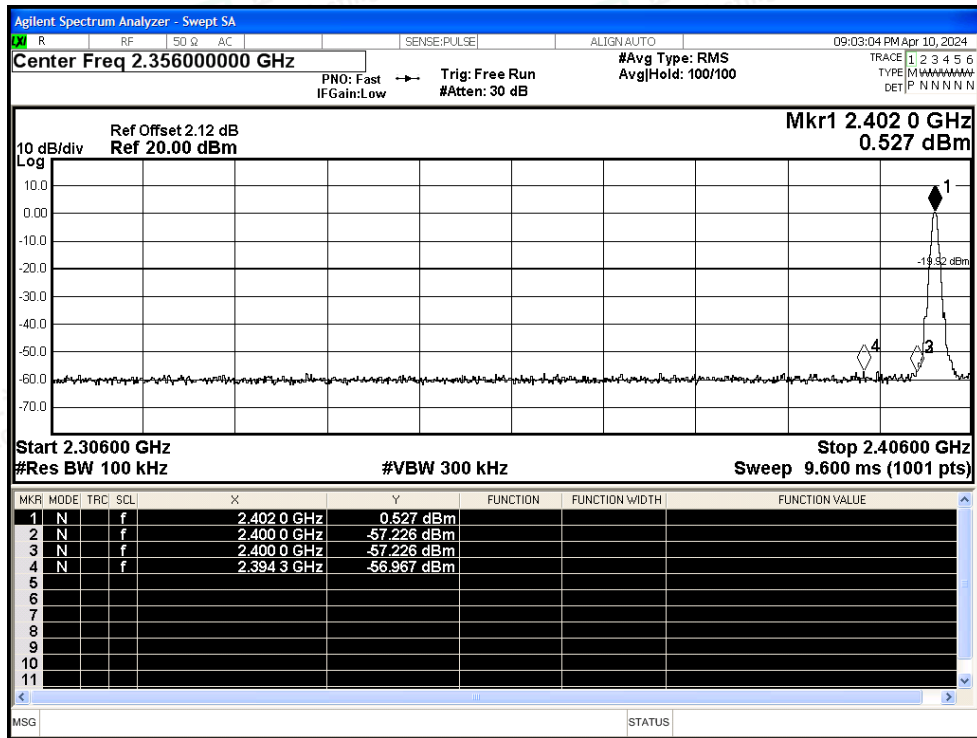


Test Graphs

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

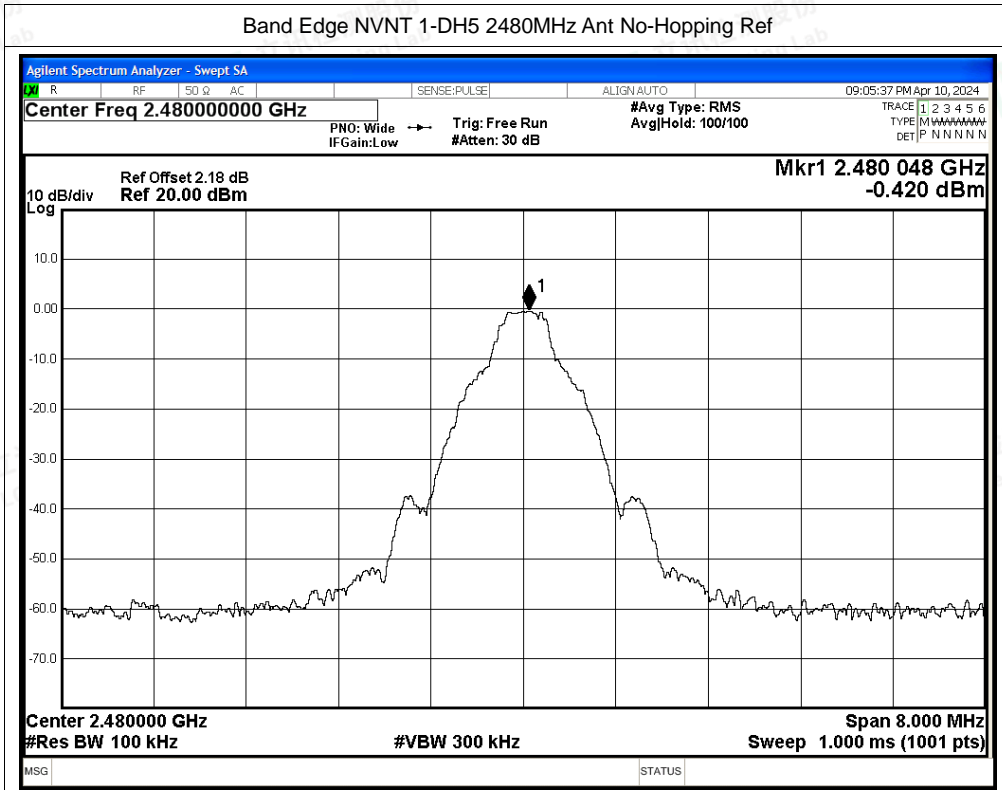


Band Edge NVNT 1-DH5 2402MHz Ant No-Hopping Emission

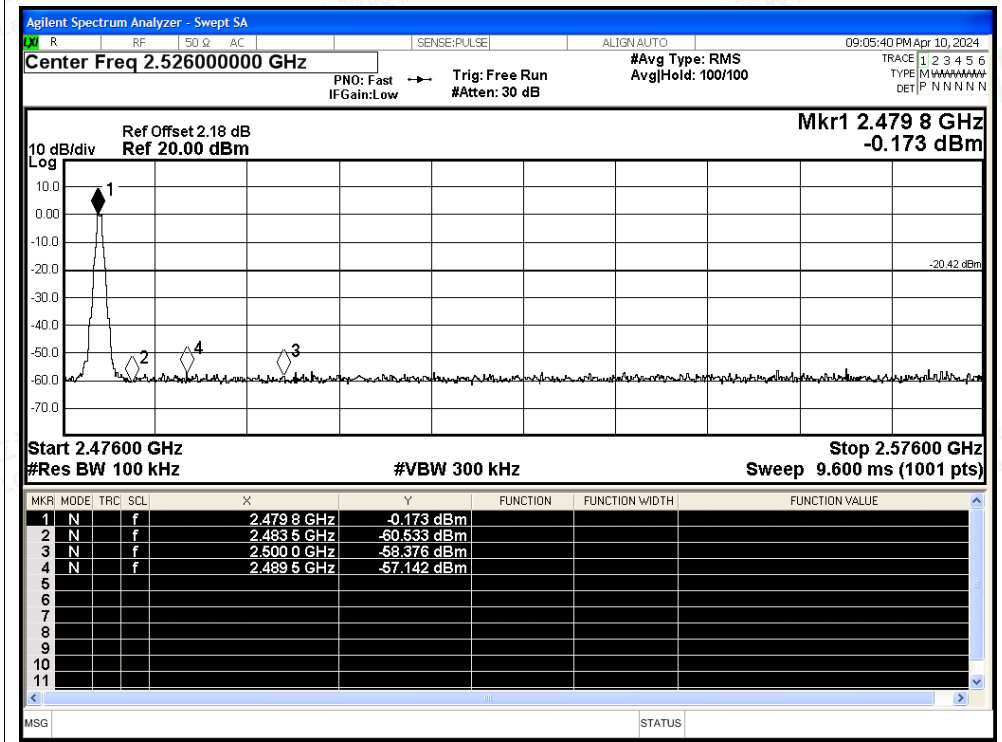




Band Edge NVNT 1-DH5 2480MHz Ant No-Hopping Ref

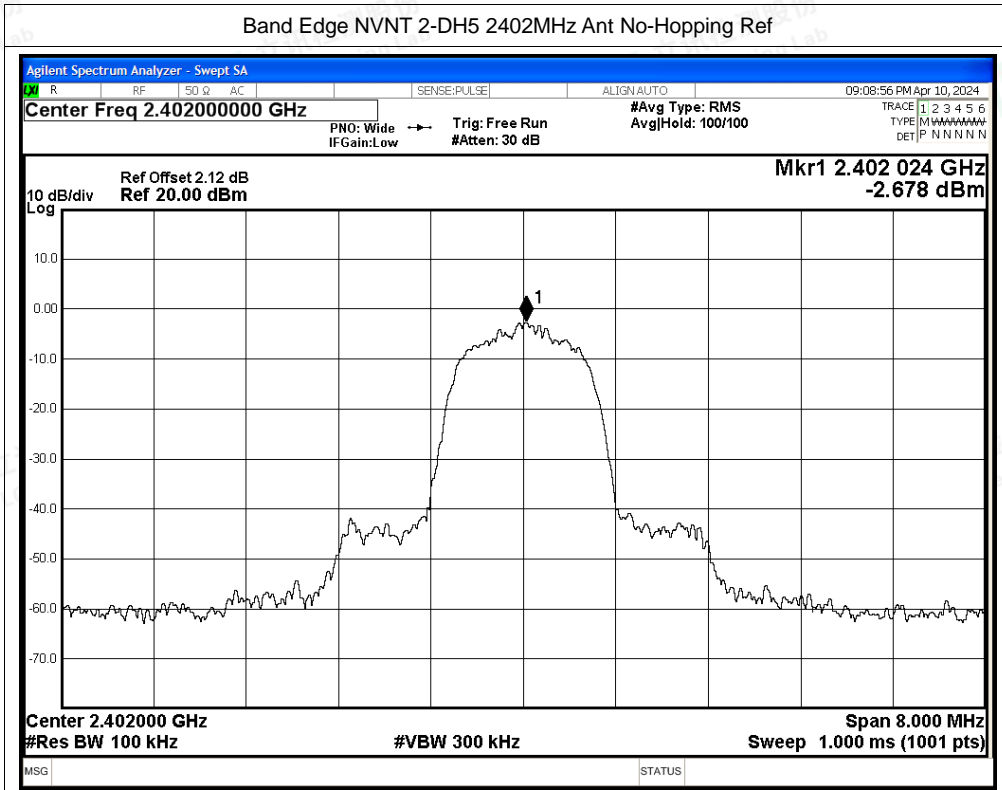


Band Edge NVNT 1-DH5 2480MHz Ant No-Hopping Emission

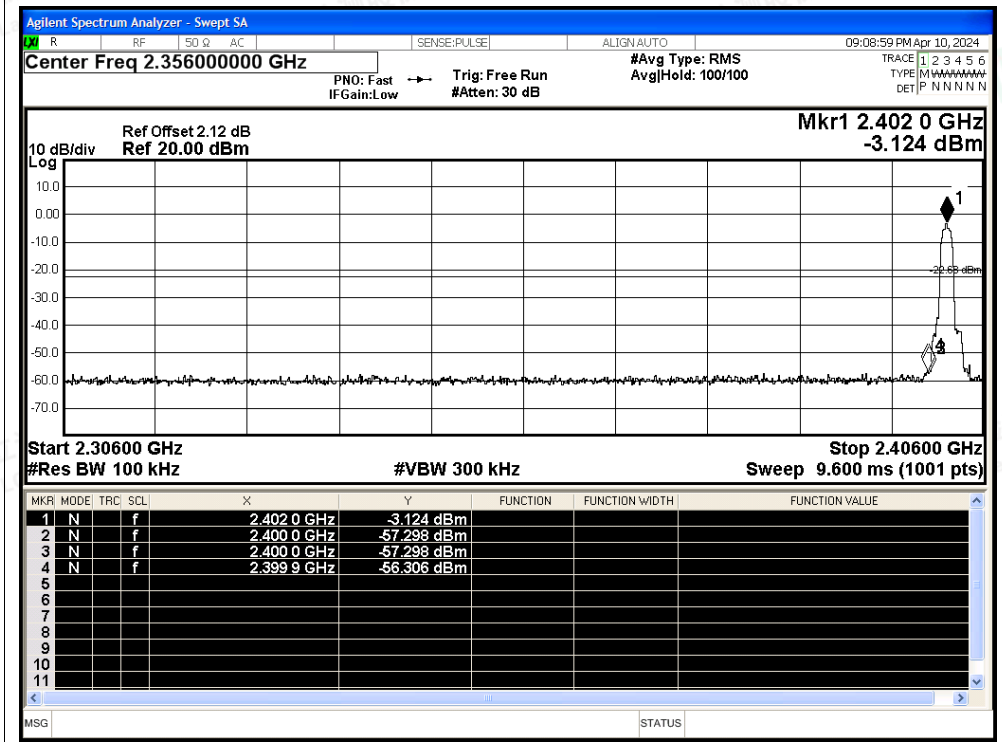




Band Edge NVNT 2-DH5 2402MHz Ant No-Hopping Ref

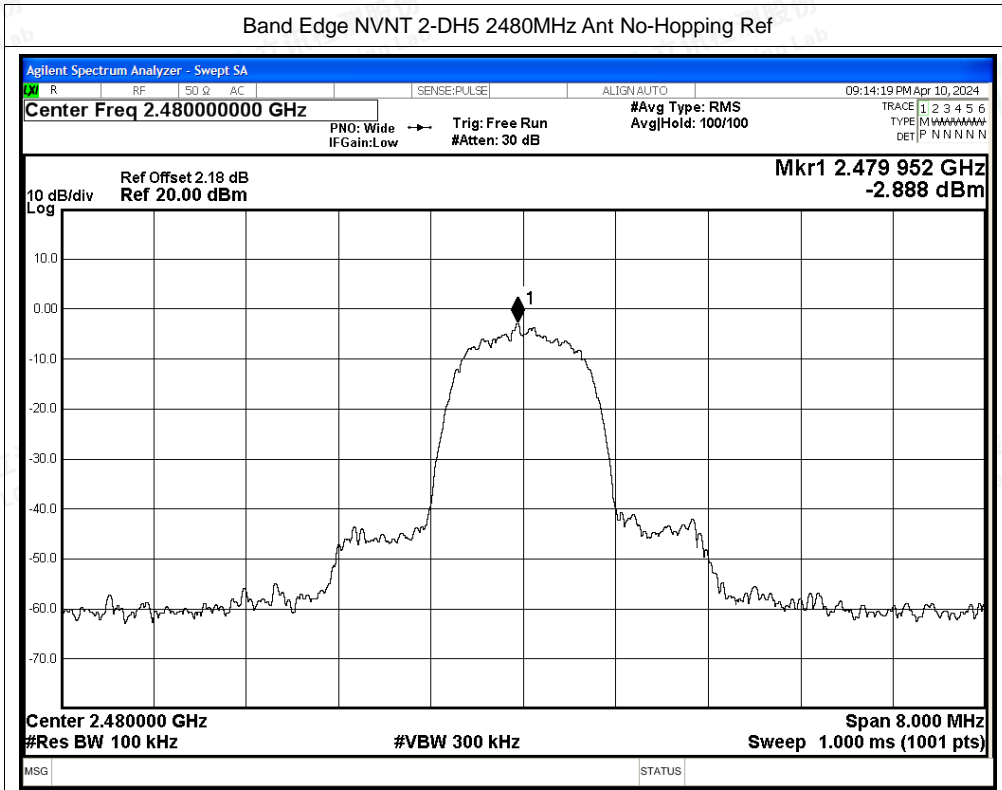


Band Edge NVNT 2-DH5 2402MHz Ant No-Hopping Emission

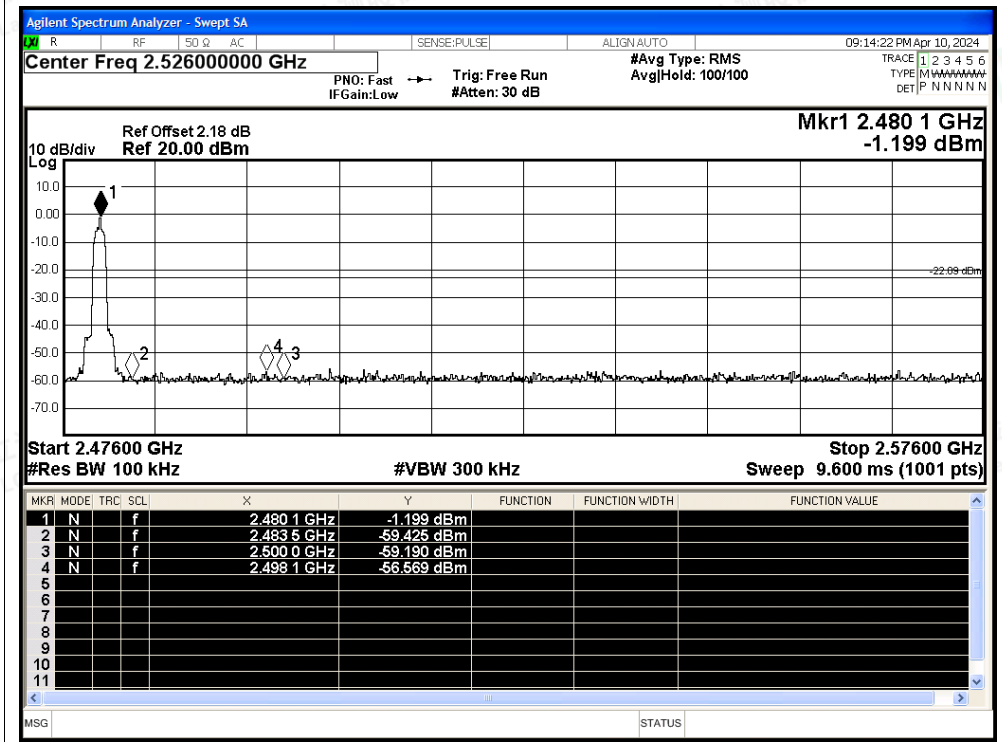




Band Edge NVNT 2-DH5 2480MHz Ant No-Hopping Ref

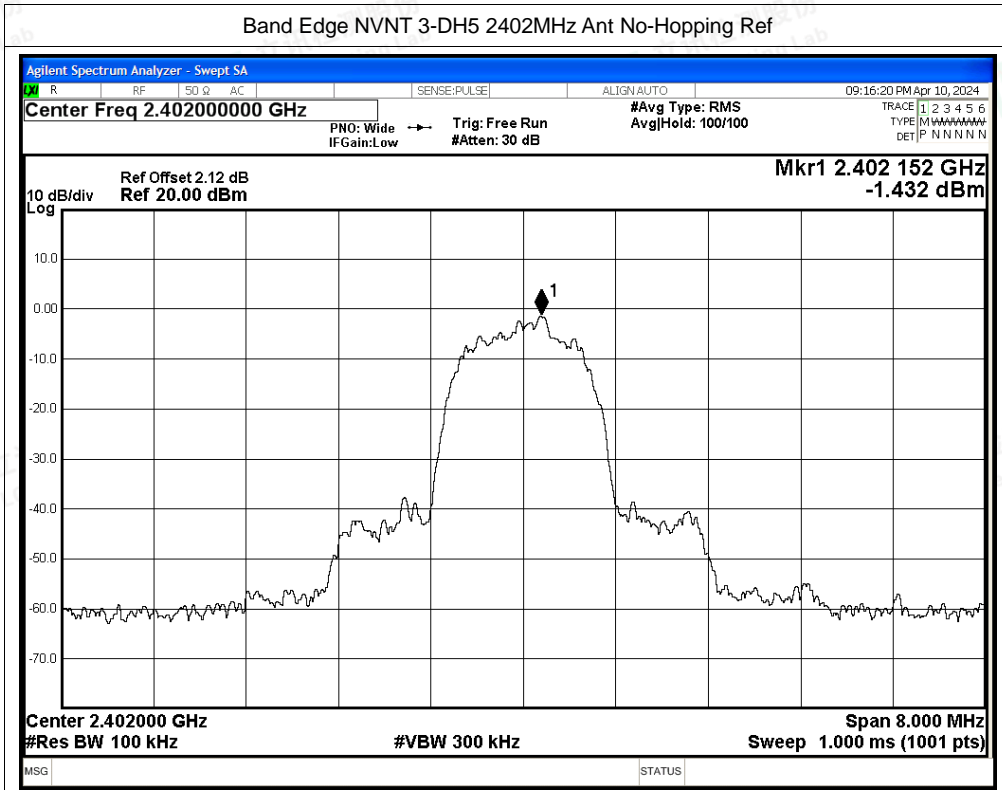


Band Edge NVNT 2-DH5 2480MHz Ant No-Hopping Emission

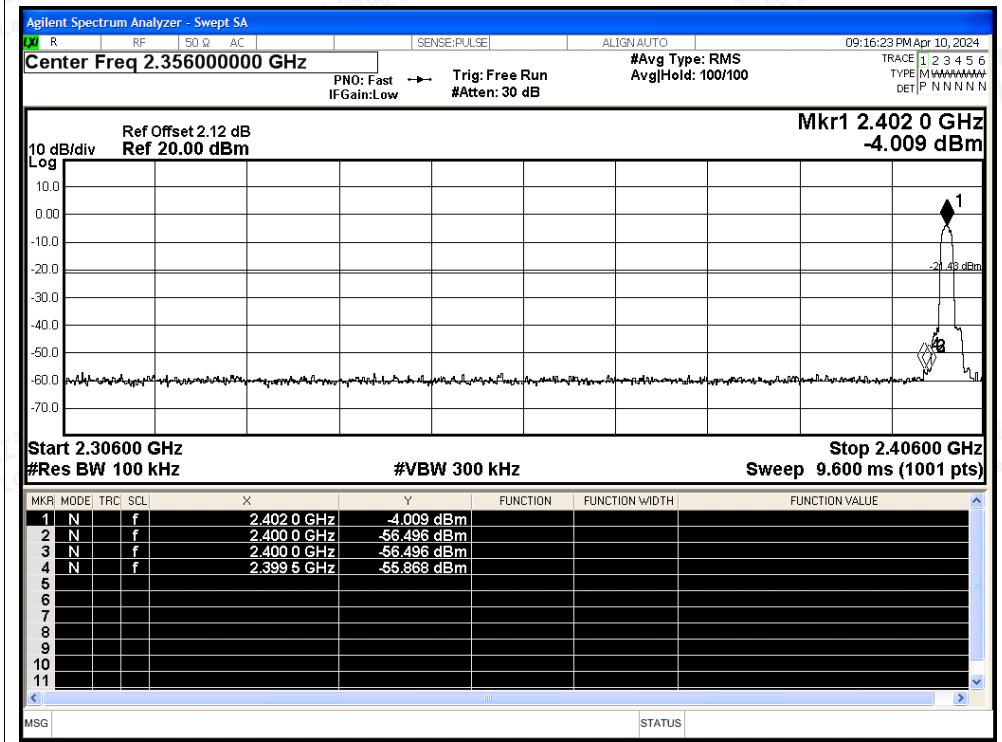




Band Edge NVNT 3-DH5 2402MHz Ant No-Hopping Ref

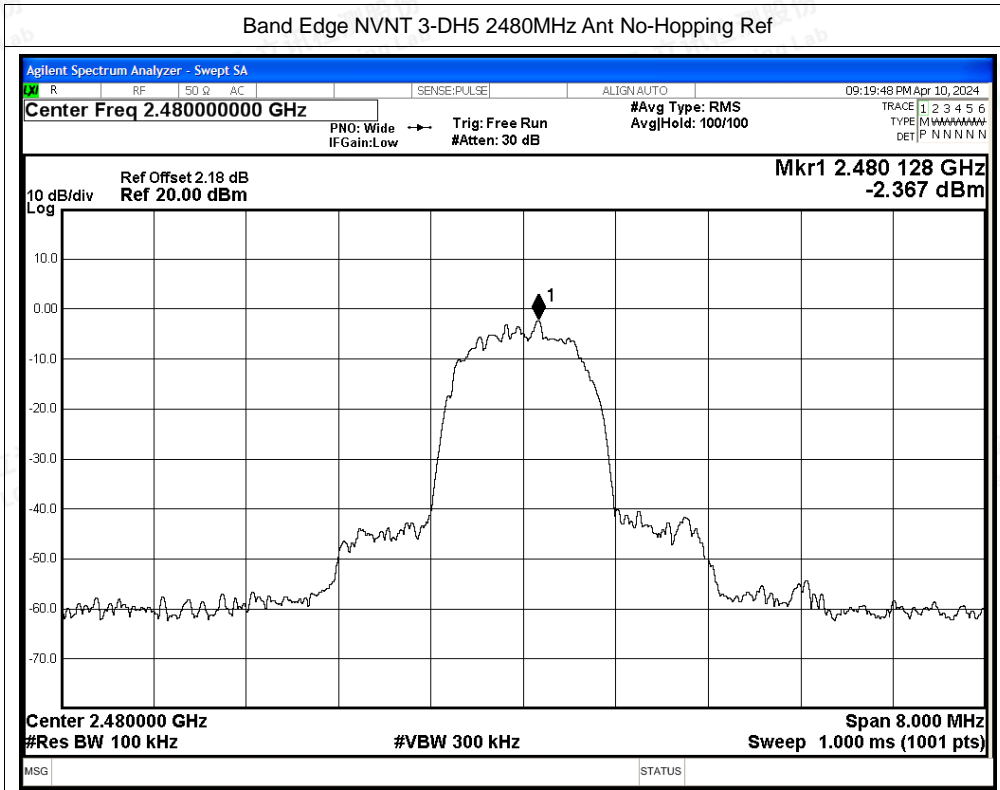


Band Edge NVNT 3-DH5 2402MHz Ant No-Hopping Emission

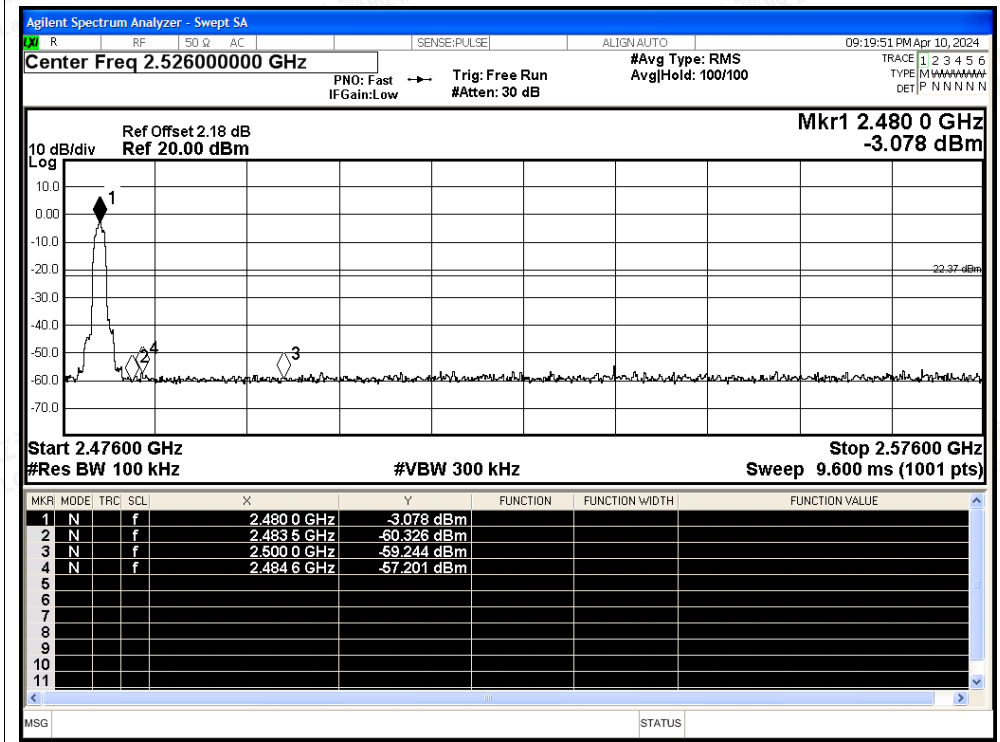




Band Edge NVNT 3-DH5 2480MHz Ant No-Hopping Ref



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





### (Hopping)

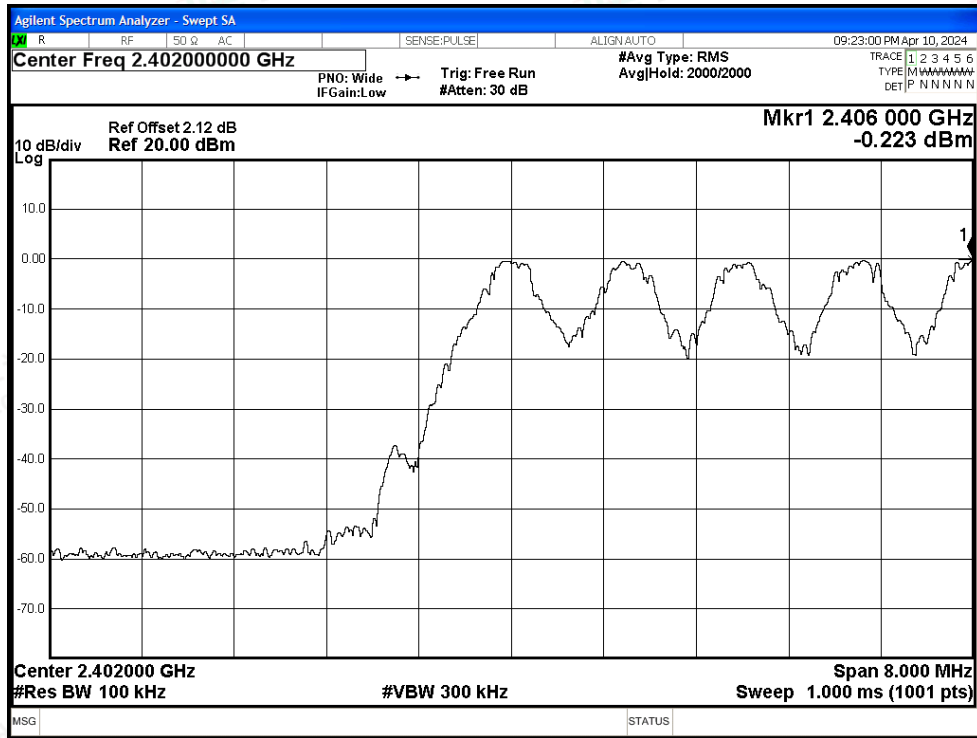
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant	Hopping	-56.16	-20	Pass
NVNT	1-DH5	2480	Ant	Hopping	-55.07	-20	Pass
NVNT	2-DH5	2402	Ant	Hopping	-54.37	-20	Pass
NVNT	2-DH5	2480	Ant	Hopping	-52.91	-20	Pass
NVNT	3-DH5	2402	Ant	Hopping	-53.79	-20	Pass
NVNT	3-DH5	2480	Ant	Hopping	-51.79	-20	Pass



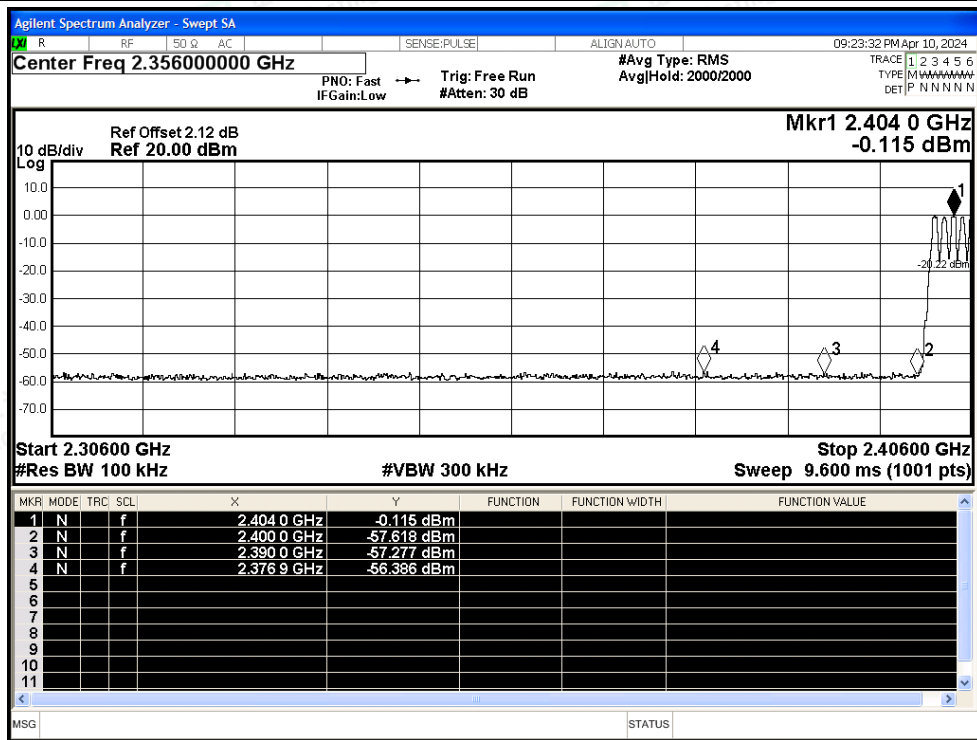


Test Graphs

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



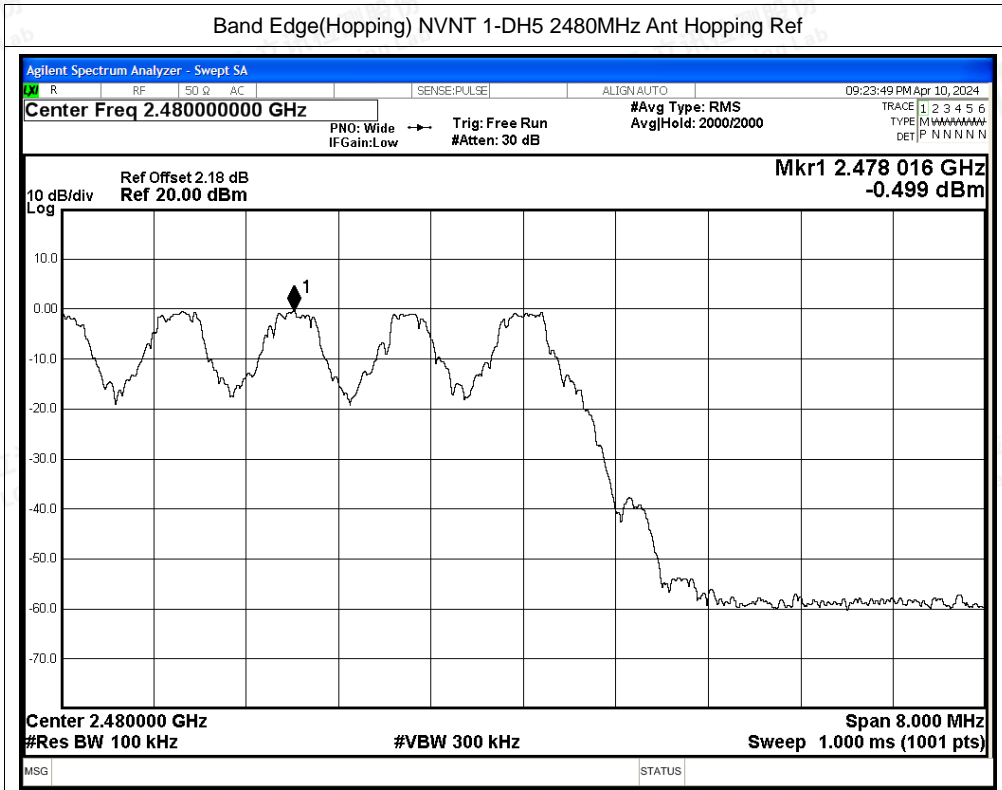
Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant Hopping Emission



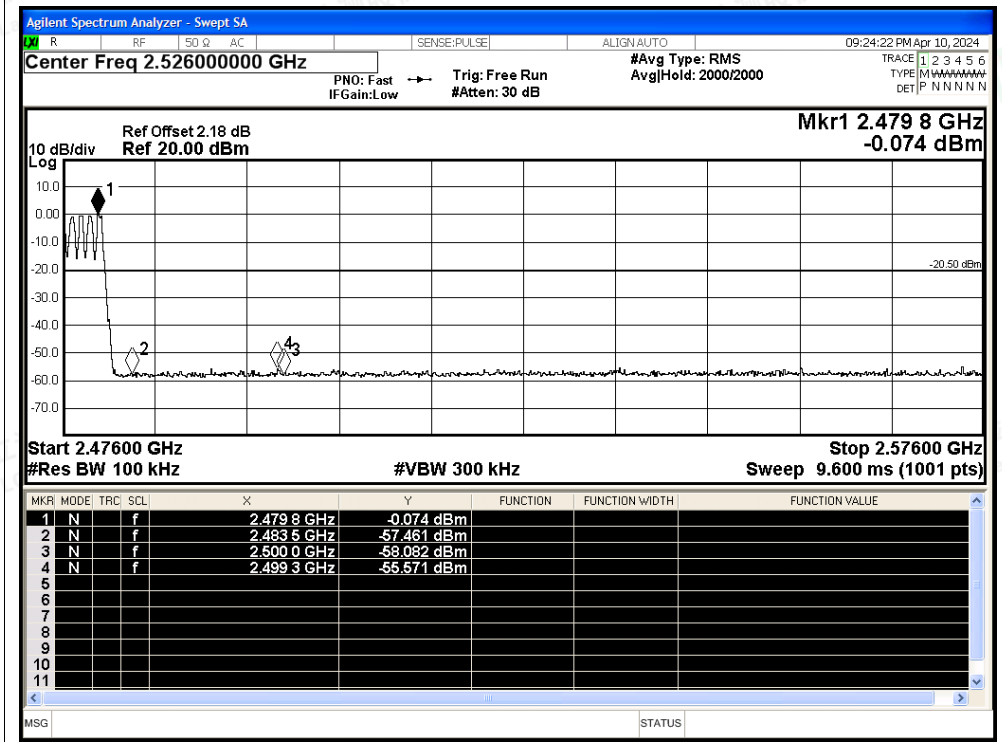




Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant Hopping Ref

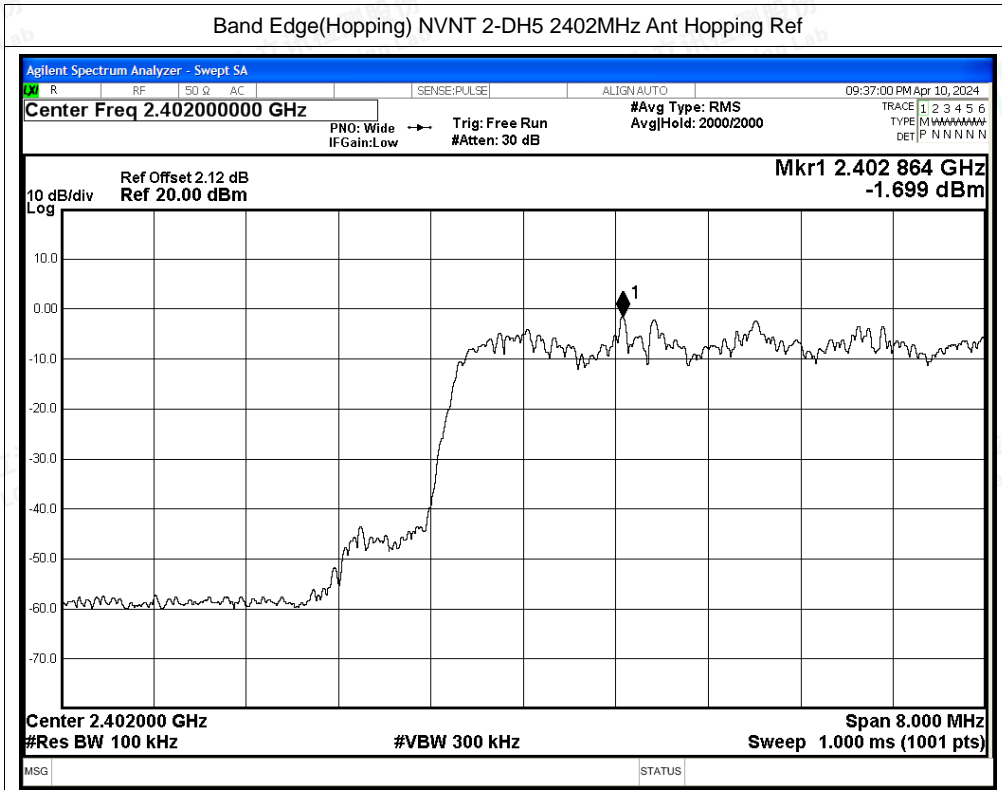


Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant Hopping Emission

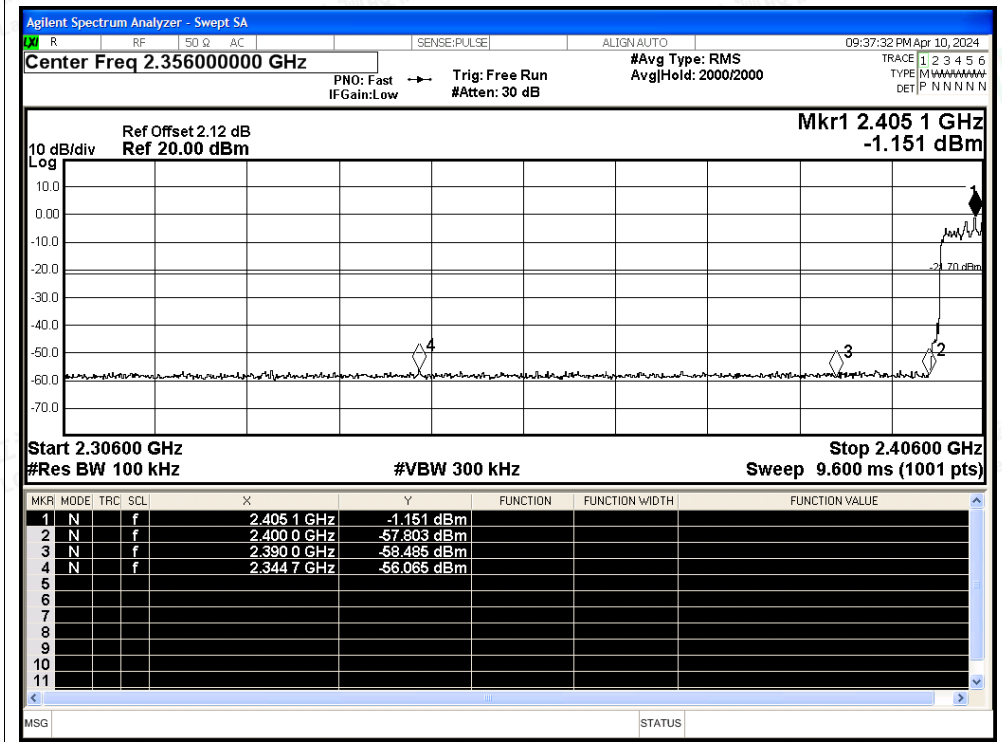




Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant Hopping Ref

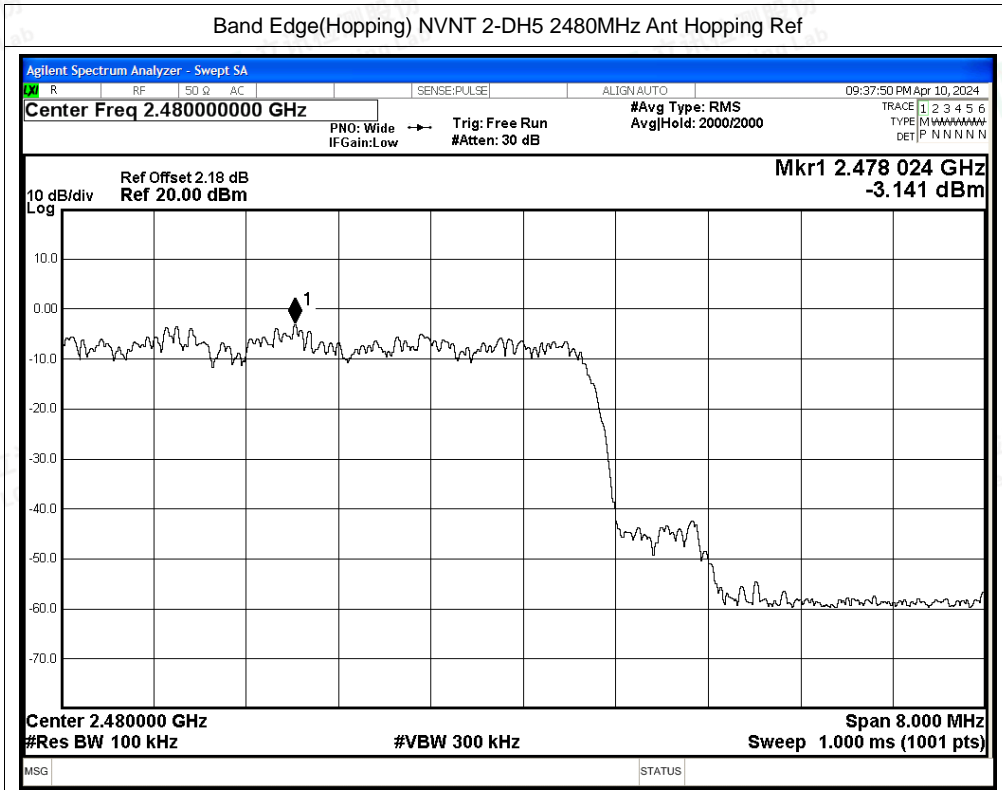


Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant Hopping Emission

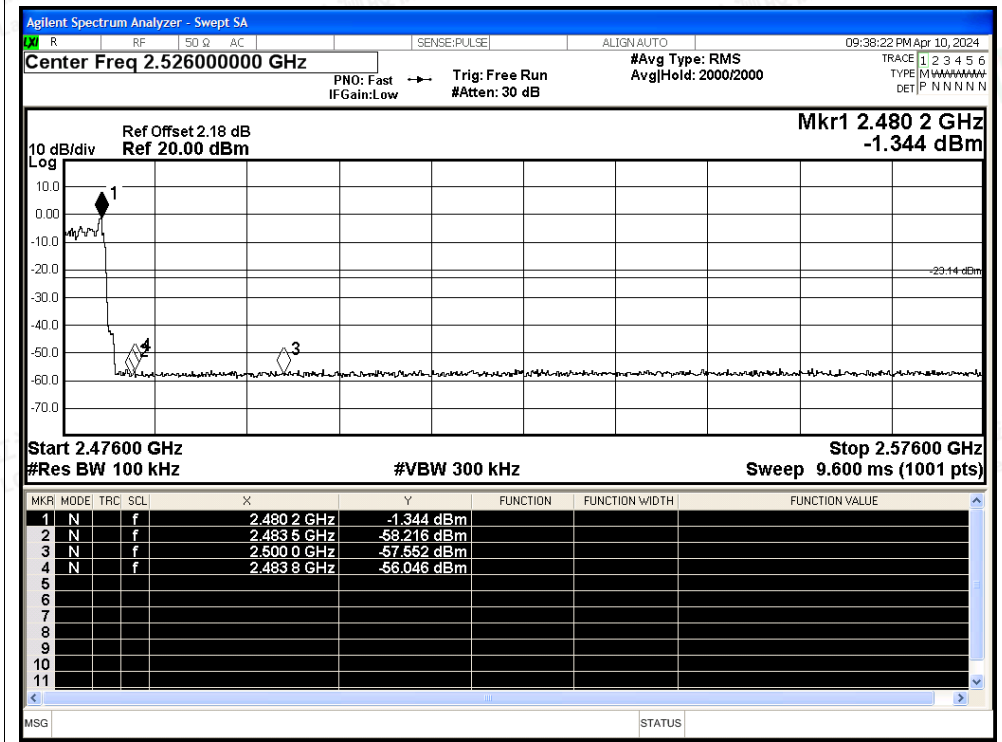




Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant Hopping Ref

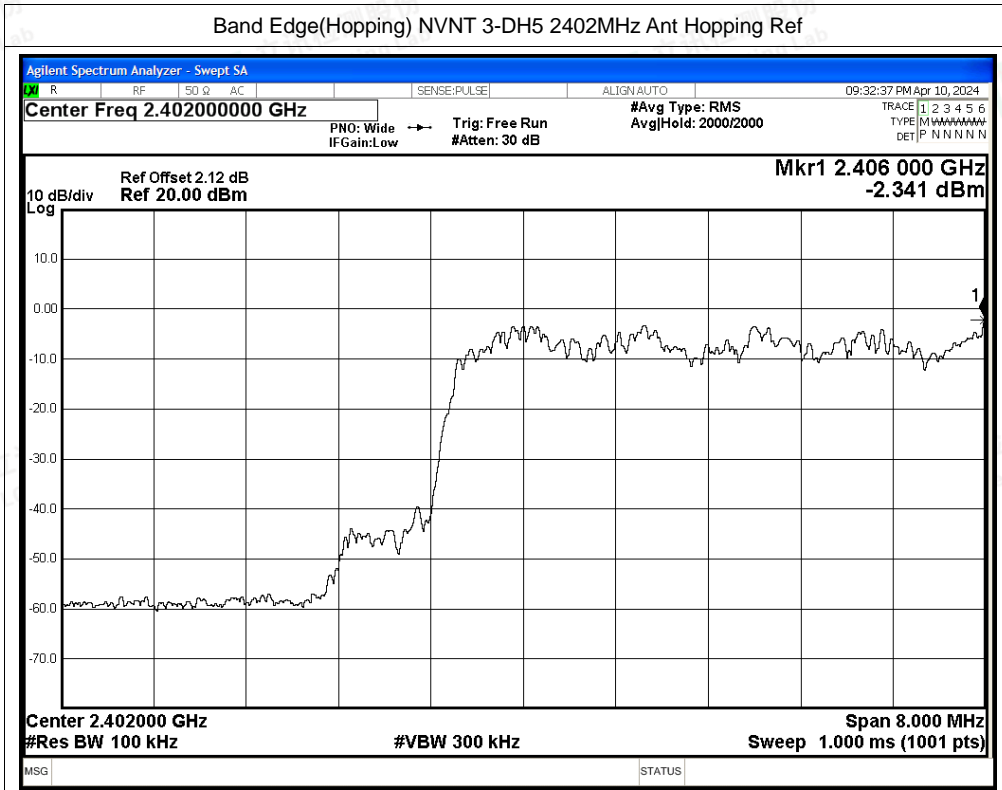


Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant Hopping Emission

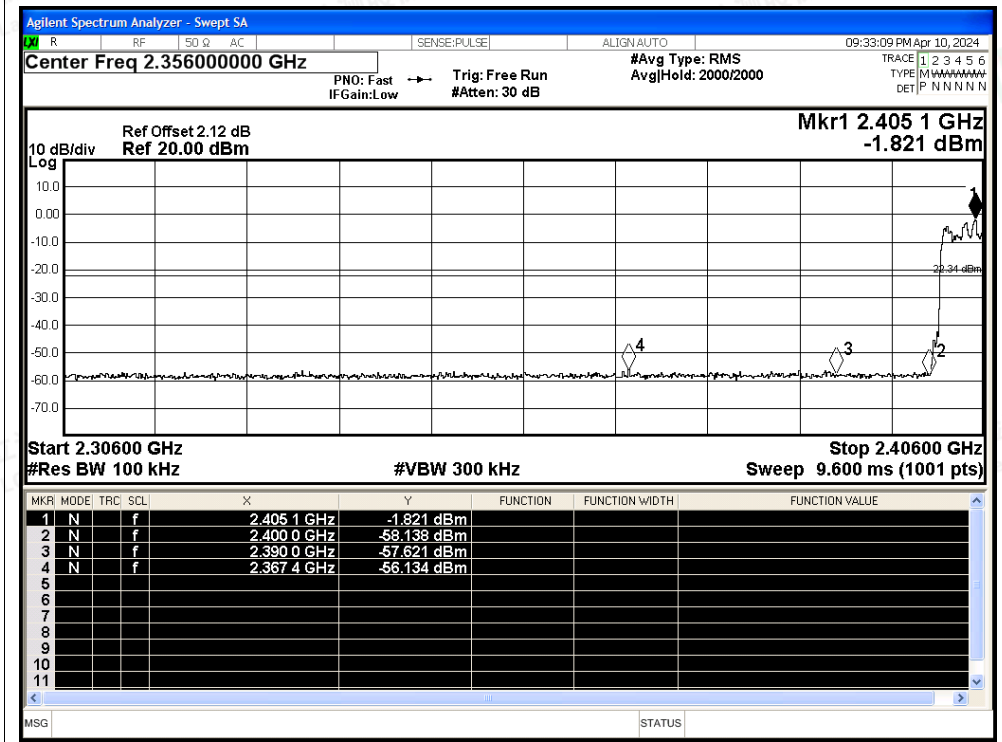




Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant Hopping Ref

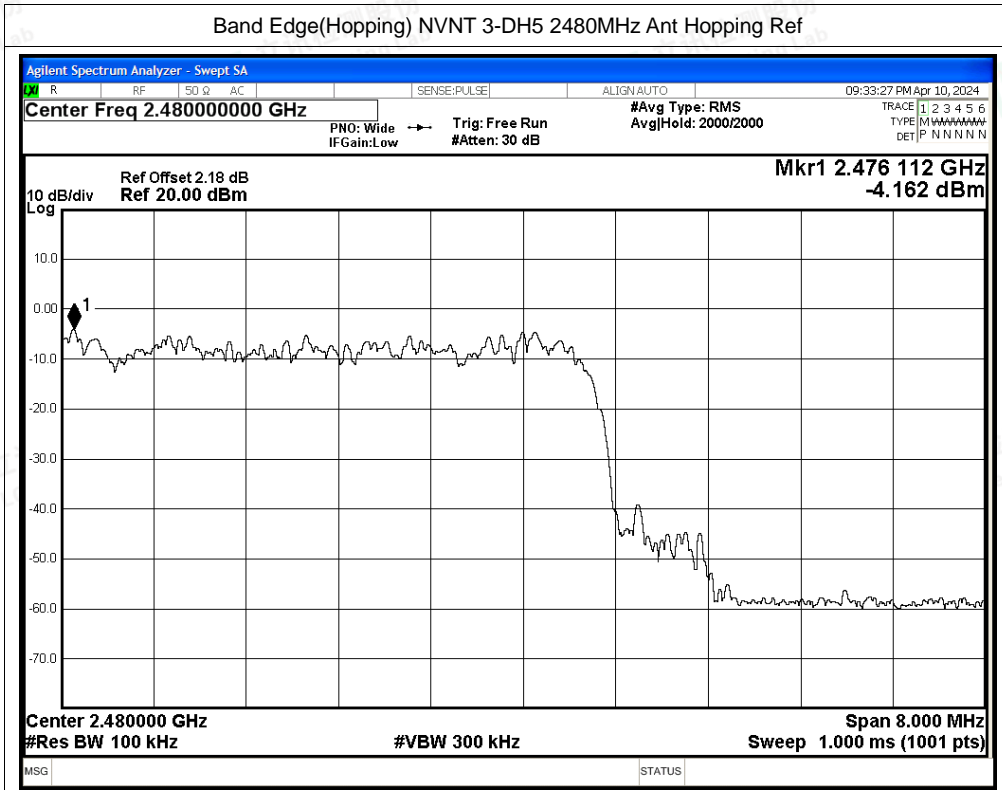


Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant Hopping Emission

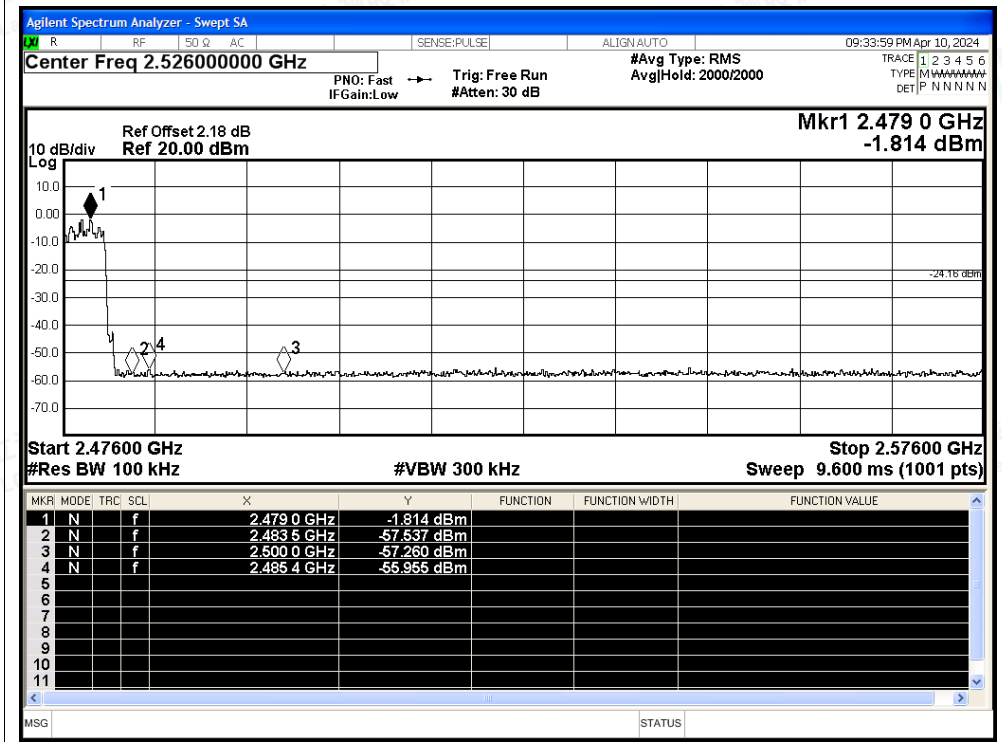




Band Edge(Hopping) NVNT 3-DH5 2480MHz Ant Hopping Ref



Band Edge(Hopping) NVNT 3-DH5 2480MHz Ant Hopping Emission





## A.7 Conducted RF Spurious Emission

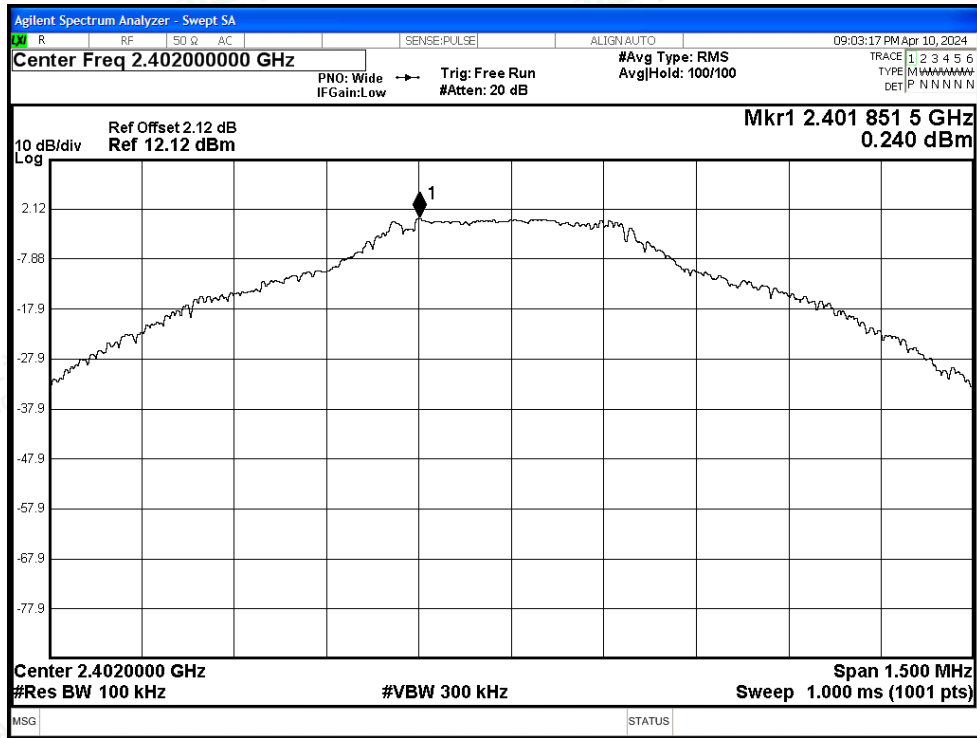
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant	-46.33	-20	Pass
NVNT	1-DH5	2441	Ant	-54.1	-20	Pass
NVNT	1-DH5	2480	Ant	-54.14	-20	Pass
NVNT	2-DH5	2402	Ant	-54.16	-20	Pass
NVNT	2-DH5	2441	Ant	-54.42	-20	Pass
NVNT	2-DH5	2480	Ant	-53.51	-20	Pass
NVNT	3-DH5	2402	Ant	-50.95	-20	Pass
NVNT	3-DH5	2441	Ant	-53.45	-20	Pass
NVNT	3-DH5	2480	Ant	-53.57	-20	Pass



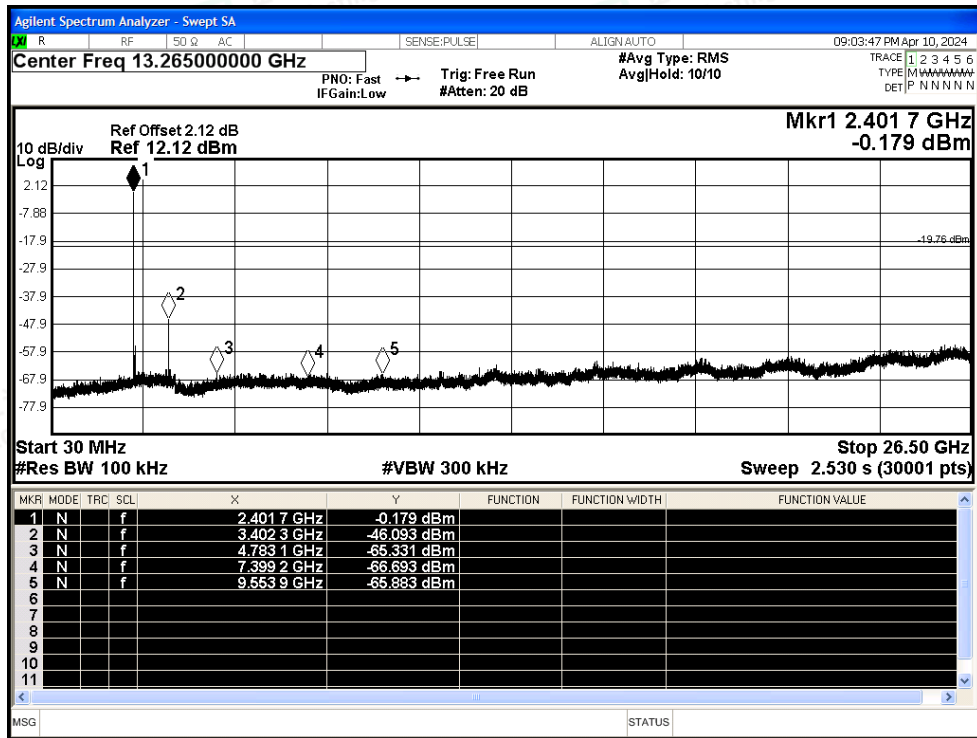


Test Graphs

Tx. Spurious NVNT 1-DH5 2402MHz Ant Ref

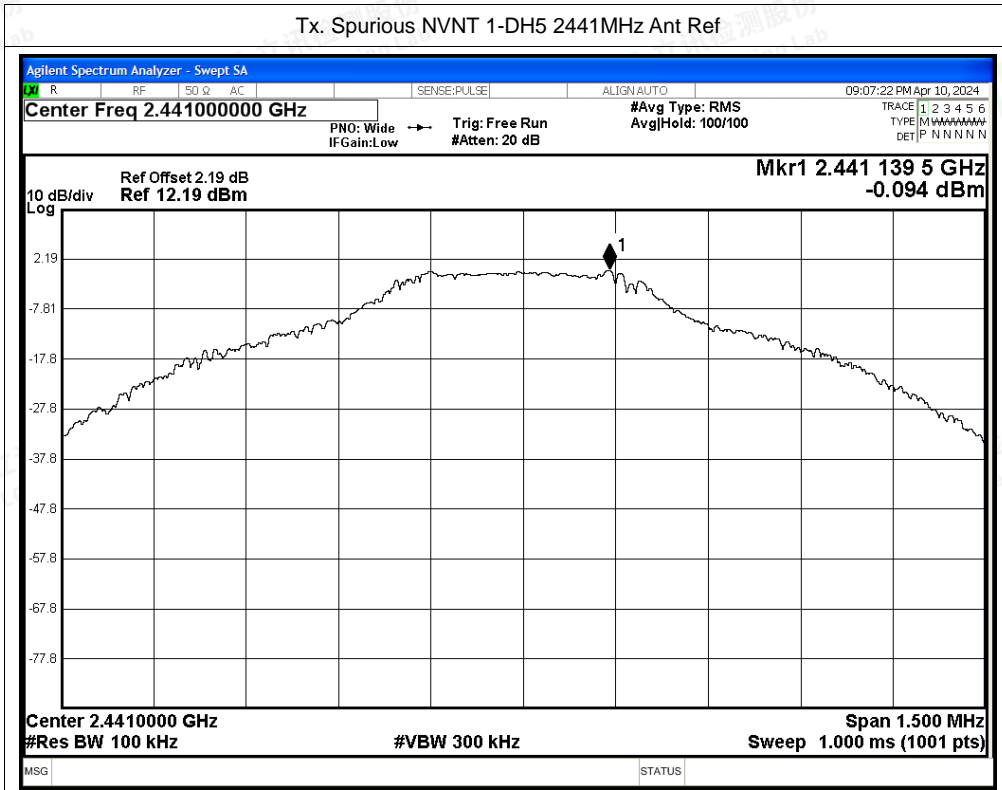


Tx. Spurious NVNT 1-DH5 2402MHz Ant Emission

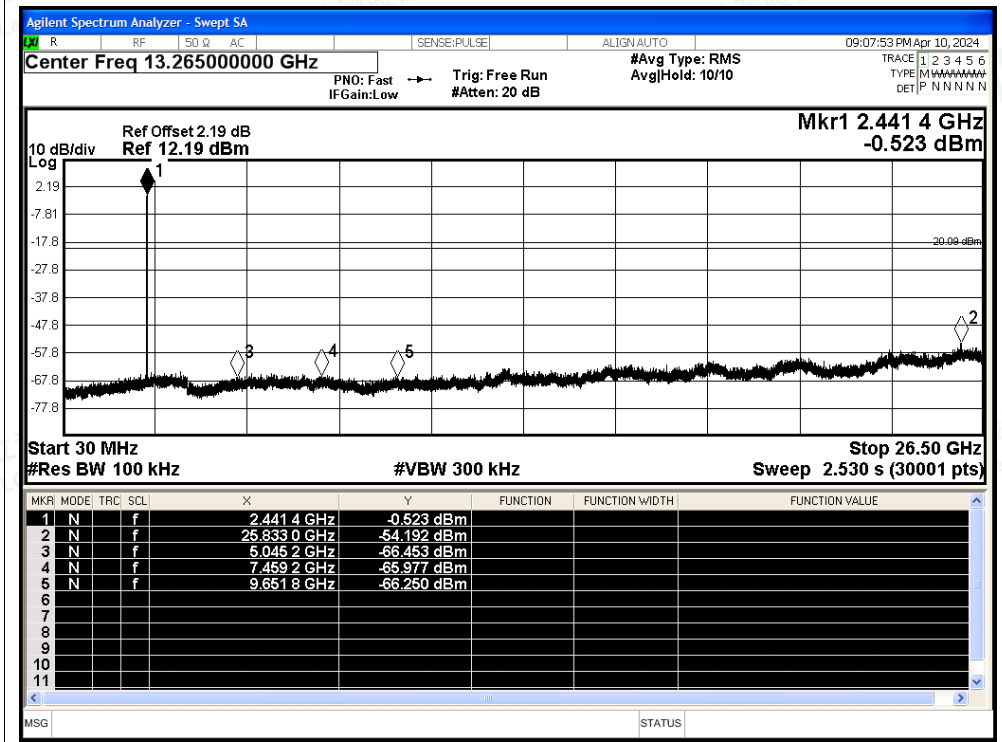




Tx. Spurious NVNT 1-DH5 2441MHz Ant Ref



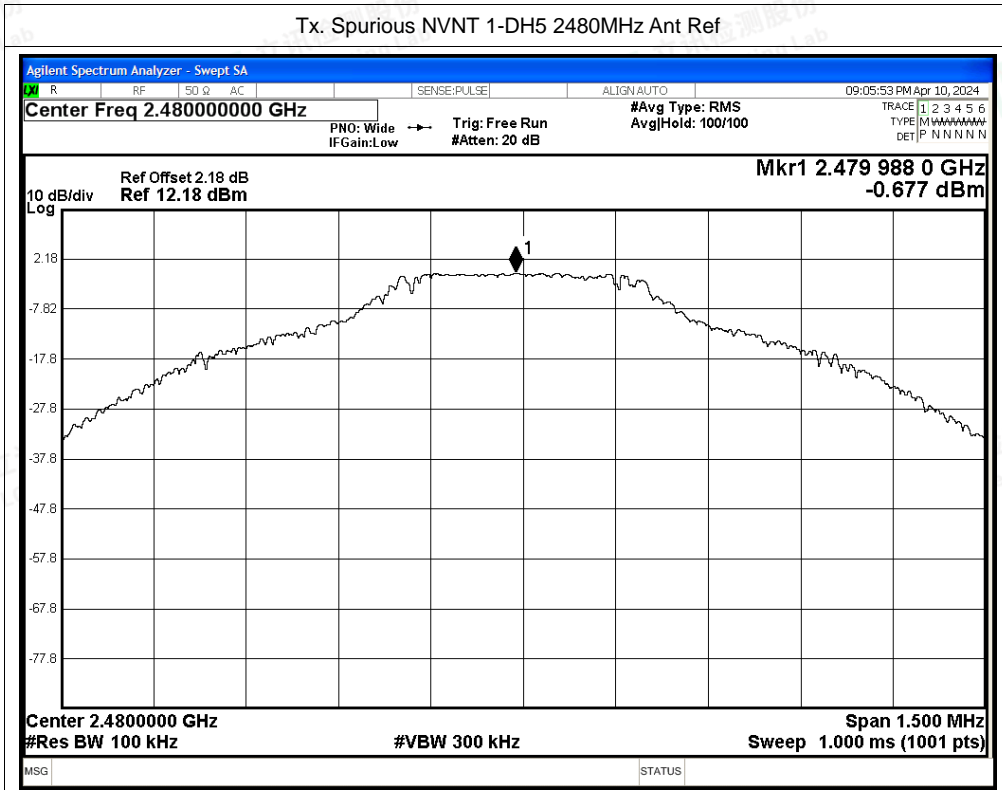
Tx. Spurious NVNT 1-DH5 2441MHz Ant Emission



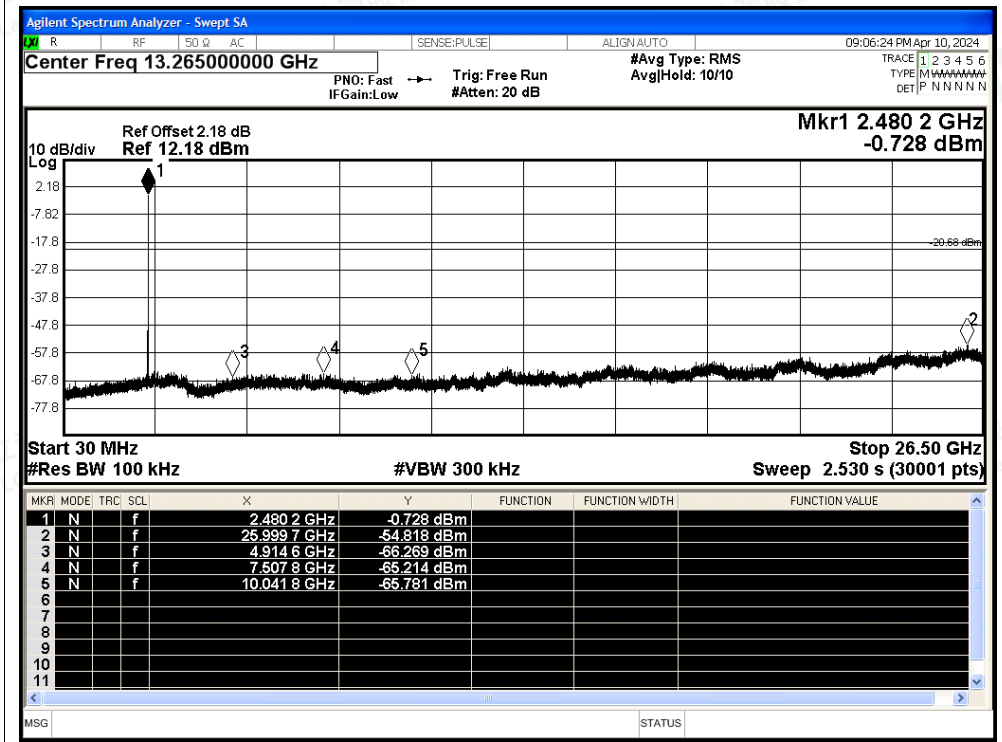




Tx. Spurious NVNT 1-DH5 2480MHz Ant Ref

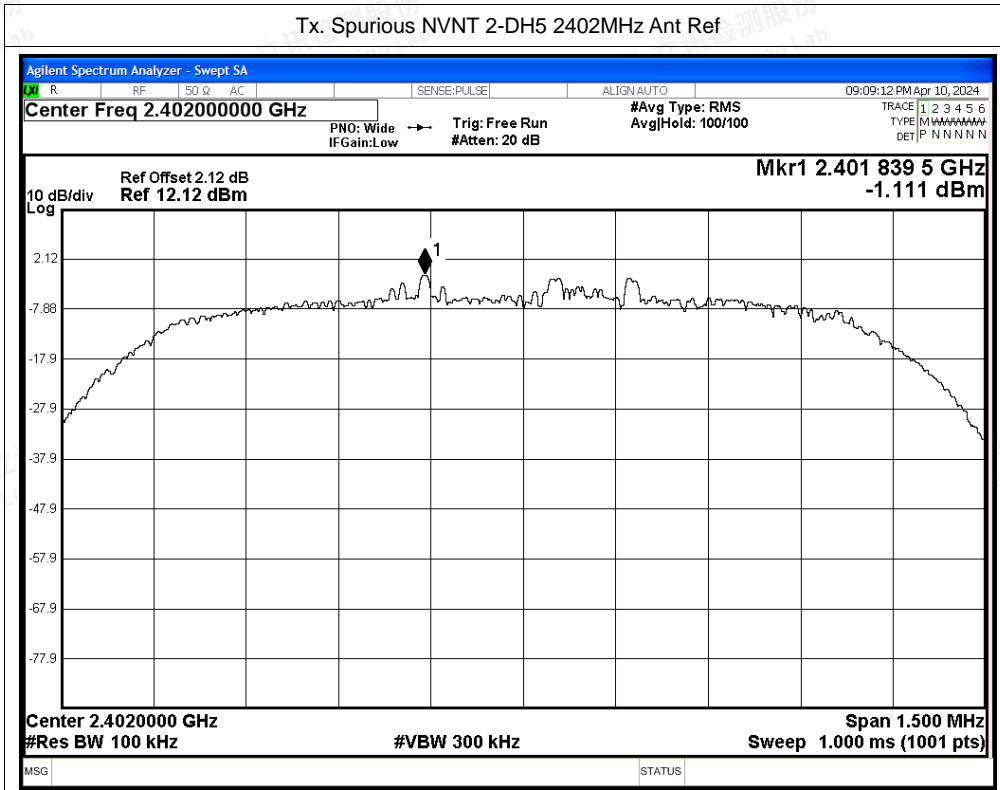


Tx. Spurious NVNT 1-DH5 2480MHz Ant Emission

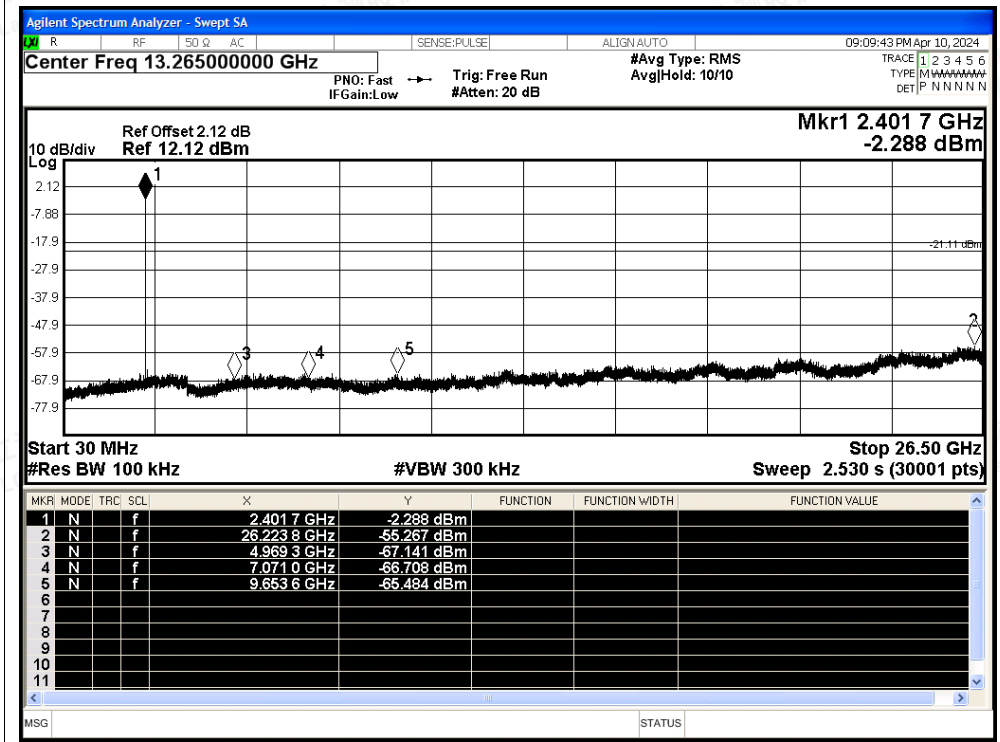




Tx. Spurious NVNT 2-DH5 2402MHz Ant Ref

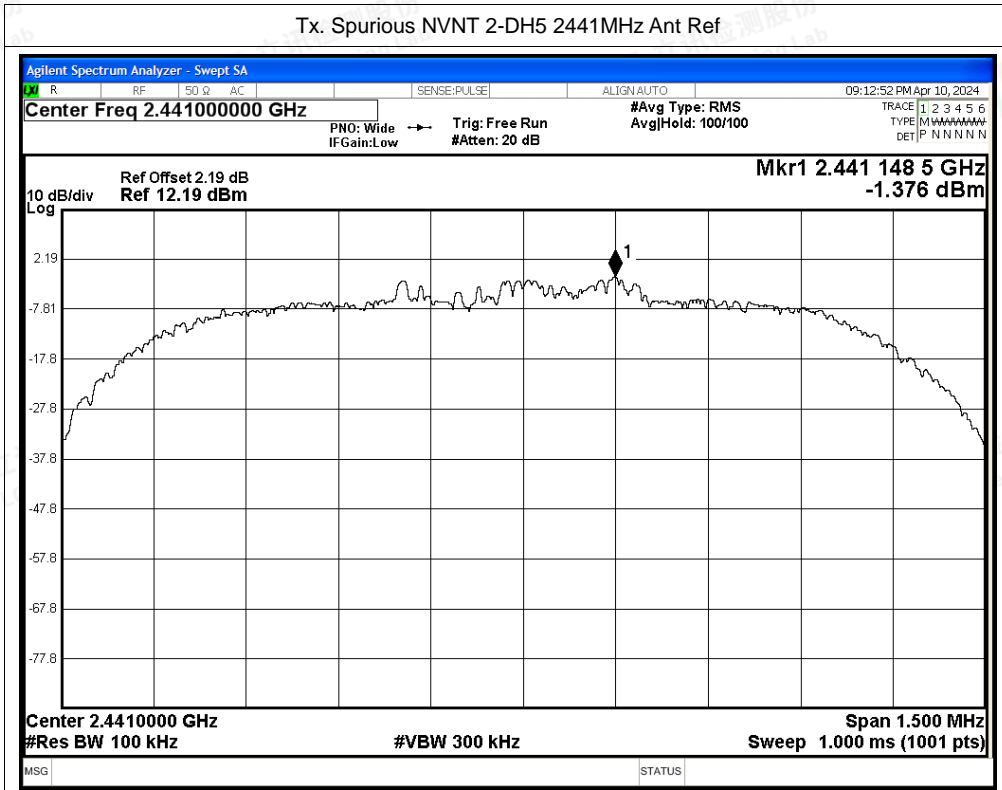


Tx. Spurious NVNT 2-DH5 2402MHz Ant Emission

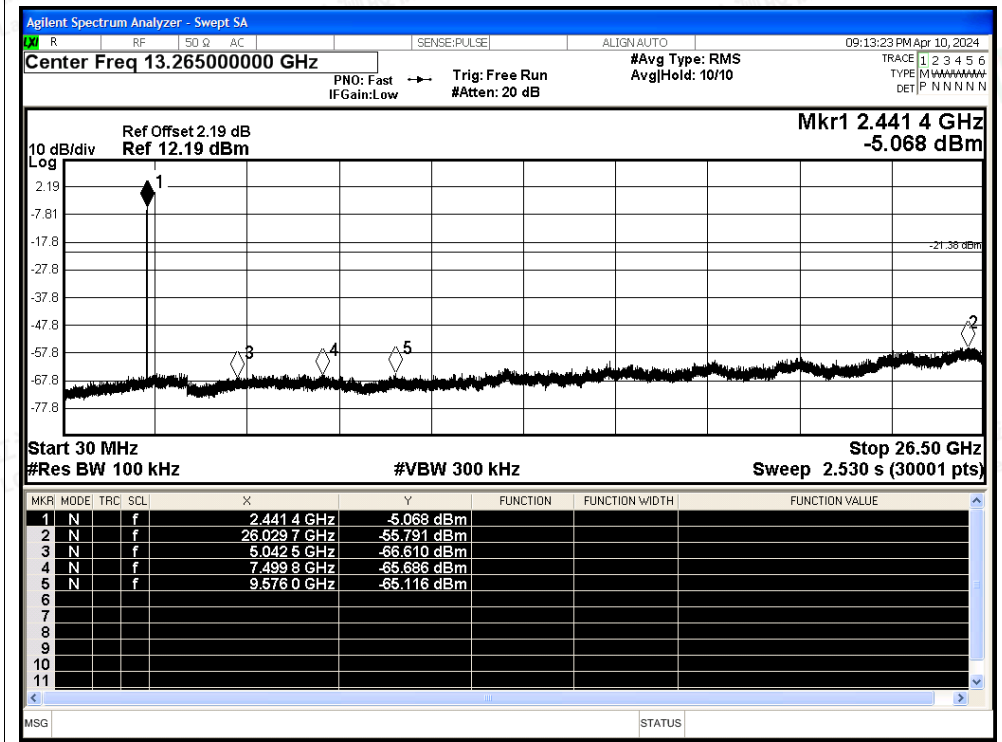




Tx. Spurious NVNT 2-DH5 2441MHz Ant Ref

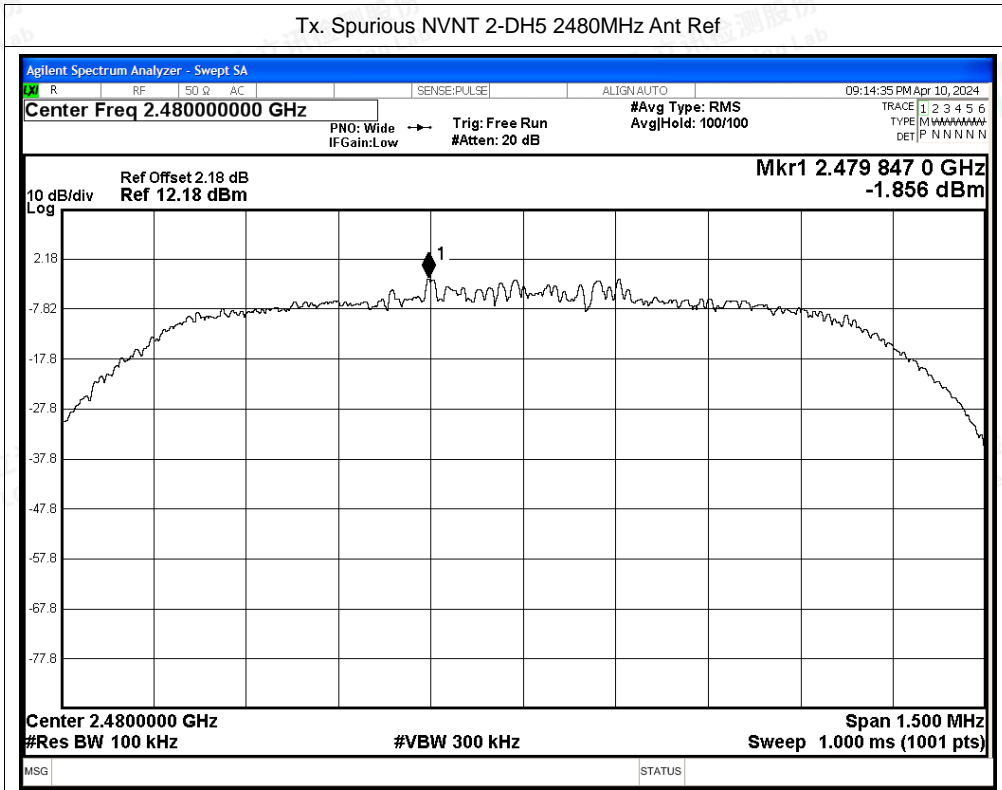


Tx. Spurious NVNT 2-DH5 2441MHz Ant Emission

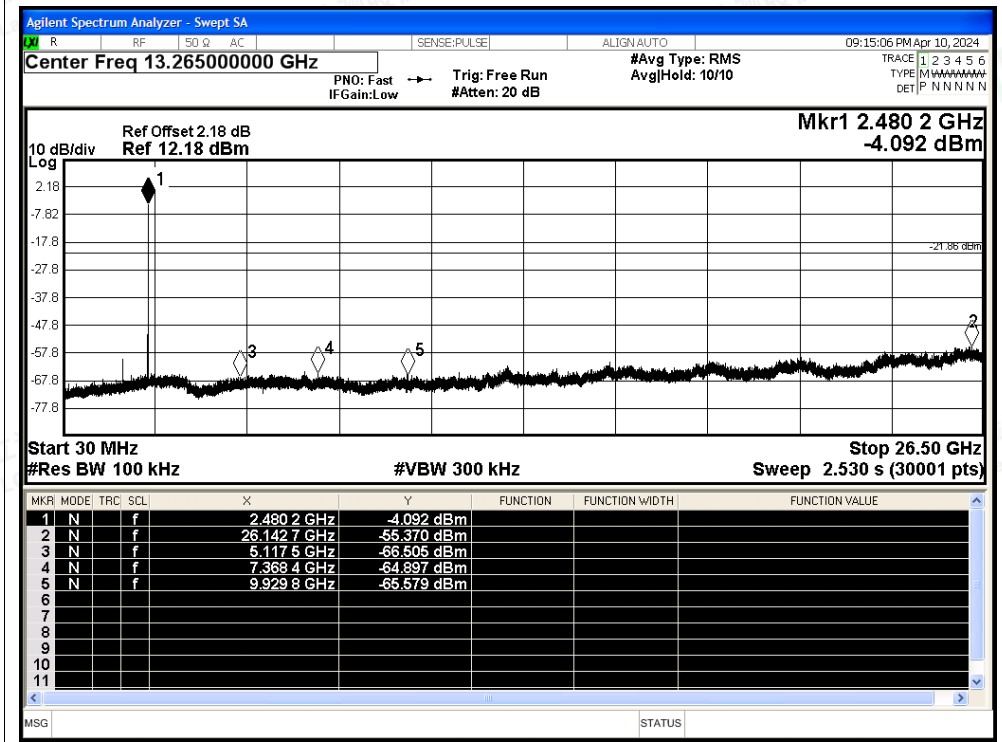




Tx. Spurious NVNT 2-DH5 2480MHz Ant Ref

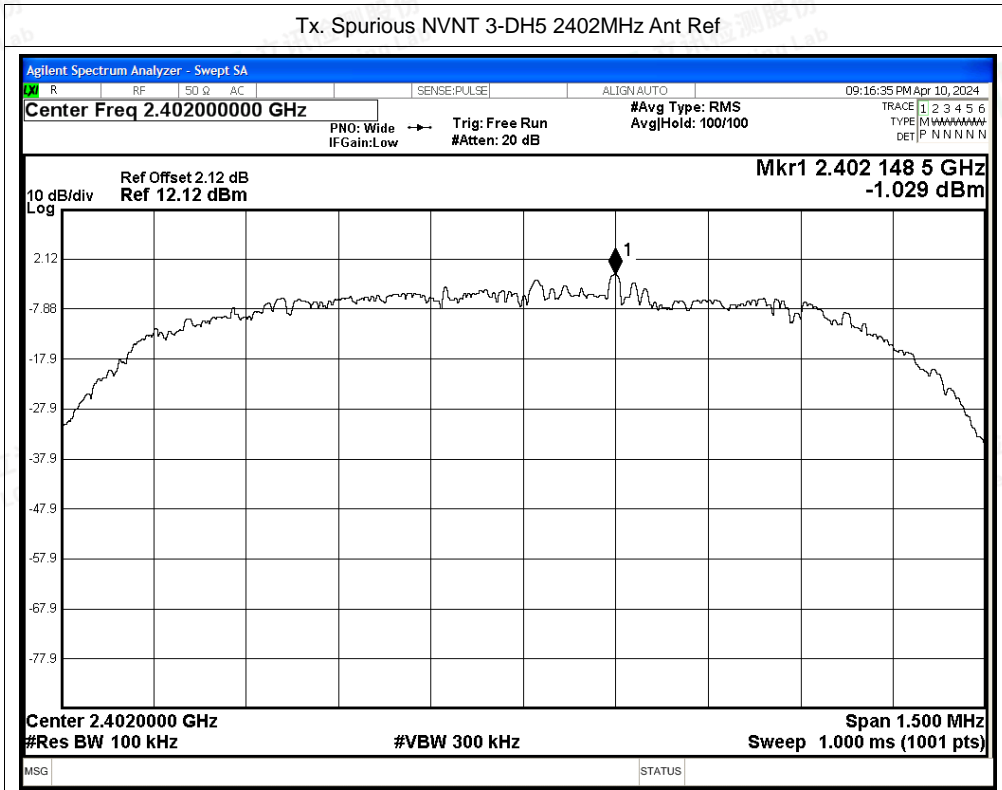


Tx. Spurious NVNT 2-DH5 2480MHz Ant Emission

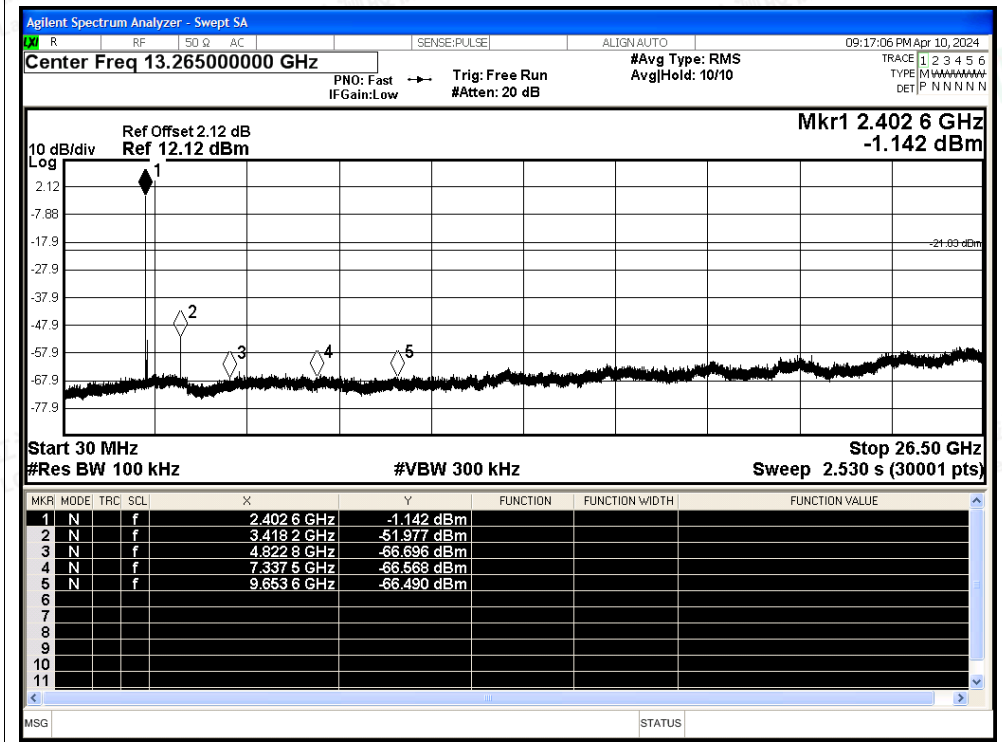




Tx. Spurious NVNT 3-DH5 2402MHz Ant Ref

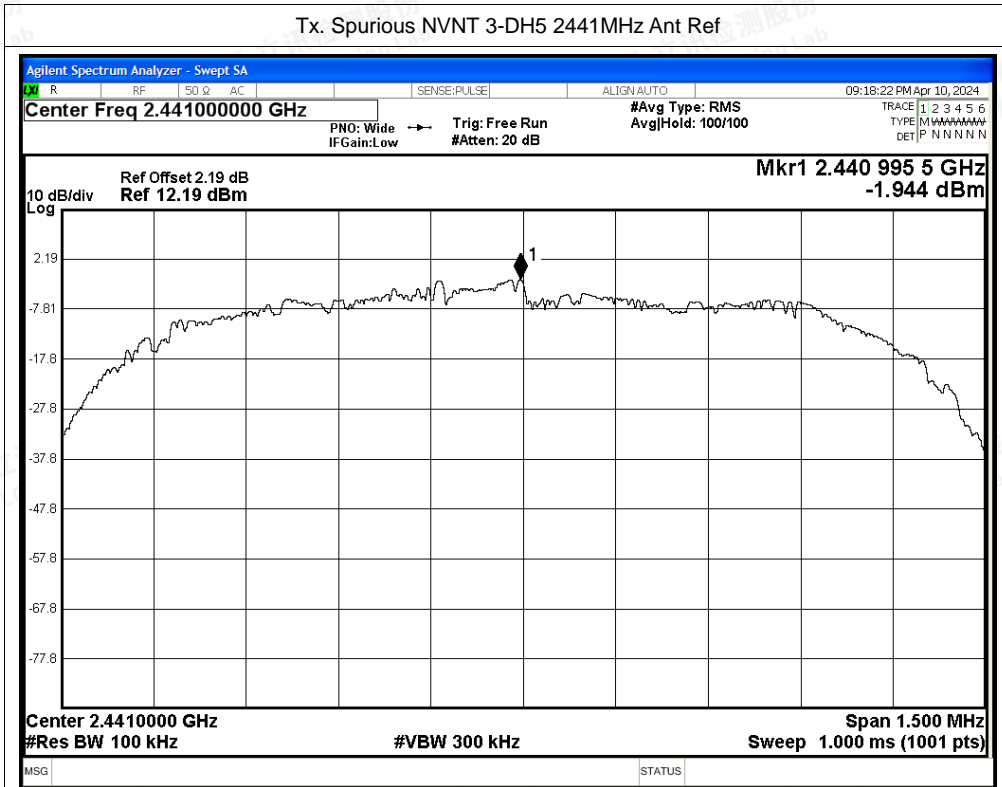


Tx. Spurious NVNT 3-DH5 2402MHz Ant Emission

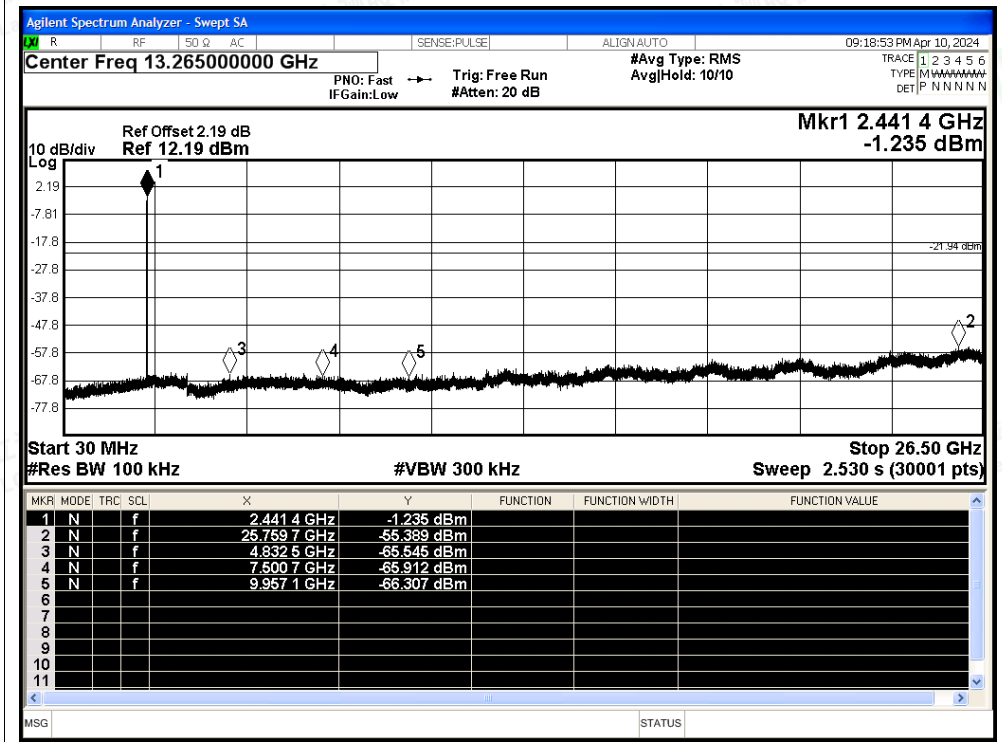




Tx. Spurious NVNT 3-DH5 2441MHz Ant Ref

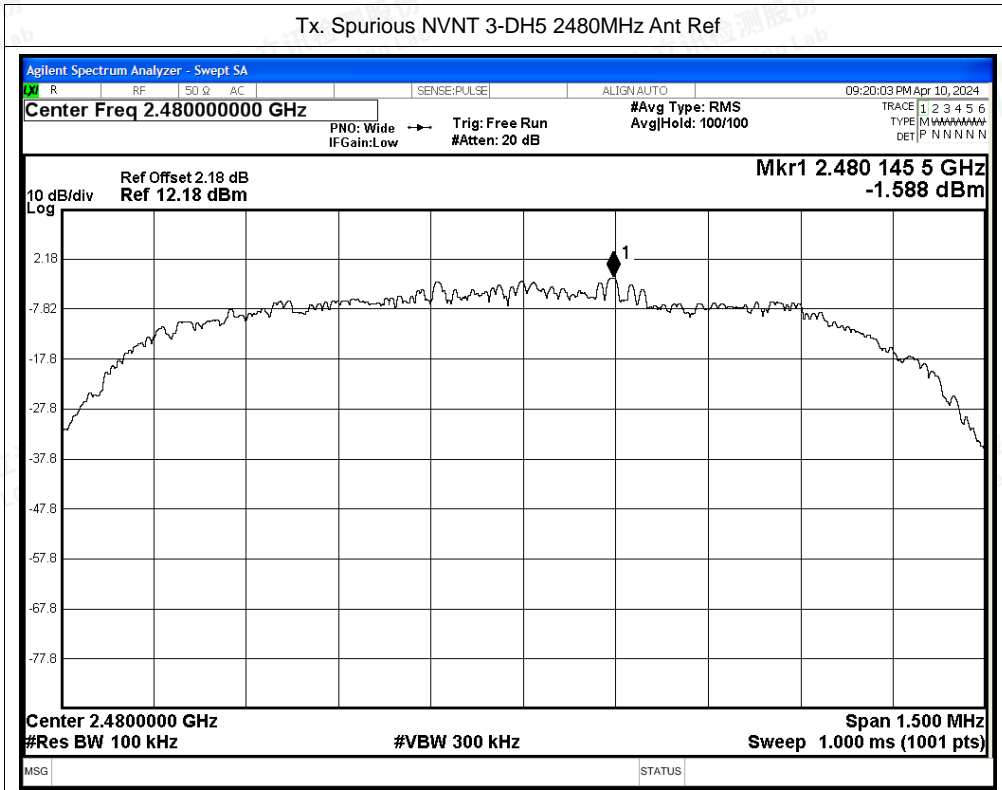


Tx. Spurious NVNT 3-DH5 2441MHz Ant Emission

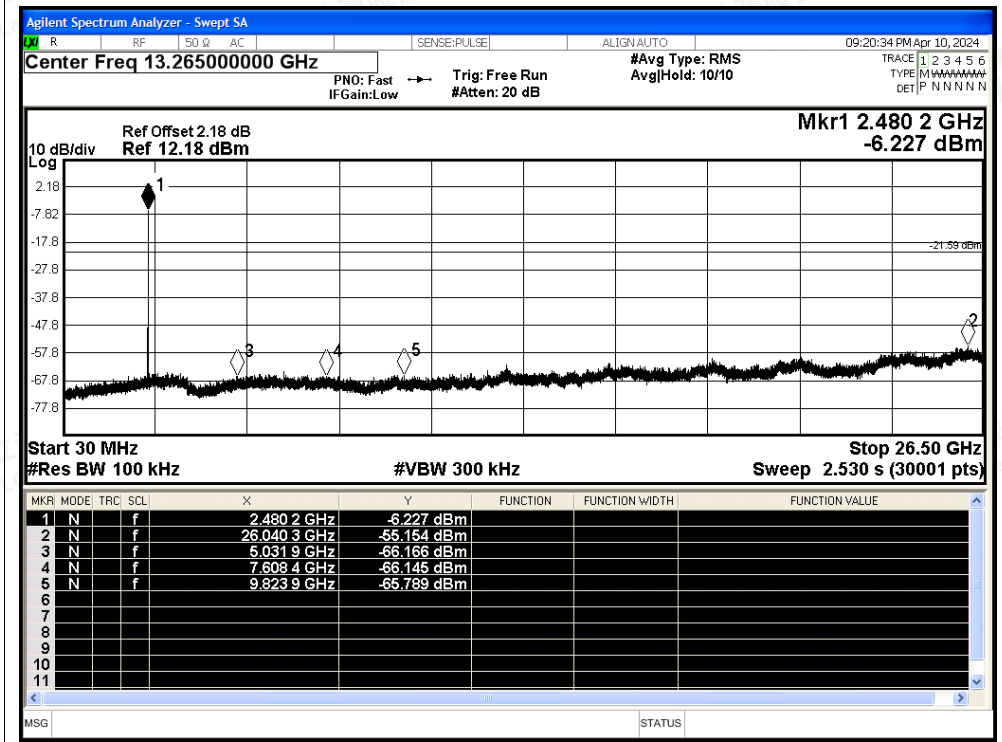




Tx. Spurious NVNT 3-DH5 2480MHz Ant Ref



Tx. Spurious NVNT 3-DH5 2480MHz Ant Emission





## A.8 Duty Cycle

Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH5	2402	Ant	76.88	1.14	0.35
NVNT	1-DH5	2441	Ant	76.88	1.14	0.35
NVNT	1-DH5	2480	Ant	76.88	1.14	0.35
NVNT	2-DH5	2402	Ant	76.96	1.14	0.35
NVNT	2-DH5	2441	Ant	76.96	1.14	0.35
NVNT	2-DH5	2480	Ant	76.96	1.14	0.35
NVNT	3-DH5	2402	Ant	77.01	1.13	0.35
NVNT	3-DH5	2441	Ant	77.01	1.13	0.35
NVNT	3-DH5	2480	Ant	77.01	1.13	0.35

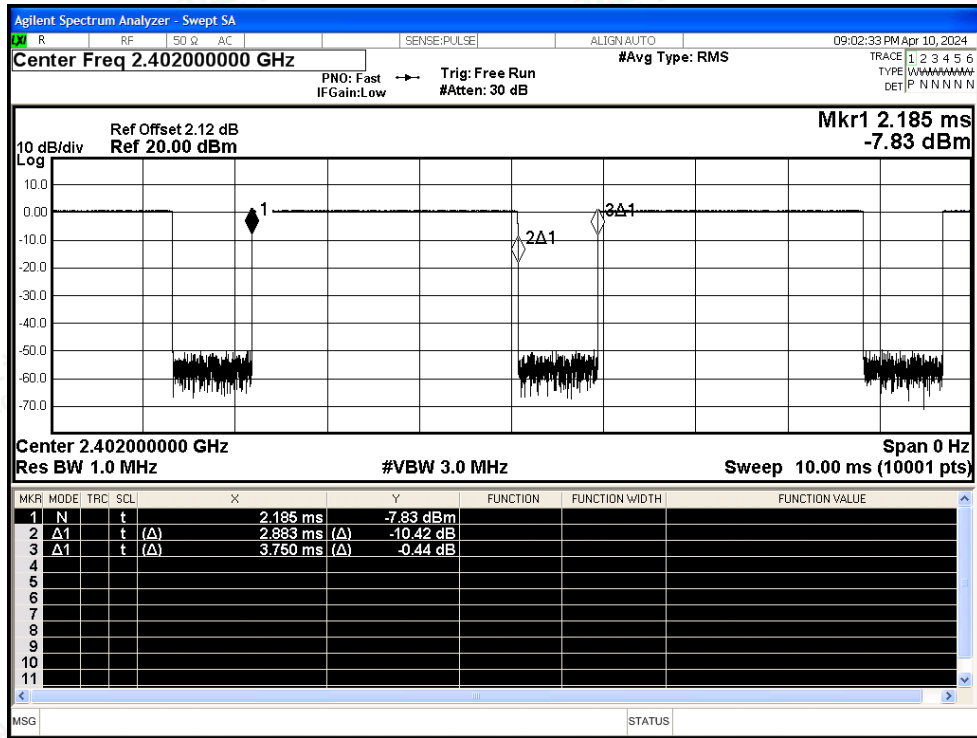




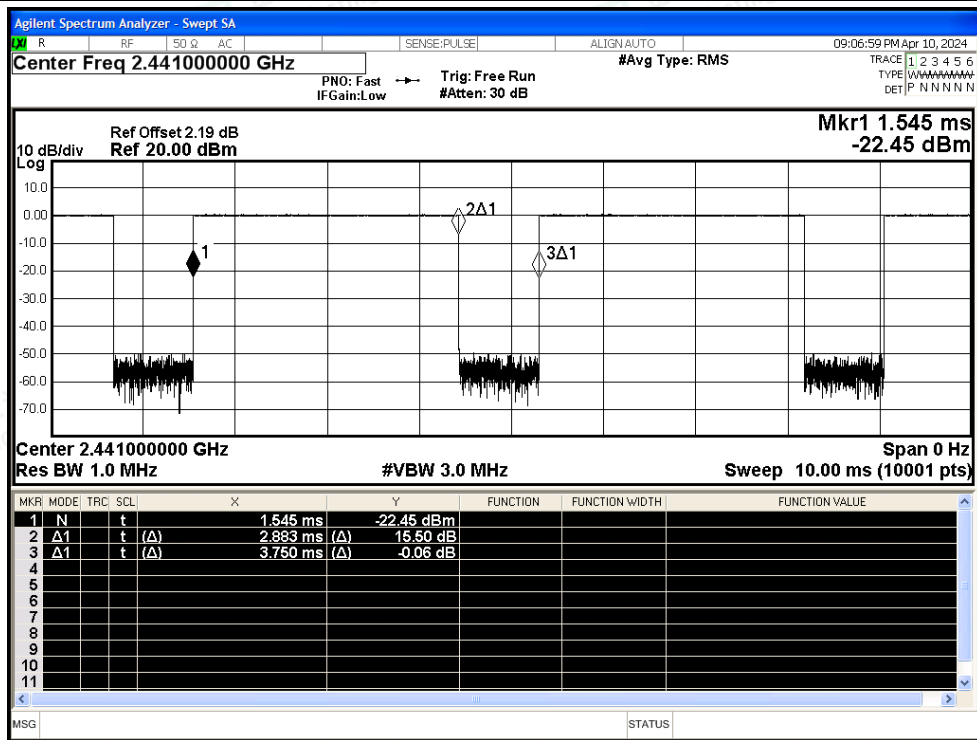


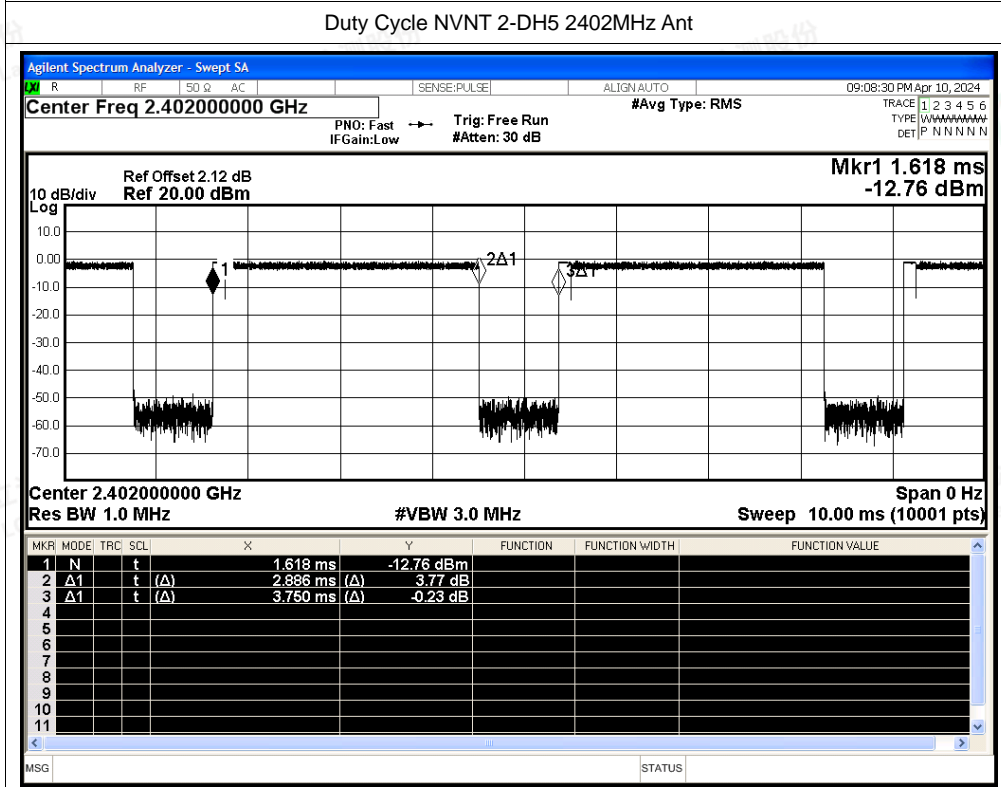
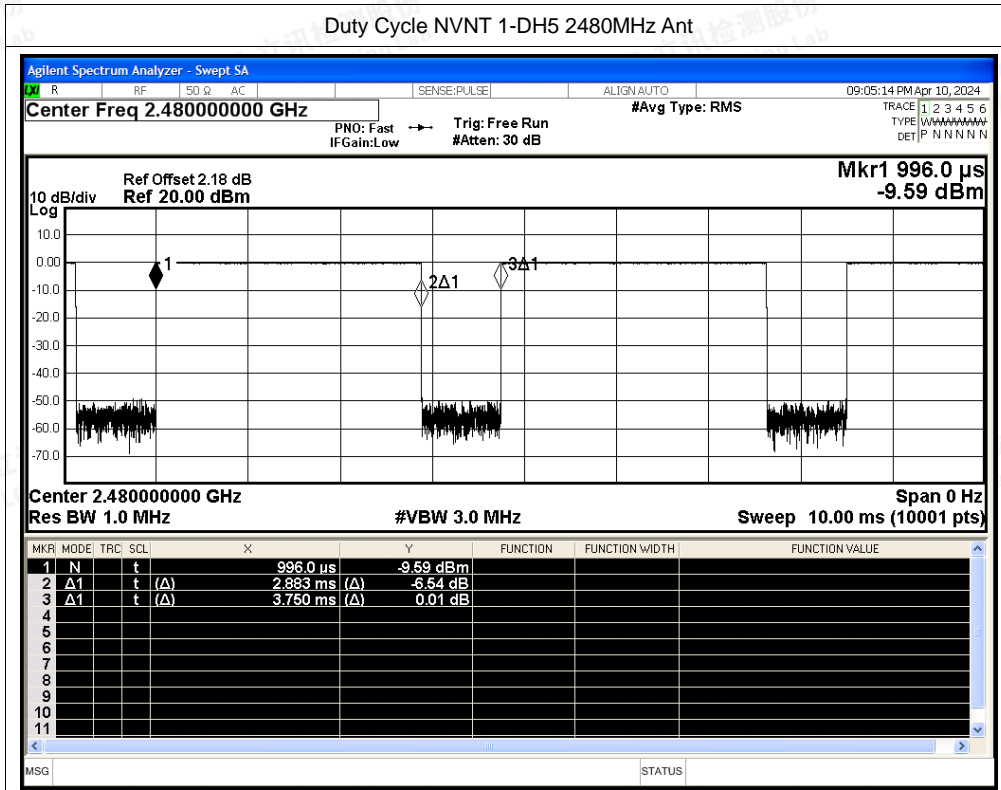
Test Graphs

Duty Cycle NVNT 1-DH5 2402MHz Ant



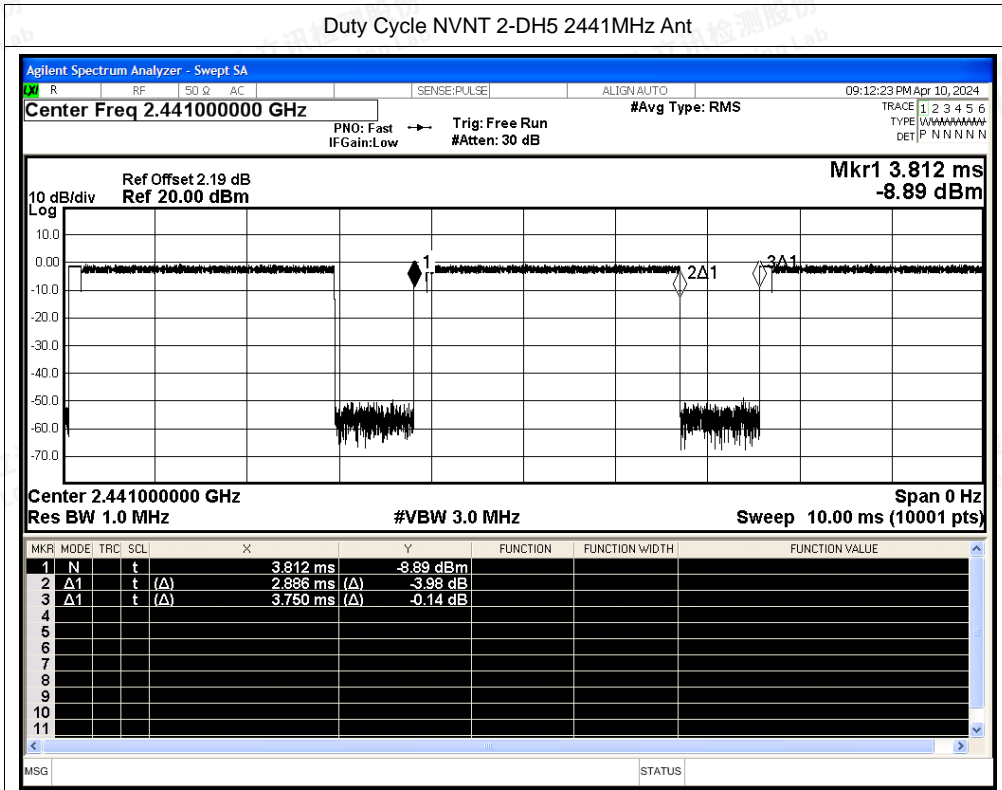
Duty Cycle NVNT 1-DH5 2441MHz Ant



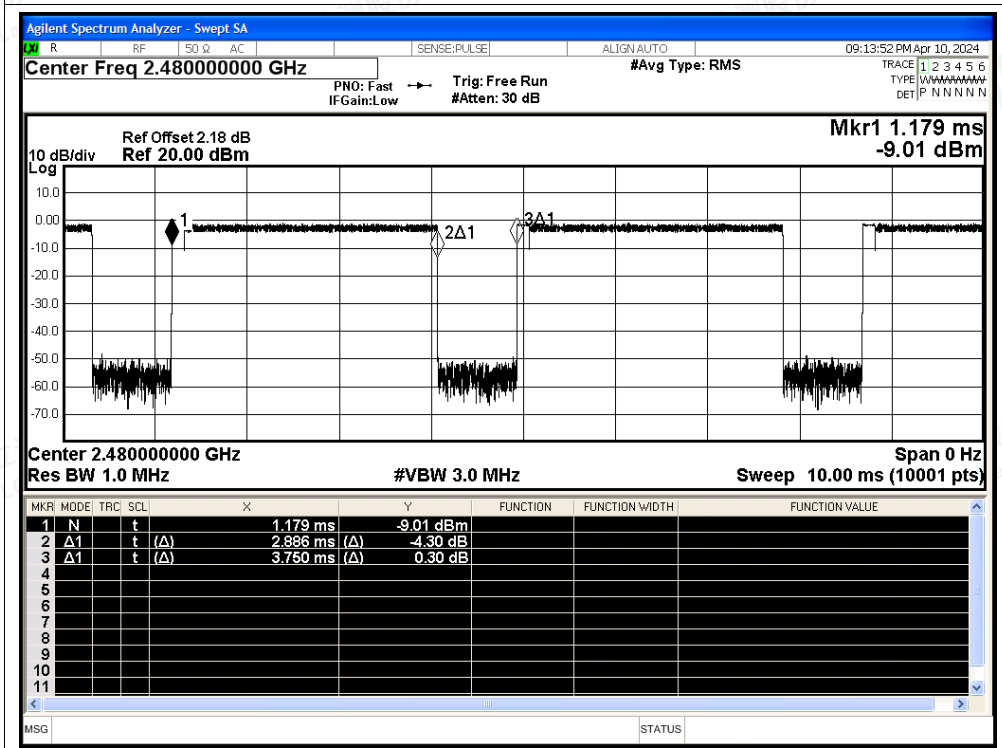




Duty Cycle NVNT 2-DH5 2441MHz Ant

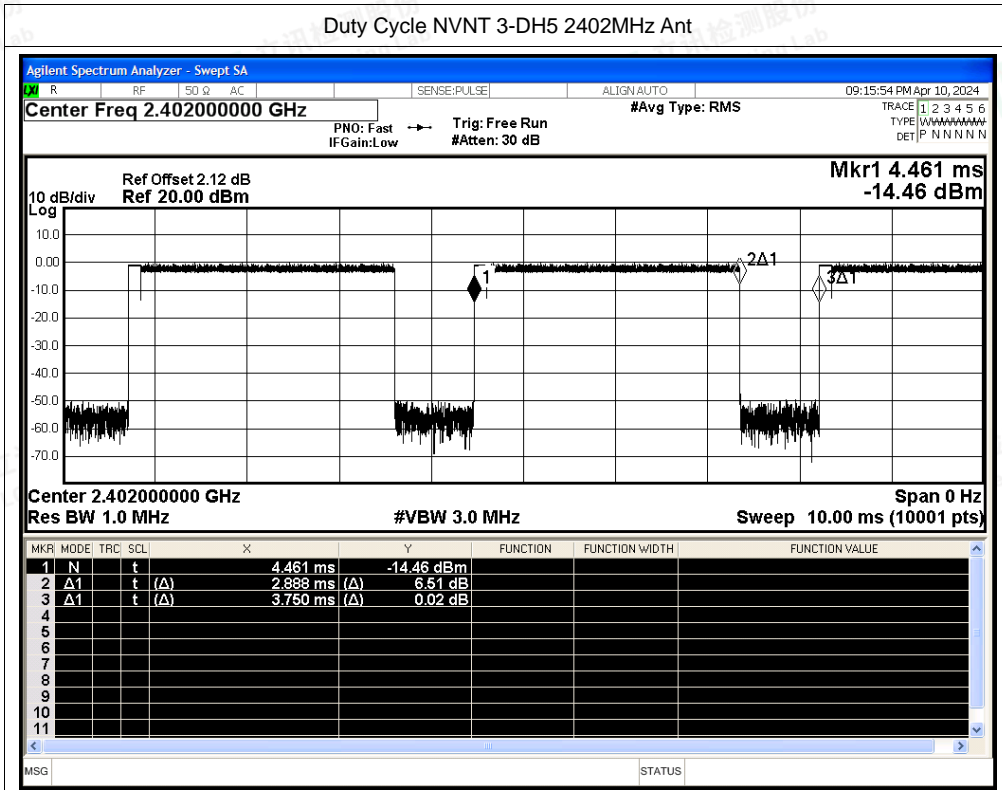


Duty Cycle NVNT 2-DH5 2480MHz Ant

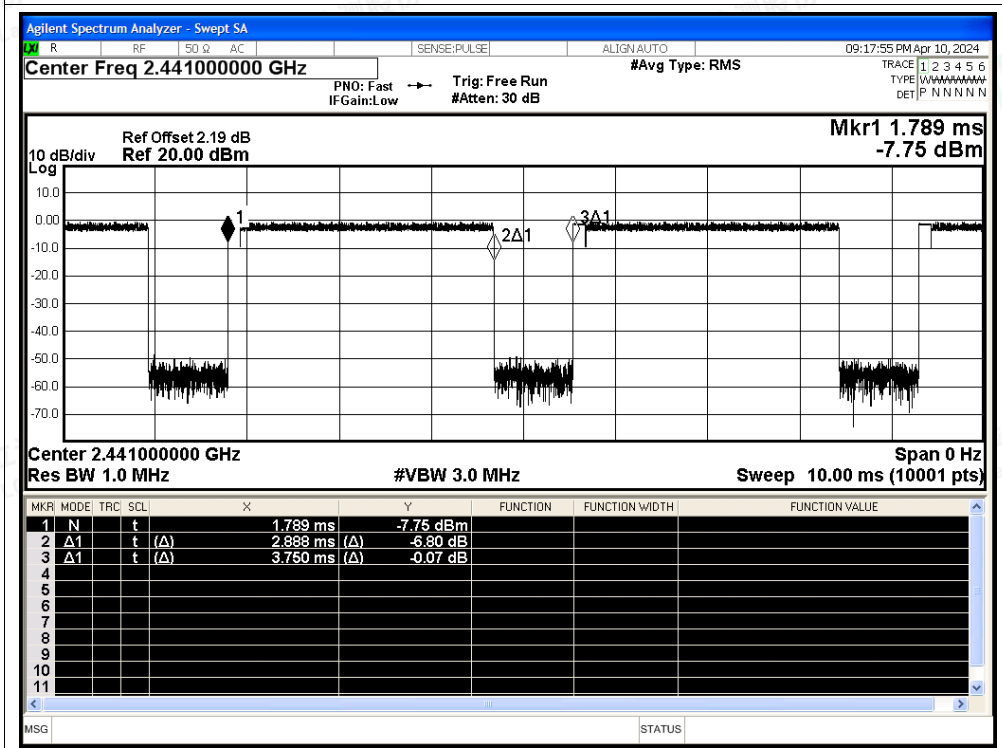


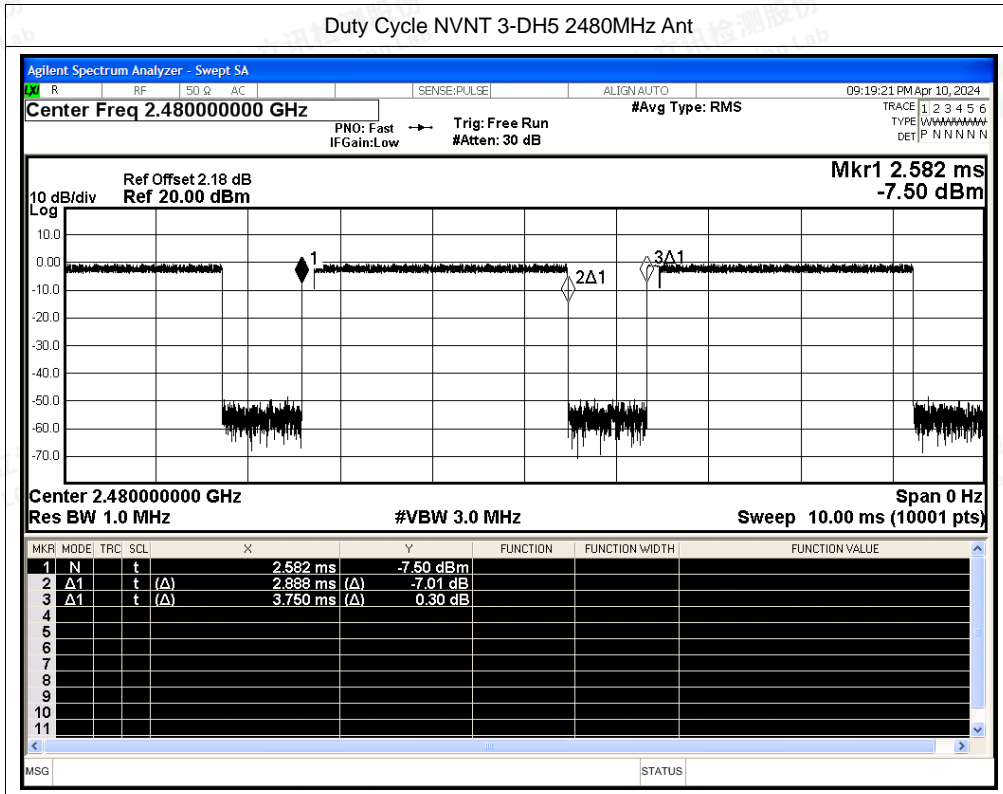


Duty Cycle NVNT 3-DH5 2402MHz Ant



Duty Cycle NVNT 3-DH5 2441MHz Ant







## A.9 Restrict Band

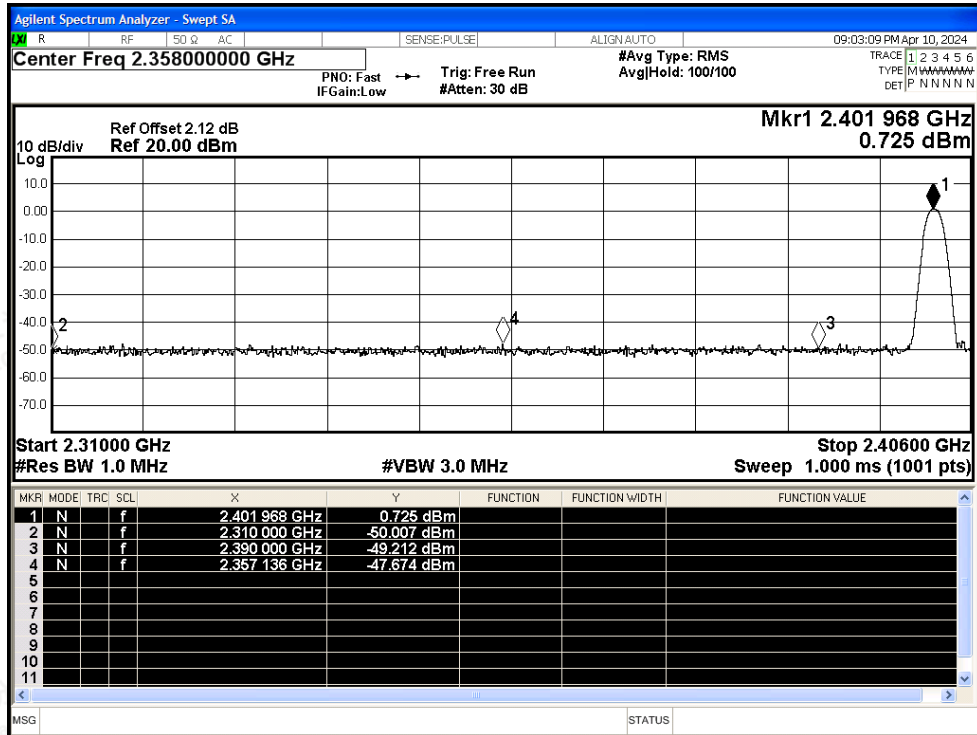
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH5	2402	Ant	No-Hopping	2310	-50.01	2	-	47.25	Peak	74	Pass
NVNT	1-DH5	2402	Ant	No-Hopping	2310	-58.79	2	1.14	39.61	Average	54	Pass
NVNT	1-DH5	2402	Ant	No-Hopping	2357.136	-47.67	2	-	49.59	Peak	74	Pass
NVNT	1-DH5	2402	Ant	No-Hopping	2387.856	-57.51	2	1.14	40.89	Average	54	Pass
NVNT	1-DH5	2402	Ant	No-Hopping	2390	-49.21	2	-	48.05	Peak	74	Pass
NVNT	1-DH5	2402	Ant	No-Hopping	2390	-58.87	2	1.14	39.53	Average	54	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	2483.5	-50.3	2	-	46.96	Peak	74	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	2483.5	-57.43	2	1.14	40.97	Average	54	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	2496.352	-46.47	2	-	50.79	Peak	74	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	2487.328	-57.25	2	1.14	41.15	Average	54	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	2500	-49.59	2	-	47.67	Peak	74	Pass
NVNT	1-DH5	2480	Ant	No-Hopping	2500	-58.46	2	1.14	39.94	Average	54	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	2310	-51.13	2	-	46.13	Peak	74	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	2310	-59.16	2	1.14	39.24	Average	54	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	2381.136	-47.4	2	-	49.86	Peak	74	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	2385.168	-57.47	2	1.14	40.93	Average	54	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	2390	-51.56	2	-	45.7	Peak	74	Pass
NVNT	2-DH5	2402	Ant	No-Hopping	2390	-58.21	2	1.14	40.19	Average	54	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	2483.5	-50.13	2	-	47.13	Peak	74	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	2483.5	-58.32	2	1.14	40.08	Average	54	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	2497.336	-47.53	2	-	49.73	Peak	74	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	2499.328	-57.24	2	1.14	41.16	Average	54	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	2500	-50.35	2	-	46.91	Peak	74	Pass
NVNT	2-DH5	2480	Ant	No-Hopping	2500	-57.96	2	1.14	40.44	Average	54	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	2310	-50.5	2	-	46.76	Peak	74	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	2310	-58.49	2	1.13	39.9	Average	54	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	2382.672	-47.69	2	-	49.57	Peak	74	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	2367.024	-57.48	2	1.13	40.91	Average	54	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	2390	-49.5	2	-	47.76	Peak	74	Pass
NVNT	3-DH5	2402	Ant	No-Hopping	2390	-58.5	2	1.13	39.89	Average	54	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	2483.5	-48.82	2	-	48.44	Peak	74	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	2483.5	-58.23	2	1.13	40.16	Average	54	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	2492.8	-47.01	2	-	50.25	Peak	74	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	2491.744	-57.05	2	1.13	41.34	Average	54	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	2500	-49.38	2	-	47.88	Peak	74	Pass
NVNT	3-DH5	2480	Ant	No-Hopping	2500	-58.55	2	1.13	39.84	Average	54	Pass



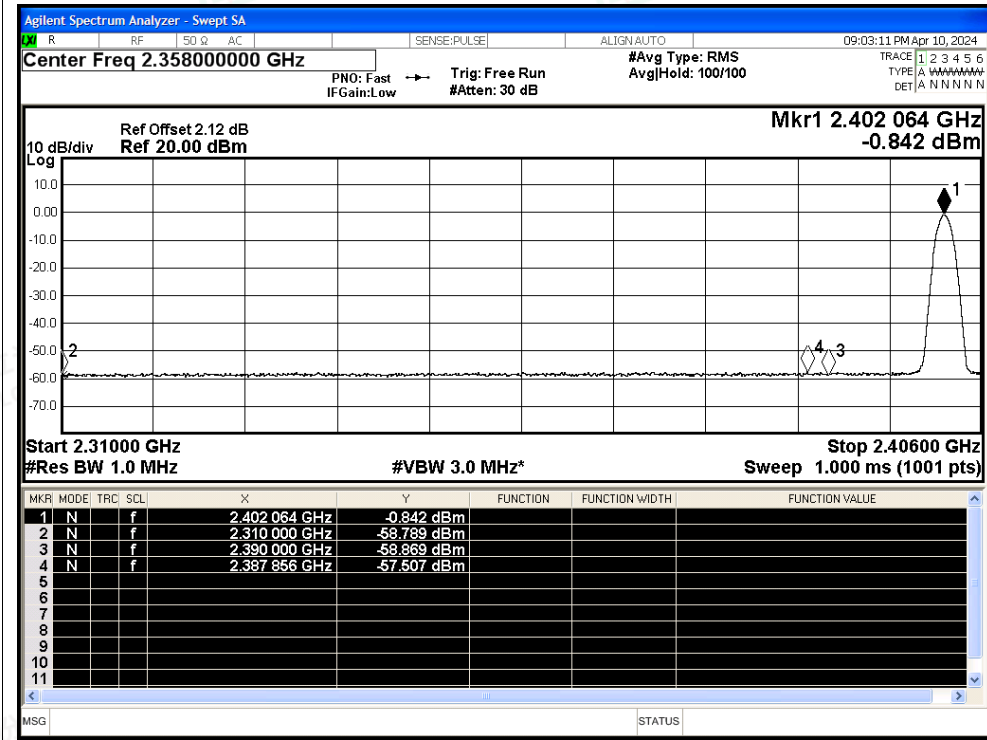


Test Graphs

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



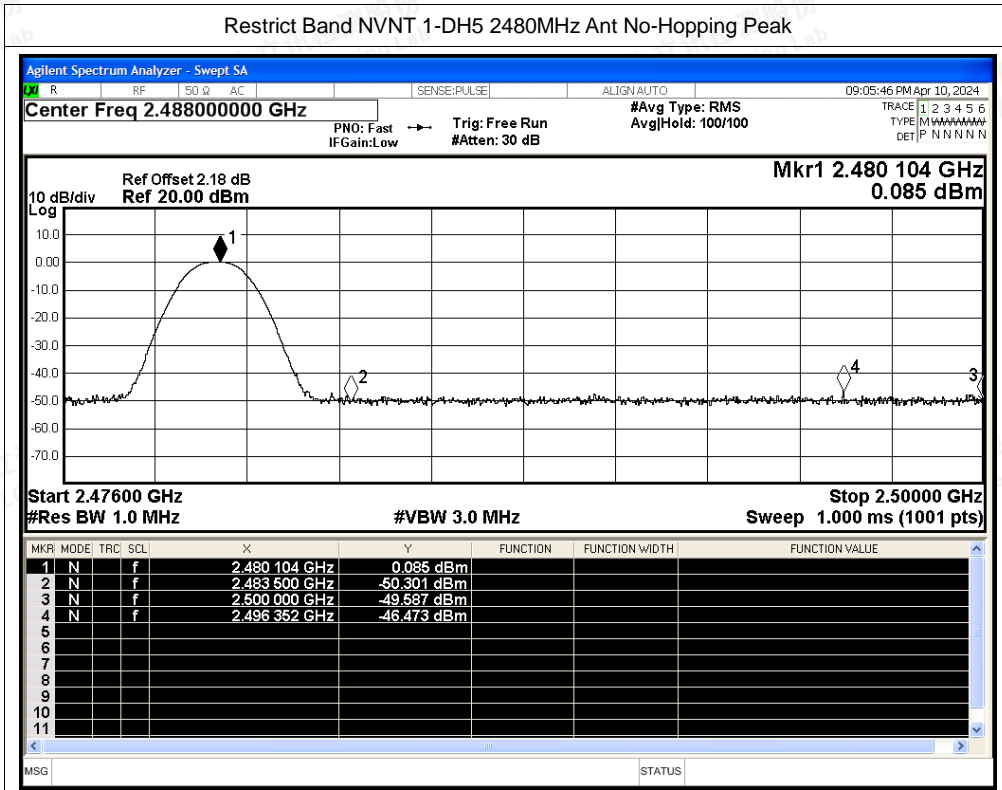
Restrict Band NVNT 1-DH5 2402MHz Ant No-Hopping Average



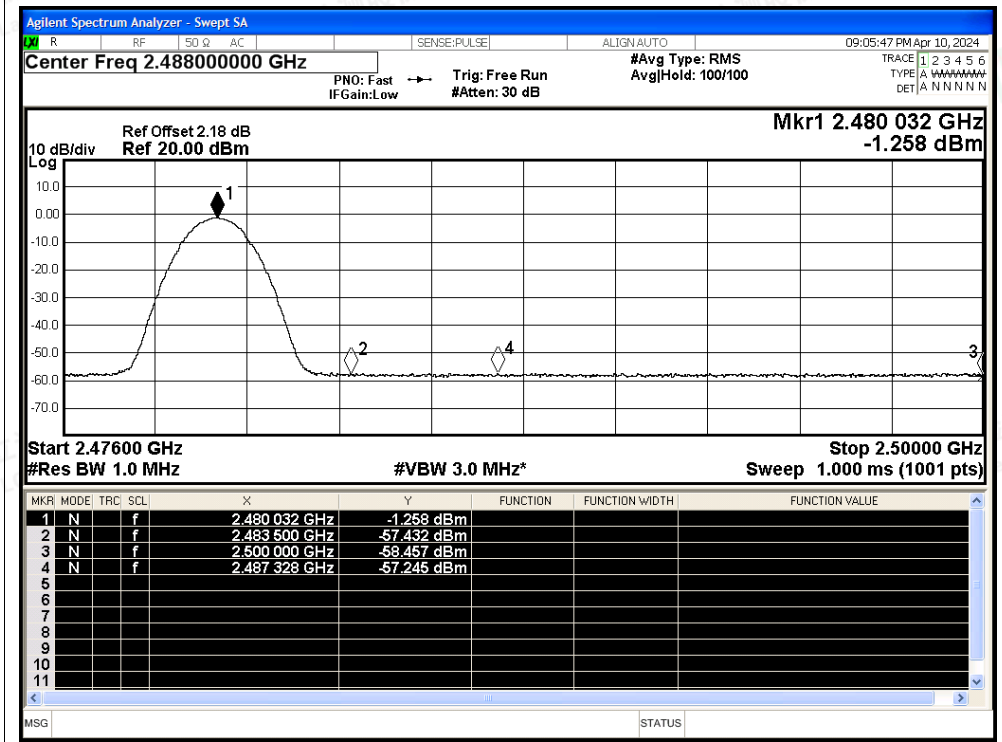




Restrict Band NVNT 1-DH5 2480MHz Ant No-Hopping Peak



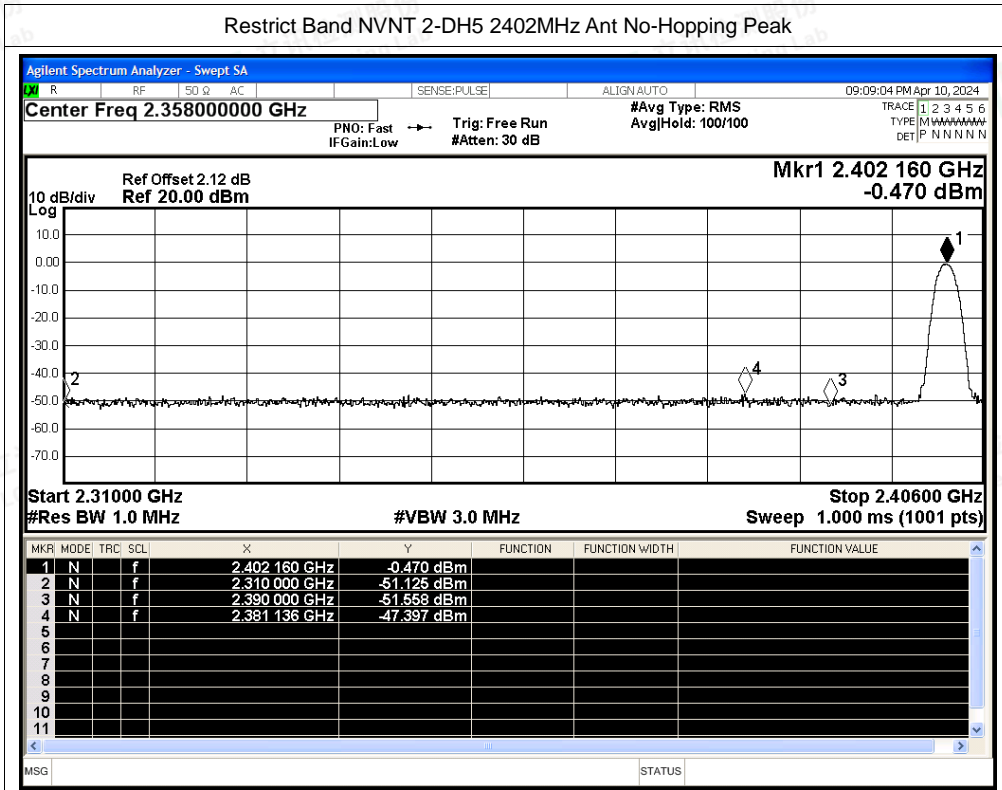
Restrict Band NVNT 1-DH5 2480MHz Ant No-Hopping Average



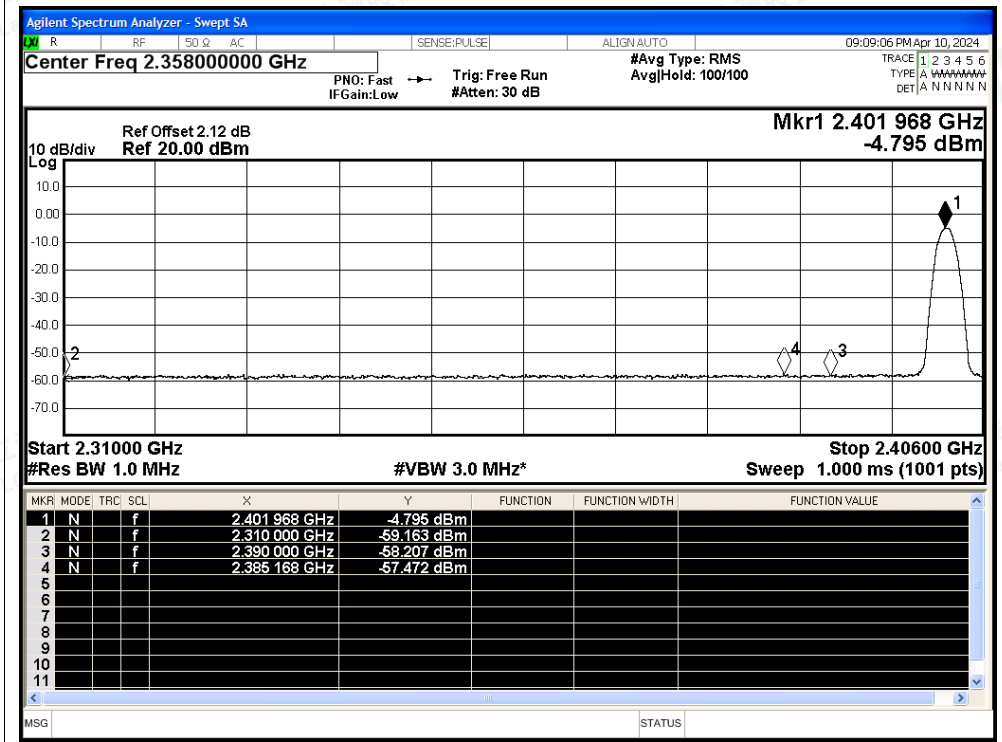




Restrict Band NVNT 2-DH5 2402MHz Ant No-Hopping Peak

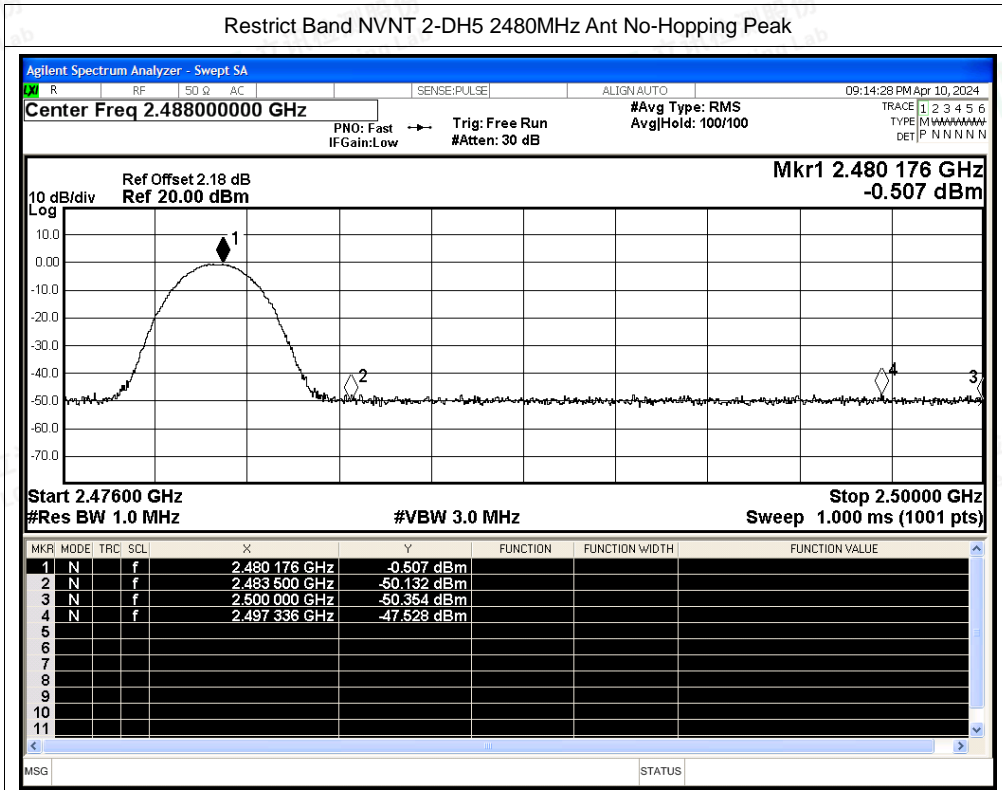


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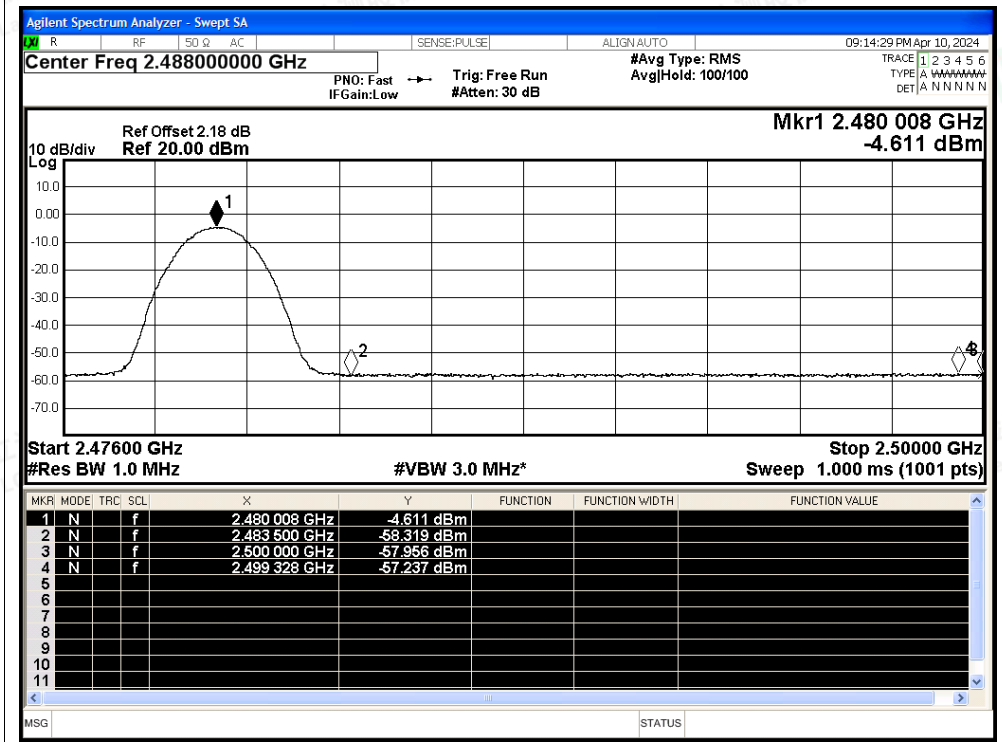




Restrict Band NVNT 2-DH5 2480MHz Ant No-Hopping Peak

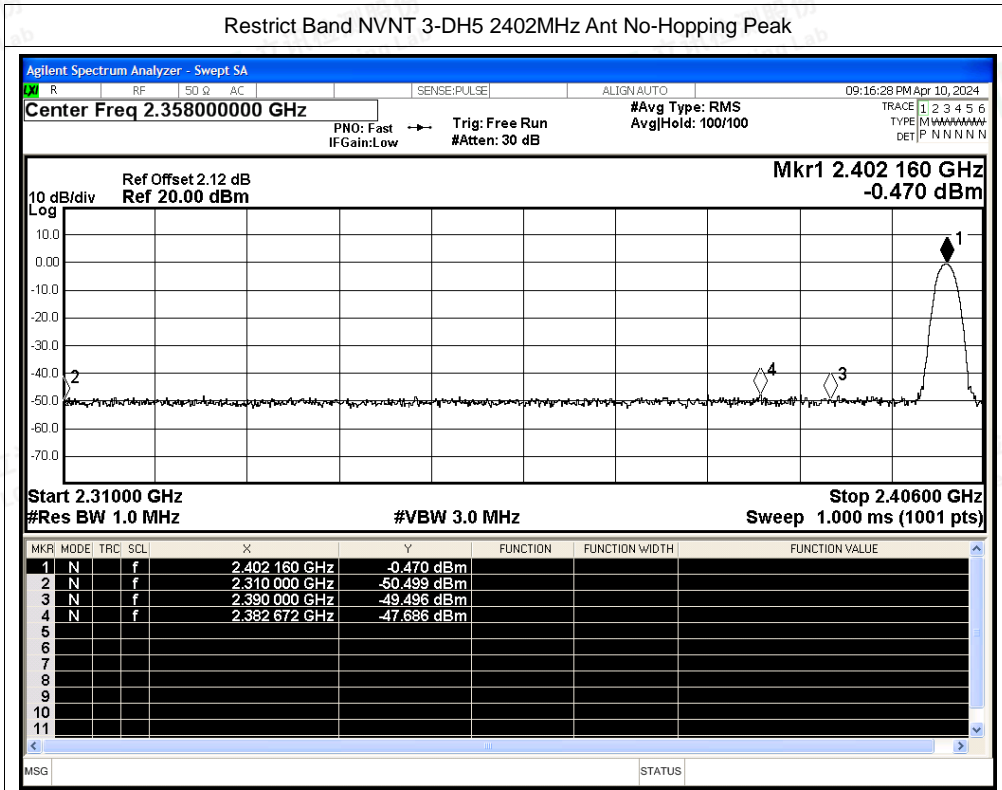


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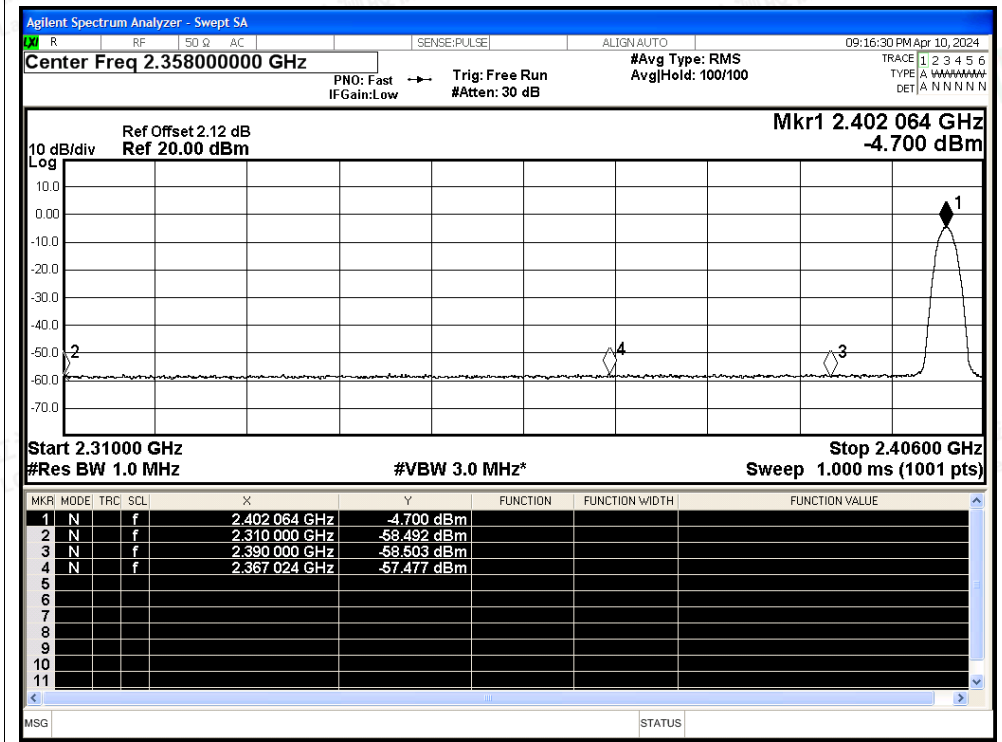




Restrict Band NVNT 3-DH5 2402MHz Ant No-Hopping Peak

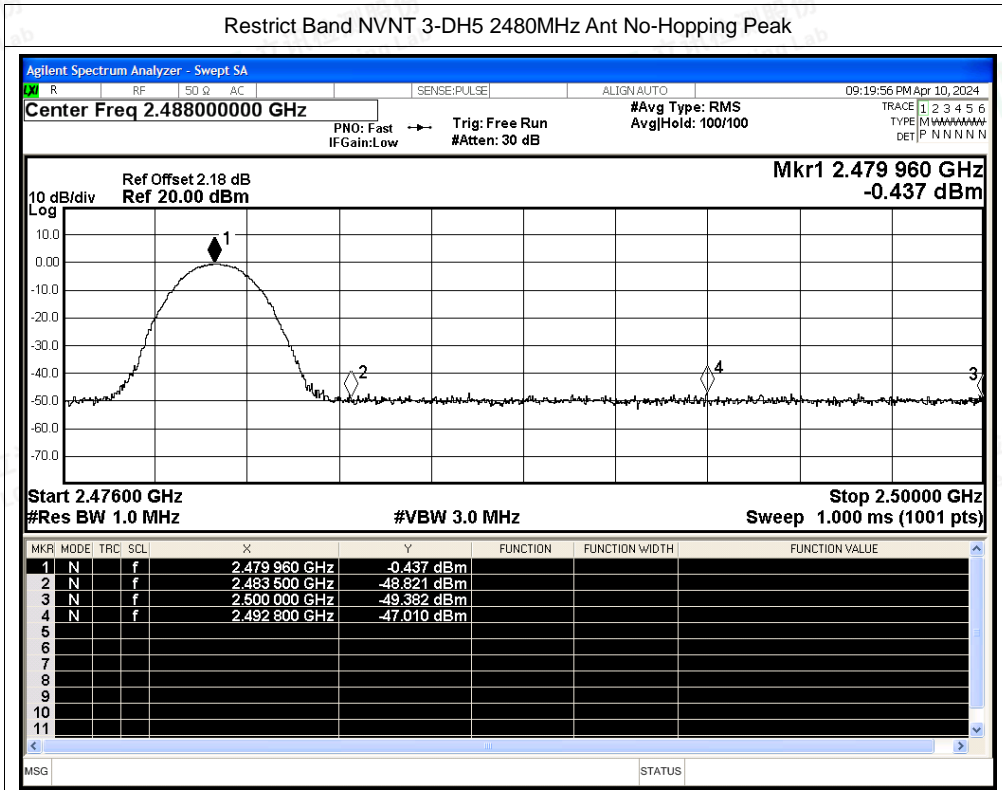


Restrict Band NVNT 3-DH5 2402MHz Ant No-Hopping Average





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



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

