



## Appendix A

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

**Product Name:** smart watch

**Test Model:** TB78A

#### 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	Ant1	0.944	N/A	Pass
NVNT	1-DH5	2441	Ant1	0.993	N/A	Pass
NVNT	1-DH5	2480	Ant1	0.935	N/A	Pass
NVNT	2-DH5	2402	Ant1	1.285	N/A	Pass
NVNT	2-DH5	2441	Ant1	1.282	N/A	Pass
NVNT	2-DH5	2480	Ant1	1.285	N/A	Pass



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Scan code to check authenticity



Test Graphs

-20dB Bandwidth NVNT 1-DH5 2402MHz Ant1

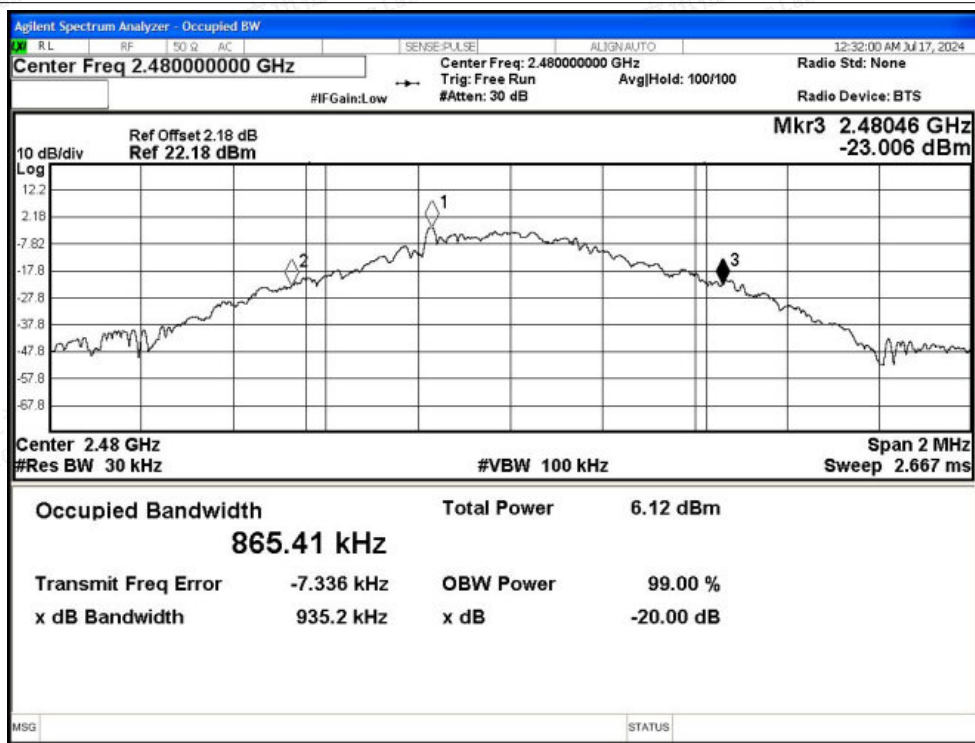


-20dB Bandwidth NVNT 1-DH5 2441MHz Ant1





-20dB Bandwidth NVNT 1-DH5 2480MHz Ant1

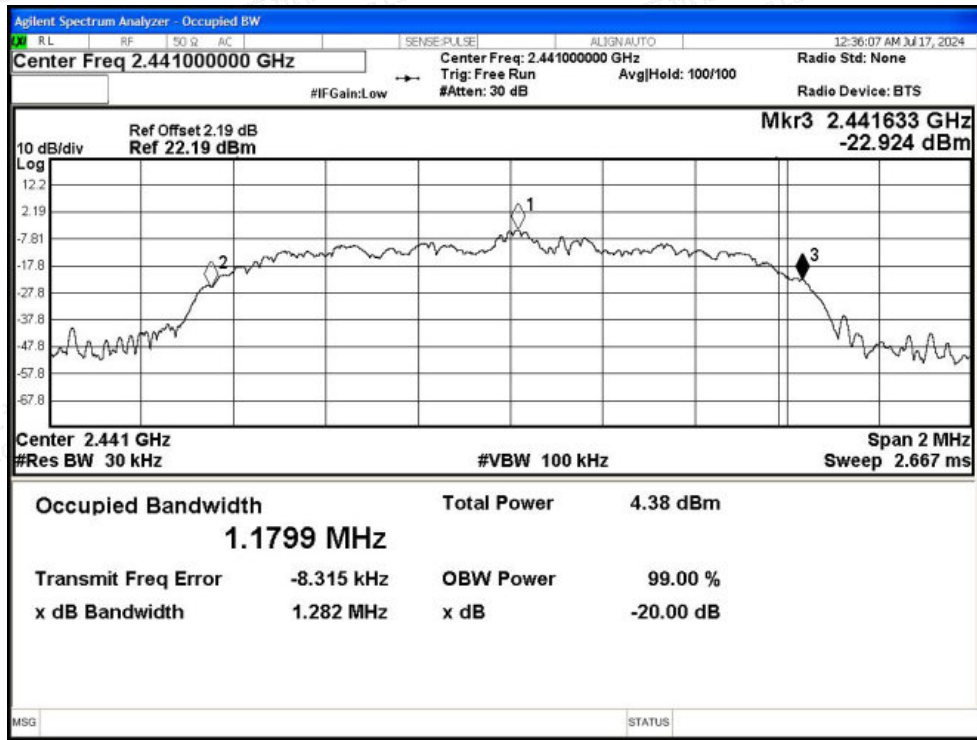


-20dB Bandwidth NVNT 2-DH5 2402MHz Ant1

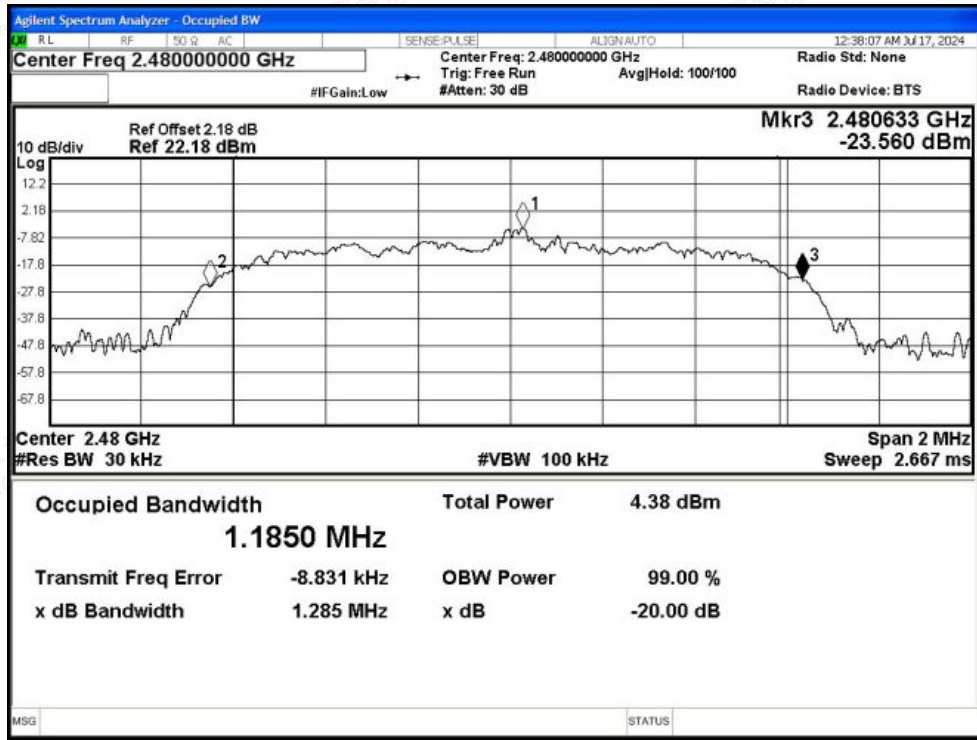




-20dB Bandwidth NVNT 2-DH5 2441MHz Ant1



-20dB Bandwidth NVNT 2-DH5 2480MHz Ant1





## A.2 Maximum Peak Conducted Output Power

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH5	2402	Ant1	-1.05	21	Pass
NVNT	1-DH5	2441	Ant1	-0.58	21	Pass
NVNT	1-DH5	2480	Ant1	-0.36	21	Pass
NVNT	2-DH5	2402	Ant1	-0.67	21	Pass
NVNT	2-DH5	2441	Ant1	-0.11	21	Pass
NVNT	2-DH5	2480	Ant1	0.03	21	Pass

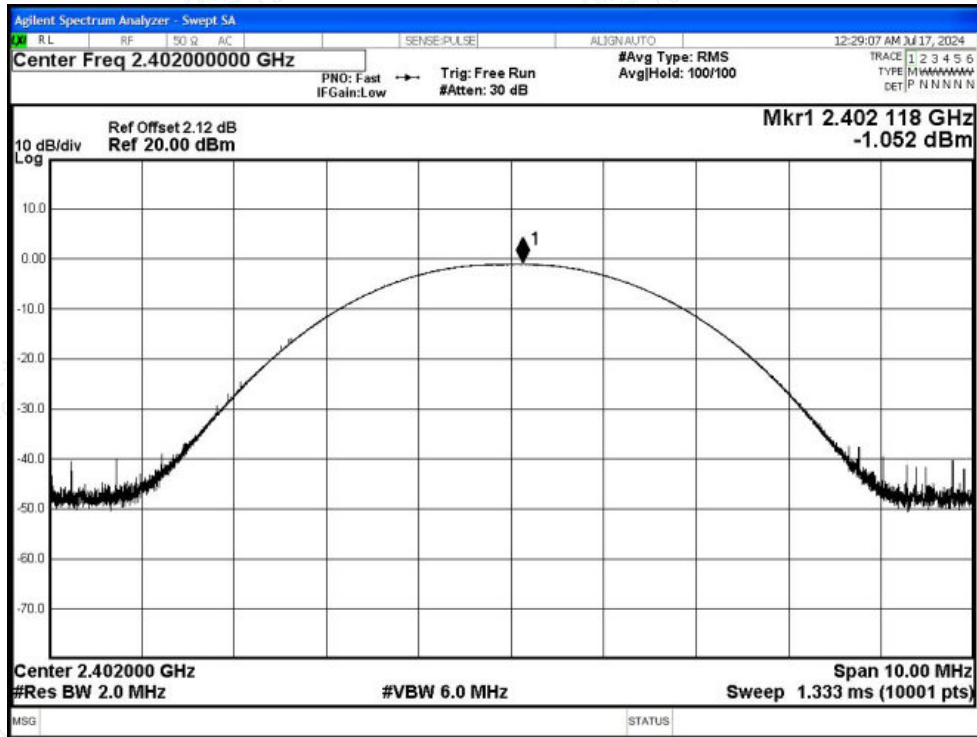




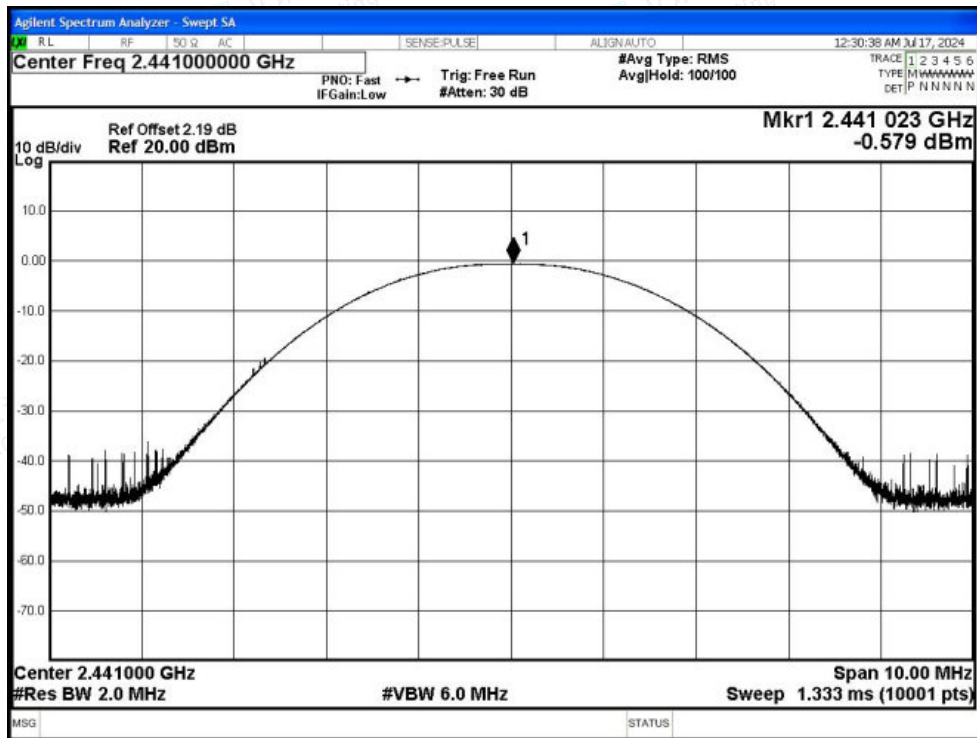


Test Graphs

Power NVNT 1-DH5 2402MHz Ant1

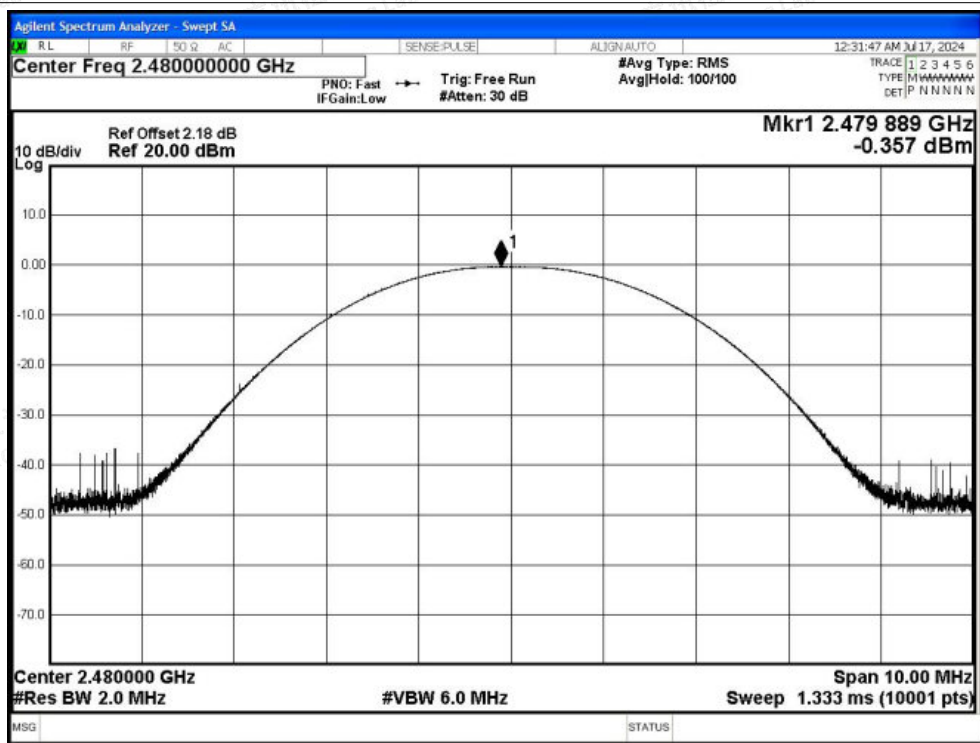


Power NVNT 1-DH5 2441MHz Ant1

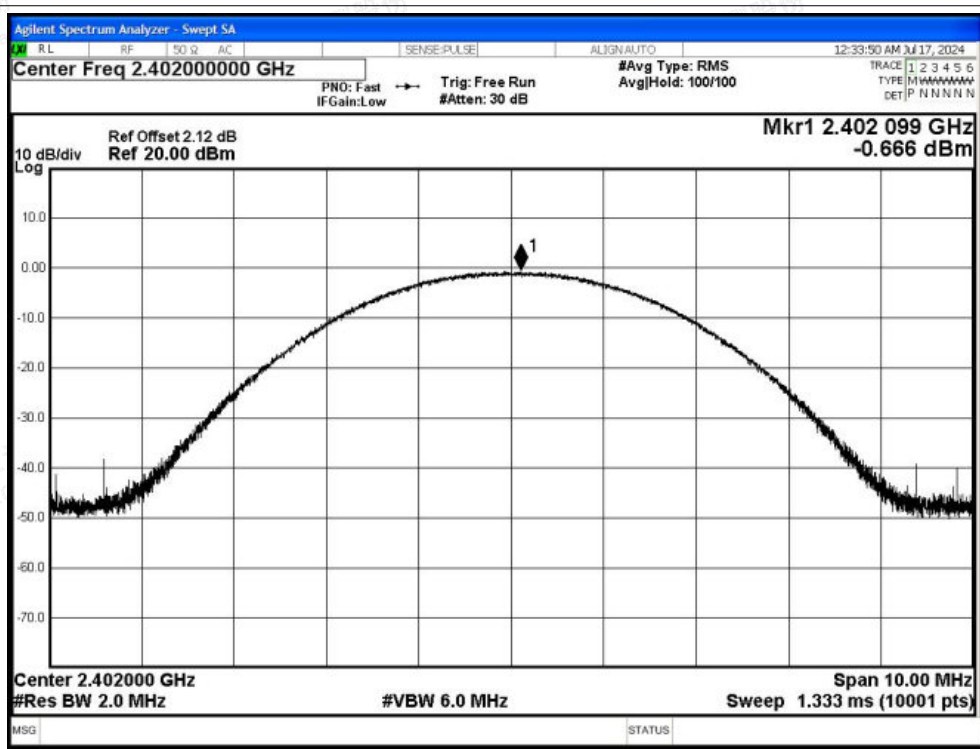




Power NVNT 1-DH5 2480MHz Ant1



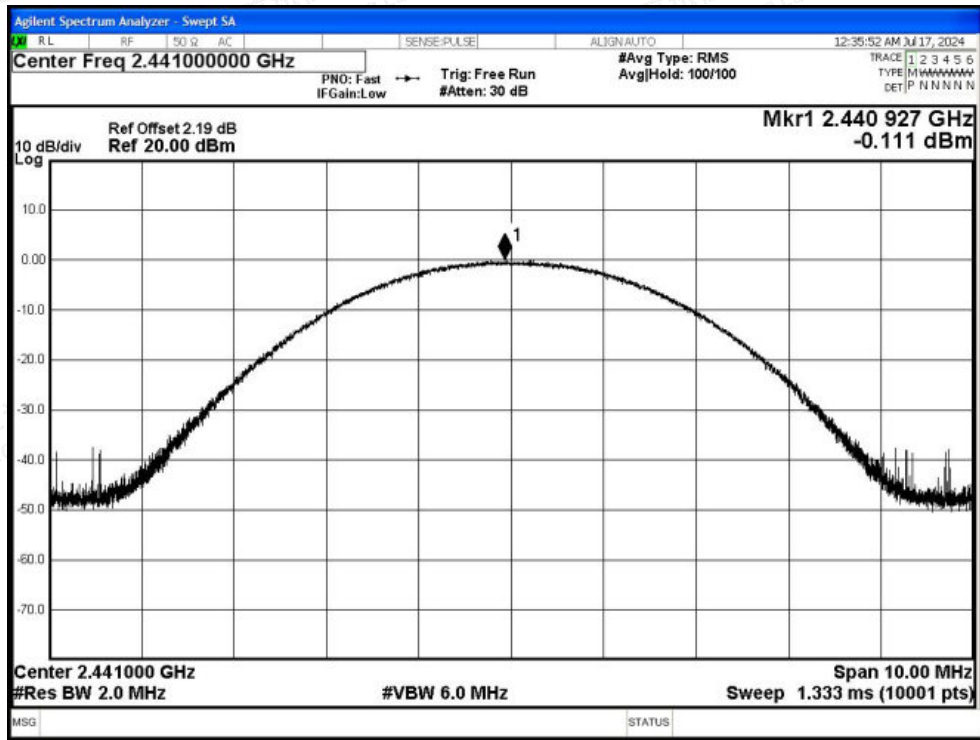
Power NVNT 2-DH5 2402MHz Ant1



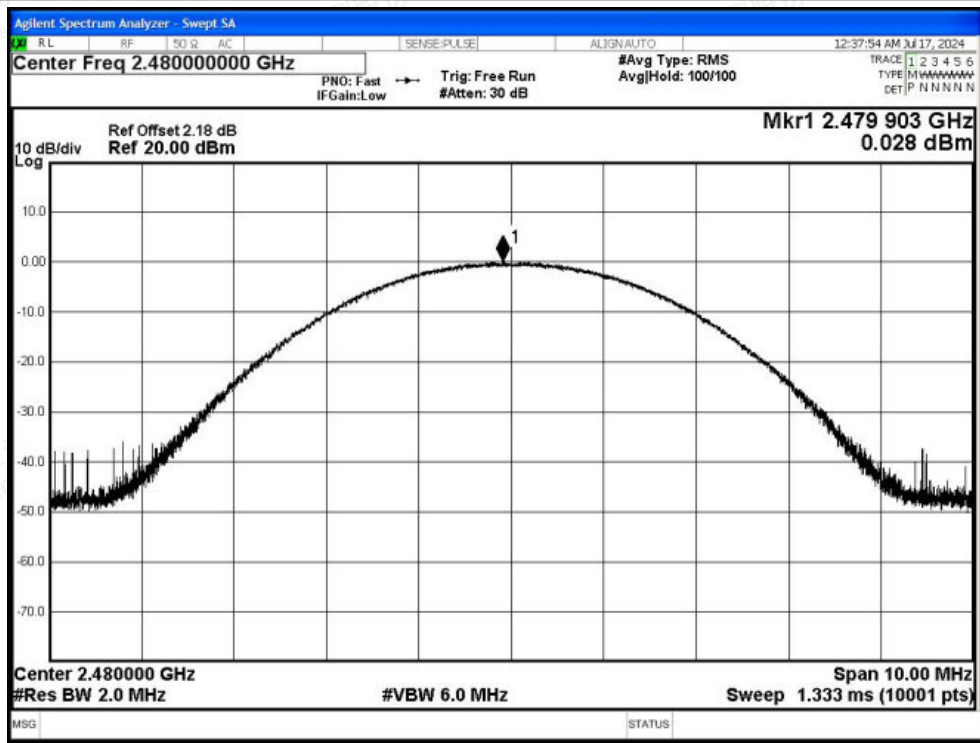




Power NVNT 2-DH5 2441MHz Ant1



Power NVNT 2-DH5 2480MHz Ant1





### A.3 Carrier Frequencies Separation

Condition	Mode	Antenna	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH5	Ant1	2401.834	2403.05	1.216	0.662	Pass
NVNT	2-DH5	Ant1	2402.022	2403.028	1.006	0.857	Pass

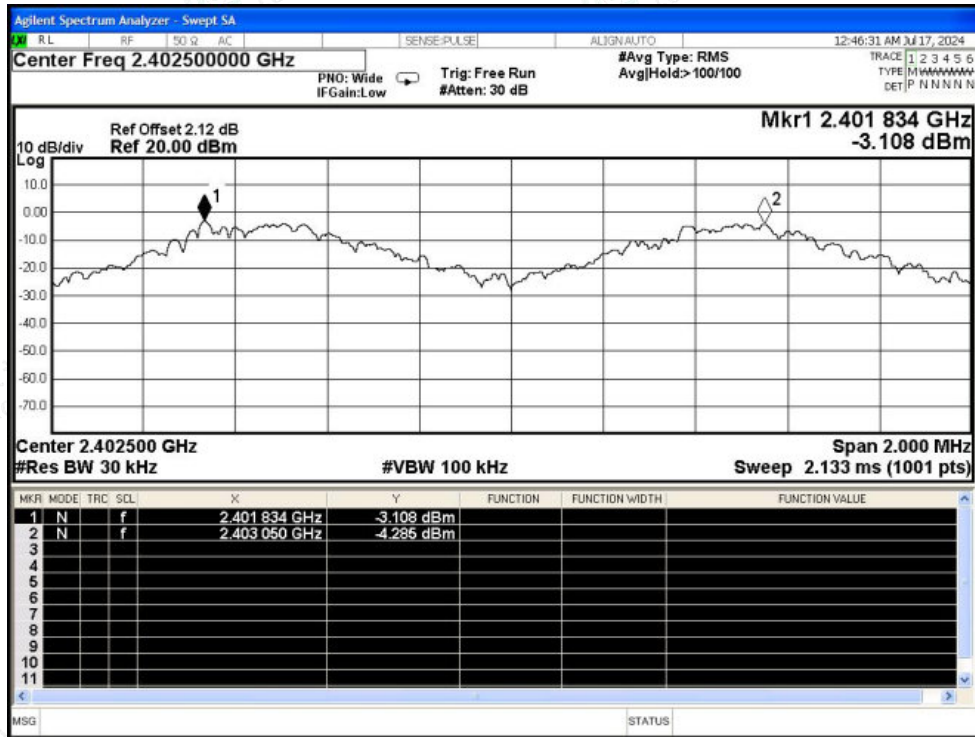


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Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com  
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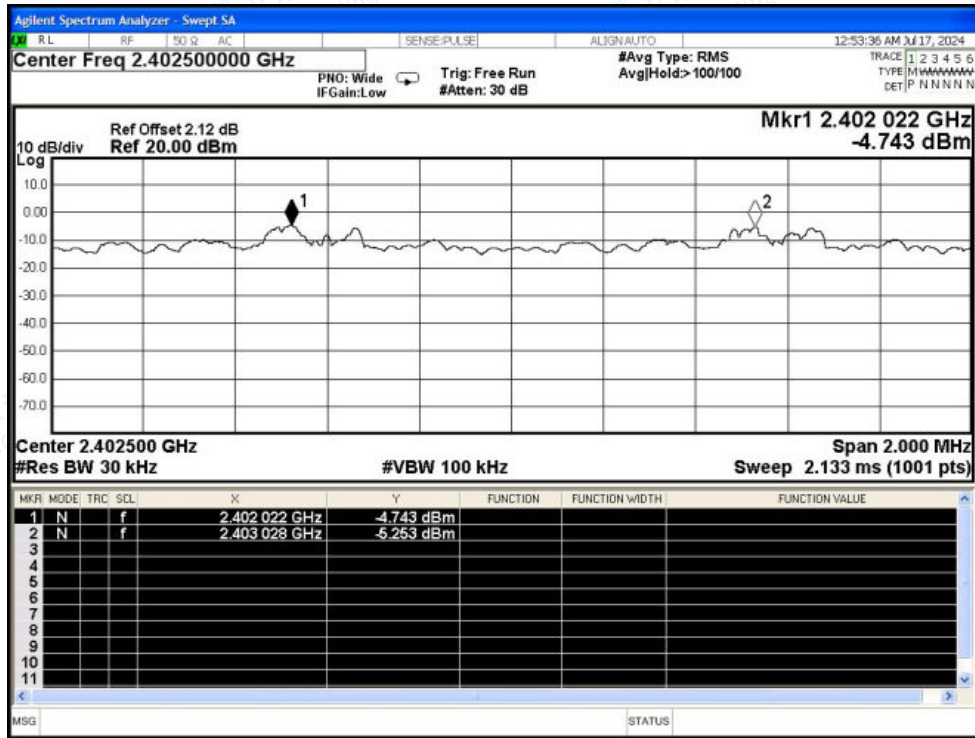


Test Graphs

CFS NVNT 1-DH5 2402MHz Ant1



CFS NVNT 2-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	2.91	291	100	31600	400	Pass
NVNT	2-DH5	2402	Ant1	2.899	278.304	96	31600	400	Pass

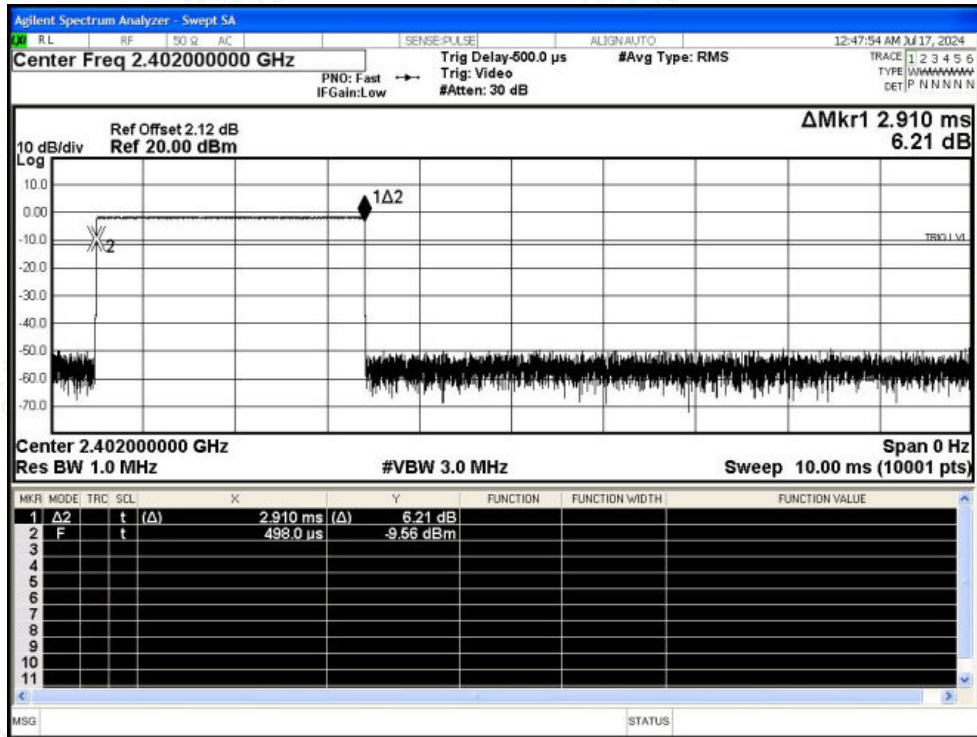


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Scan code to check authenticity

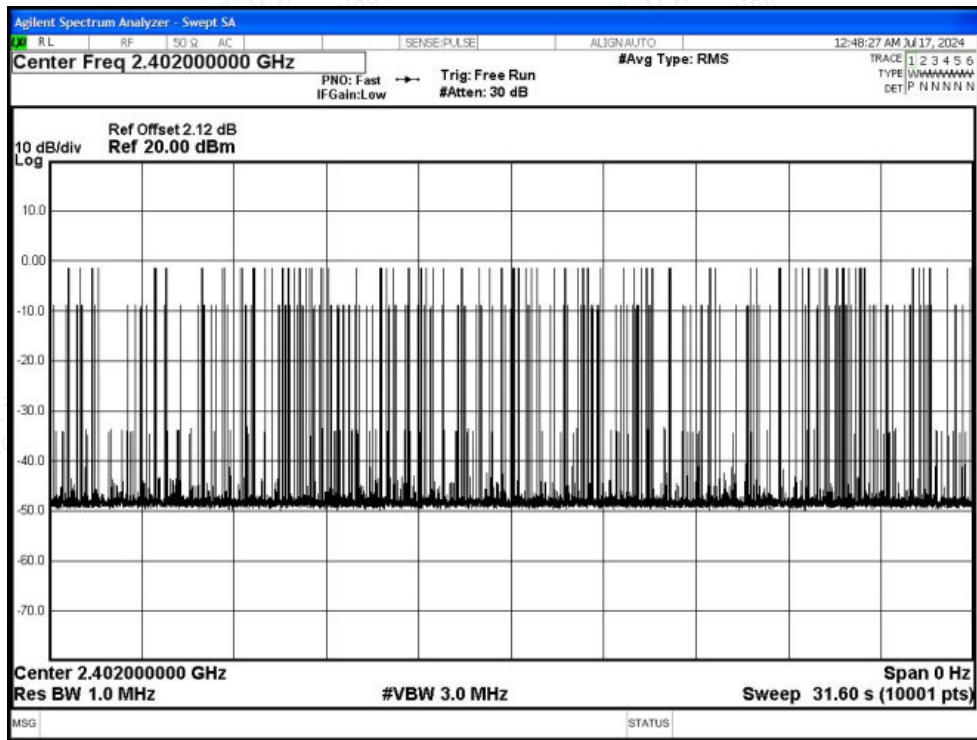


Test Graphs

Dwell NVNT 1-DH5 2402MHz Ant1 One Burst



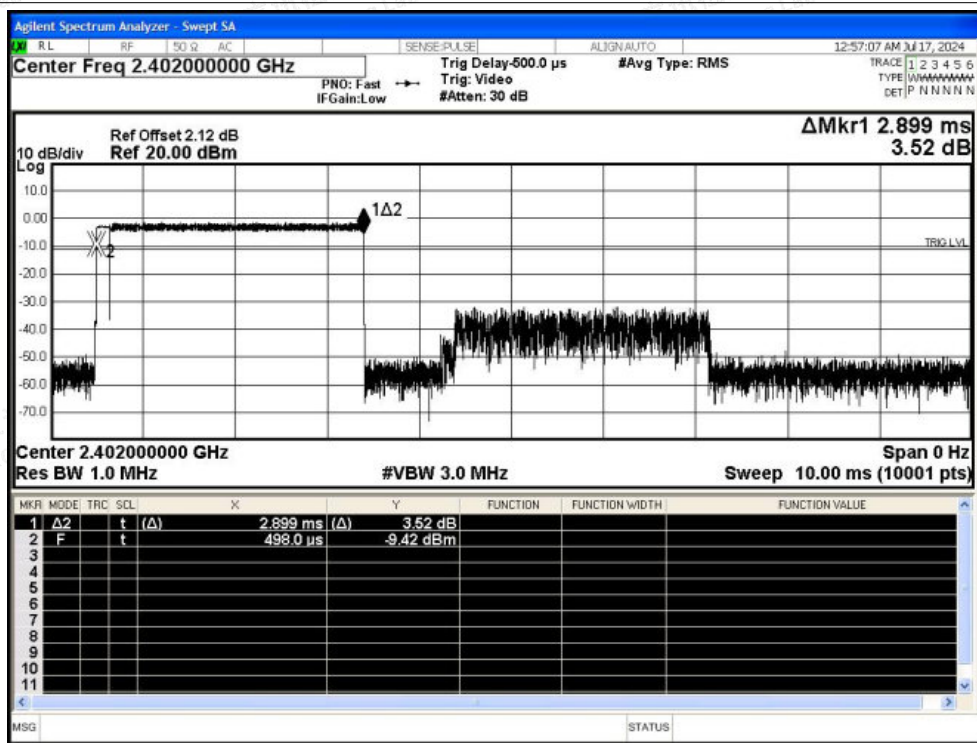
Dwell NVNT 1-DH5 2402MHz Ant1 Accumulated



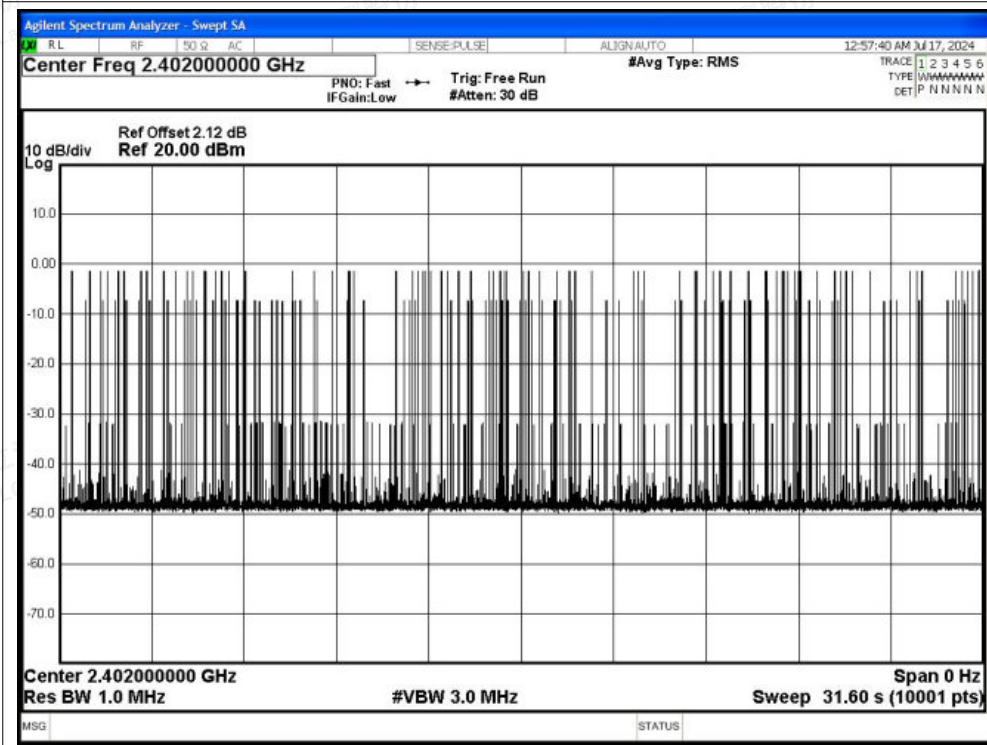




Dwell NVNT 2-DH5 2402MHz Ant1 One Burst



Dwell NVNT 2-DH5 2402MHz Ant1 Accumulated







## A.5 Number of Hopping Channel

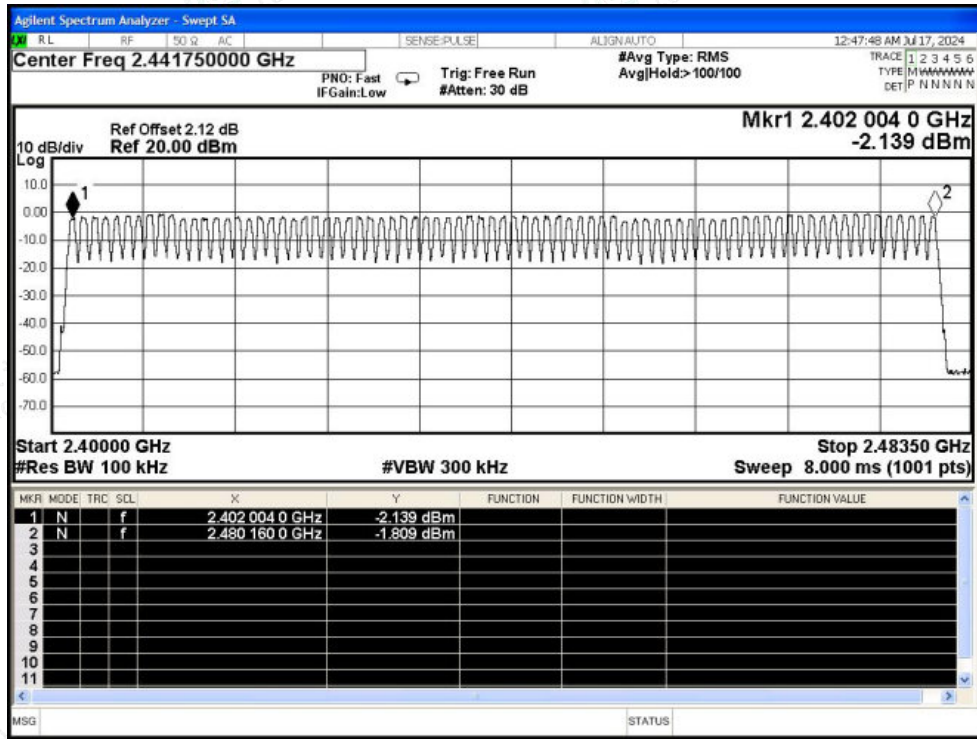
Condition	Mode	Antenna	Hopping Number	Limit	Verdict
NVNT	1-DH5	Ant1	79	15	Pass
NVNT	2-DH5	Ant1	79	15	Pass



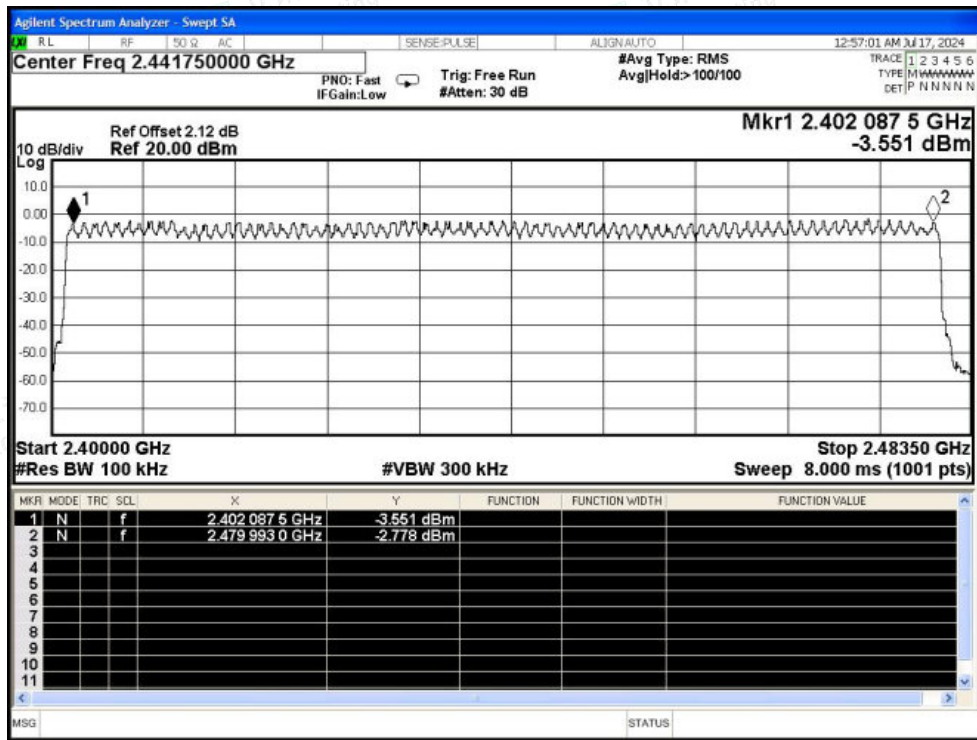


Test Graphs

Hopping No. NVNT 1-DH5 2402MHz Ant1



Hopping No. NVNT 2-DH5 2402MHz Ant1





## A.6 Band Edge

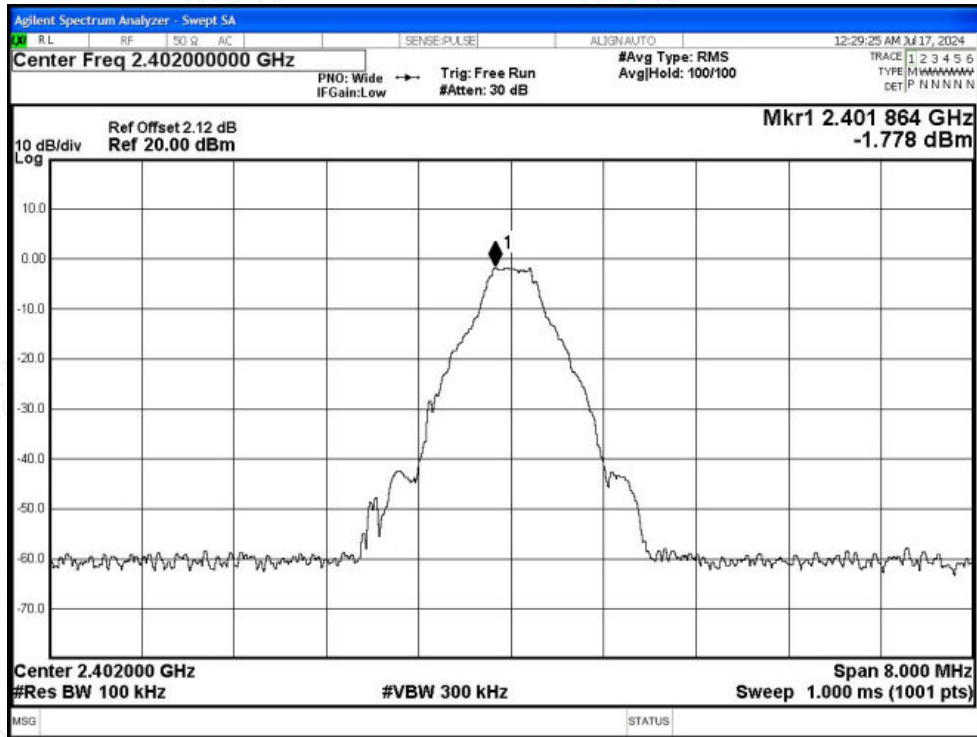
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	No-Hopping	-54.82	-20	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	-56.49	-20	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	-52.5	-20	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	-53.48	-20	Pass



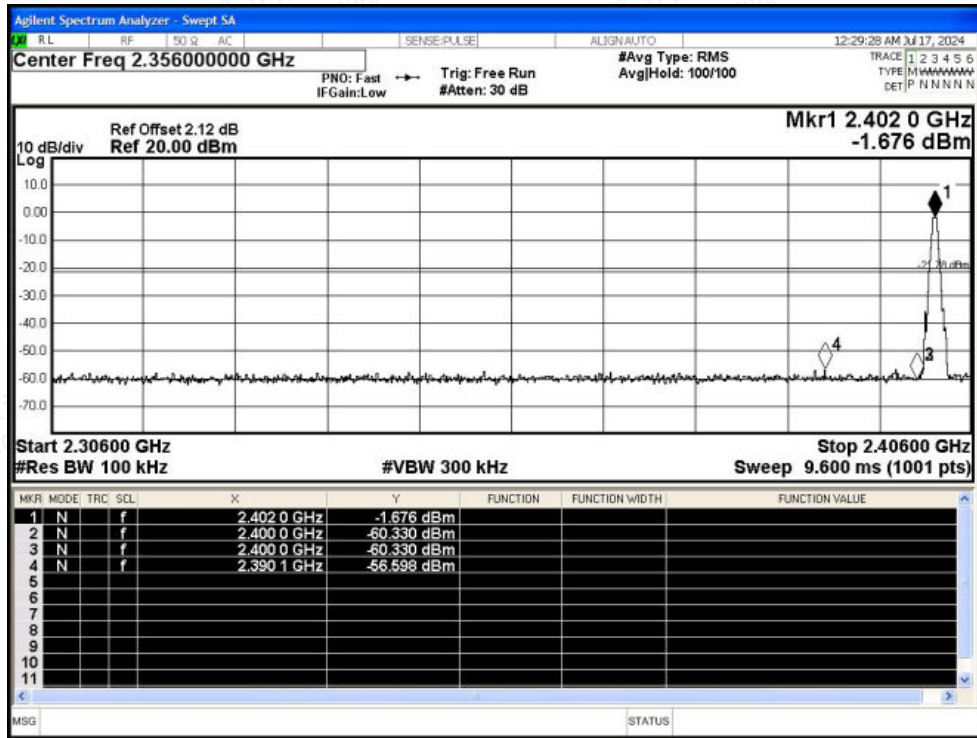


Test Graphs

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

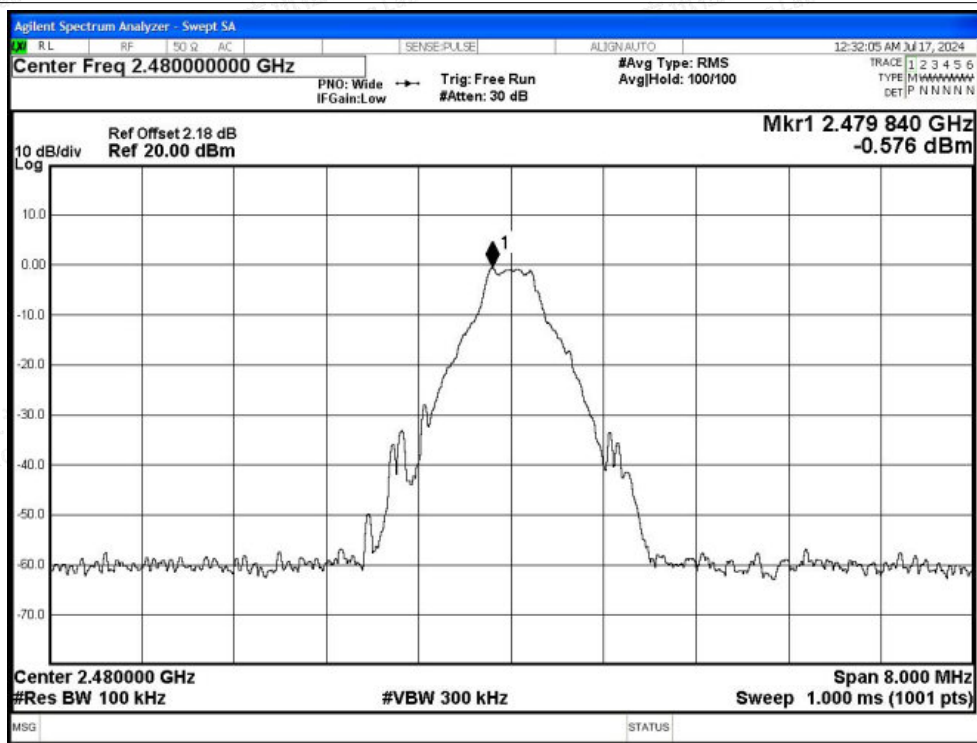


Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Emission

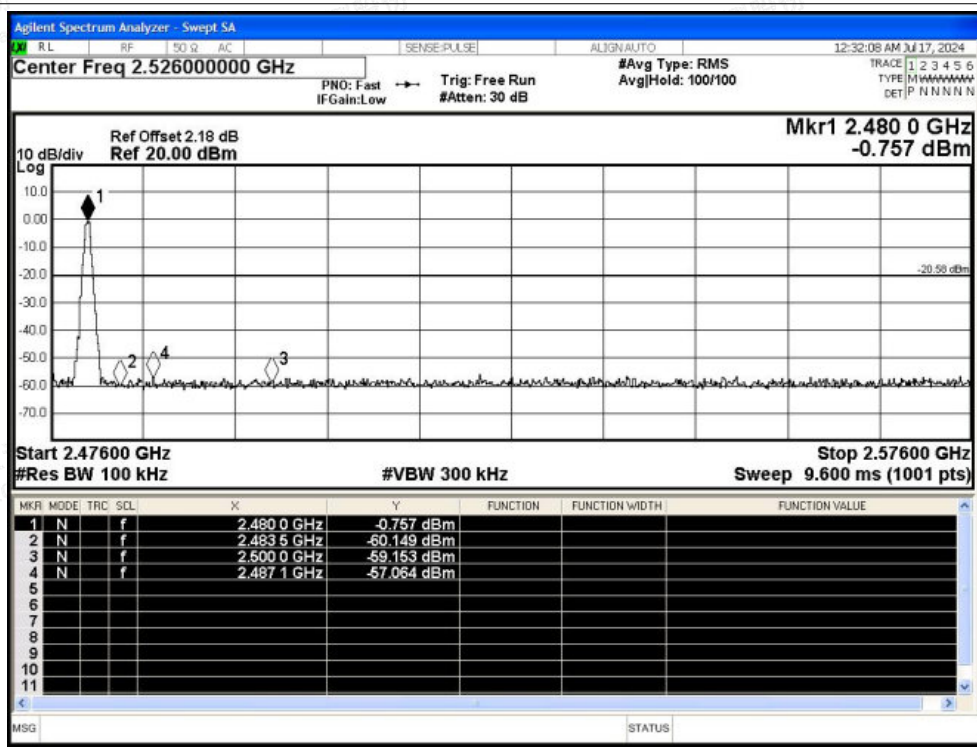




Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Ref



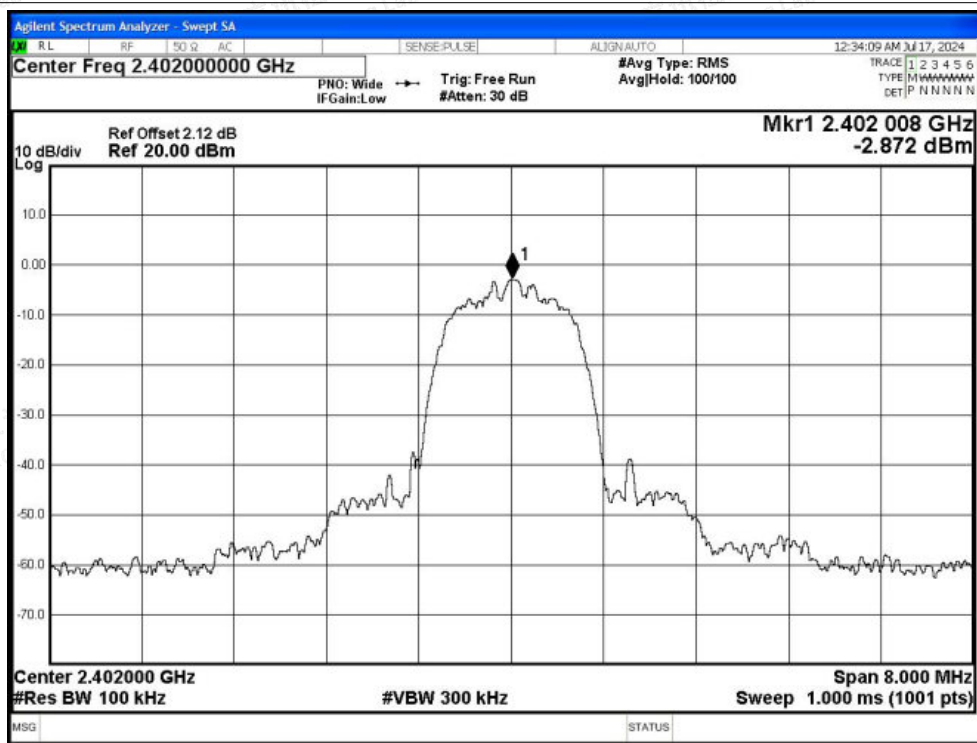
Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Emission



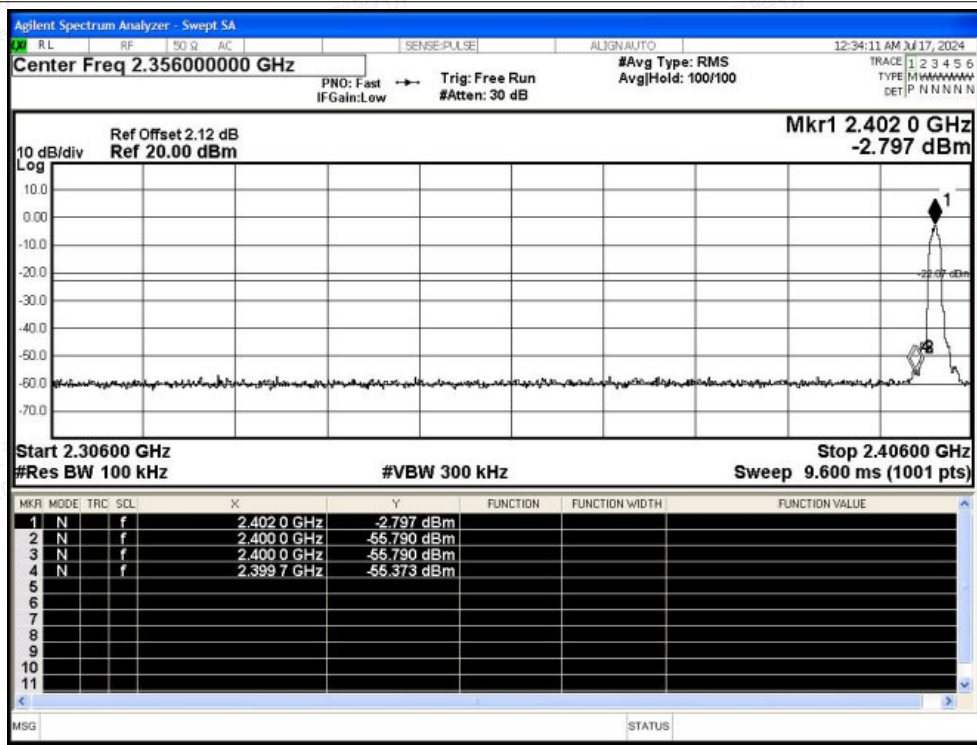




Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Ref



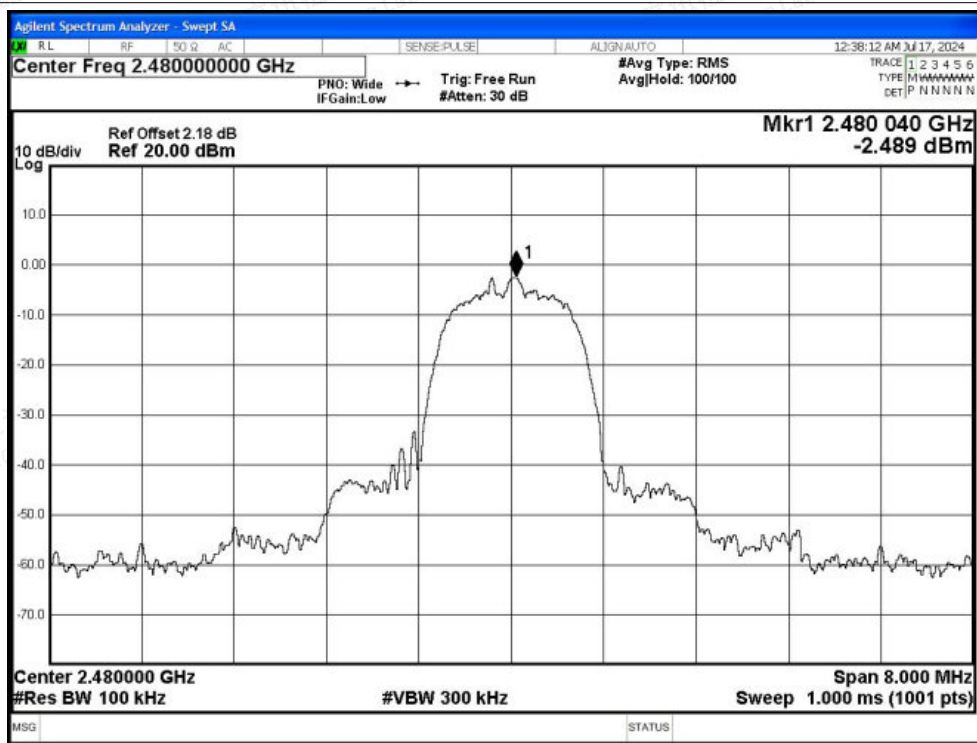
Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Emission



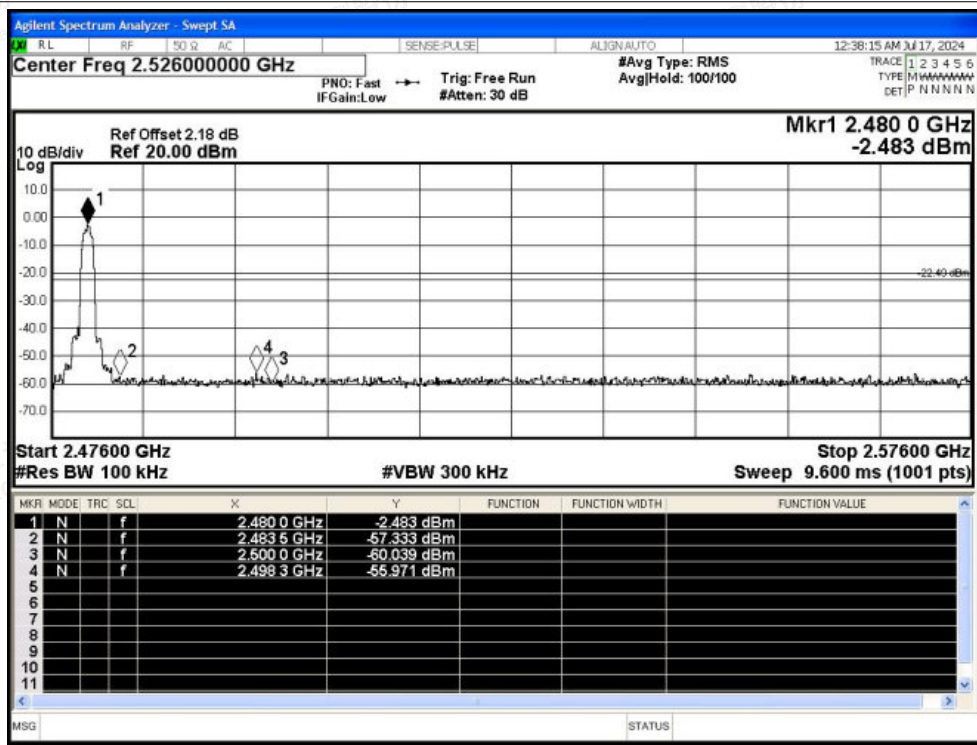




Band Edge NVNT 2-DH5 2480MHz Ant1 No-Hopping Ref



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





### (Hopping)

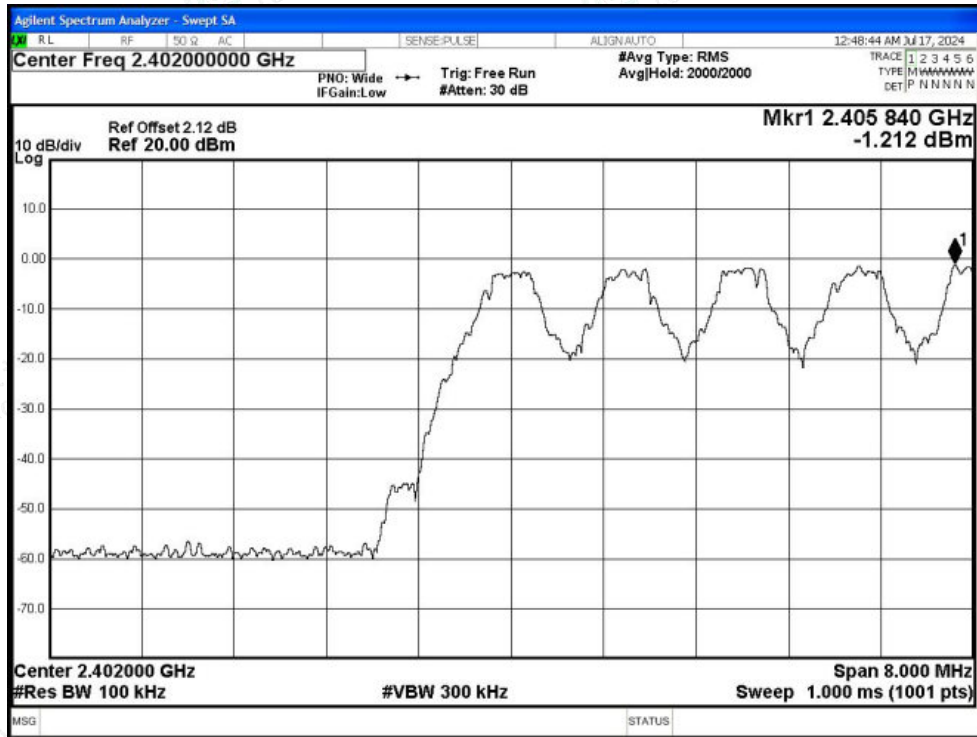
Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	Hopping	-54.94	-20	Pass
NVNT	1-DH5	2480	Ant1	Hopping	-52.63	-20	Pass
NVNT	2-DH5	2402	Ant1	Hopping	-52.56	-20	Pass
NVNT	2-DH5	2480	Ant1	Hopping	-52.17	-20	Pass



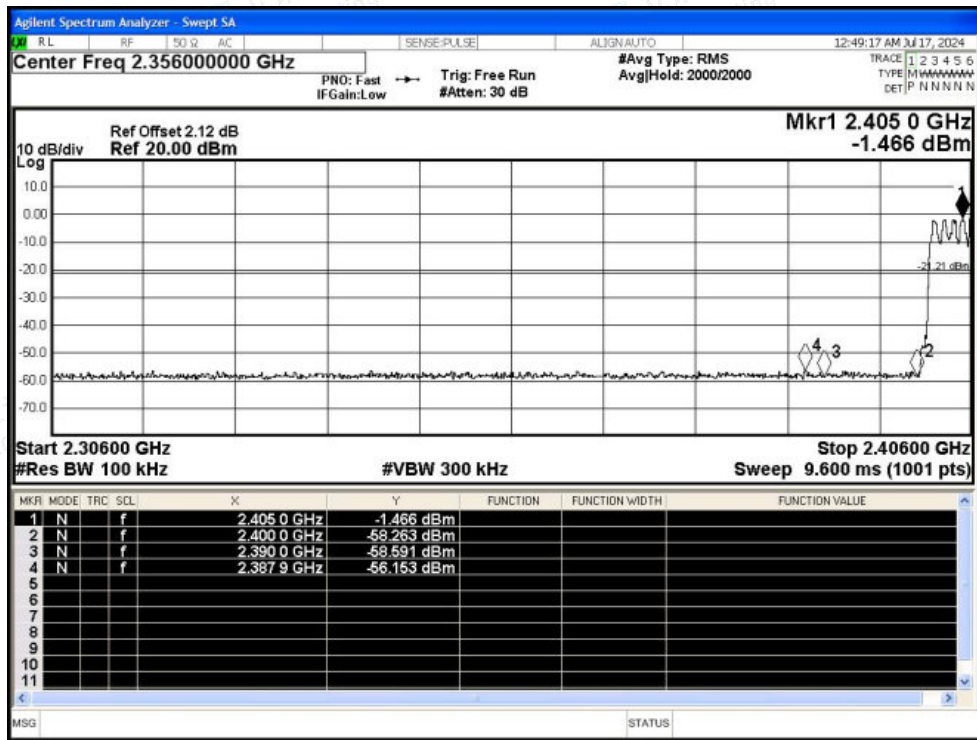


Test Graphs

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

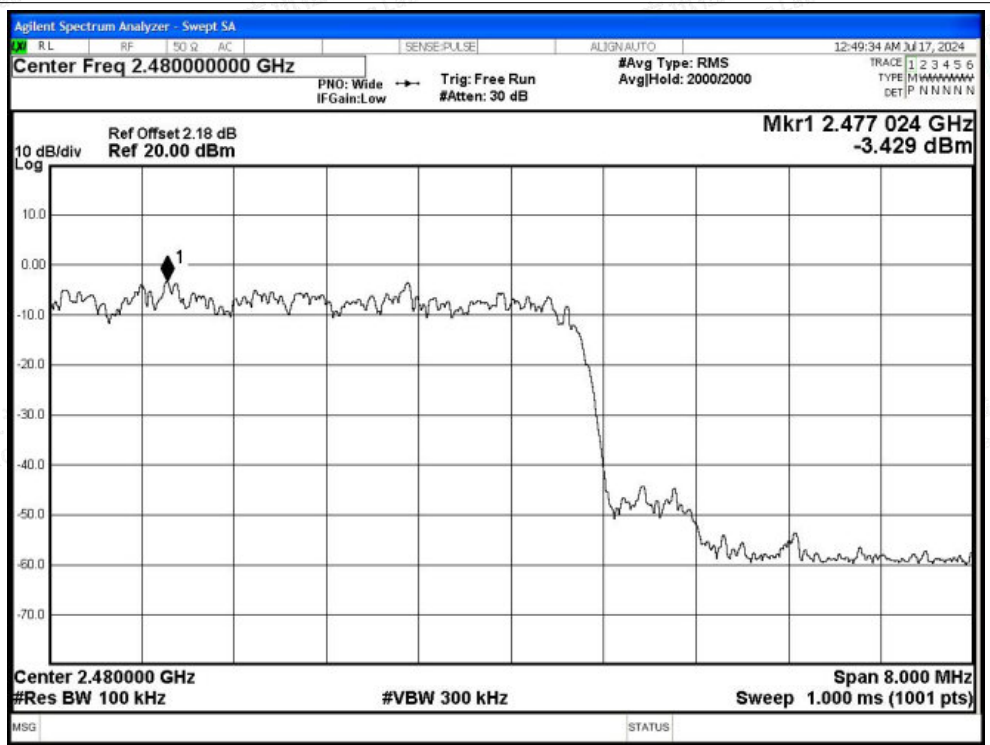


Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Emission

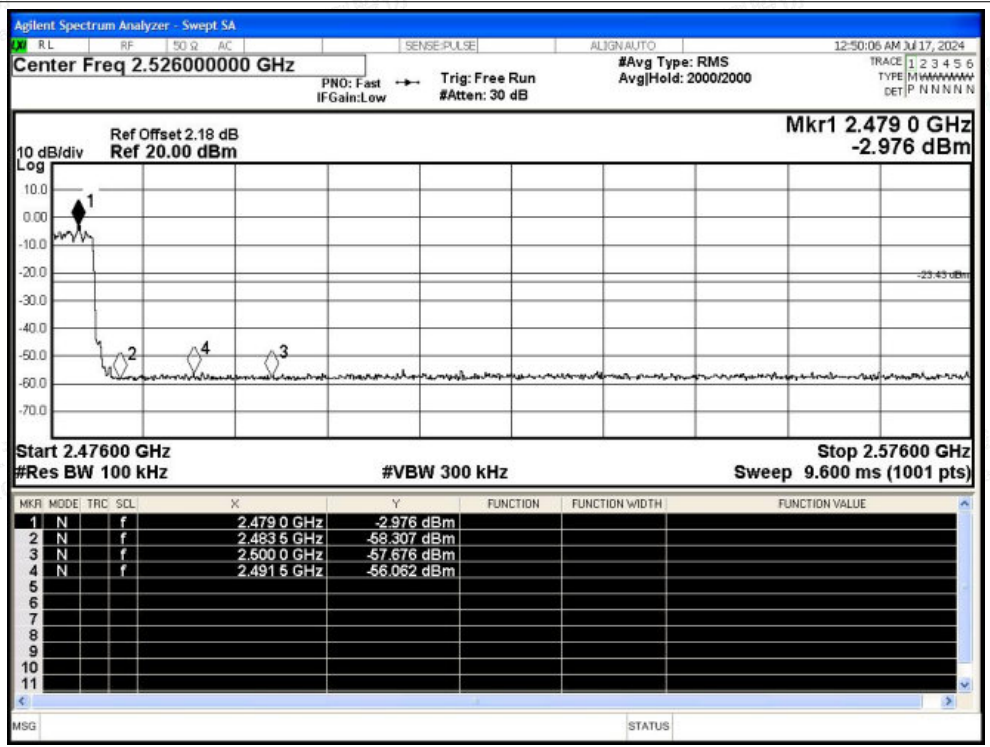




Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant1 Hopping Ref



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

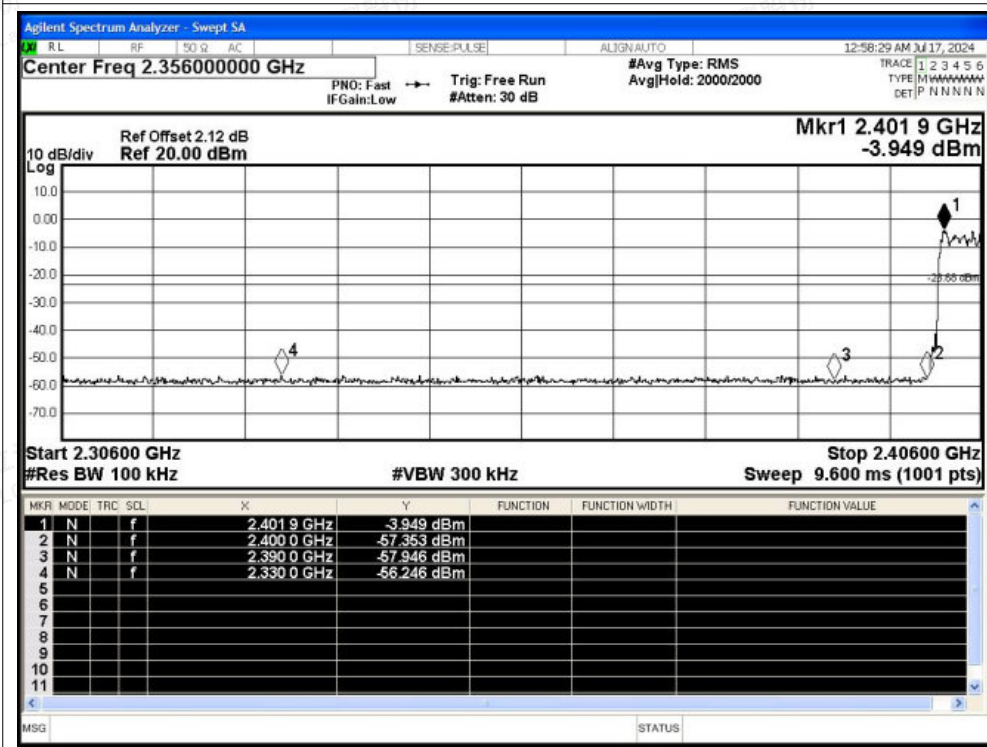




Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Ref



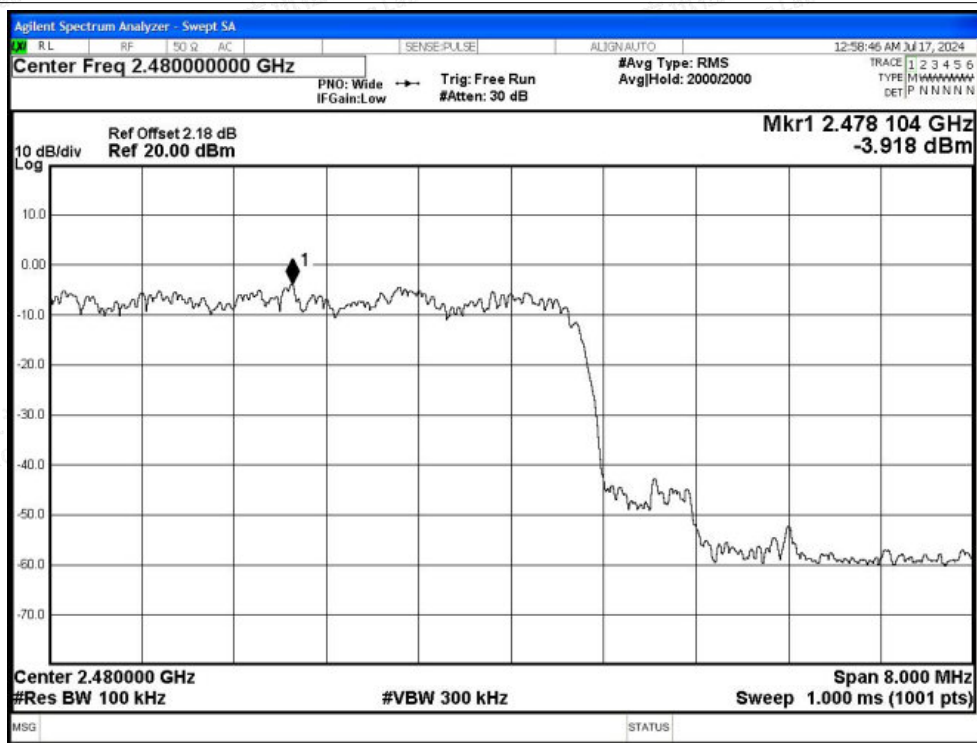
Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Emission



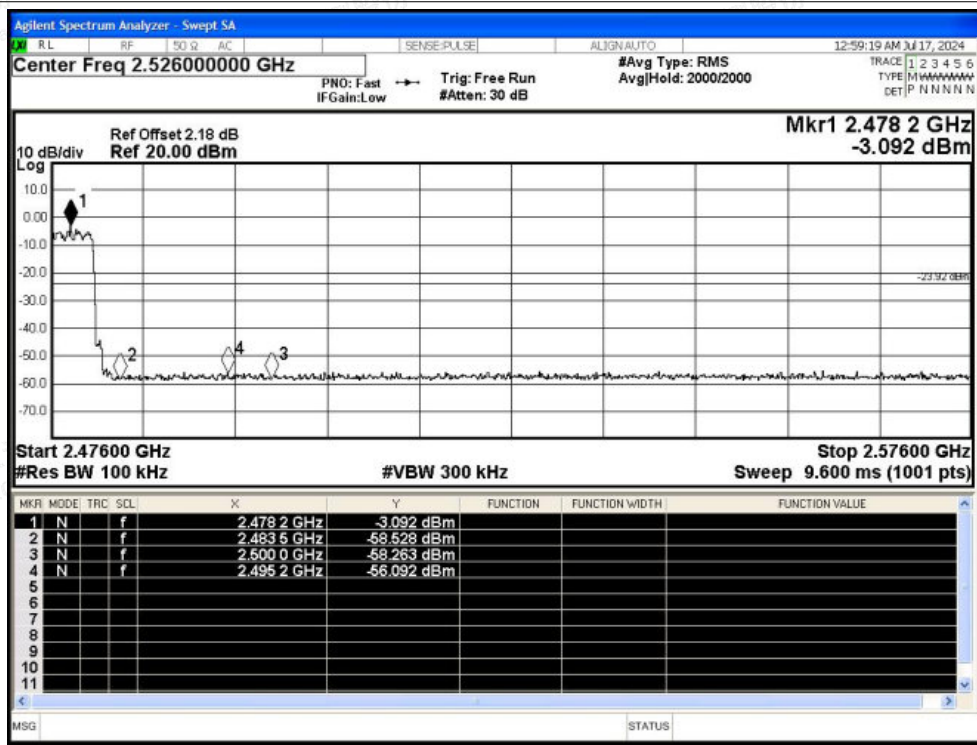




Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Ref



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







## A.7 Conducted RF Spurious Emission

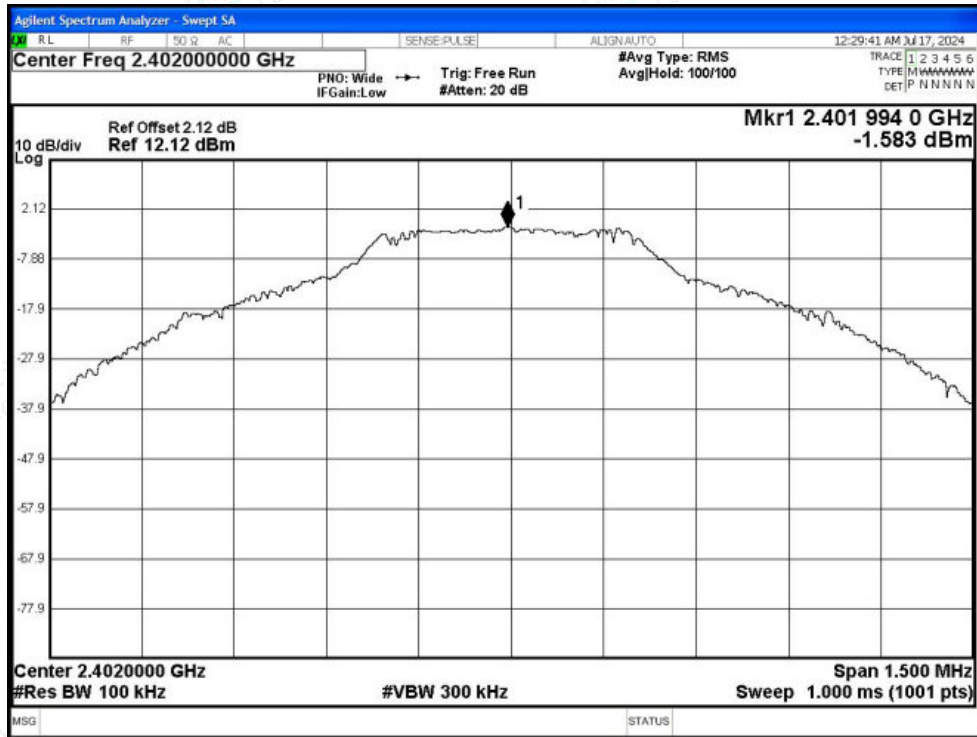
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant1	-54.46	-20	Pass
NVNT	1-DH5	2441	Ant1	-54.89	-20	Pass
NVNT	1-DH5	2480	Ant1	-54.75	-20	Pass
NVNT	2-DH5	2402	Ant1	-52.54	-20	Pass
NVNT	2-DH5	2441	Ant1	-52.74	-20	Pass
NVNT	2-DH5	2480	Ant1	-53.15	-20	Pass



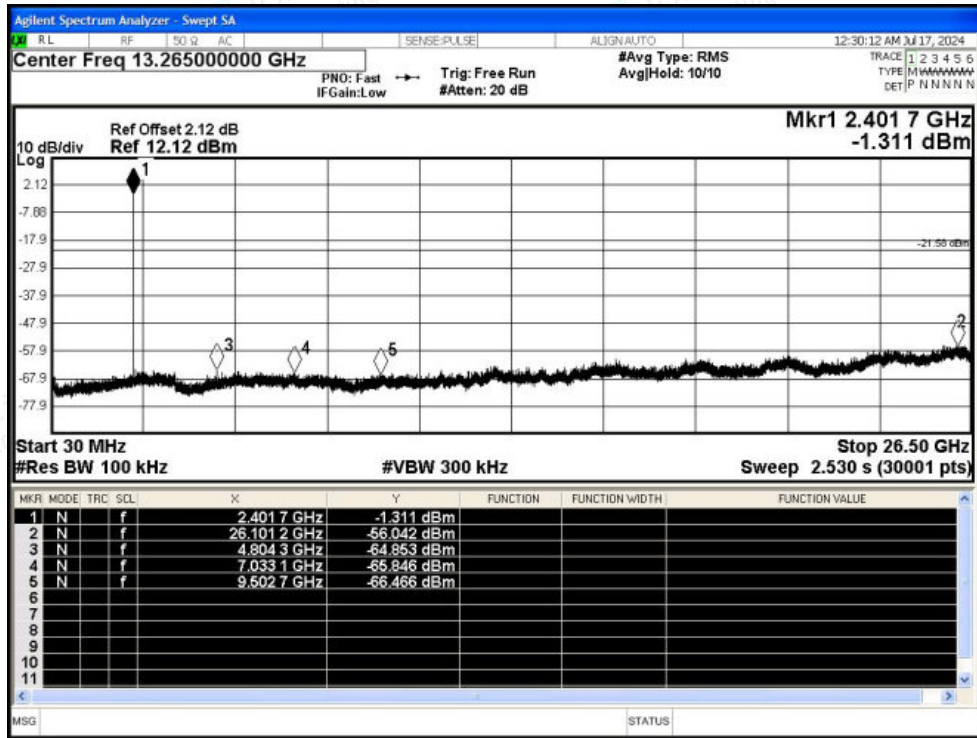


Test Graphs

Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Ref

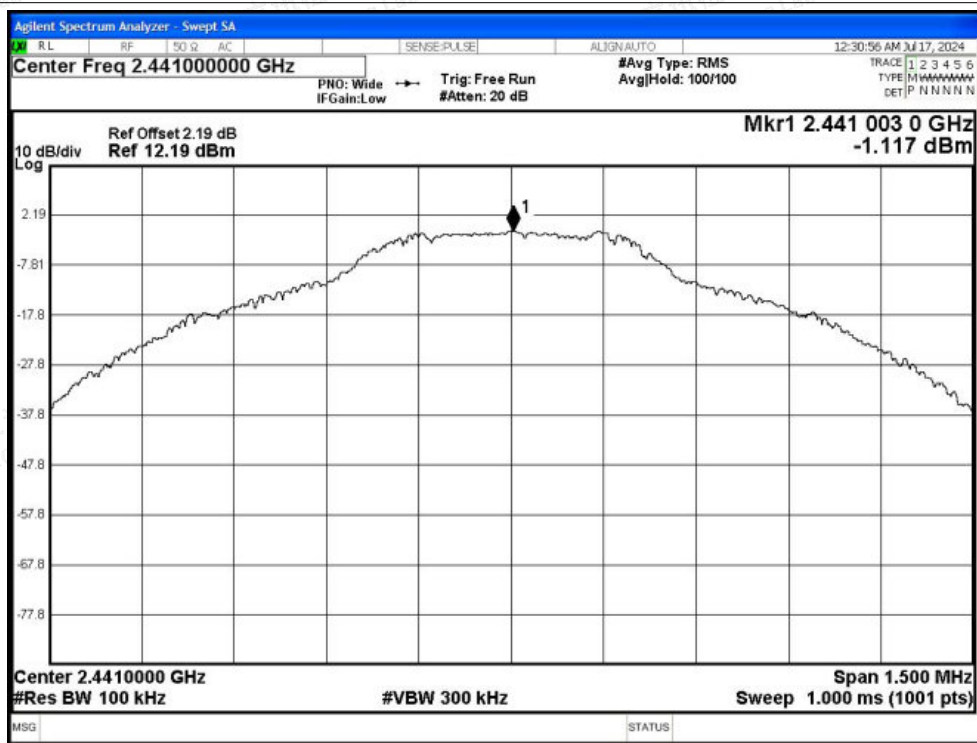


Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Emission

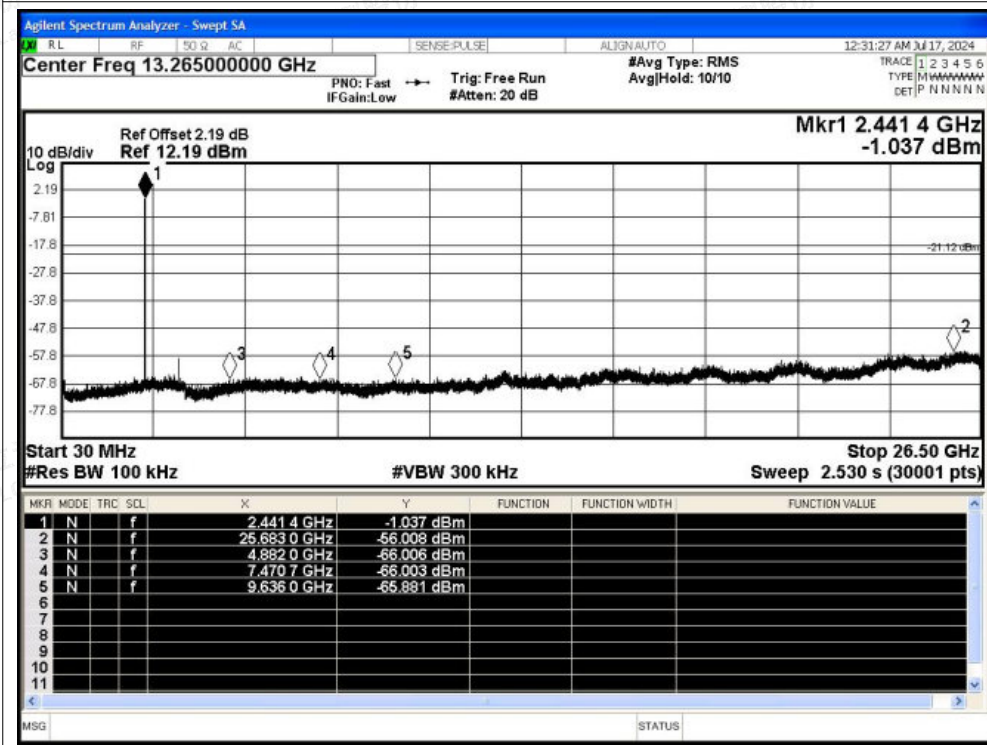




Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Ref



Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Emission

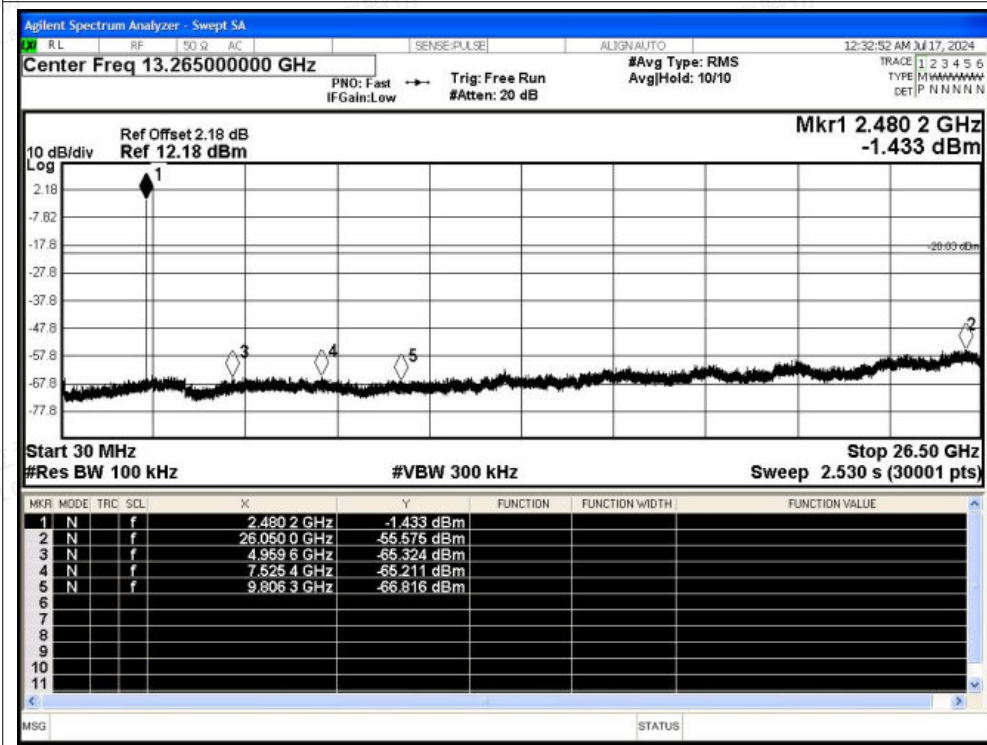




Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Ref

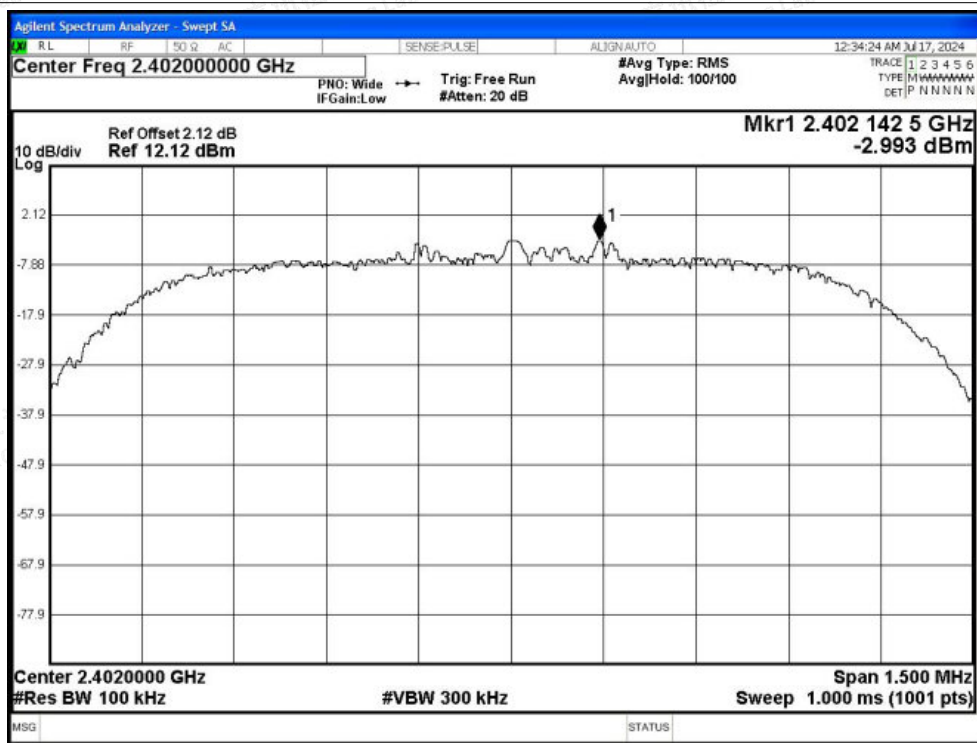


Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Emission

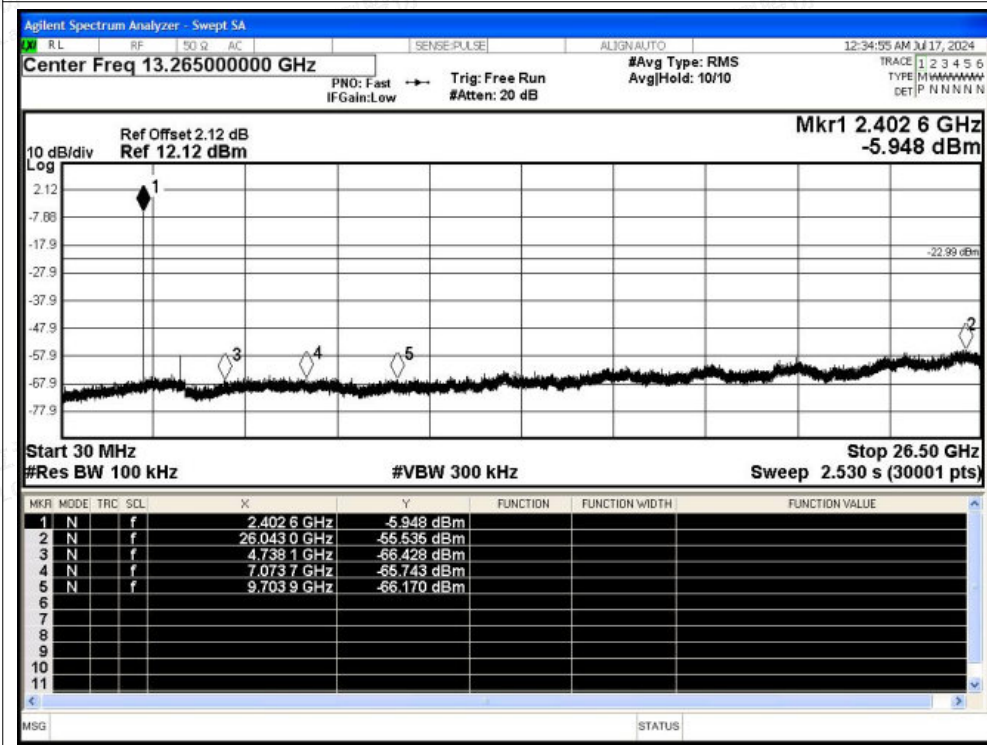




Tx. Spurious NVNT 2-DH5 2402MHz Ant1 Ref



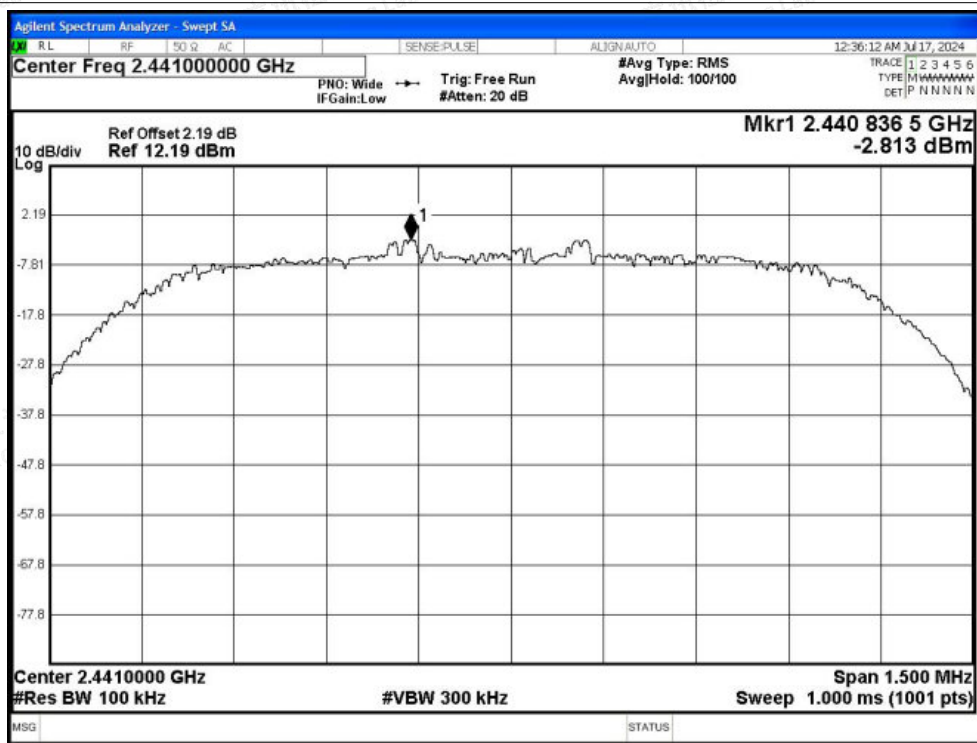
Tx. Spurious NVNT 2-DH5 2402MHz Ant1 Emission



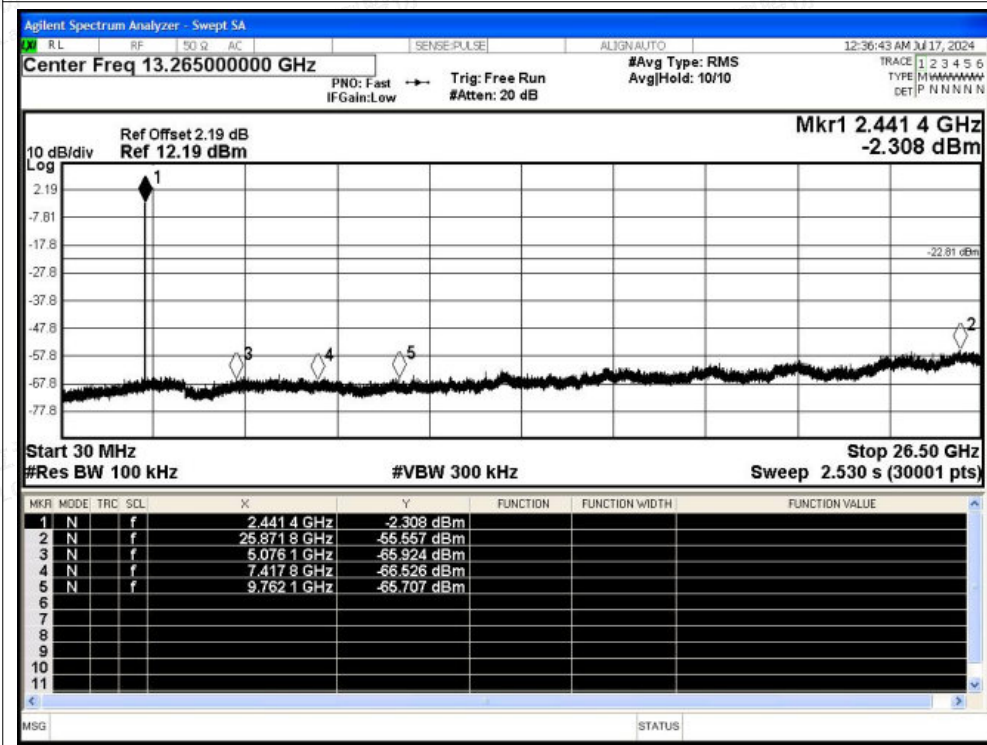




Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Ref



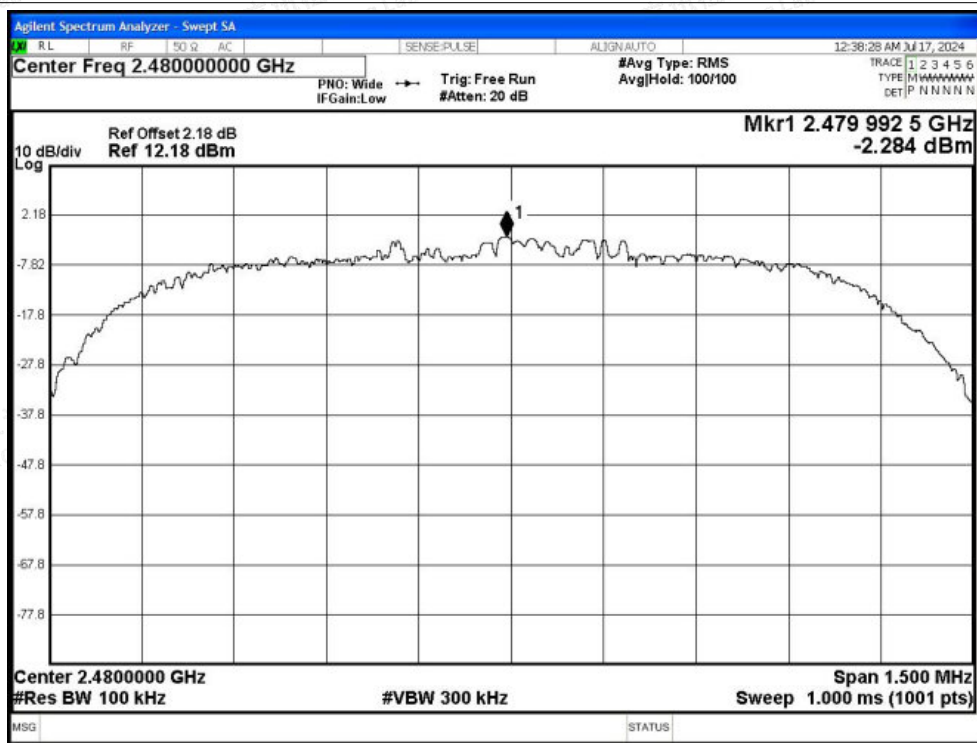
Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Emission



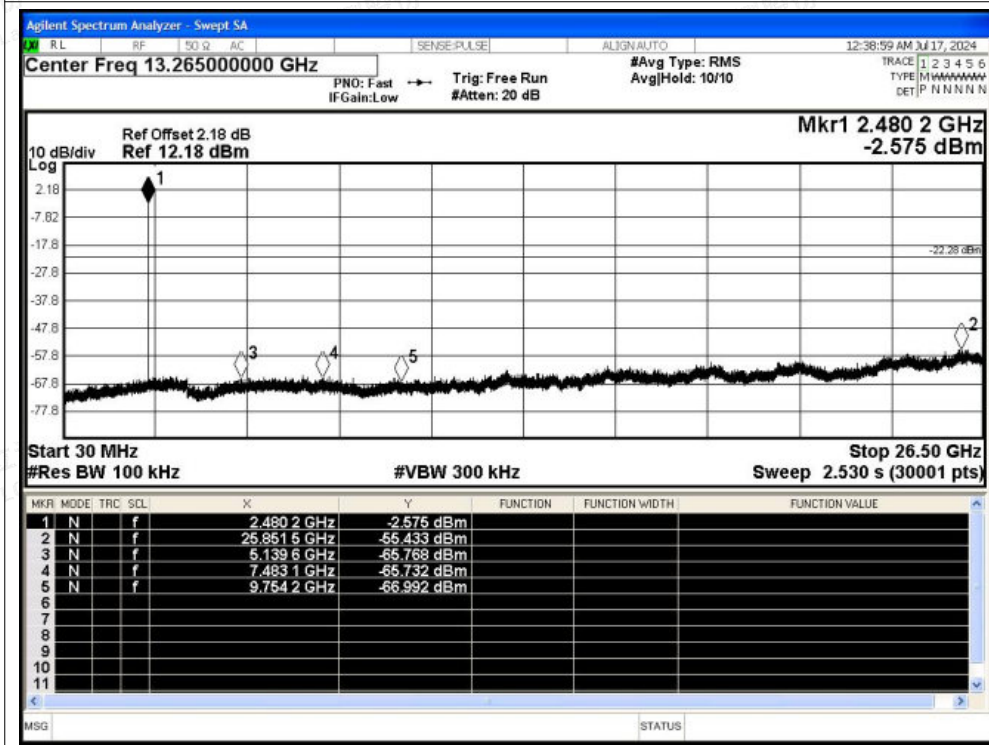




Tx. Spurious NVNT 2-DH5 2480MHz Ant1 Ref



Tx. Spurious NVNT 2-DH5 2480MHz Ant1 Emission





### A.8 Duty Cycle

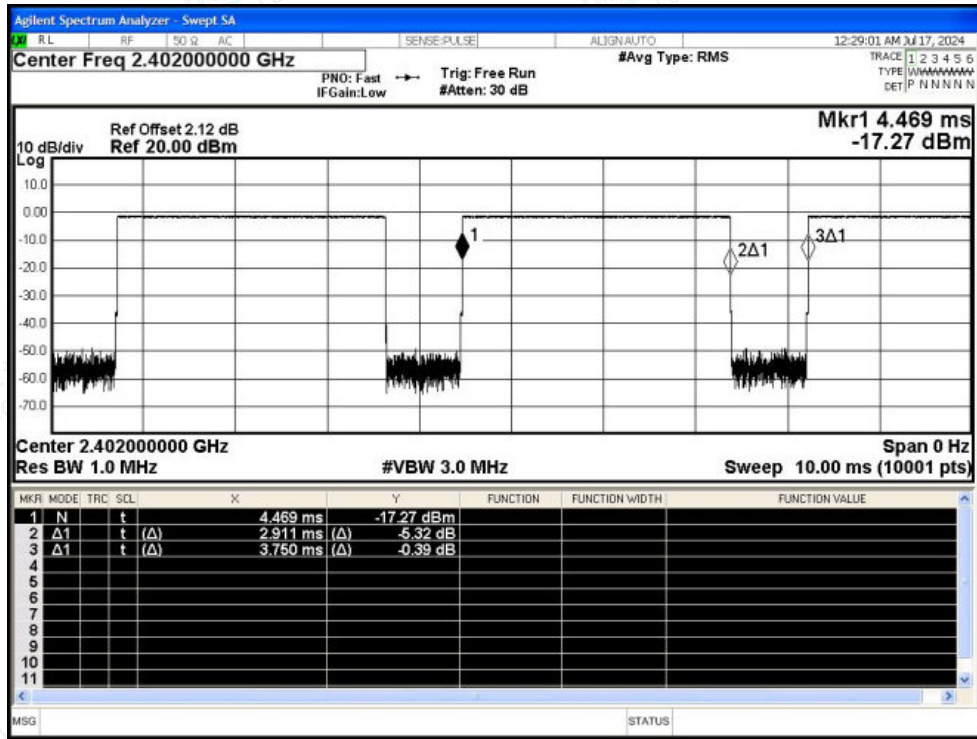
Condition	Mode	Frequency (MHz)	Antenna	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	1-DH5	2402	Ant1	77.63	1.1	0.34
NVNT	1-DH5	2441	Ant1	77.6	1.1	0.34
NVNT	1-DH5	2480	Ant1	77.63	1.1	0.34
NVNT	2-DH5	2402	Ant1	76.41	1.17	0.36
NVNT	2-DH5	2441	Ant1	76.41	1.17	0.36
NVNT	2-DH5	2480	Ant1	76.43	1.17	0.36



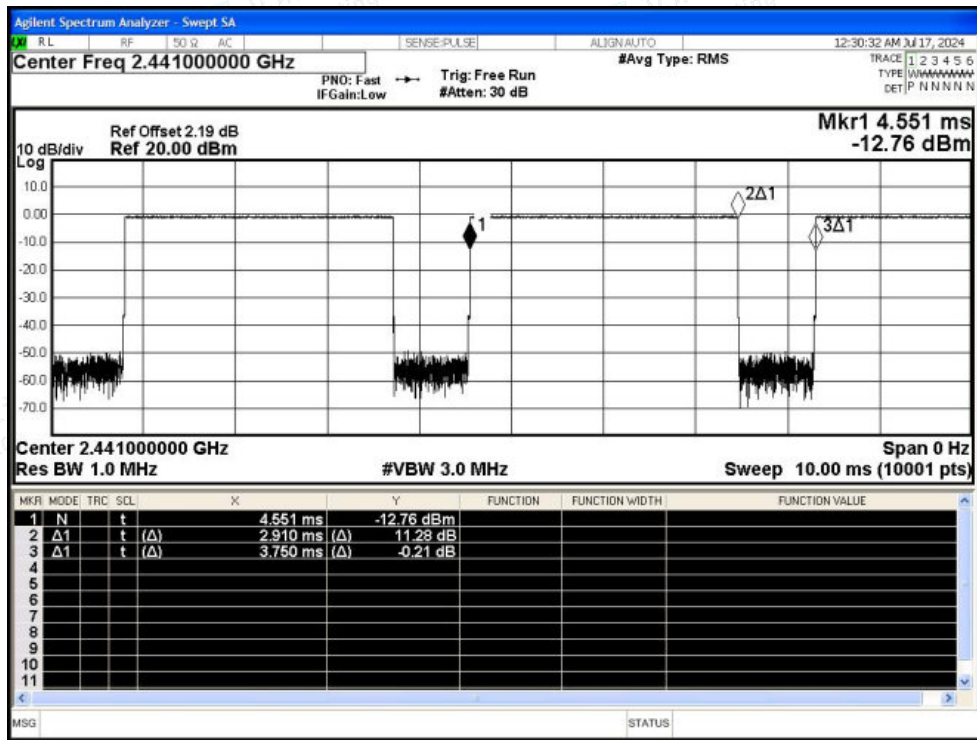


Test Graphs

Duty Cycle NVNT 1-DH5 2402MHz Ant1

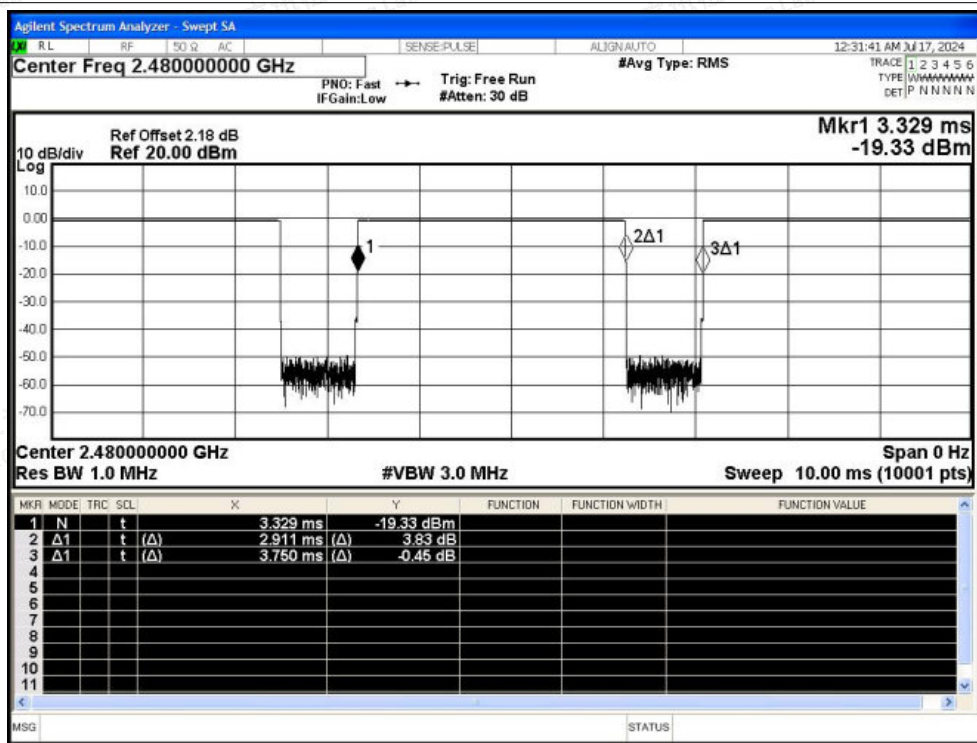


Duty Cycle NVNT 1-DH5 2441MHz Ant1

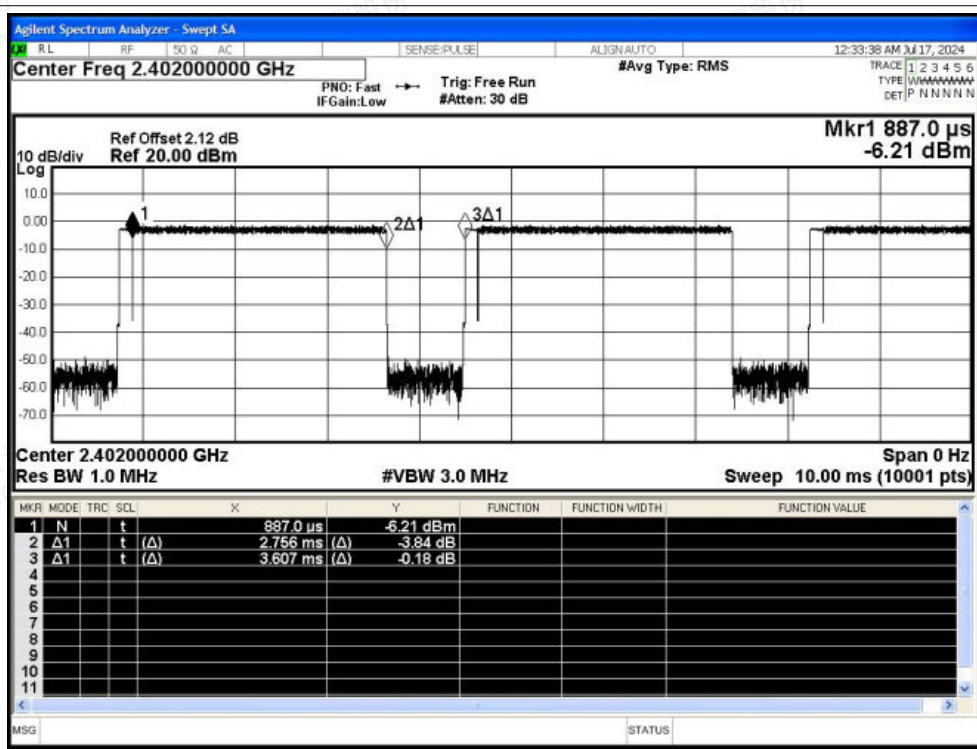




Duty Cycle NVNT 1-DH5 2480MHz Ant1

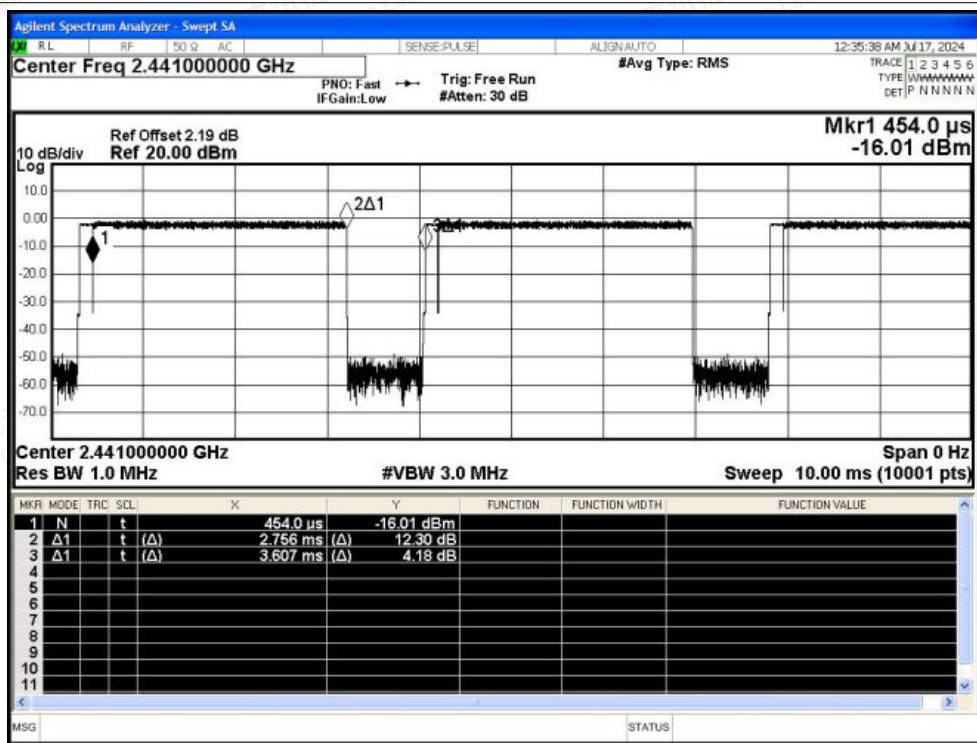


Duty Cycle NVNT 2-DH5 2402MHz Ant1

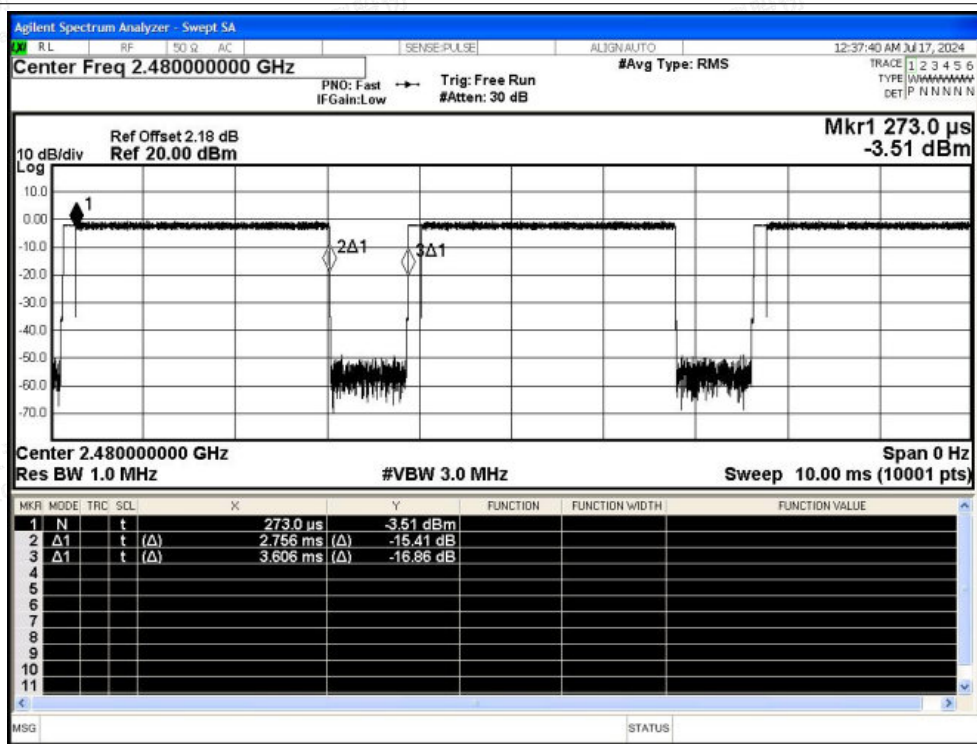




Duty Cycle NVNT 2-DH5 2441MHz Ant1



Duty Cycle NVNT 2-DH5 2480MHz Ant1







### 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	-50.91	2.0	-	46.35	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2310	-58.36	2.0	1.1	40	Average	54	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2339.76	-47.26	2.0	-	50	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2388.912	-57.57	2.0	1.1	40.79	Average	54	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2390	-50.98	2.0	-	46.28	Peak	74	Pass
NVNT	1-DH5	2402	Ant1	No-Hopping	2390	-58.55	2.0	1.1	39.81	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.5	-51.29	2.0	-	45.97	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2483.5	-57.56	2.0	1.1	40.8	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2484.352	-44.55	2.0	-	52.71	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2491.936	-57.08	2.0	1.1	41.28	Average	54	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2500	-50.92	2.0	-	46.34	Peak	74	Pass
NVNT	1-DH5	2480	Ant1	No-Hopping	2500	-58.16	2.0	1.1	40.2	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2310	-50.65	2.0	-	46.61	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2310	-58.55	2.0	1.17	39.88	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2363.952	-47.63	2.0	-	49.63	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2389.68	-57.5	2.0	1.17	40.93	Average	54	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2390	-50.66	2.0	-	46.6	Peak	74	Pass
NVNT	2-DH5	2402	Ant1	No-Hopping	2390	-58.57	2.0	1.17	39.86	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.5	-49.1	2.0	-	48.16	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2483.5	-57.44	2.0	1.17	40.99	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2484.256	-44.26	2.0	-	53	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2486.128	-57.17	2.0	1.17	41.26	Average	54	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2500	-51.11	2.0	-	46.15	Peak	74	Pass
NVNT	2-DH5	2480	Ant1	No-Hopping	2500	-58.15	2.0	1.17	40.28	Average	54	Pass

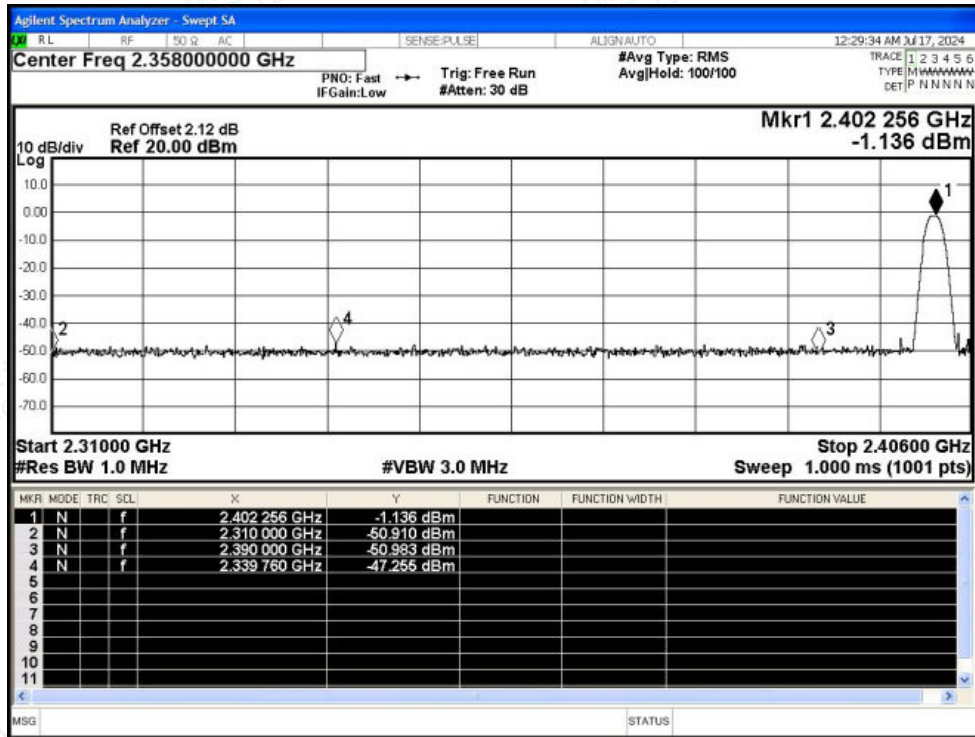


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 Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com  
 Scan code to check authenticity

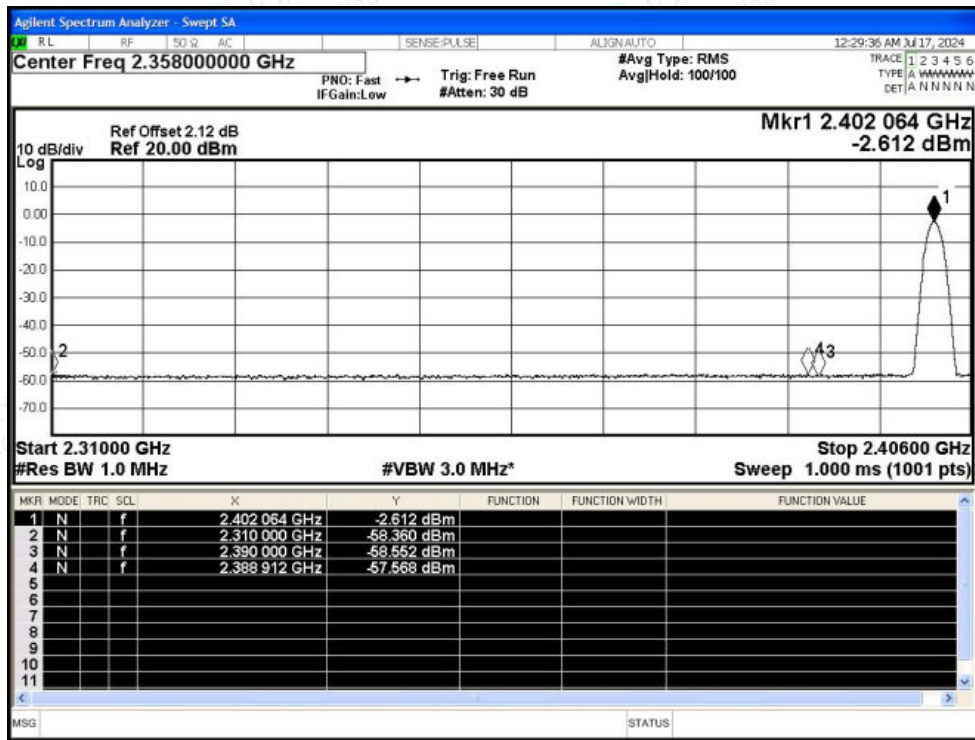


Test Graphs

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

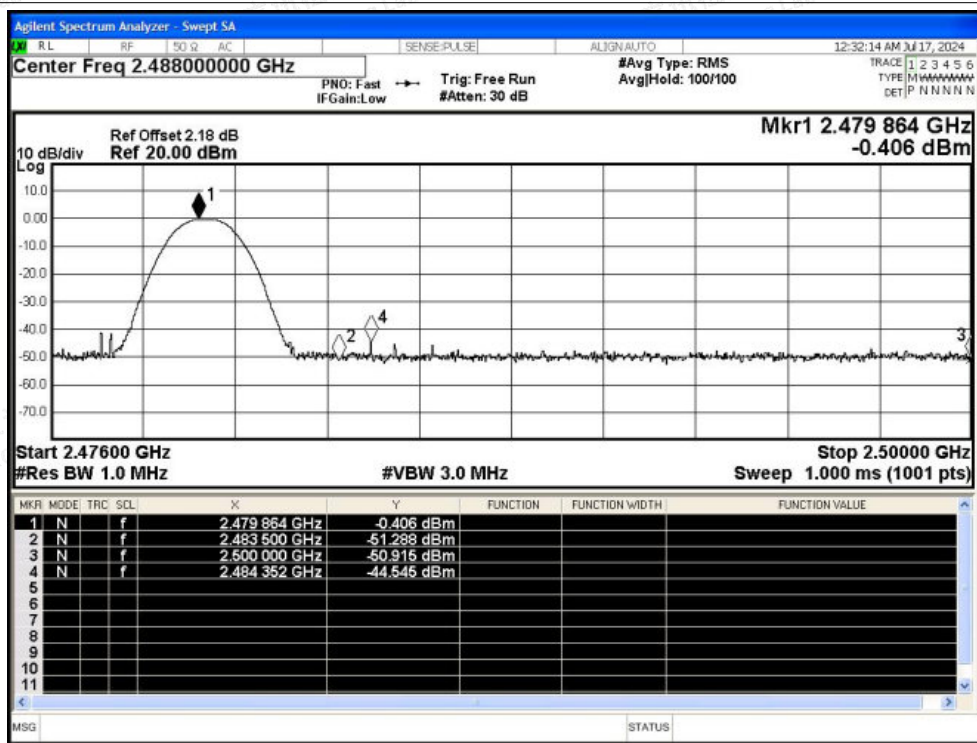


Restrict Band NVNT 1-DH5 2402MHz Ant1 No-Hopping Average

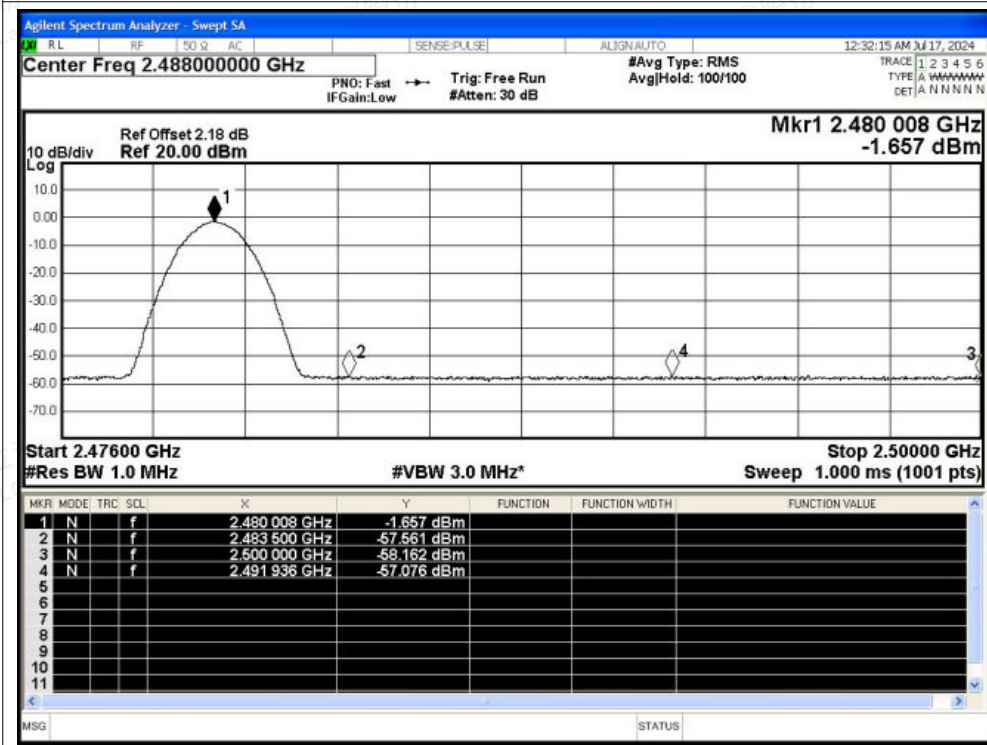




Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Peak

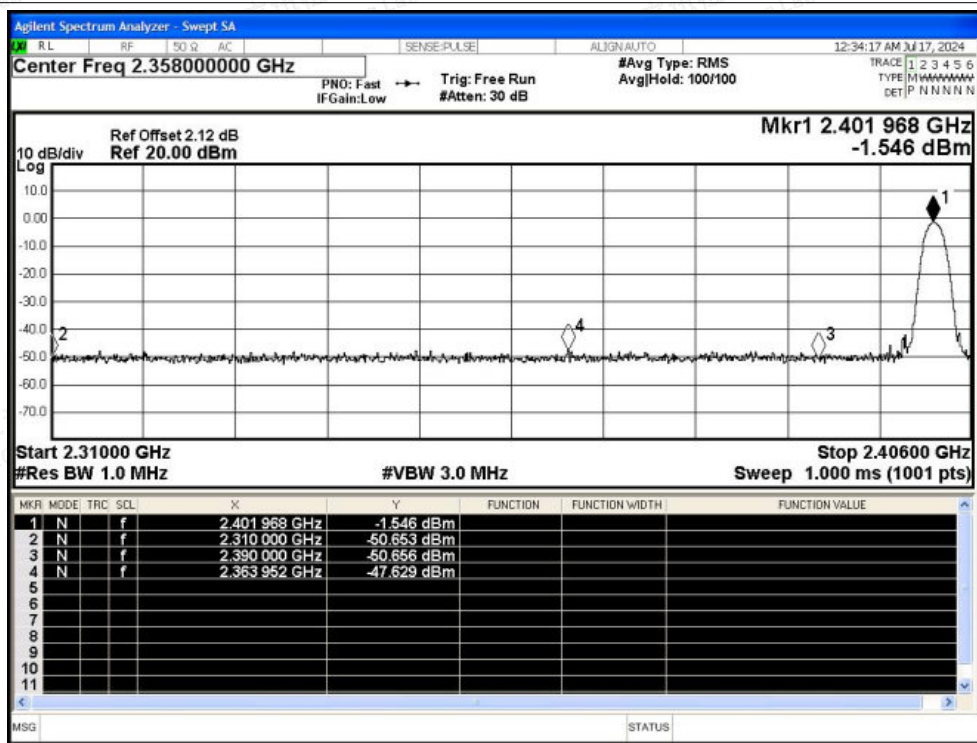


Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Average

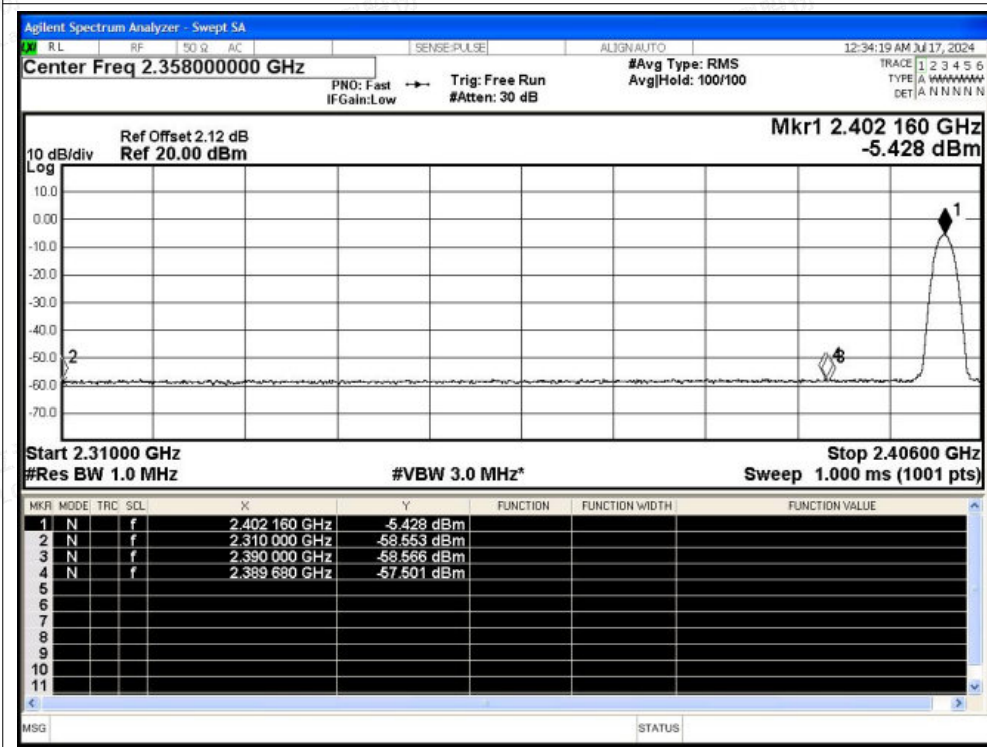




Restrict Band NVNT 2-DH5 2402MHz Ant1 No-Hopping Peak



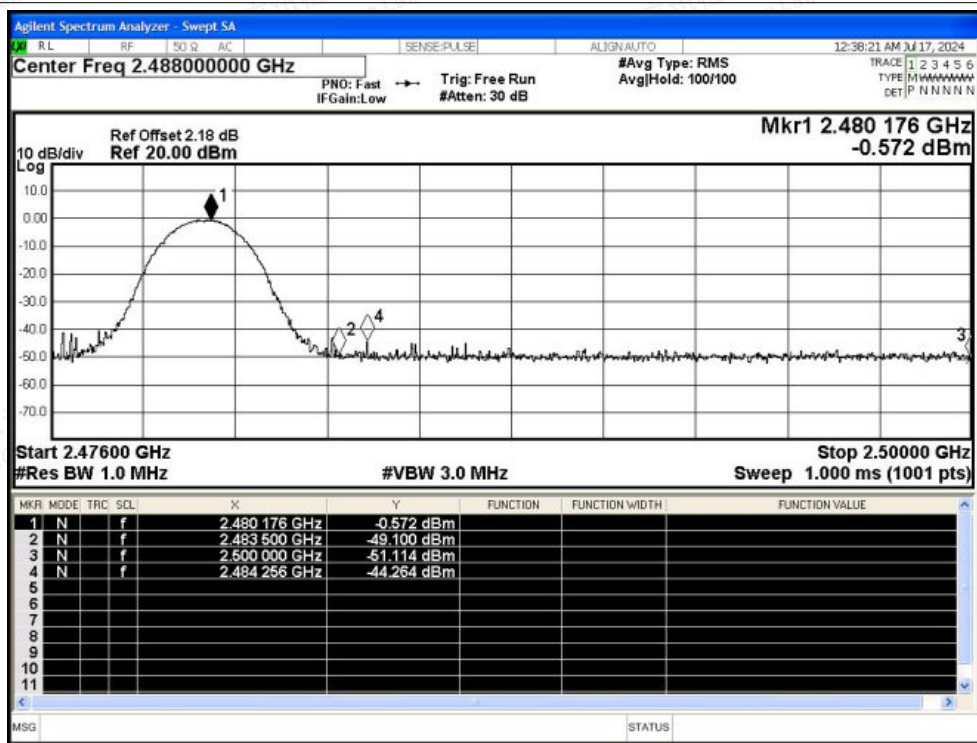
Restrict Band NVNT 2-DH5 2402MHz Ant1 No-Hopping Average







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



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

