# Appendix A

## RF Test Data for BT (Conducted Measurement)

**Product Name: Electric guitar-shaped vertical turntable**

**Test Model: AT2148**

**Environmental Conditions**

| | |
|---|---|
| Temperature: | 23.8° C |
| Relative Humidity: | 52.3% |
| ATM Pressure: | 100.0 kPa |
| Test Engineer: | Mening Su |
| Supervised by: | Ling Zhu |

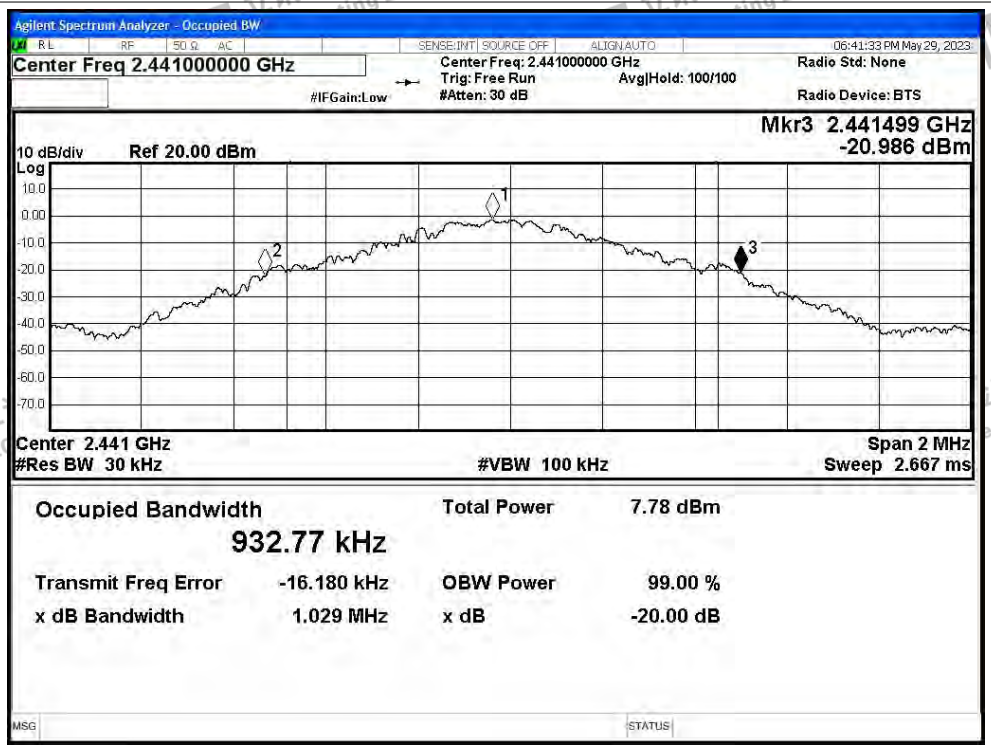
# A.1 -20dB Bandwidth

| Condition | Mode | Frequency (MHz) | Antenna | -20 dB Bandwidth (MHz) | Limit -20 dB Bandwidth (MHz) | Verdict |
|---|---|---|---|---|---|---|
| NVNT | 1-DH5 | 2402 | Ant1 | 0.955 | 0 | Pass |
| NVNT | 1-DH5 | 2441 | Ant1 | 1.029 | 0 | Pass |
| NVNT | 1-DH5 | 2480 | Ant1 | 1.029 | 0 | Pass |
| NVNT | 2-DH5 | 2402 | Ant1 | 1.308 | 0 | Pass |
| NVNT | 2-DH5 | 2441 | Ant1 | 1.318 | 0 | Pass |
| NVNT | 2-DH5 | 2480 | Ant1 | 1.318 | 0 | Pass |
| NVNT | 3-DH5 | 2402 | Ant1 | 1.308 | 0 | Pass |
| NVNT | 3-DH5 | 2441 | Ant1 | 1.295 | 0 | Pass |
| NVNT | 3-DH5 | 2480 | Ant1 | 1.297 | 0 | Pass |

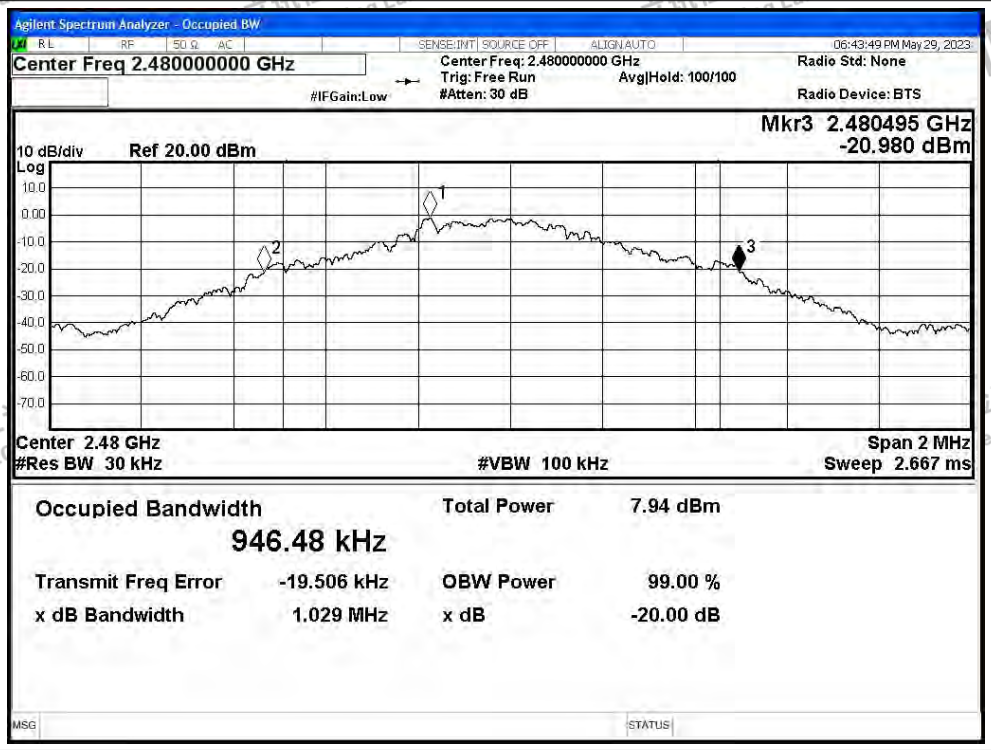
Test Graphs

-20dB Bandwidth NVNT 1-DH5 2402MHz Ant1

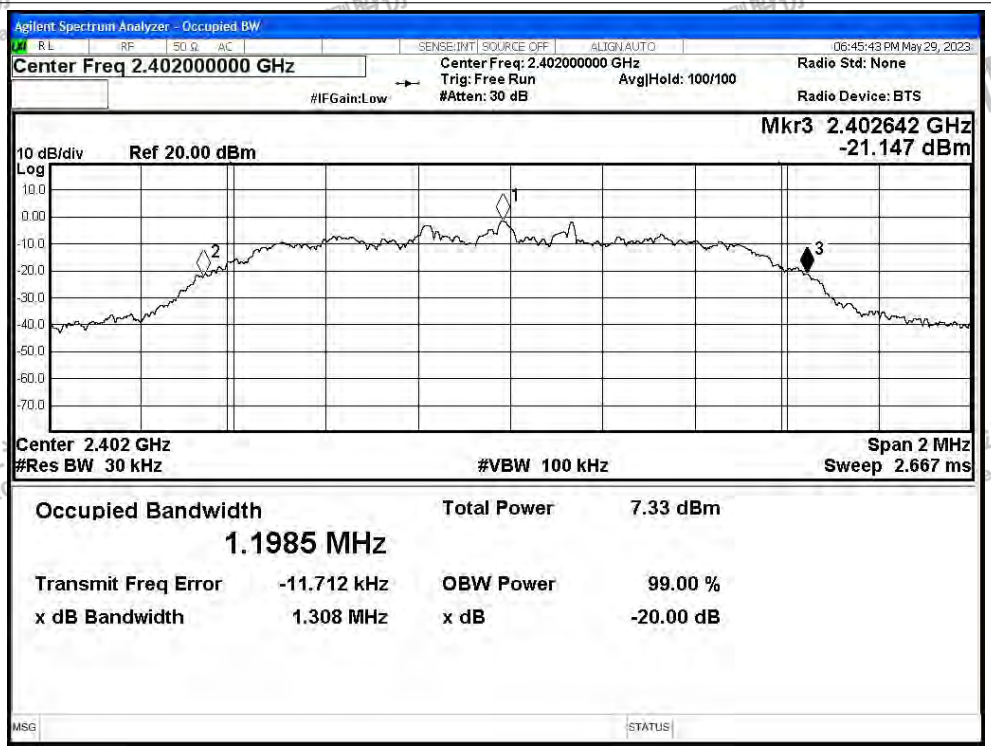
-20dB Bandwidth NVNT 1-DH5 2441MHz Ant1



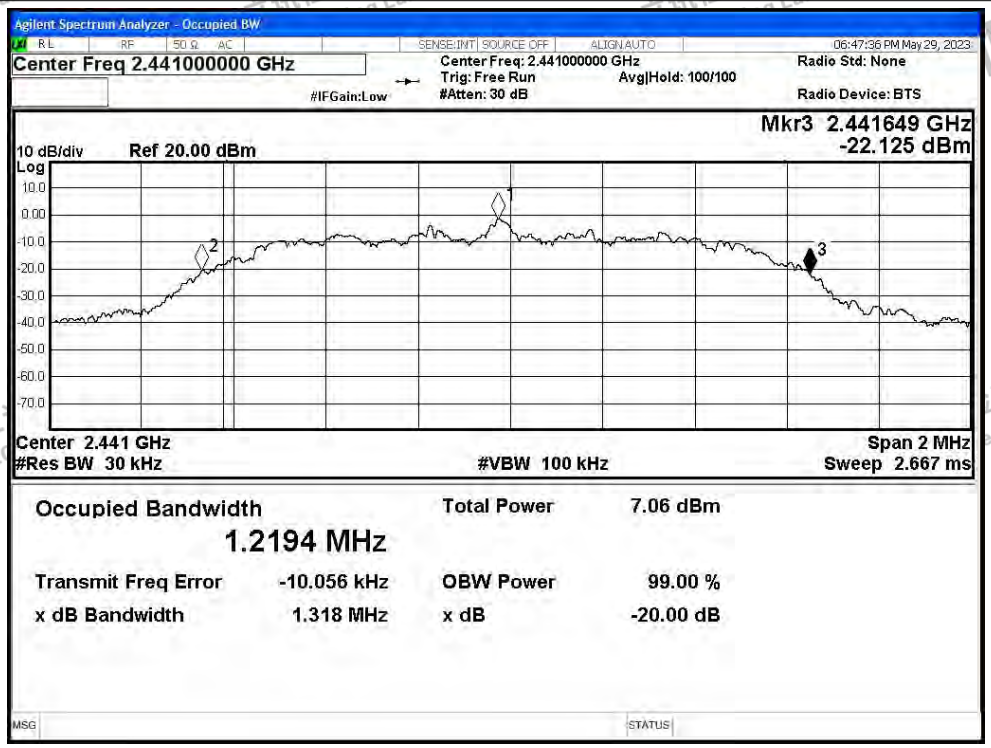
-20dB Bandwidth NVNT 1-DH5 2480MHz Ant1



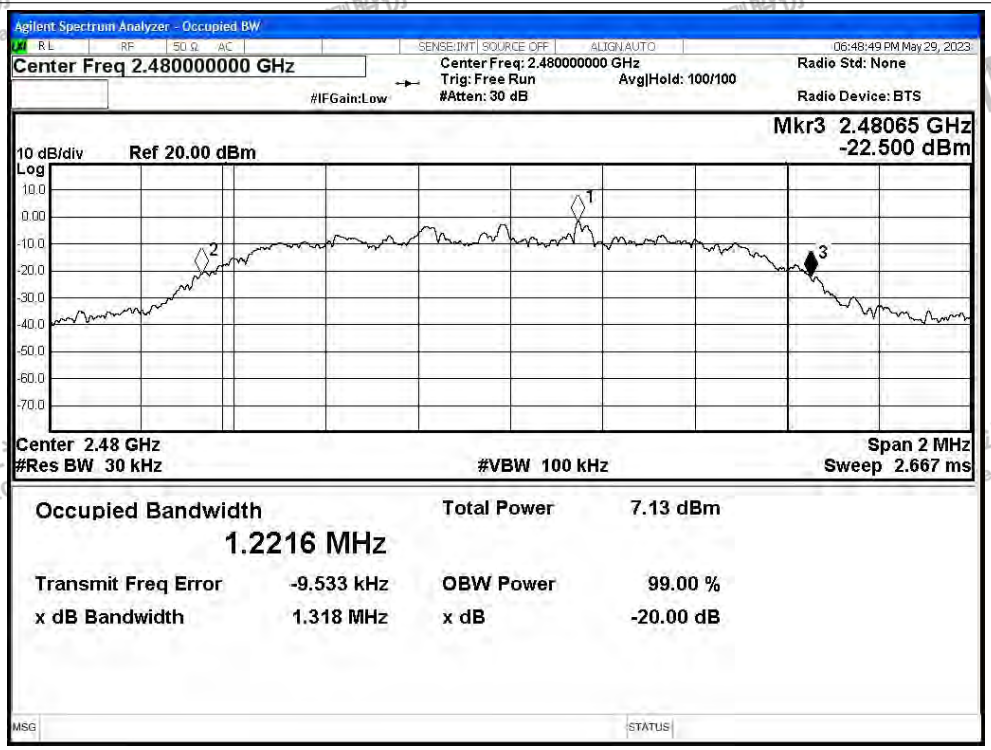

-20dB Bandwidth NVNT 2-DH5 2402MHz Ant1



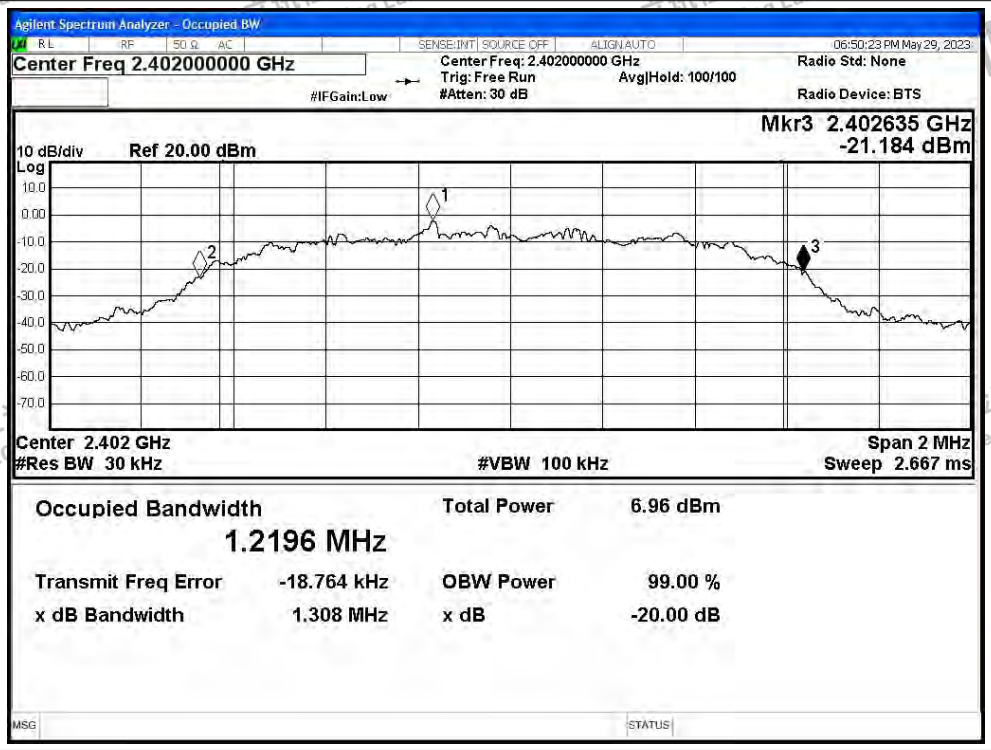
-20dB Bandwidth NVNT 2-DH5 2441MHz Ant1




-20dB Bandwidth NVNT 2-DH5 2480MHz Ant1

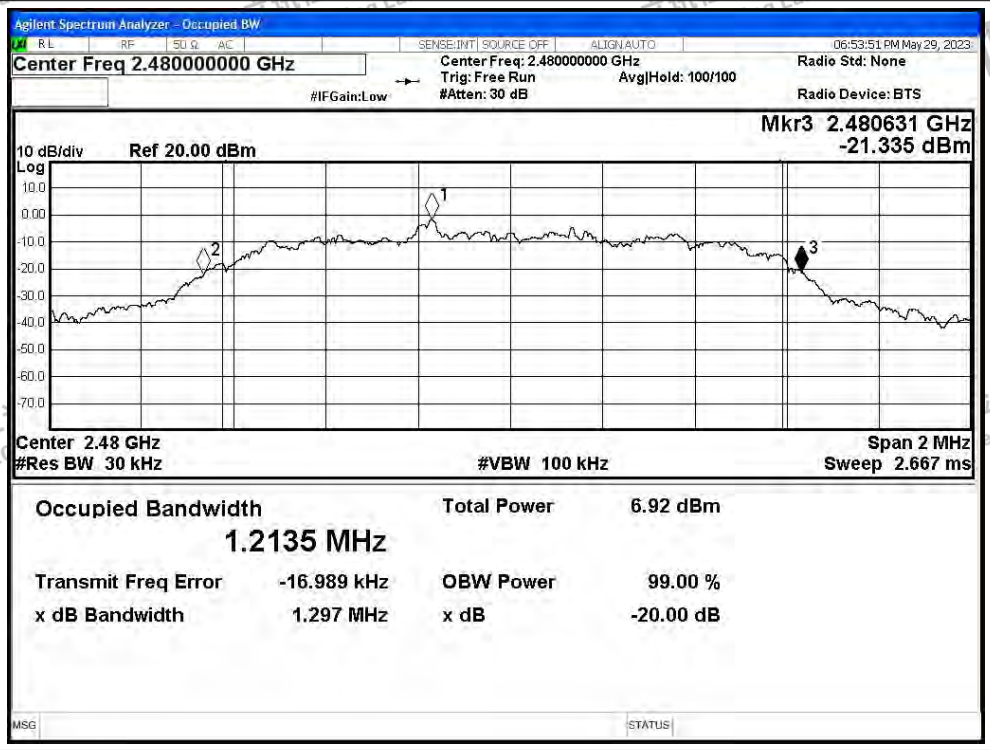


-20dB Bandwidth NVNT 3-DH5 2402MHz Ant1




-20dB Bandwidth NVNT 3-DH5 2441MHz Ant1

-20dB Bandwidth NVNT 3-DH5 2480MHz Ant1

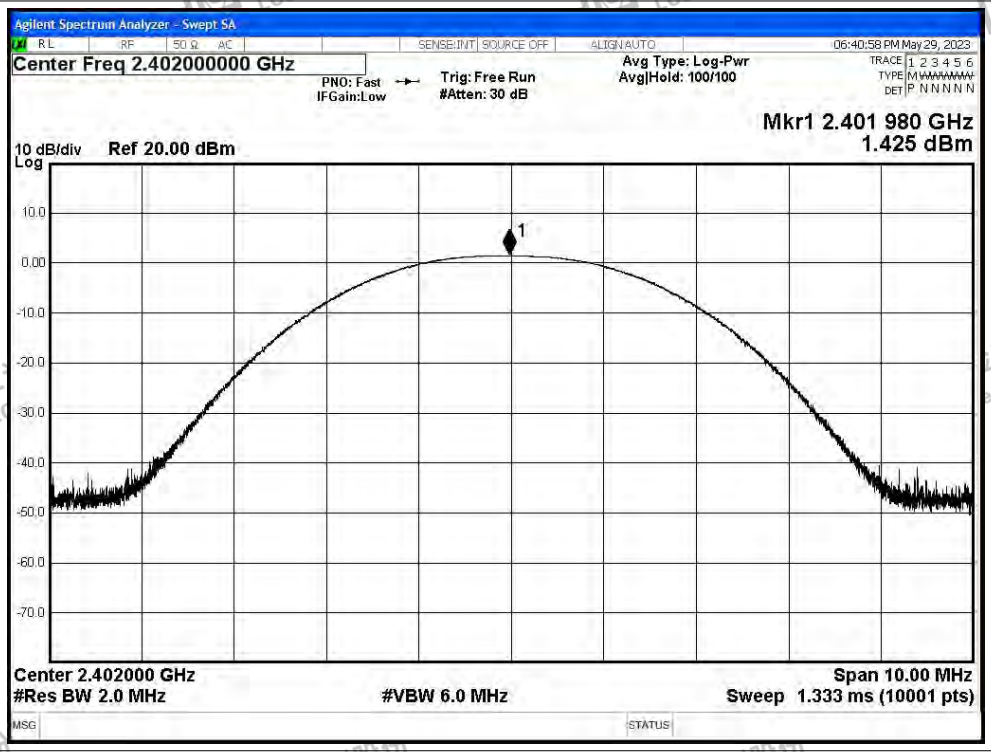


# A.2 Maximum Conducted Output Power

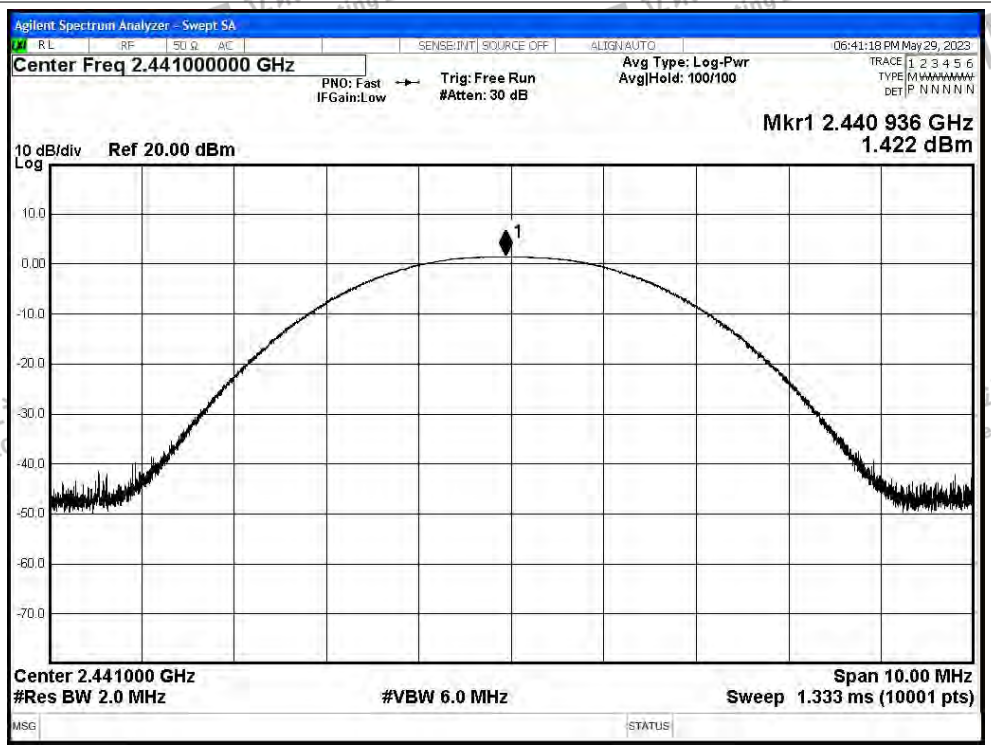
| Condition | Mode | Frequency (MHz) | Antenna | Conducted Power (dBm) | Limit (dBm) | Verdict |
|---|---|---|---|---|---|---|
| NVNT | 1-DH5 | 2402 | Ant1 | 1.43 | 21 | Pass |
| NVNT | 1-DH5 | 2441 | Ant1 | 1.42 | 21 | Pass |
| NVNT | 1-DH5 | 2480 | Ant1 | 1.36 | 21 | Pass |
| NVNT | 2-DH5 | 2402 | Ant1 | 2.14 | 21 | Pass |
| NVNT | 2-DH5 | 2441 | Ant1 | 2.14 | 21 | Pass |
| NVNT | 2-DH5 | 2480 | Ant1 | 2.13 | 21 | Pass |
| NVNT | 3-DH5 | 2402 | Ant1 | 2.55 | 21 | Pass |
| NVNT | 3-DH5 | 2441 | Ant1 | 2.53 | 21 | Pass |
| NVNT | 3-DH5 | 2480 | Ant1 | 2.48 | 21 | Pass |

Test Graphs

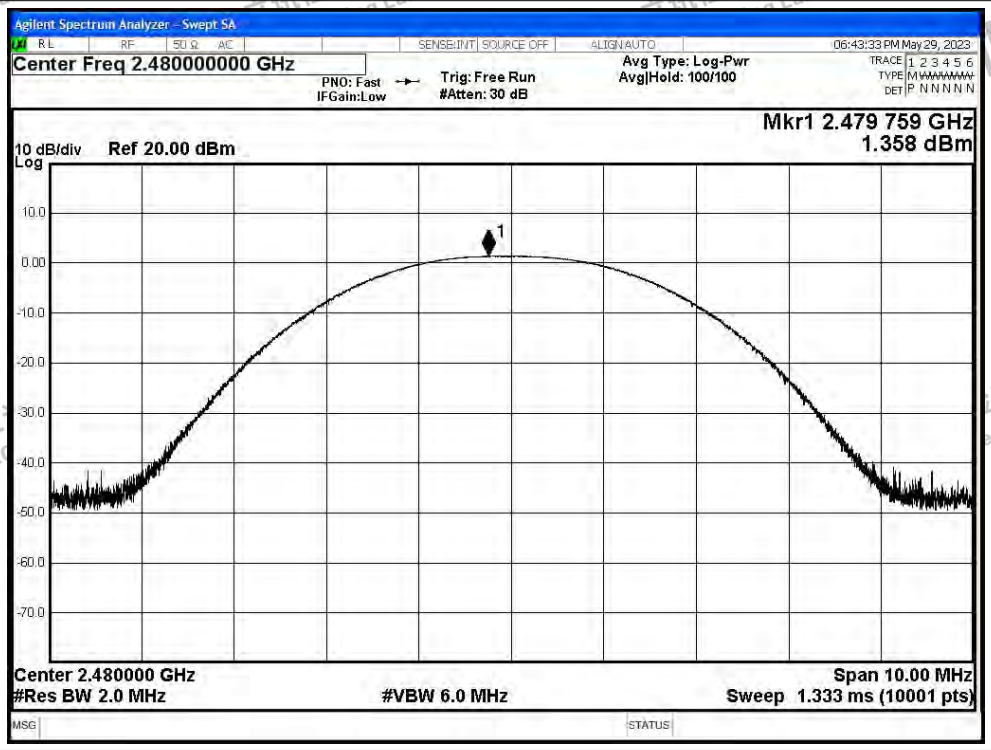
Power NVNT 1-DH5 2402MHz Ant1



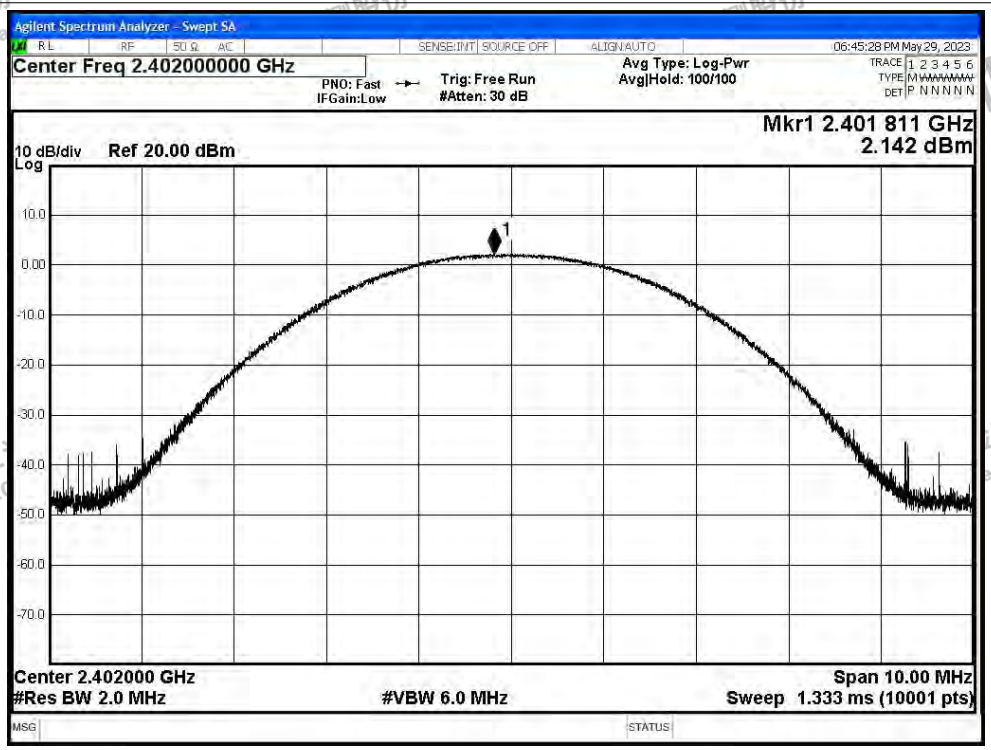

Power NVNT 1-DH5 2441MHz Ant1



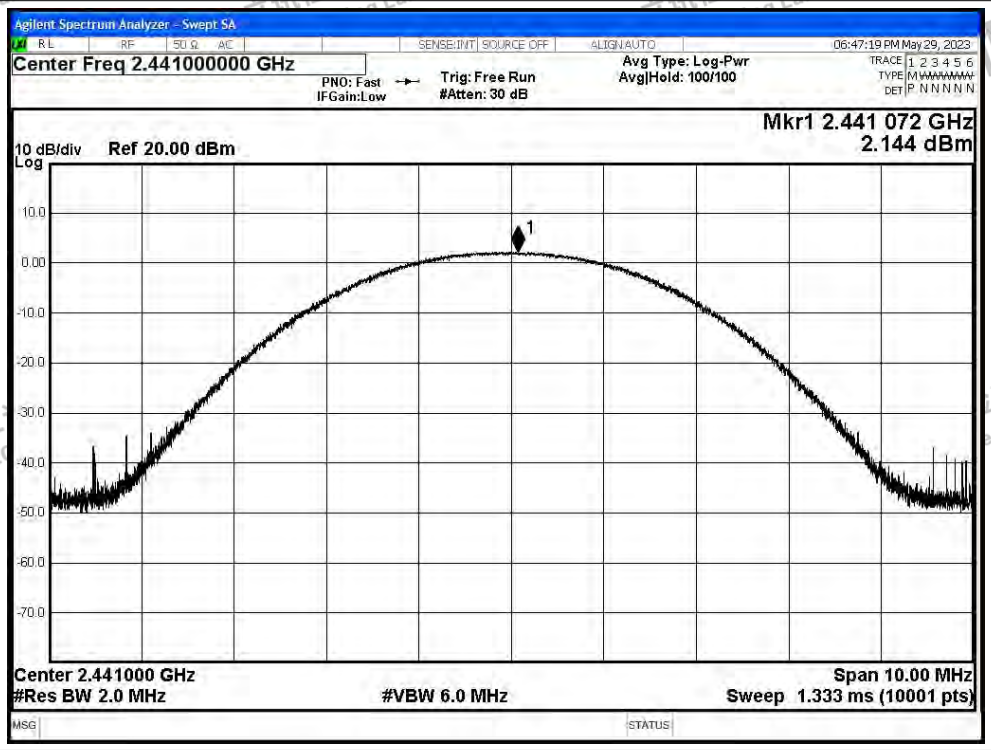
Power NVNT 1-DH5 2480MHz Ant1



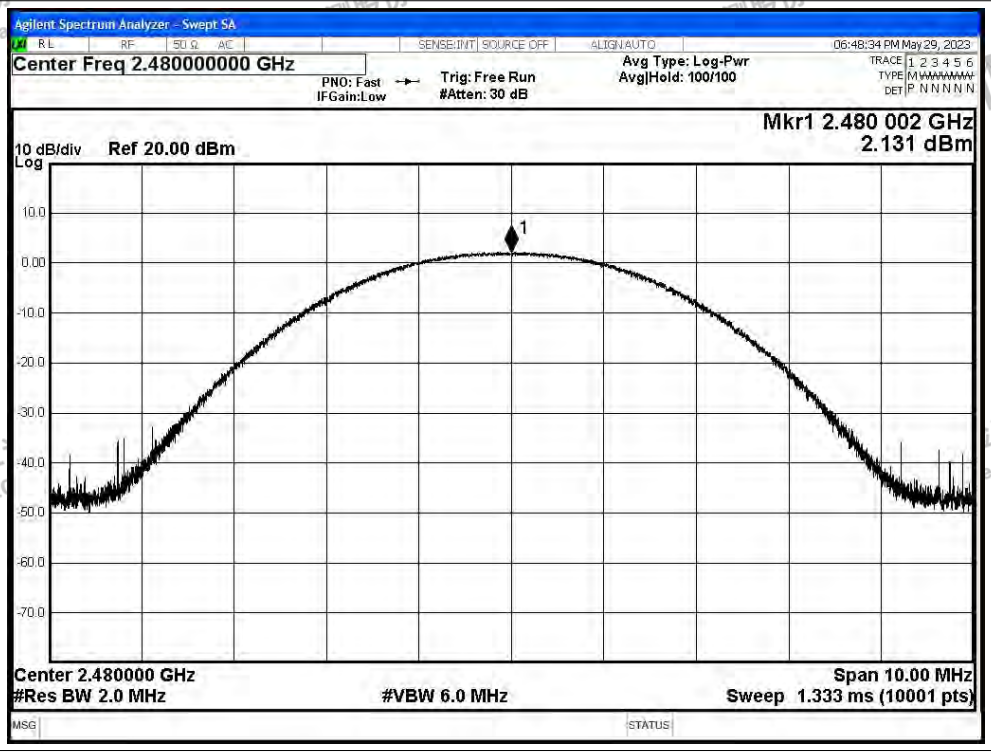

Power NVNT 2-DH5 2402MHz Ant1



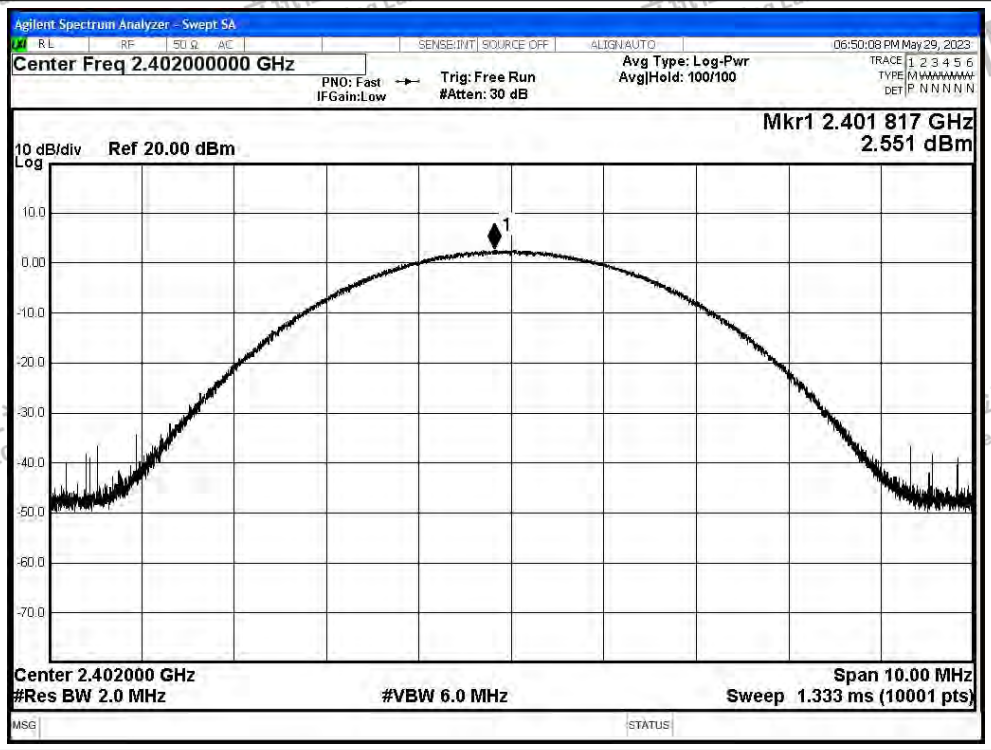
Power NVNT 2-DH5 2441MHz Ant1



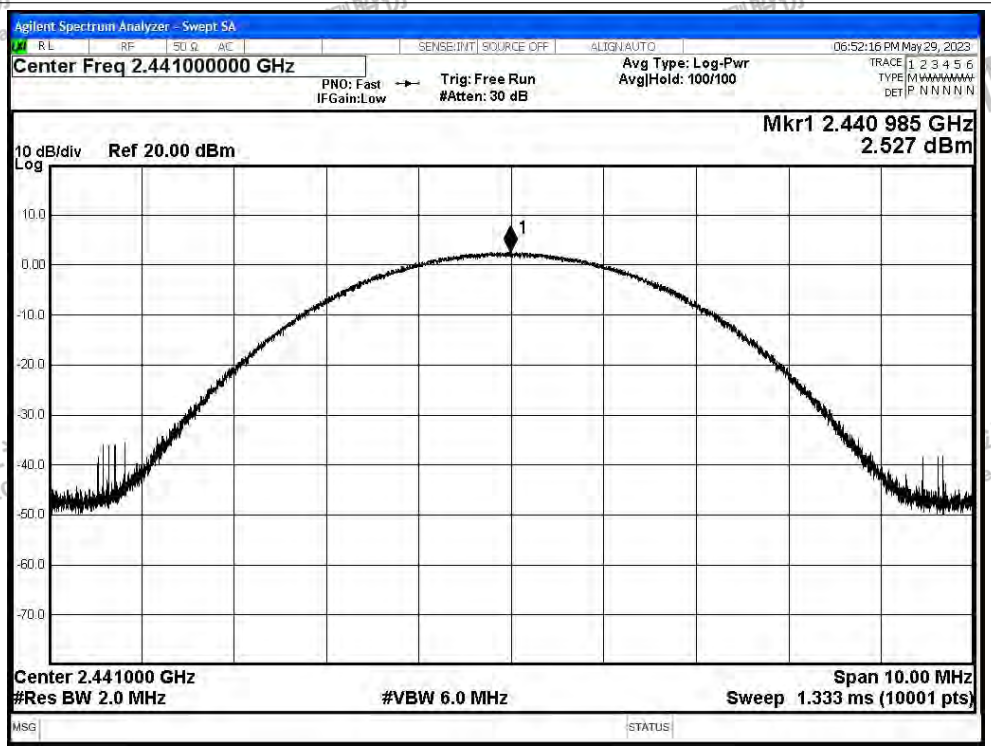

Power NVNT 2-DH5 2480MHz Ant1



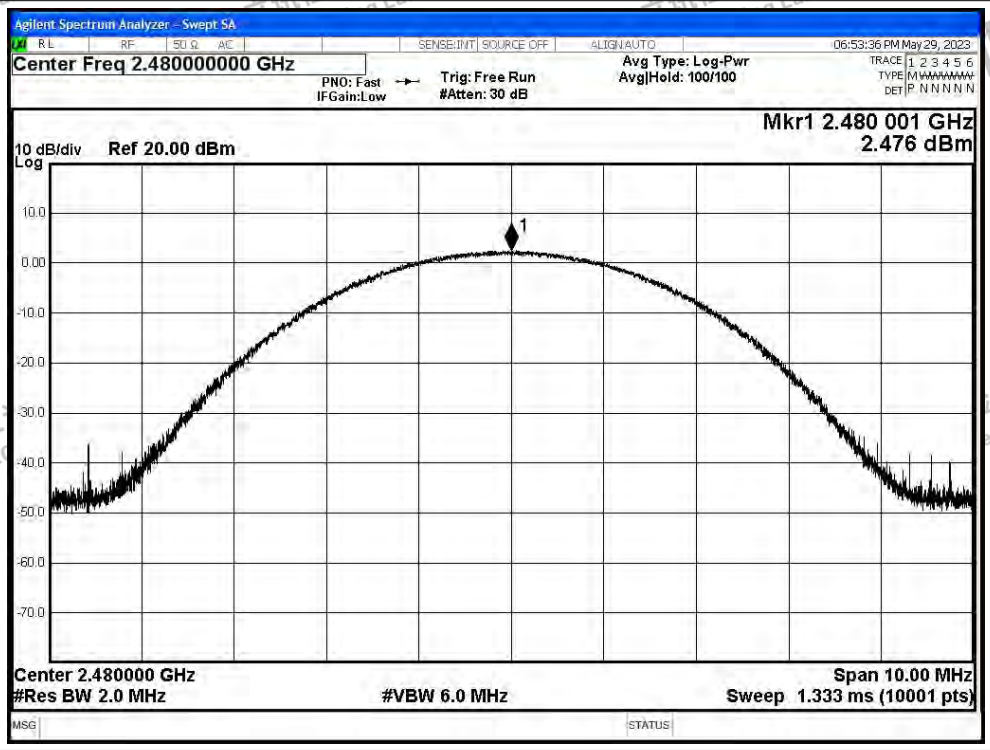
Power NVNT 3-DH5 2402MHz Ant1




Power NVNT 3-DH5 2441MHz Ant1



Power NVNT 3-DH5 2480MHz Ant1

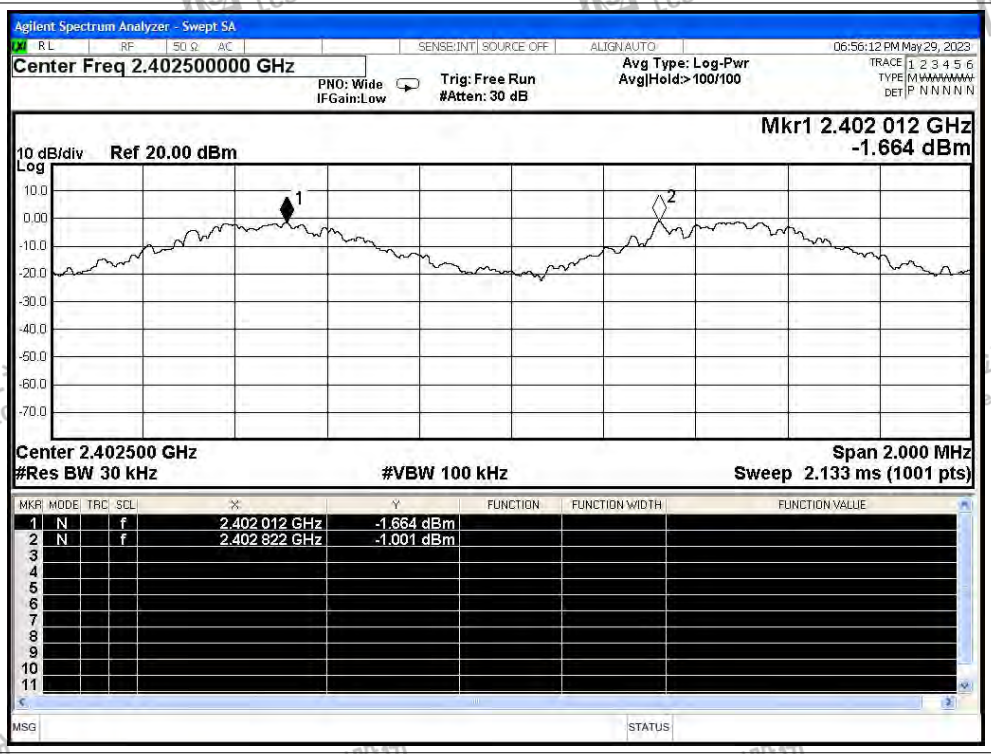


# A.3 Carrier Frequencies Separation

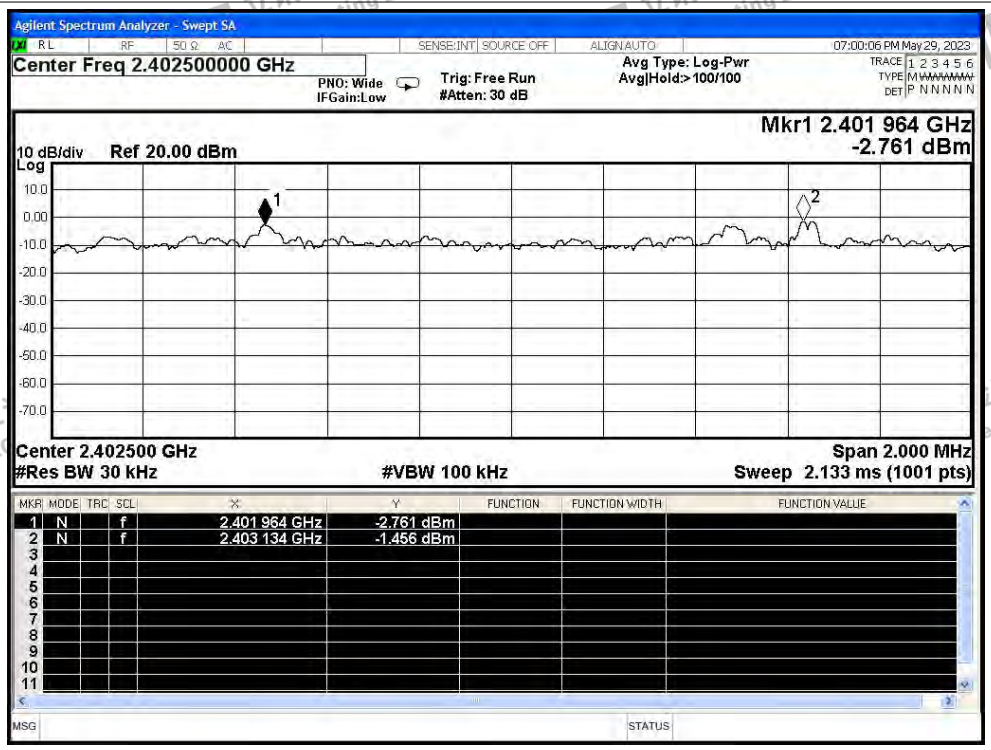
| Condition | Mode | Antenna | Hopping Freq1 (MHz) | Hopping Freq2 (MHz) | HFS (MHz) | Limit (MHz) | Verdict |
|---|---|---|---|---|---|---|---|
| NVNT | 1-DH5 | Ant1 | 2402.012 | 2402.822 | 0.81 | 0.686 | Pass |
| NVNT | 2-DH5 | Ant1 | 2401.964 | 2403.134 | 1.17 | 0.879 | Pass |
| NVNT | 3-DH5 | Ant1 | 2401.824 | 2402.83 | 1.006 | 0.872 | Pass |

Test Graphs

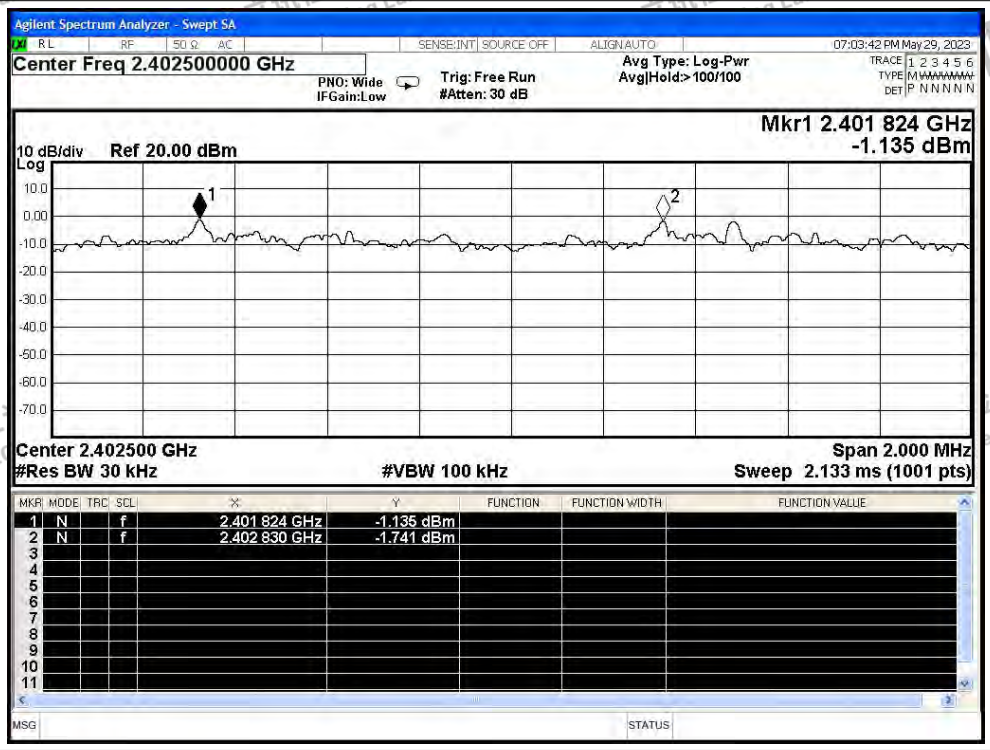
CFS NVNT 1-DH5 2402MHz Ant1




CFS NVNT 2-DH5 2402MHz Ant1



CFS NVNT 3-DH5 2402MHz Ant1

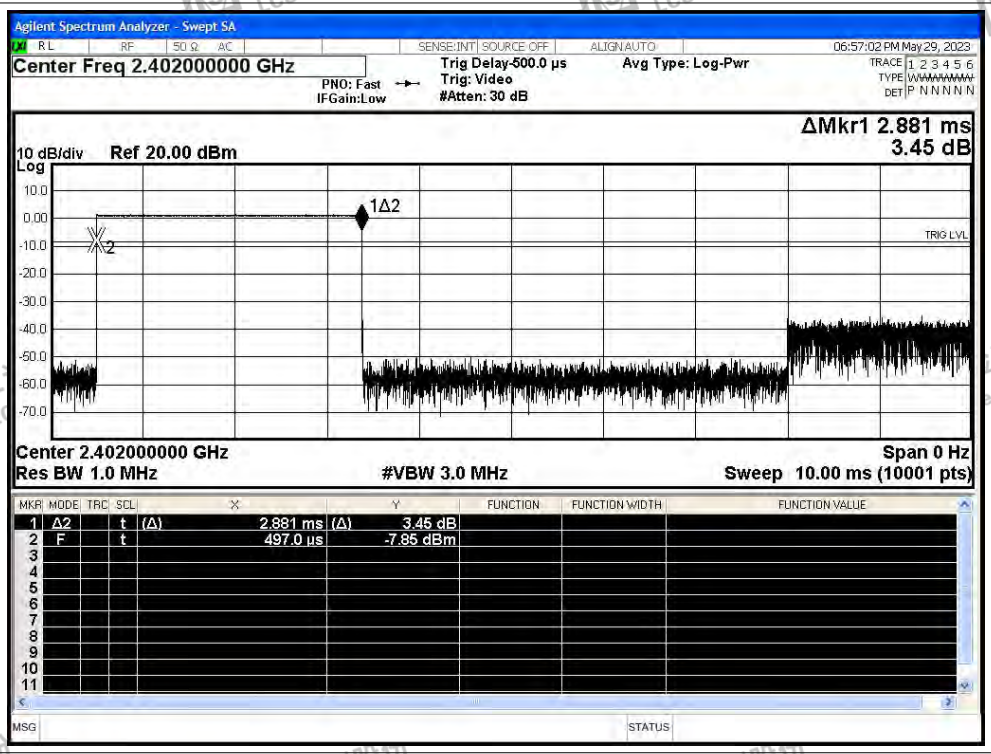


## A.4 Dwell Time

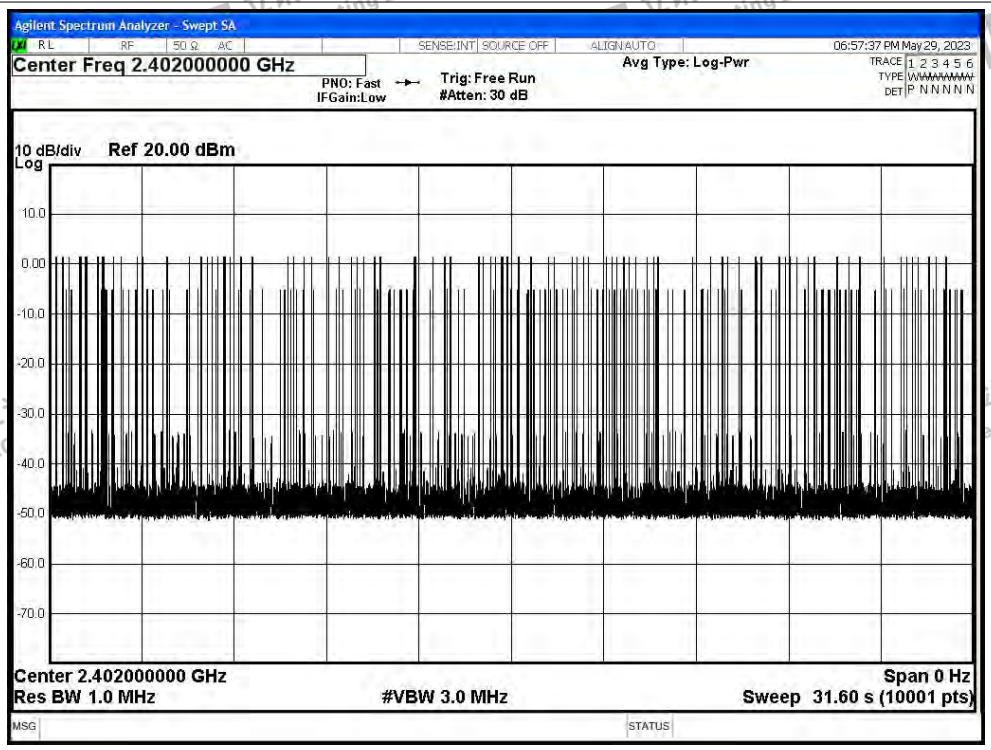
| Condition | Mode | Frequency (MHz) | Antenna | Pulse Time (ms) | Total Dwell Time (ms) | Burst Count | Period Time (ms) | Limit (ms) | Verdict |
|---|---|---|---|---|---|---|---|---|---|
| NVNT | 1-DH5 | 2402 | Ant1 | 2.881 | 302.505 | 105 | 31600 | 400 | Pass |
| NVNT | 2-DH5 | 2402 | Ant1 | 2.886 | 297.258 | 103 | 31600 | 400 | Pass |
| NVNT | 3-DH5 | 2402 | Ant1 | 2.888 | 314.792 | 109 | 31600 | 400 | Pass |

Test Graphs

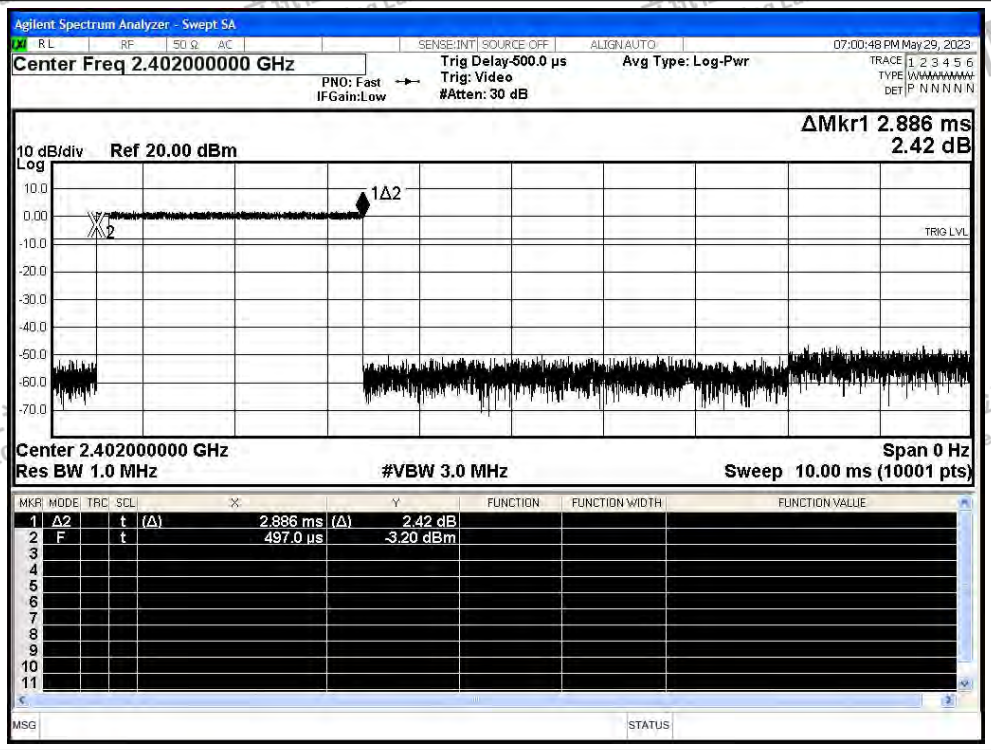
Dwell NVNT 1-DH5 2402MHz Ant1 One Burst



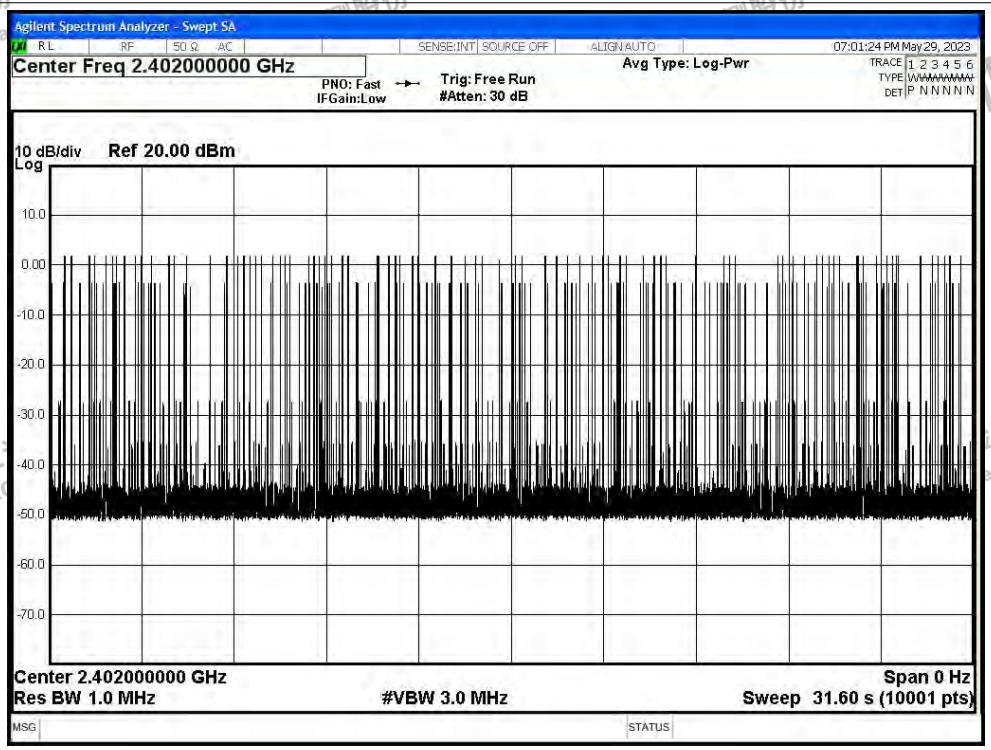

Dwell NVNT 1-DH5 2402MHz Ant1 Accumulated



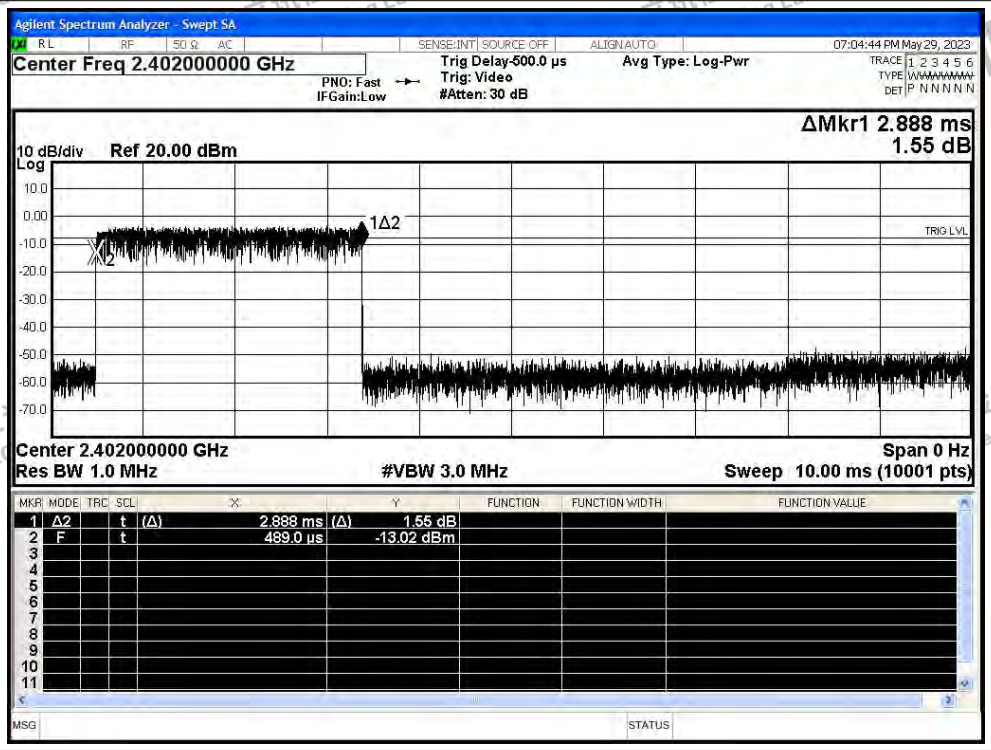
Dwell NVNT 2-DH5 2402MHz Ant1 One Burst



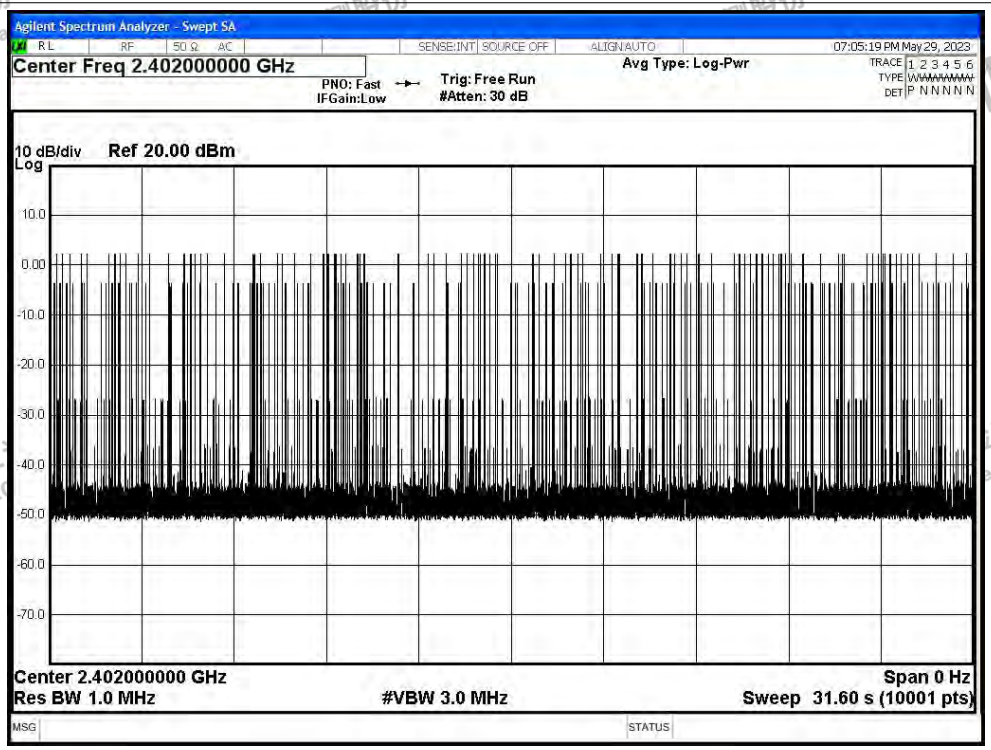

Dwell NVNT 2-DH5 2402MHz Ant1 Accumulated



Dwell NVNT 3-DH5 2402MHz Ant1 One Burst




Dwell NVNT 3-DH5 2402MHz Ant1 Accumulated

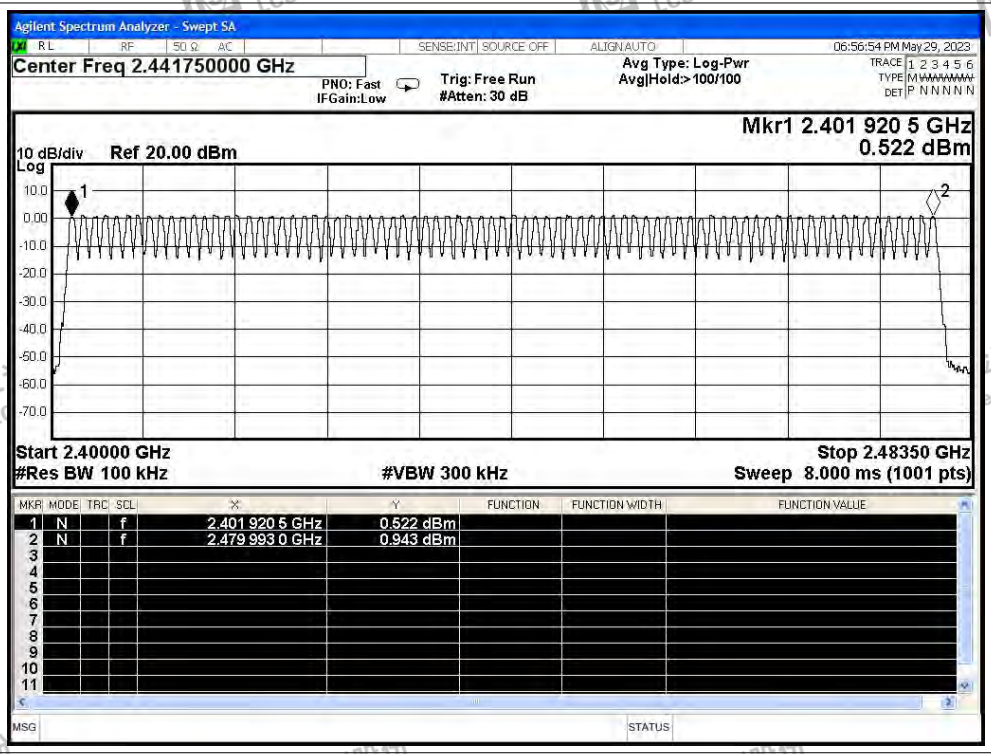


# A.5 Number of Hopping Channel

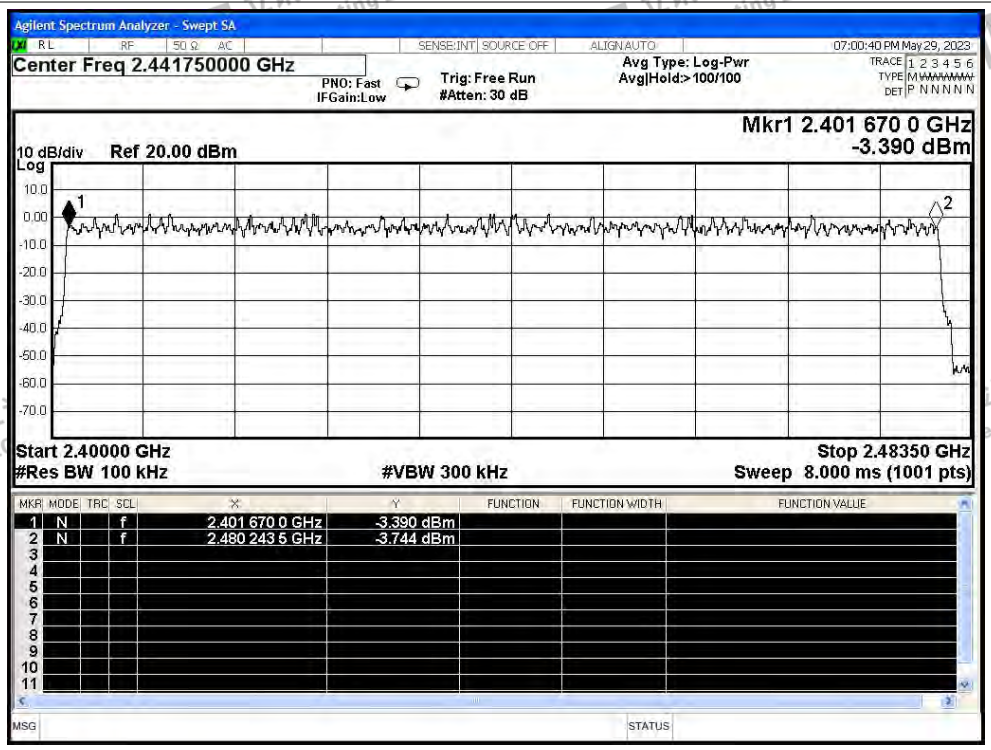
| Condition | Mode | Antenna | Hopping Number | Limit | Verdict |
|---|---|---|---|---|---|
| NVNT | 1-DH5 | Ant1 | 79 | 15 | Pass |
| NVNT | 2-DH5 | Ant1 | 79 | 15 | Pass |
| NVNT | 3-DH5 | Ant1 | 79 | 15 | Pass |

Test Graphs

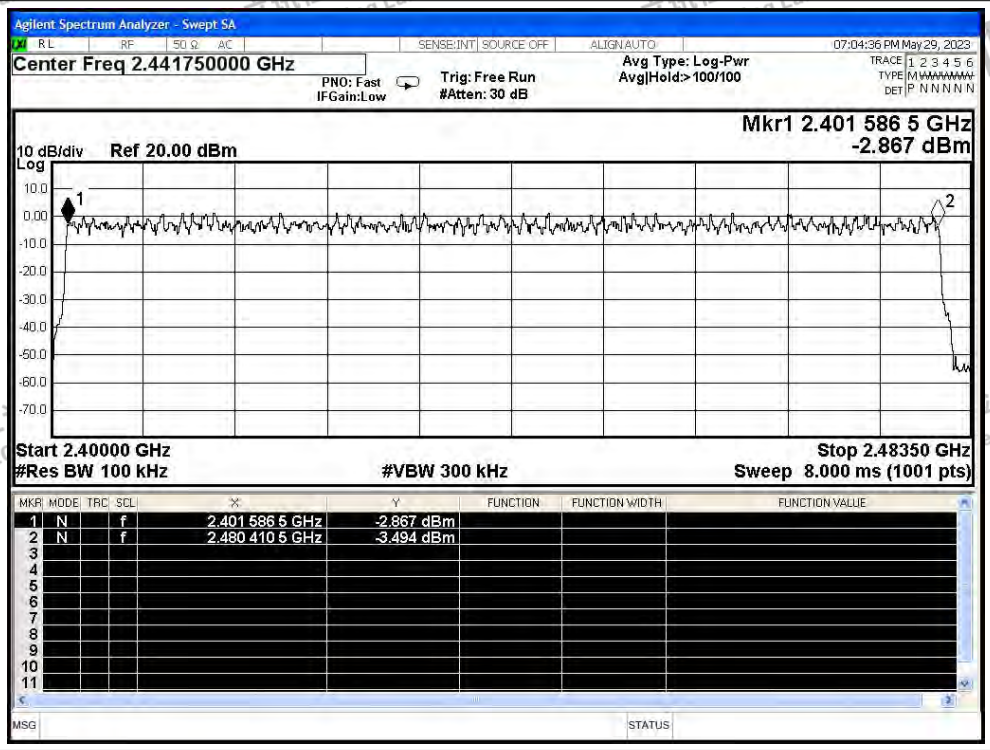
Hopping No. NVNT 1-DH5 2402MHz Ant1




Hopping No. NVNT 2-DH5 2402MHz Ant1



Hopping No. NVNT 3-DH5 2402MHz Ant1

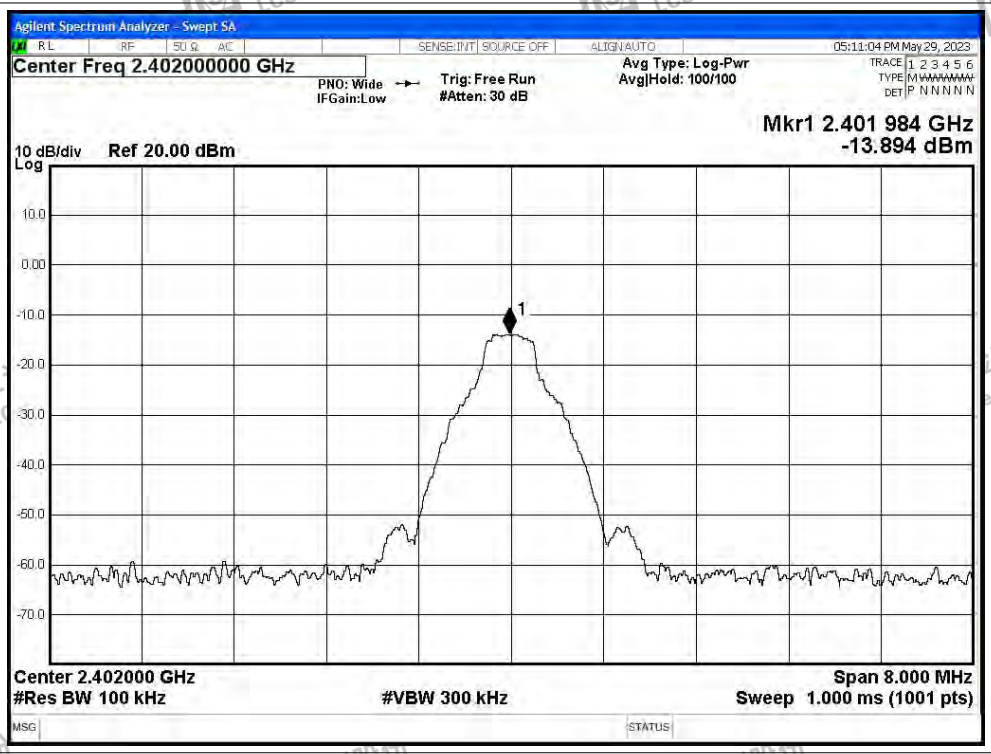


## A.6 Band Edge

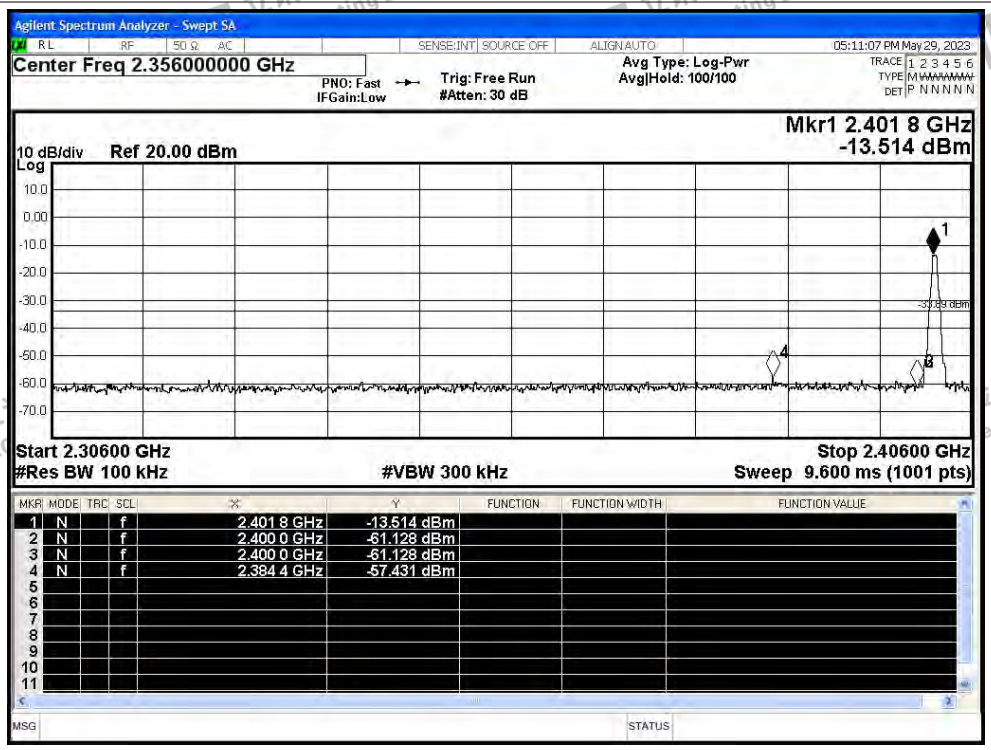
| Condition | Mode | Frequency (MHz) | Antenna | Hopping Mode | Max Value (dBc) | Limit (dBc) | Verdict |
|---|---|---|---|---|---|---|---|
| NVNT | 1-DH5 | 2402 | Ant1 | No-Hopping | -43.54 | -20 | Pass |
| NVNT | 1-DH5 | 2480 | Ant1 | No-Hopping | -55.47 | -20 | Pass |
| NVNT | 2-DH5 | 2402 | Ant1 | No-Hopping | -49.89 | -20 | Pass |
| NVNT | 2-DH5 | 2480 | Ant1 | No-Hopping | -54.51 | -20 | Pass |
| NVNT | 3-DH5 | 2402 | Ant1 | No-Hopping | -52.47 | -20 | Pass |
| NVNT | 3-DH5 | 2480 | Ant1 | No-Hopping | -54.22 | -20 | Pass |

Test Graphs

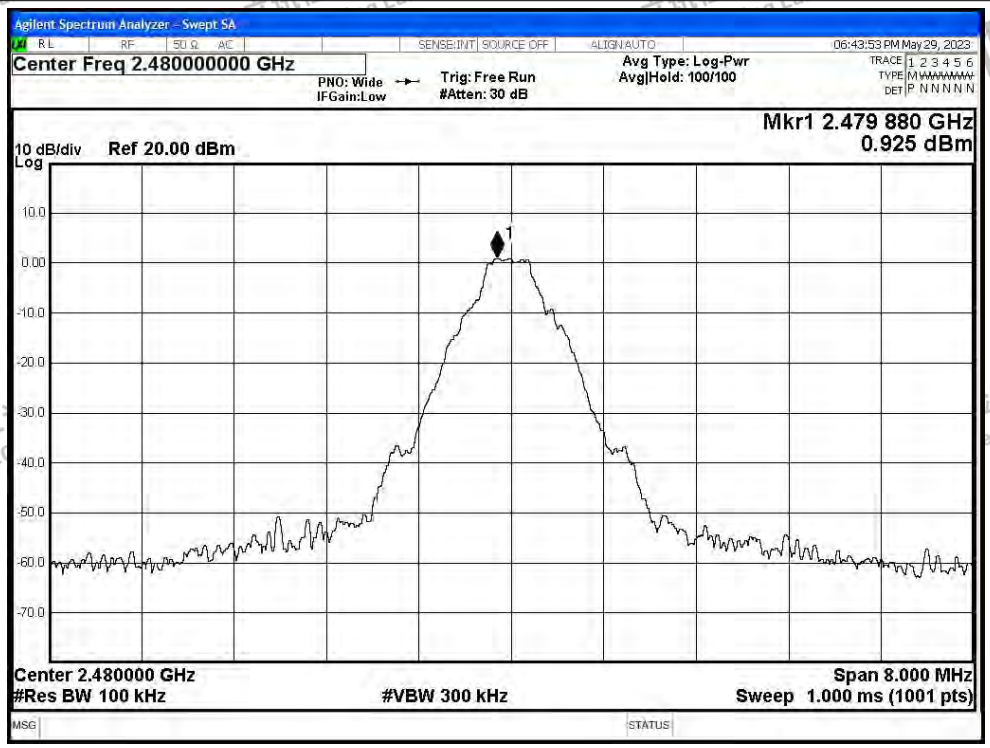
Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Ref



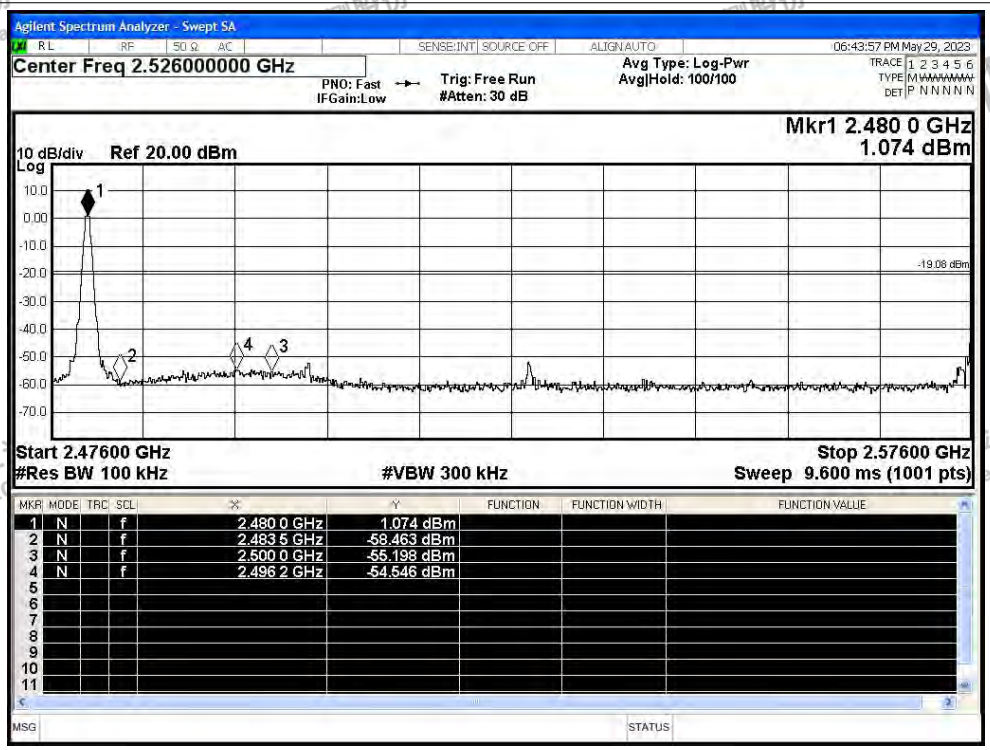

Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Emission



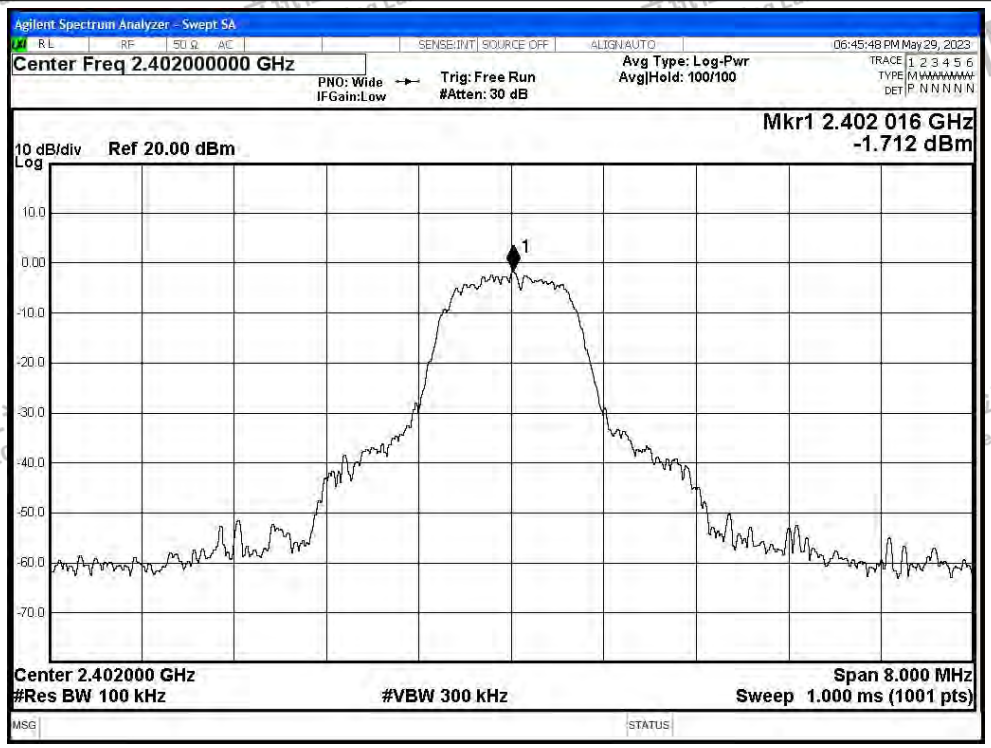
Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Ref



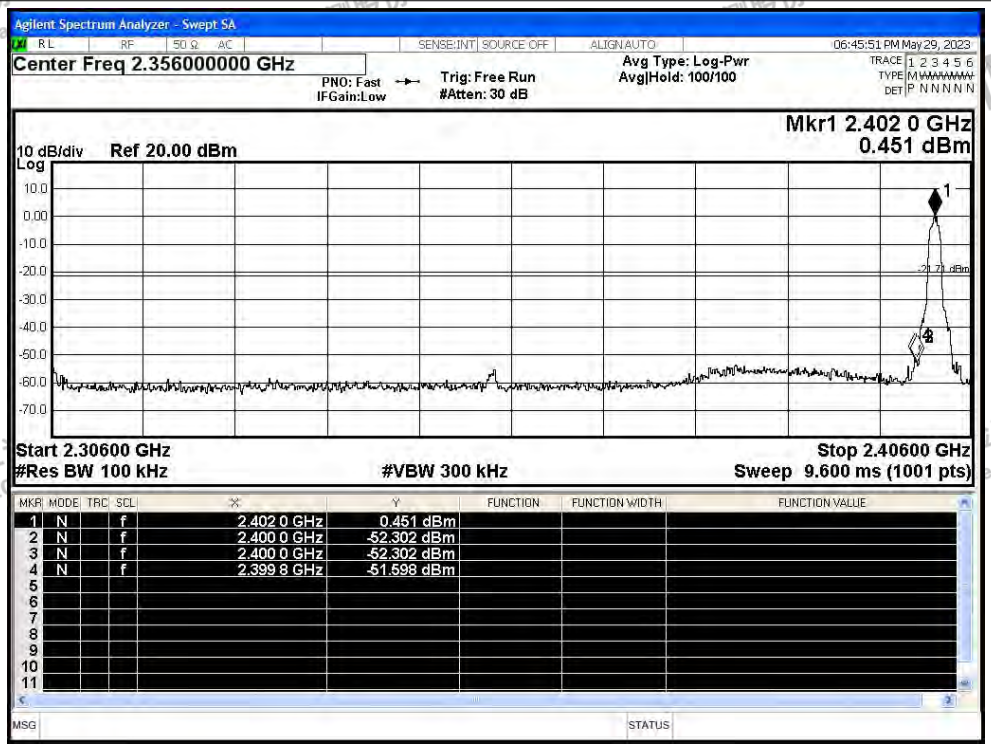

Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Emission



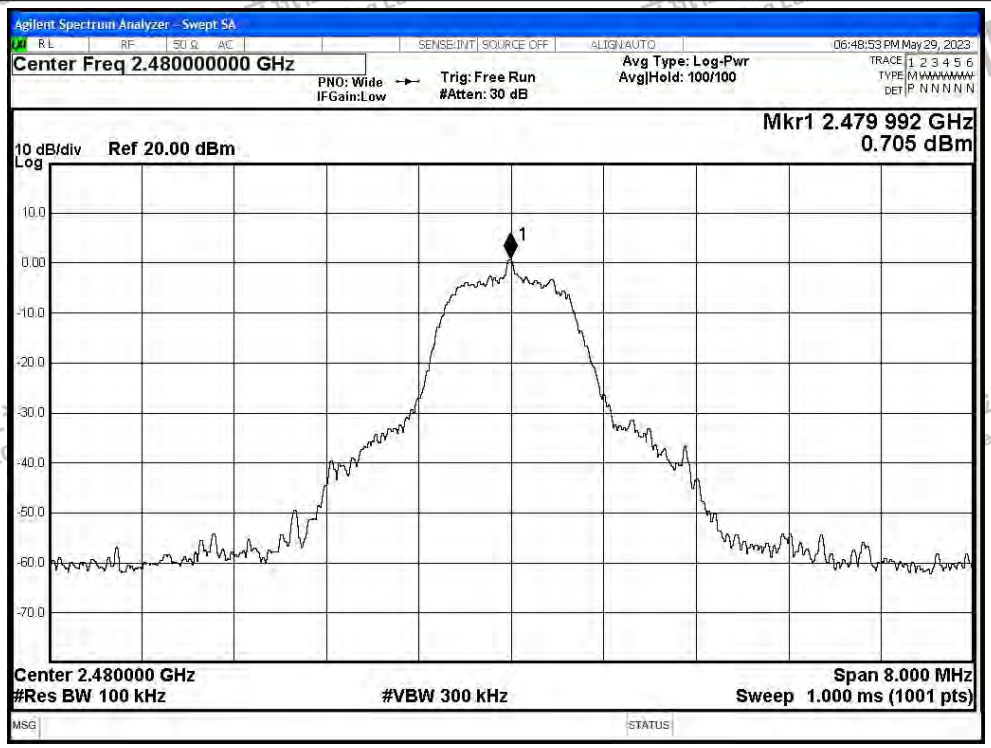
Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Ref



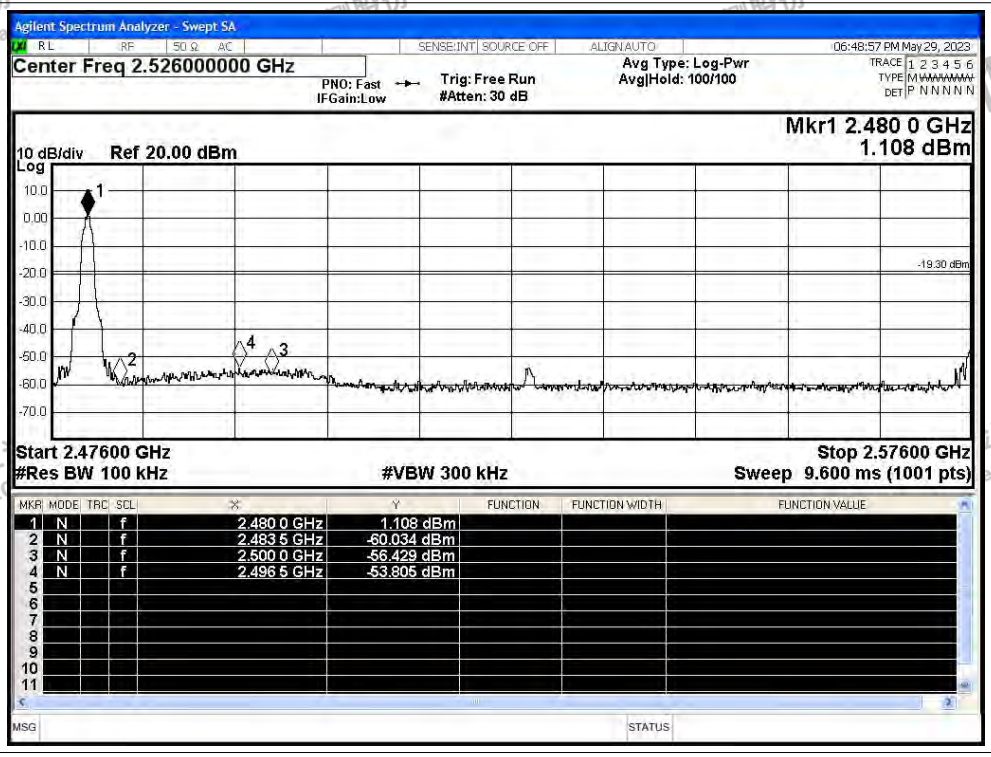

Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Emission



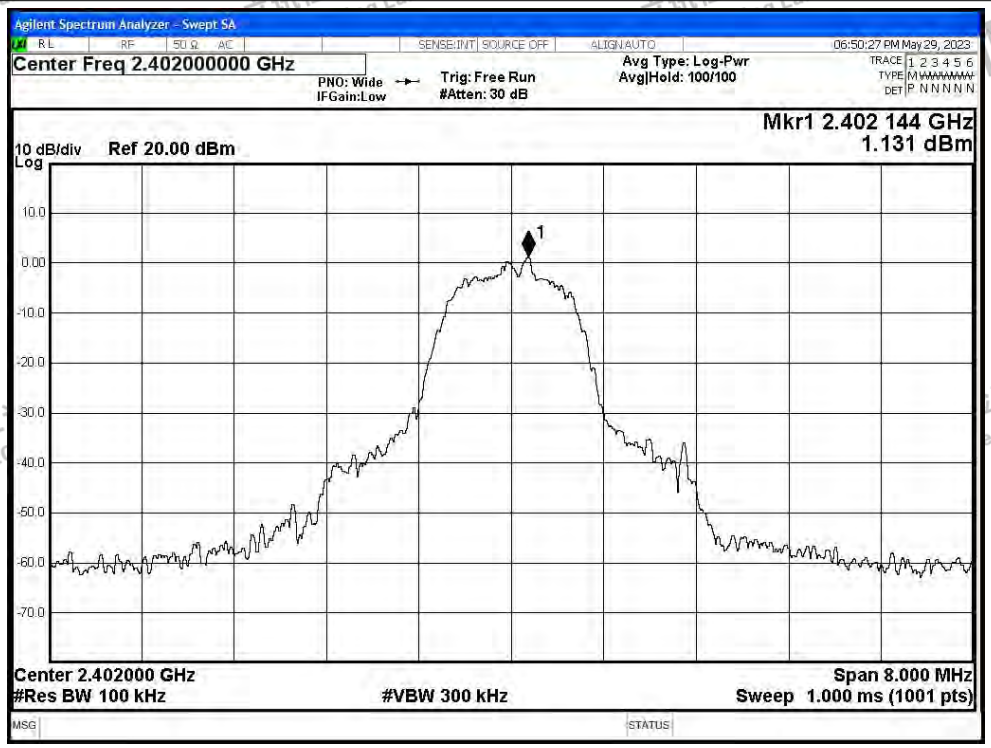
Band Edge NVNT 2-DH5 2480MHz Ant1 No-Hopping Ref



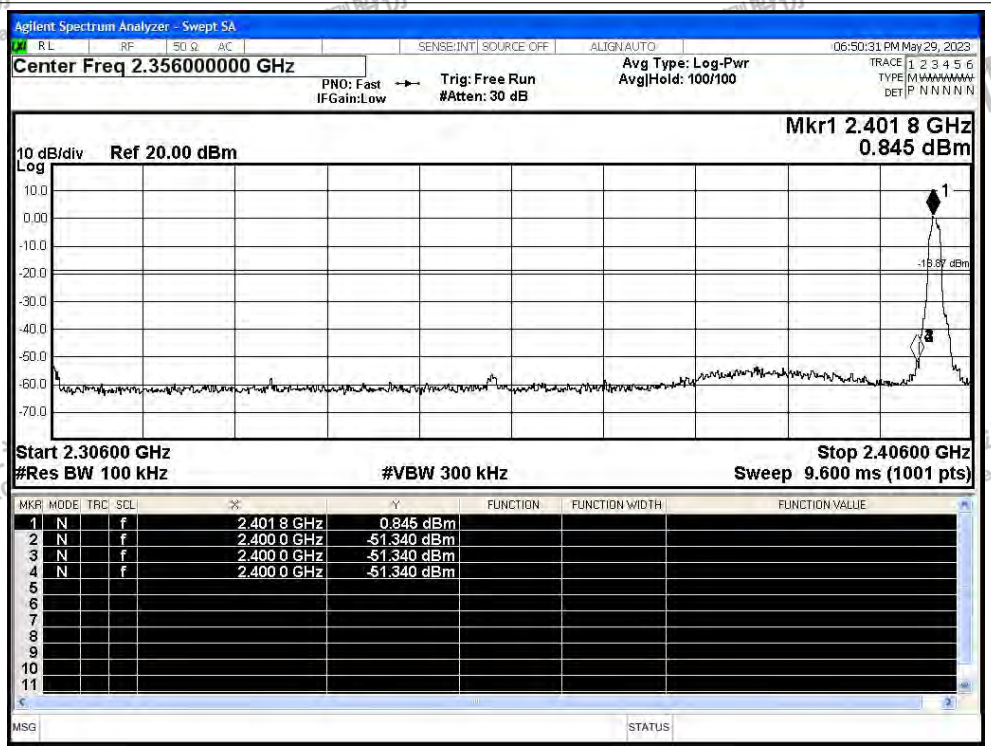

Band Edge NVNT 2-DH5 2480MHz Ant1 No-Hopping Emission



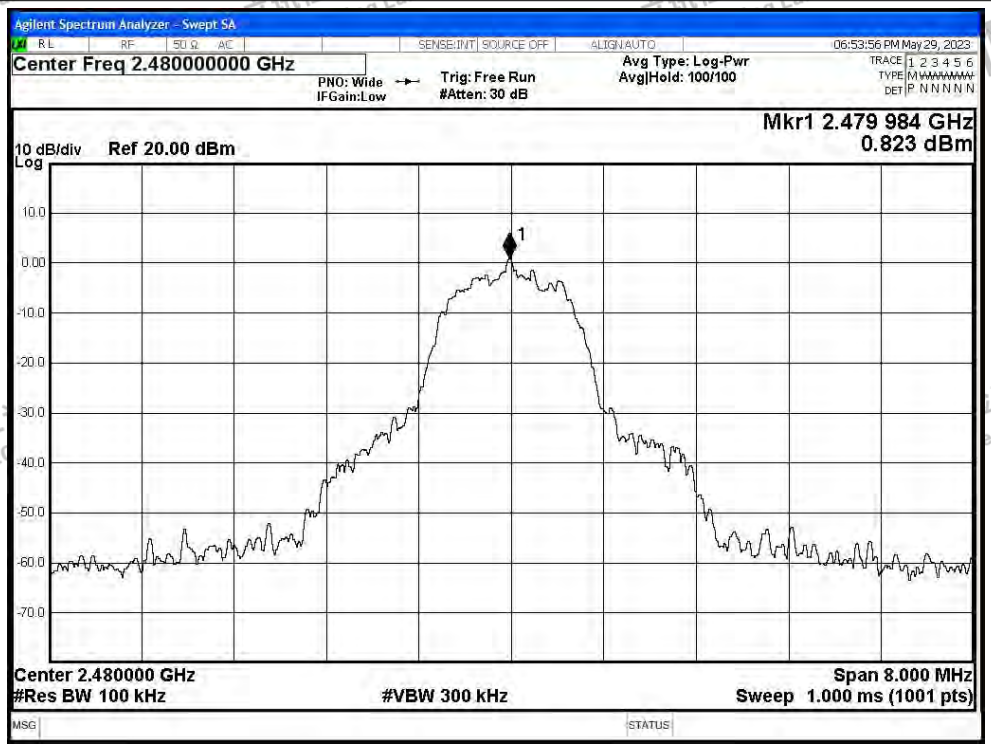
Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Ref



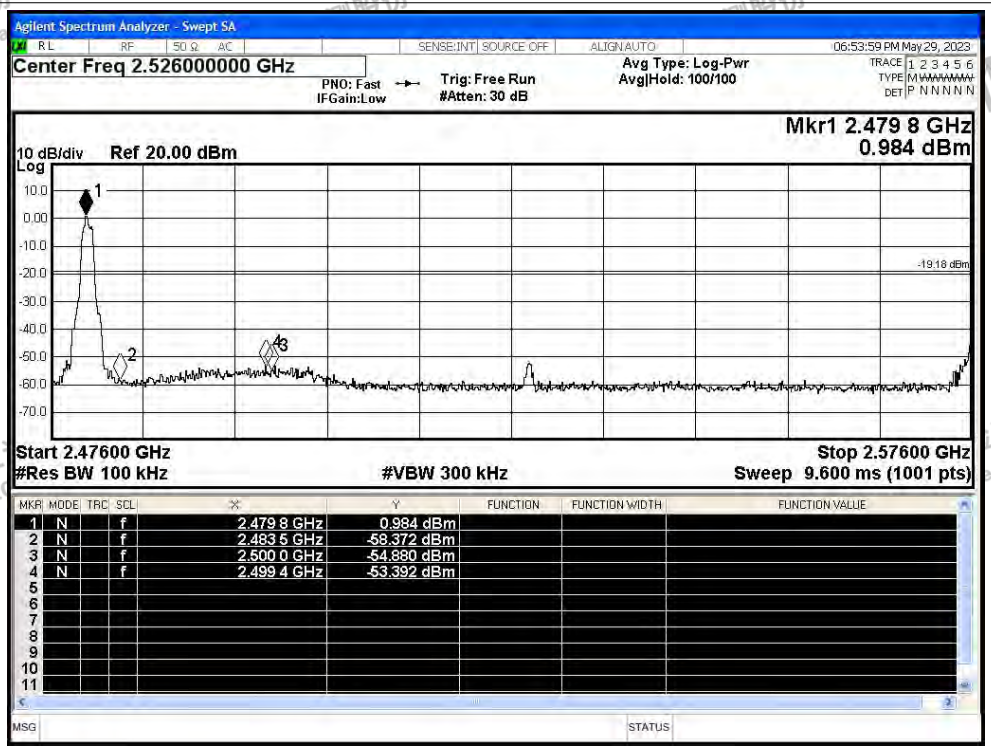

Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Emission



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




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

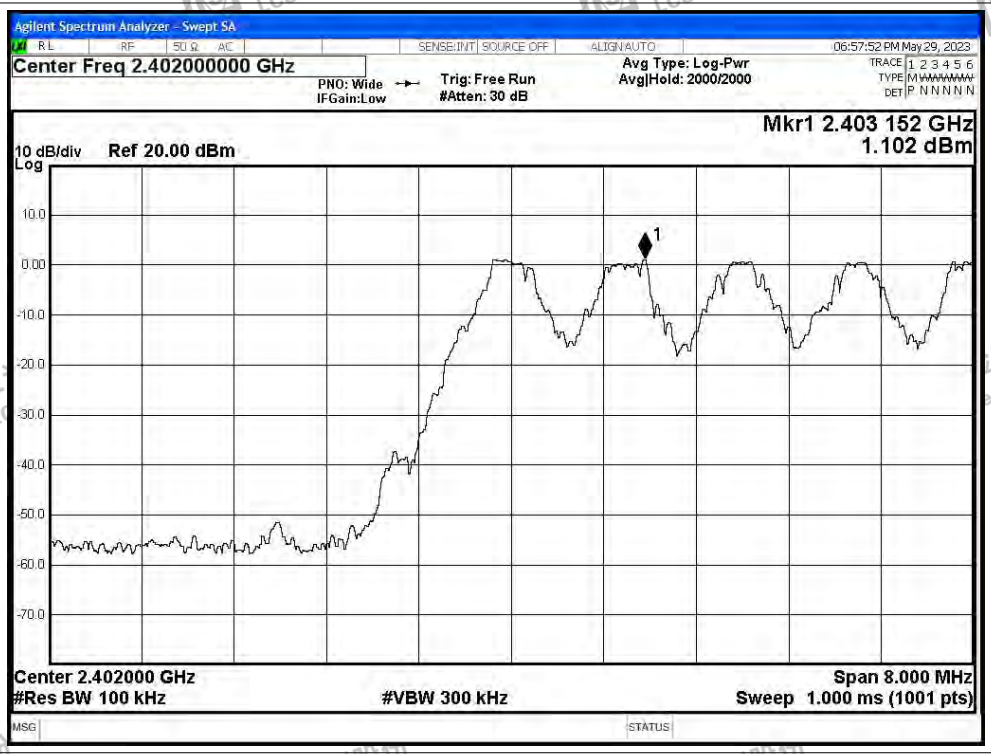


(Hopping)

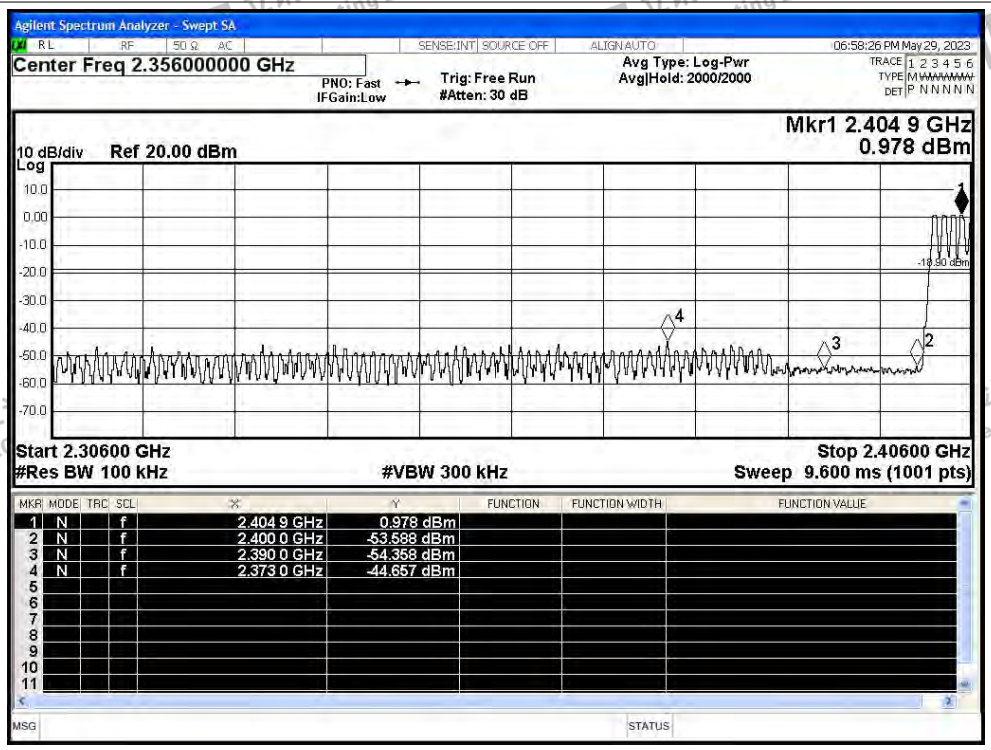
| Condition | Mode | Frequency (MHz) | Antenna | Hopping Mode | Max Value (dBc) | Limit (dBc) | Verdict |
|---|---|---|---|---|---|---|---|
| NVNT | 1-DH5 | 2402 | Ant1 | Hopping | -45.76 | -20 | Pass |
| NVNT | 1-DH5 | 2480 | Ant1 | Hopping | -44.07 | -20 | Pass |
| NVNT | 2-DH5 | 2402 | Ant1 | Hopping | -47.58 | -20 | Pass |
| NVNT | 2-DH5 | 2480 | Ant1 | Hopping | -47.8 | -20 | Pass |
| NVNT | 3-DH5 | 2402 | Ant1 | Hopping | -47.75 | -20 | Pass |
| NVNT | 3-DH5 | 2480 | Ant1 | Hopping | -47 | -20 | Pass |

Test Graphs

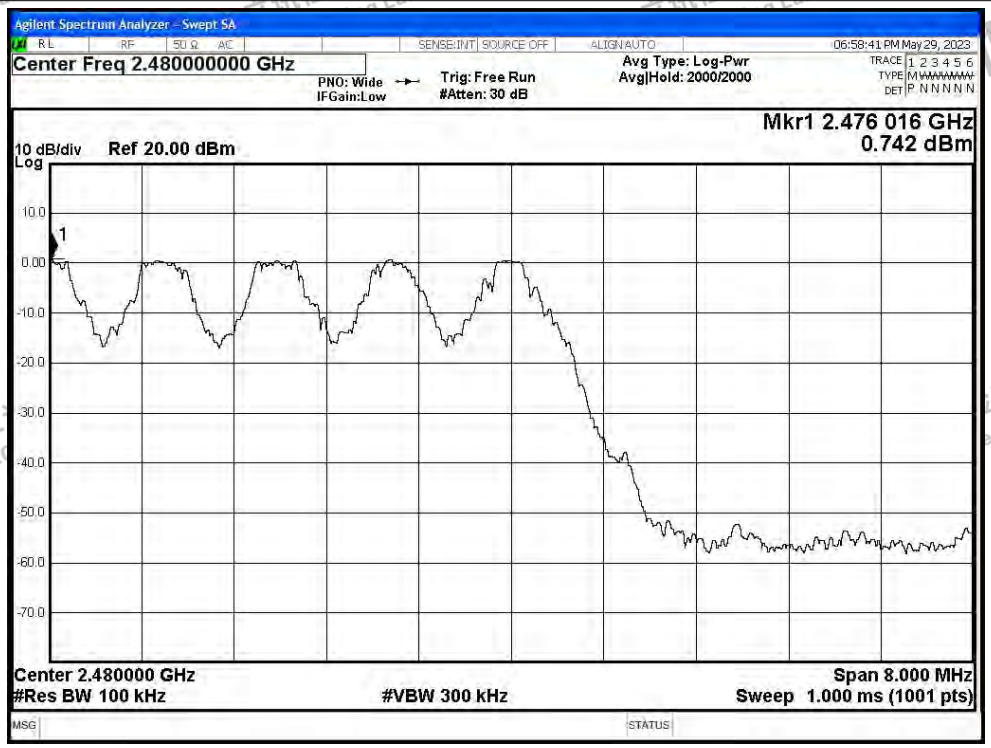
Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Ref



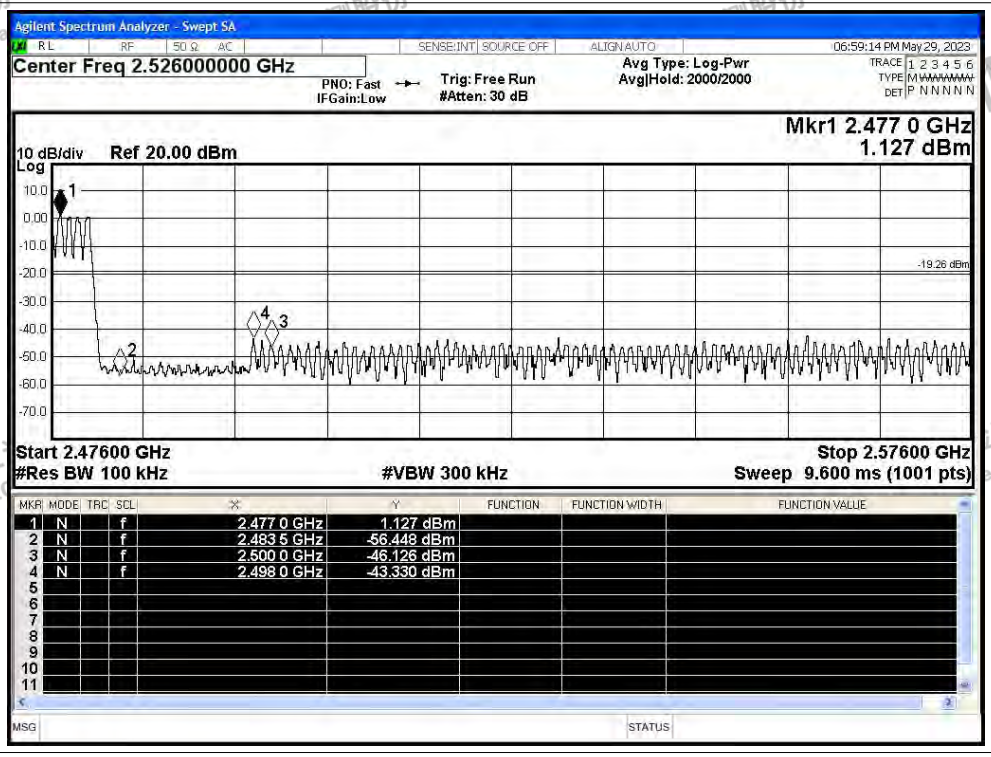

Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Emission



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

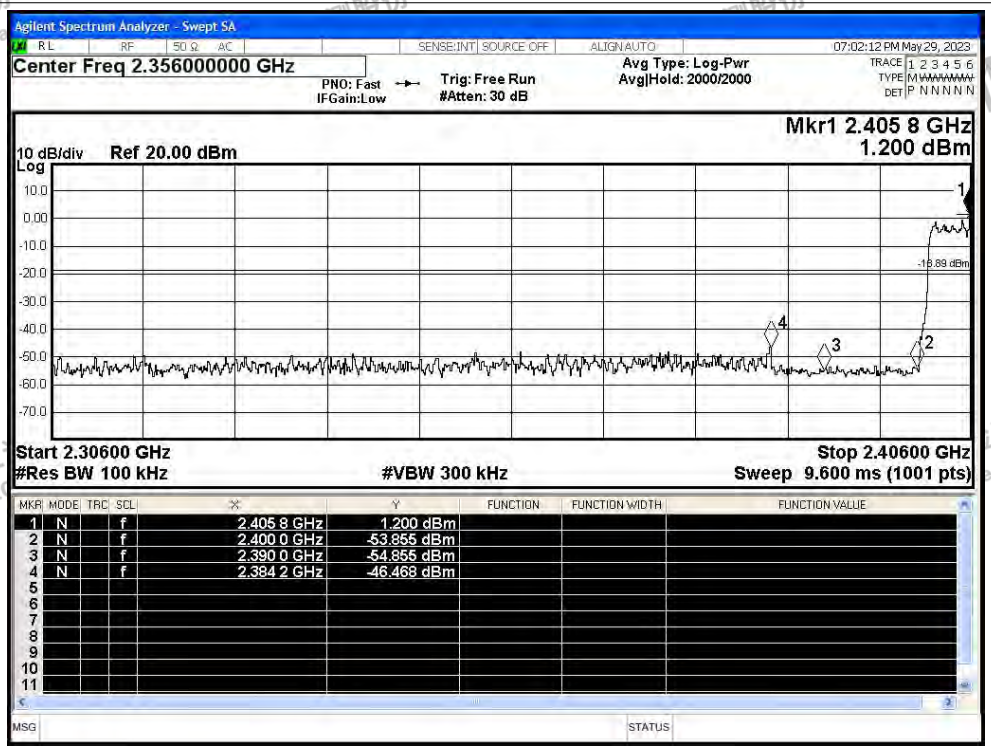



Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant1 Hopping Emission

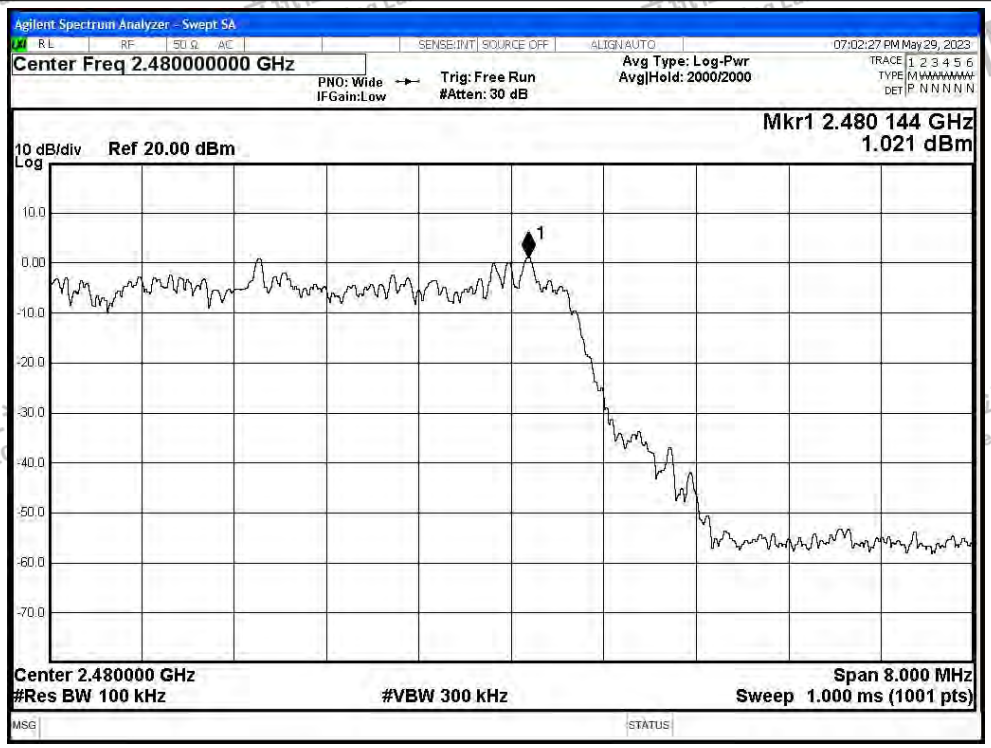


Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Ref

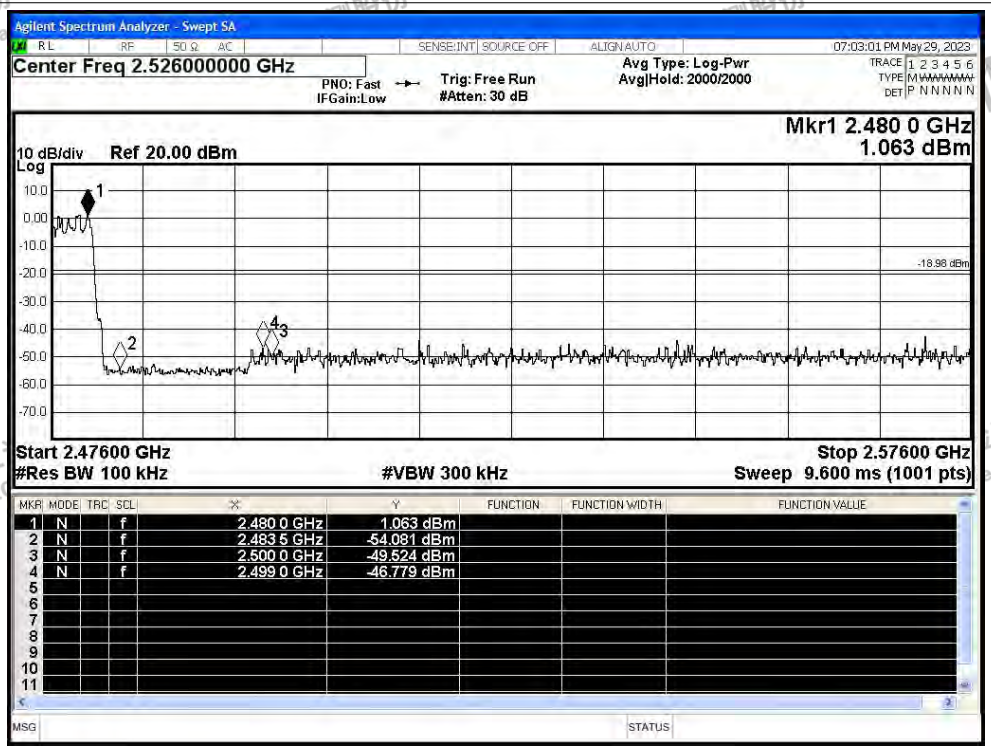
Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Emission



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

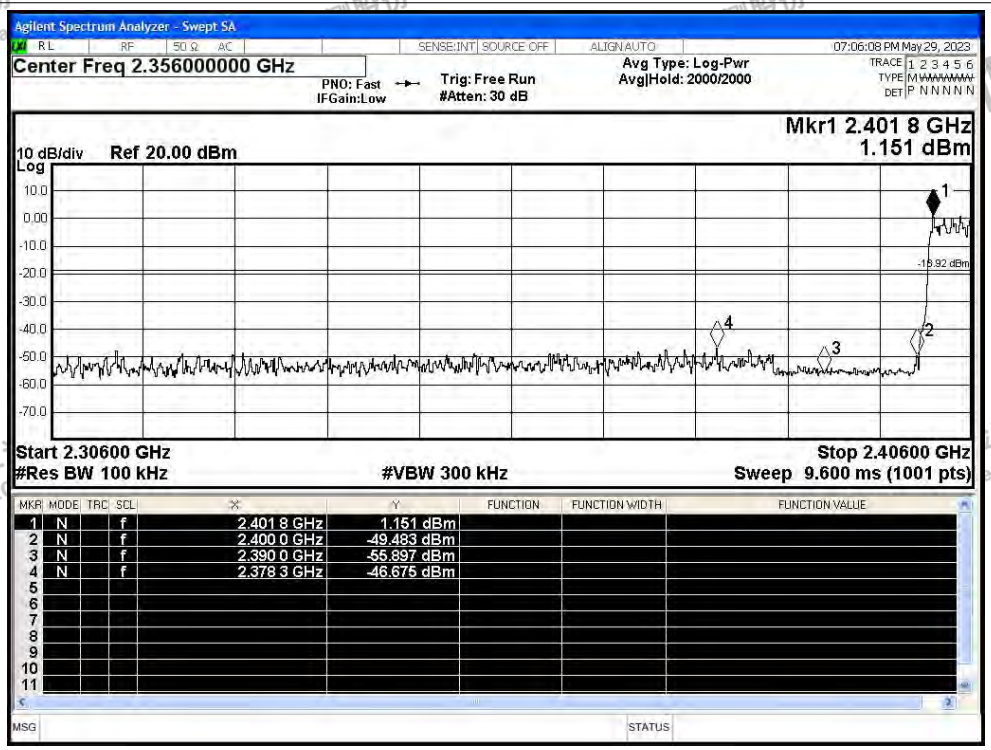



Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Emission

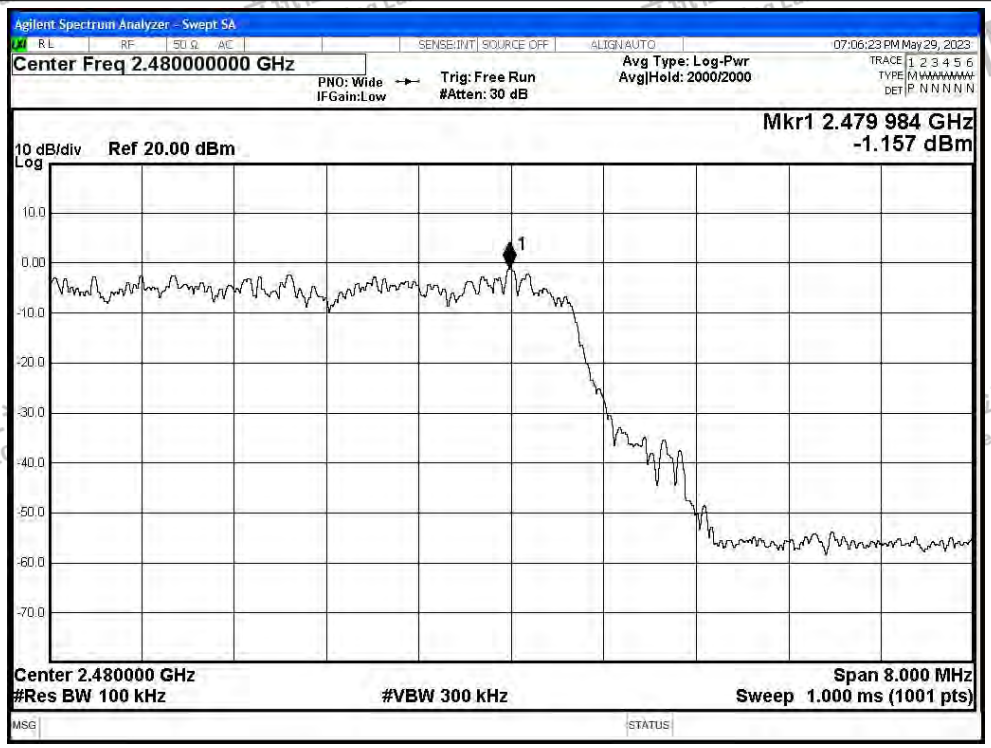


Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Ref

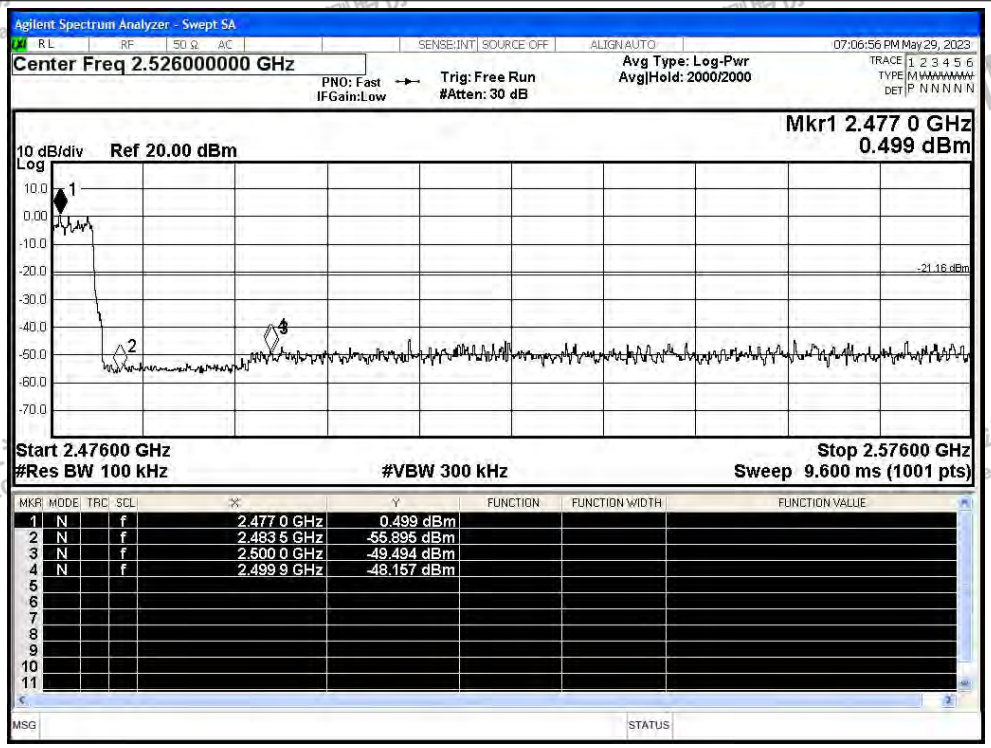
Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Emission



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




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

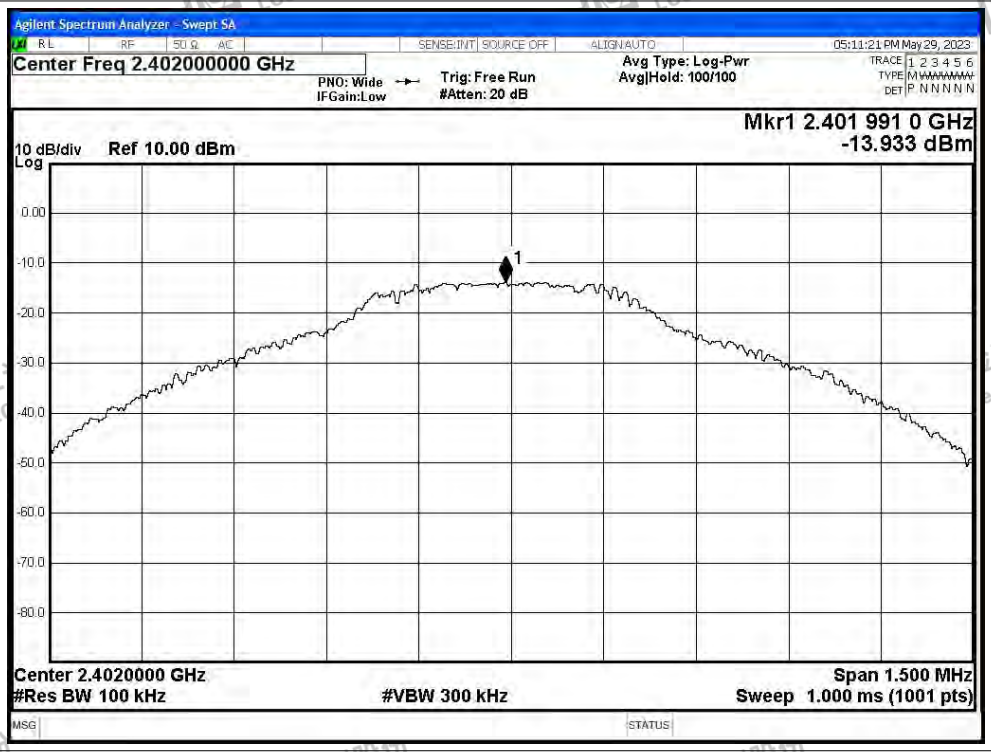


# A.7 Conducted RF Spurious Emission

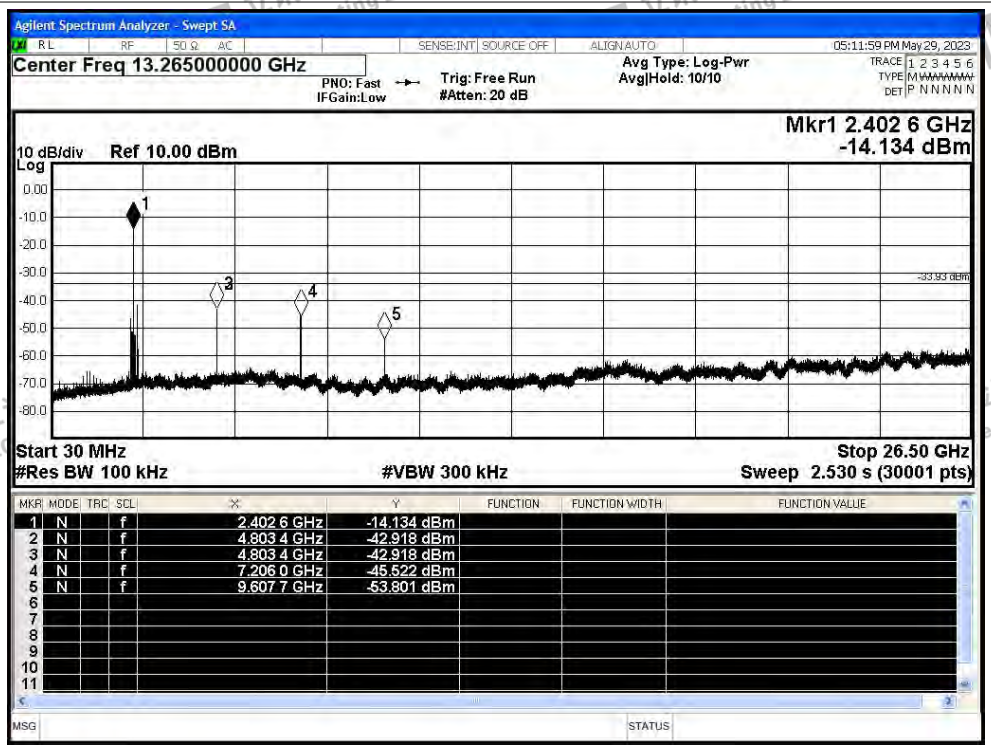
| Condition | Mode | Frequency (MHz) | Antenna | Max Value (dBc) | Limit (dBc) | Verdict |
|---|---|---|---|---|---|---|
| NVNT | 1-DH5 | 2402 | Ant1 | -28.99 | -20 | Pass |
| NVNT | 1-DH5 | 2441 | Ant1 | -45.26 | -20 | Pass |
| NVNT | 1-DH5 | 2480 | Ant1 | -41.24 | -20 | Pass |
| NVNT | 2-DH5 | 2402 | Ant1 | -50.24 | -20 | Pass |
| NVNT | 2-DH5 | 2441 | Ant1 | -45.81 | -20 | Pass |
| NVNT | 2-DH5 | 2480 | Ant1 | -44.85 | -20 | Pass |
| NVNT | 3-DH5 | 2402 | Ant1 | -48.3 | -20 | Pass |
| NVNT | 3-DH5 | 2441 | Ant1 | -48.13 | -20 | Pass |
| NVNT | 3-DH5 | 2480 | Ant1 | -45.23 | -20 | Pass |

Test Graphs

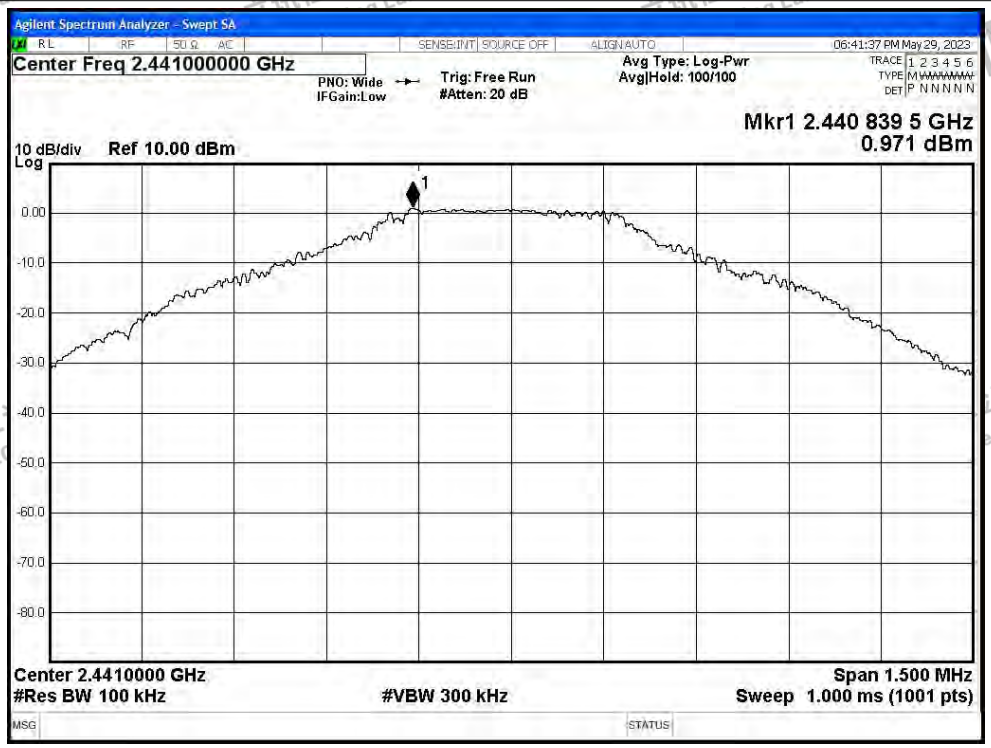
Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Ref



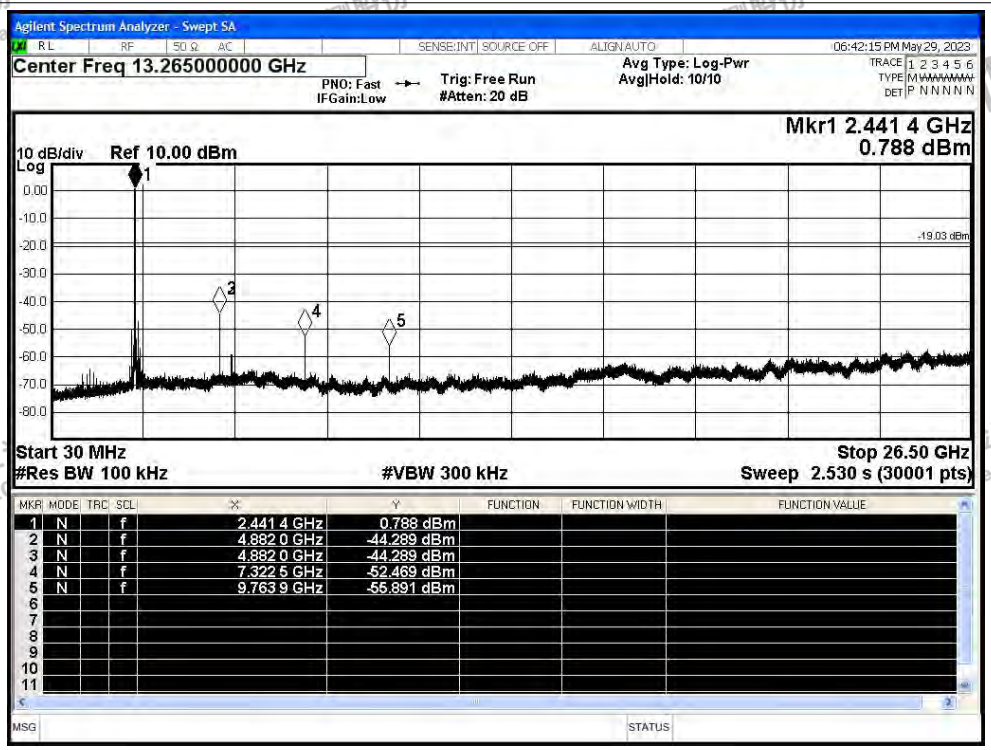

Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Emission



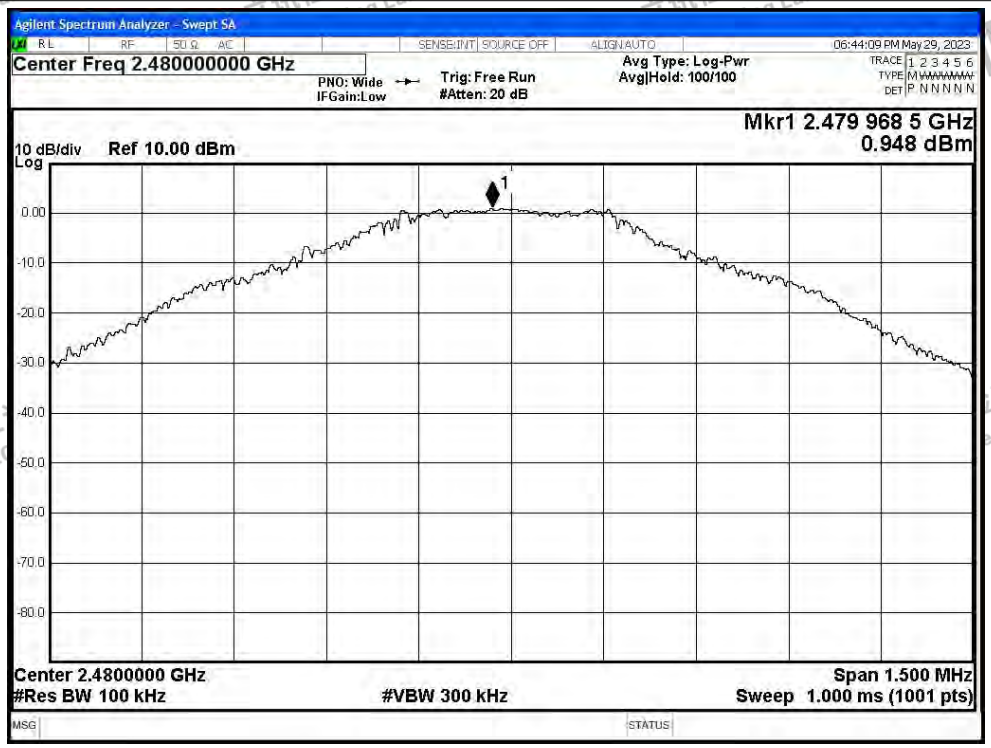
Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Ref



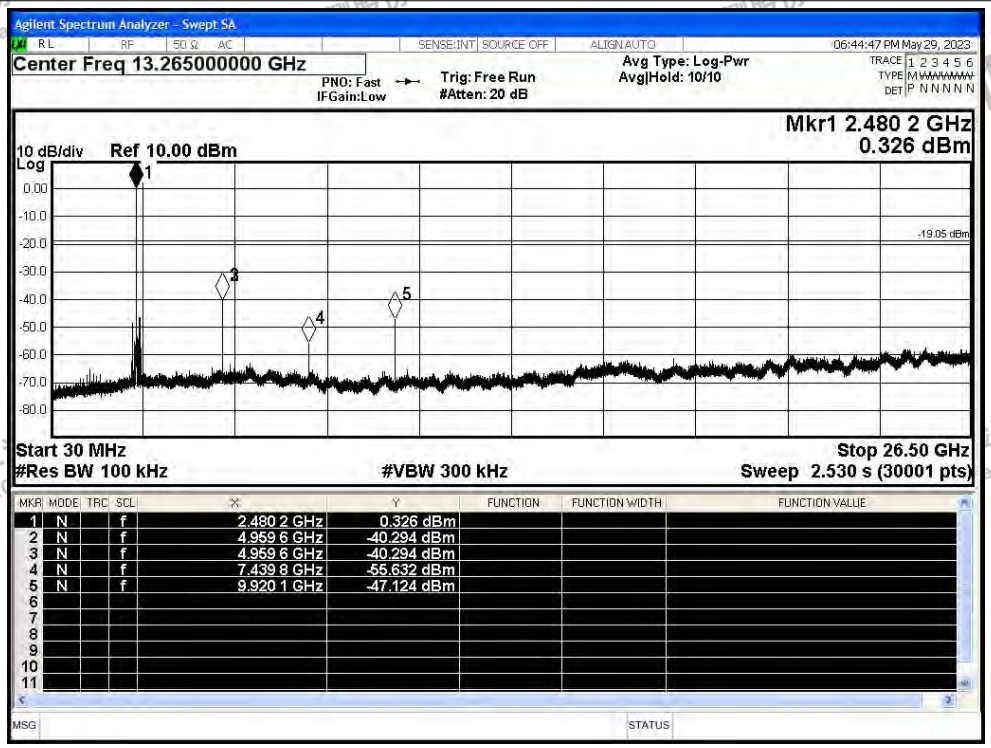

Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Emission



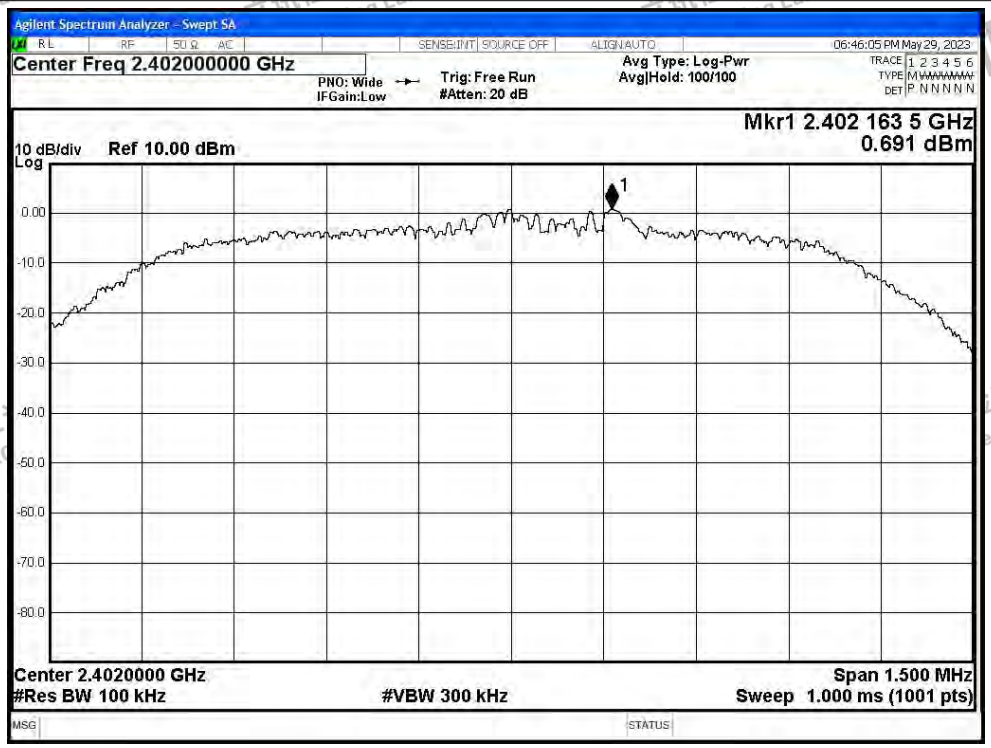
Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Ref



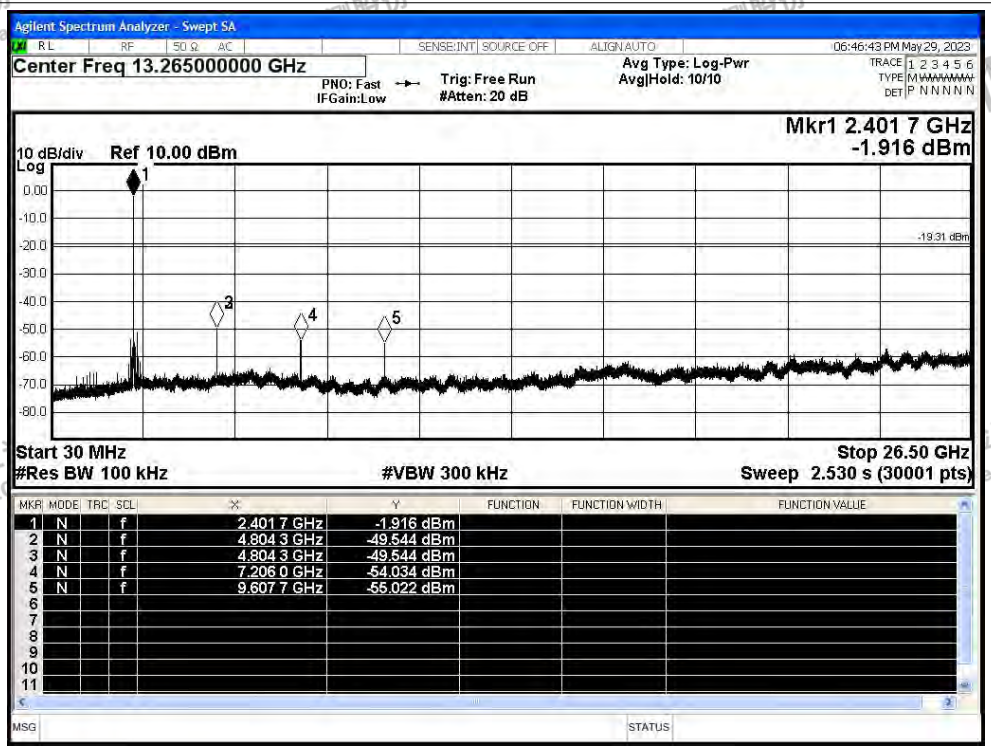

Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Emission



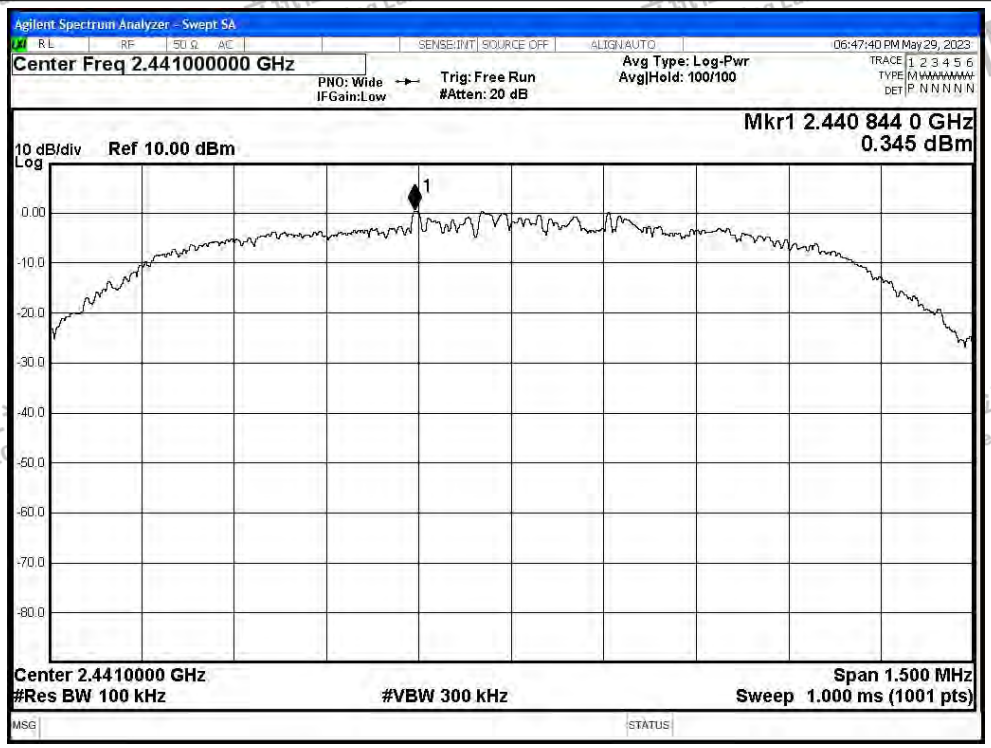
Tx. Spurious NVNT 2-DH5 2402MHz Ant1 Ref



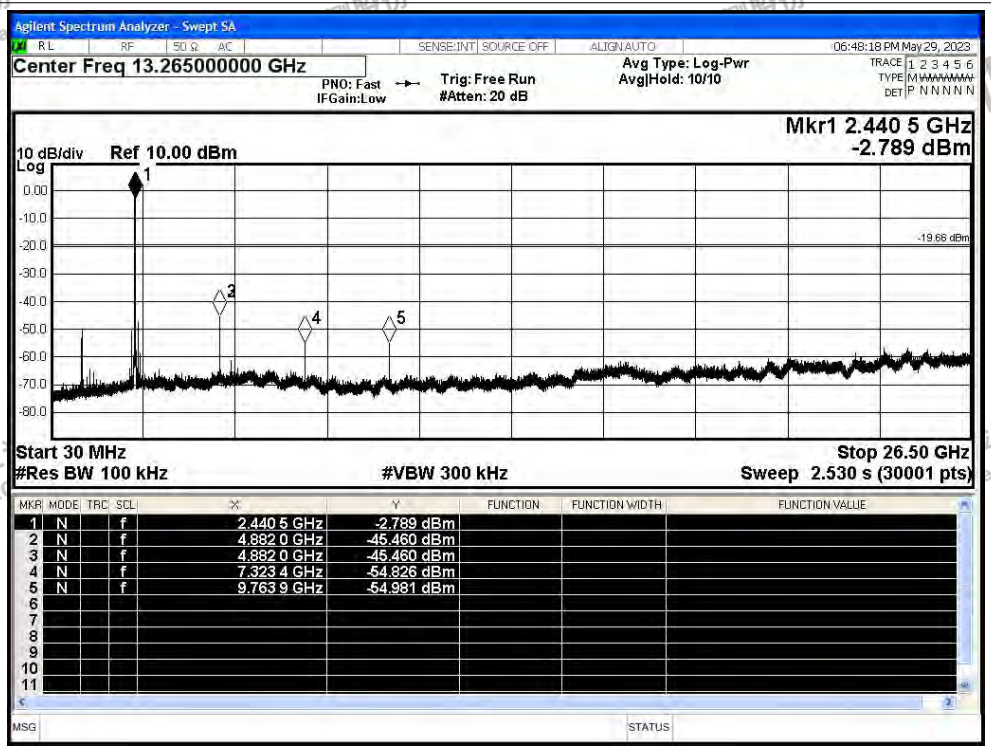

Tx. Spurious NVNT 2-DH5 2402MHz Ant1 Emission



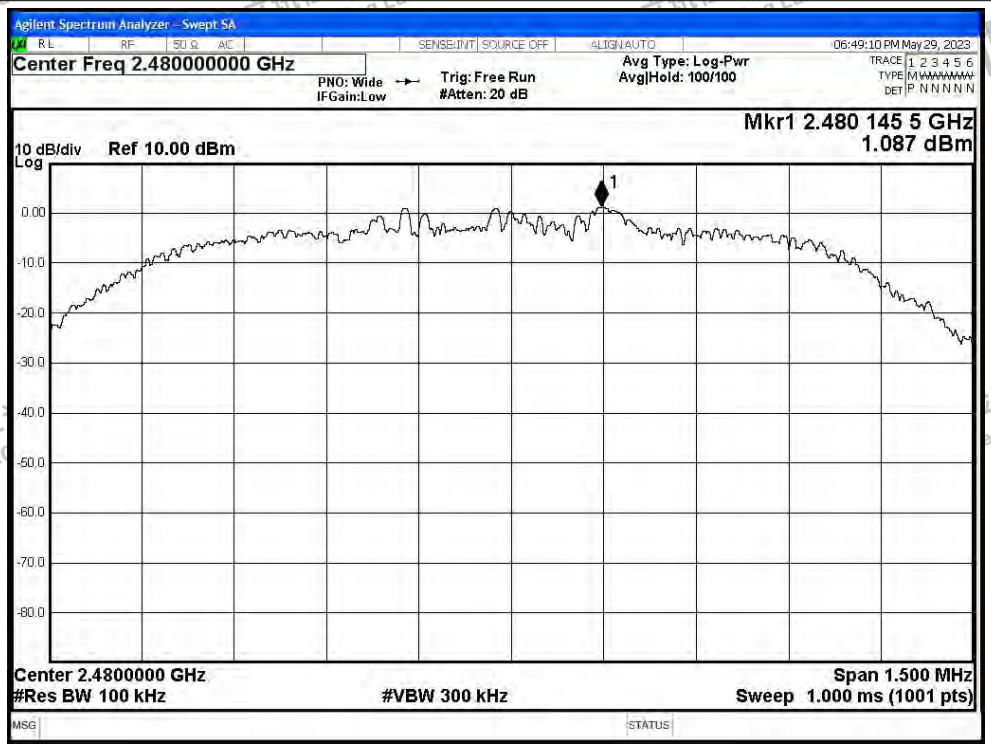
Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Ref



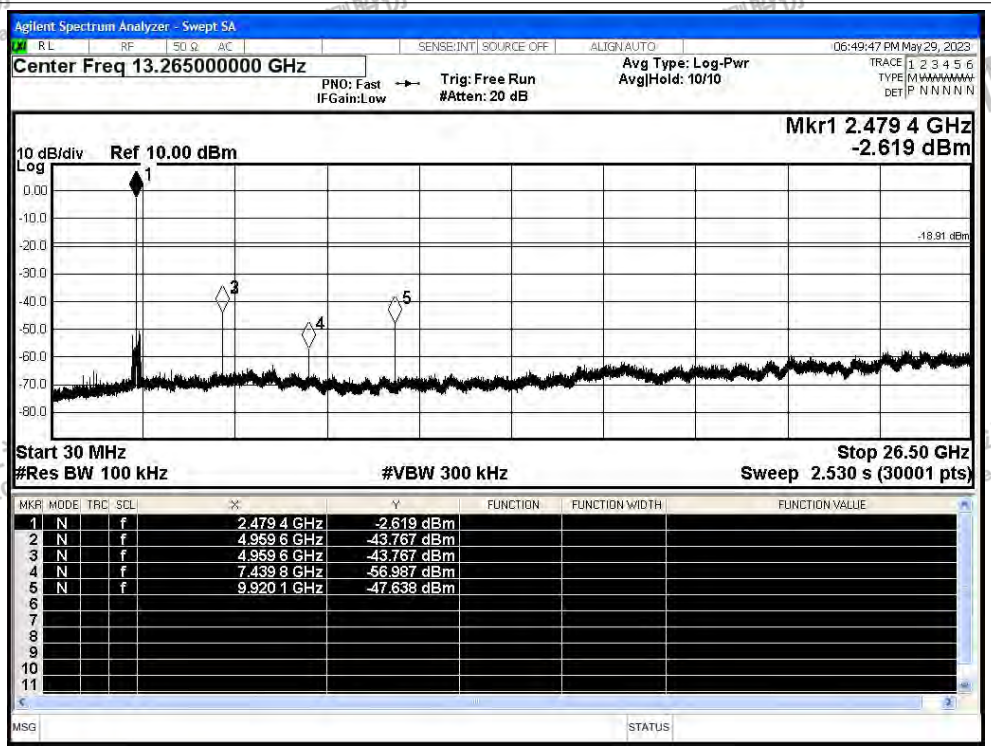

Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Emission



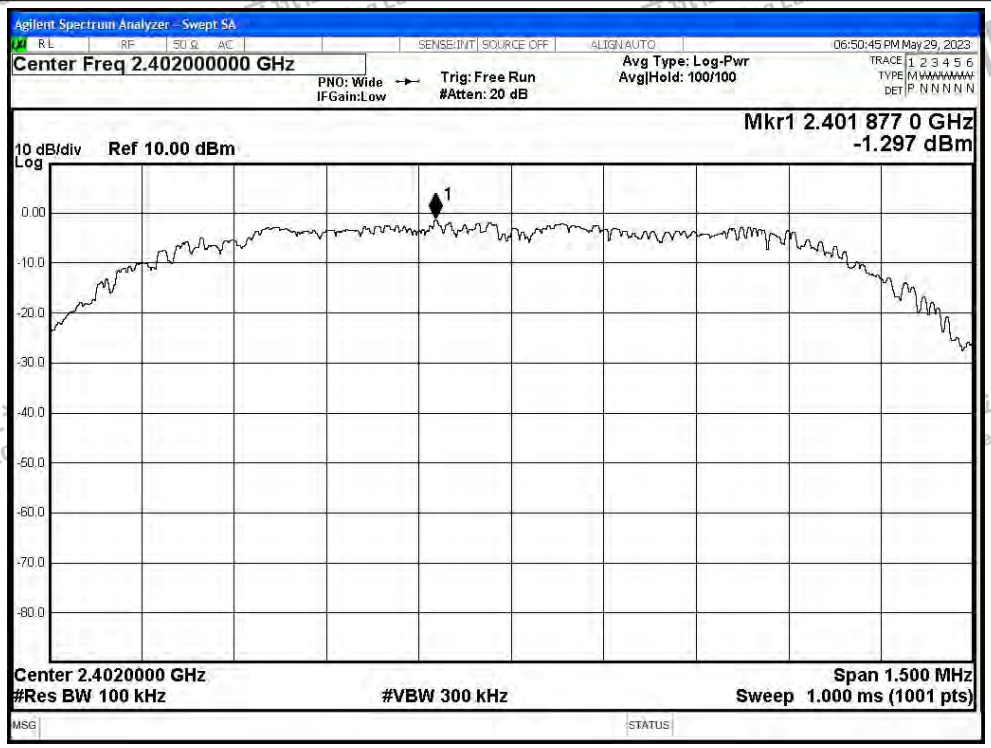
Tx. Spurious NVNT 2-DH5 2480MHz Ant1 Ref



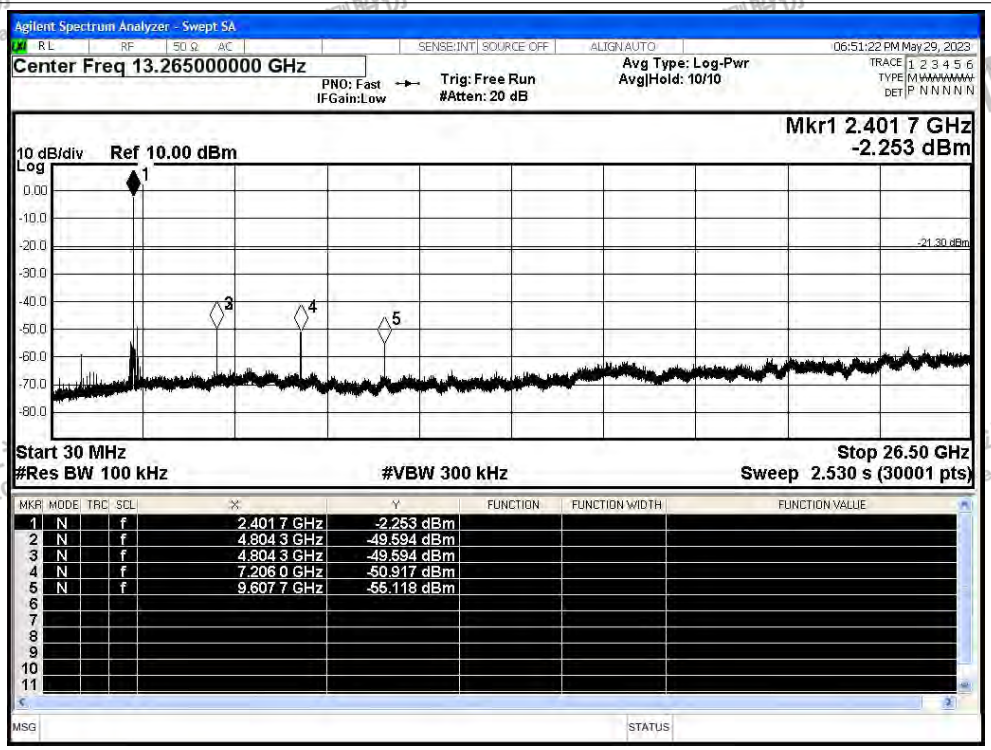

Tx. Spurious NVNT 2-DH5 2480MHz Ant1 Emission



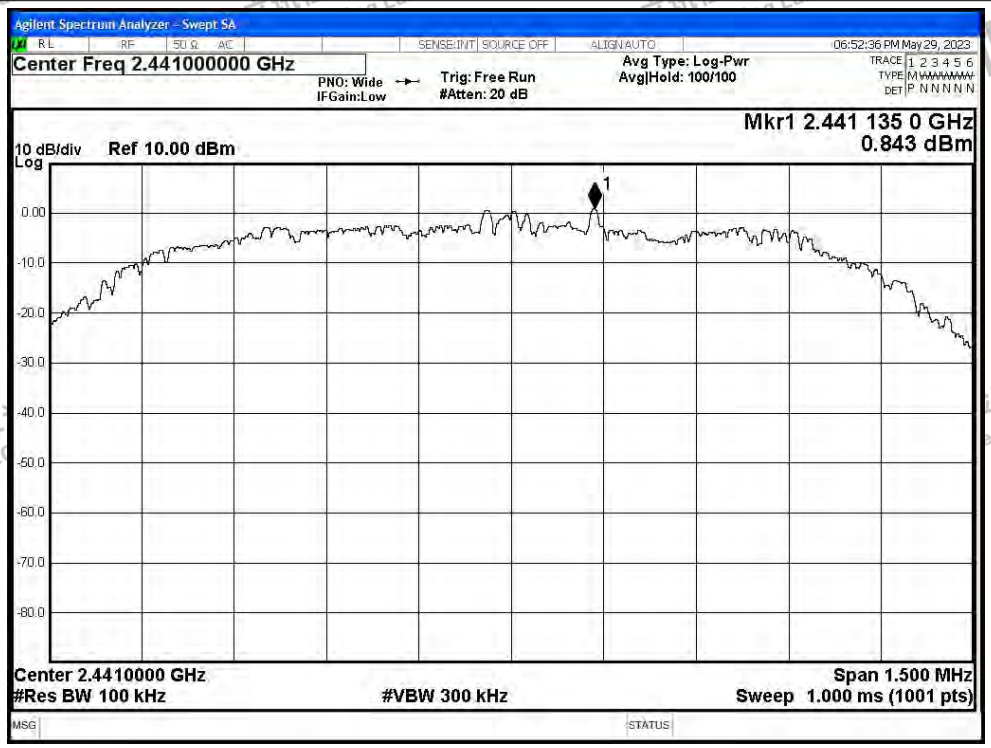
Tx. Spurious NVNT 3-DH5 2402MHz Ant1 Ref



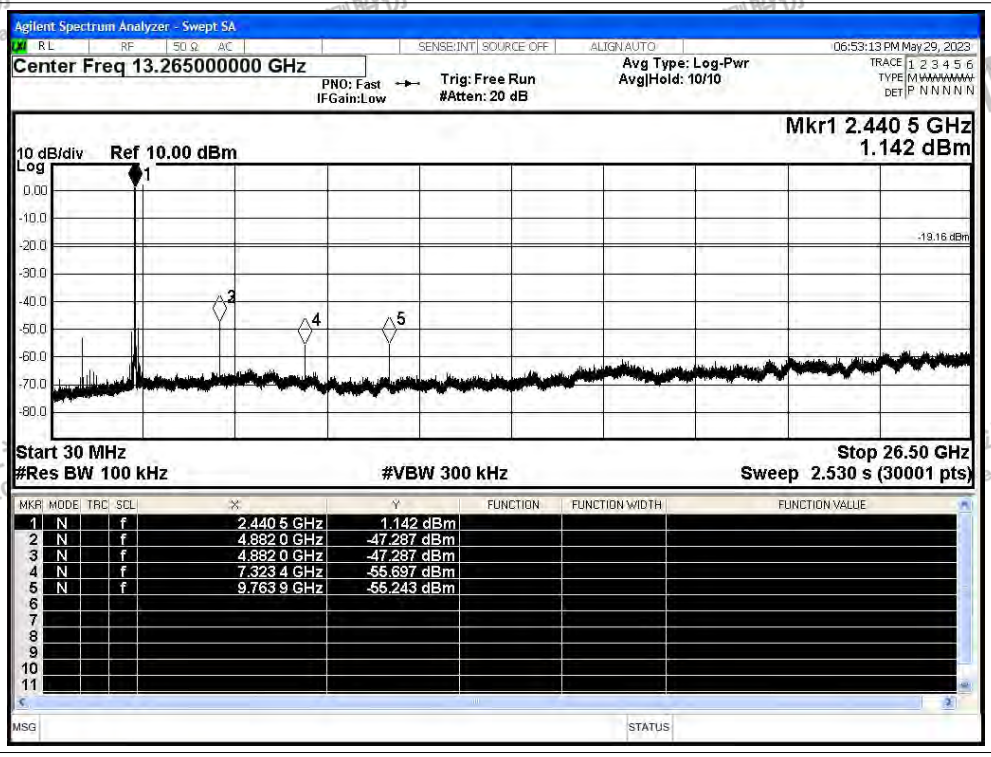

Tx. Spurious NVNT 3-DH5 2402MHz Ant1 Emission



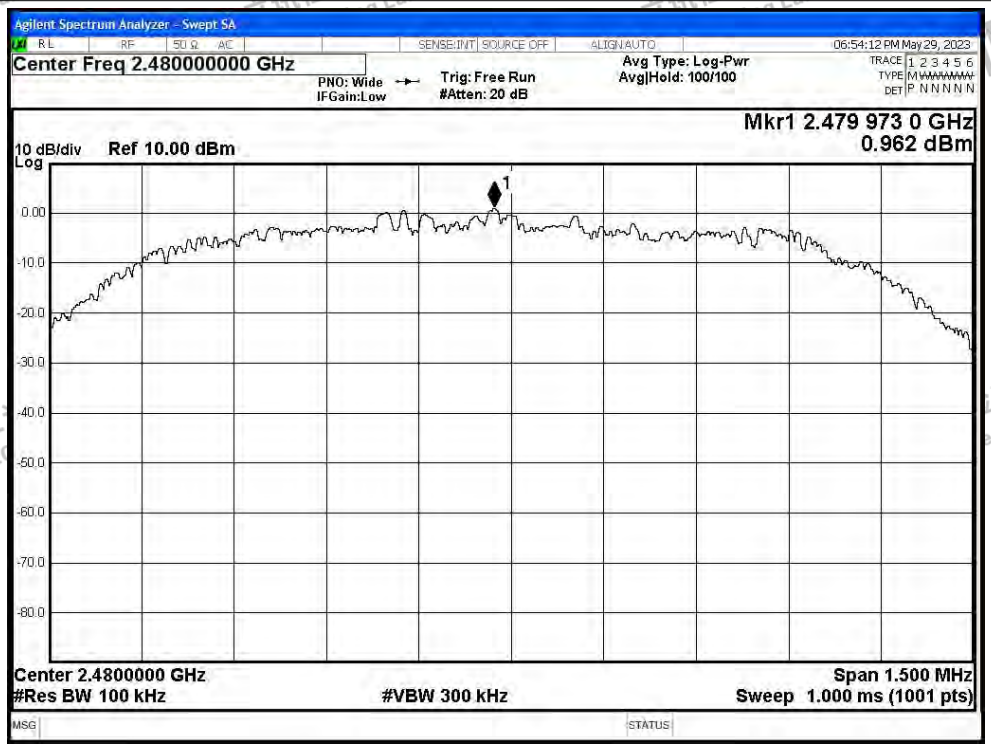
Tx. Spurious NVNT 3-DH5 2441MHz Ant1 Ref



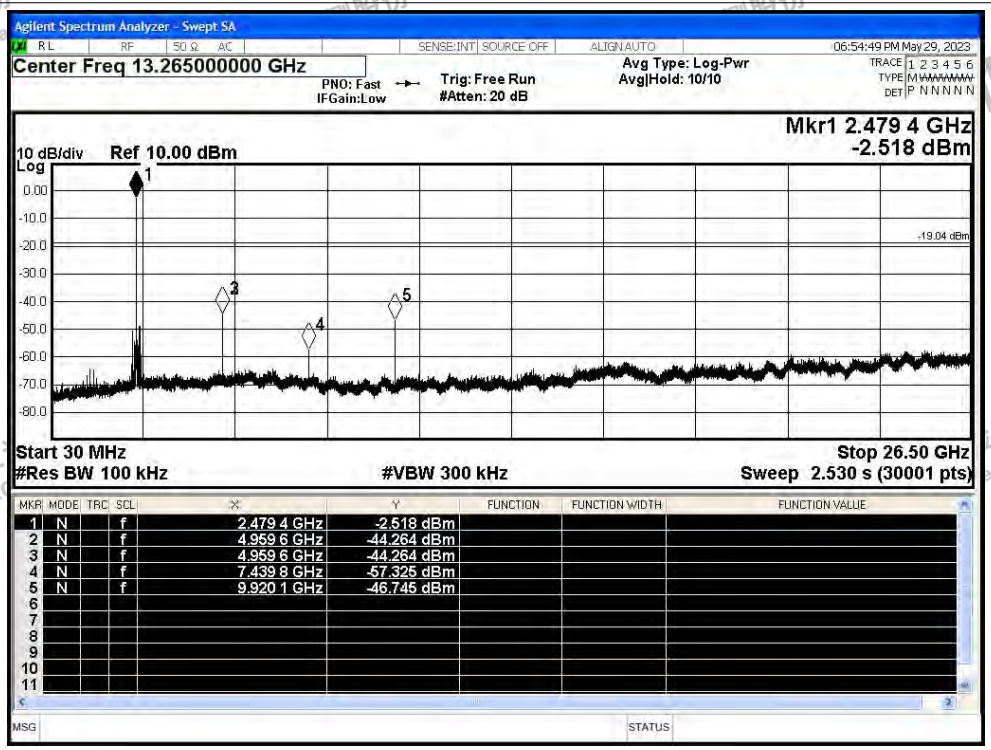

Tx. Spurious NVNT 3-DH5 2441MHz Ant1 Emission



Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Ref




Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Emission

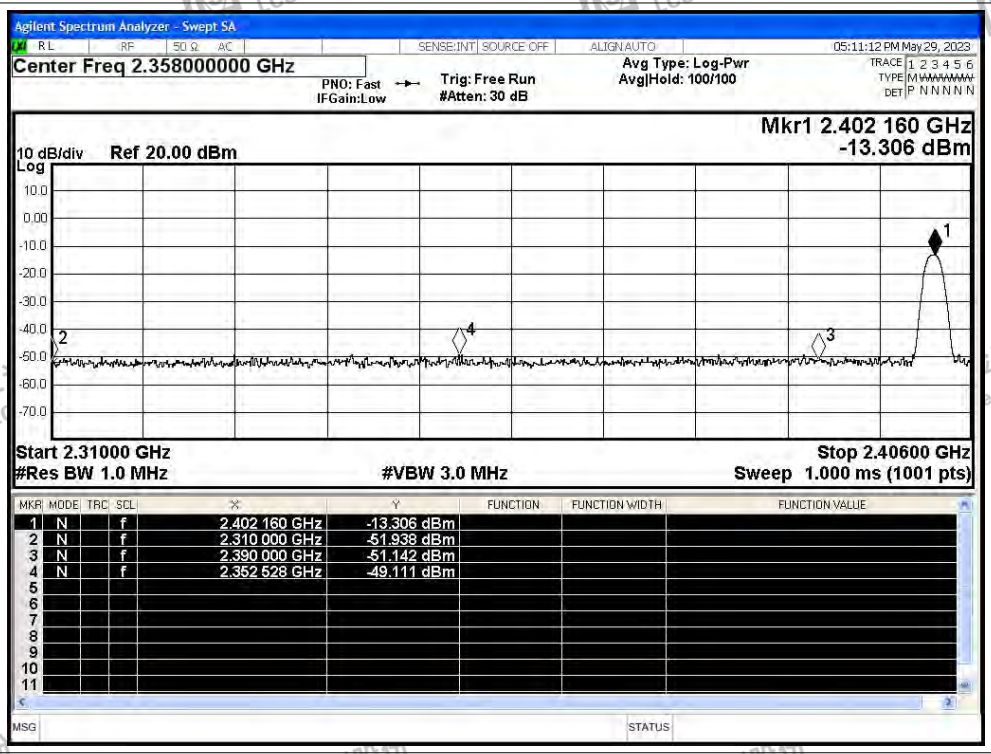


## A.8 Restrict Band

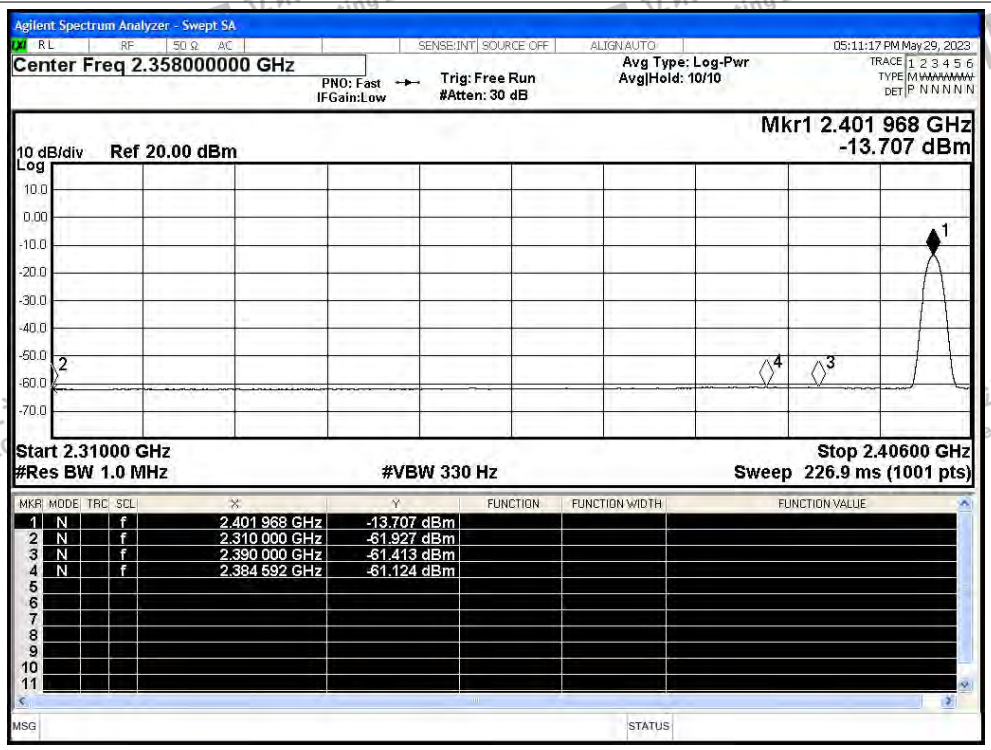
| Condition | Mode | Frequency (MHz) | Antenna | Hopping Mode | Spur Freq (MHz) | Power (dBm) | Gain (dBi) | E (dBuV/m) | Detector | Limit (dBuV/m) | Verdict |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NVNT | 1-DH5 | 2402 | Ant1 | No-Hopping | 2310 | -51.94 | 2 | 45.32 | Peak | 74 | Pass |
| NVNT | 1-DH5 | 2402 | Ant1 | No-Hopping | 2310 | -61.93 | 2 | 35.33 | Average | 54 | Pass |
| NVNT | 1-DH5 | 2402 | Ant1 | No-Hopping | 2352.528 | -49.11 | 2 | 48.15 | Peak | 74 | Pass |
| NVNT | 1-DH5 | 2402 | Ant1 | No-Hopping | 2384.592 | -61.12 | 2 | 36.14 | Average | 54 | Pass |
| NVNT | 1-DH5 | 2402 | Ant1 | No-Hopping | 2390 | -51.14 | 2 | 46.12 | Peak | 74 | Pass |
| NVNT | 1-DH5 | 2402 | Ant1 | No-Hopping | 2390 | -61.41 | 2 | 35.85 | Average | 54 | Pass |
| NVNT | 1-DH5 | 2480 | Ant1 | No-Hopping | 2483.5 | -47.41 | 2 | 49.85 | Peak | 74 | Pass |
| NVNT | 1-DH5 | 2480 | Ant1 | No-Hopping | 2483.5 | -58.95 | 2 | 38.31 | Average | 54 | Pass |
| NVNT | 1-DH5 | 2480 | Ant1 | No-Hopping | 2499.64 | -43.8 | 2 | 53.46 | Peak | 74 | Pass |
| NVNT | 1-DH5 | 2480 | Ant1 | No-Hopping | 2498.896 | -56.05 | 2 | 41.21 | Average | 54 | Pass |
| NVNT | 1-DH5 | 2480 | Ant1 | No-Hopping | 2500 | -46.78 | 2 | 50.48 | Peak | 74 | Pass |
| NVNT | 1-DH5 | 2480 | Ant1 | No-Hopping | 2500 | -56.07 | 2 | 41.19 | Average | 54 | Pass |
| NVNT | 2-DH5 | 2402 | Ant1 | No-Hopping | 2310 | -52.33 | 2 | 44.93 | Peak | 74 | Pass |
| NVNT | 2-DH5 | 2402 | Ant1 | No-Hopping | 2310 | -61.99 | 2 | 35.27 | Average | 54 | Pass |
| NVNT | 2-DH5 | 2402 | Ant1 | No-Hopping | 2379.504 | -44.03 | 2 | 53.23 | Peak | 74 | Pass |
| NVNT | 2-DH5 | 2402 | Ant1 | No-Hopping | 2381.808 | -55.79 | 2 | 41.47 | Average | 54 | Pass |
| NVNT | 2-DH5 | 2402 | Ant1 | No-Hopping | 2390 | -48.16 | 2 | 49.1 | Peak | 74 | Pass |
| NVNT | 2-DH5 | 2402 | Ant1 | No-Hopping | 2390 | -56.82 | 2 | 40.44 | Average | 54 | Pass |
| NVNT | 2-DH5 | 2480 | Ant1 | No-Hopping | 2483.5 | -51.51 | 2 | 45.75 | Peak | 74 | Pass |
| NVNT | 2-DH5 | 2480 | Ant1 | No-Hopping | 2483.5 | -59.39 | 2 | 37.87 | Average | 54 | Pass |
| NVNT | 2-DH5 | 2480 | Ant1 | No-Hopping | 2484.232 | -41.3 | 2 | 55.96 | Peak | 74 | Pass |
| NVNT | 2-DH5 | 2480 | Ant1 | No-Hopping | 2499.76 | -55.73 | 2 | 41.53 | Average | 54 | Pass |
| NVNT | 2-DH5 | 2480 | Ant1 | No-Hopping | 2500 | -46.05 | 2 | 51.21 | Peak | 74 | Pass |
| NVNT | 2-DH5 | 2480 | Ant1 | No-Hopping | 2500 | -55.81 | 2 | 41.45 | Average | 54 | Pass |
| NVNT | 3-DH5 | 2402 | Ant1 | No-Hopping | 2310 | -52.44 | 2 | 44.82 | Peak | 74 | Pass |
| NVNT | 3-DH5 | 2402 | Ant1 | No-Hopping | 2310 | -61.92 | 2 | 35.34 | Average | 54 | Pass |
| NVNT | 3-DH5 | 2402 | Ant1 | No-Hopping | 2384.208 | -44.24 | 2 | 53.02 | Peak | 74 | Pass |
| NVNT | 3-DH5 | 2402 | Ant1 | No-Hopping | 2383.536 | -55.79 | 2 | 41.47 | Average | 54 | Pass |
| NVNT | 3-DH5 | 2402 | Ant1 | No-Hopping | 2390 | -46.88 | 2 | 50.38 | Peak | 74 | Pass |
| NVNT | 3-DH5 | 2402 | Ant1 | No-Hopping | 2390 | -56.9 | 2 | 40.36 | Average | 54 | Pass |
| NVNT | 3-DH5 | 2480 | Ant1 | No-Hopping | 2483.5 | -44.27 | 2 | 52.99 | Peak | 74 | Pass |
| NVNT | 3-DH5 | 2480 | Ant1 | No-Hopping | 2483.5 | -59.36 | 2 | 37.9 | Average | 54 | Pass |
| NVNT | 3-DH5 | 2480 | Ant1 | No-Hopping | 2497.576 | -43.05 | 2 | 54.21 | Peak | 74 | Pass |
| NVNT | 3-DH5 | 2480 | Ant1 | No-Hopping | 2499.736 | -55.75 | 2 | 41.51 | Average | 54 | Pass |
| NVNT | 3-DH5 | 2480 | Ant1 | No-Hopping | 2500 | -46.83 | 2 | 50.43 | Peak | 74 | Pass |
| NVNT | 3-DH5 | 2480 | Ant1 | No-Hopping | 2500 | -55.98 | 2 | 41.28 | Average | 54 | Pass |

Test Graphs

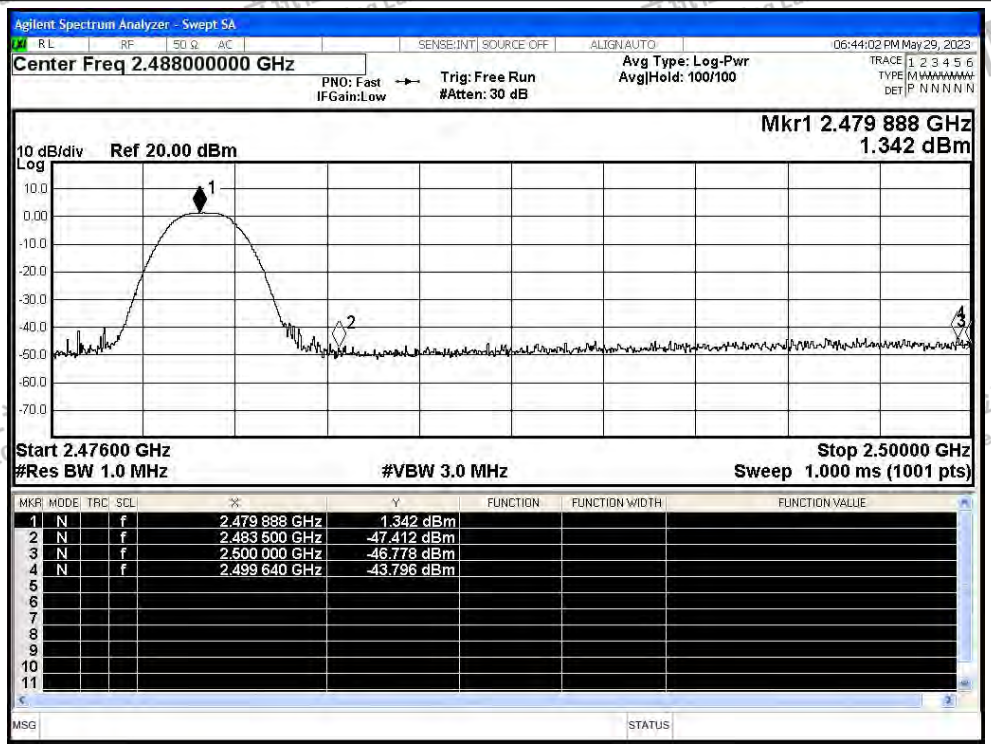
Restrict Band NVNT 1-DH5 2402MHz Ant1 No-Hopping Peak



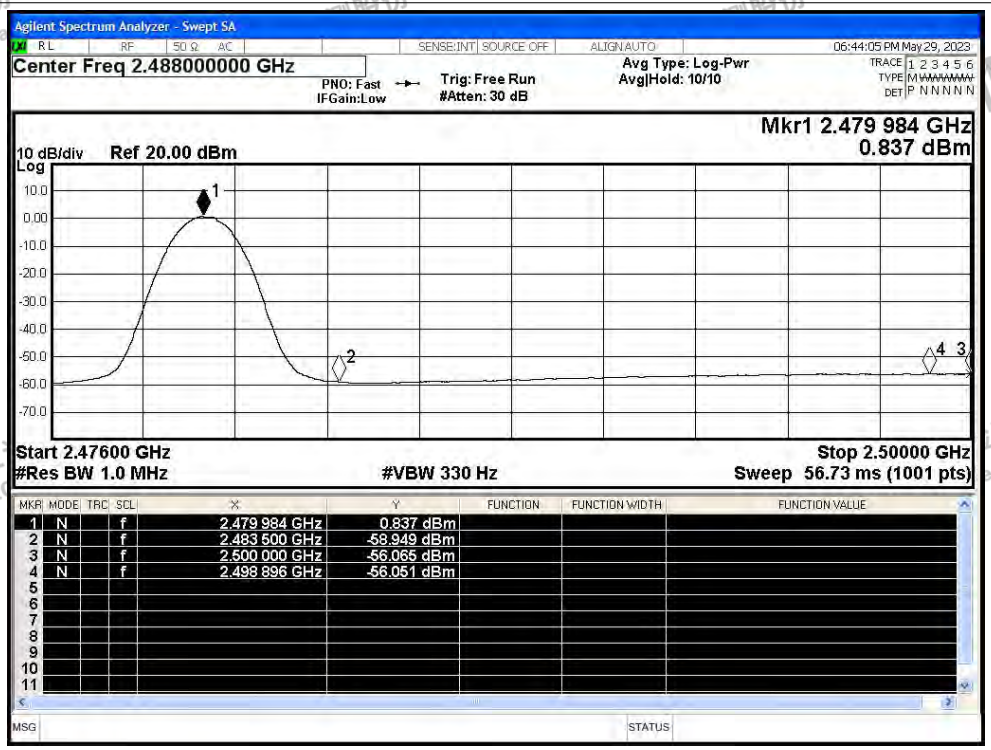

Restrict Band NVNT 1-DH5 2402MHz Ant1 No-Hopping Average



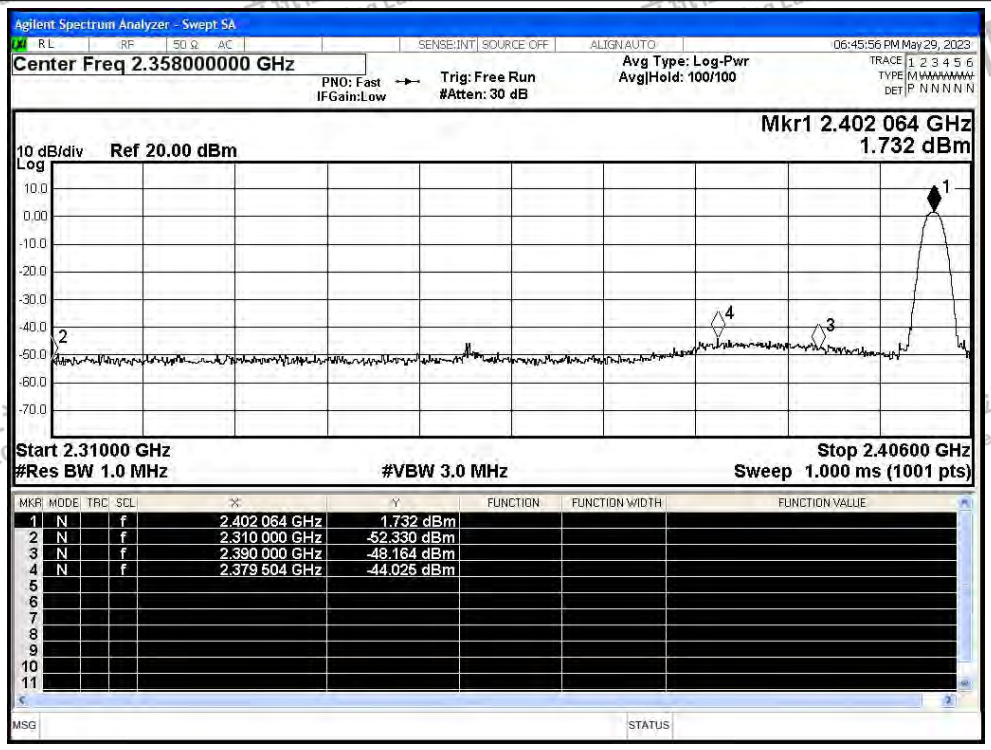
Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Peak



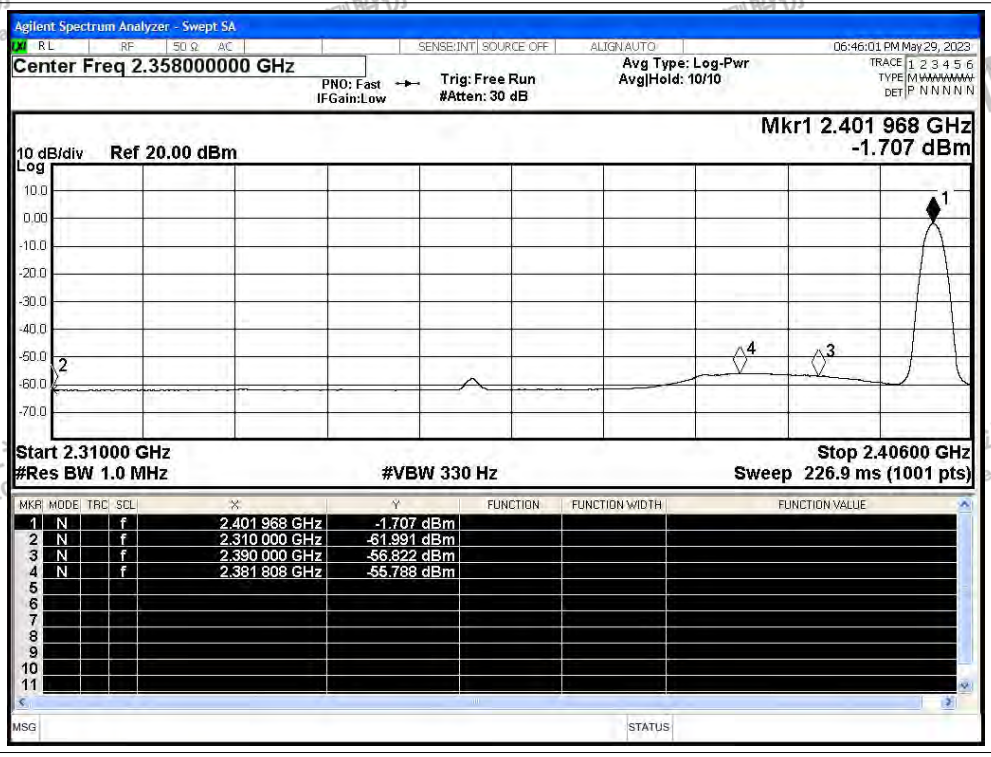

Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Average



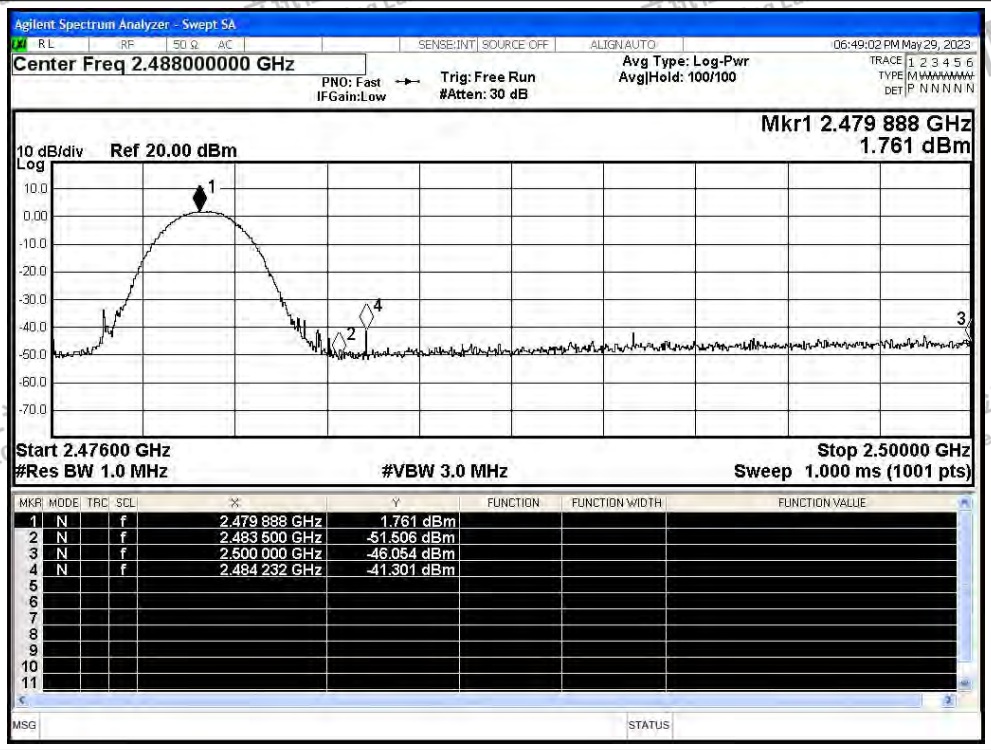
Restrict Band NVNT 2-DH5 2402MHz Ant1 No-Hopping Peak



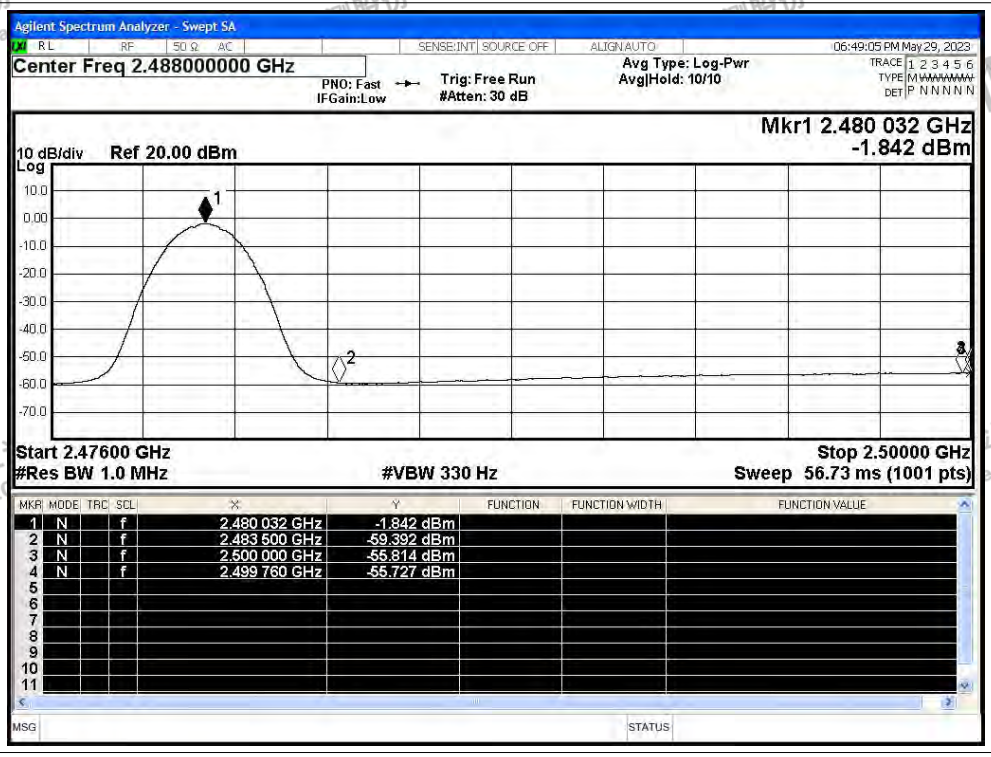

Restrict Band NVNT 2-DH5 2402MHz Ant1 No-Hopping Average



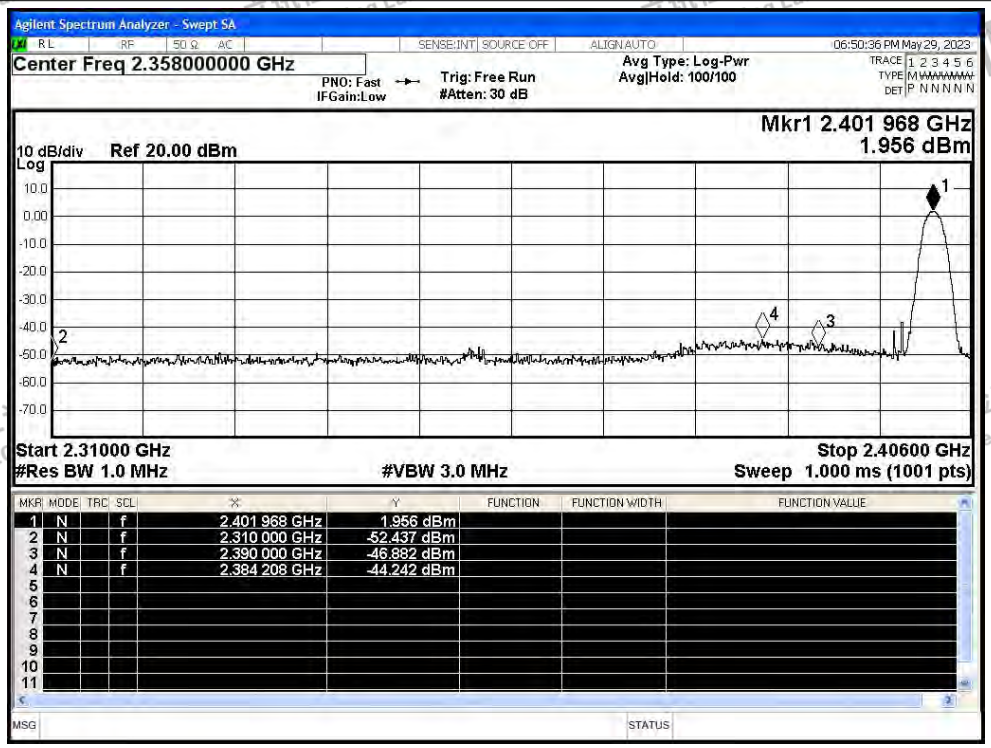
Restrict Band NVNT 2-DH5 2480MHz Ant1 No-Hopping Peak



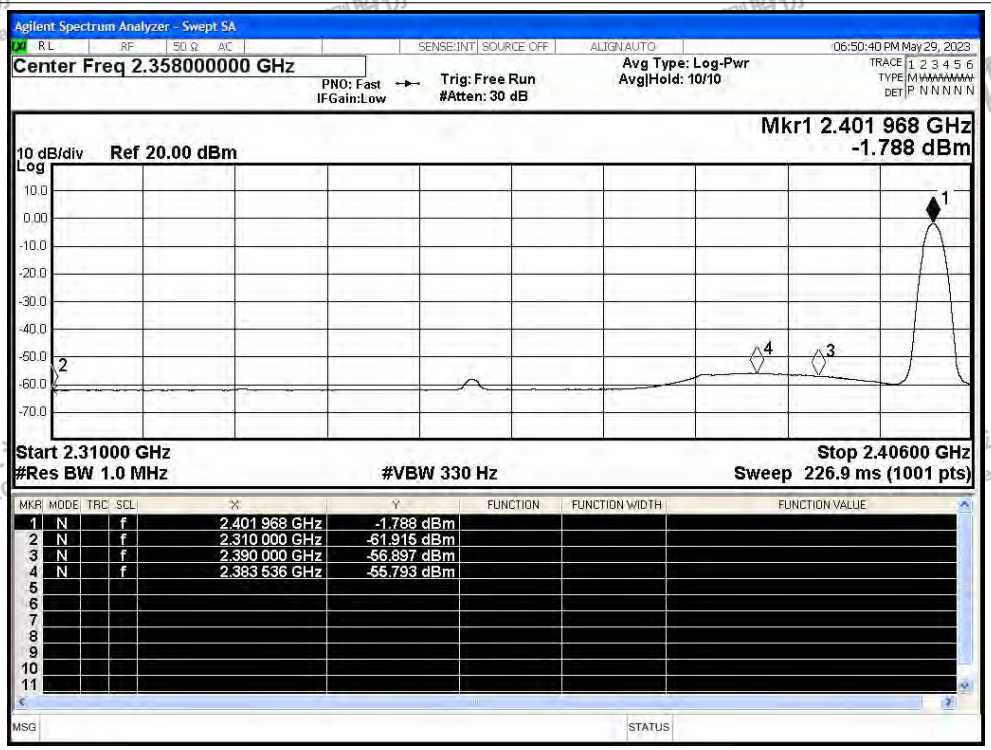

Restrict Band NVNT 2-DH5 2480MHz Ant1 No-Hopping Average



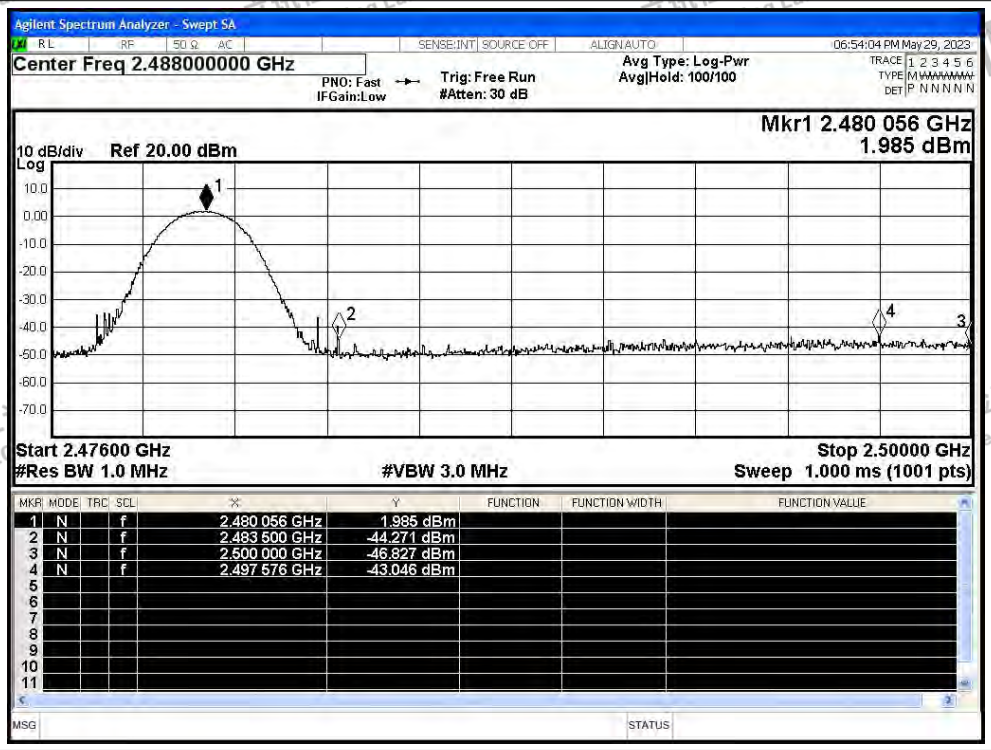
Restrict Band NVNT 3-DH5 2402MHz Ant1 No-Hopping Peak

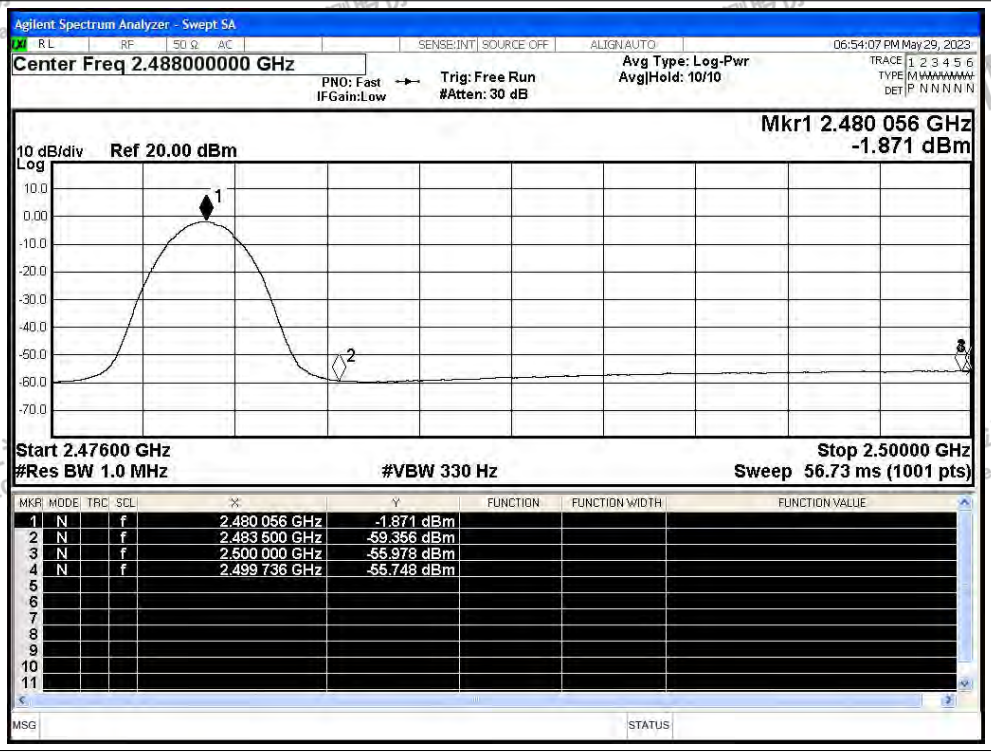



Restrict Band NVNT 3-DH5 2402MHz Ant1 No-Hopping Average



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




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