Appendix A

RF Test Data for BT (Conducted Measurement)

Product Name: INTERACTIVE SMART BOARD

Test Model: TP-660H68

Environmental Conditions

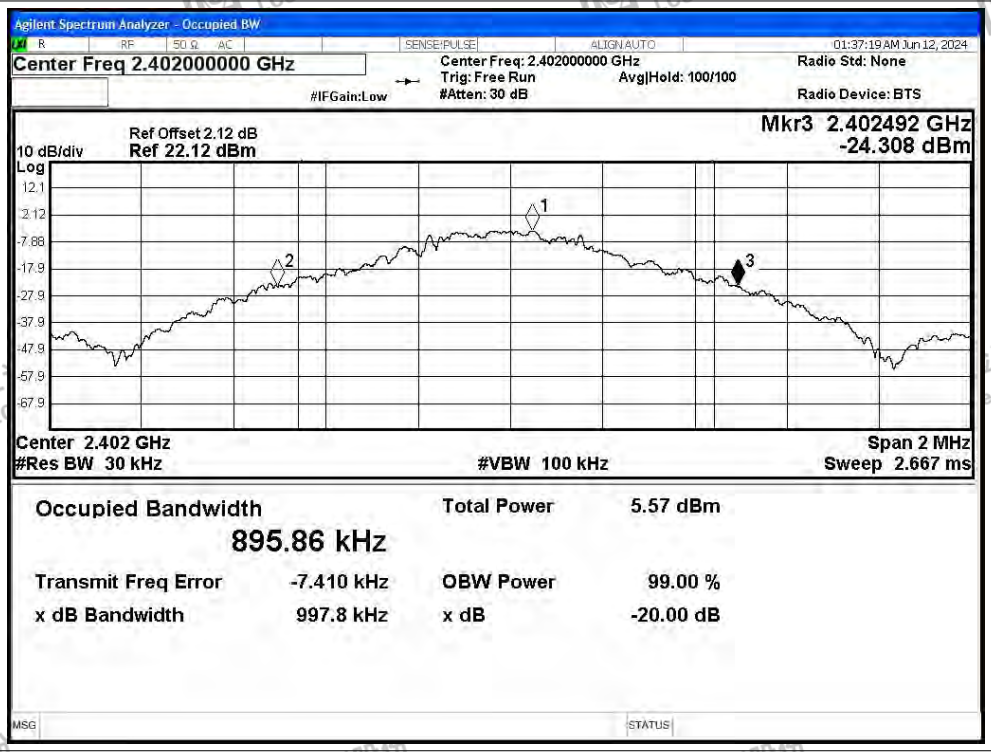
Temperature:	23.8°C
Relative Humidity:	52.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Can Kun
Supervised by:	Nick Peng

A.1 -20dB Bandwidth

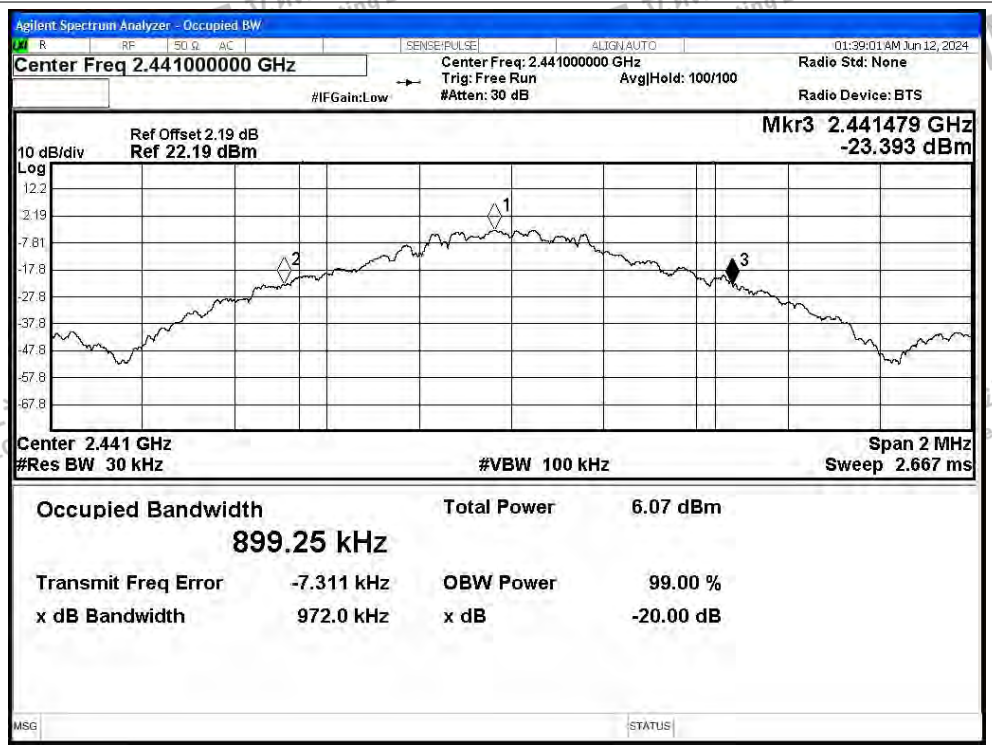
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Limit -20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH5	2402	Ant1	0.998	N/A	Pass
NVNT	1-DH5	2441	Ant1	0.972	N/A	Pass
NVNT	1-DH5	2480	Ant1	1.022	N/A	Pass
NVNT	2-DH5	2402	Ant1	1.288	N/A	Pass
NVNT	2-DH5	2441	Ant1	1.286	N/A	Pass
NVNT	2-DH5	2480	Ant1	1.279	N/A	Pass
NVNT	3-DH5	2402	Ant1	1.282	N/A	Pass
NVNT	3-DH5	2441	Ant1	1.295	N/A	Pass
NVNT	3-DH5	2480	Ant1	1.302	N/A	Pass

Test Graphs

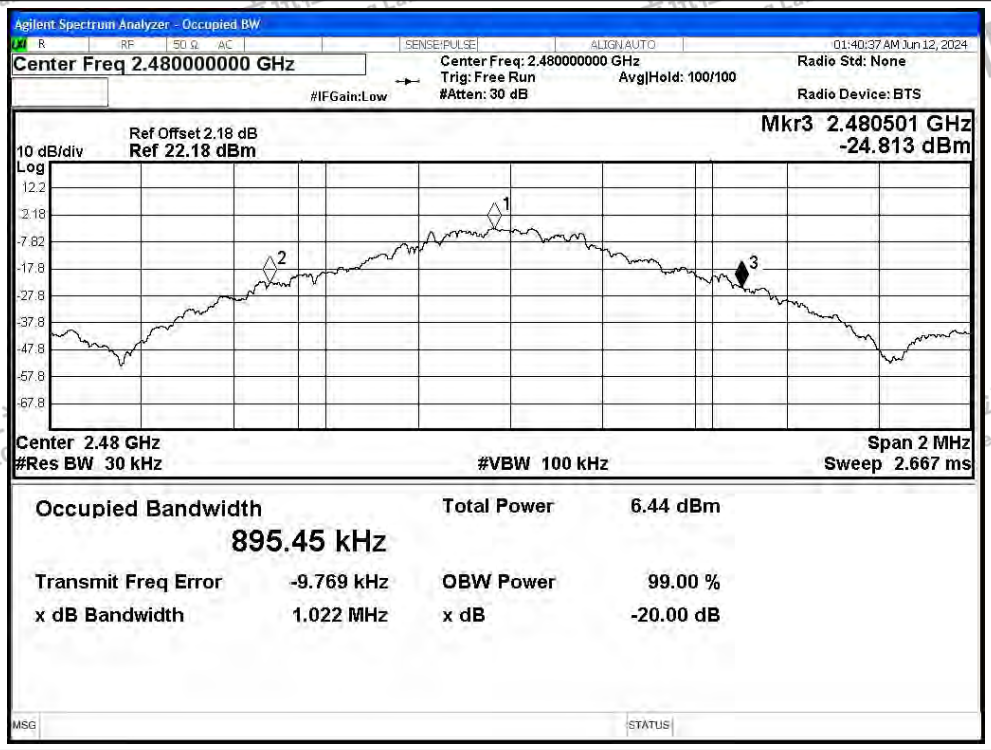
-20dB Bandwidth NVNT 1-DH5 2402MHz Ant1



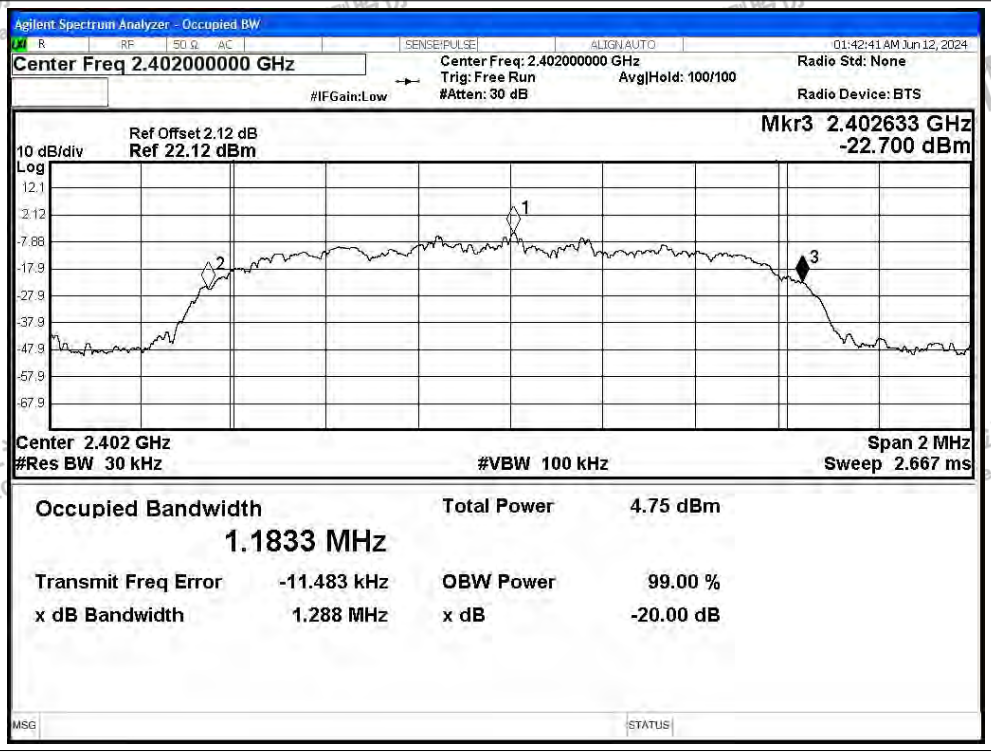
-20dB Bandwidth NVNT 1-DH5 2441MHz Ant1



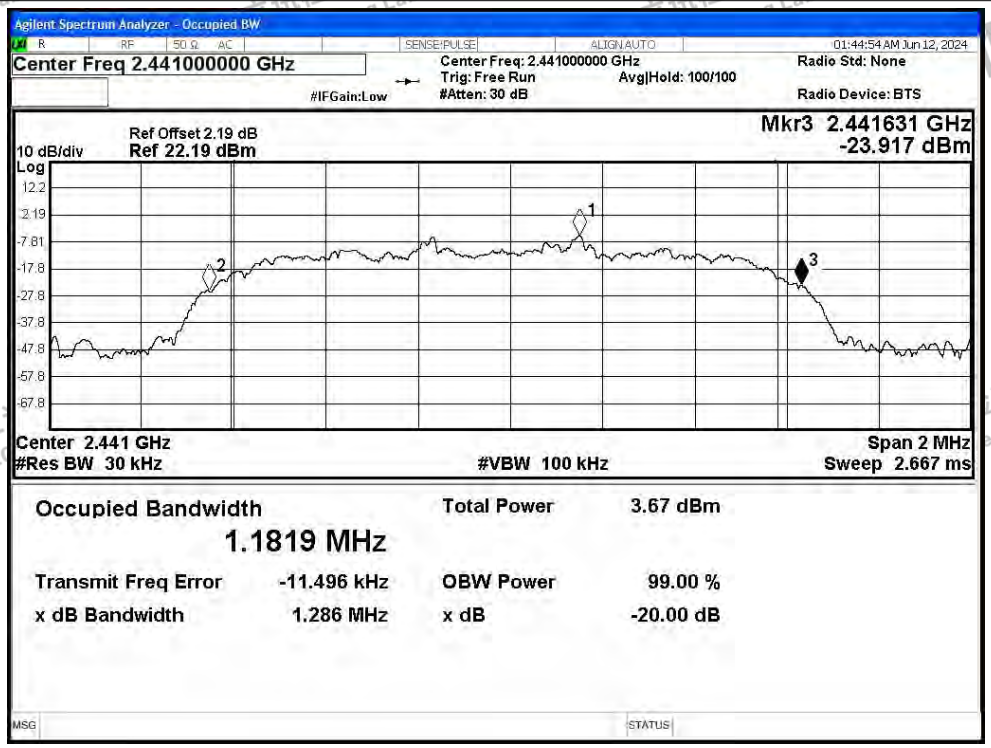
-20dB Bandwidth NVNT 1-DH5 2480MHz Ant1



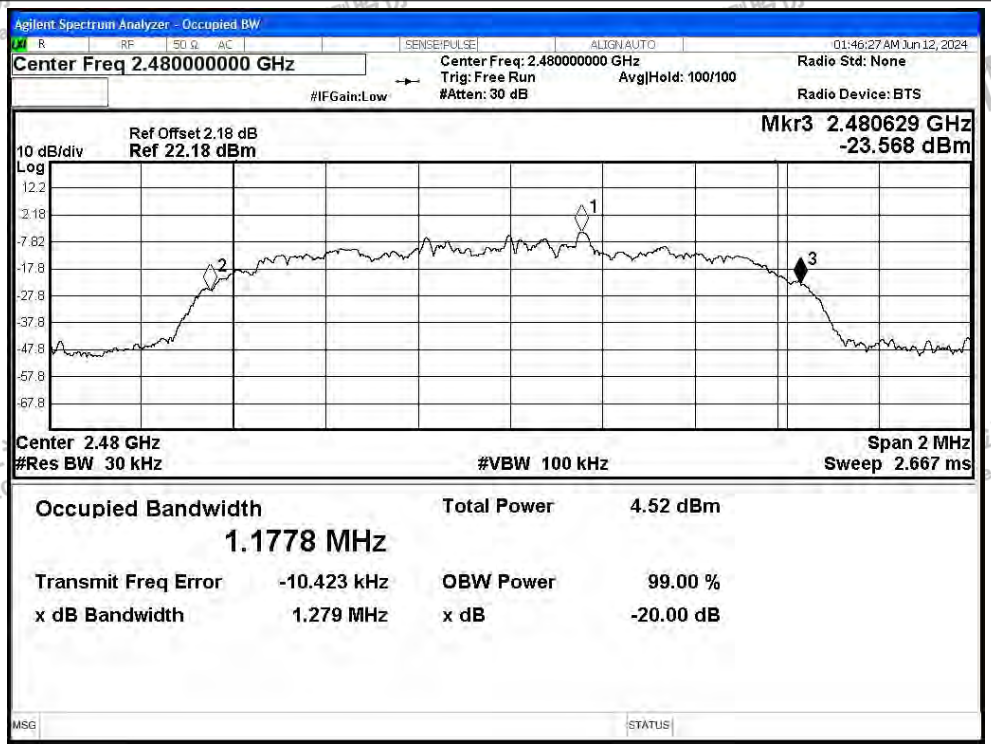
-20dB Bandwidth NVNT 2-DH5 2402MHz Ant1



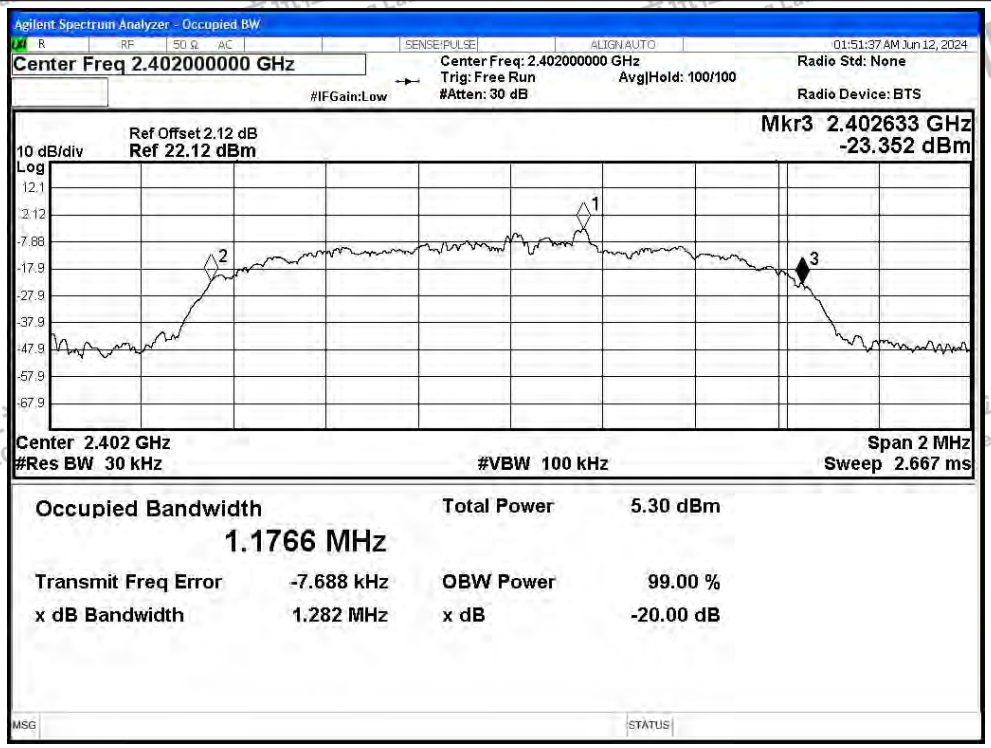
-20dB Bandwidth NVNT 2-DH5 2441MHz Ant1



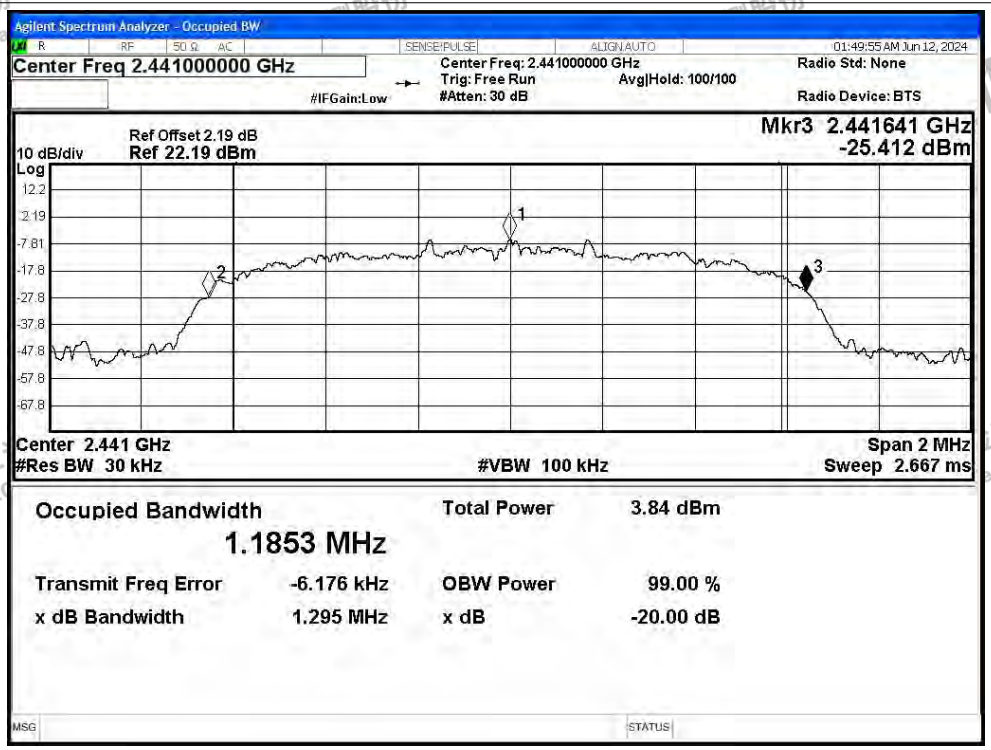
-20dB Bandwidth NVNT 2-DH5 2480MHz Ant1



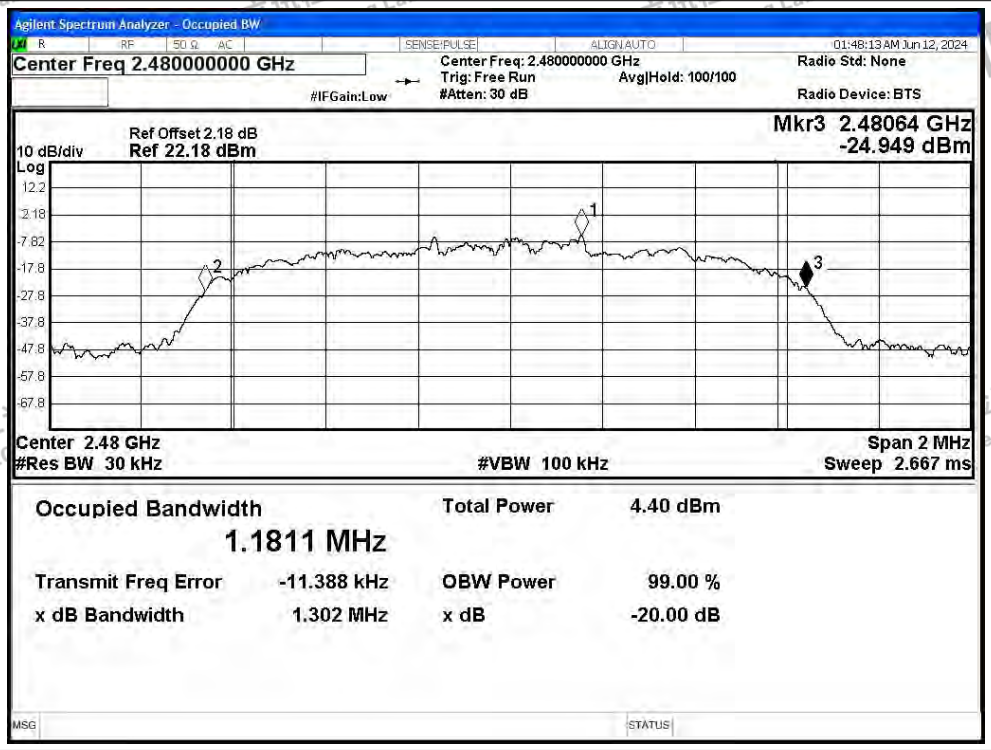
-20dB Bandwidth NVNT 3-DH5 2402MHz Ant1



-20dB Bandwidth NVNT 3-DH5 2441MHz Ant1



-20dB Bandwidth NVNT 3-DH5 2480MHz Ant1

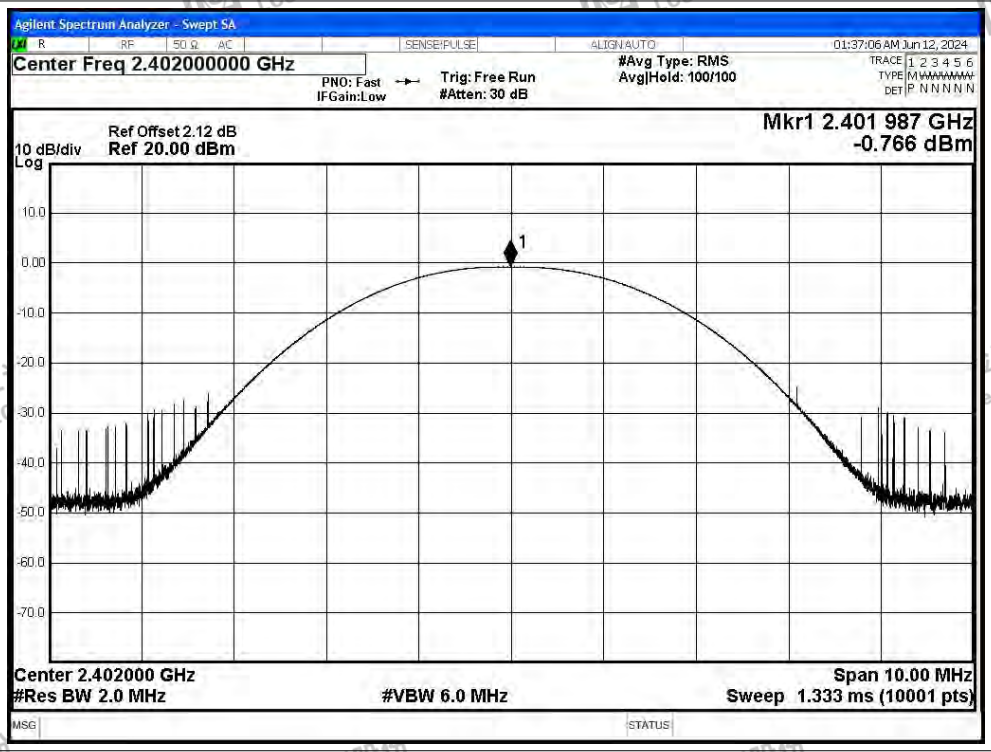


A.2 Maximum Peak Conducted Output Power

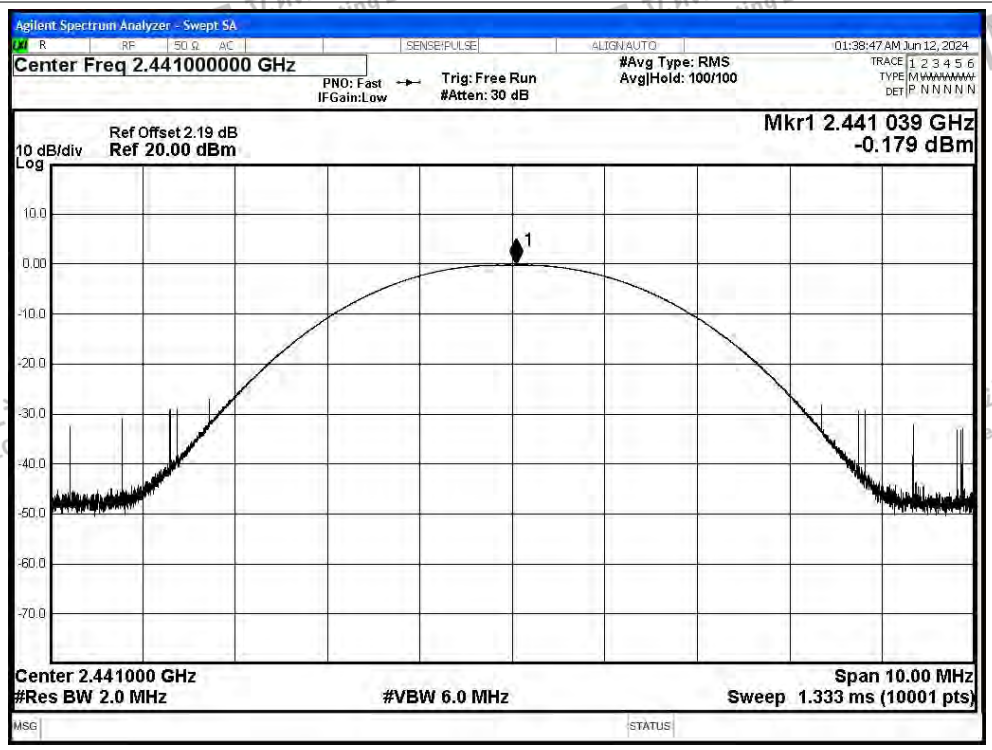
Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH5	2402	Ant1	-0.77	21	Pass
NVNT	1-DH5	2441	Ant1	-0.18	21	Pass
NVNT	1-DH5	2480	Ant1	0.11	21	Pass
NVNT	2-DH5	2402	Ant1	0.3	21	Pass
NVNT	2-DH5	2441	Ant1	-0.63	21	Pass
NVNT	2-DH5	2480	Ant1	-0.27	21	Pass
NVNT	3-DH5	2402	Ant1	0.43	21	Pass
NVNT	3-DH5	2441	Ant1	-0.52	21	Pass
NVNT	3-DH5	2480	Ant1	-0.2	21	Pass

Test Graphs

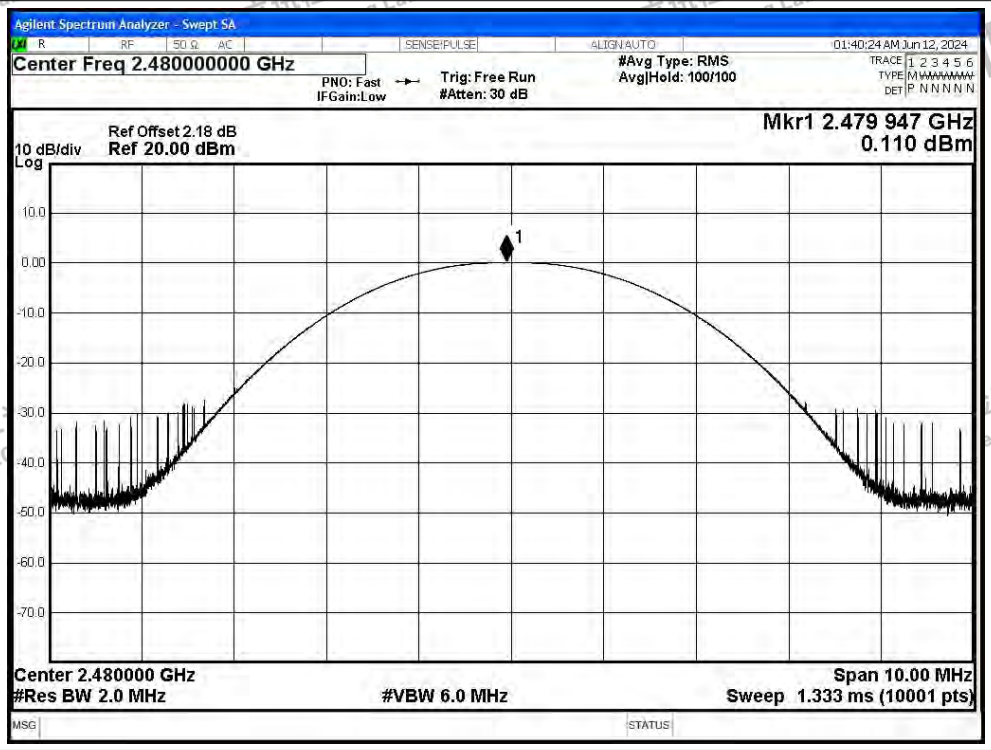
Power NVNT 1-DH5 2402MHz Ant1



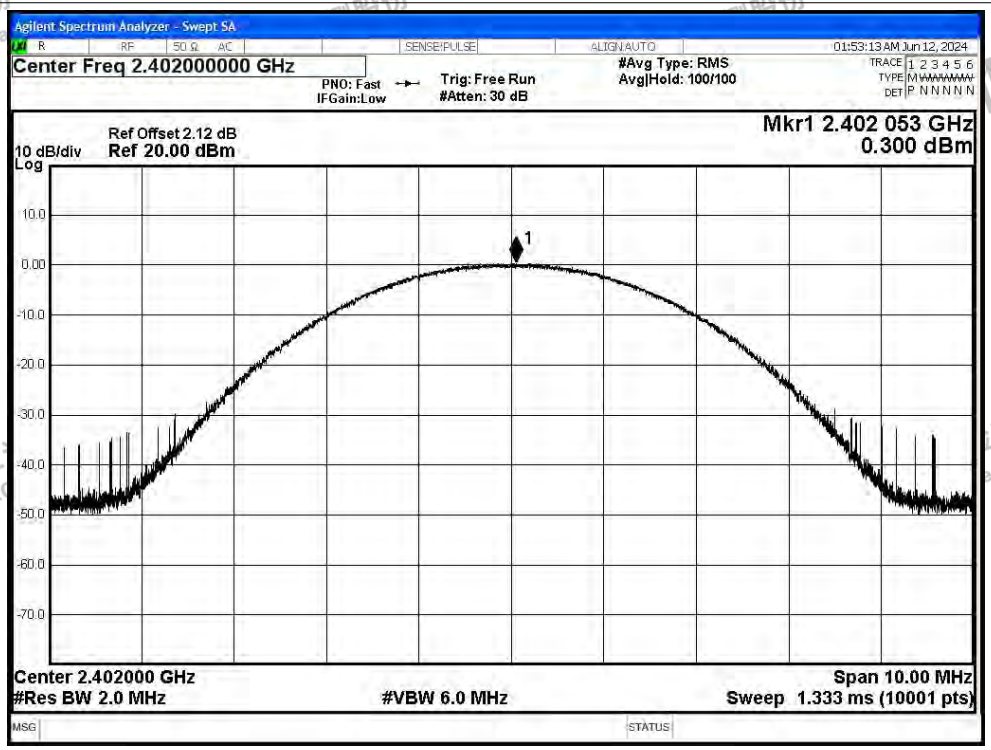
Power NVNT 1-DH5 2441MHz Ant1



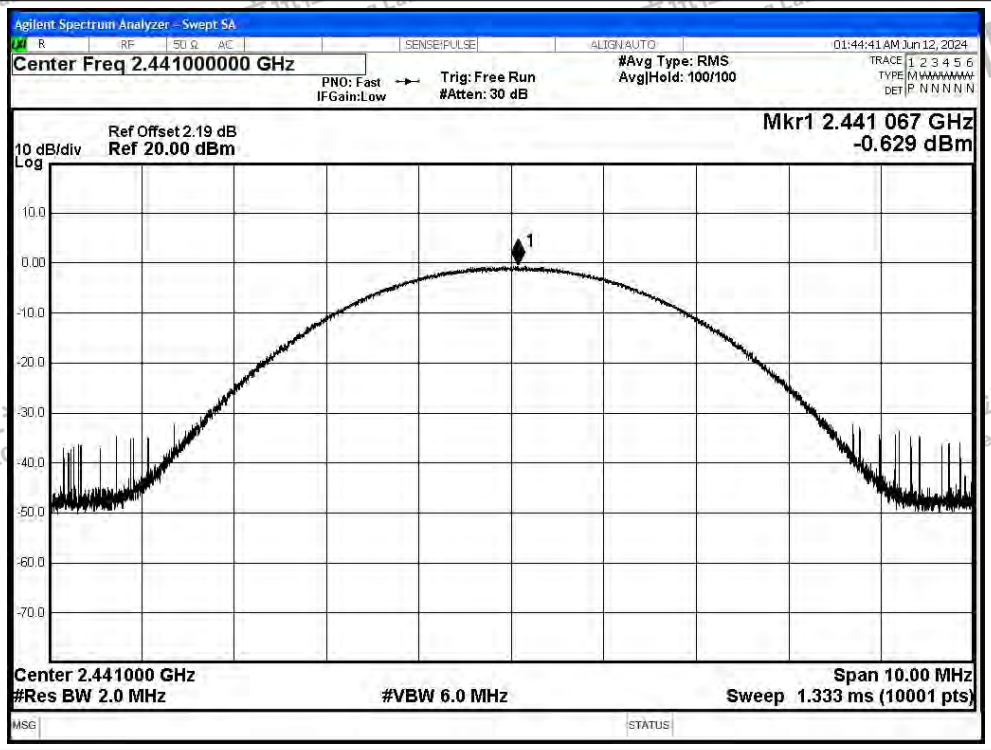
Power NVNT 1-DH5 2480MHz Ant1



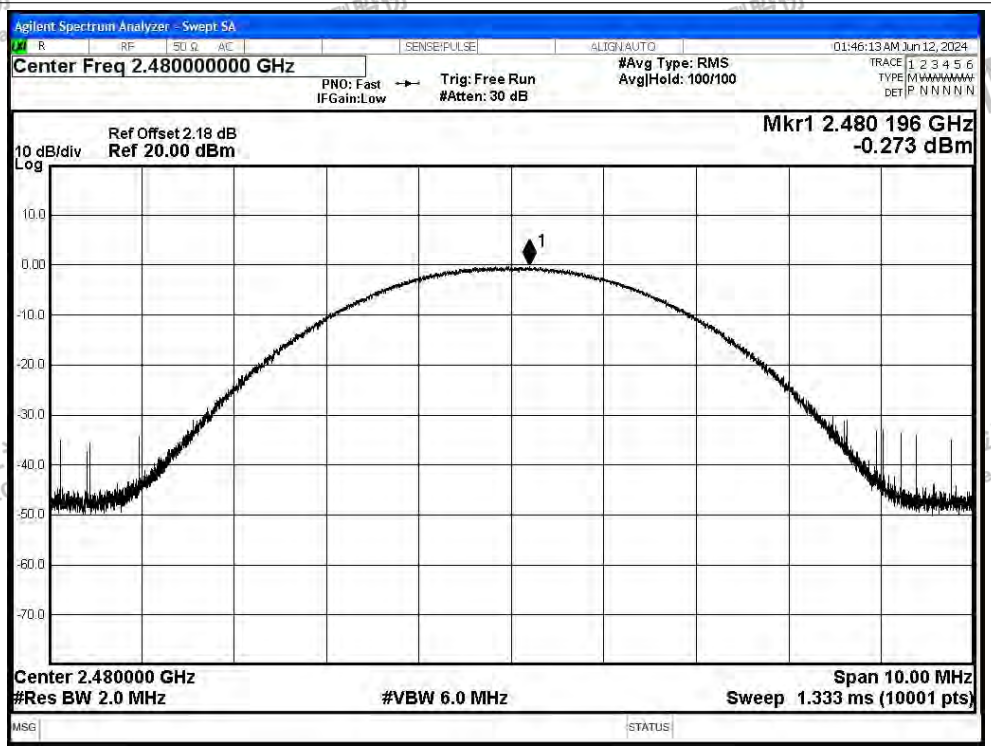
Power NVNT 2-DH5 2402MHz Ant1



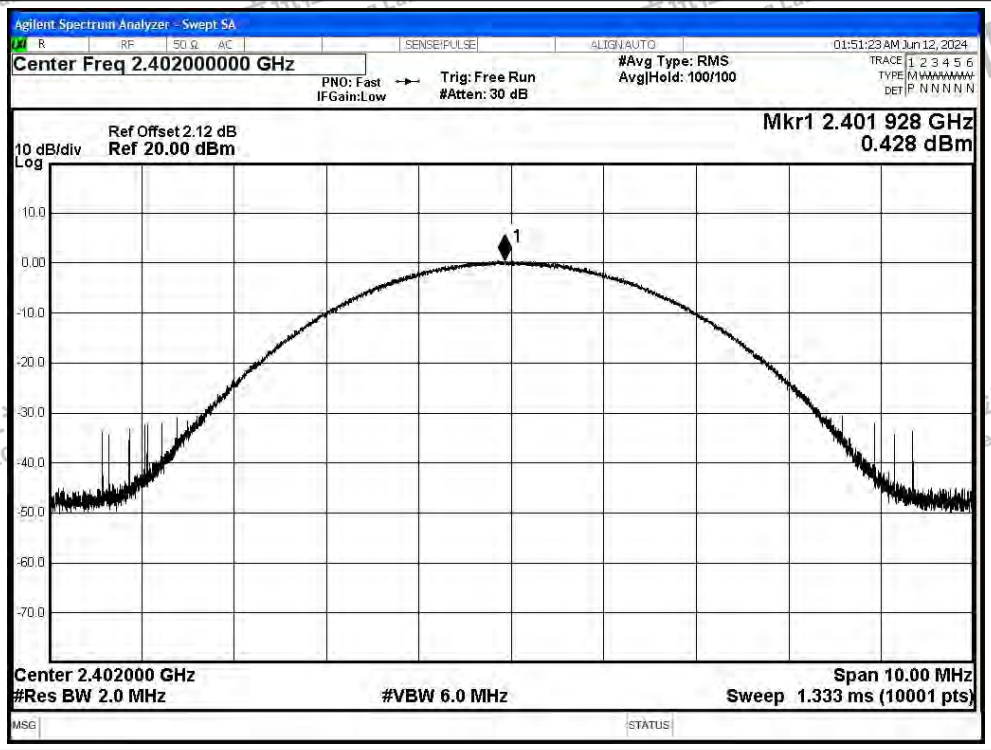
Power NVNT 2-DH5 2441MHz Ant1



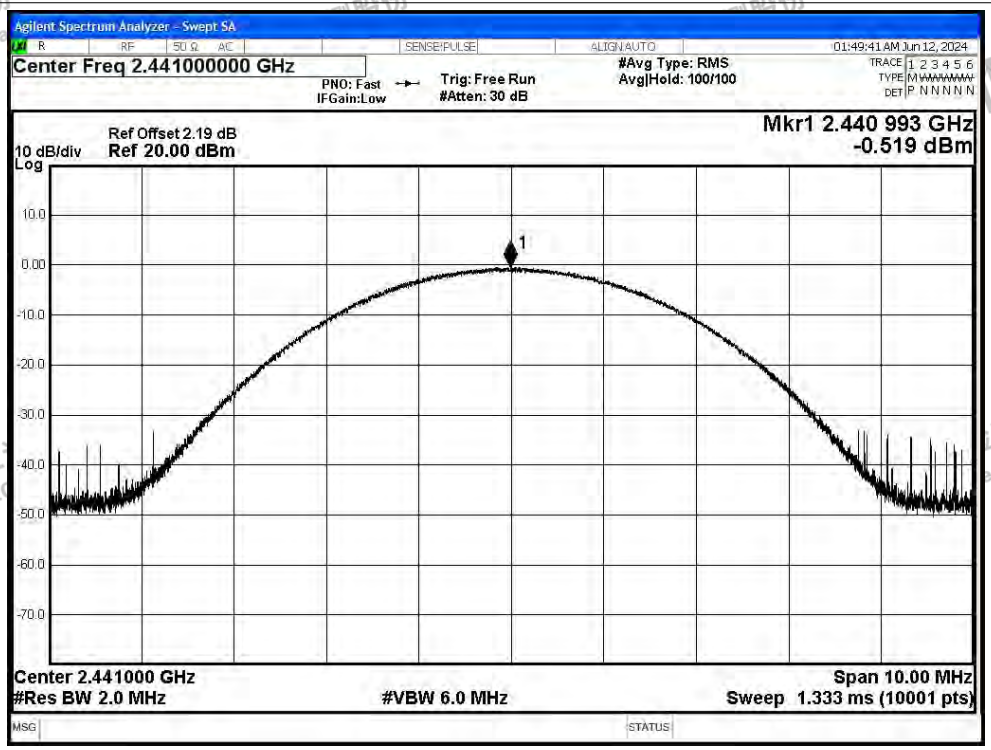
Power NVNT 2-DH5 2480MHz Ant1



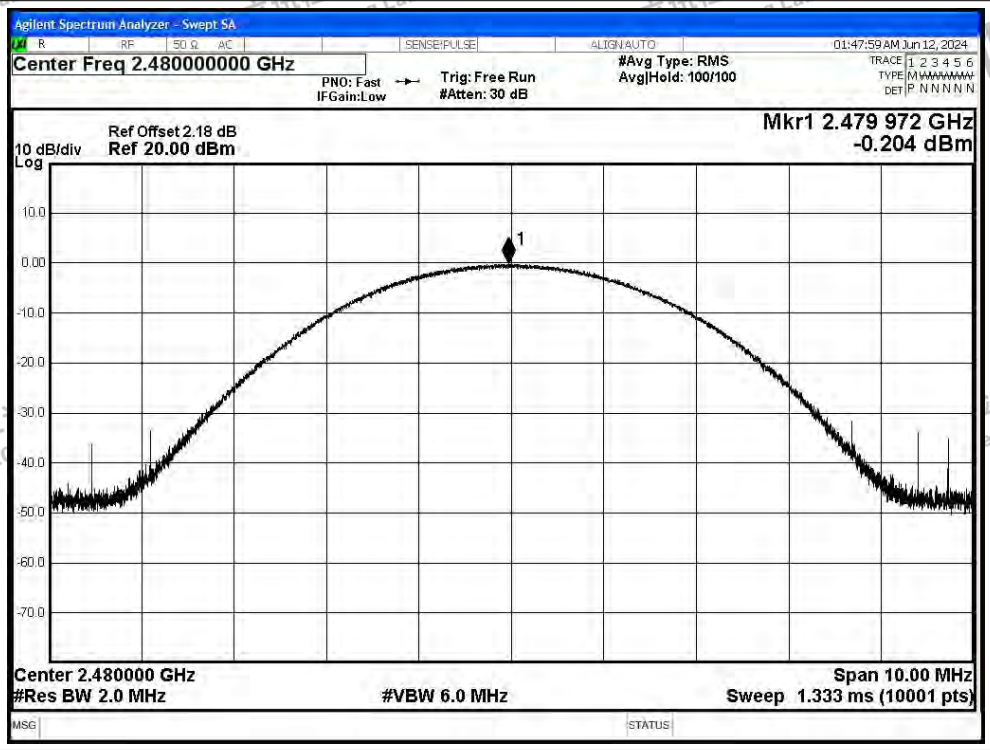
Power NVNT 3-DH5 2402MHz Ant1



Power NVNT 3-DH5 2441MHz Ant1



Power NVNT 3-DH5 2480MHz Ant1

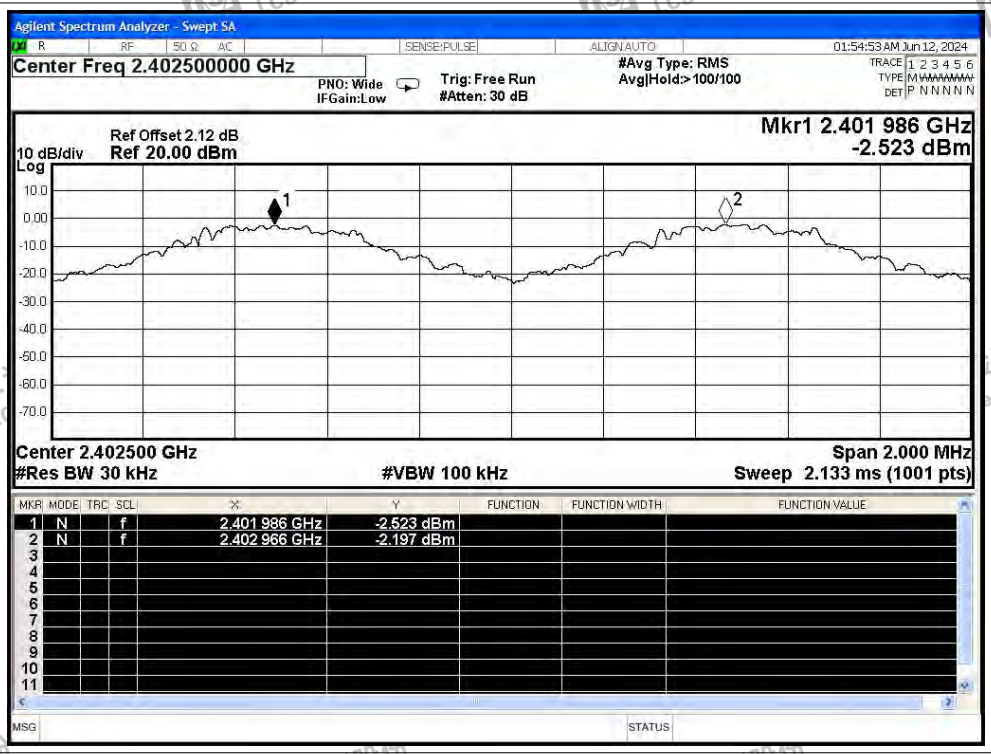


A.3 Carrier Frequencies Separation

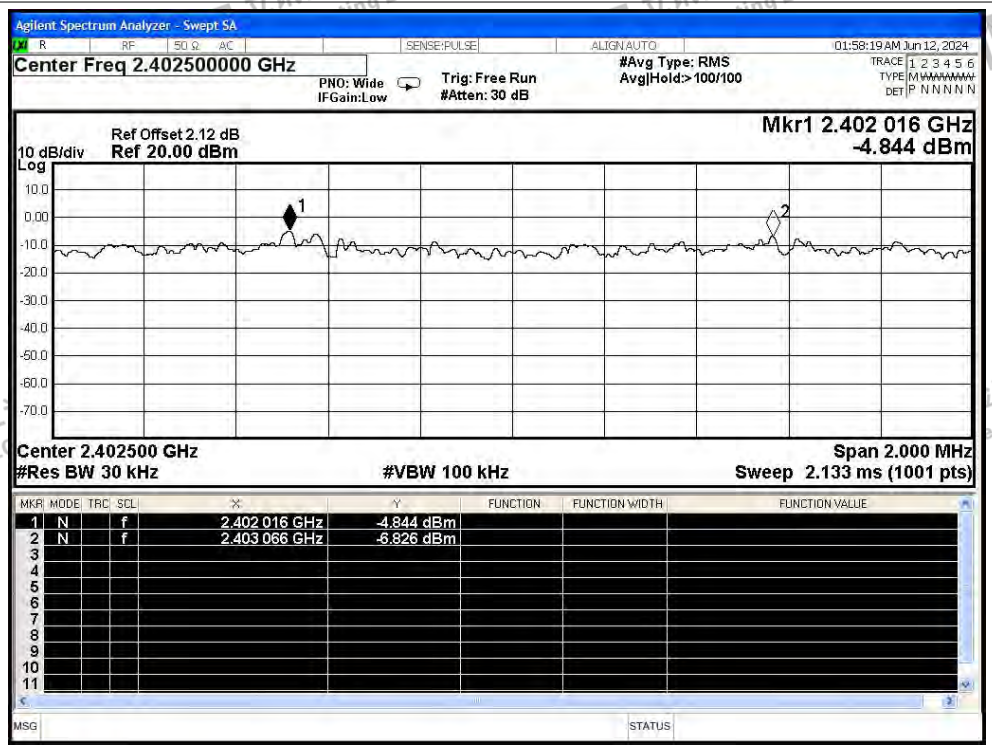
Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH5	Ant1	2401.986	2402.966	0.98	0.681	Pass
NVNT	2-DH5	Ant1	2402.016	2403.066	1.05	0.859	Pass
NVNT	3-DH5	Ant1	2401.826	2403.176	1.35	0.868	Pass

Test Graphs

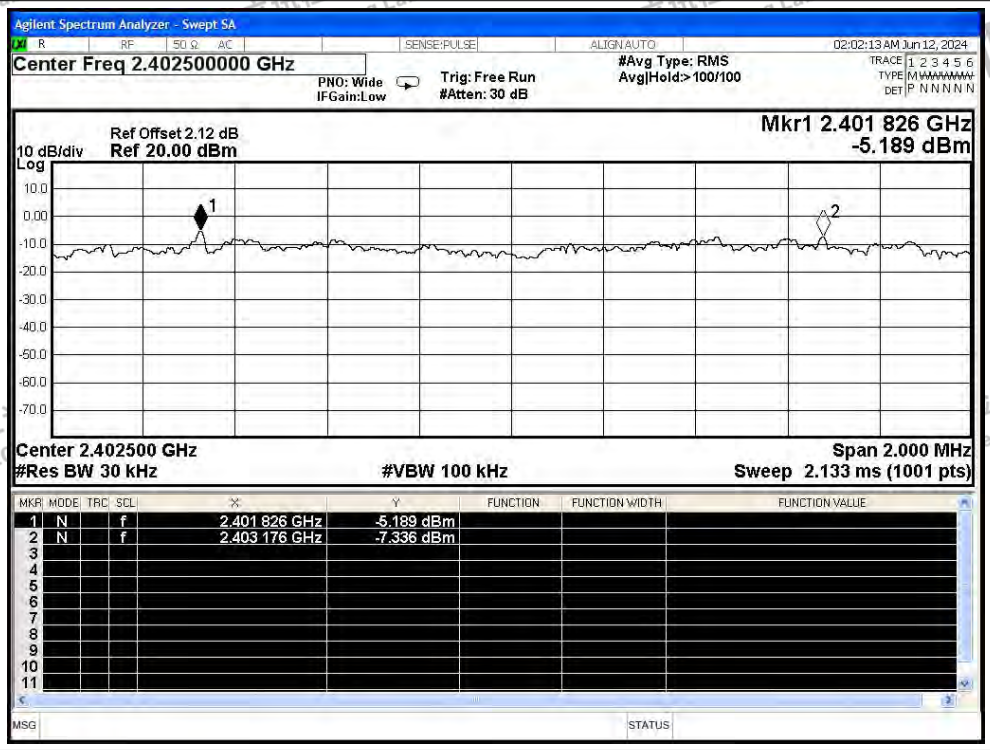
CFS NVNT 1-DH5 2402MHz Ant1



CFS NVNT 2-DH5 2402MHz Ant1



CFS NVNT 3-DH5 2402MHz Ant1

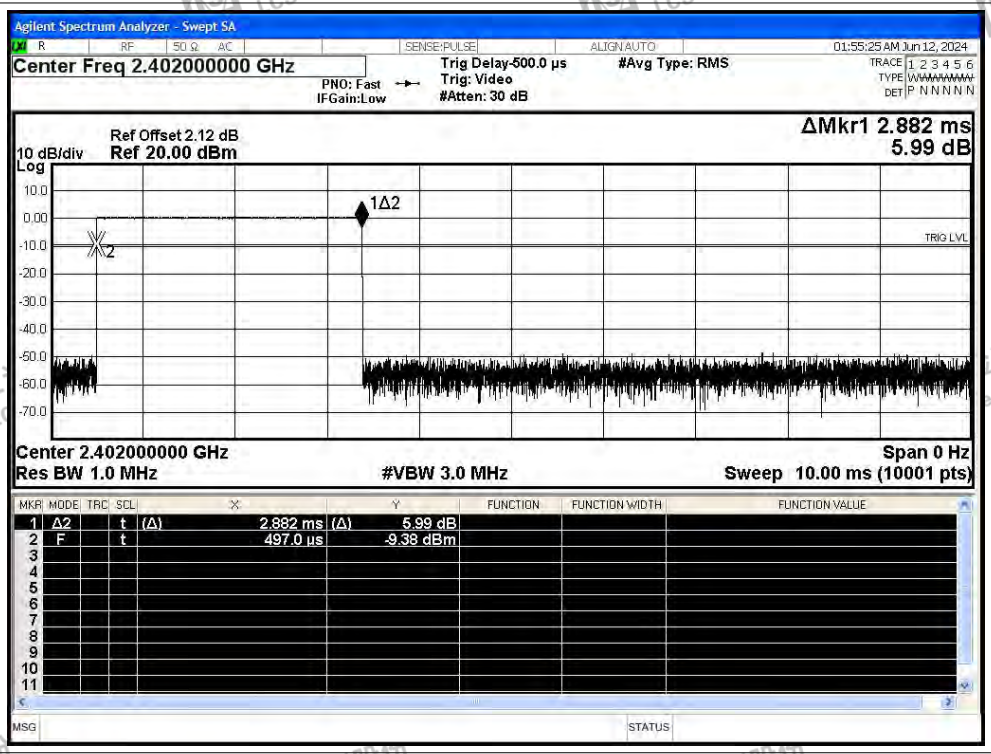


A.4 Dwell Time

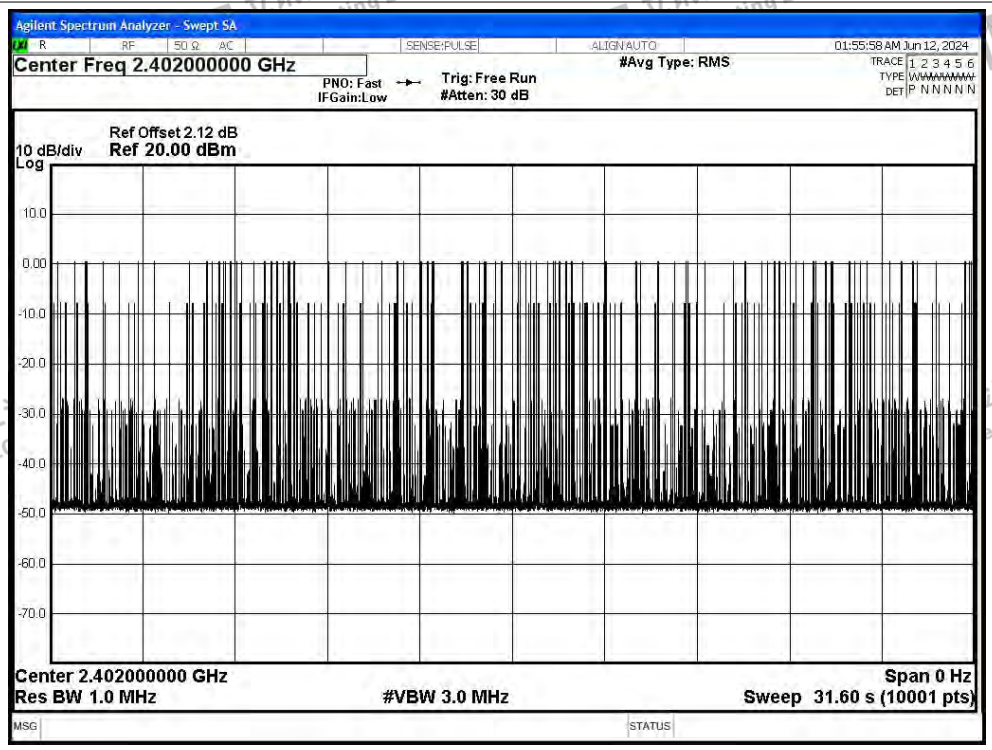
Condition	Mode	Frequency (MHz)	Antenna	Pulse Time (ms)	Total Dwell Time (ms)	Burst Count	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH5	2402	Ant1	2.882	305.492	106	31600	400	Pass
NVNT	2-DH5	2402	Ant1	2.885	308.695	107	31600	400	Pass
NVNT	3-DH5	2402	Ant1	2.887	282.926	98	31600	400	Pass

Test Graphs

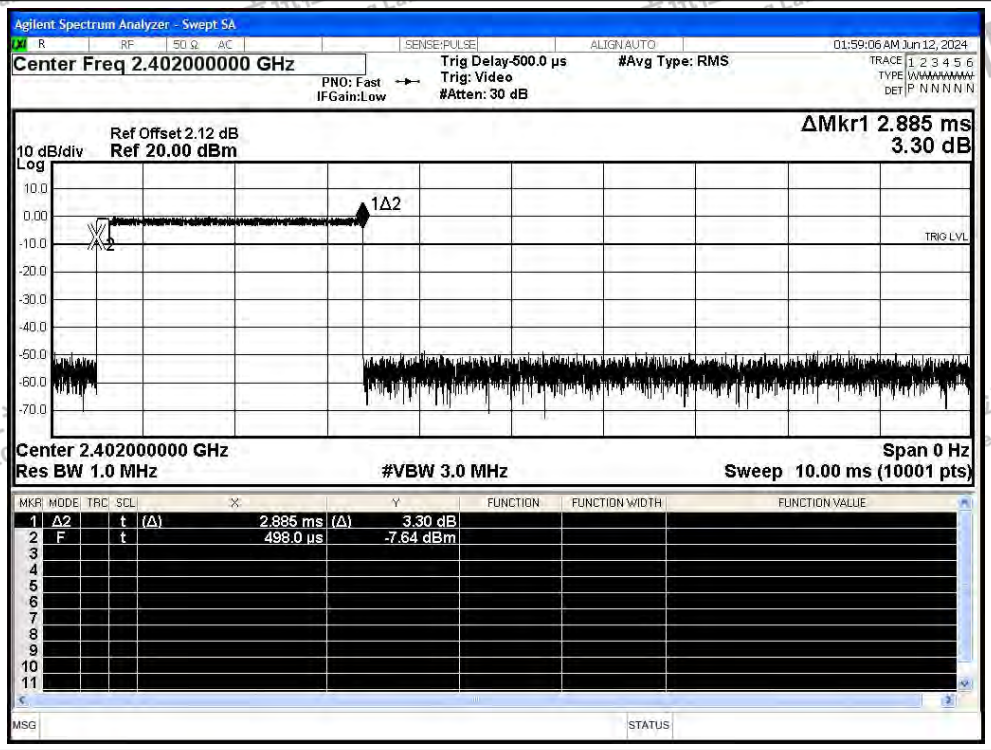
Dwell NVNT 1-DH5 2402MHz Ant1 One Burst



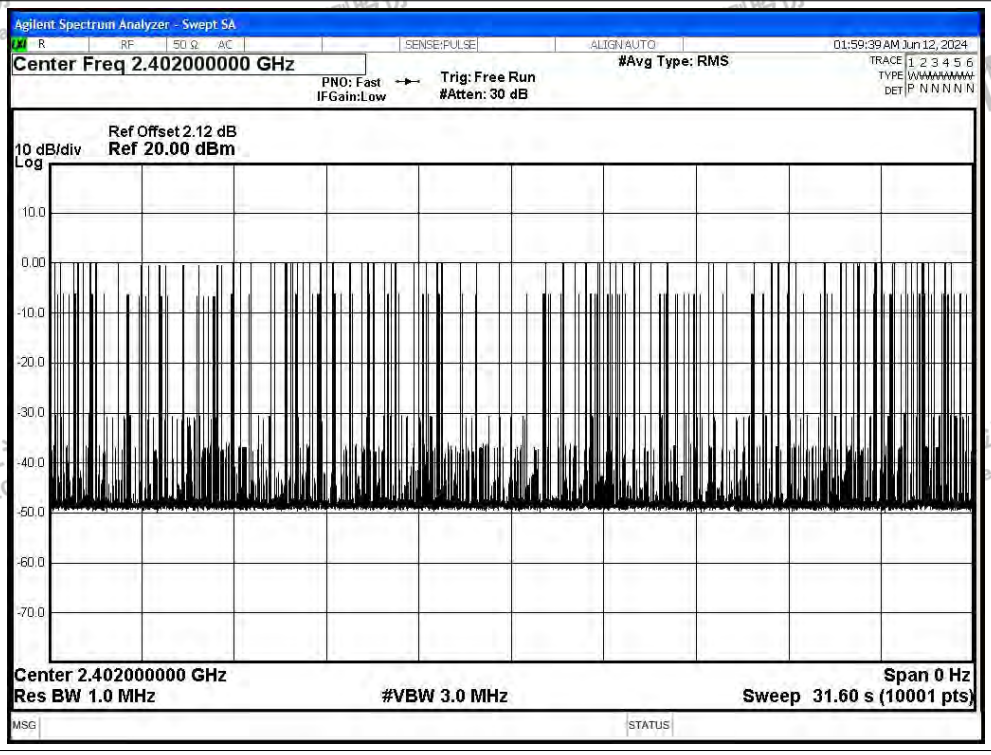
Dwell NVNT 1-DH5 2402MHz Ant1 Accumulated



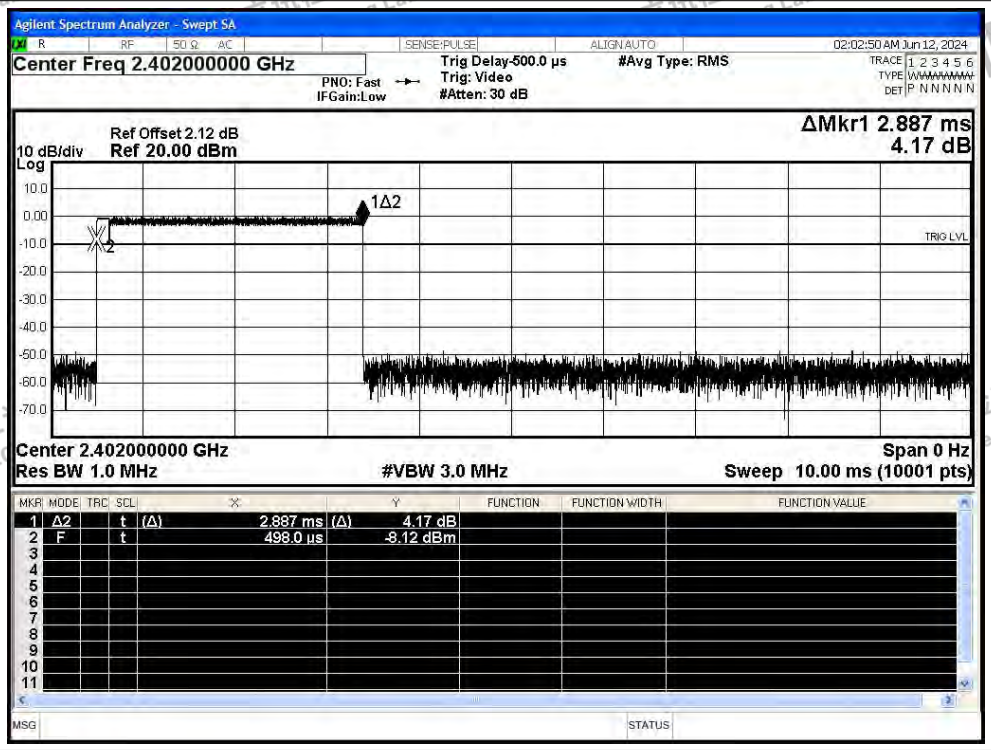
Dwell NVNT 2-DH5 2402MHz Ant1 One Burst



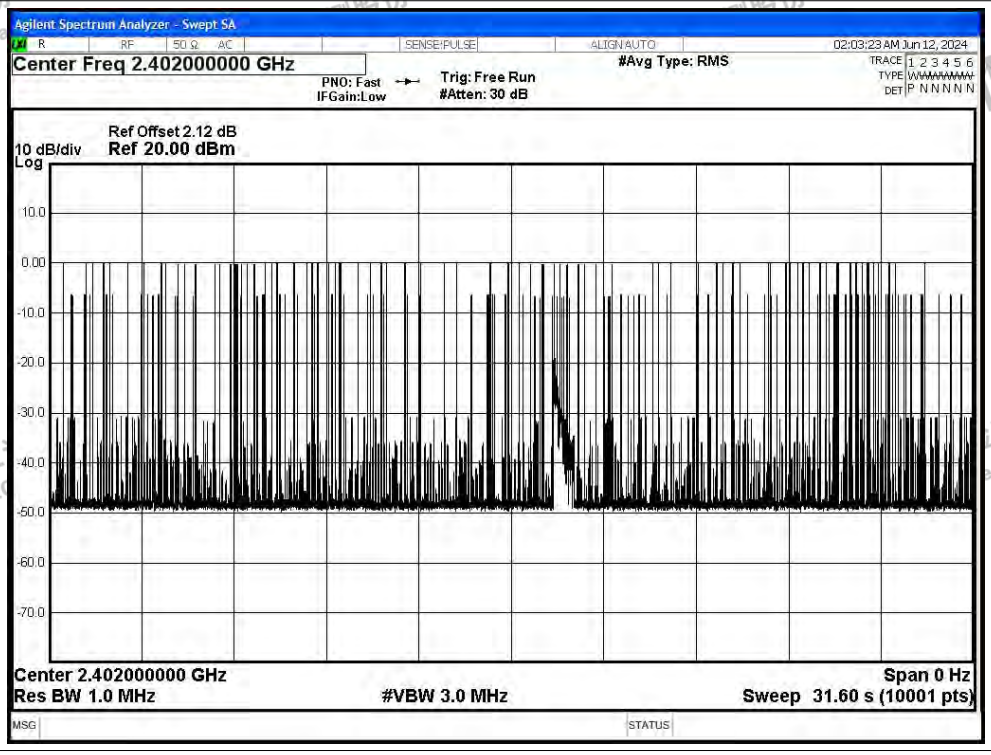
Dwell NVNT 2-DH5 2402MHz Ant1 Accumulated



Dwell NVNT 3-DH5 2402MHz Ant1 One Burst



Dwell NVNT 3-DH5 2402MHz Ant1 Accumulated

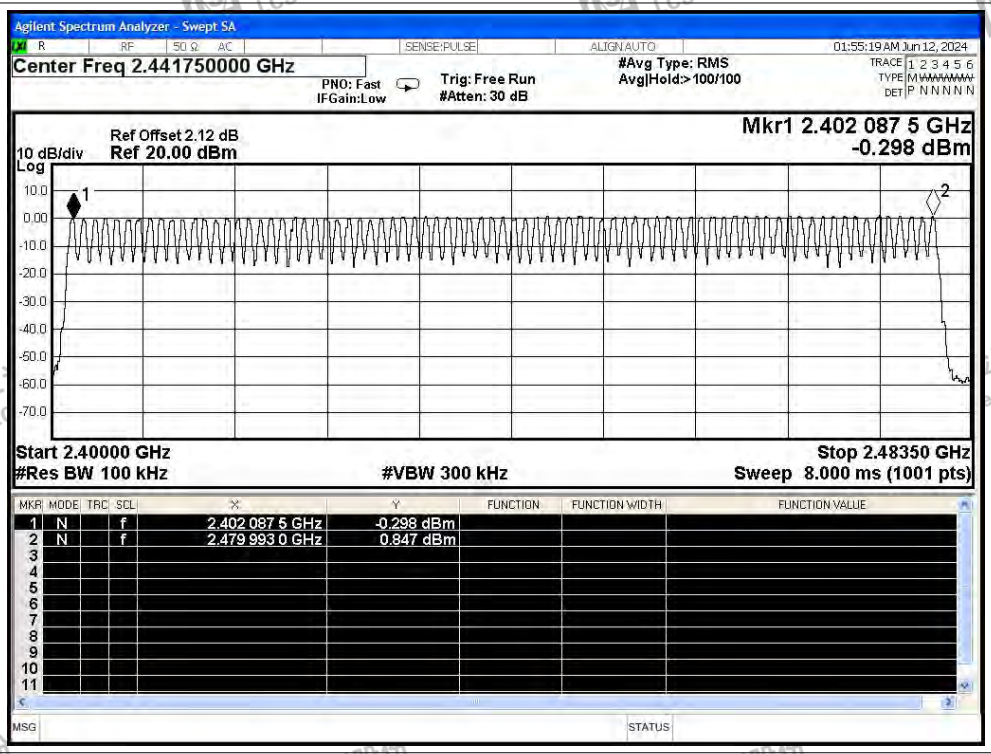


A.5 Number of Hopping Channel

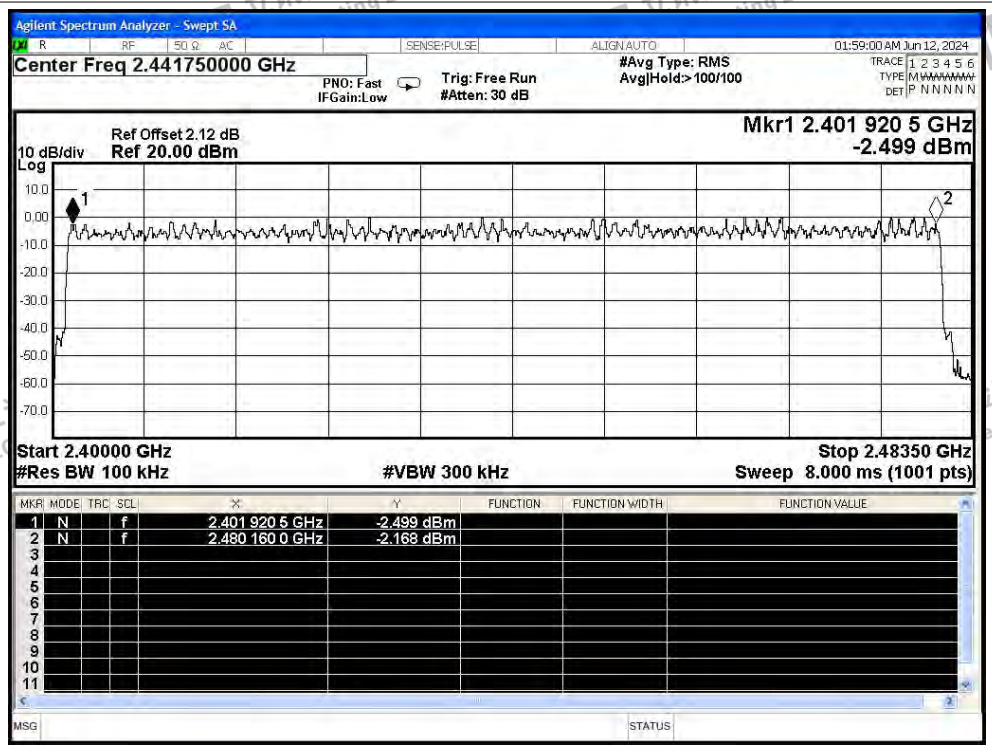
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH5	Ant1	79	15	Pass
NVNT	2-DH5	Ant1	79	15	Pass
NVNT	3-DH5	Ant1	79	15	Pass

Test Graphs

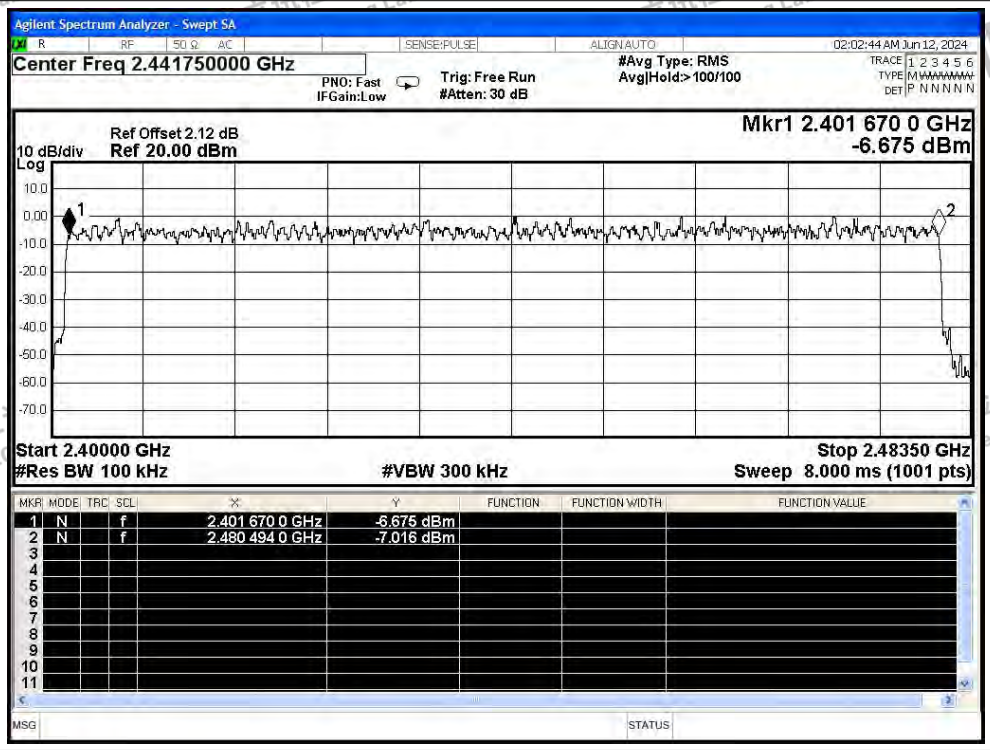
Hopping No. NVNT 1-DH5 2402MHz Ant1



Hopping No. NVNT 2-DH5 2402MHz Ant1



Hopping No. NVNT 3-DH5 2402MHz Ant1

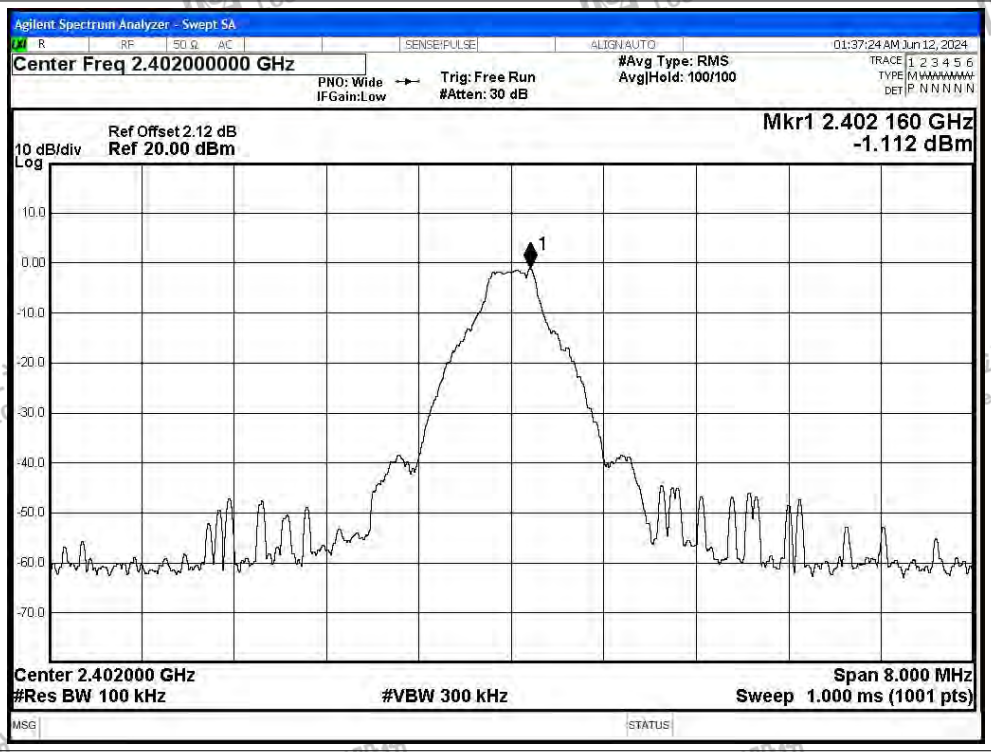


A.6 Band Edge

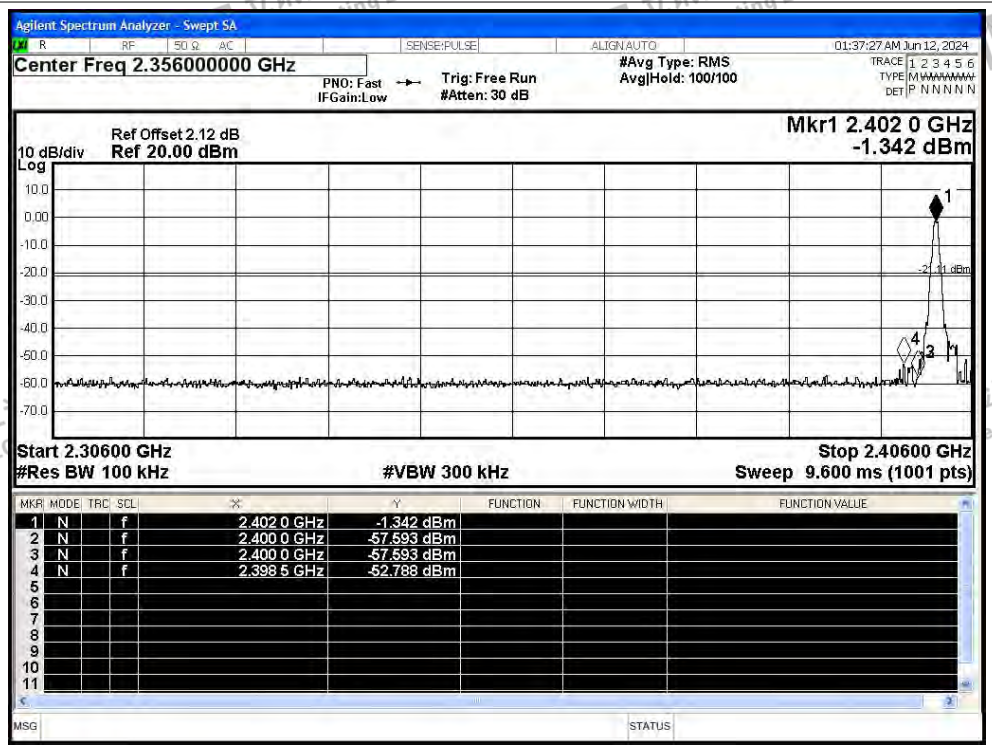
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	No-Hopping	-51.68	-20	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	-50.92	-20	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	-44.05	-20	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	-54.63	-20	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	-53.24	-20	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	-55.4	-20	Pass

Test Graphs

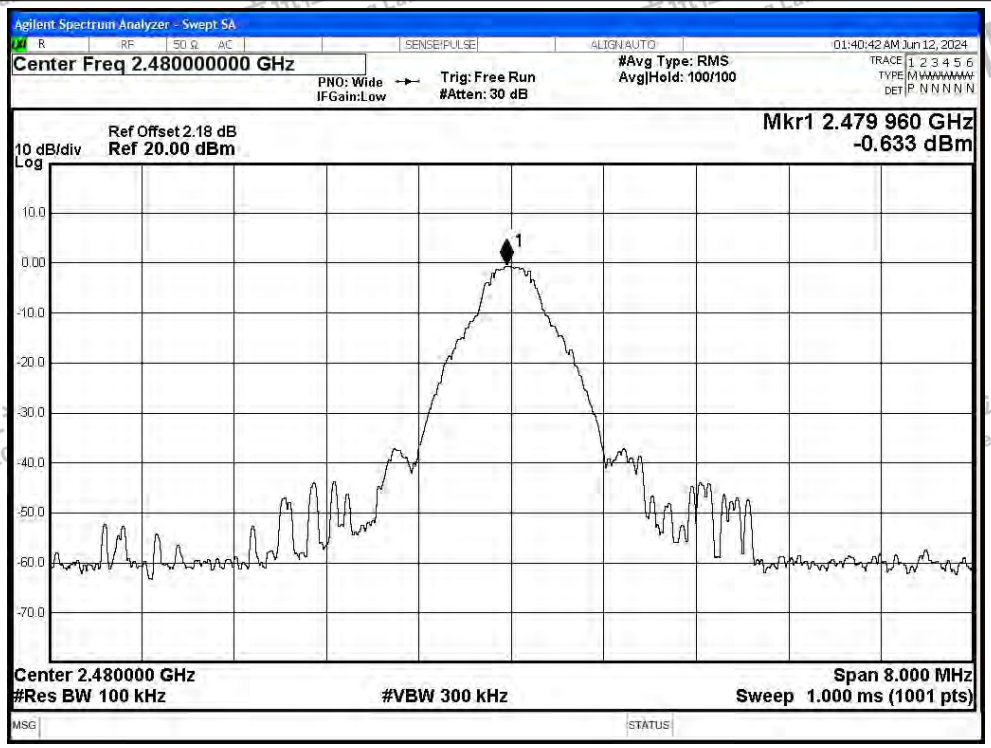
Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Ref



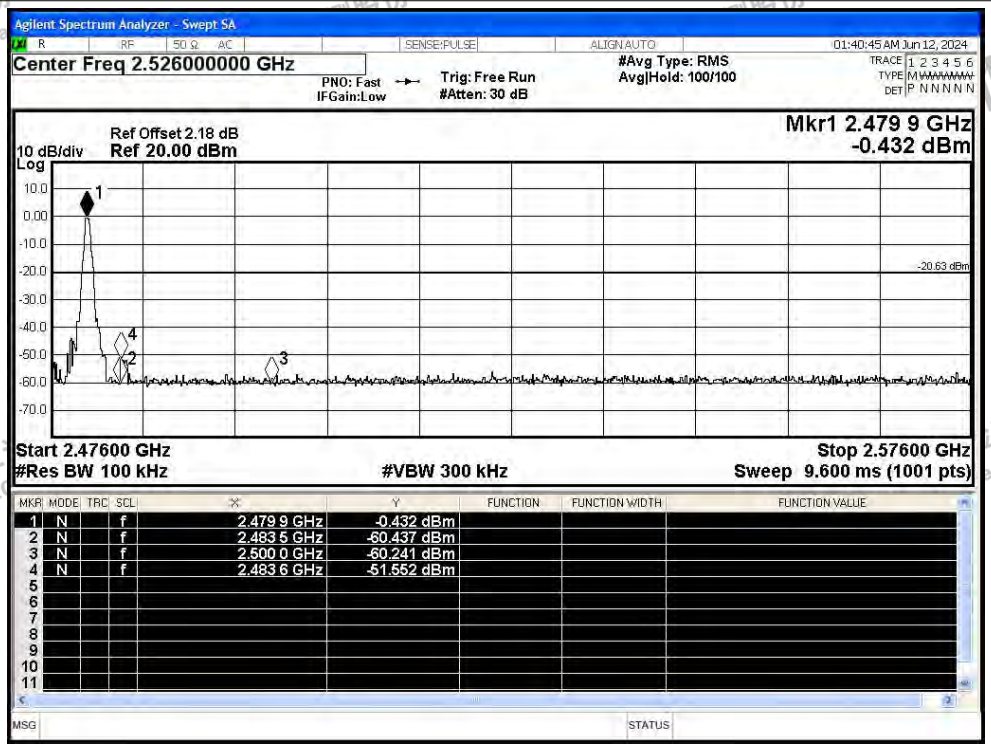
Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Emission



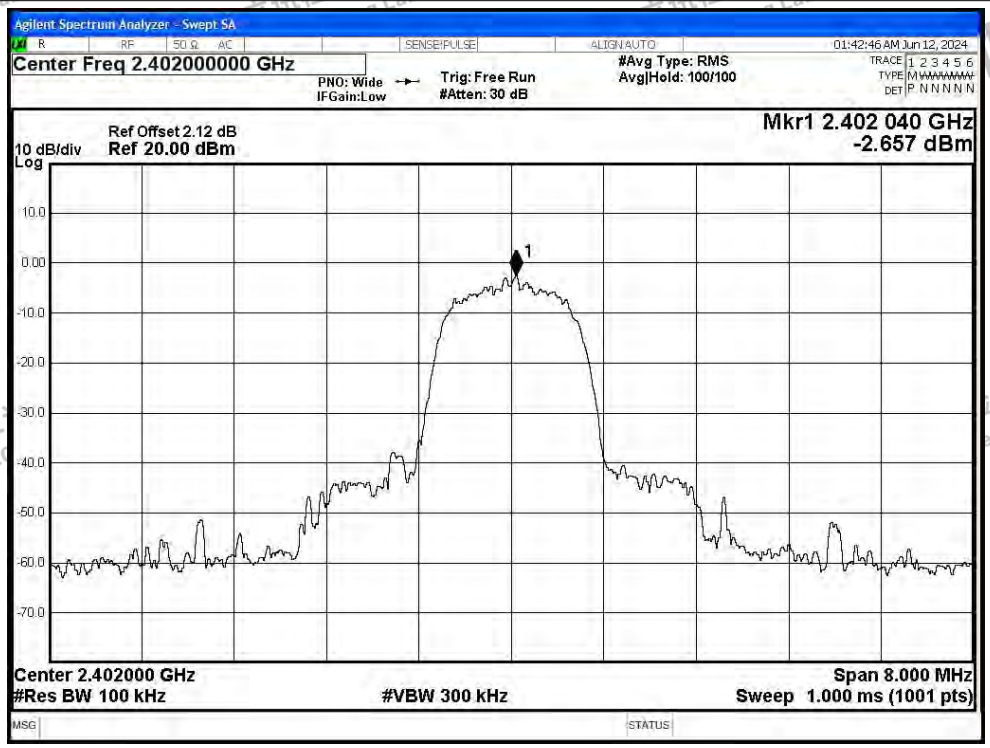
Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Ref



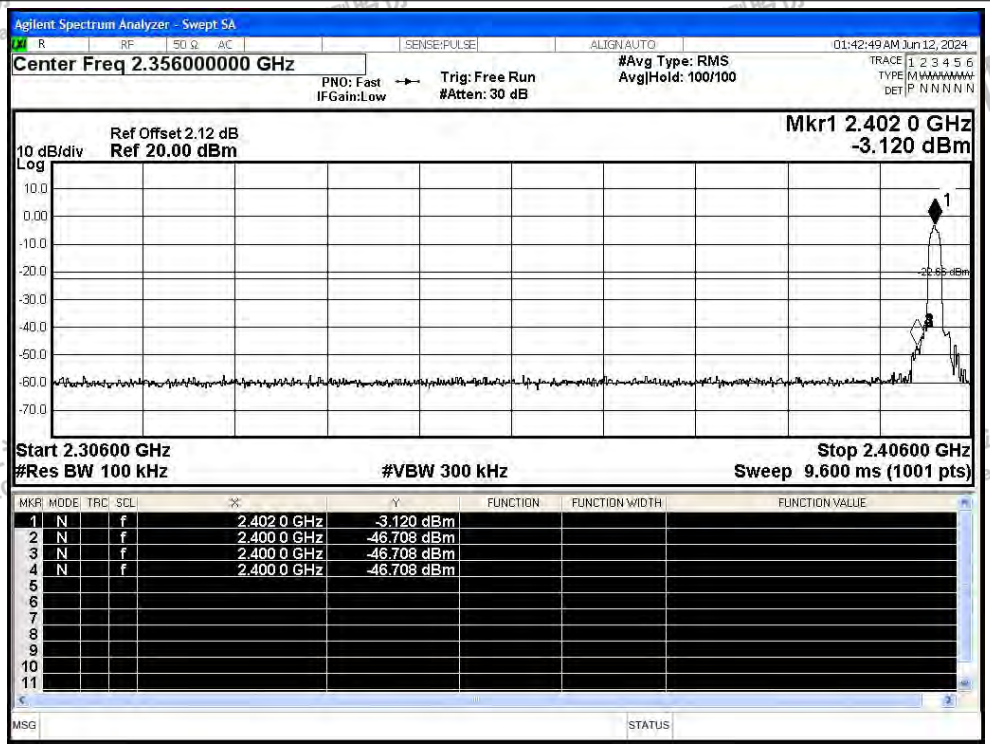
Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Emission



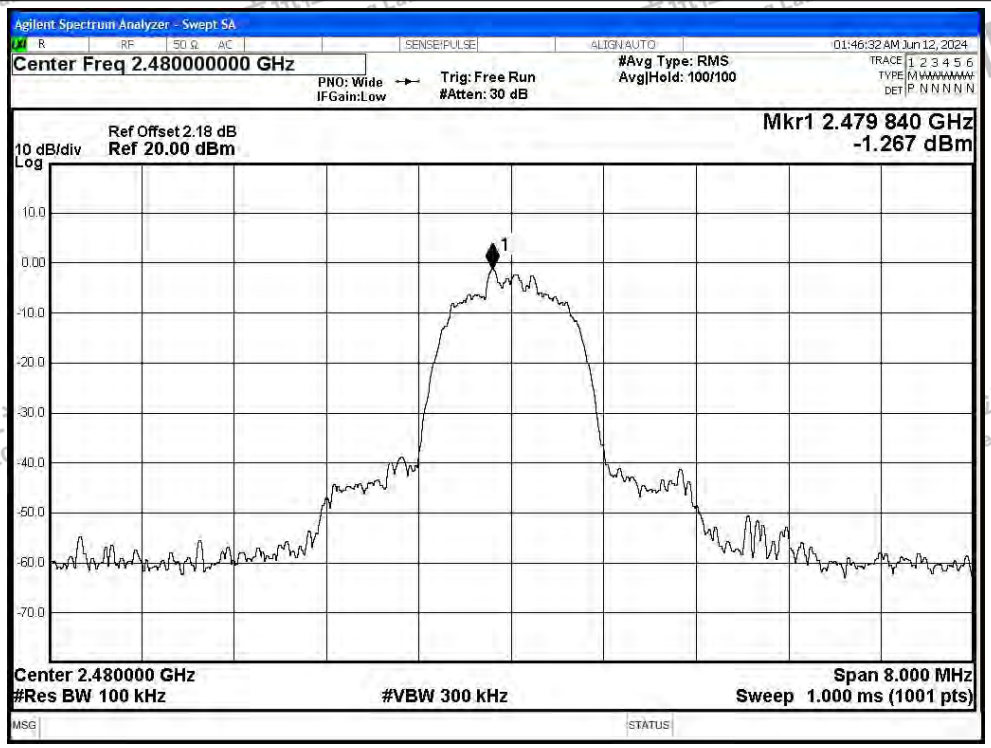
Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Ref



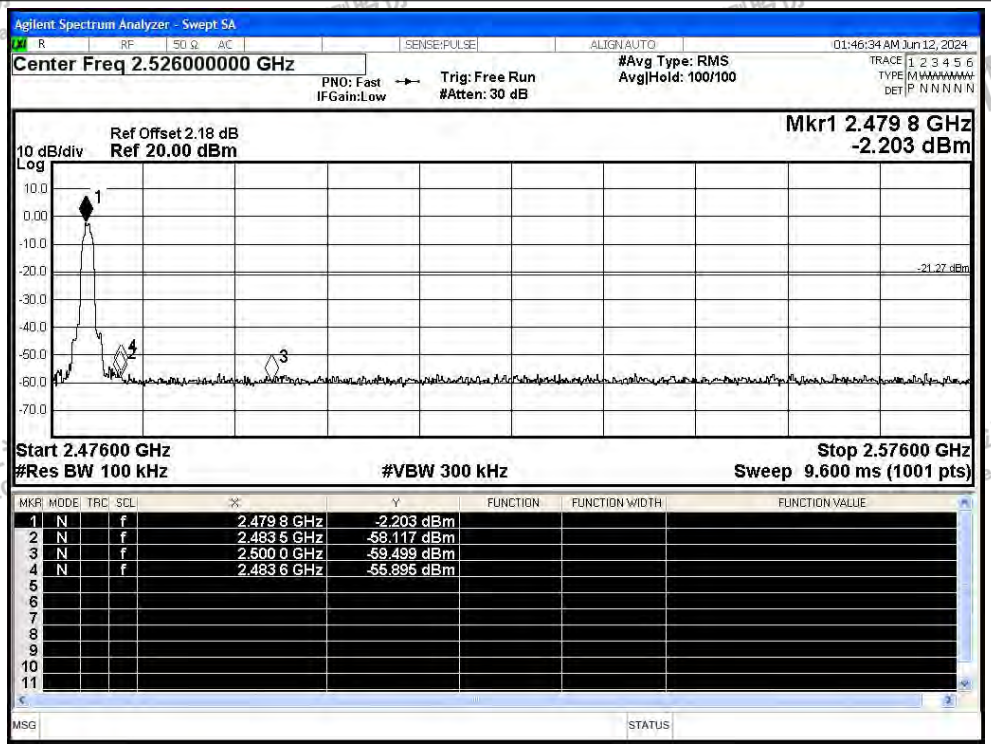
Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Emission



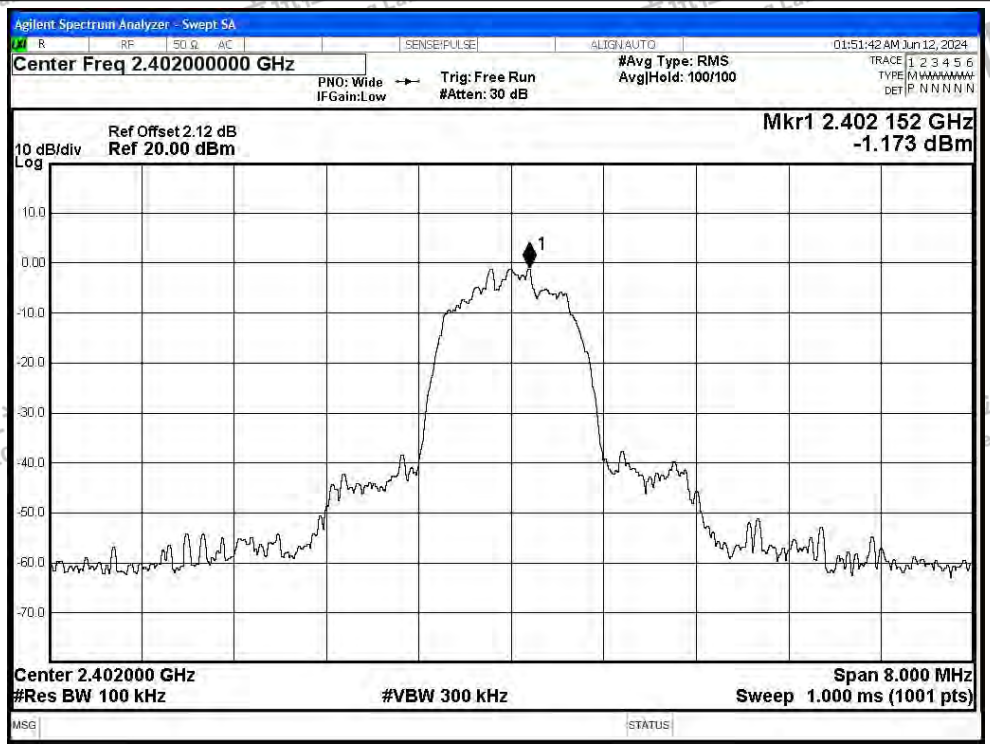
Band Edge NVNT 2-DH5 2480MHz Ant1 No-Hopping Ref



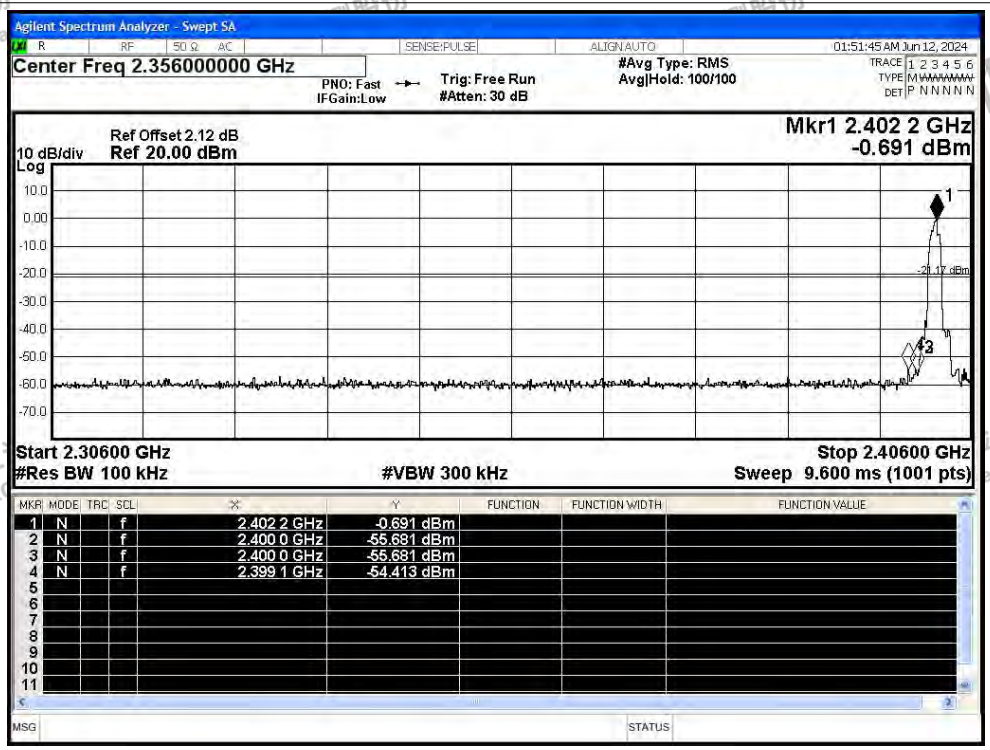
Band Edge NVNT 2-DH5 2480MHz Ant1 No-Hopping Emission



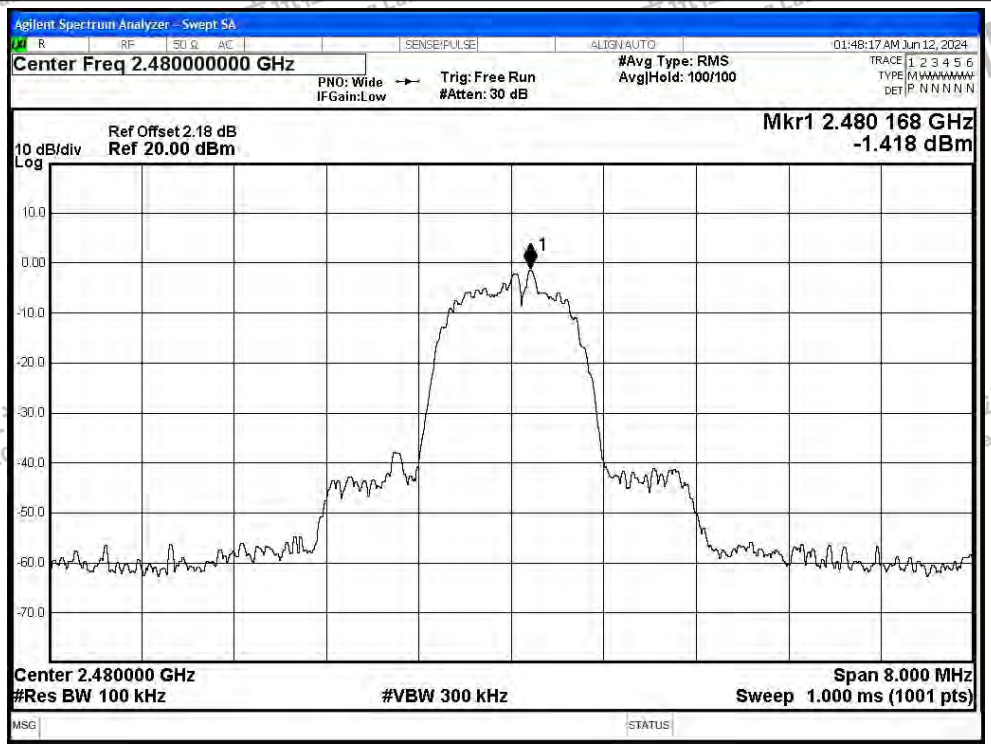
Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Ref



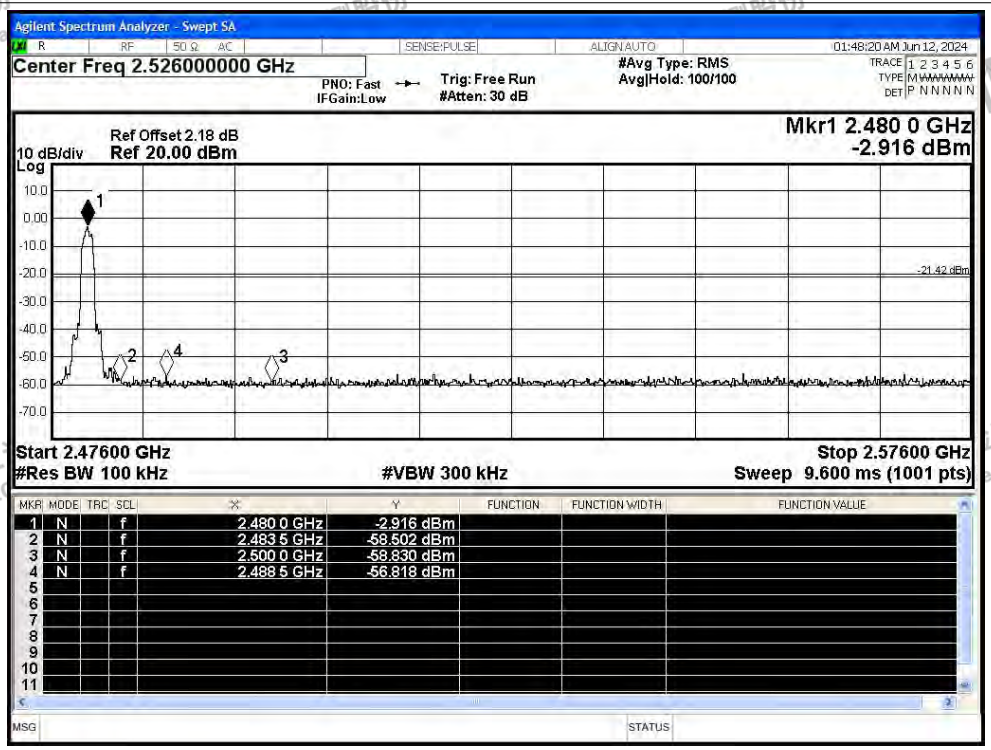
Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Emission



Band Edge NVNT 3-DH5 2480MHz Ant1 No-Hopping Ref



Band Edge NVNT 3-DH5 2480MHz Ant1 No-Hopping Emission



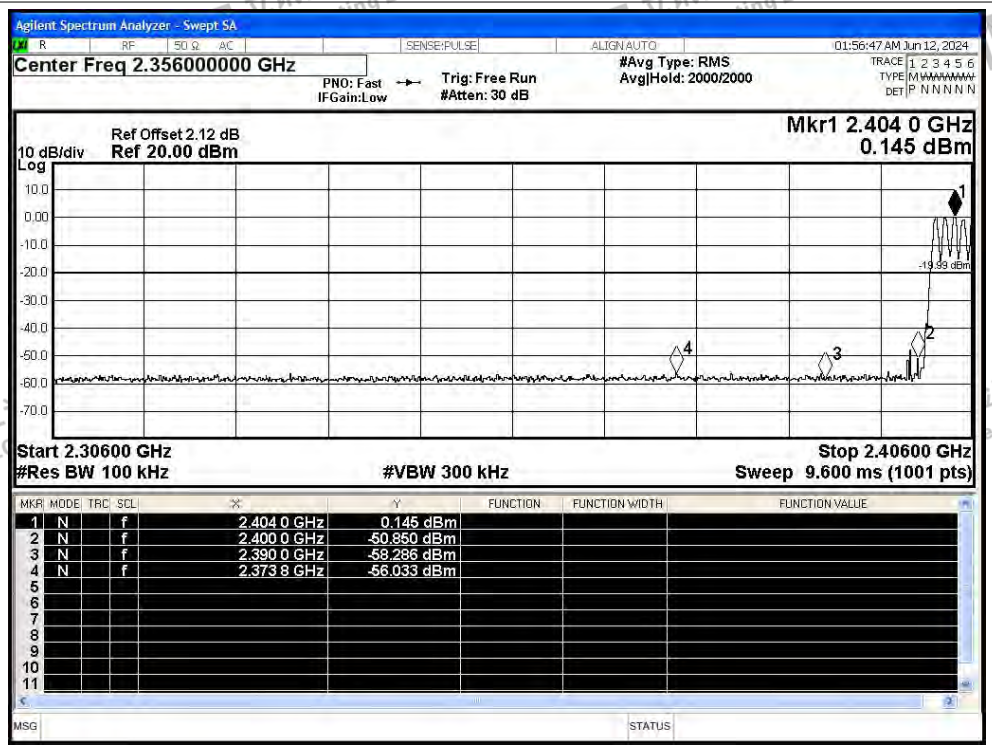
(Hopping)

Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	Hopping	-56.04	-20	Pass
NVNT	1-DH5	2480	Ant1	Hopping	-52.82	-20	Pass
NVNT	2-DH5	2402	Ant1	Hopping	-48.29	-20	Pass
NVNT	2-DH5	2480	Ant1	Hopping	-55.76	-20	Pass
NVNT	3-DH5	2402	Ant1	Hopping	-54.01	-20	Pass
NVNT	3-DH5	2480	Ant1	Hopping	-53.82	-20	Pass

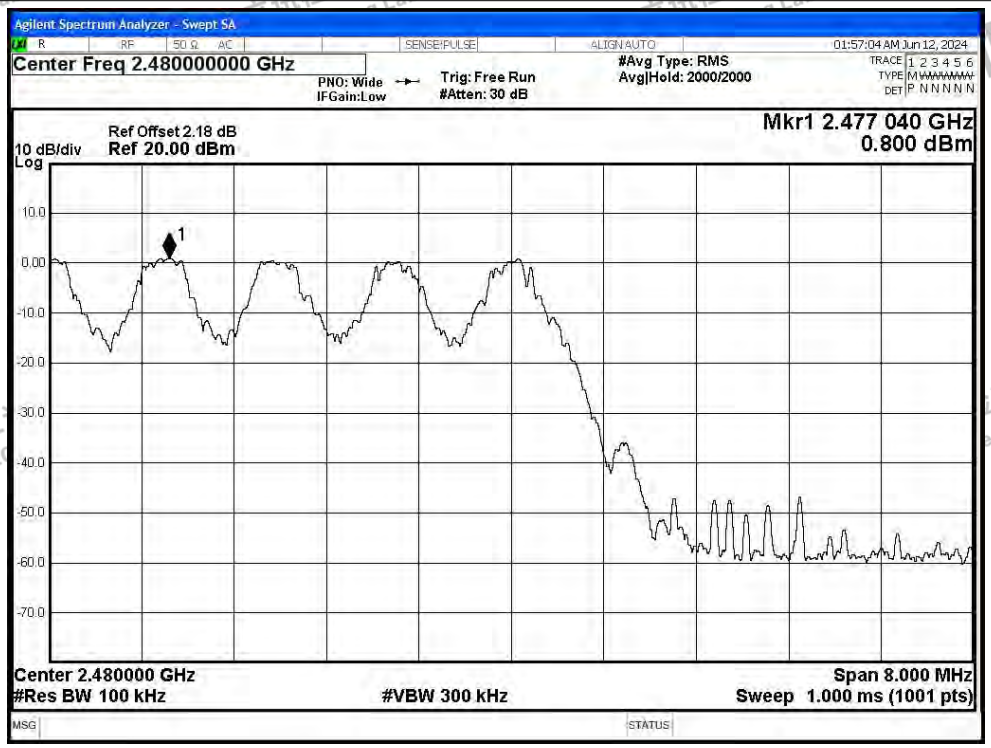
Test Graphs

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

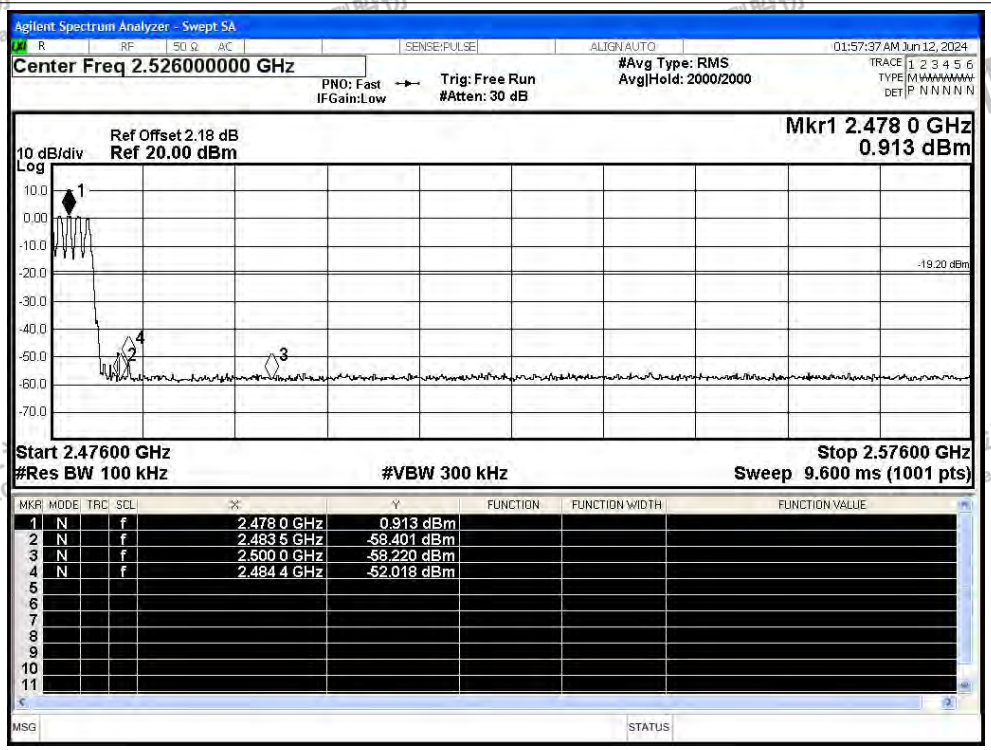
Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Emission



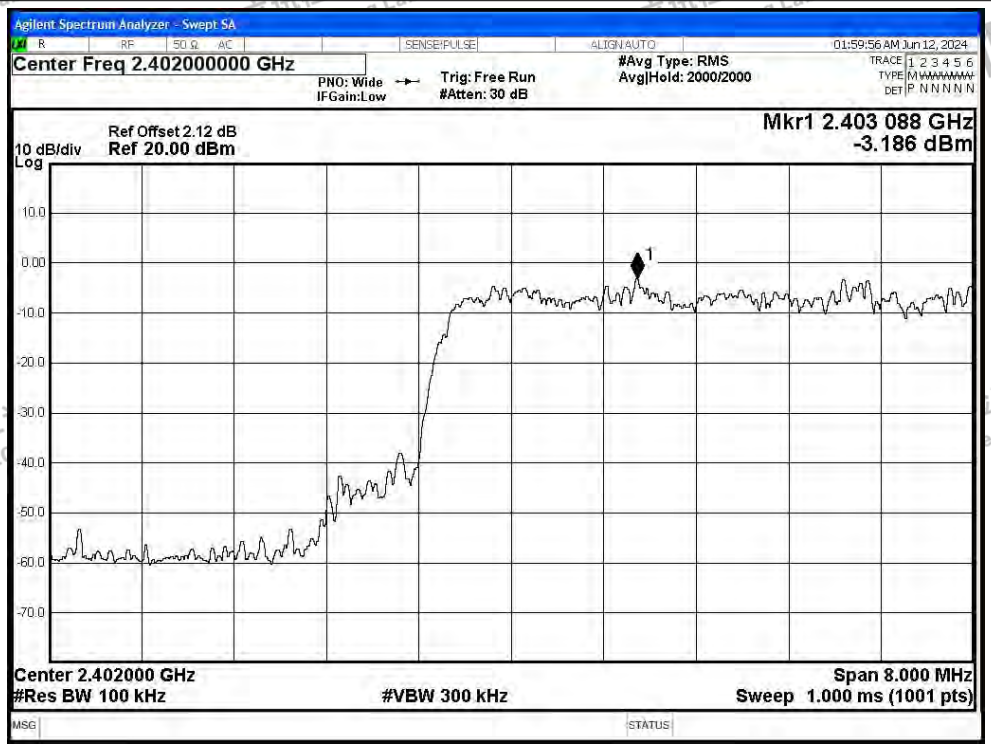
Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant1 Hopping Ref



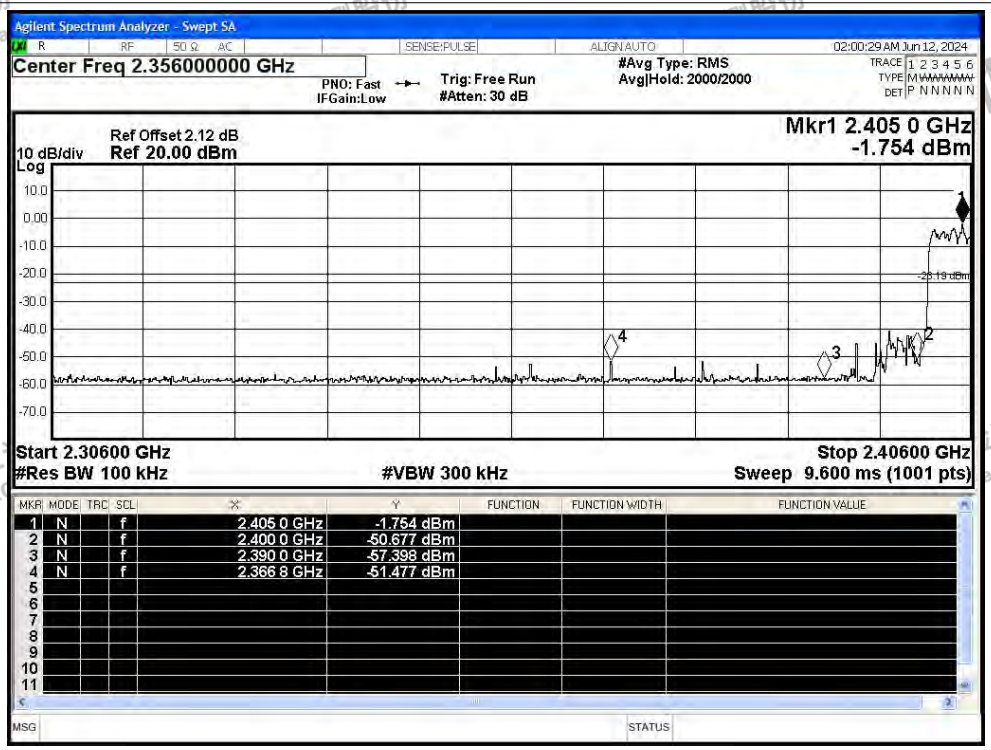
Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant1 Hopping Emission



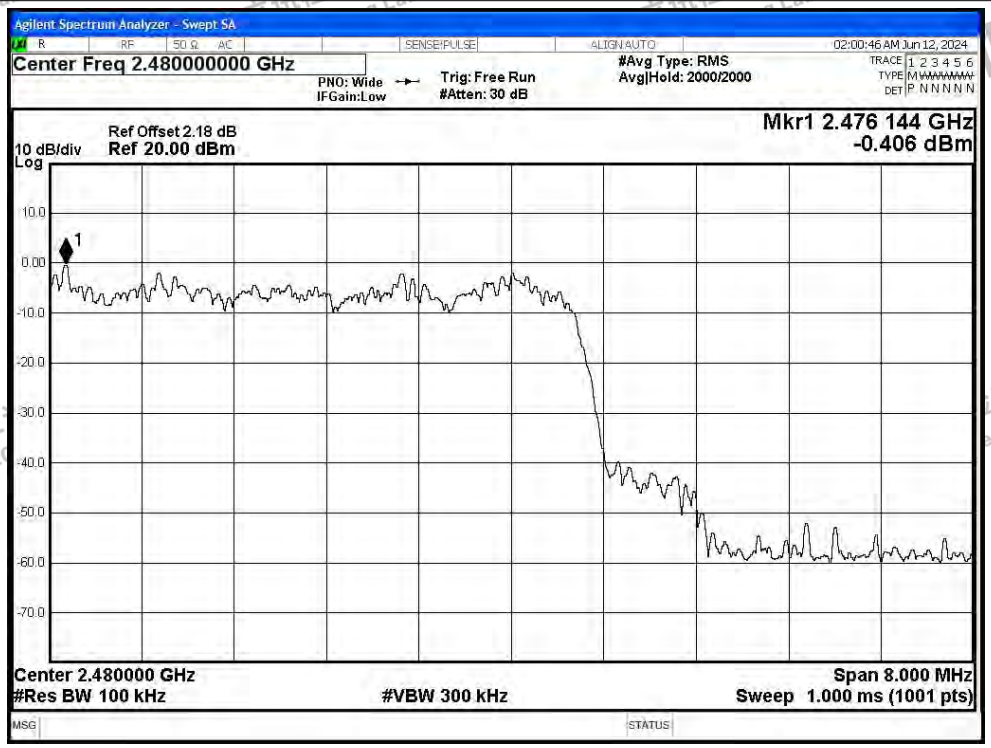
Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Ref



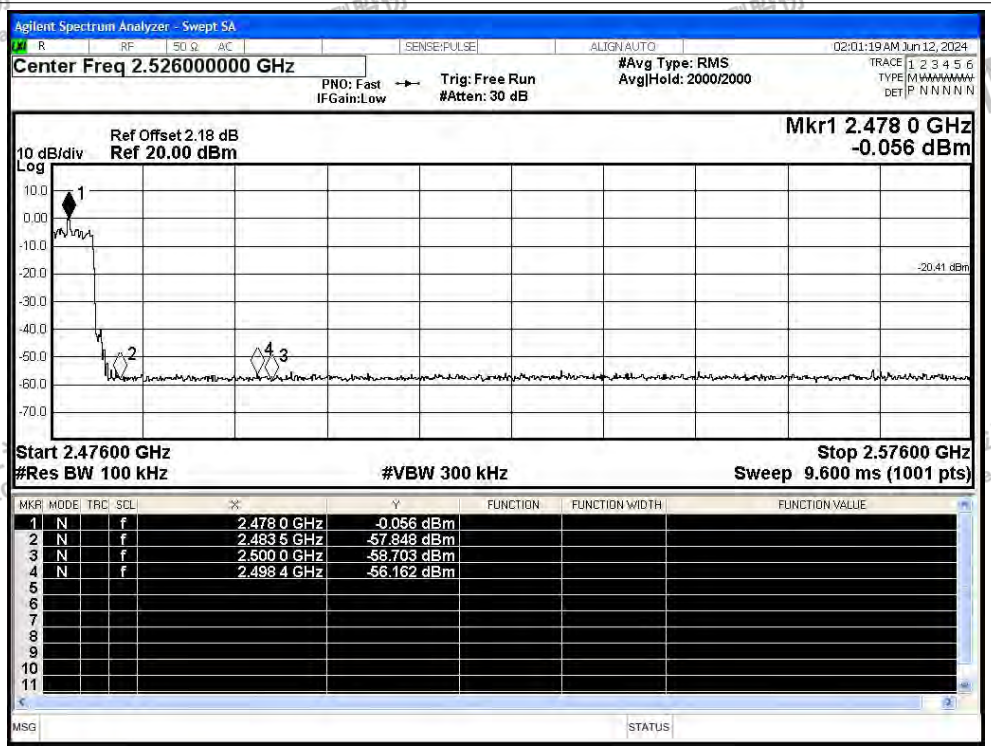
Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Emission



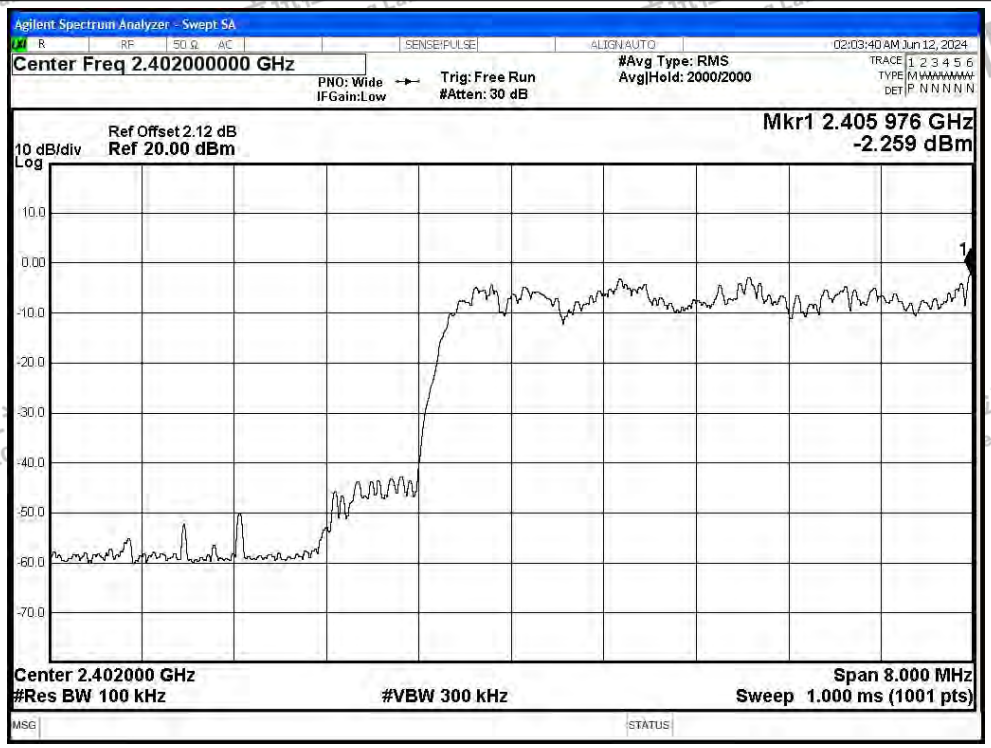
Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Ref



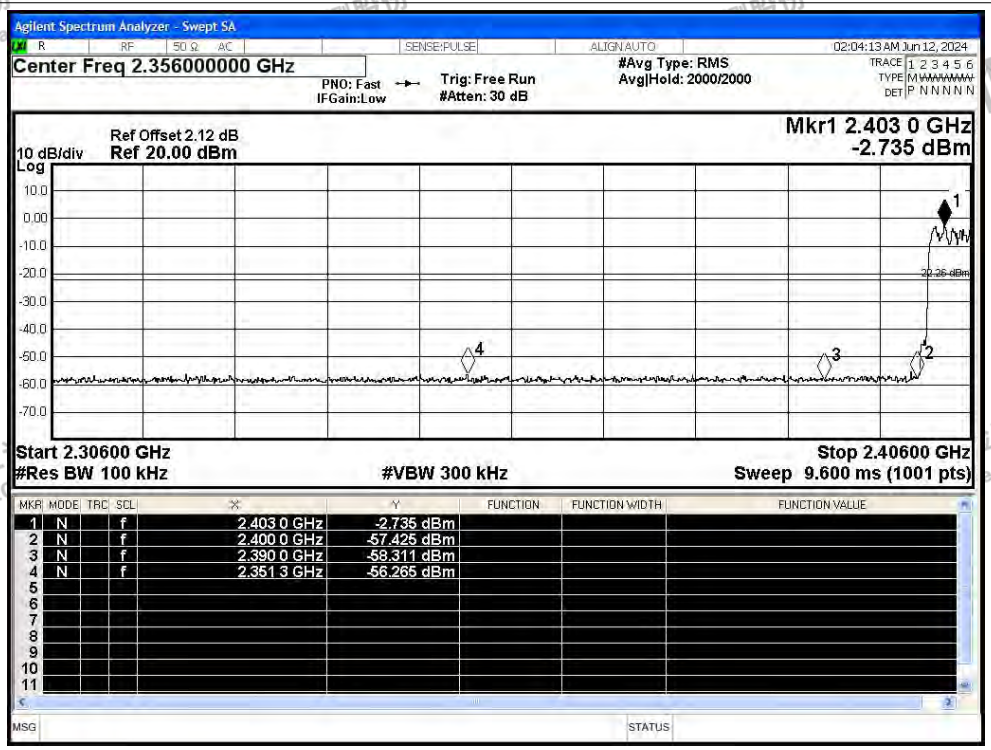
Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Emission



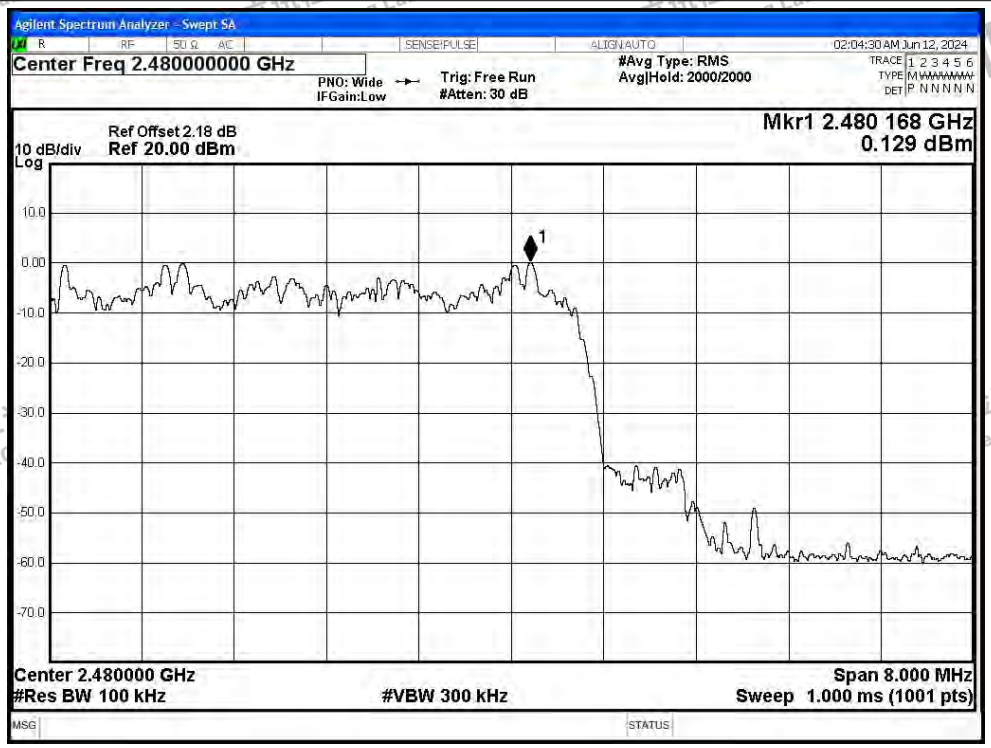
Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Ref



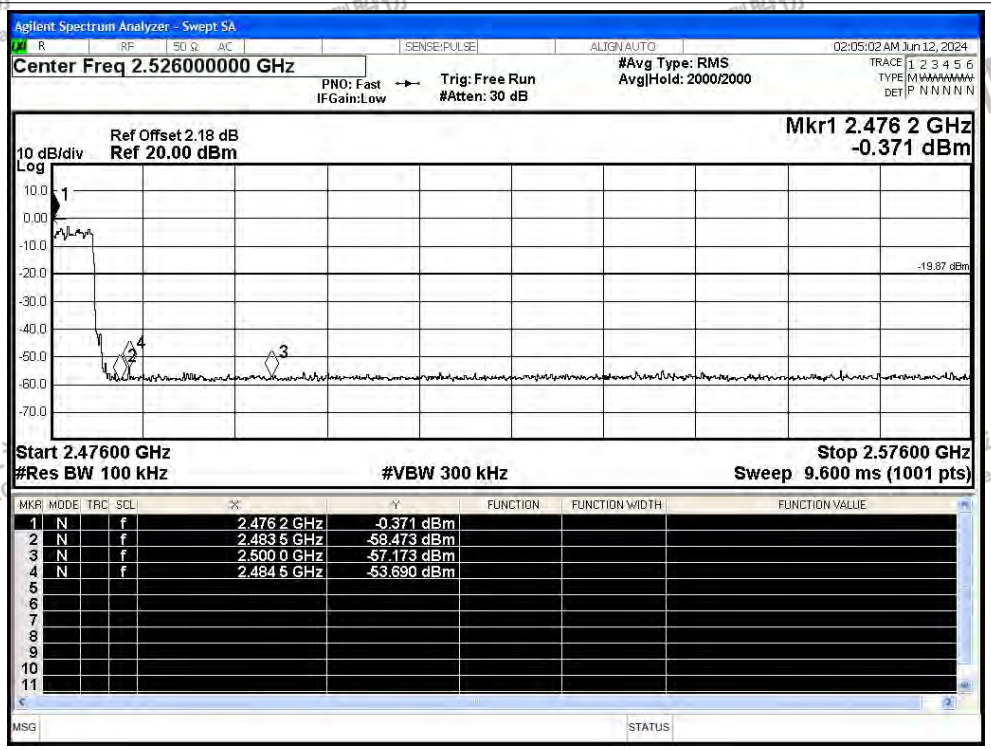
Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Emission



Band Edge(Hopping) NVNT 3-DH5 2480MHz Ant1 Hopping Ref



Band Edge(Hopping) NVNT 3-DH5 2480MHz Ant1 Hopping Emission

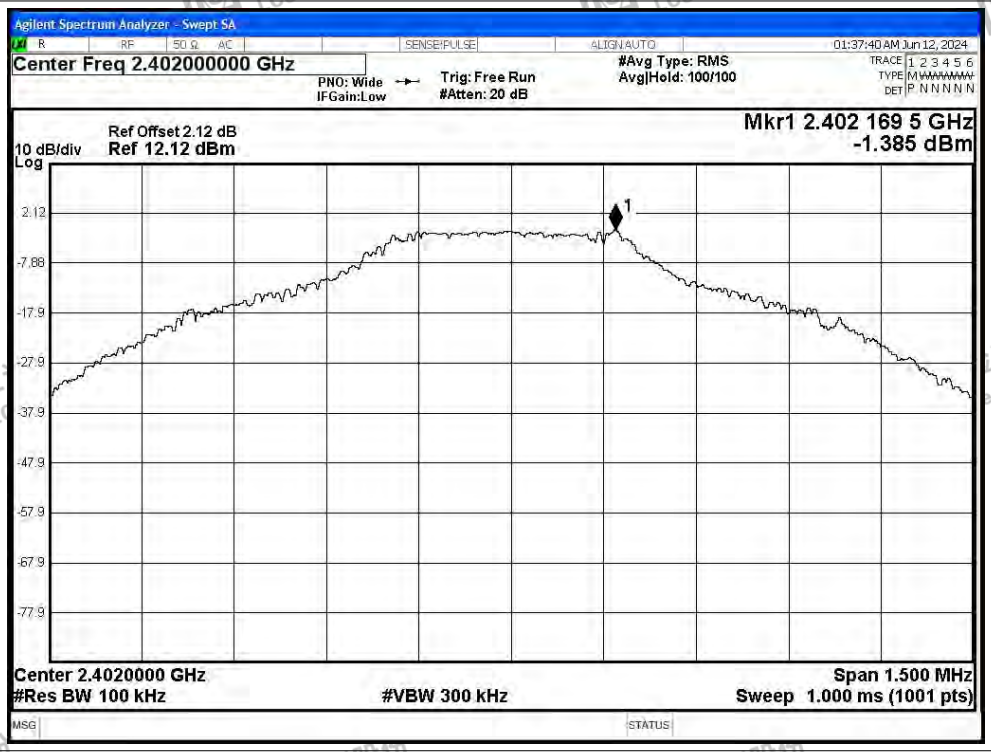


A.7 Conducted RF Spurious Emission

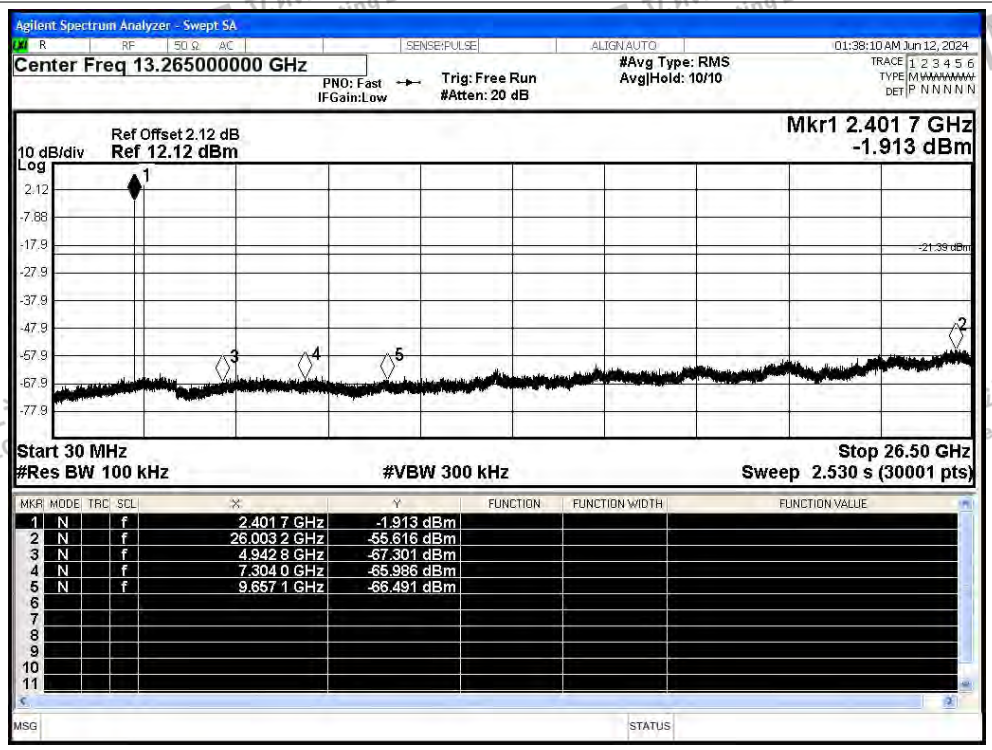
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	-54.23	-20	Pass
NVNT	1-DH5	2441	Ant1	-55.26	-20	Pass
NVNT	1-DH5	2480	Ant1	-54.29	-20	Pass
NVNT	2-DH5	2402	Ant1	-54.22	-20	Pass
NVNT	2-DH5	2441	Ant1	-53.6	-20	Pass
NVNT	2-DH5	2480	Ant1	-52.42	-20	Pass
NVNT	3-DH5	2402	Ant1	-54.22	-20	Pass
NVNT	3-DH5	2441	Ant1	-53.34	-20	Pass
NVNT	3-DH5	2480	Ant1	-54.27	-20	Pass

Test Graphs

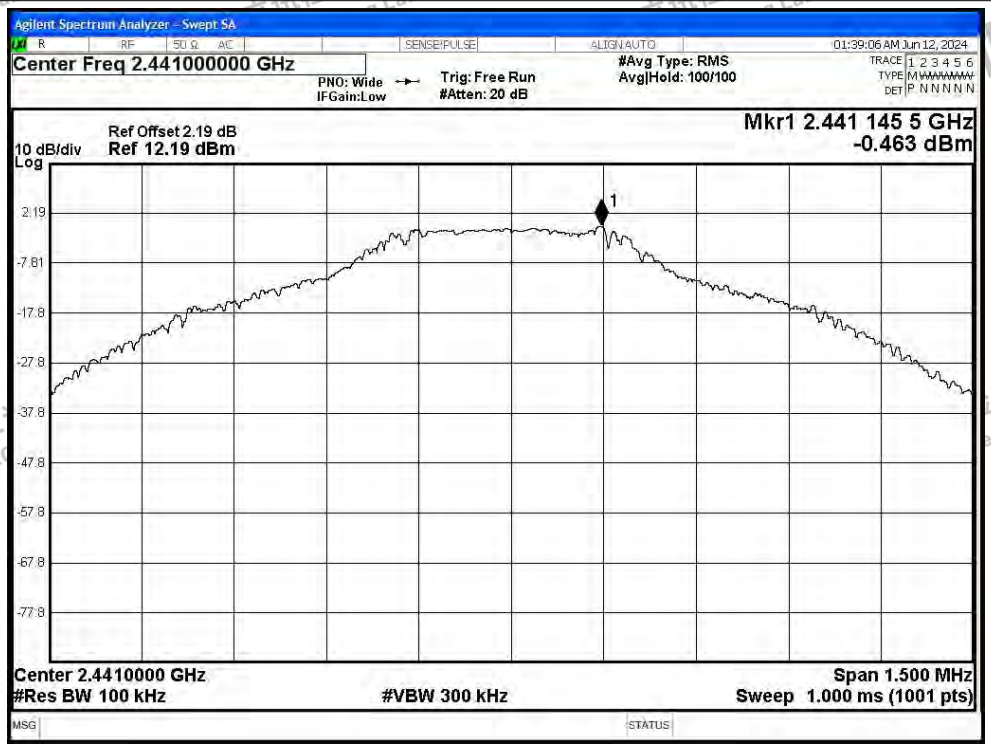
Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Ref



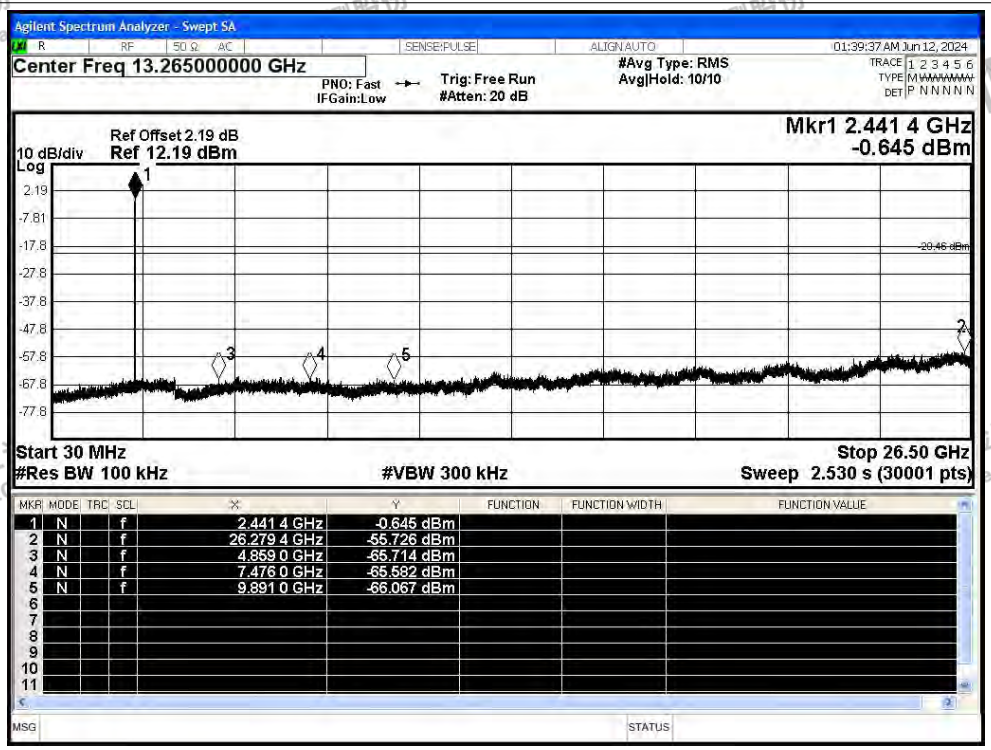
Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Emission



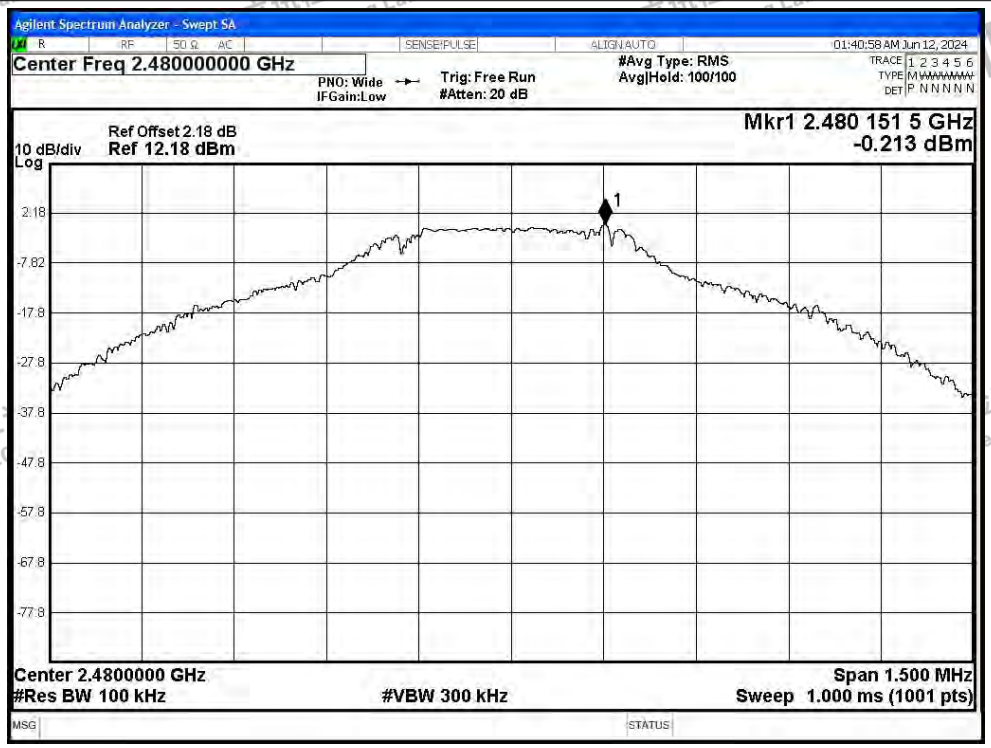
Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Ref



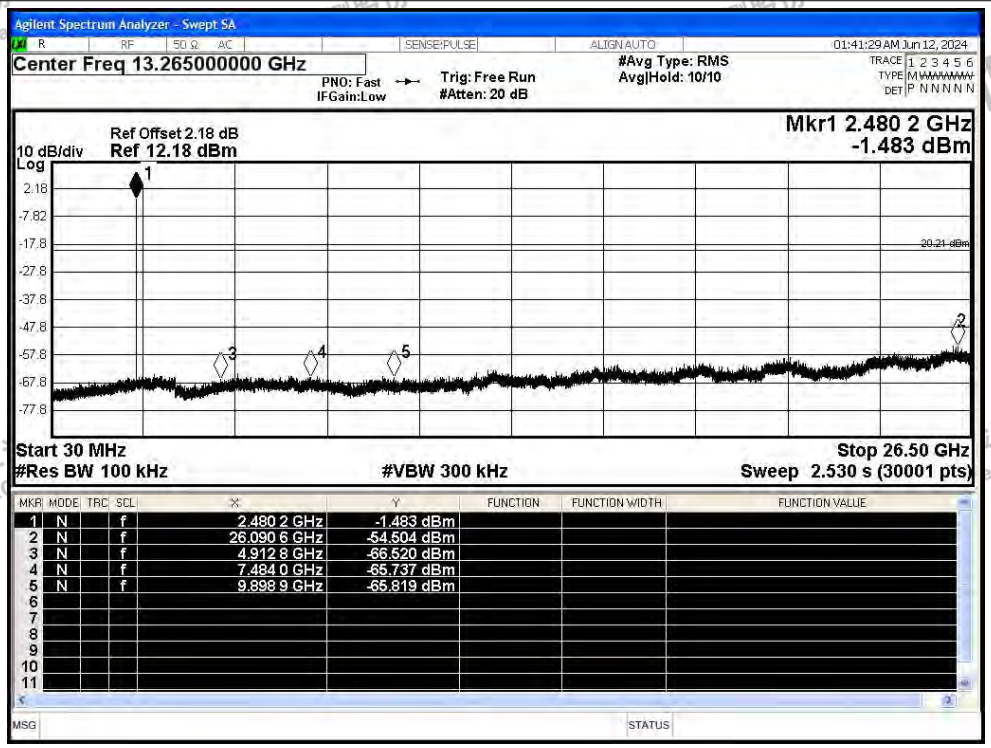
Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Emission



Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Ref

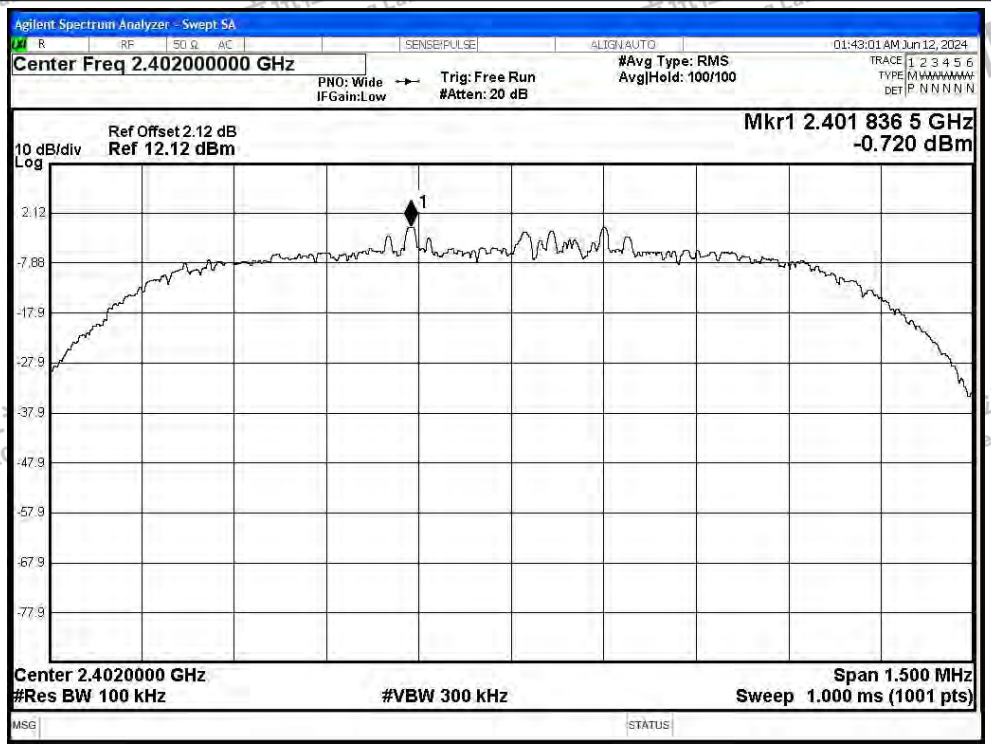


Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Emission

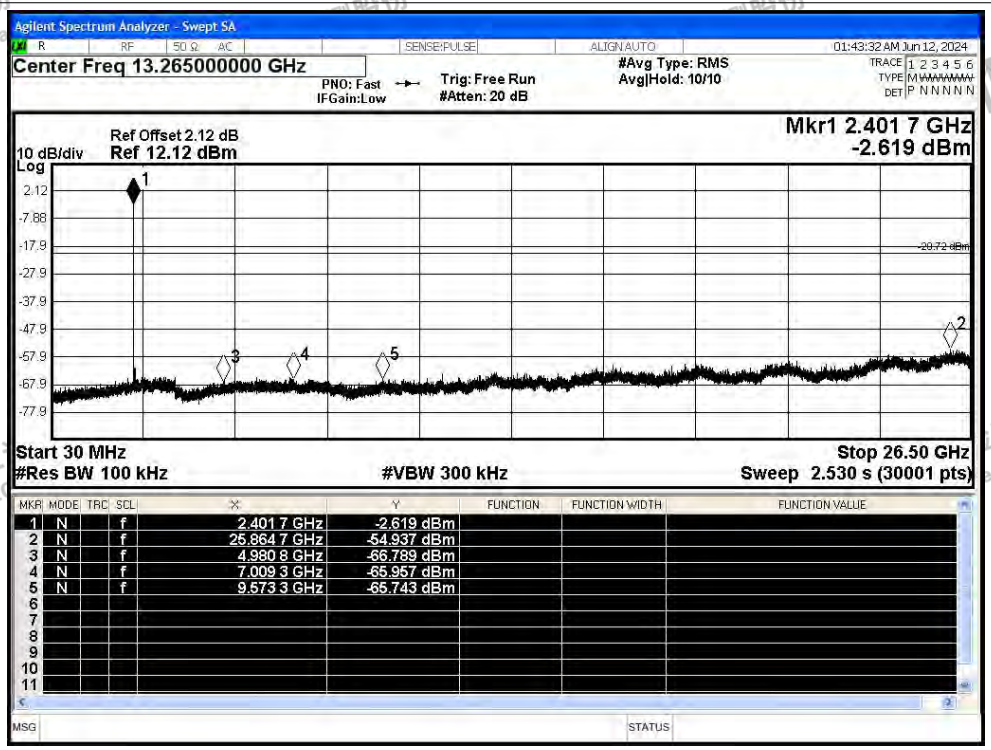


MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N		f	2.480 2 GHz	-1.483 dBm			
2	N		f	26.090 6 GHz	-54.504 dBm			
3	N		f	4.912 8 GHz	-66.520 dBm			
4	N		f	7.484 0 GHz	-65.737 dBm			
5	N		f	9.898 9 GHz	-65.819 dBm			
6								
7								
8								
9								
10								
11								

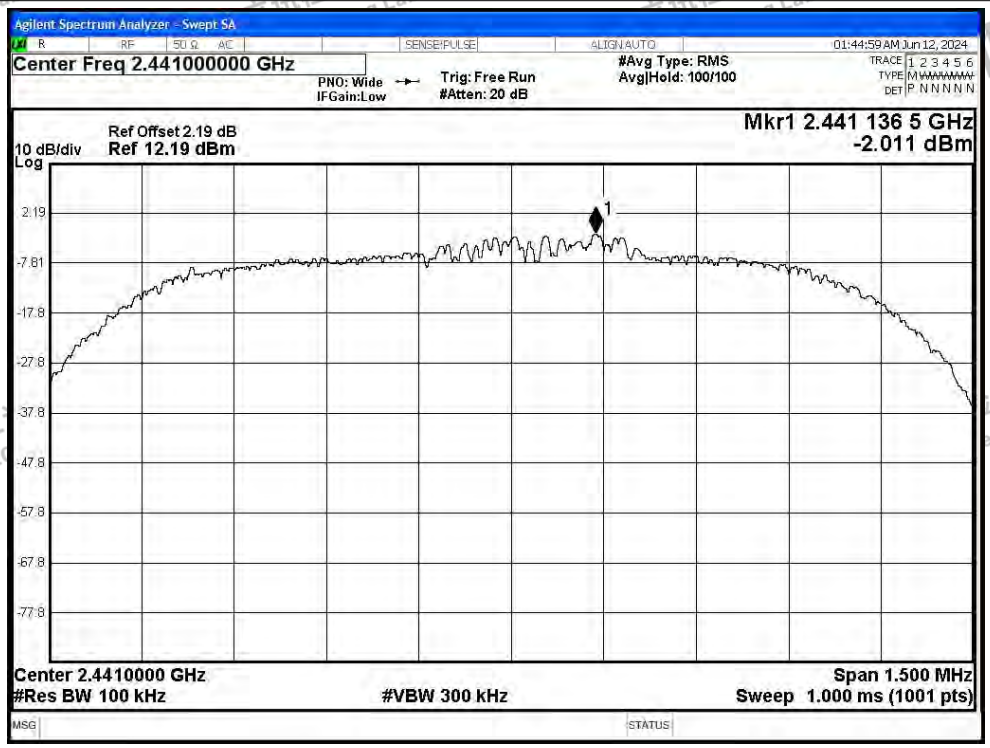
Tx. Spurious NVNT 2-DH5 2402MHz Ant1 Ref



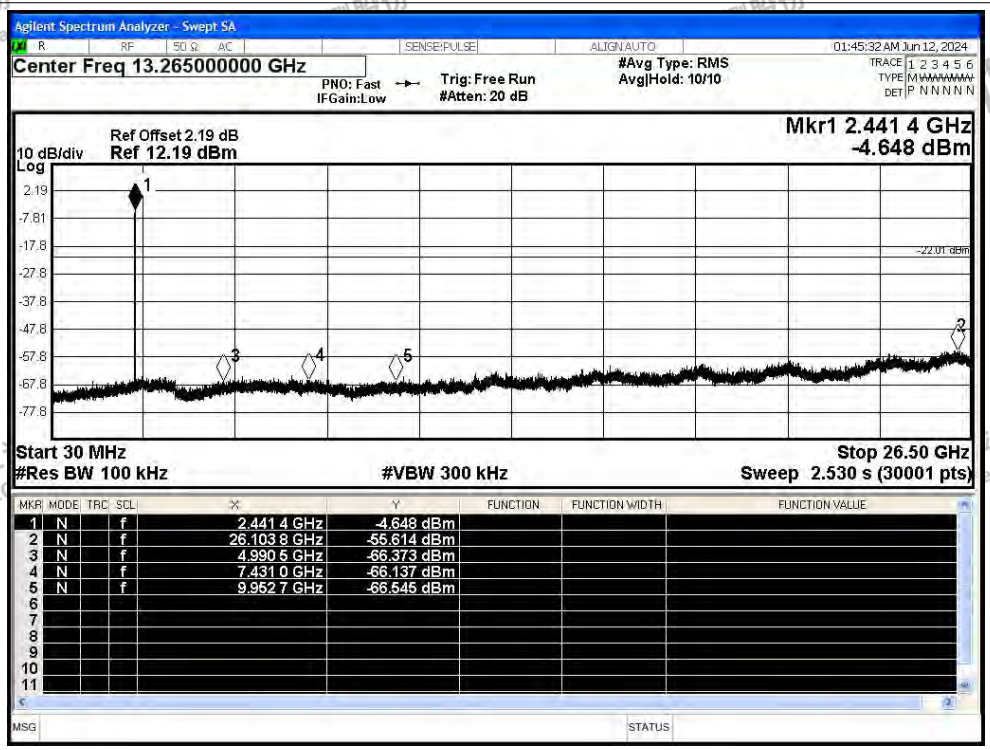
Tx. Spurious NVNT 2-DH5 2402MHz Ant1 Emission



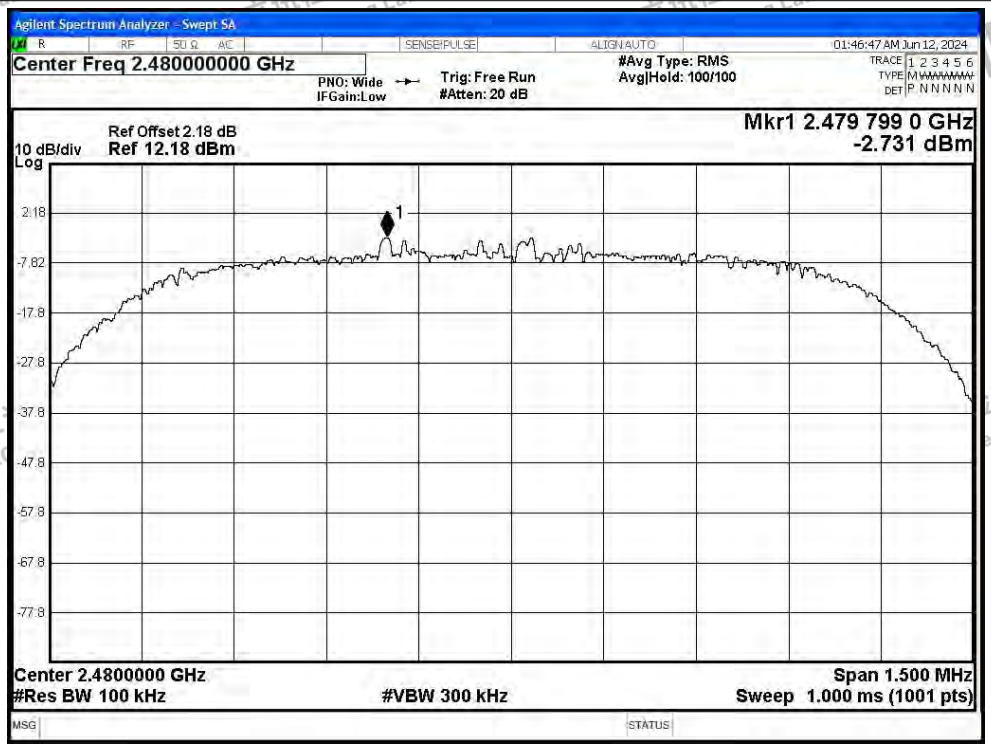
Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Ref



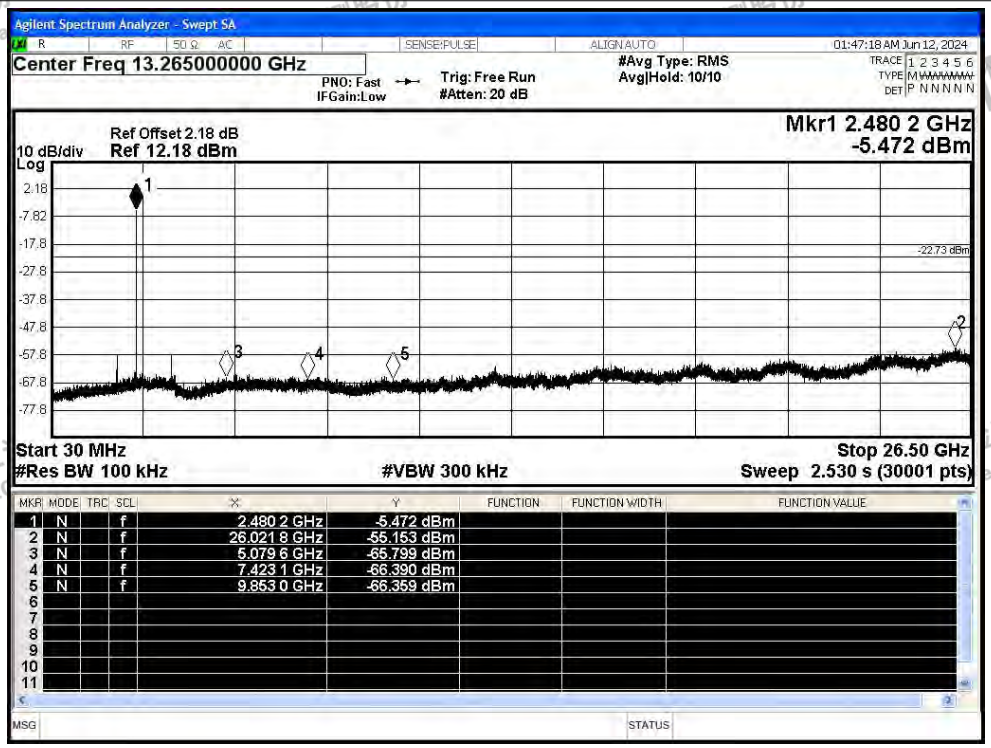
Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Emission



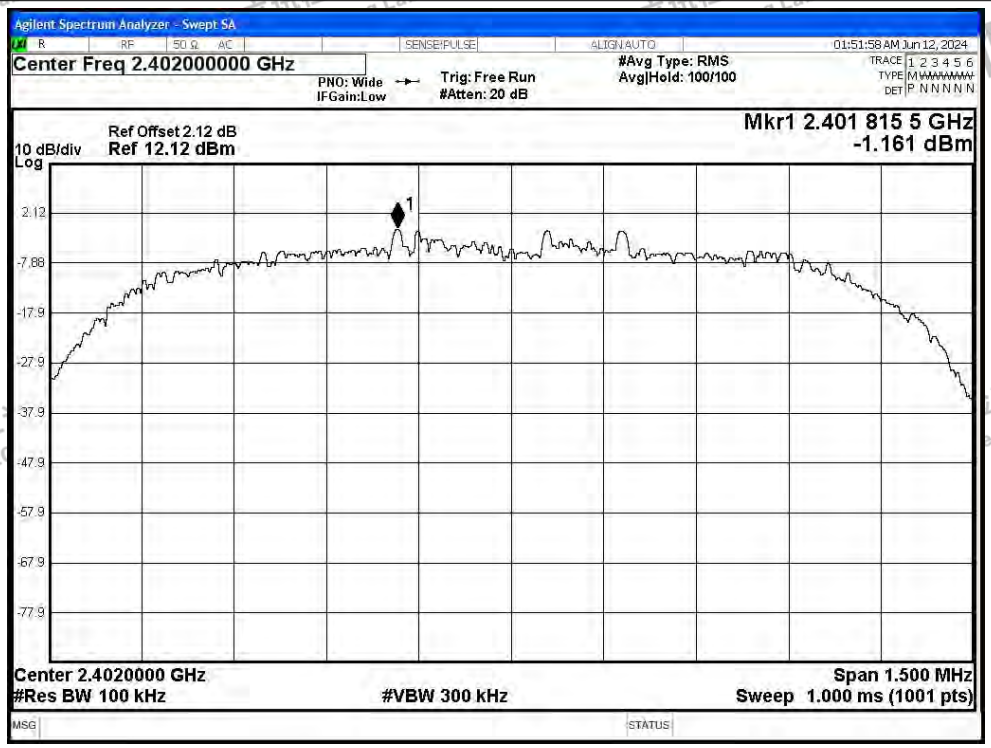
Tx. Spurious NVNT 2-DH5 2480MHz Ant1 Ref



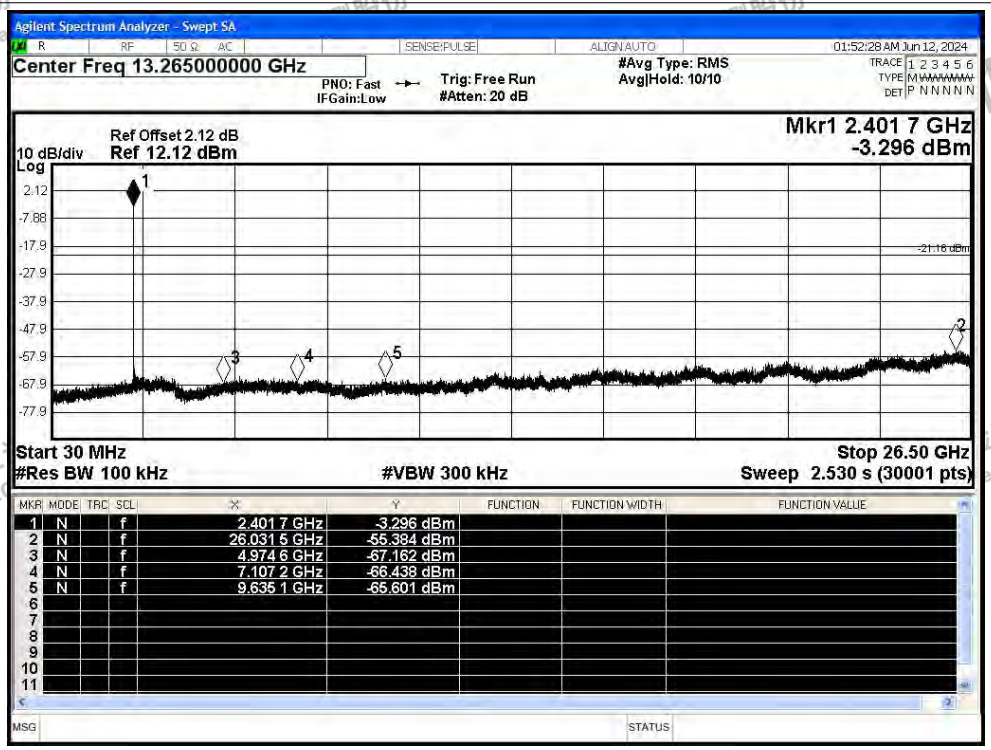
Tx. Spurious NVNT 2-DH5 2480MHz Ant1 Emission



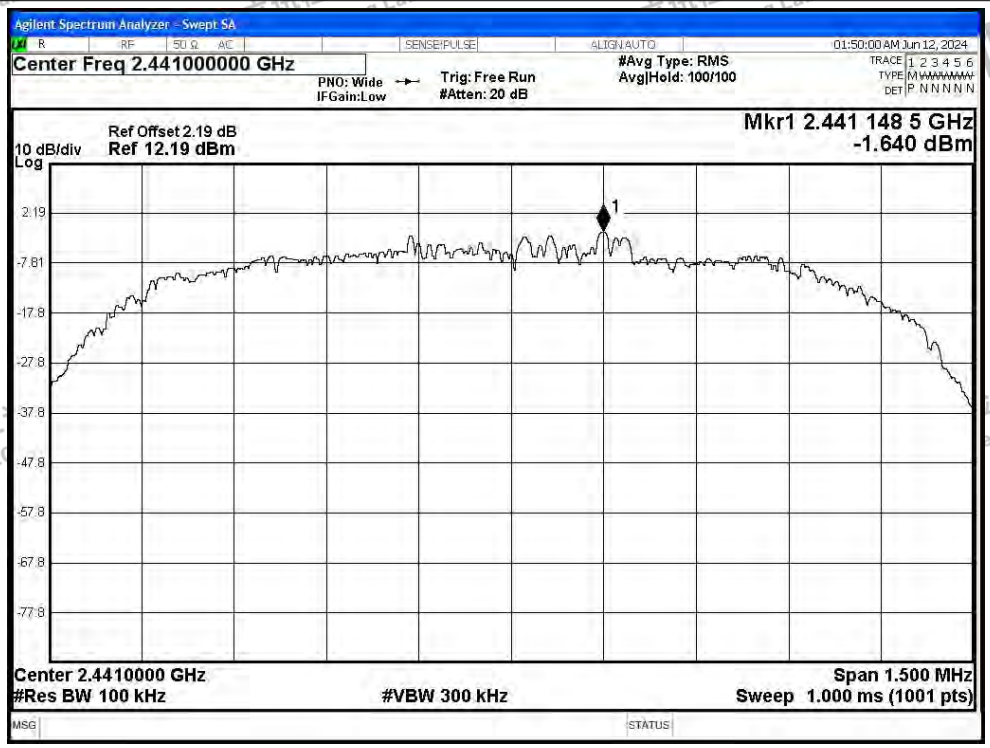
Tx. Spurious NVNT 3-DH5 2402MHz Ant1 Ref



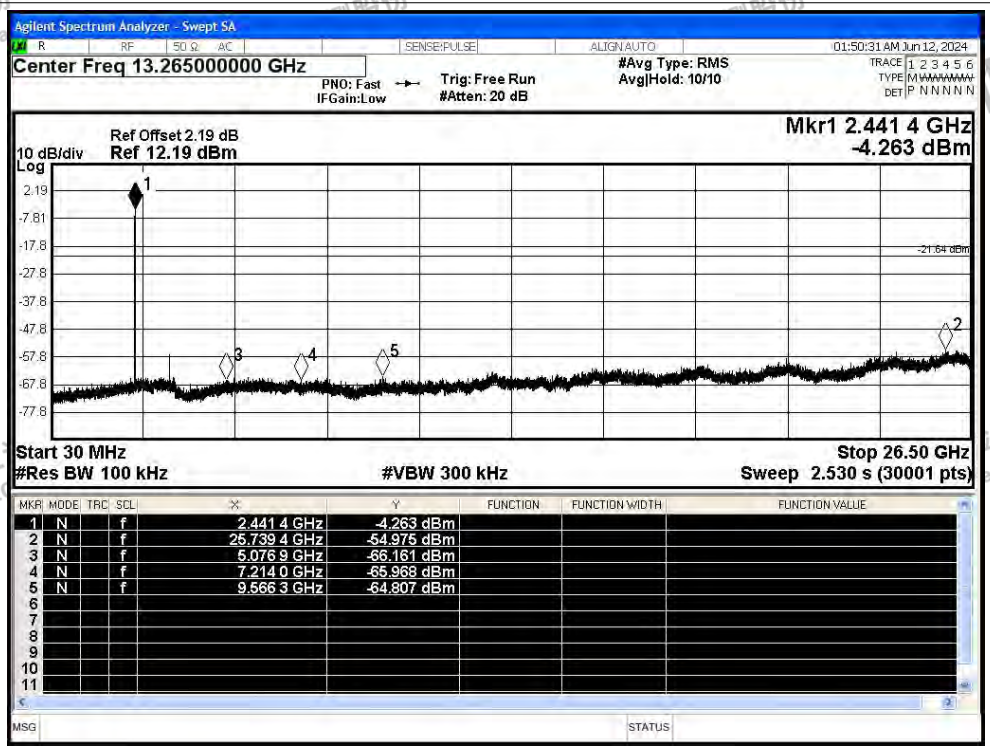
Tx. Spurious NVNT 3-DH5 2402MHz Ant1 Emission



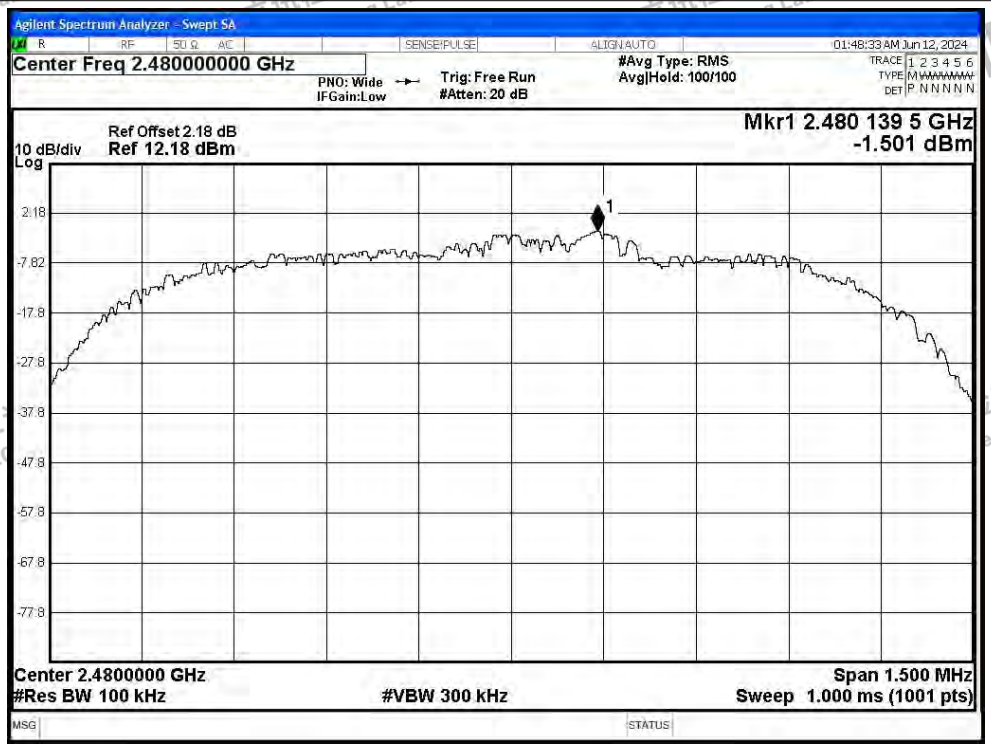
Tx. Spurious NVNT 3-DH5 2441MHz Ant1 Ref



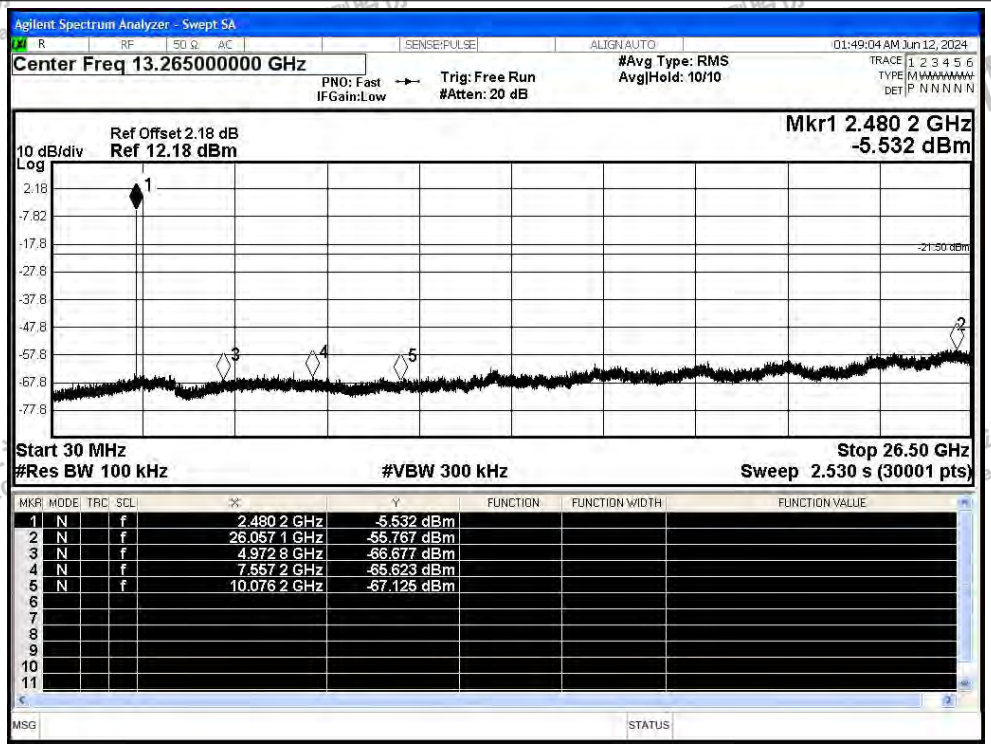
Tx. Spurious NVNT 3-DH5 2441MHz Ant1 Emission



Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Ref



Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Emission

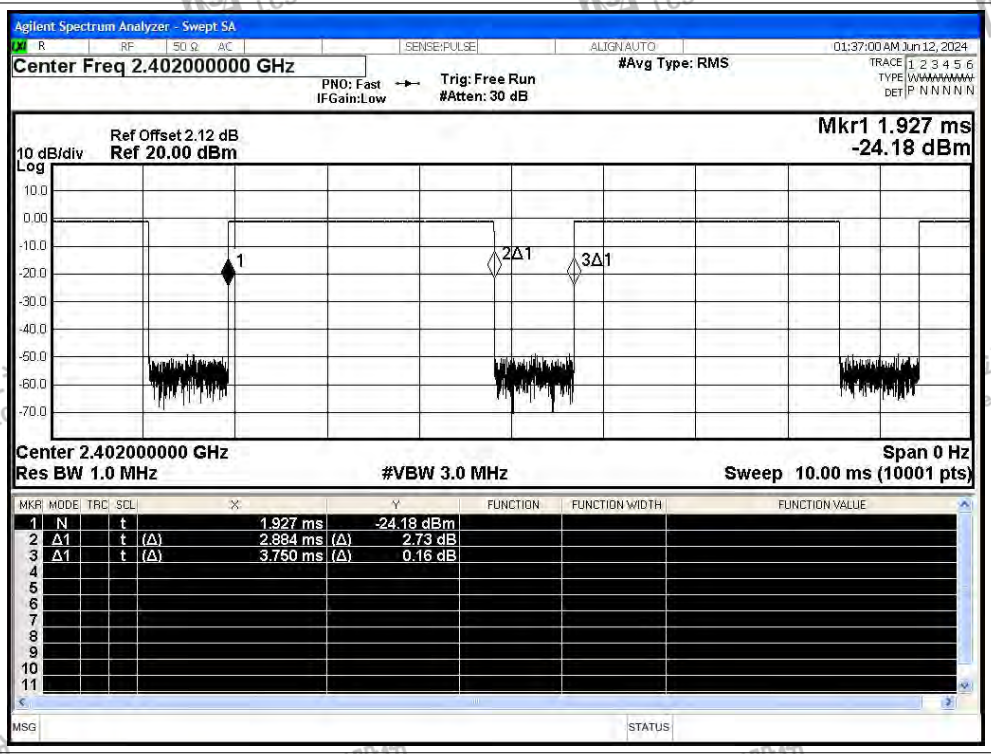


A.8 Duty Cycle

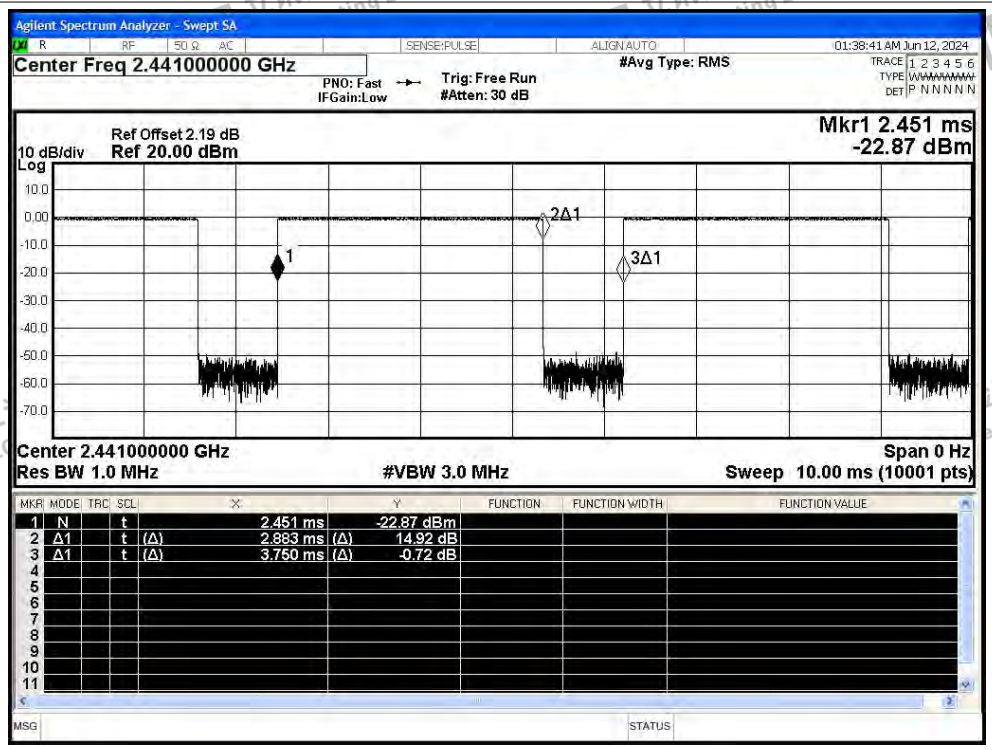
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH5	2402	Ant1	76.91	1.14	0.35
NVNT	1-DH5	2441	Ant1	76.88	1.14	0.35
NVNT	1-DH5	2480	Ant1	76.91	1.14	0.35
NVNT	2-DH5	2402	Ant1	76.99	1.14	0.35
NVNT	2-DH5	2441	Ant1	76.99	1.14	0.35
NVNT	2-DH5	2480	Ant1	76.96	1.14	0.35
NVNT	3-DH5	2402	Ant1	77.01	1.13	0.35
NVNT	3-DH5	2441	Ant1	77.01	1.13	0.35
NVNT	3-DH5	2480	Ant1	77.01	1.13	0.35

Test Graphs

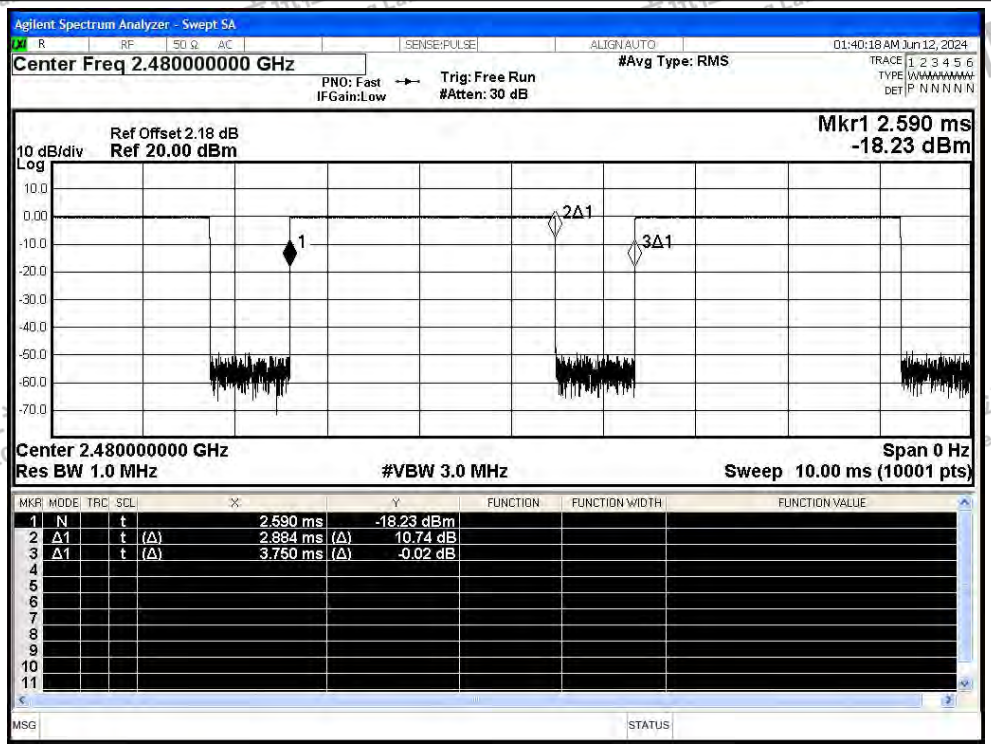
Duty Cycle NVNT 1-DH5 2402MHz Ant1



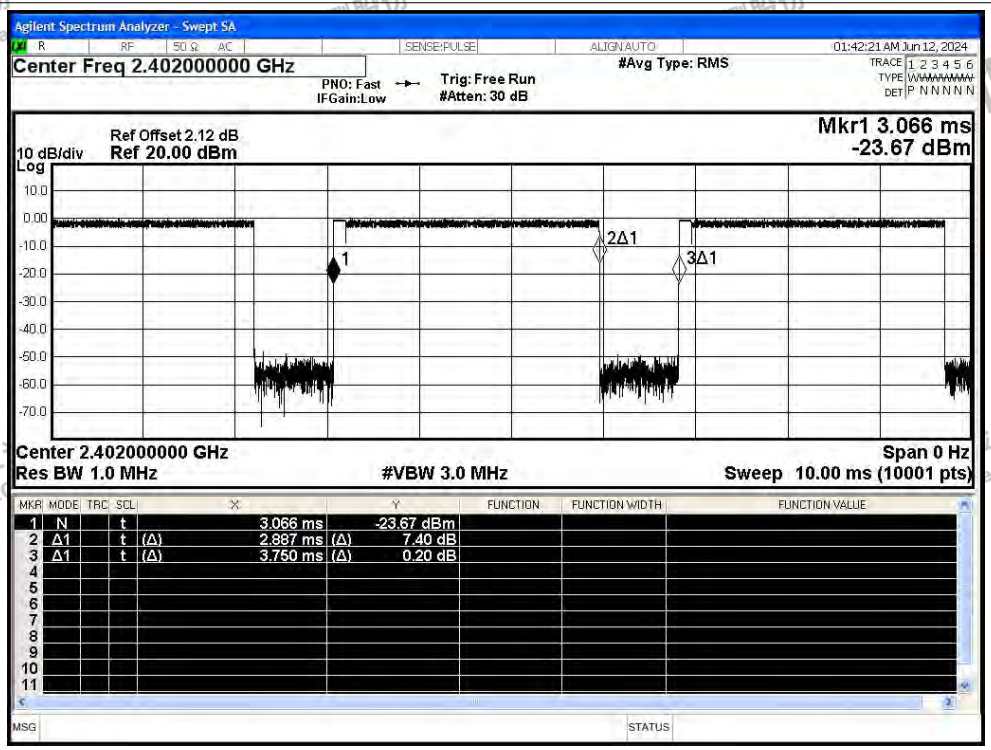
Duty Cycle NVNT 1-DH5 2441MHz Ant1



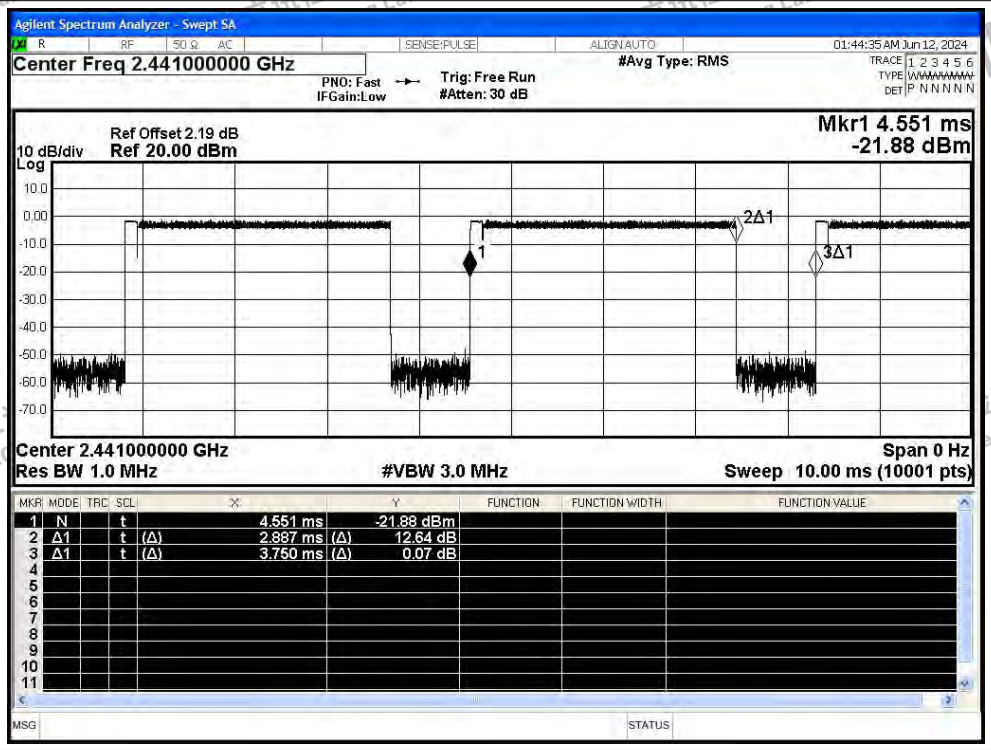
Duty Cycle NVNT 1-DH5 2480MHz Ant1



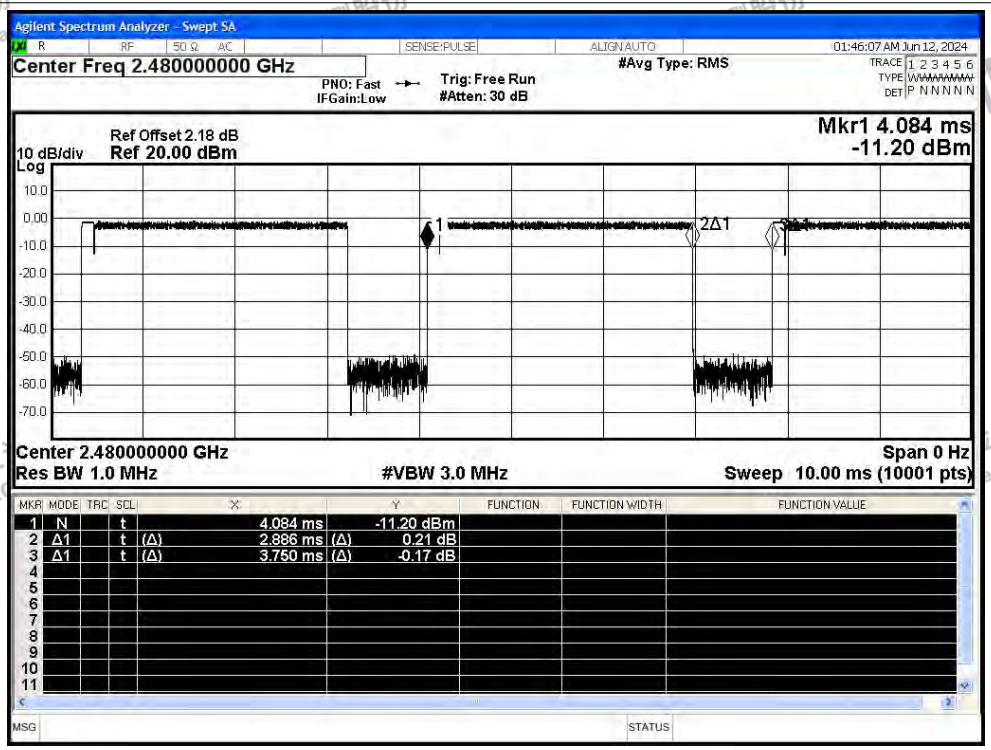
Duty Cycle NVNT 2-DH5 2402MHz Ant1



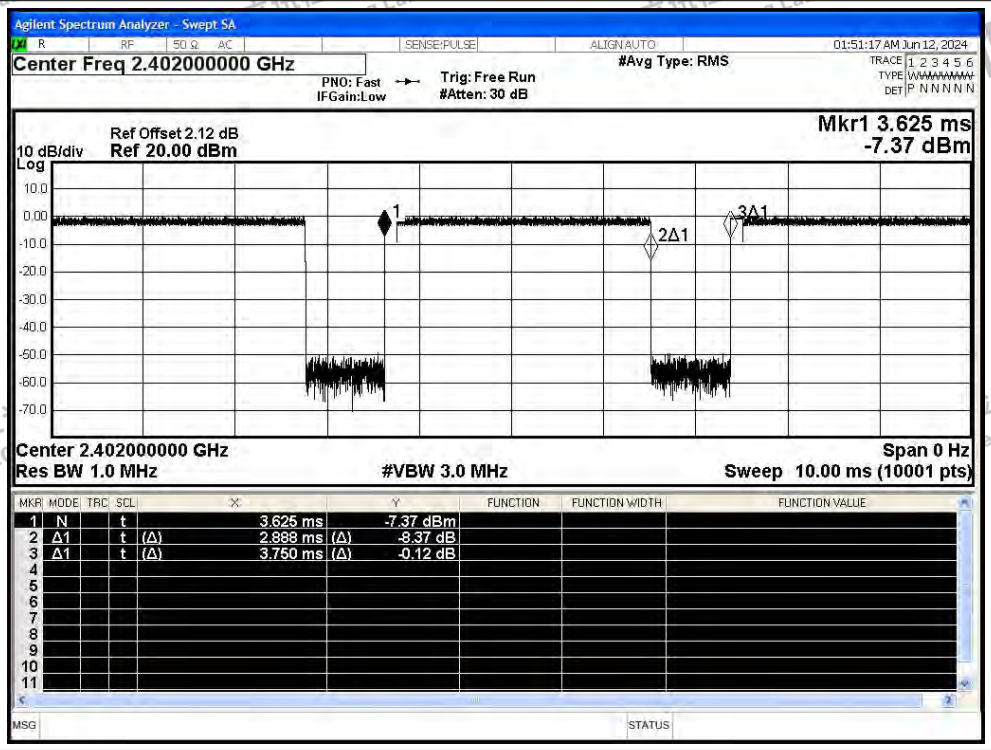
Duty Cycle NVNT 2-DH5 2441MHz Ant1



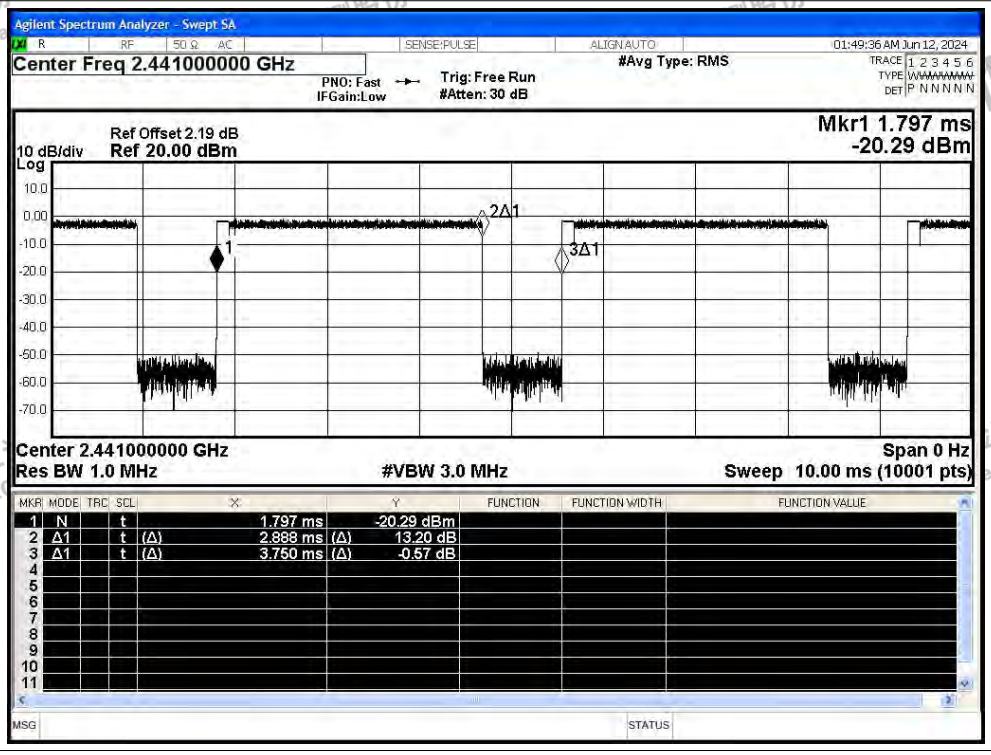
Duty Cycle NVNT 2-DH5 2480MHz Ant1



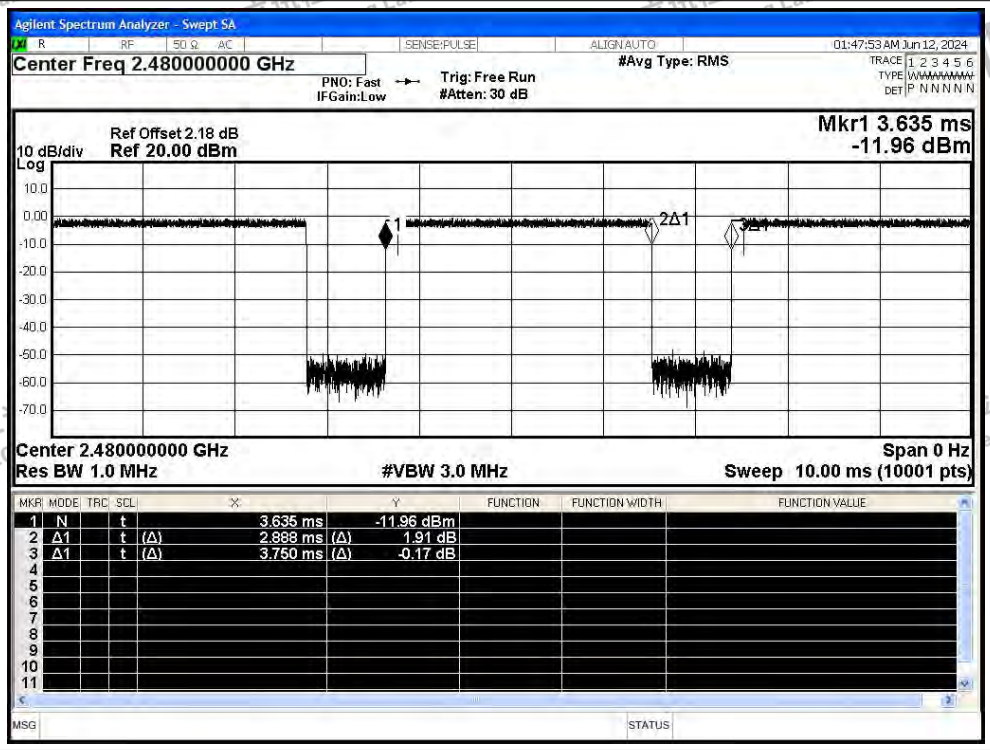
Duty Cycle NVNT 3-DH5 2402MHz Ant1



Duty Cycle NVNT 3-DH5 2441MHz Ant1



Duty Cycle NVNT 3-DH5 2480MHz Ant1

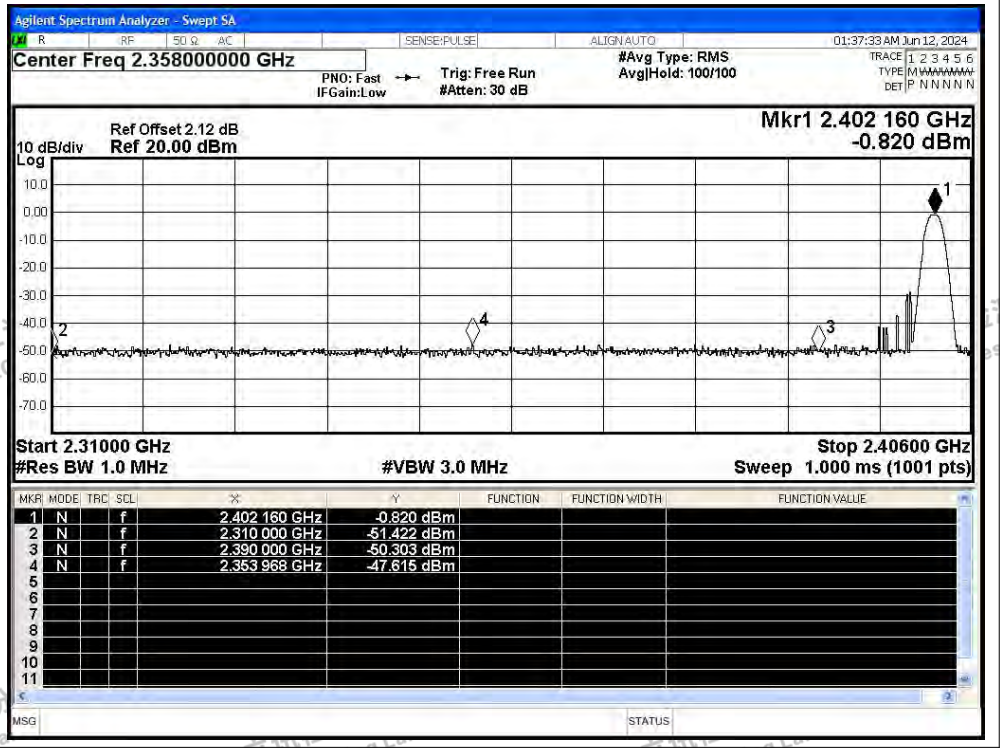


A.9 Restrict Band

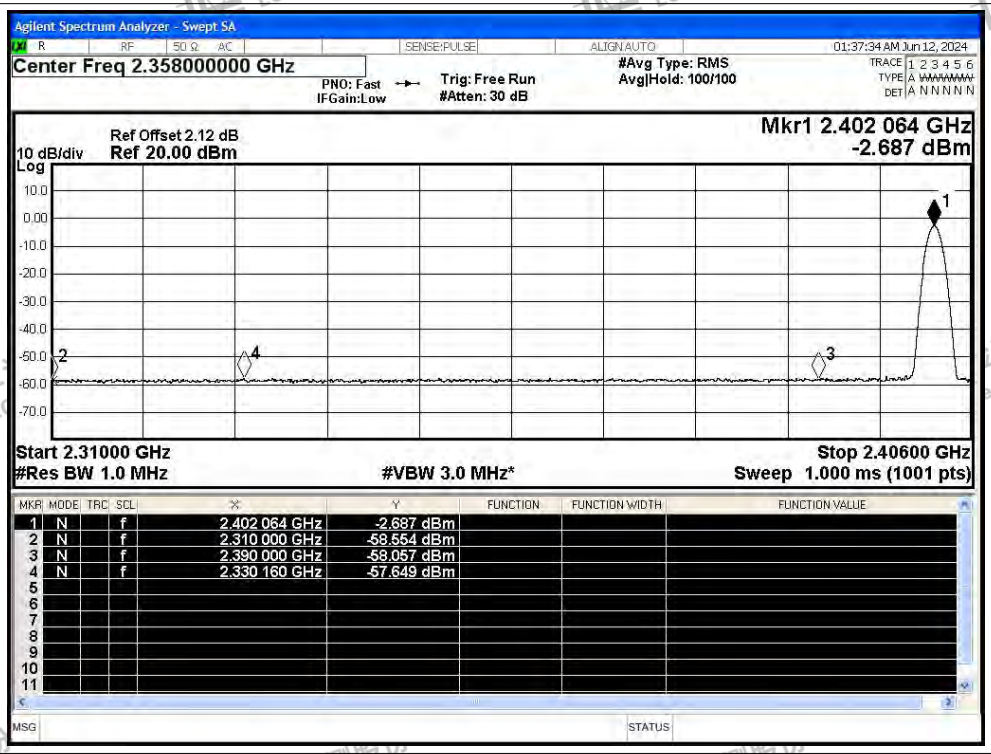
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Spur Freq (MHz)	Power (dBm)	Gain (dBi)	Duty Factor (dB)	E (dBuV/m)	Detector	Limit (dBuV/m)	Verdict
NVNT	1-DH5	2402	Ant1	No-Hopping	2310	-51.42	3.43	-	47.27	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2310	-58.55	3.43	1.14	41.28	Average	54	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2353.968	-47.62	3.43	-	51.07	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2330.16	-57.65	3.43	1.14	42.18	Average	54	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2390	-50.3	3.43	-	48.39	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2390	-58.06	3.43	1.14	41.77	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.5	-49.68	3.43	-	49.01	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.5	-57.74	3.43	1.14	42.09	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2484.376	-36	3.43	-	62.69	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.728	-54.33	3.43	1.14	45.50	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2500	-49.25	3.43	-	49.44	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2500	-57.79	3.43	1.14	42.04	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2310	-49.18	3.43	-	49.51	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2310	-58.89	3.43	1.14	40.94	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2382.96	-47.95	3.43	-	50.74	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2357.712	-57.38	3.43	1.14	42.45	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2390	-50.91	3.43	-	47.78	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2390	-58.15	3.43	1.14	41.68	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.5	-51.45	3.43	-	47.24	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.5	-57.97	3.43	1.14	41.86	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.656	-38.77	3.43	-	59.92	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2484.088	-56.53	3.43	1.14	43.30	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2500	-51.07	3.43	-	47.62	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2500	-57.92	3.43	1.14	41.91	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2310	-48.74	3.43	-	49.95	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2310	-58.43	3.43	1.13	41.39	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2377.872	-47.41	3.43	-	51.28	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2389.968	-57.59	3.43	1.13	42.23	Average	54	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2390	-50.83	3.43	-	47.86	Peak	74	Pass
NVNT	3-DH5	2402	Ant1	No-Hopping	2390	-57.59	3.43	1.13	42.23	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.5	-48.91	3.43	-	49.78	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2483.5	-57.76	3.43	1.13	42.06	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2485.216	-42.76	3.43	-	55.93	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2492.752	-57	3.43	1.13	42.82	Average	54	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2500	-48.47	3.43	-	50.22	Peak	74	Pass
NVNT	3-DH5	2480	Ant1	No-Hopping	2500	-58.09	3.43	1.13	41.73	Average	54	Pass

Test Graphs

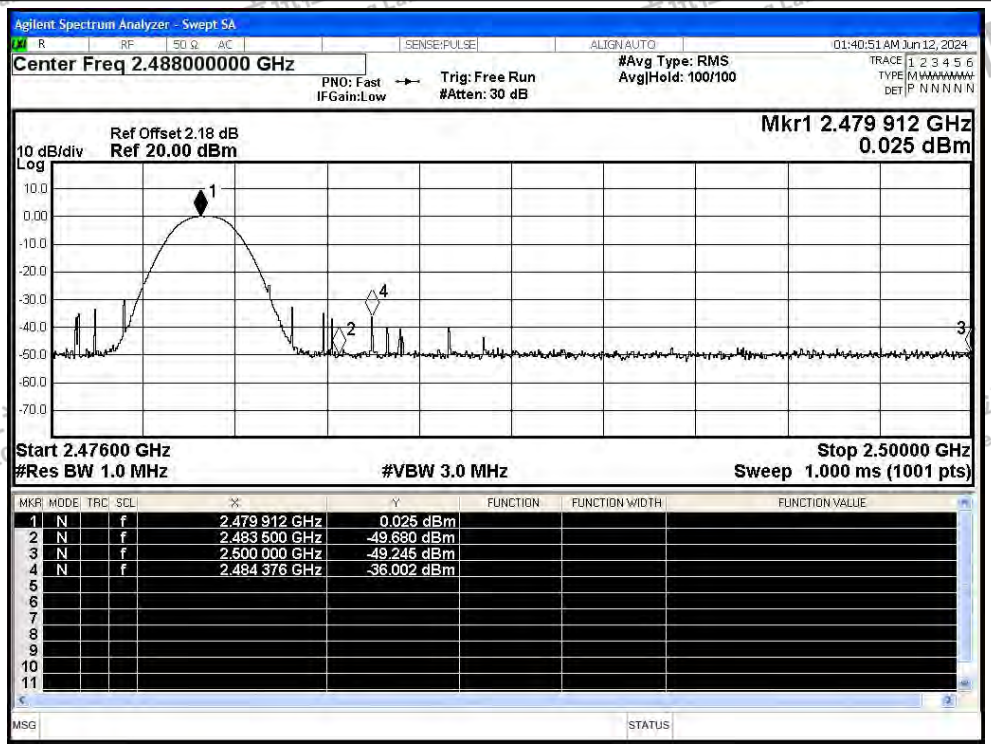
Restrict Band NVNT 1-DH5 2402MHz Ant1 No-Hopping Peak



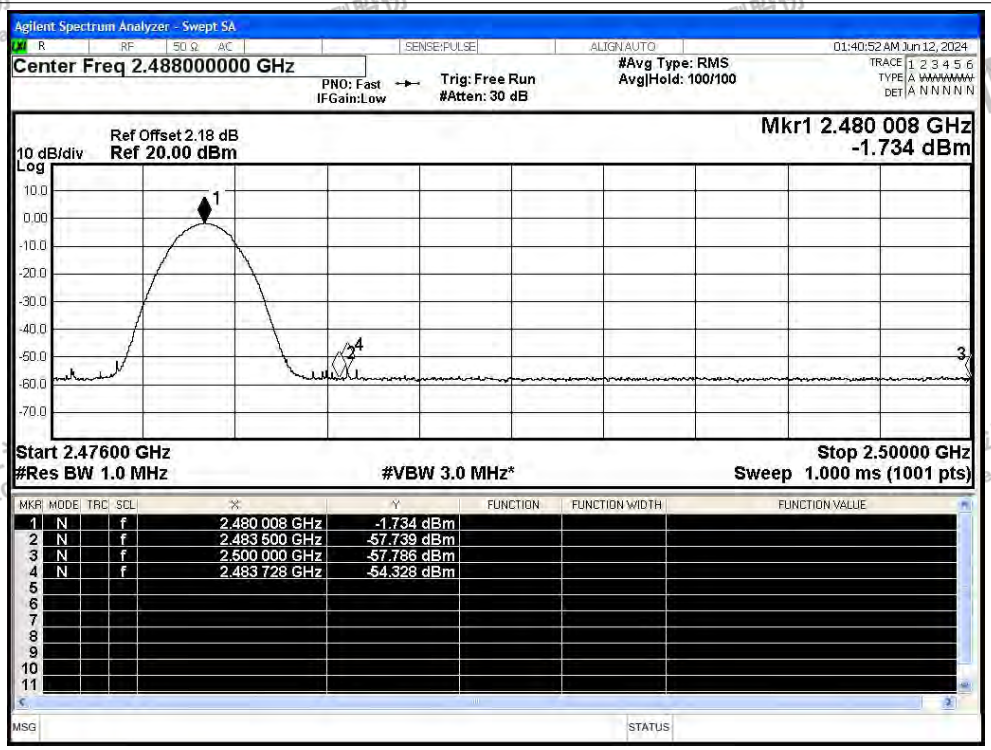
Restrict Band NVNT 1-DH5 2402MHz Ant1 No-Hopping Average



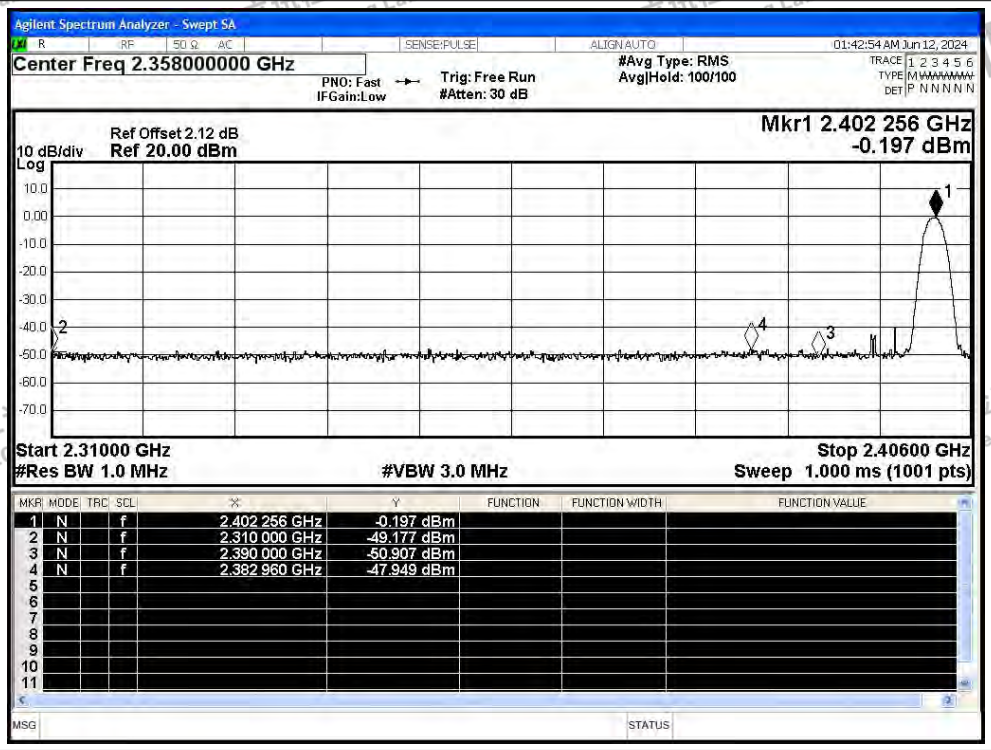
Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Peak



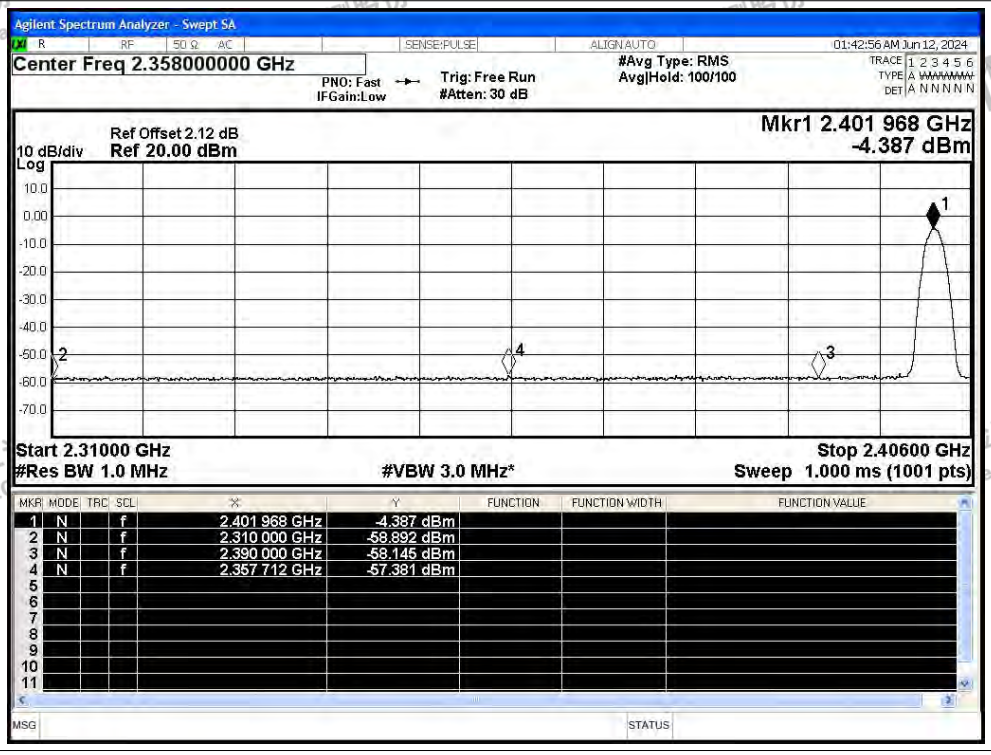
Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Average



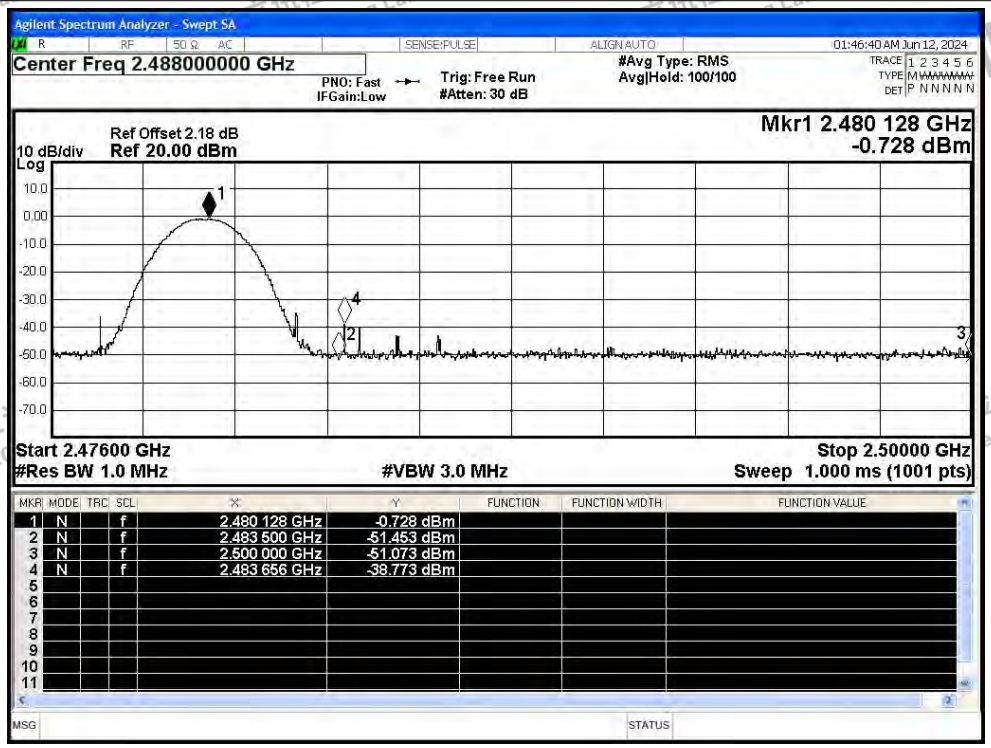
Restrict Band NVNT 2-DH5 2402MHz Ant1 No-Hopping Peak



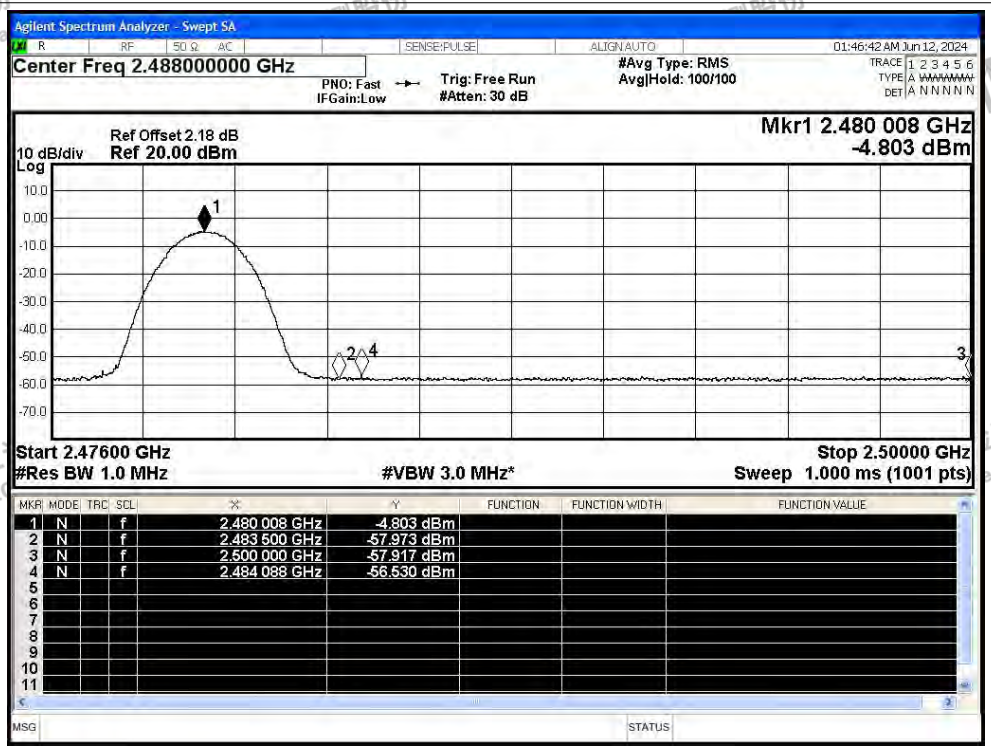
Restrict Band NVNT 2-DH5 2402MHz Ant1 No-Hopping Average



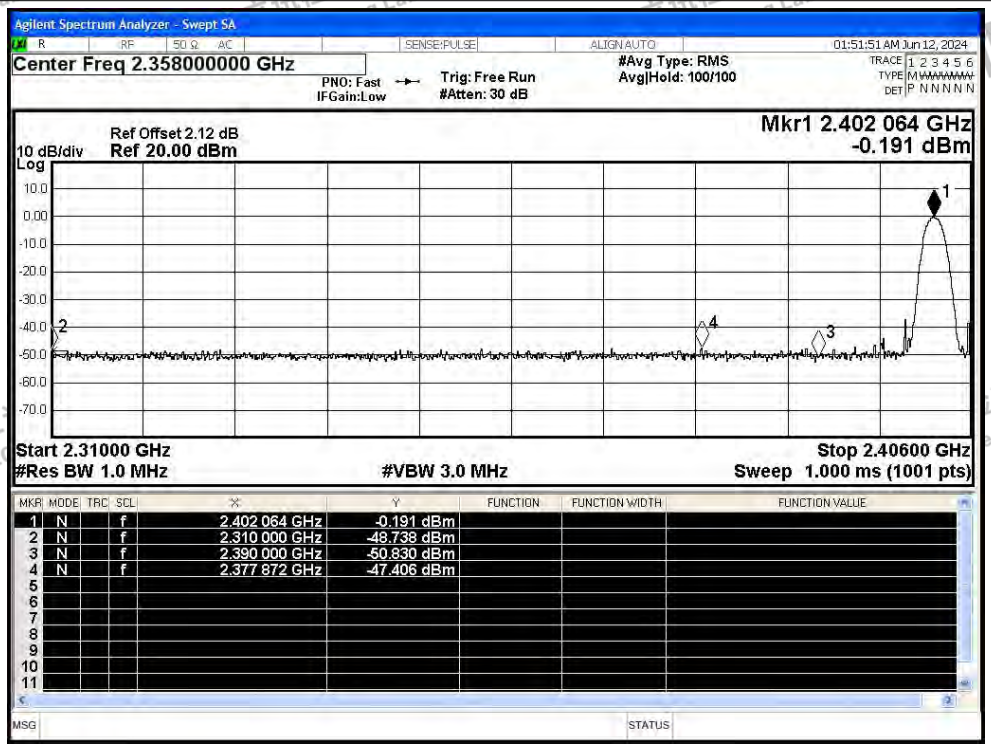
Restrict Band NVNT 2-DH5 2480MHz Ant1 No-Hopping Peak



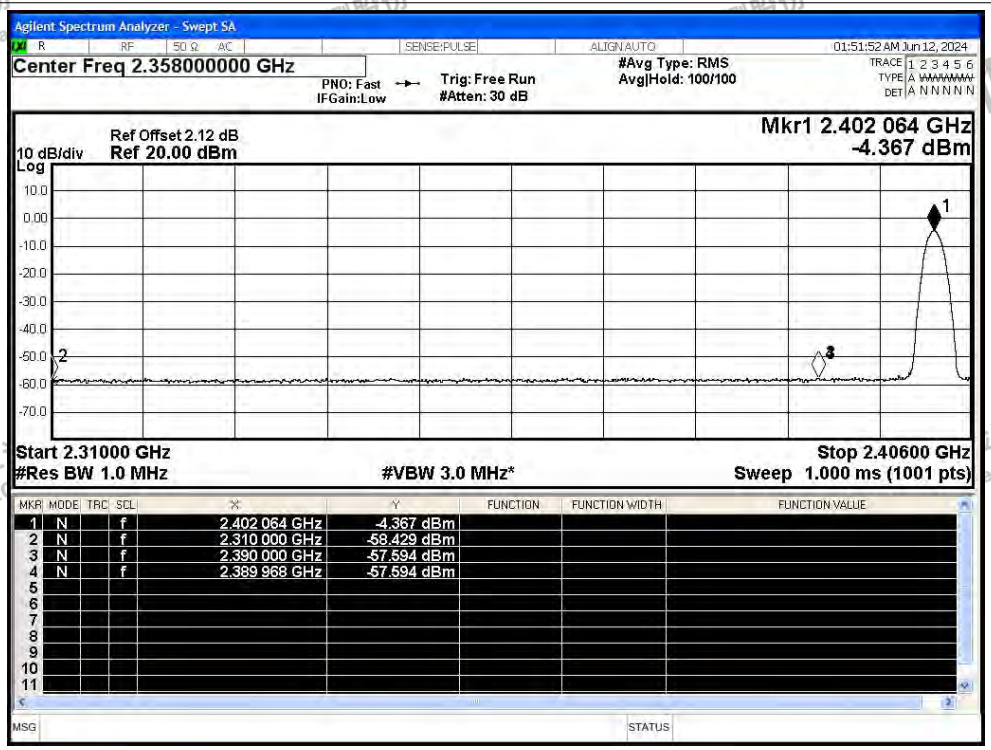
Restrict Band NVNT 2-DH5 2480MHz Ant1 No-Hopping Average



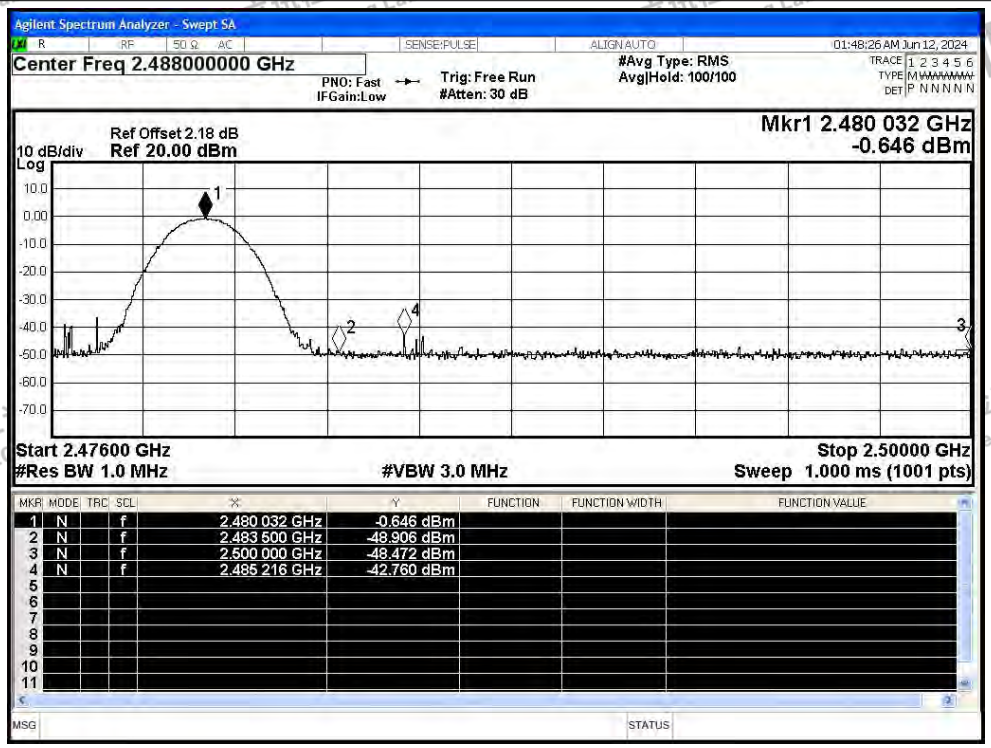
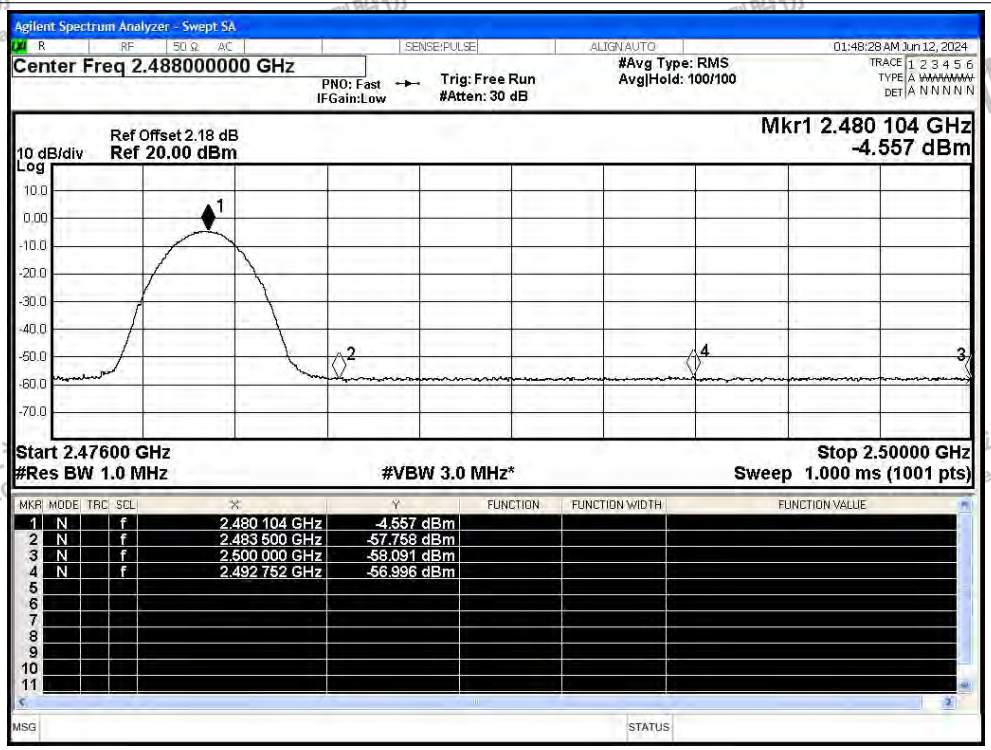
Restrict Band NVNT 3-DH5 2402MHz Ant1 No-Hopping Peak



Restrict Band NVNT 3-DH5 2402MHz Ant1 No-Hopping Average



Restrict Band NVNT 3-DH5 2480MHz Ant1 No-Hopping Peak



Restrict Band NVNT 3-DH5 2480MHz Ant1 No-Hopping Average