# Appendix A

## RF Test Data for BT (Conducted Measurement)

**Product Name: Smart Phone**

**Test Model: ONE**

**Environmental Conditions**

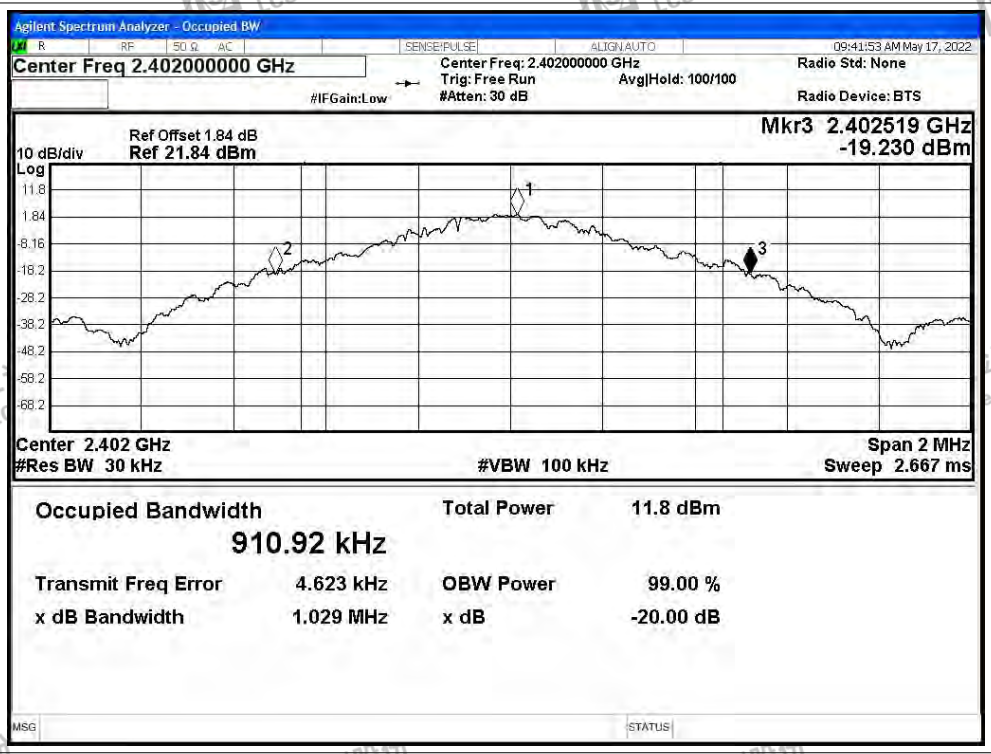
| | |
|---|---|
| Temperature: | 23.5° C |
| Relative Humidity: | 52.2% |
| ATM Pressure: | 100.0 kPa |
| Test Engineer: | Ling Zhu |
| Supervised by: | Li huan |

# A.1 -20dB Bandwidth

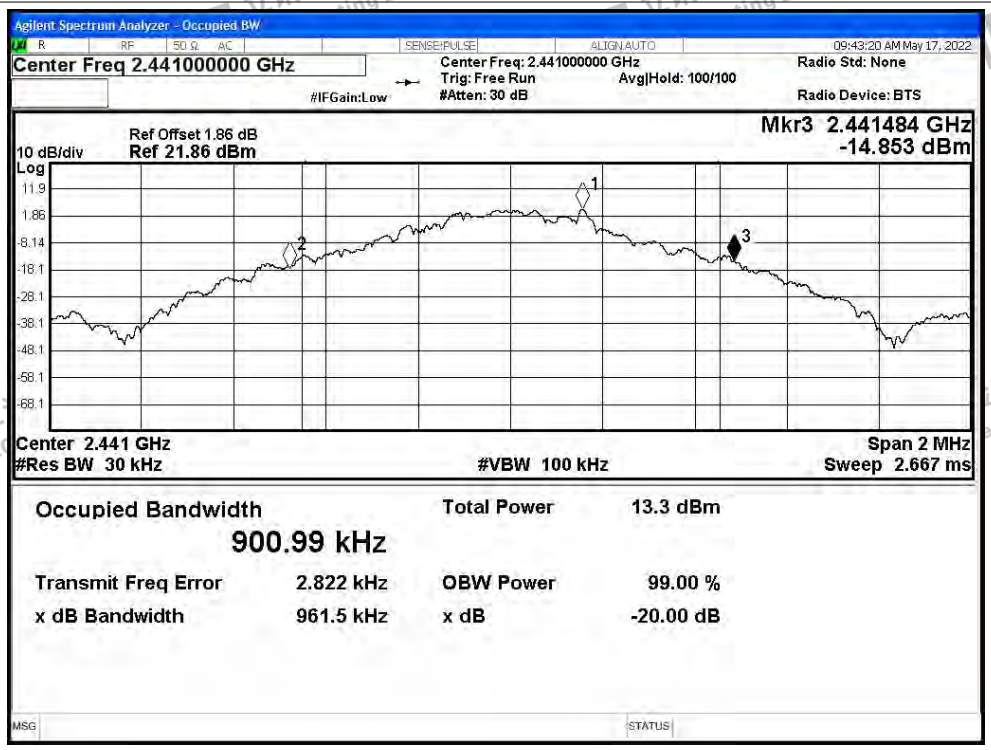
| Condition | Mode | Frequency (MHz) | Antenna | -20 dB Bandwidth (MHz) | Limit -20 dB Bandwidth (MHz) | Verdict |
|---|---|---|---|---|---|---|
| NVNT | 1-DH5 | 2402 | Ant1 | 1.029 | 0 | Pass |
| NVNT | 1-DH5 | 2441 | Ant1 | 0.961 | 0 | Pass |
| NVNT | 1-DH5 | 2480 | Ant1 | 1.031 | 0 | Pass |
| NVNT | 2-DH5 | 2402 | Ant1 | 1.326 | 0 | Pass |
| NVNT | 2-DH5 | 2441 | Ant1 | 1.318 | 0 | Pass |
| NVNT | 2-DH5 | 2480 | Ant1 | 1.311 | 0 | Pass |
| NVNT | 3-DH5 | 2402 | Ant1 | 1.293 | 0 | Pass |
| NVNT | 3-DH5 | 2441 | Ant1 | 1.299 | 0 | Pass |
| NVNT | 3-DH5 | 2480 | Ant1 | 1.293 | 0 | Pass |

Test Graphs

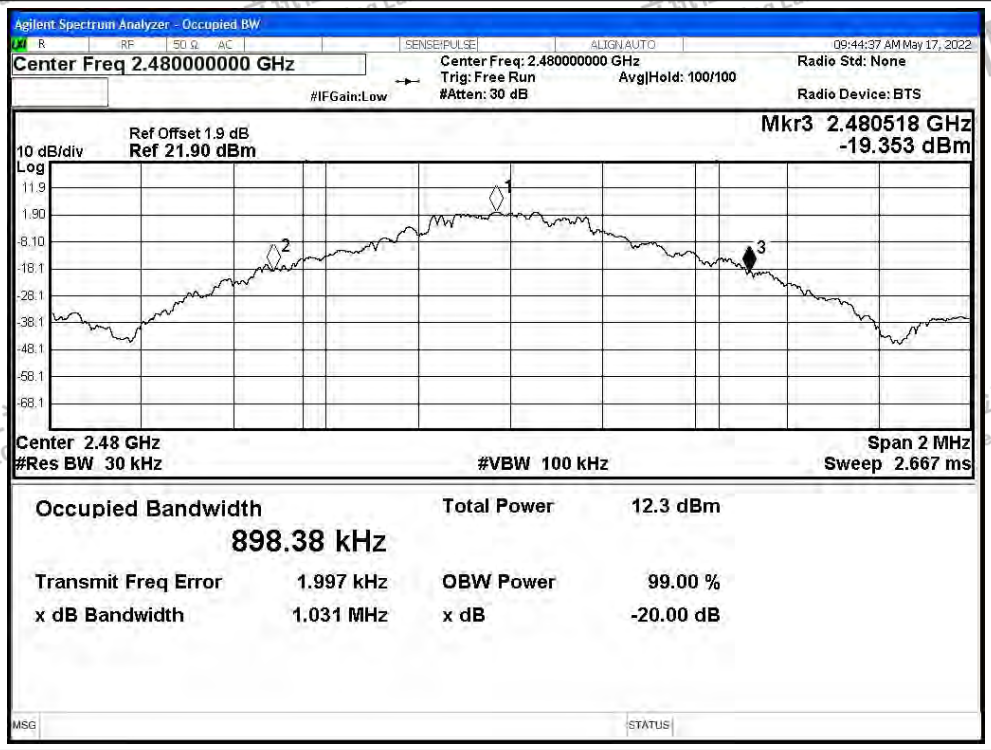
-20dB Bandwidth NVNT 1-DH5 2402MHz Ant1



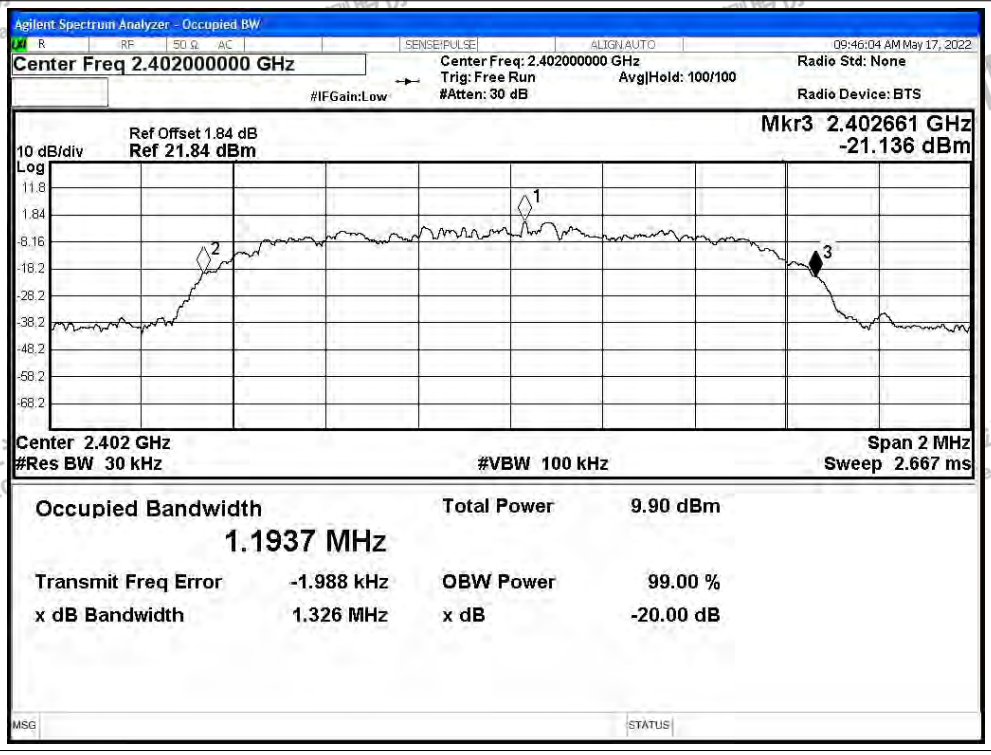

-20dB Bandwidth NVNT 1-DH5 2441MHz Ant1



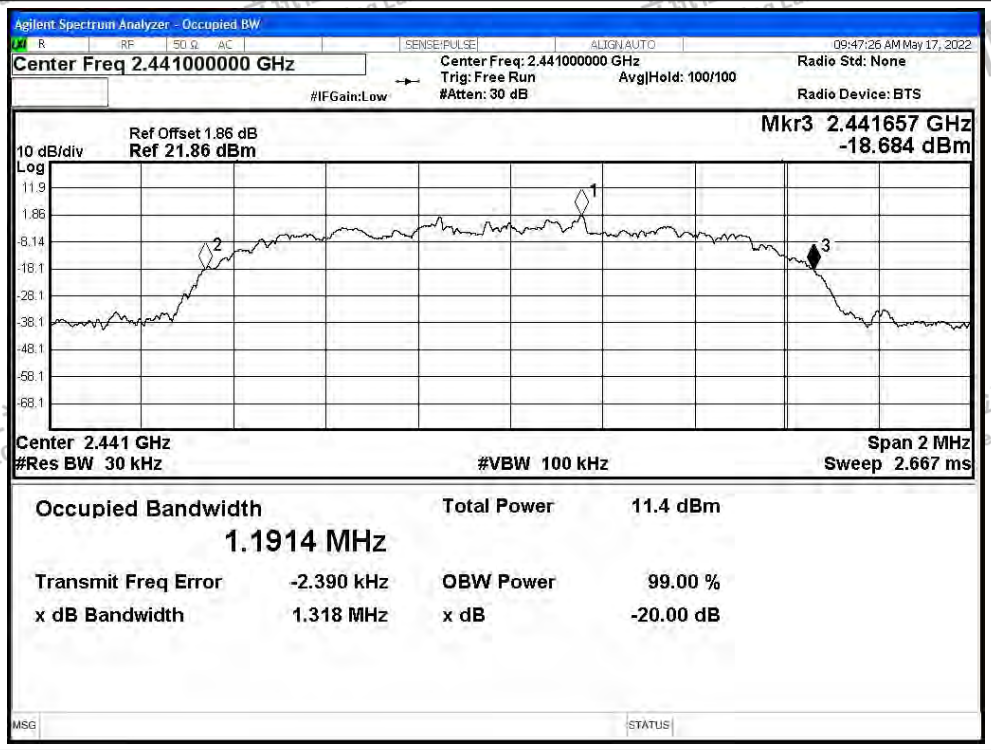
-20dB Bandwidth NVNT 1-DH5 2480MHz Ant1



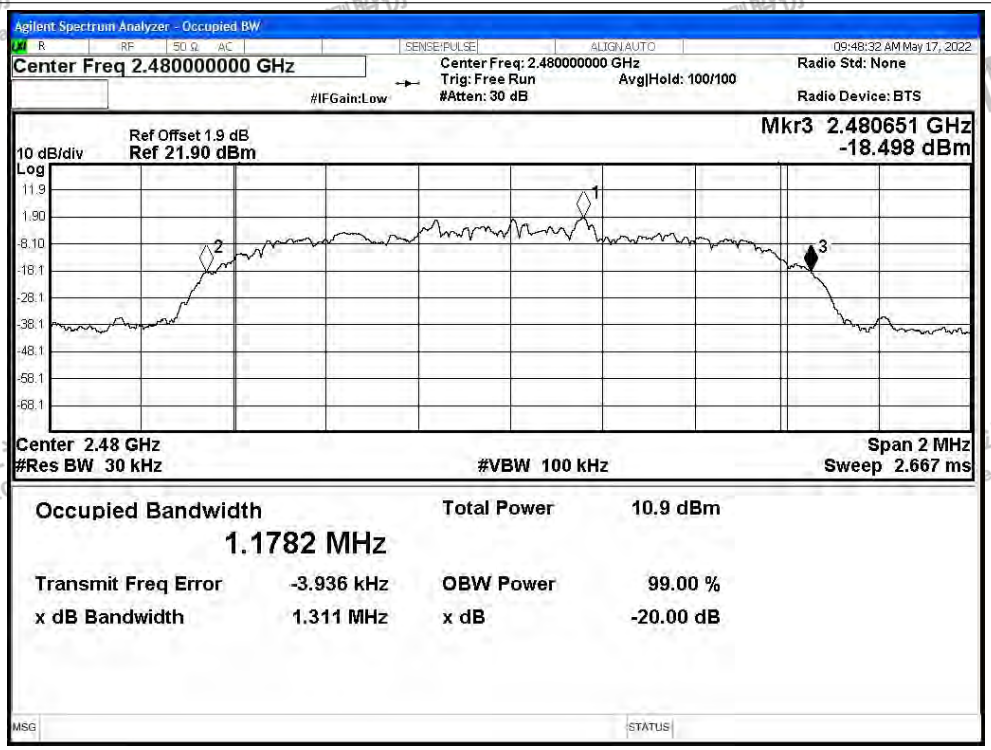

-20dB Bandwidth NVNT 2-DH5 2402MHz Ant1



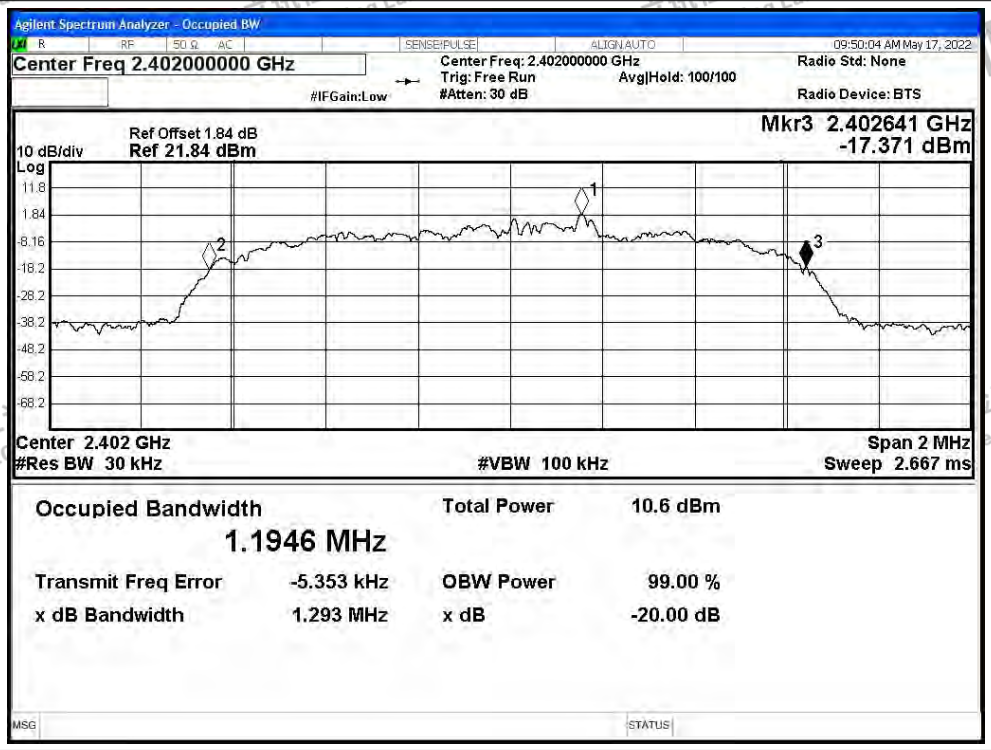
-20dB Bandwidth NVNT 2-DH5 2441MHz Ant1



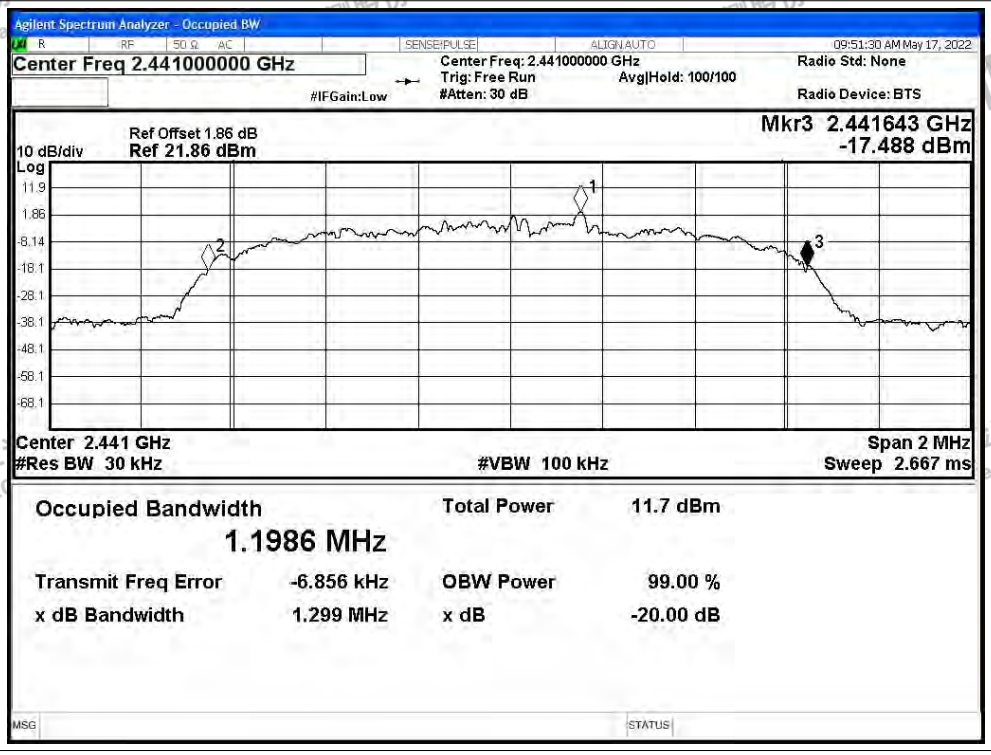

-20dB Bandwidth NVNT 2-DH5 2480MHz Ant1



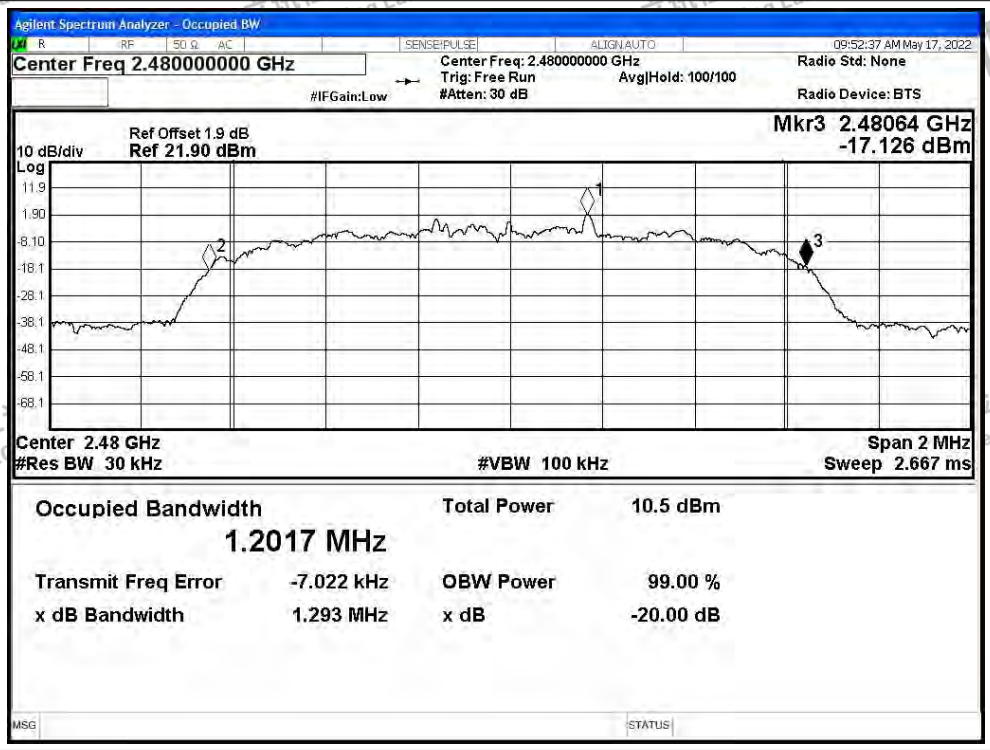
-20dB Bandwidth NVNT 3-DH5 2402MHz Ant1




-20dB Bandwidth NVNT 3-DH5 2441MHz Ant1



-20dB Bandwidth NVNT 3-DH5 2480MHz Ant1

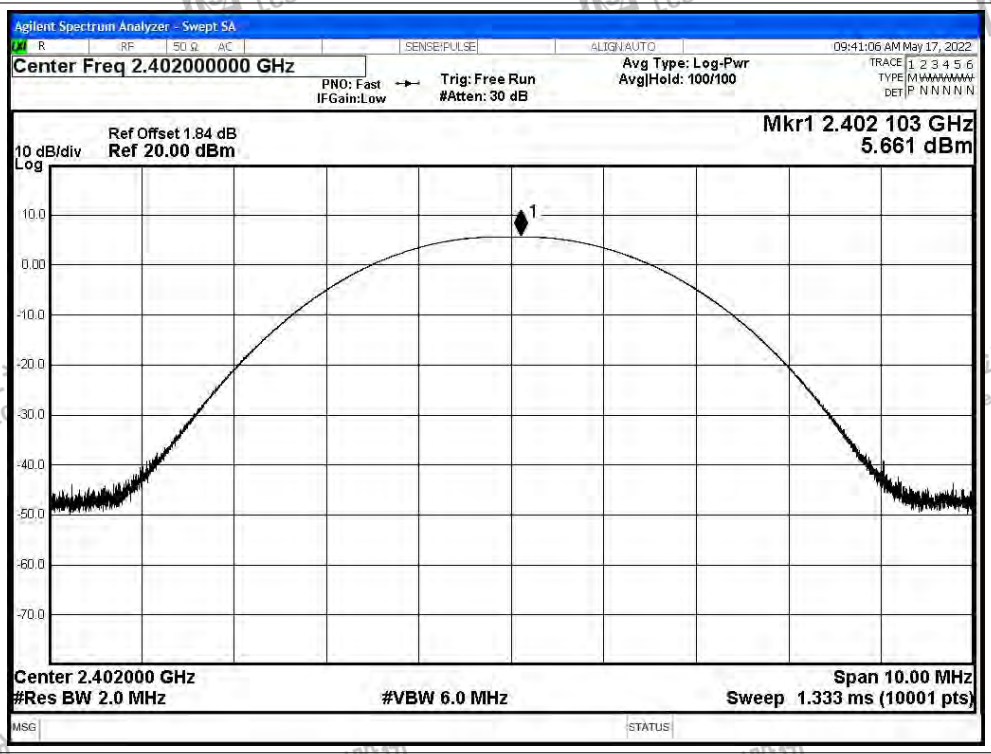


# A.2 Maximum Conducted Output Power

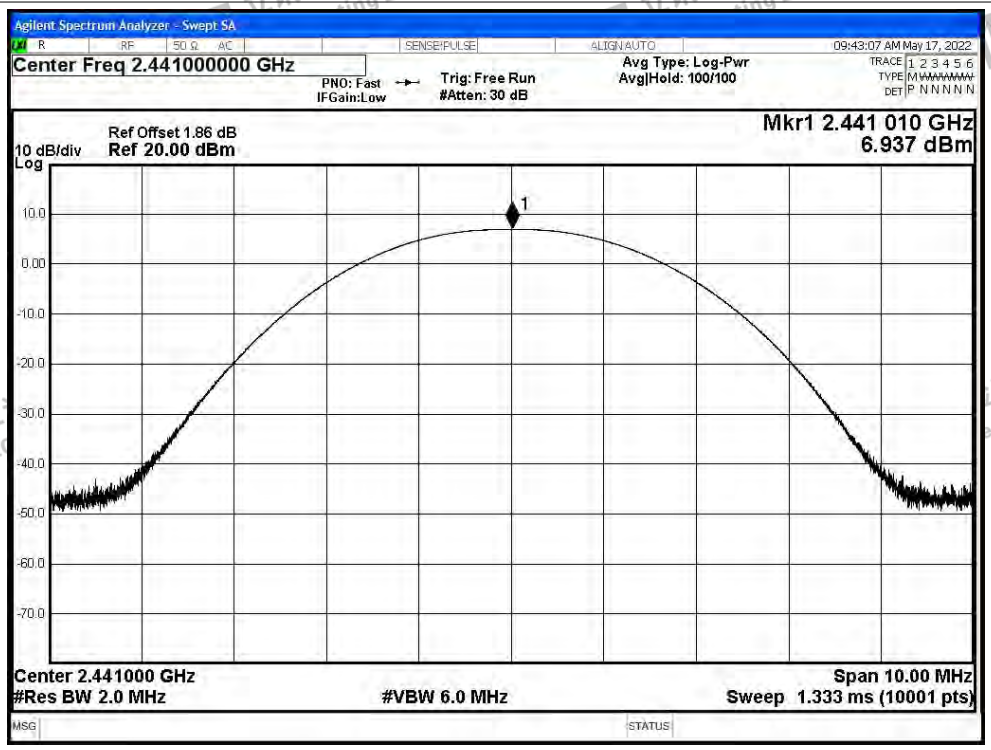
| Condition | Mode | Frequency (MHz) | Antenna | Conducted Power (dBm) | Limit (dBm) | Verdict |
|---|---|---|---|---|---|---|
| NVNT | 1-DH5 | 2402 | Ant1 | 5.66 | 21 | Pass |
| NVNT | 1-DH5 | 2441 | Ant1 | 6.94 | 21 | Pass |
| NVNT | 1-DH5 | 2480 | Ant1 | 6.03 | 21 | Pass |
| NVNT | 2-DH5 | 2402 | Ant1 | 5.53 | 21 | Pass |
| NVNT | 2-DH5 | 2441 | Ant1 | 6.74 | 21 | Pass |
| NVNT | 2-DH5 | 2480 | Ant1 | 5.82 | 21 | Pass |
| NVNT | 3-DH5 | 2402 | Ant1 | 5.57 | 21 | Pass |
| NVNT | 3-DH5 | 2441 | Ant1 | 6.84 | 21 | Pass |
| NVNT | 3-DH5 | 2480 | Ant1 | 5.91 | 21 | Pass |

Test Graphs

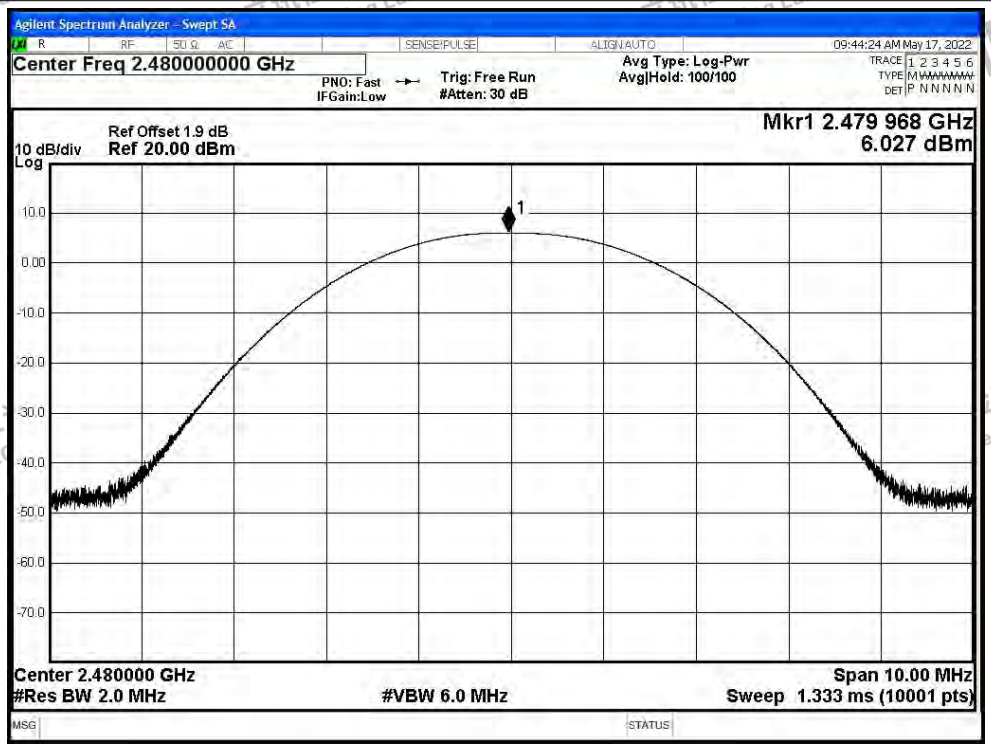
Power NVNT 1-DH5 2402MHz Ant1



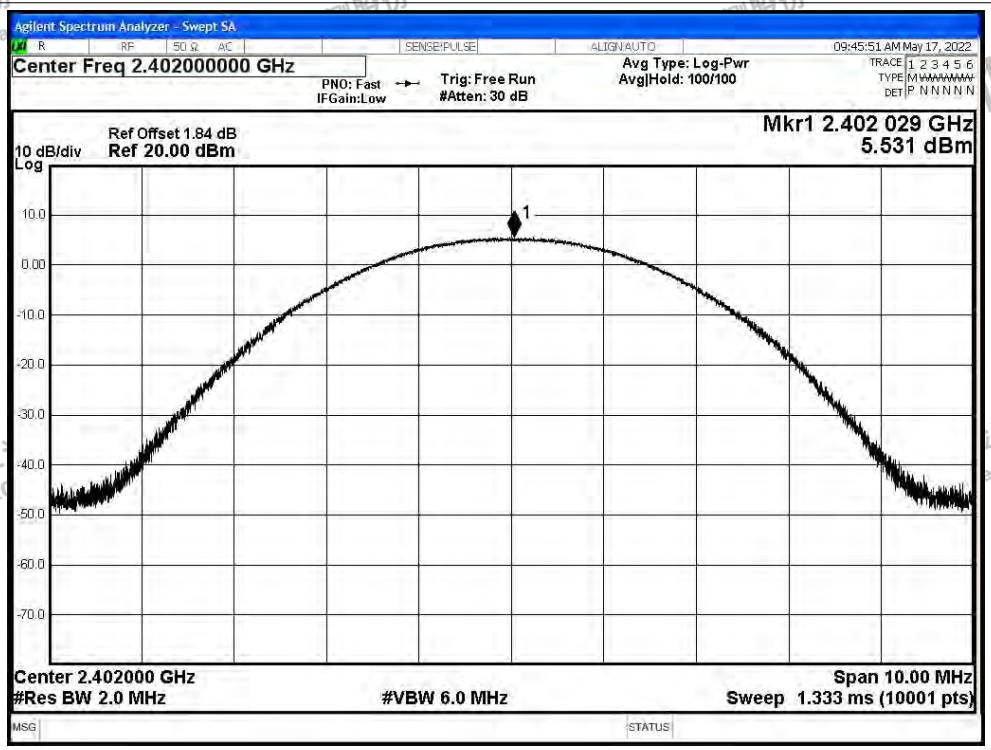

Power NVNT 1-DH5 2441MHz Ant1



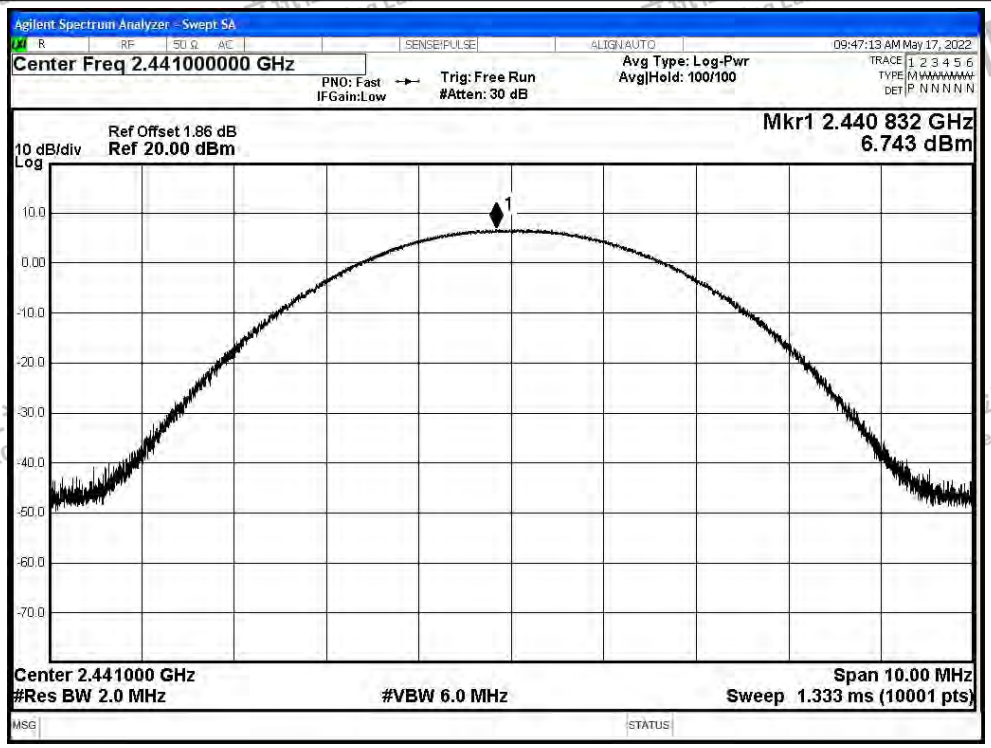
Power NVNT 1-DH5 2480MHz Ant1



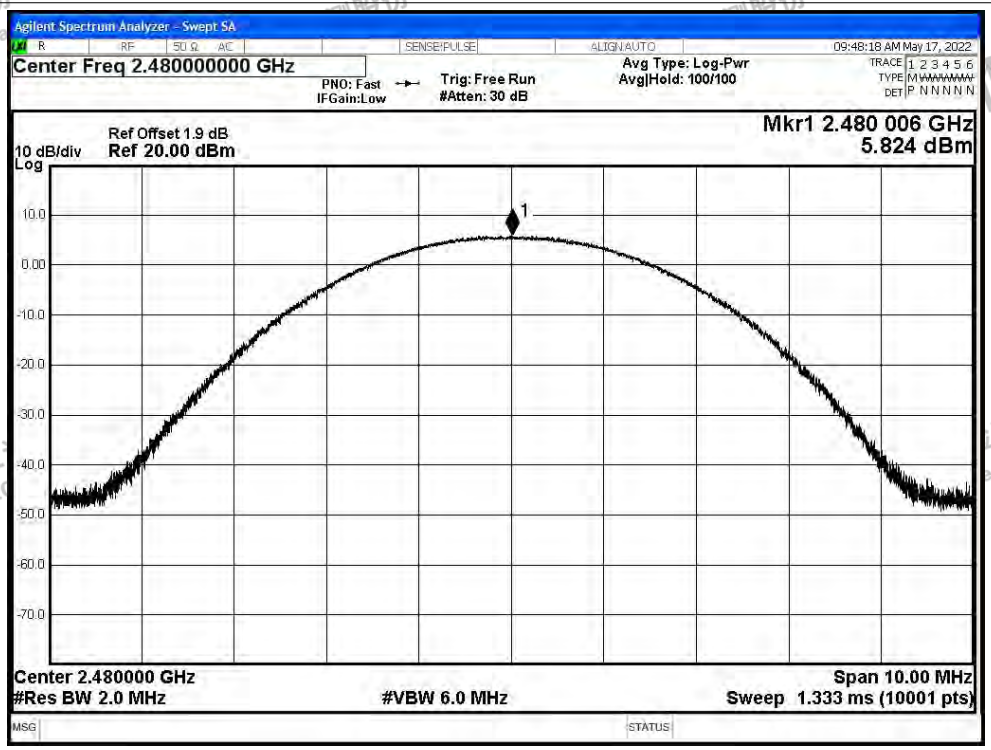

Power NVNT 2-DH5 2402MHz Ant1



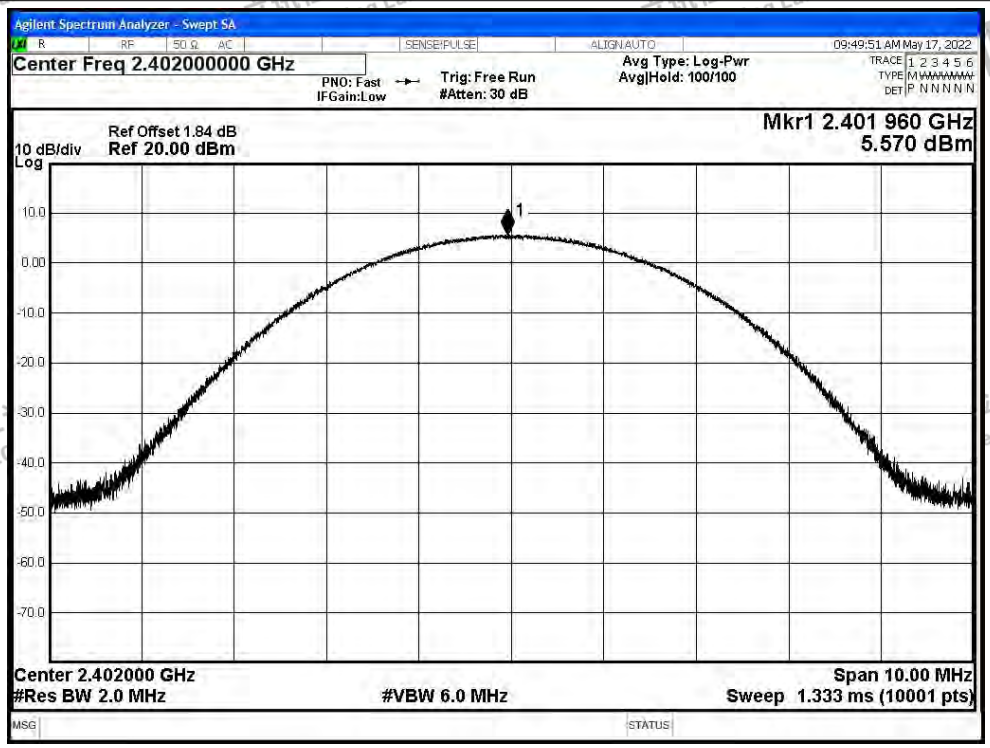
Power NVNT 2-DH5 2441MHz Ant1



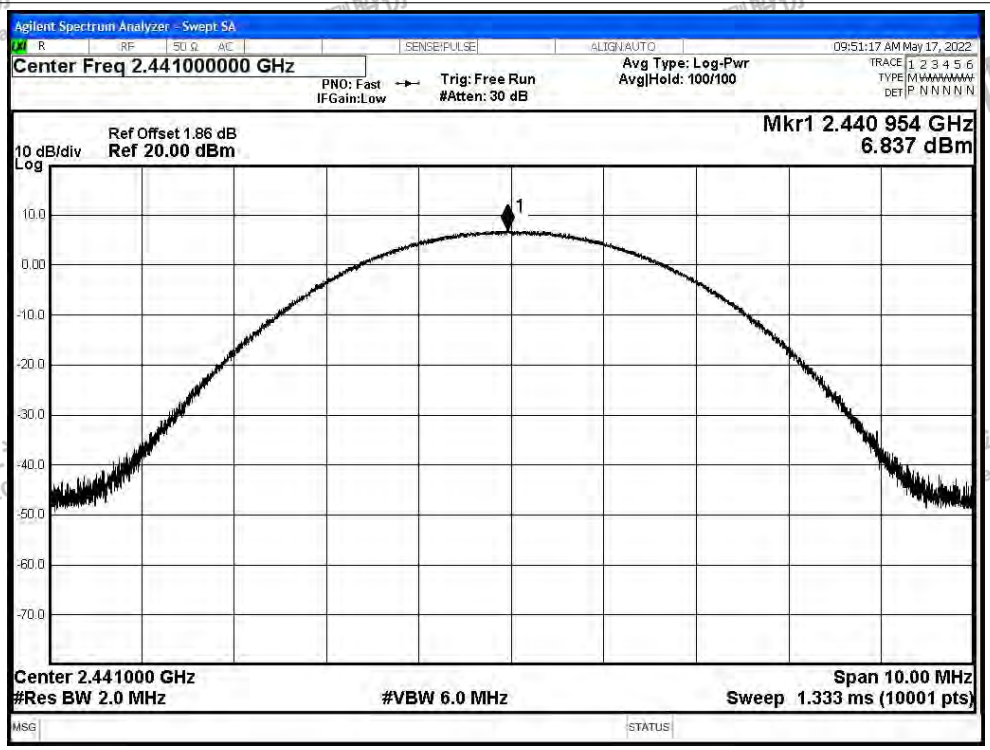

Power NVNT 2-DH5 2480MHz Ant1



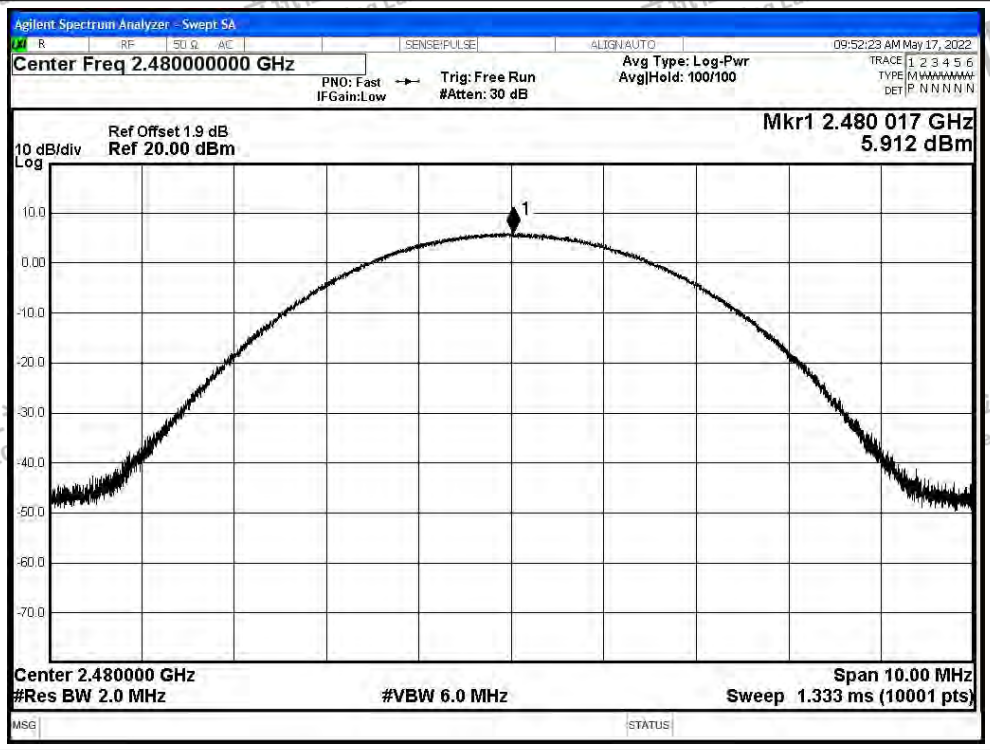
Power NVNT 3-DH5 2402MHz Ant1




Power NVNT 3-DH5 2441MHz Ant1



Power NVNT 3-DH5 2480MHz Ant1

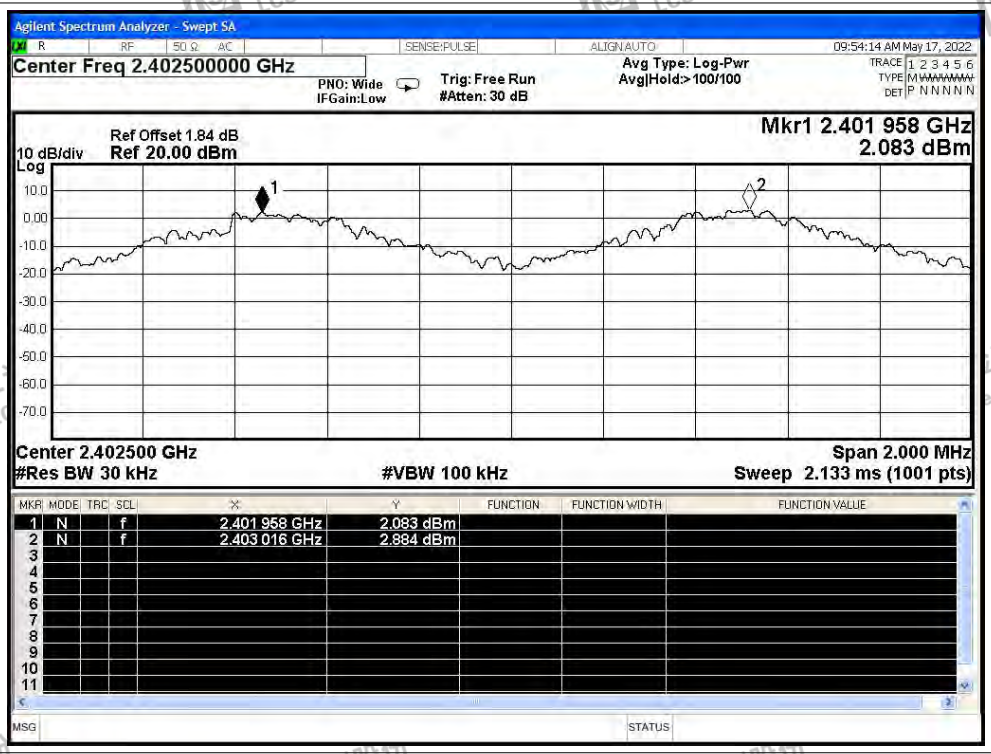


# A.3 Carrier Frequencies Separation

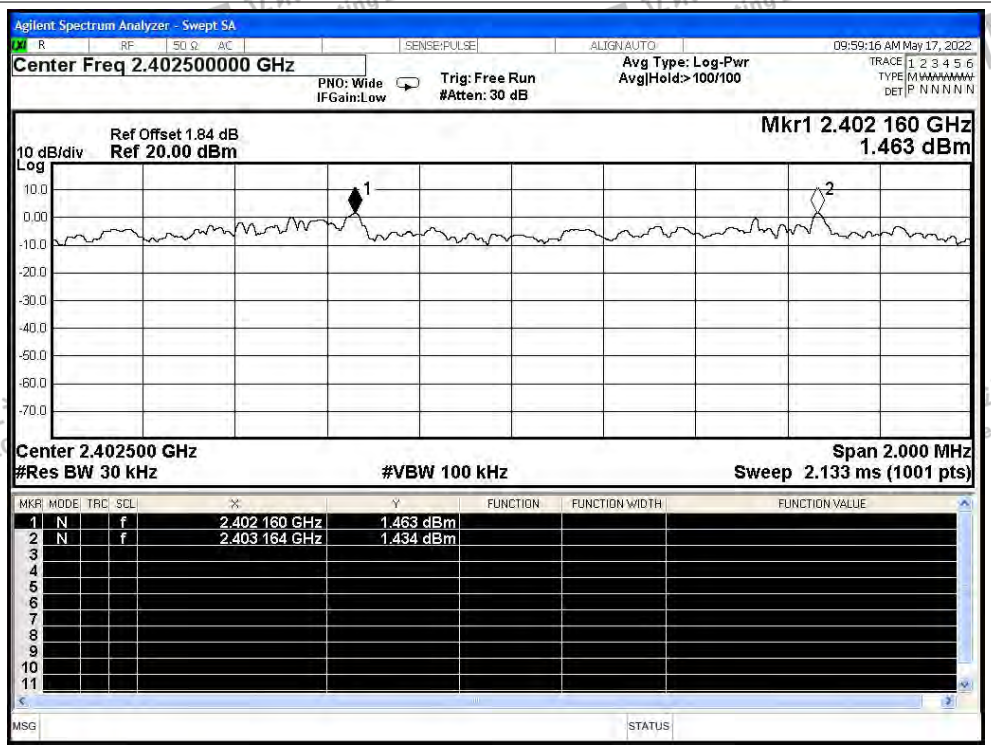
| Condition | Mode | Antenna | Hopping Freq1 (MHz) | Hopping Freq2 (MHz) | HFS (MHz) | Limit (MHz) | Verdict |
|---|---|---|---|---|---|---|---|
| NVNT | 1-DH5 | Ant1 | 2401.958 | 2403.016 | 1.058 | 0.686 | Pass |
| NVNT | 2-DH5 | Ant1 | 2402.16 | 2403.164 | 1.004 | 0.884 | Pass |
| NVNT | 3-DH5 | Ant1 | 2402.152 | 2403.036 | 0.884 | 0.862 | Pass |

Test Graphs

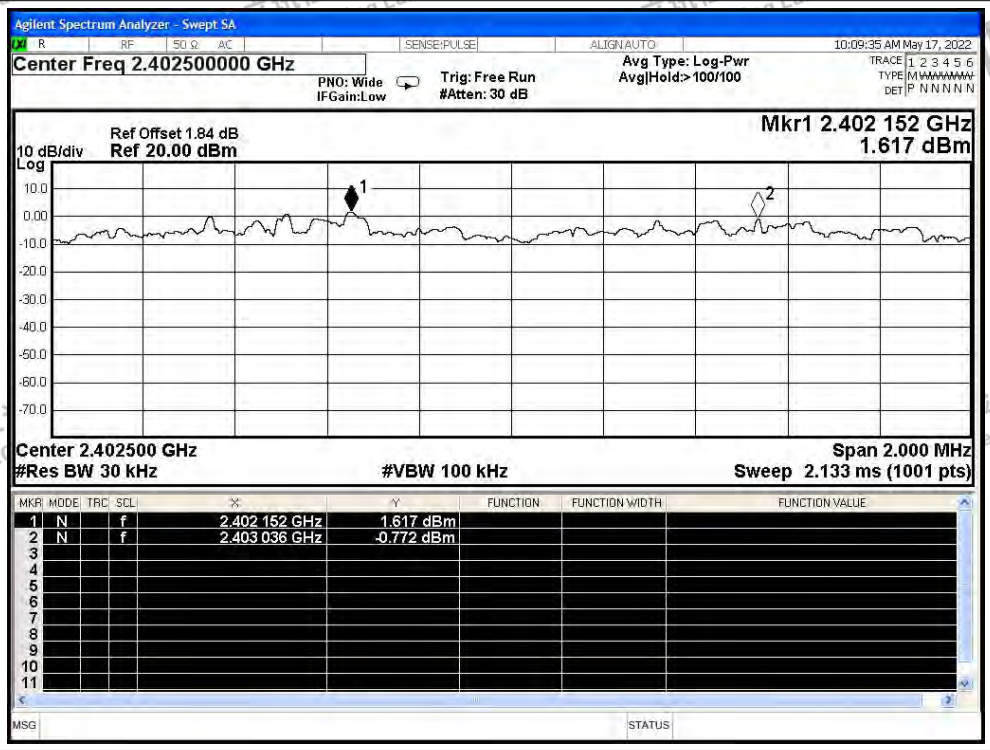
CFS NVNT 1-DH5 2402MHz Ant1




CFS NVNT 2-DH5 2402MHz Ant1



CFS NVNT 3-DH5 2402MHz Ant1

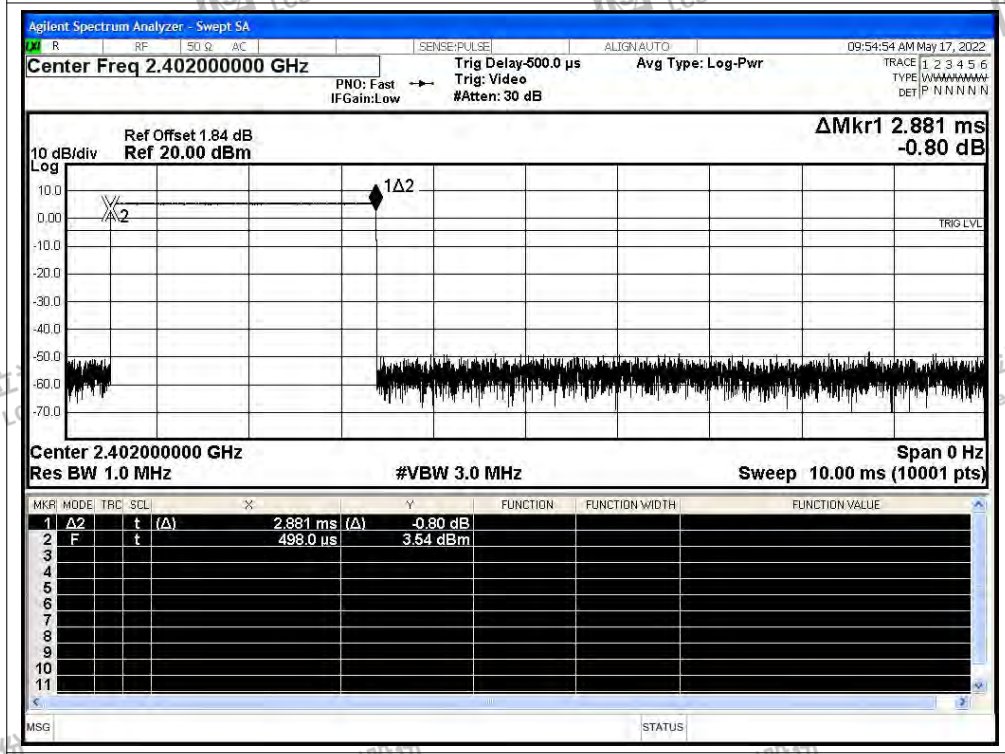


## A.4 Dwell Time

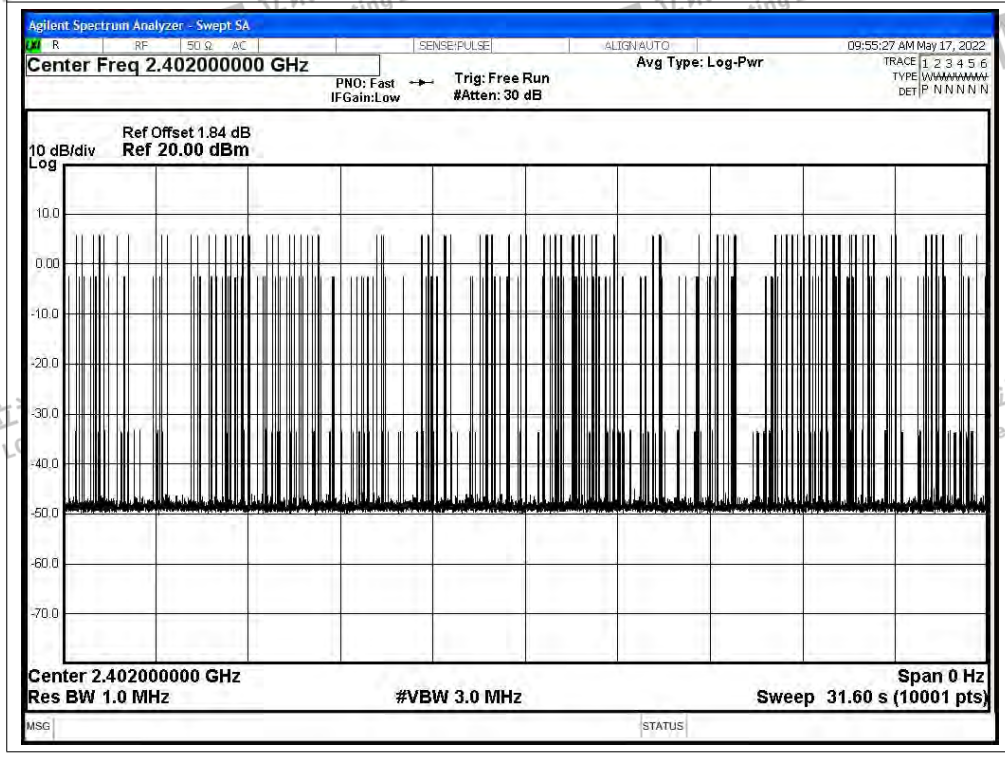
| Condition | Mode | Frequency (MHz) | Antenna | Pulse Time (ms) | Total Dwell Time (ms) | Burst Count | Period Time (ms) | Limit (ms) | Verdict |
|---|---|---|---|---|---|---|---|---|---|
| NVNT | 1-DH5 | 2402 | Ant1 | 2.881 | 311.148 | 108 | 31600 | 400 | Pass |
| NVNT | 1-DH5 | 2441 | Ant1 | 2.882 | 282.436 | 98 | 31600 | 400 | Pass |
| NVNT | 1-DH5 | 2480 | Ant1 | 2.882 | 342.958 | 119 | 31600 | 400 | Pass |
| NVNT | 2-DH5 | 2402 | Ant1 | 2.88 | 331.2 | 115 | 31600 | 400 | Pass |
| NVNT | 2-DH5 | 2441 | Ant1 | 2.883 | 305.598 | 106 | 31600 | 400 | Pass |
| NVNT | 2-DH5 | 2480 | Ant1 | 2.885 | 305.81 | 106 | 31600 | 400 | Pass |
| NVNT | 3-DH5 | 2402 | Ant1 | 2.887 | 337.779 | 117 | 31600 | 400 | Pass |
| NVNT | 3-DH5 | 2441 | Ant1 | 2.884 | 305.704 | 106 | 31600 | 400 | Pass |
| NVNT | 3-DH5 | 2480 | Ant1 | 2.884 | 323.008 | 112 | 31600 | 400 | Pass |

Test Graphs

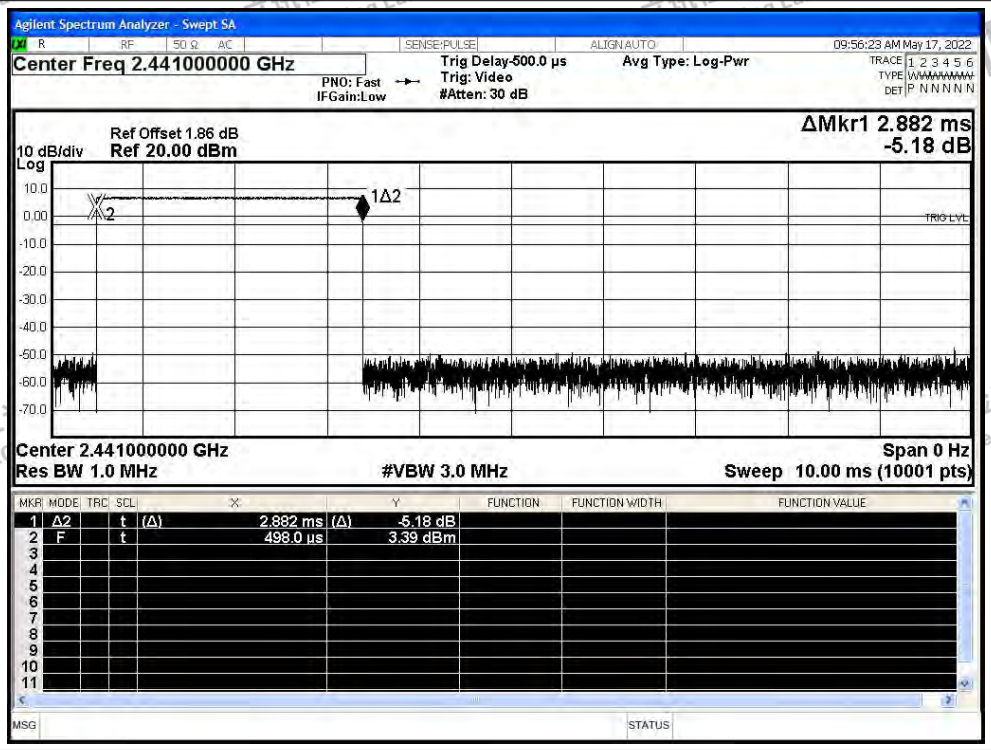
Dwell NVNT 1-DH5 2402MHz Ant1 One Burst



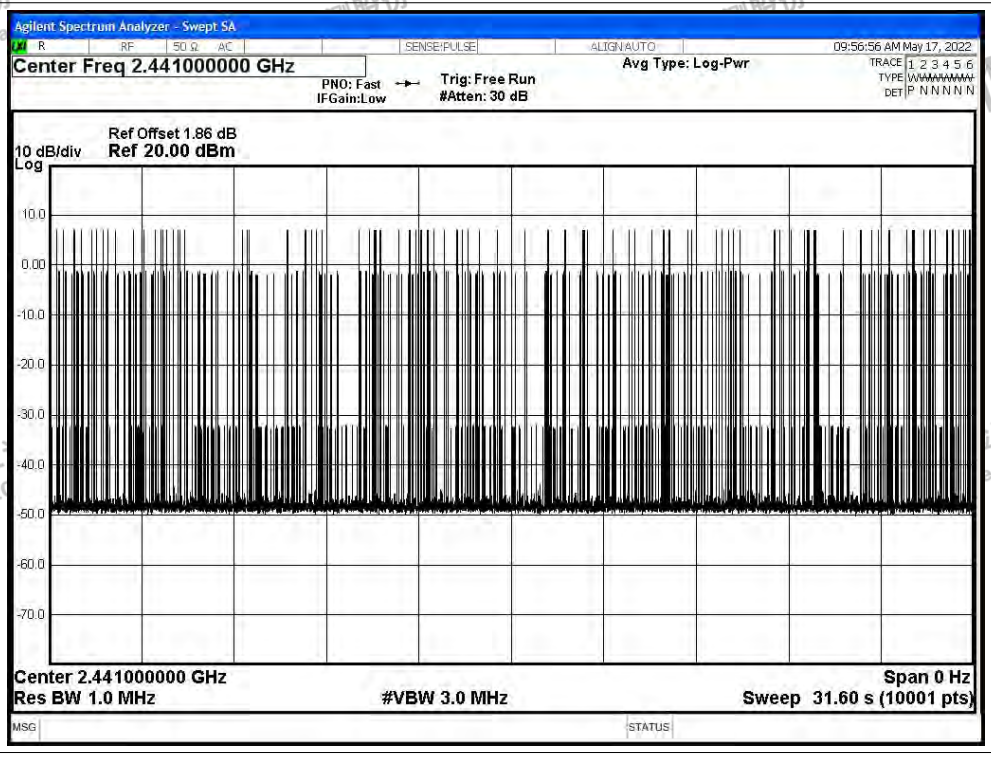

Dwell NVNT 1-DH5 2402MHz Ant1 Accumulated



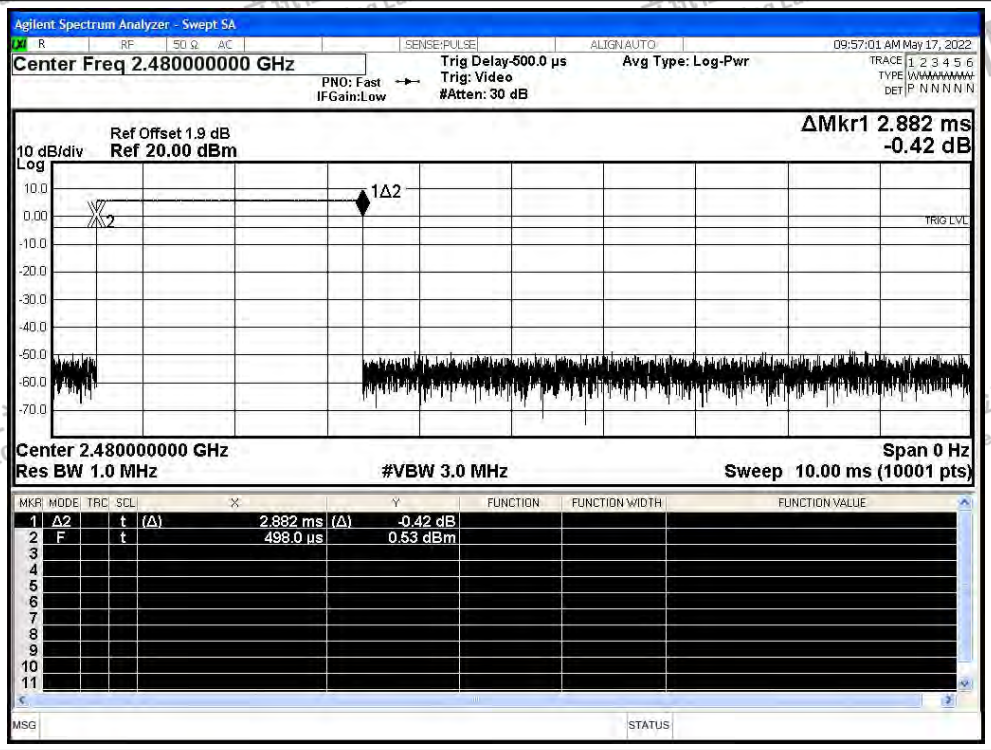
Dwell NVNT 1-DH5 2441MHz Ant1 One Burst



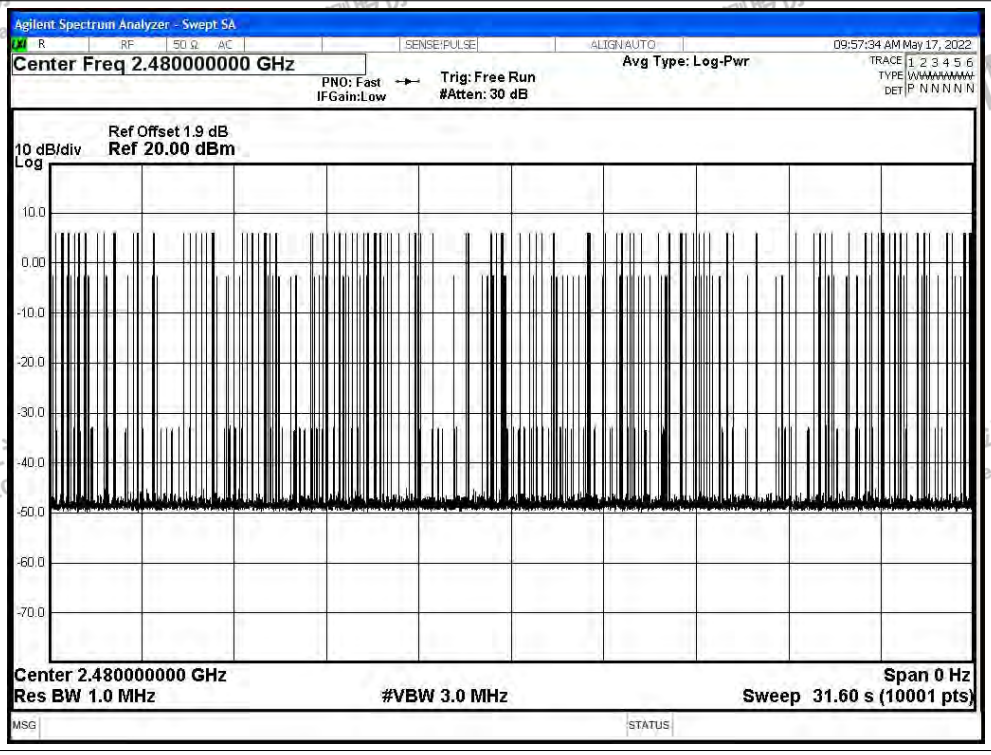

Dwell NVNT 1-DH5 2441MHz Ant1 Accumulated



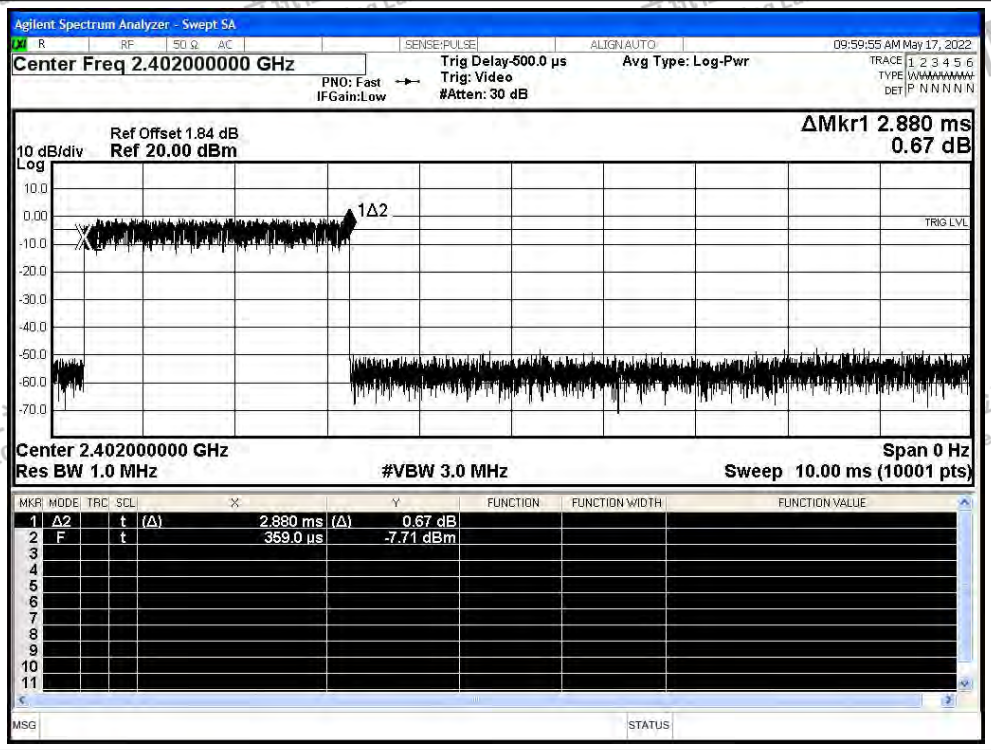
Dwell NVNT 1-DH5 2480MHz Ant1 One Burst



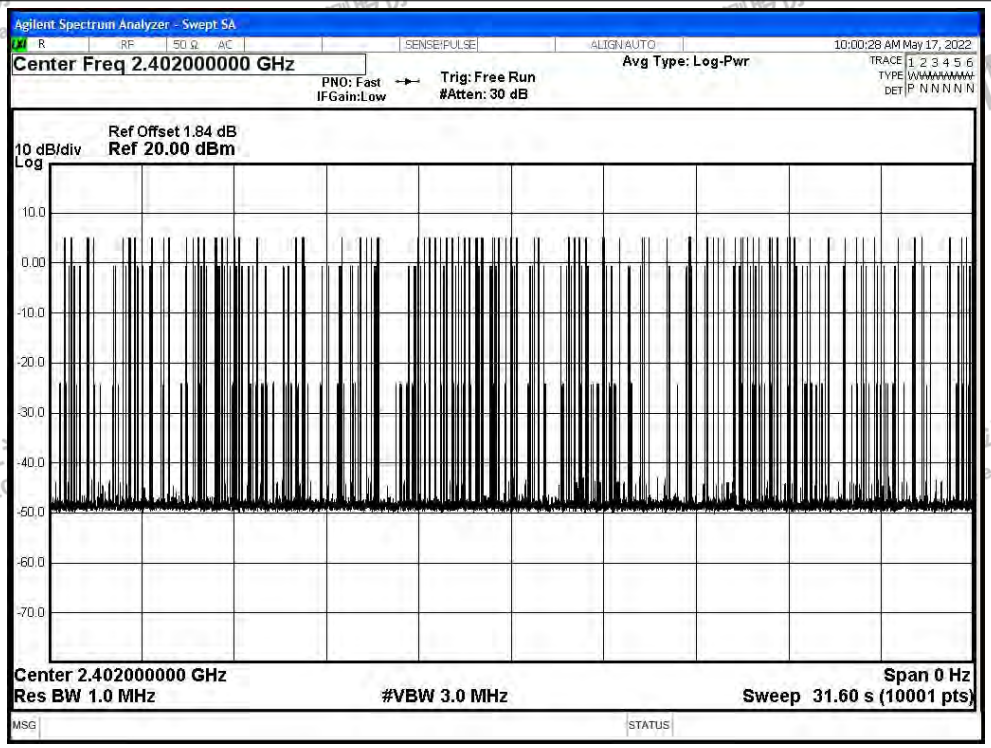

Dwell NVNT 1-DH5 2480MHz Ant1 Accumulated



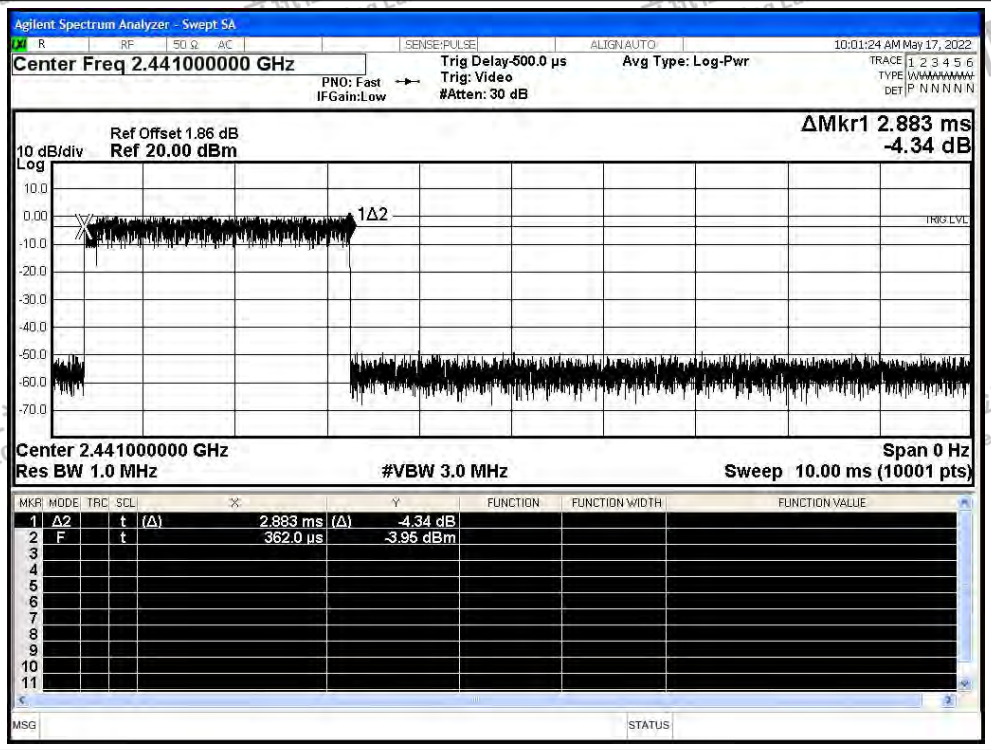
Dwell NVNT 2-DH5 2402MHz Ant1 One Burst



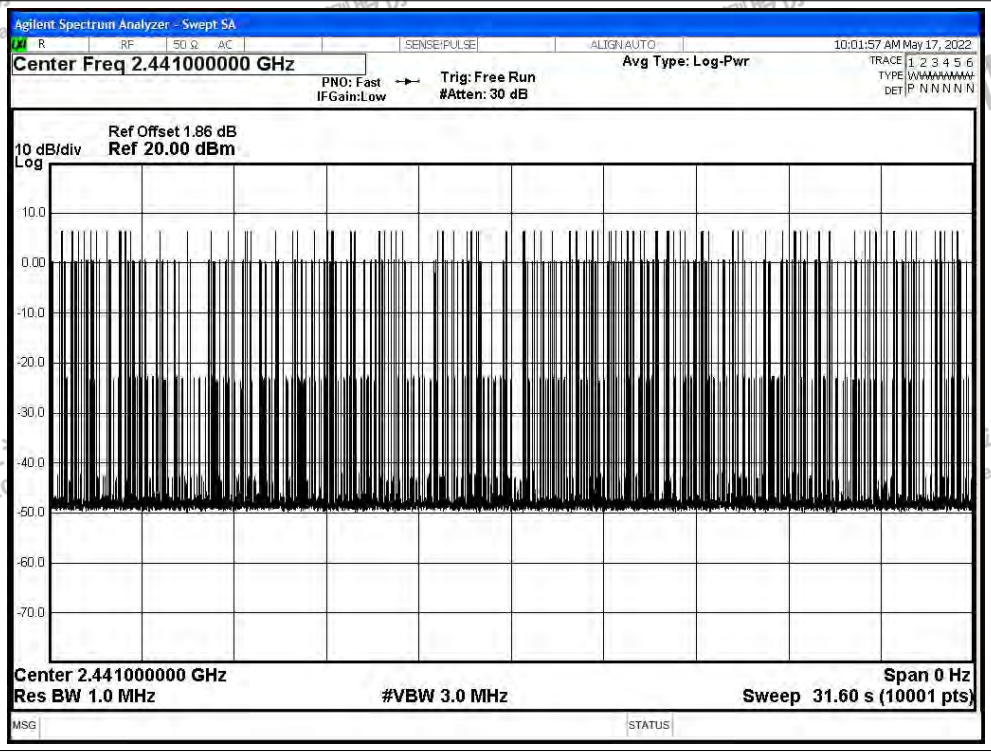

Dwell NVNT 2-DH5 2402MHz Ant1 Accumulated



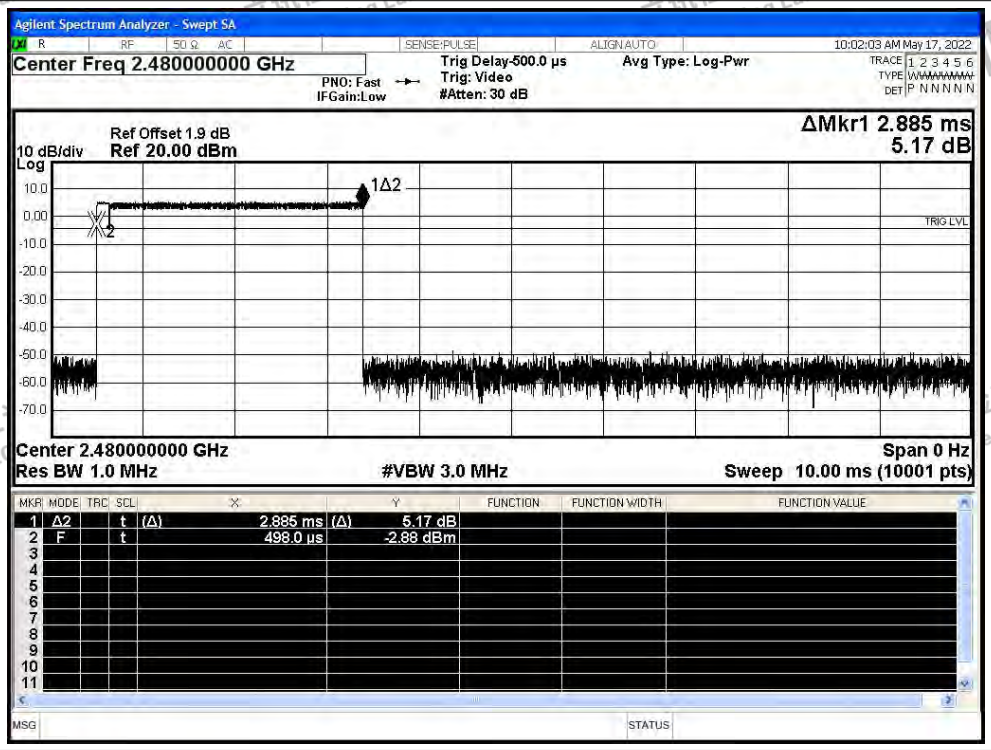
Dwell NVNT 2-DH5 2441MHz Ant1 One Burst



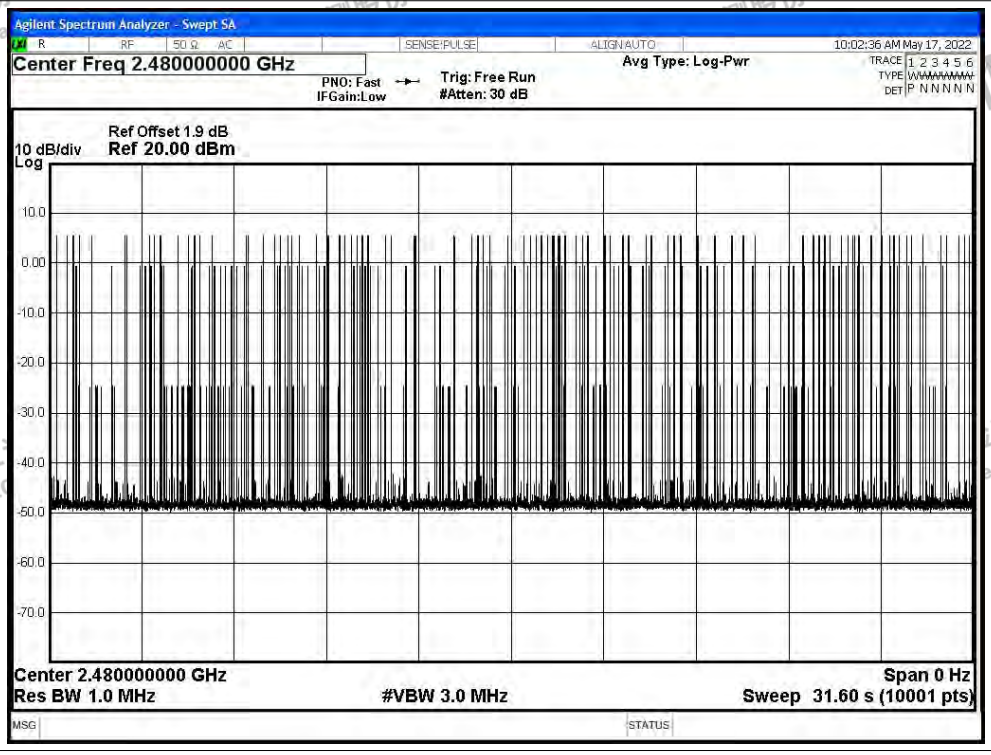

Dwell NVNT 2-DH5 2441MHz Ant1 Accumulated



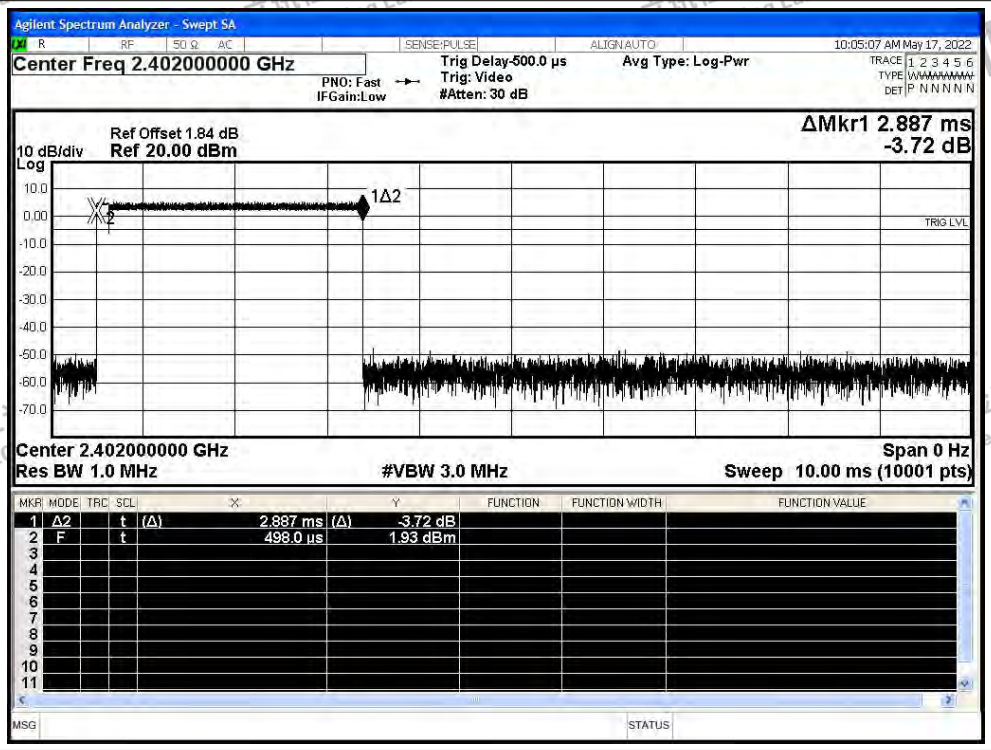
Dwell NVNT 2-DH5 2480MHz Ant1 One Burst



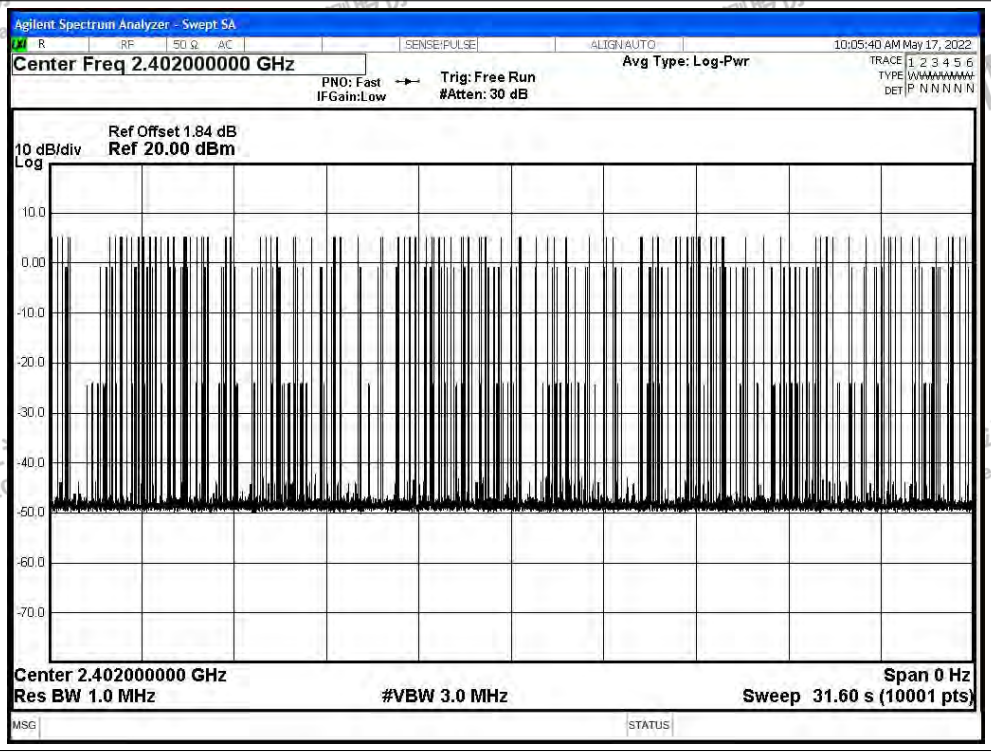

Dwell NVNT 2-DH5 2480MHz Ant1 Accumulated



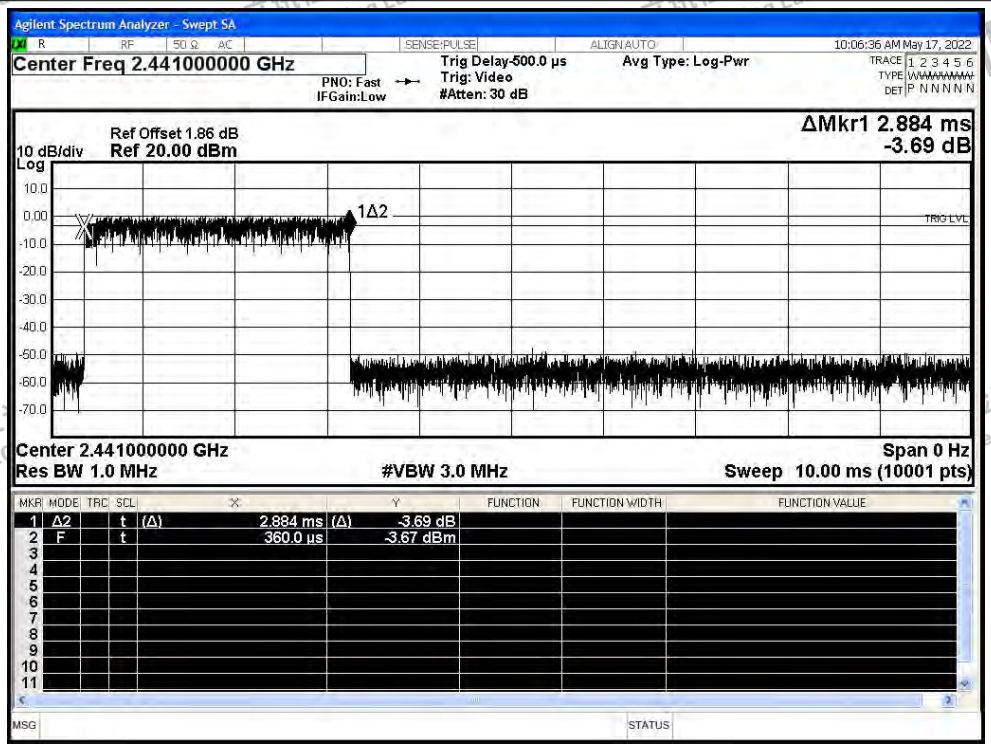
Dwell NVNT 3-DH5 2402MHz Ant1 One Burst



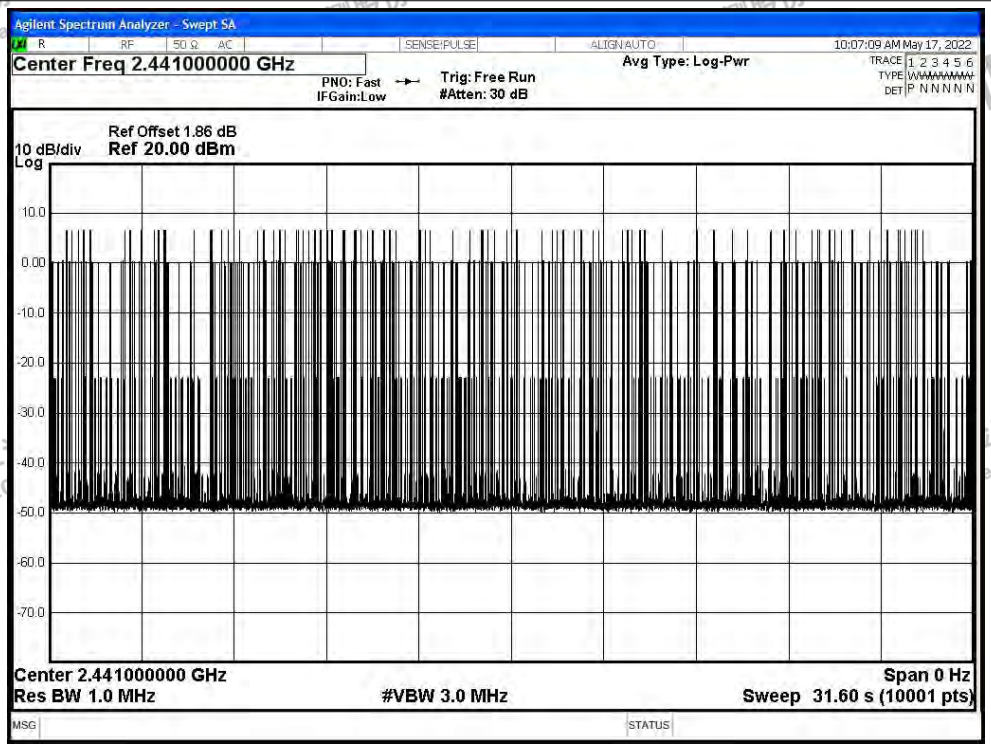

Dwell NVNT 3-DH5 2402MHz Ant1 Accumulated



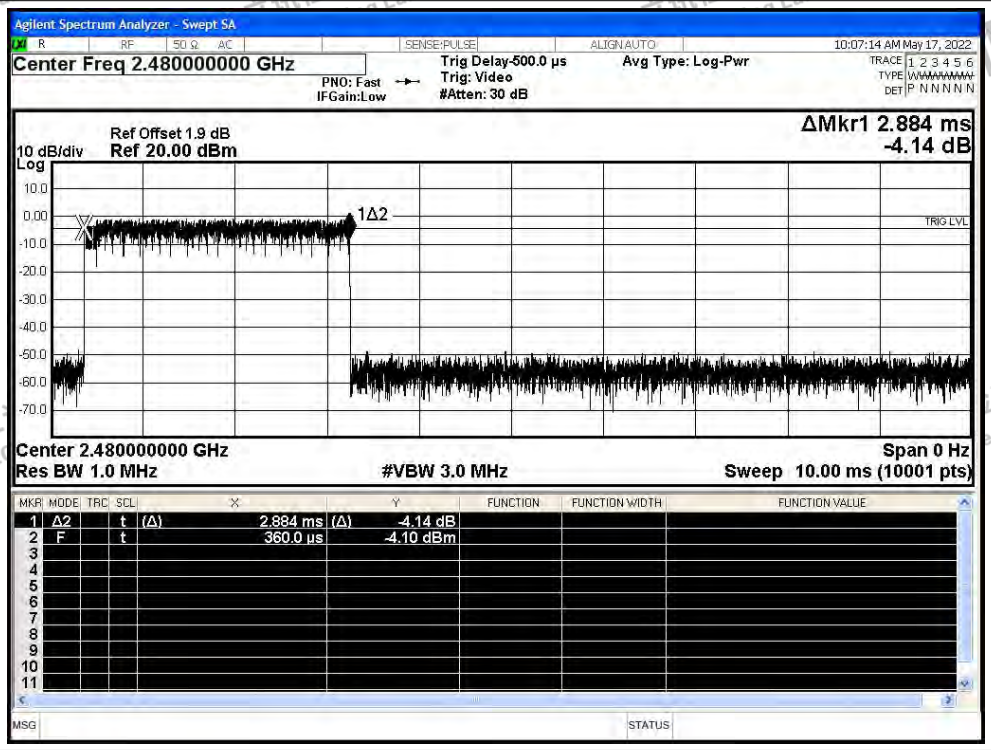
Dwell NVNT 3-DH5 2441MHz Ant1 One Burst



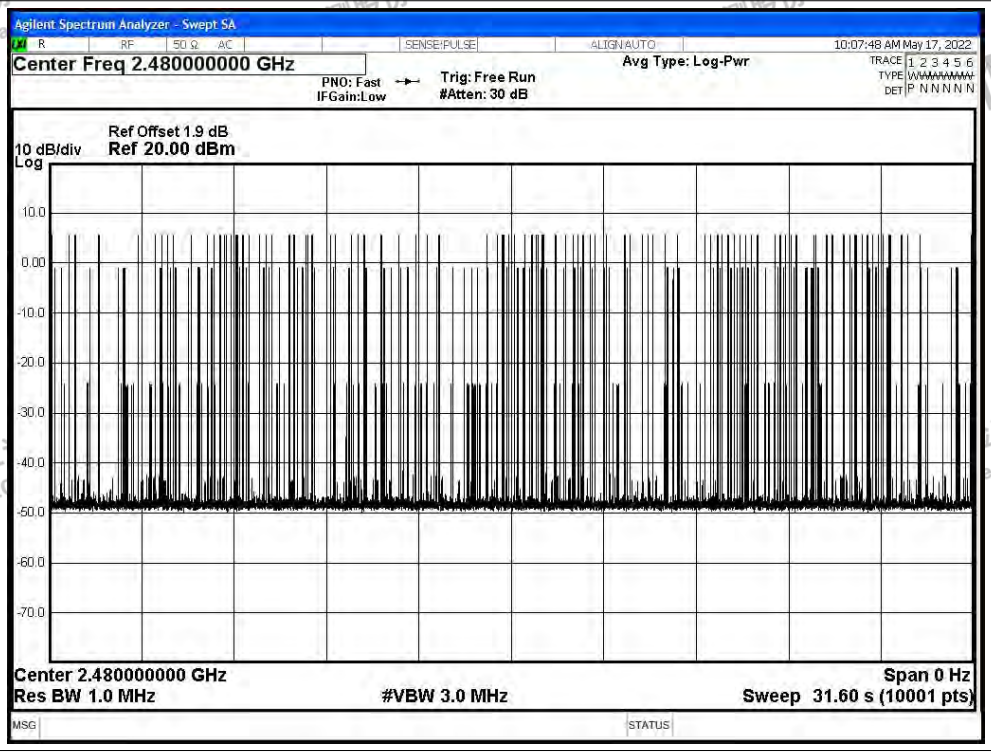

Dwell NVNT 3-DH5 2441MHz Ant1 Accumulated



Dwell NVNT 3-DH5 2480MHz Ant1 One Burst




Dwell NVNT 3-DH5 2480MHz Ant1 Accumulated

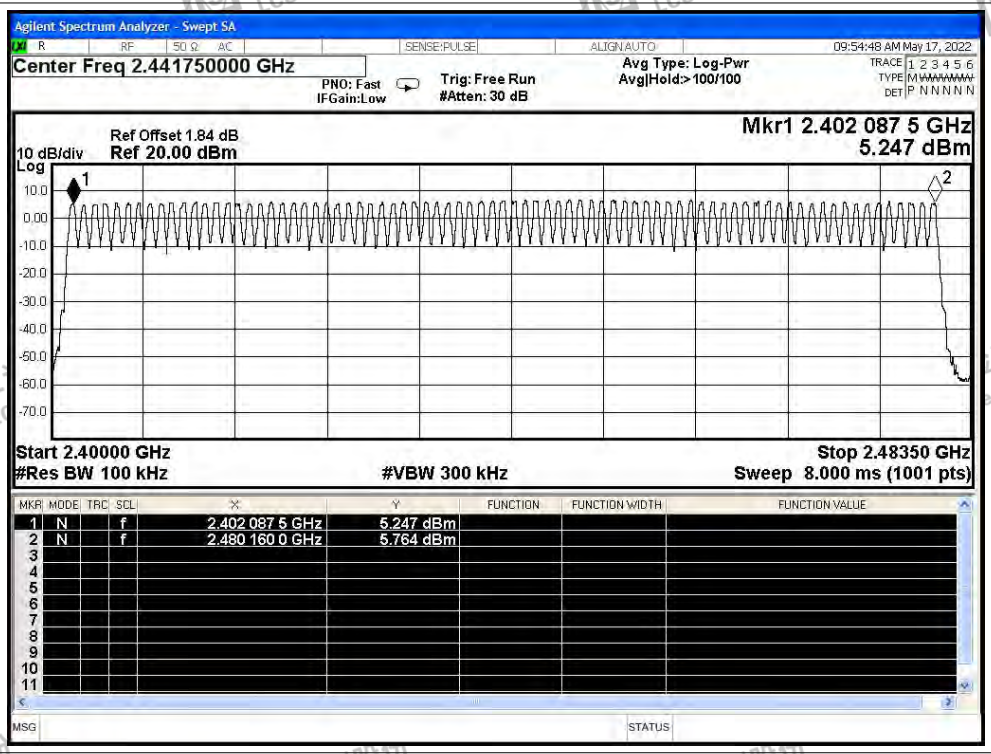


# A.5 Number of Hopping Channel

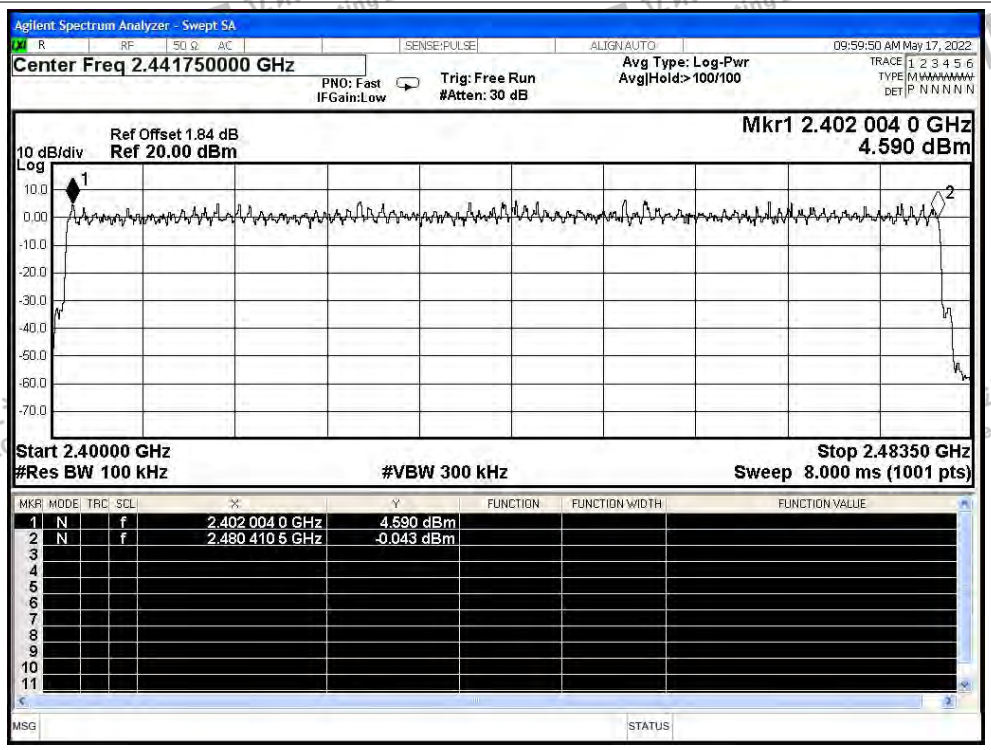
| Condition | Mode | Antenna | Hopping Number | Limit | Verdict |
|---|---|---|---|---|---|
| NVNT | 1-DH5 | Ant1 | 79 | 15 | Pass |
| NVNT | 2-DH5 | Ant1 | 79 | 15 | Pass |
| NVNT | 3-DH5 | Ant1 | 79 | 15 | Pass |

Test Graphs

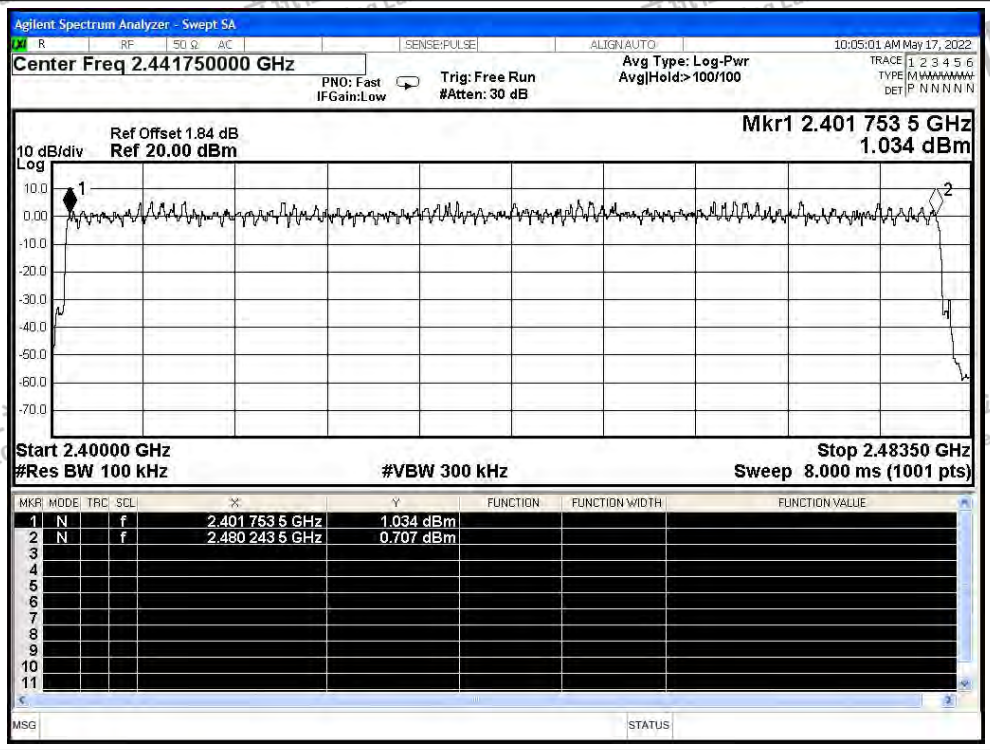
Hopping No. NVNT 1-DH5 2402MHz Ant1




Hopping No. NVNT 2-DH5 2402MHz Ant1



Hopping No. NVNT 3-DH5 2402MHz Ant1

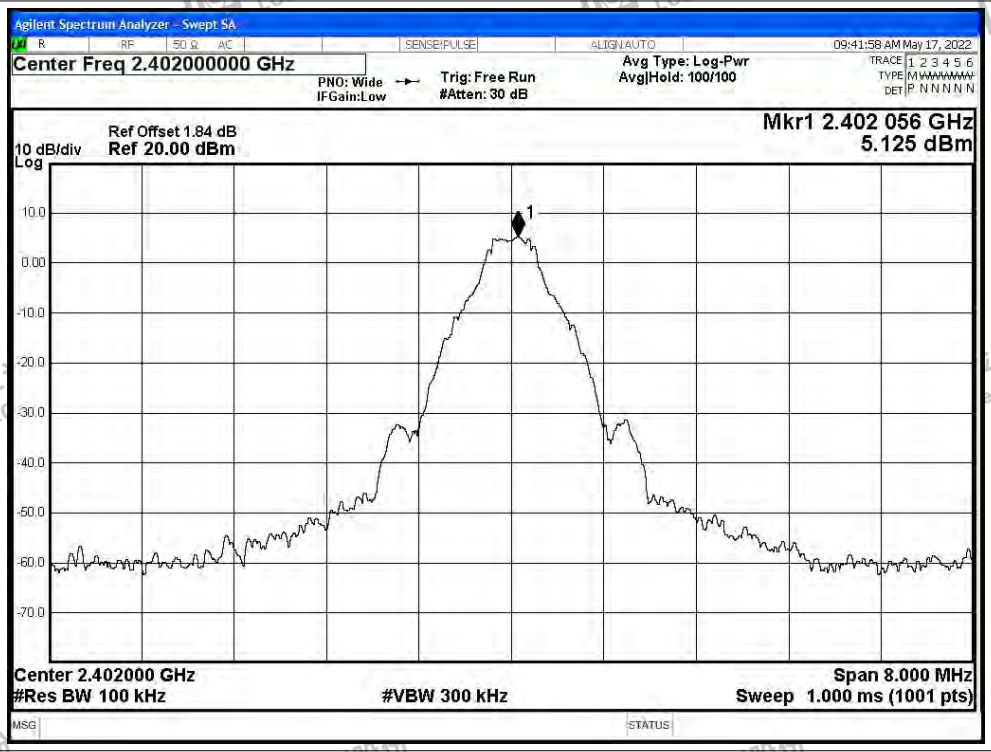


## A.6 Band Edge

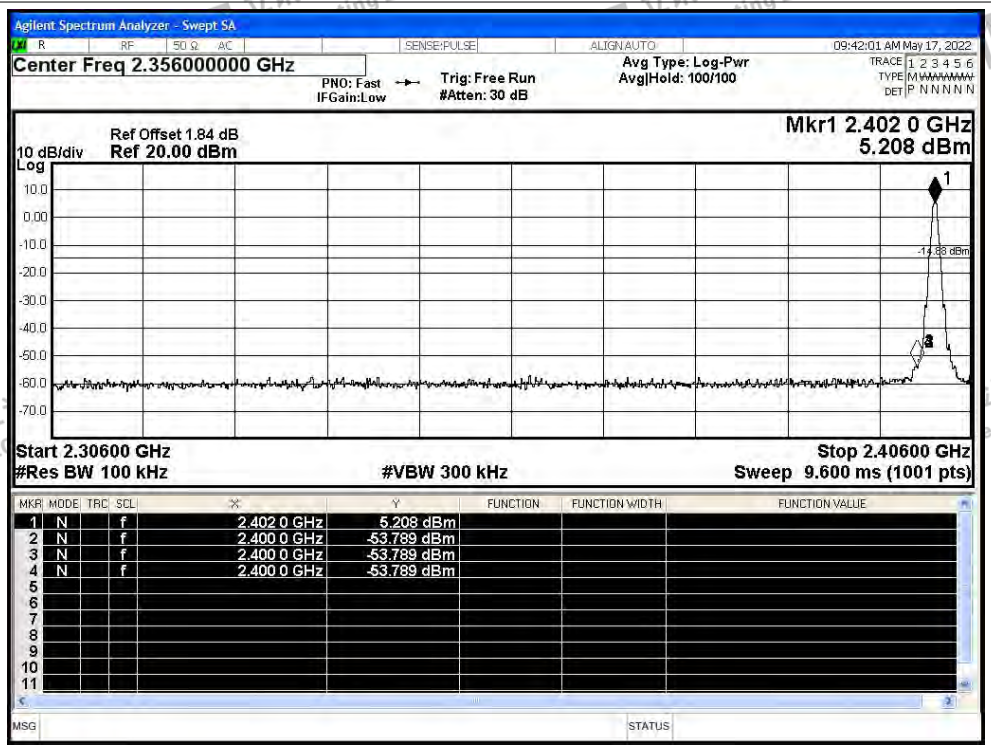
| Condition | Mode | Frequency (MHz) | Antenna | Hopping Mode | Max Value (dBc) | Limit (dBc) | Verdict |
|---|---|---|---|---|---|---|---|
| NVNT | 1-DH5 | 2402 | Ant1 | No-Hopping | -58.91 | -20 | Pass |
| NVNT | 1-DH5 | 2480 | Ant1 | No-Hopping | -63.06 | -20 | Pass |
| NVNT | 2-DH5 | 2402 | Ant1 | No-Hopping | -56.76 | -20 | Pass |
| NVNT | 2-DH5 | 2480 | Ant1 | No-Hopping | -60.92 | -20 | Pass |
| NVNT | 3-DH5 | 2402 | Ant1 | No-Hopping | -56.99 | -20 | Pass |
| NVNT | 3-DH5 | 2480 | Ant1 | No-Hopping | -61.62 | -20 | Pass |

Test Graphs

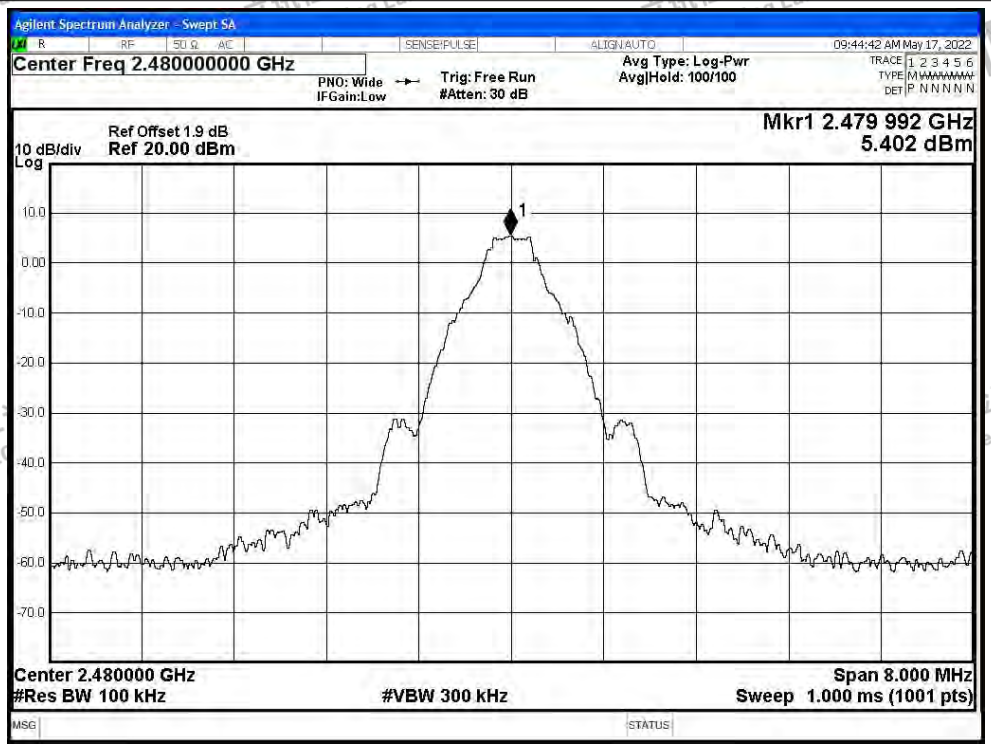
Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Ref



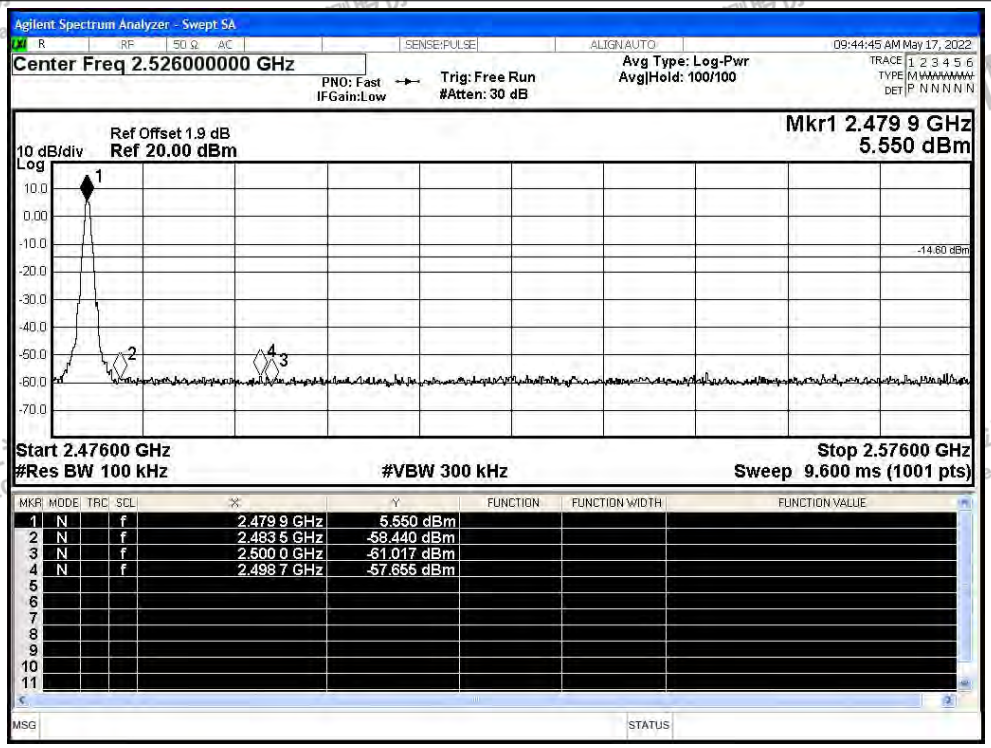

Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Emission



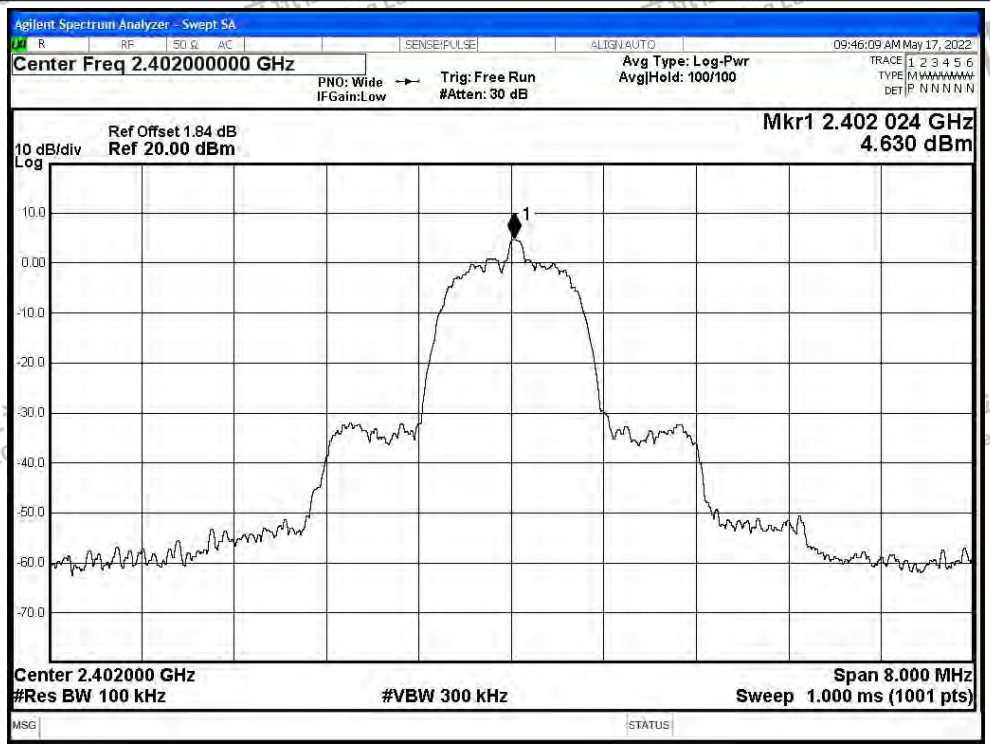
Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Ref



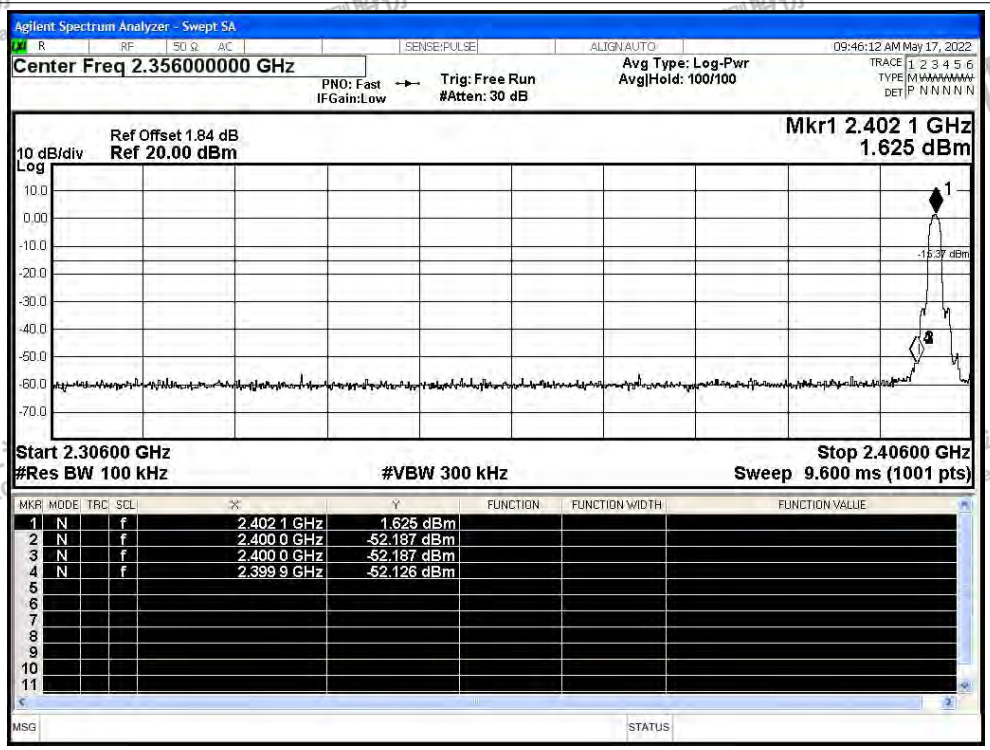

Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Emission



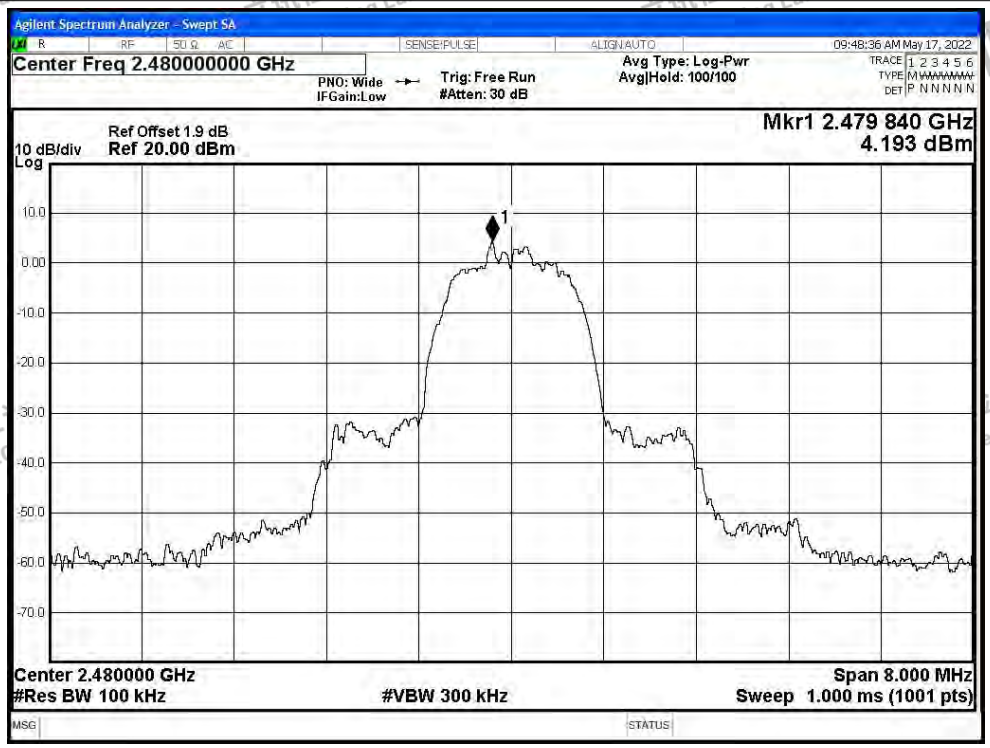
Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Ref



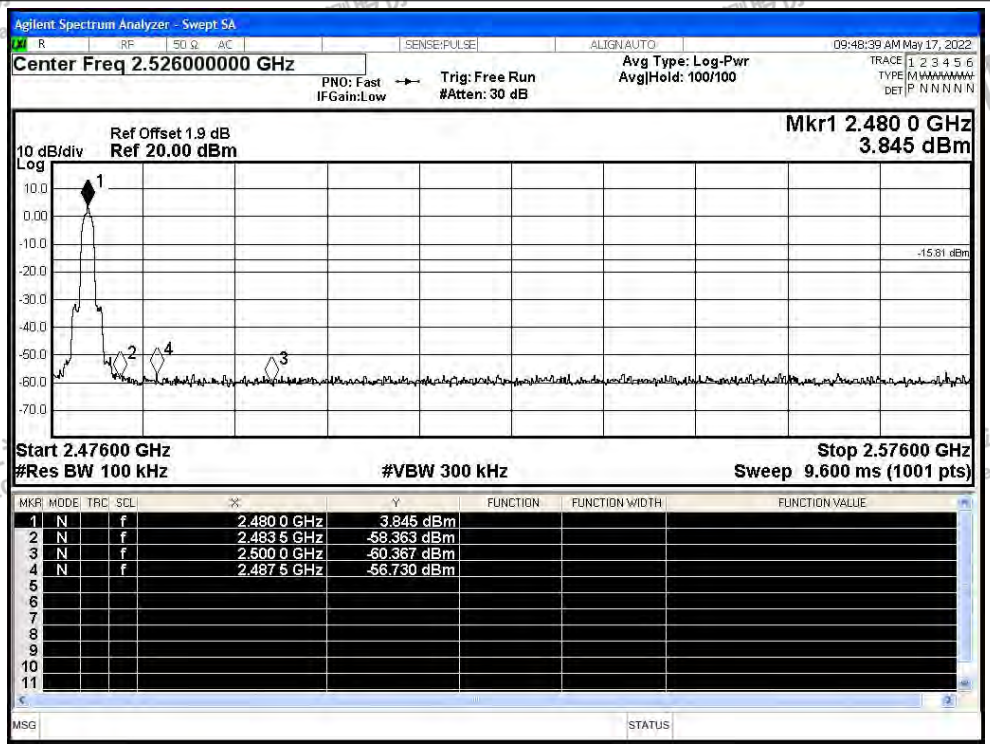

Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Emission



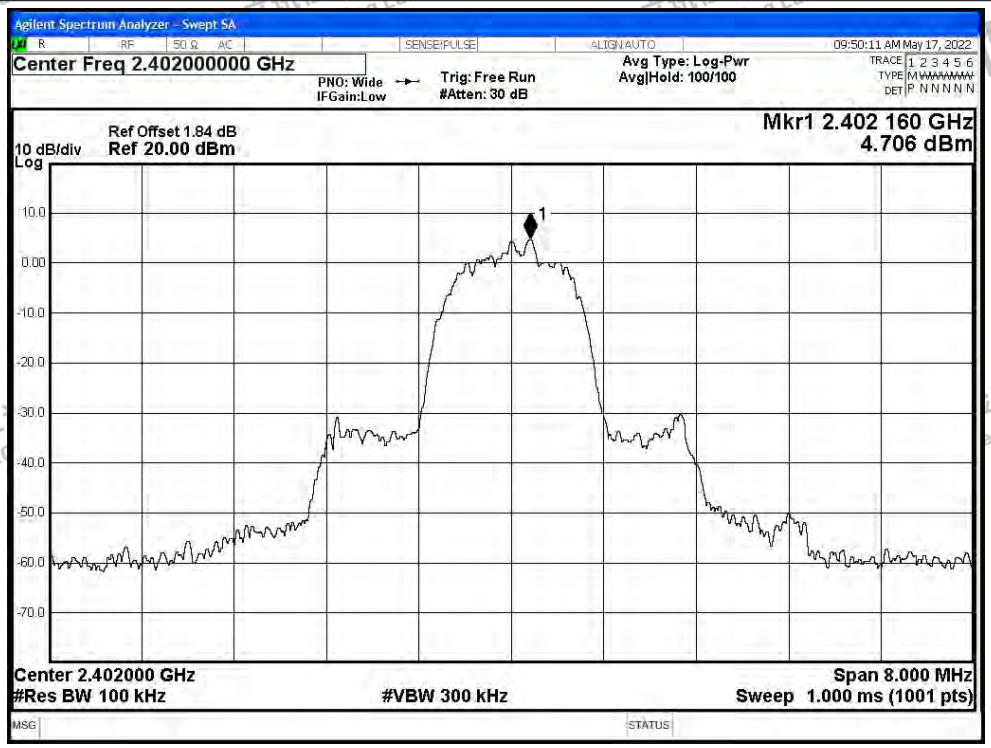
Band Edge NVNT 2-DH5 2480MHz Ant1 No-Hopping Ref



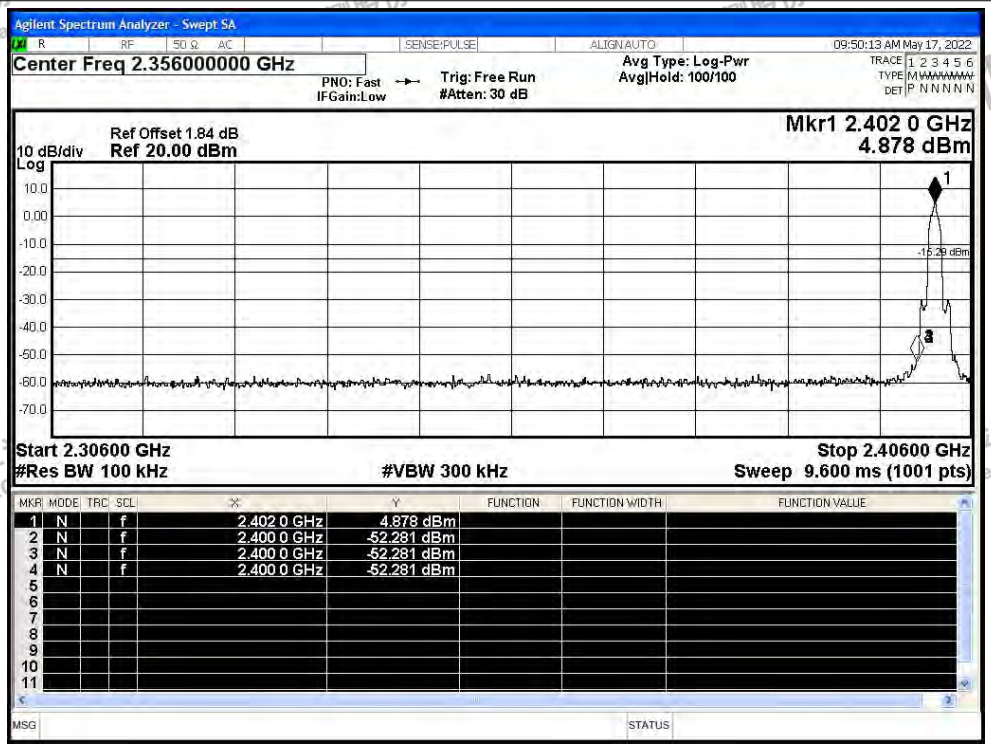

Band Edge NVNT 2-DH5 2480MHz Ant1 No-Hopping Emission



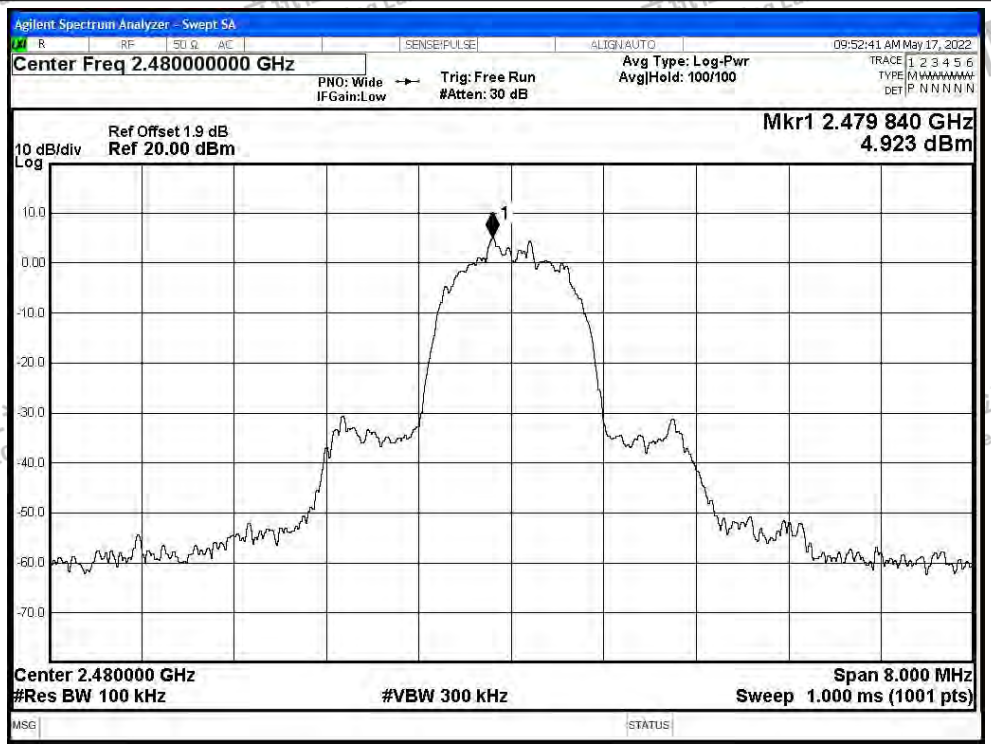
Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Ref



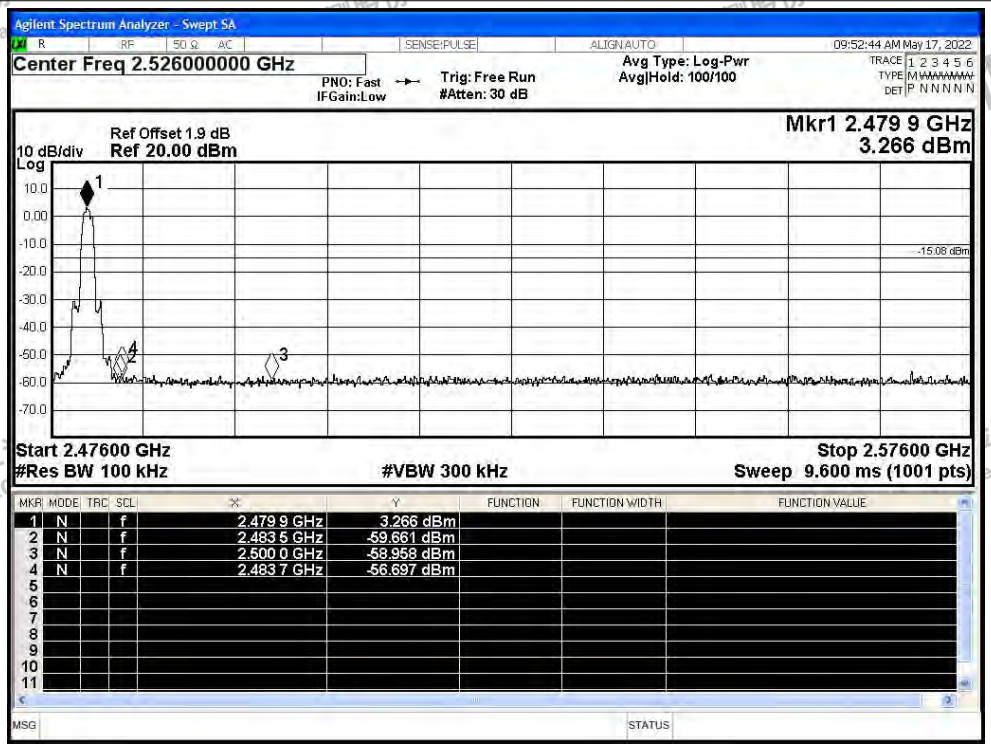

Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Emission



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




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

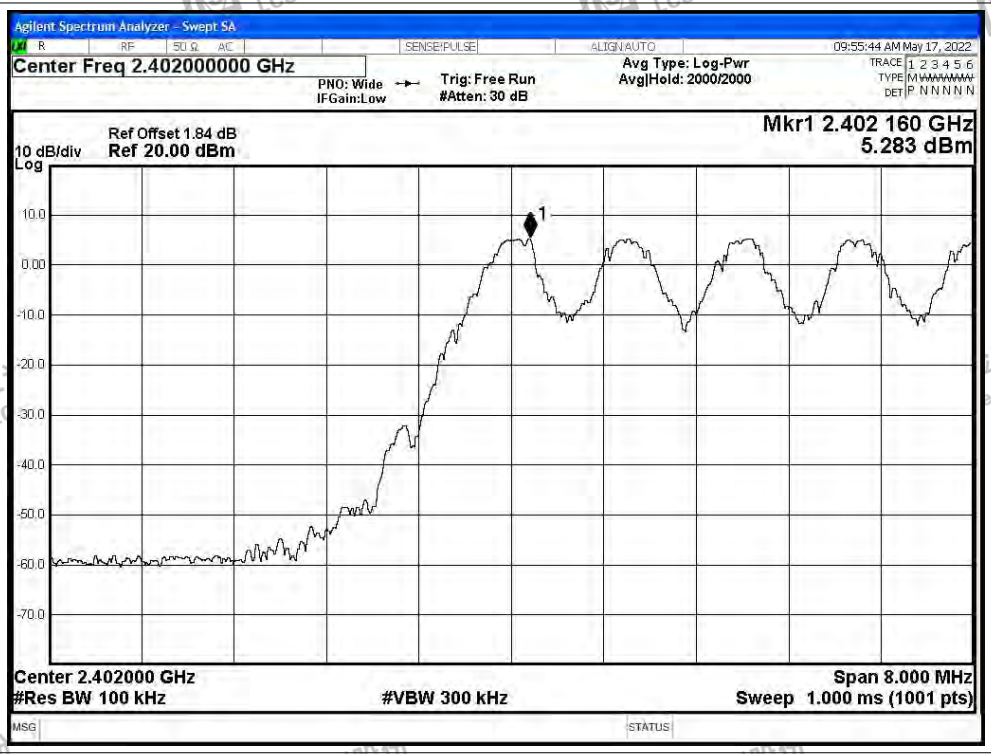


## (Hopping)

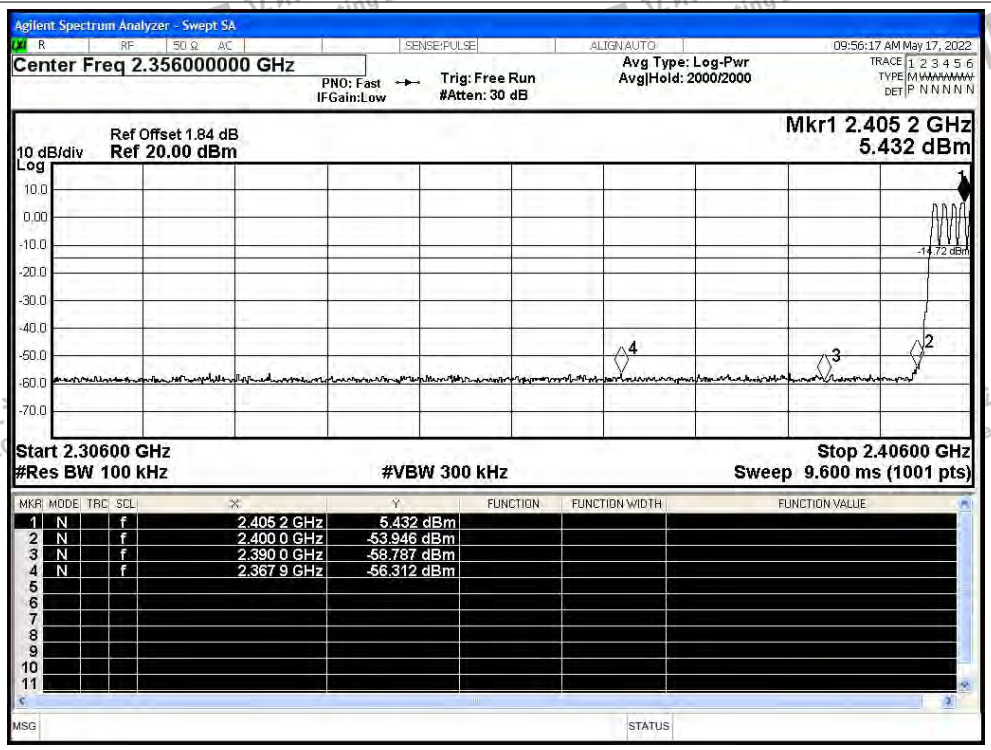
| Condition | Mode | Frequency (MHz) | Antenna | Hopping Mode | Max Value (dBc) | Limit (dBc) | Verdict |
|---|---|---|---|---|---|---|---|
| NVNT | 1-DH5 | 2402 | Ant1 | Hopping | -61.6 | -20 | Pass |
| NVNT | 1-DH5 | 2480 | Ant1 | Hopping | -61.43 | -20 | Pass |
| NVNT | 2-DH5 | 2402 | Ant1 | Hopping | -60.11 | -20 | Pass |
| NVNT | 2-DH5 | 2480 | Ant1 | Hopping | -58.97 | -20 | Pass |
| NVNT | 3-DH5 | 2402 | Ant1 | Hopping | -59.53 | -20 | Pass |
| NVNT | 3-DH5 | 2480 | Ant1 | Hopping | -59.4 | -20 | Pass |

Test Graphs

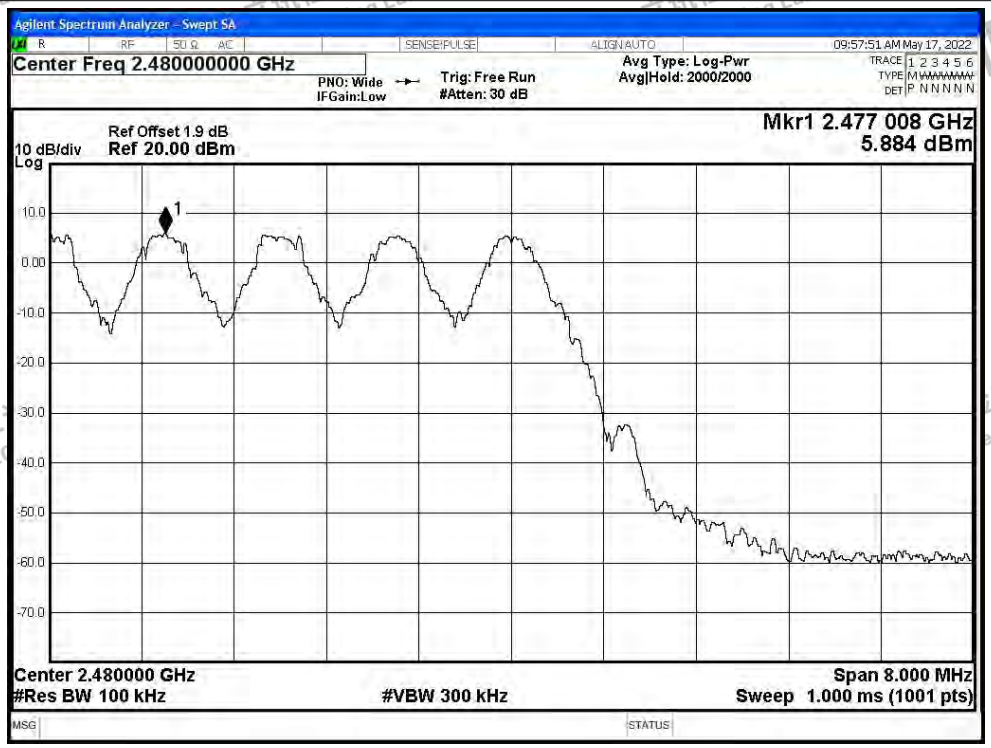
Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Ref



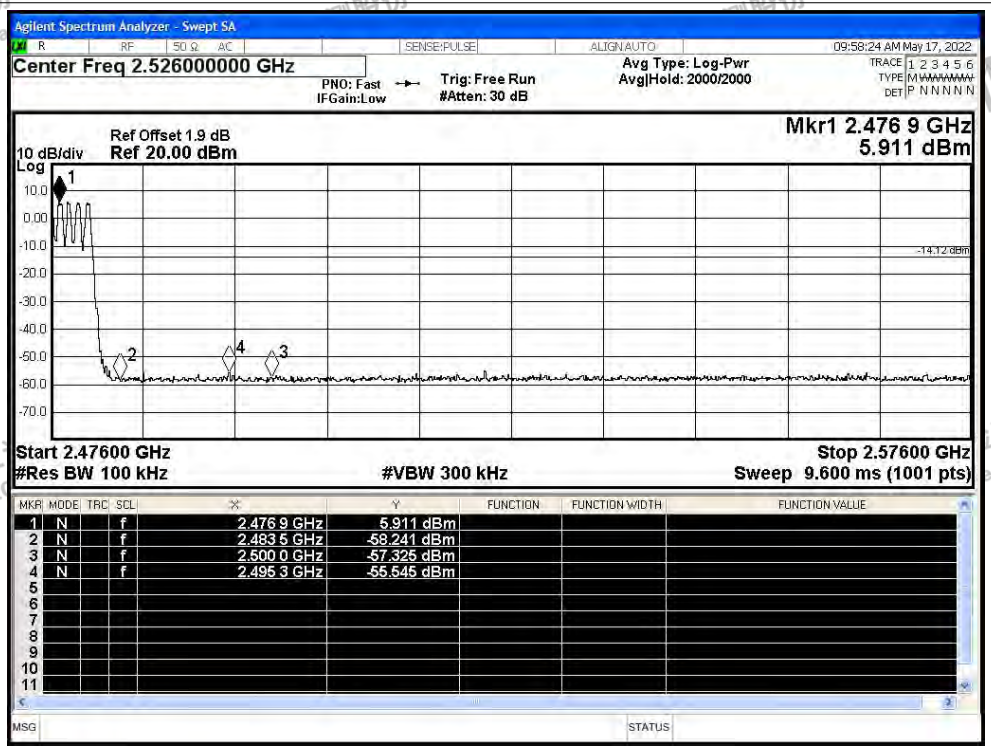

Band Edge(Hopping) NVNT 1-DH5 2402MHz Ant1 Hopping Emission



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

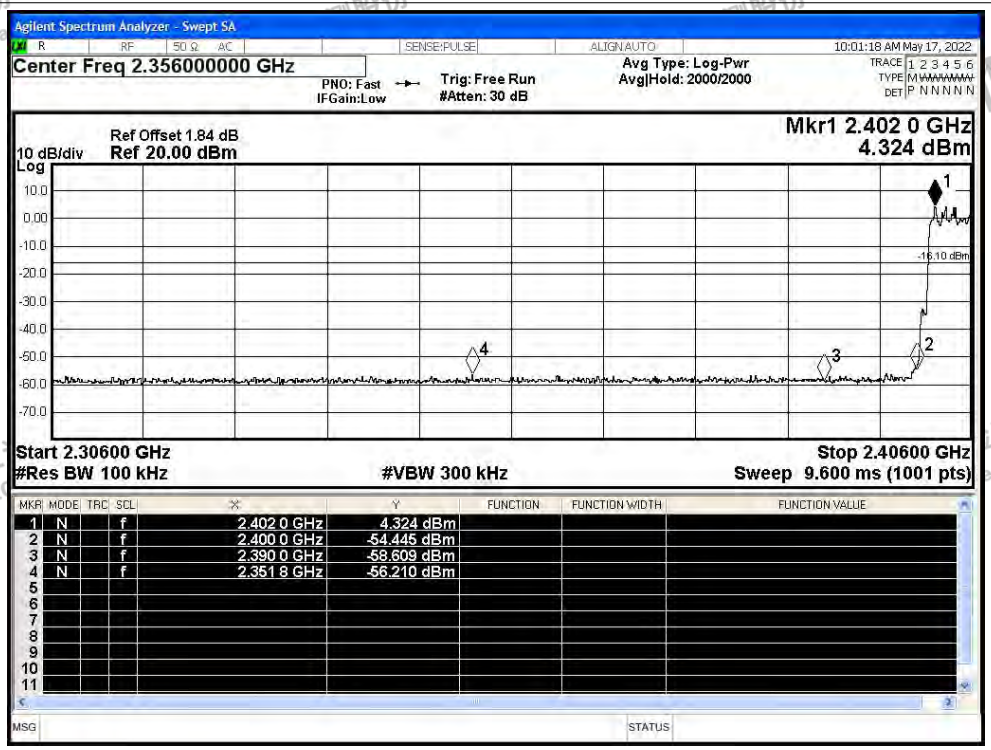



Band Edge(Hopping) NVNT 1-DH5 2480MHz Ant1 Hopping Emission

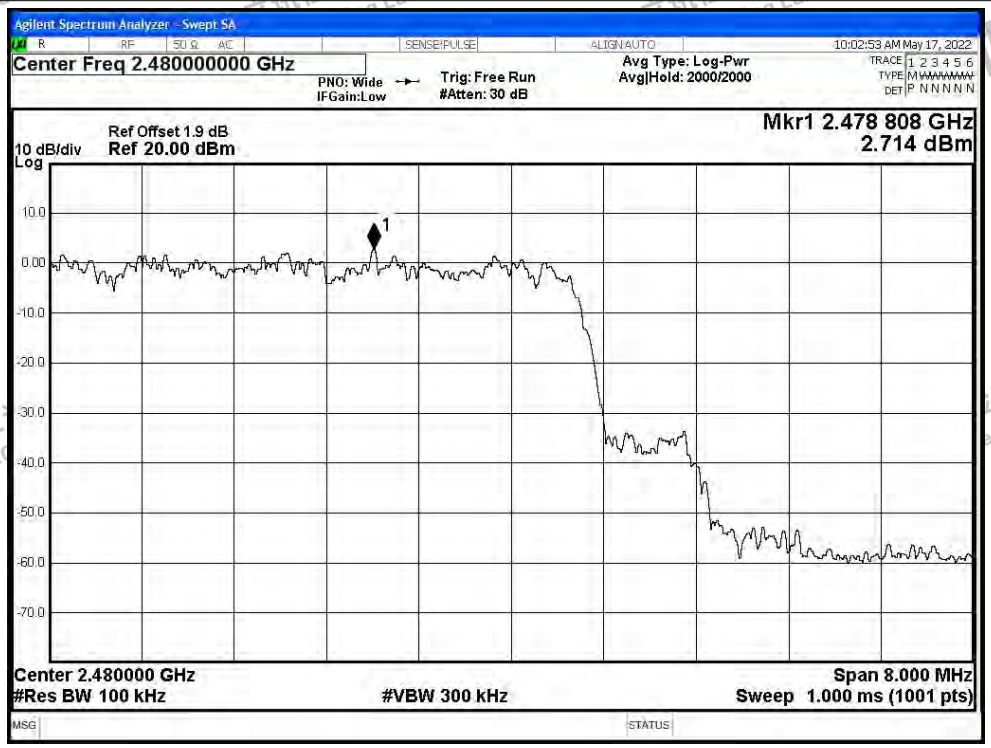


Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Ref

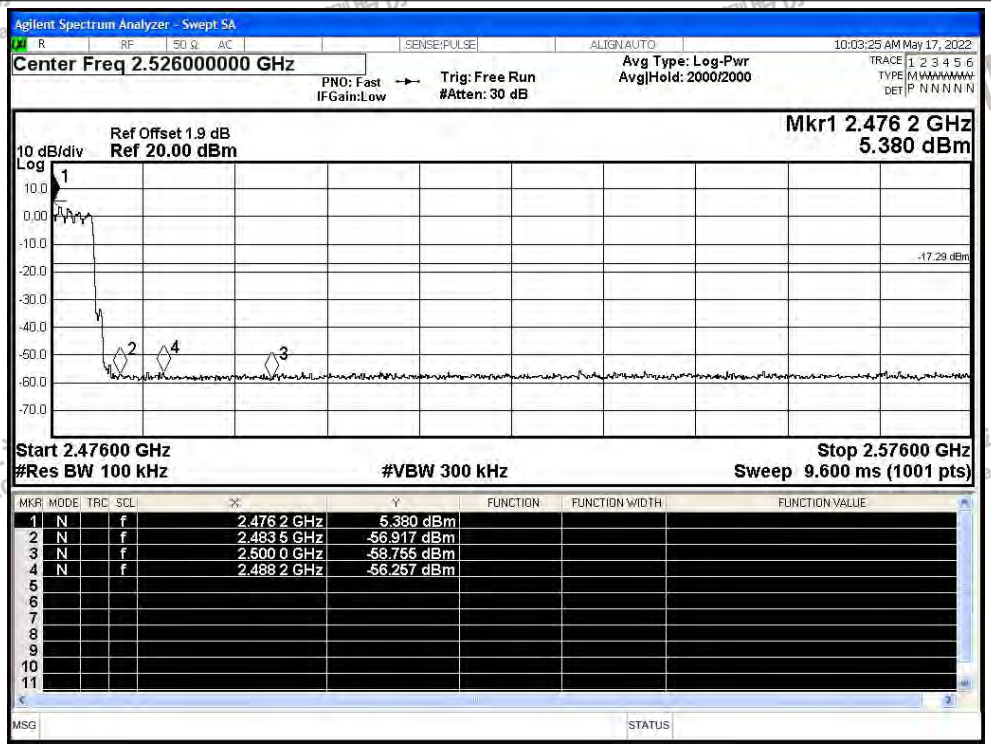
Band Edge(Hopping) NVNT 2-DH5 2402MHz Ant1 Hopping Emission



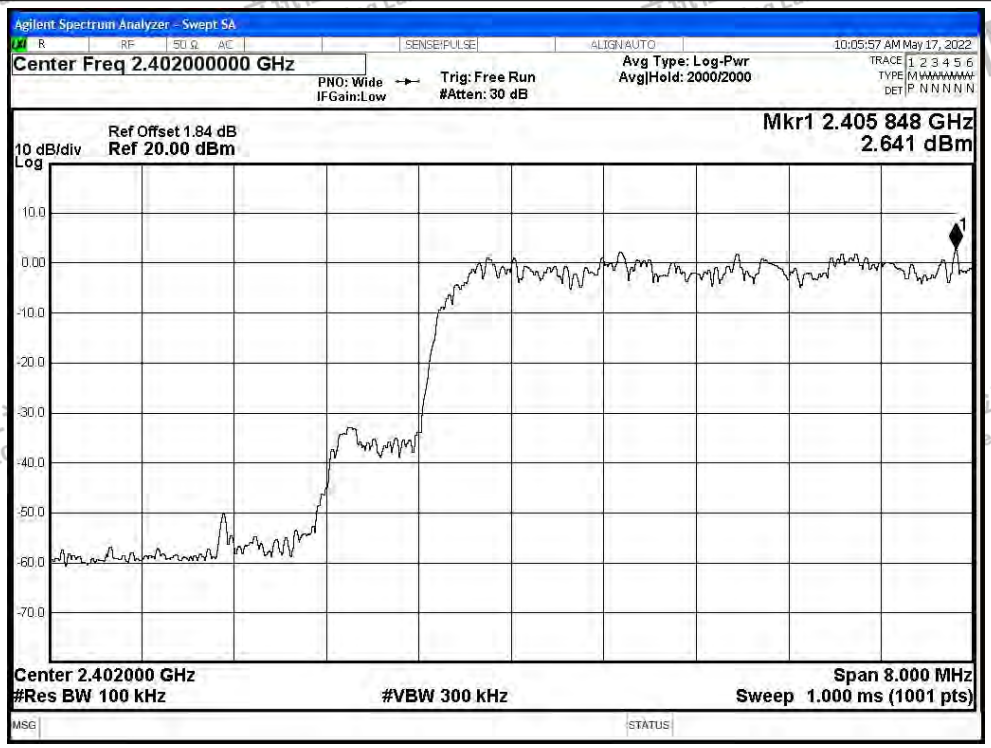
Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Ref



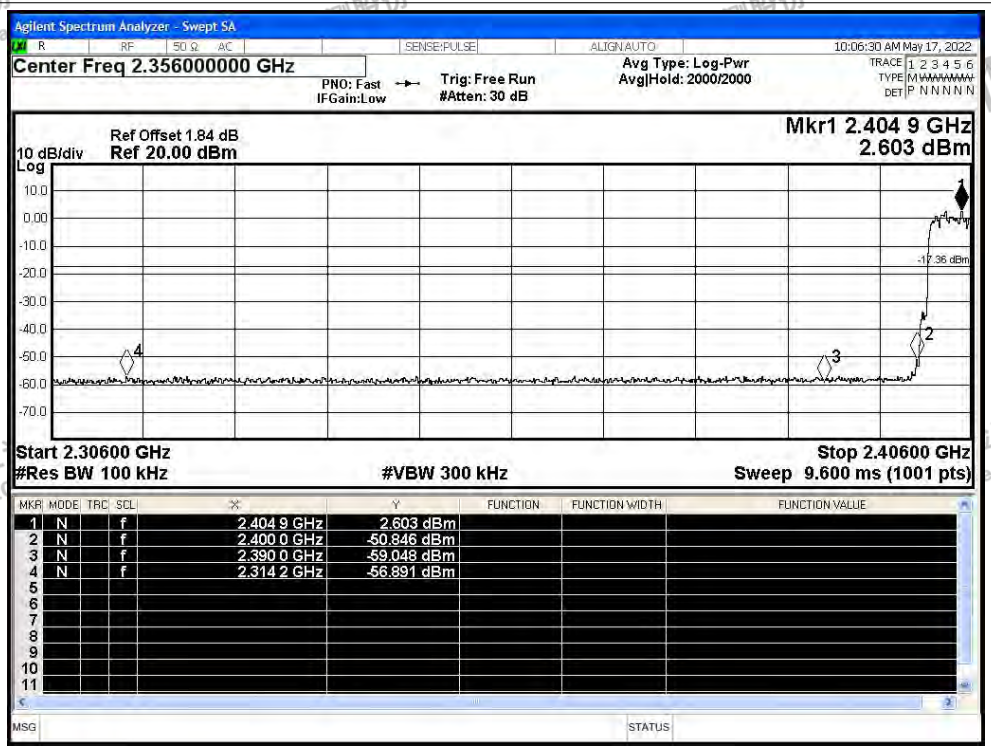

Band Edge(Hopping) NVNT 2-DH5 2480MHz Ant1 Hopping Emission



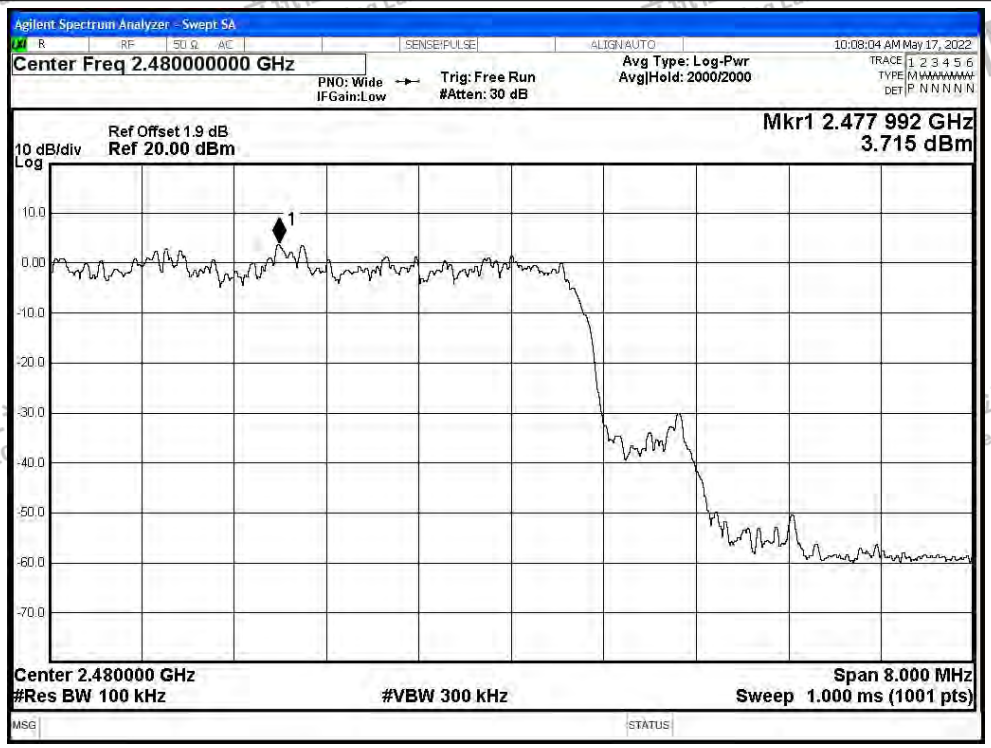
Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Ref



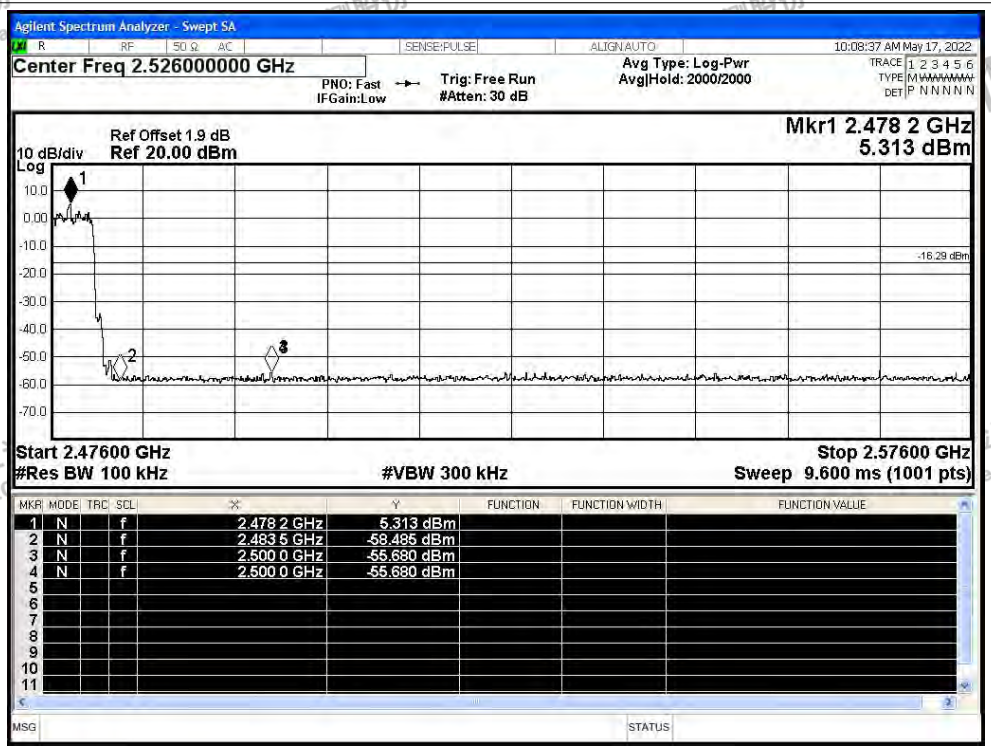

Band Edge(Hopping) NVNT 3-DH5 2402MHz Ant1 Hopping Emission



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




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

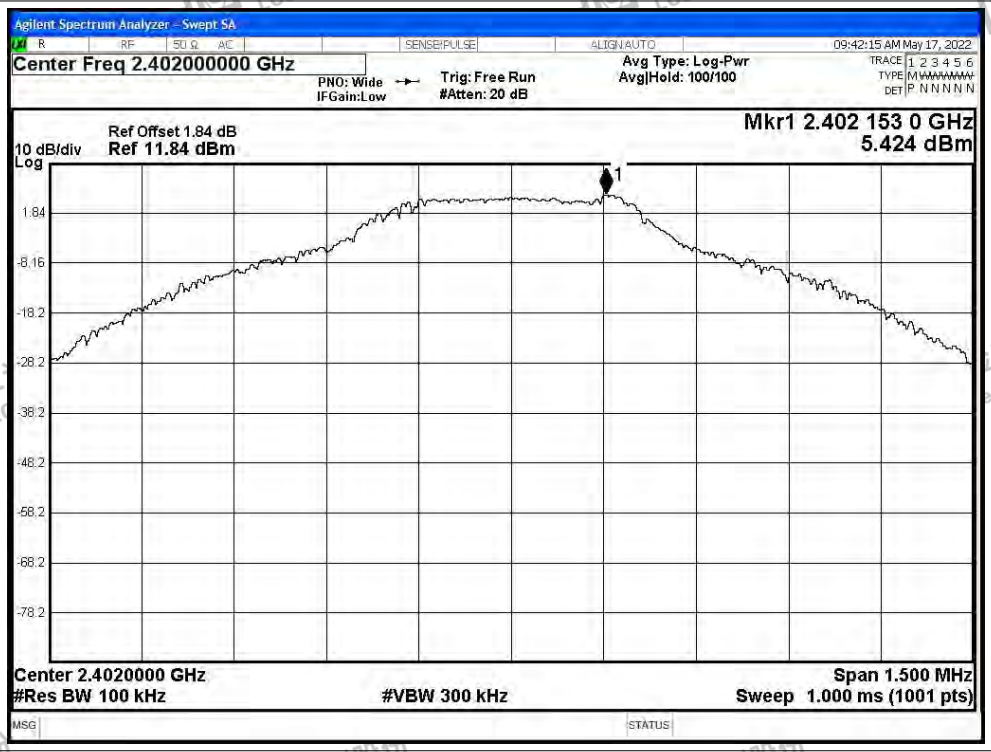


# A.7 Conducted RF Spurious Emission

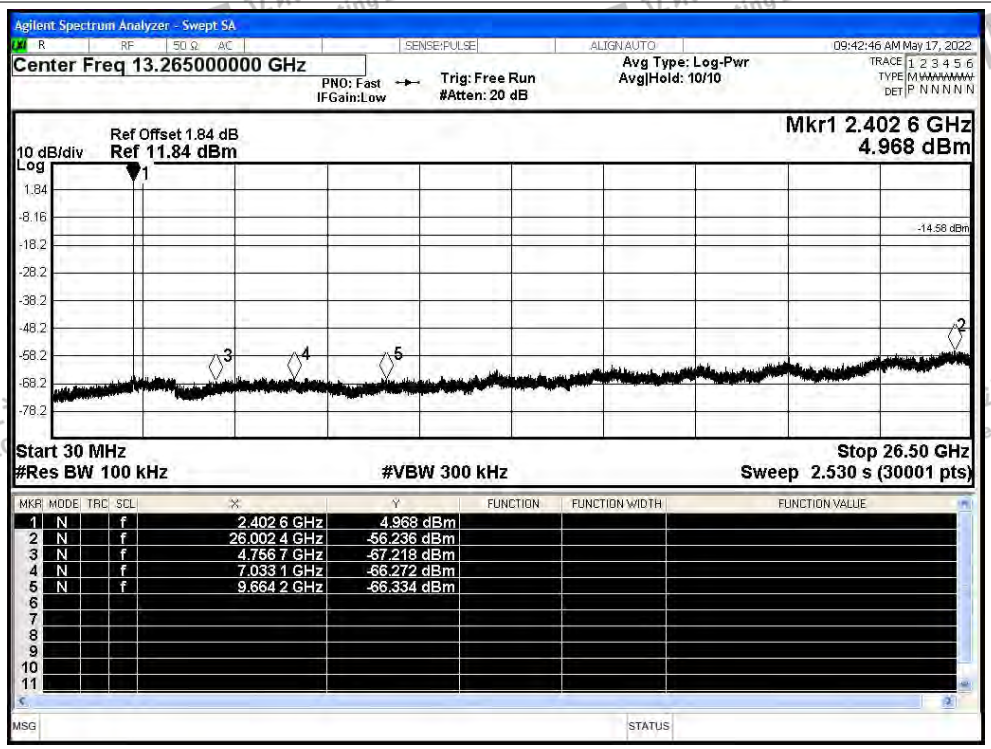
| Condition | Mode | Frequency (MHz) | Antenna | Max Value (dBc) | Limit (dBc) | Verdict |
|---|---|---|---|---|---|---|
| NVNT | 1-DH5 | 2402 | Ant1 | -61.66 | -20 | Pass |
| NVNT | 1-DH5 | 2441 | Ant1 | -61.62 | -20 | Pass |
| NVNT | 1-DH5 | 2480 | Ant1 | -60.8 | -20 | Pass |
| NVNT | 2-DH5 | 2402 | Ant1 | -59.9 | -20 | Pass |
| NVNT | 2-DH5 | 2441 | Ant1 | -60.87 | -20 | Pass |
| NVNT | 2-DH5 | 2480 | Ant1 | -59.86 | -20 | Pass |
| NVNT | 3-DH5 | 2402 | Ant1 | -60.16 | -20 | Pass |
| NVNT | 3-DH5 | 2441 | Ant1 | -61.51 | -20 | Pass |
| NVNT | 3-DH5 | 2480 | Ant1 | -60.3 | -20 | Pass |

Test Graphs

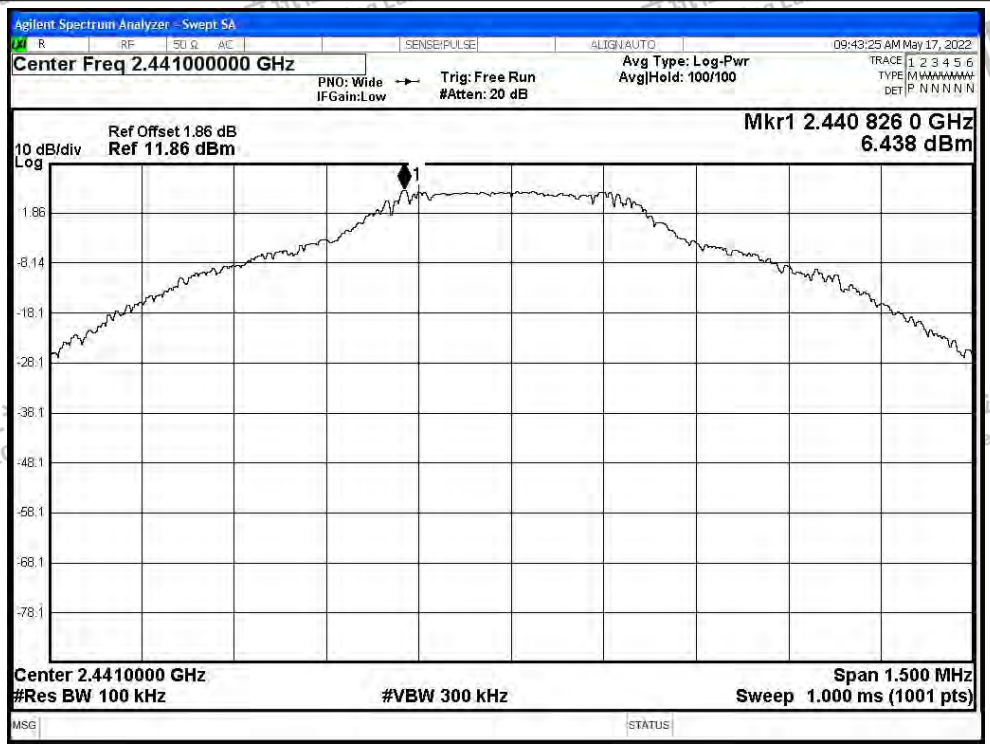
Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Ref



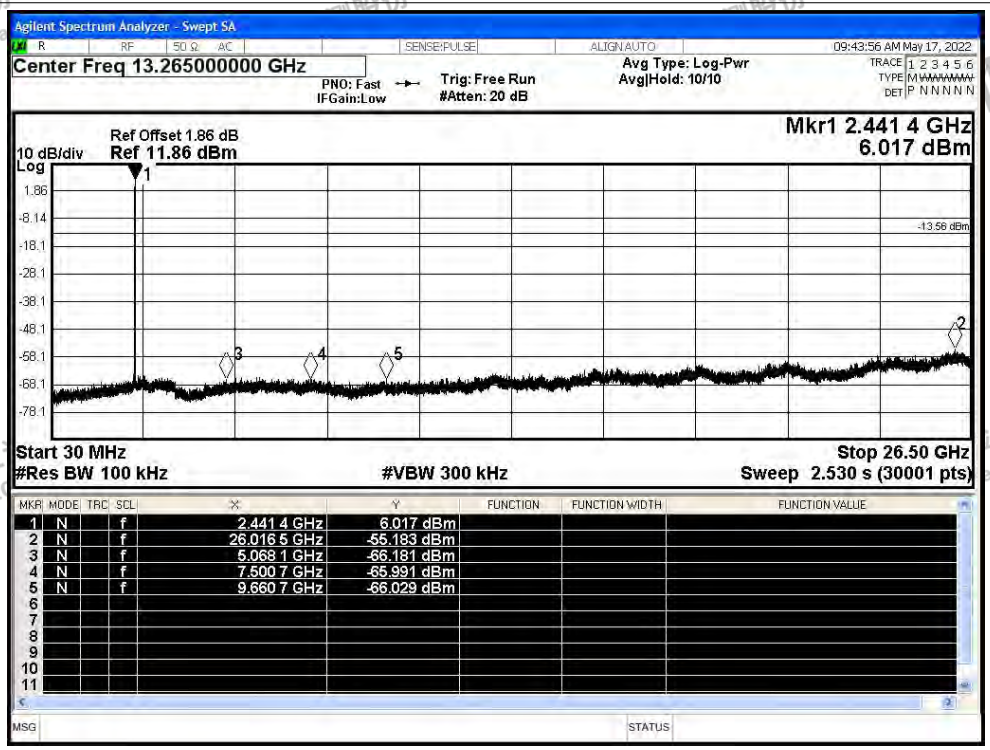

Tx. Spurious NVNT 1-DH5 2402MHz Ant1 Emission



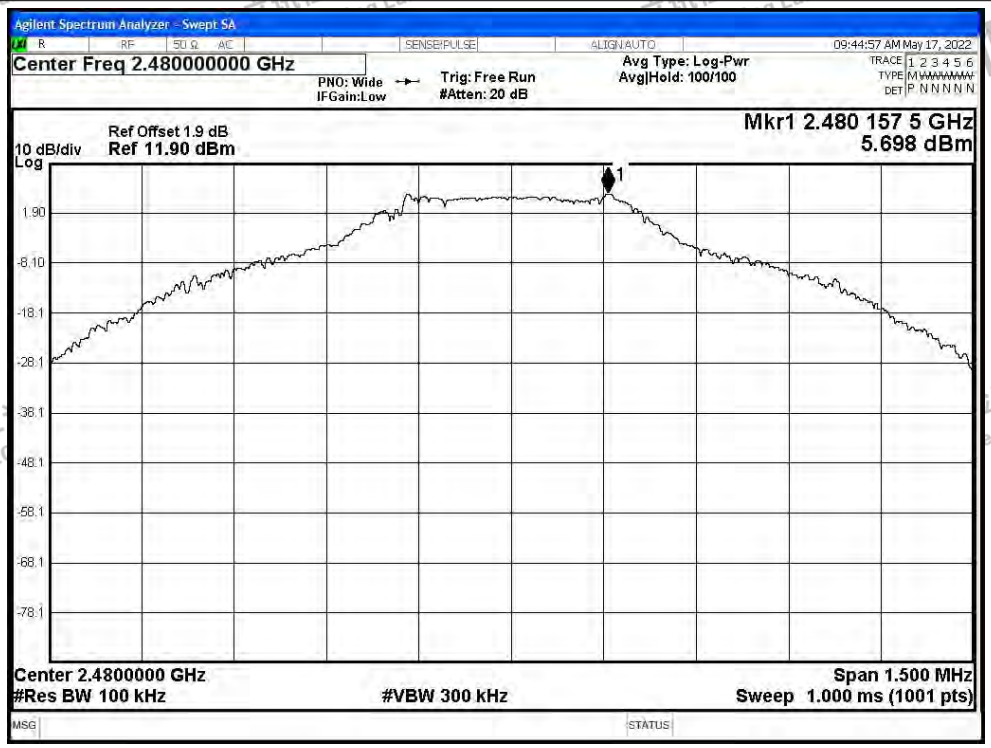
Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Ref



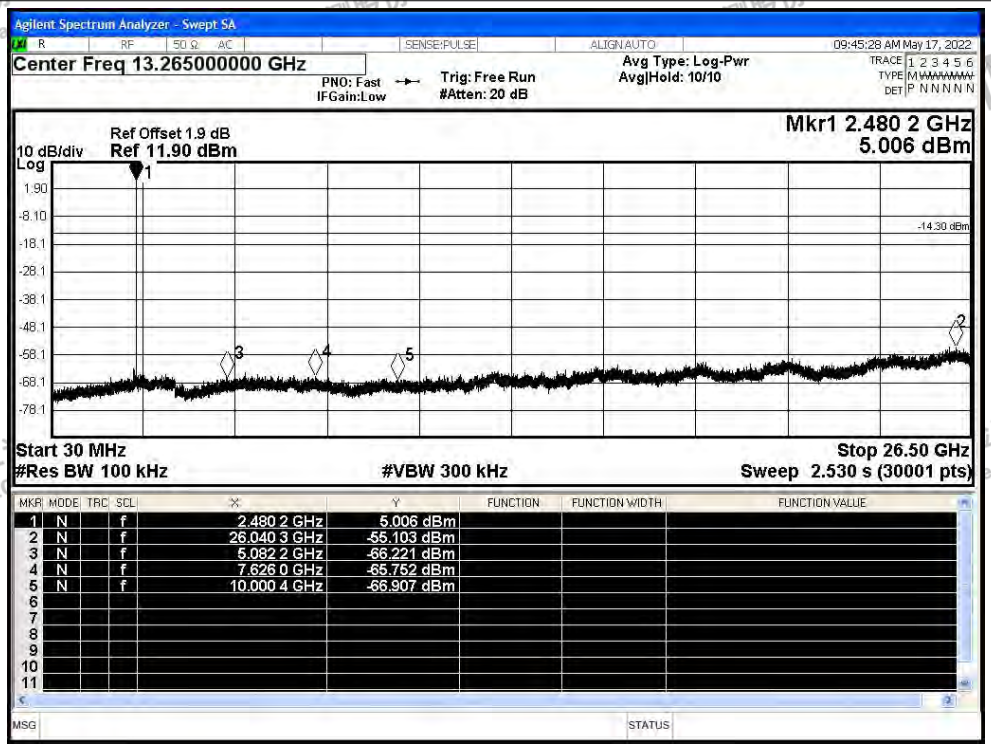

Tx. Spurious NVNT 1-DH5 2441MHz Ant1 Emission



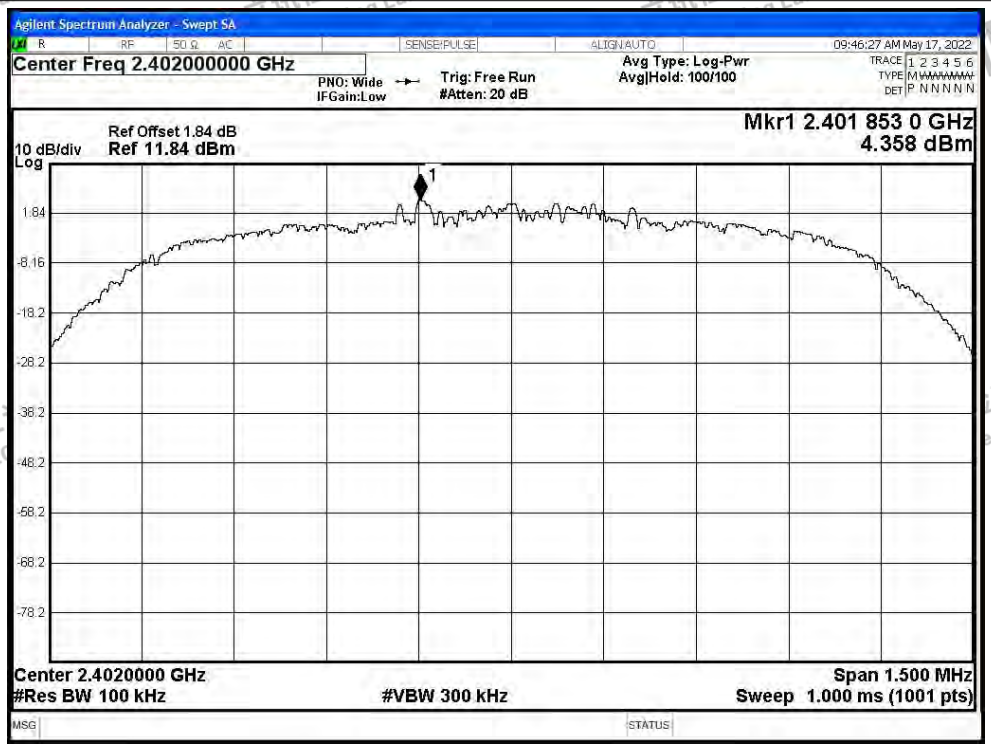
Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Ref



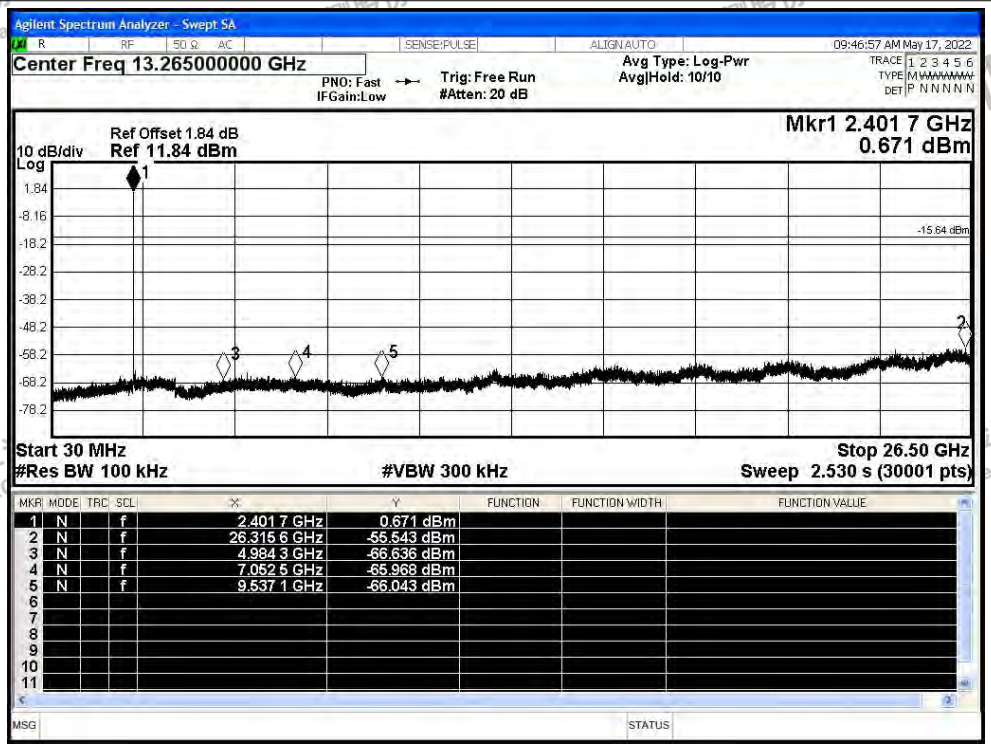

Tx. Spurious NVNT 1-DH5 2480MHz Ant1 Emission



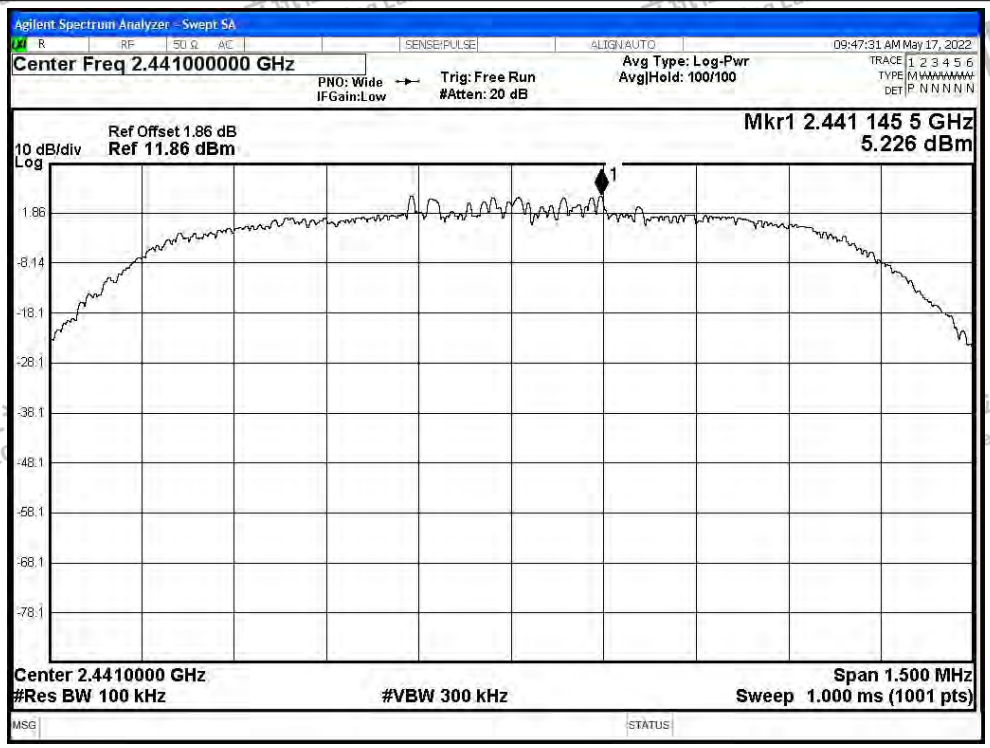
Tx. Spurious NVNT 2-DH5 2402MHz Ant1 Ref



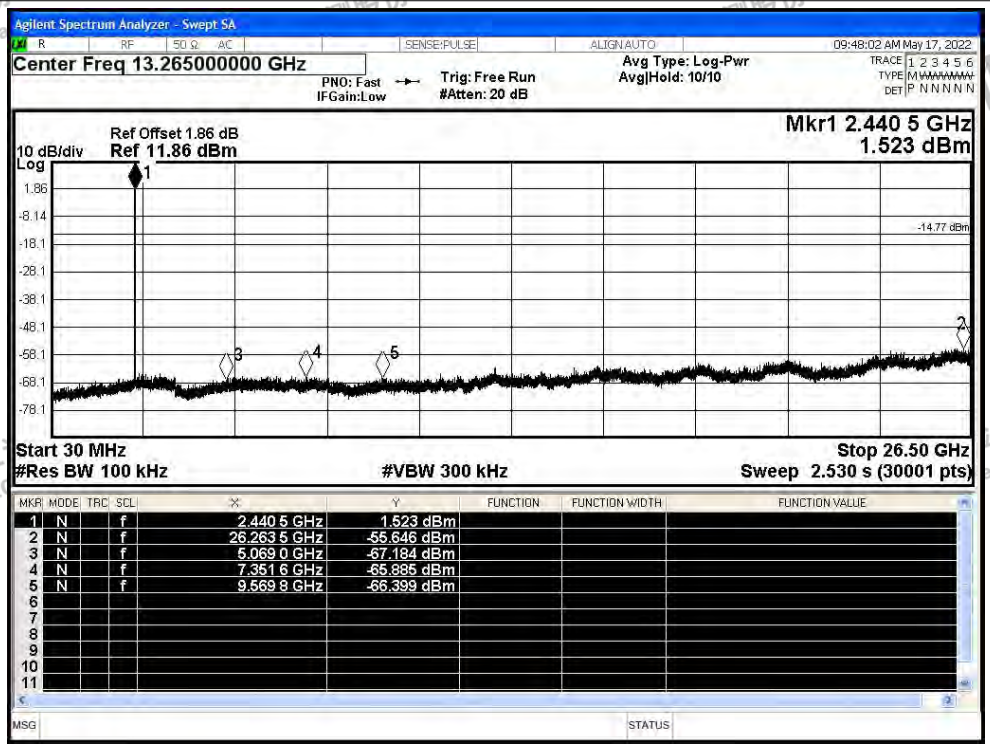

Tx. Spurious NVNT 2-DH5 2402MHz Ant1 Emission



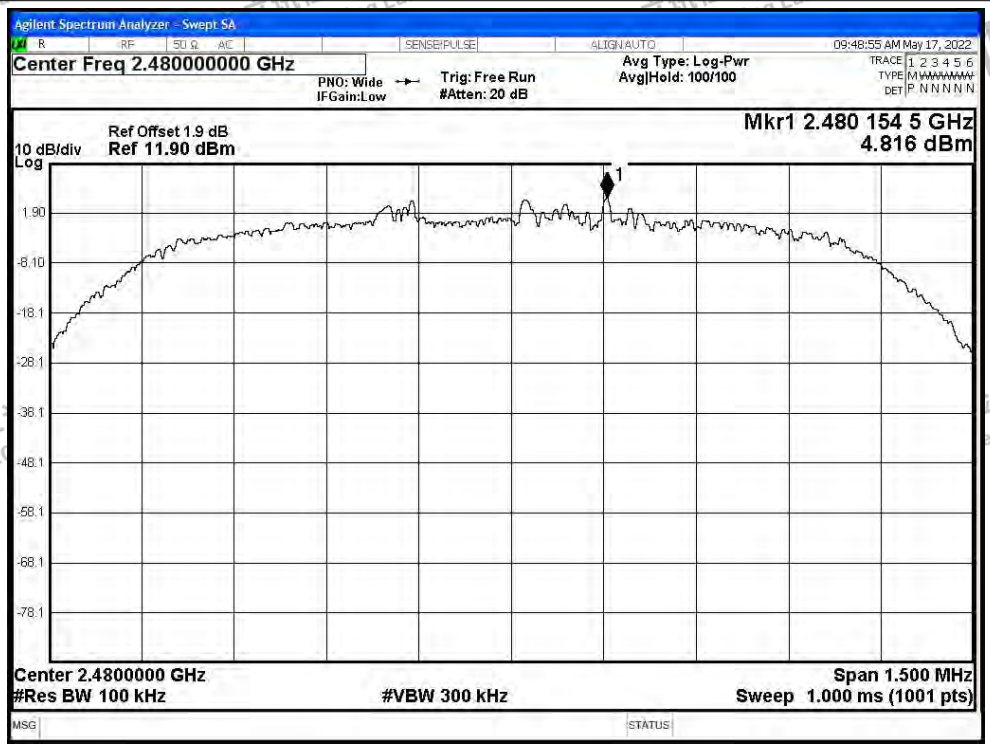
Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Ref



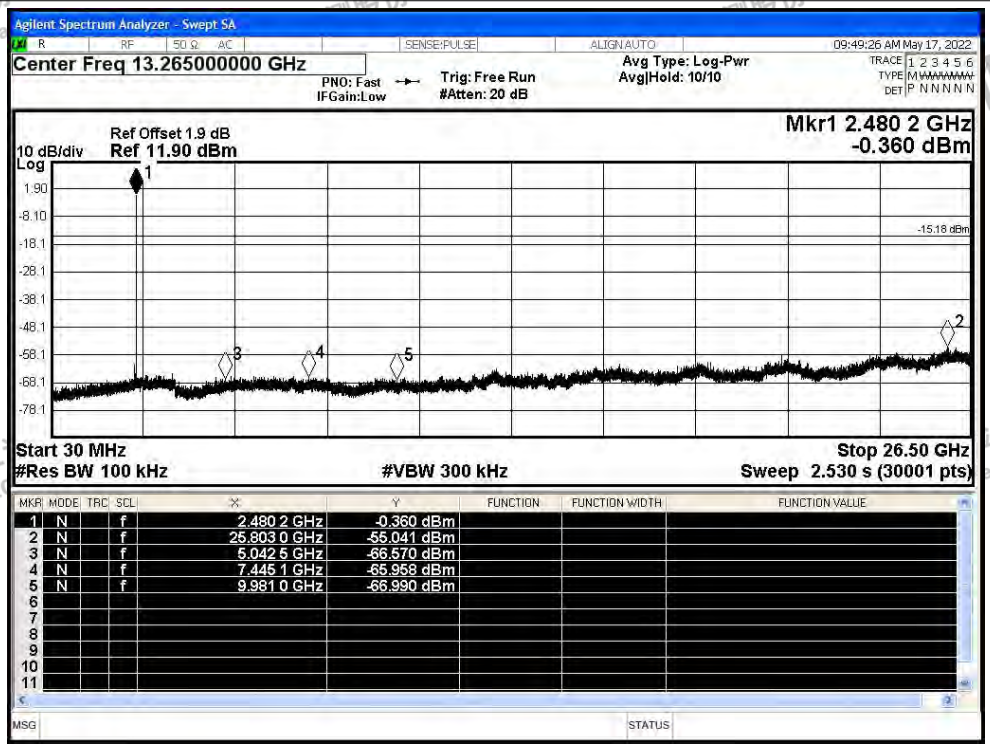

Tx. Spurious NVNT 2-DH5 2441MHz Ant1 Emission



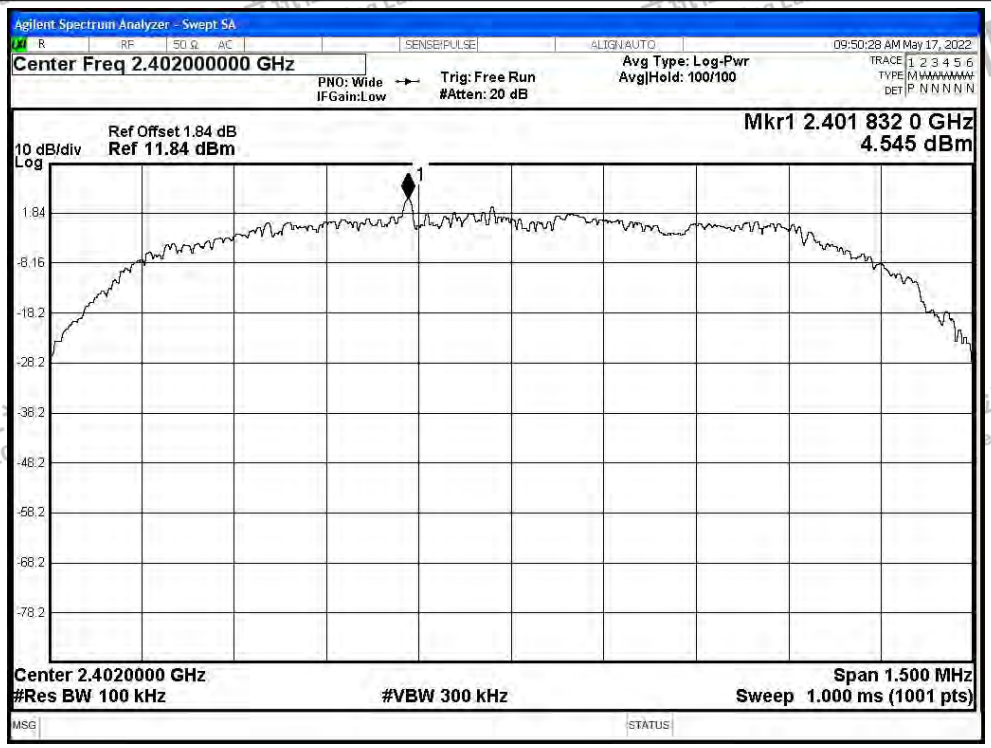
Tx. Spurious NVNT 2-DH5 2480MHz Ant1 Ref



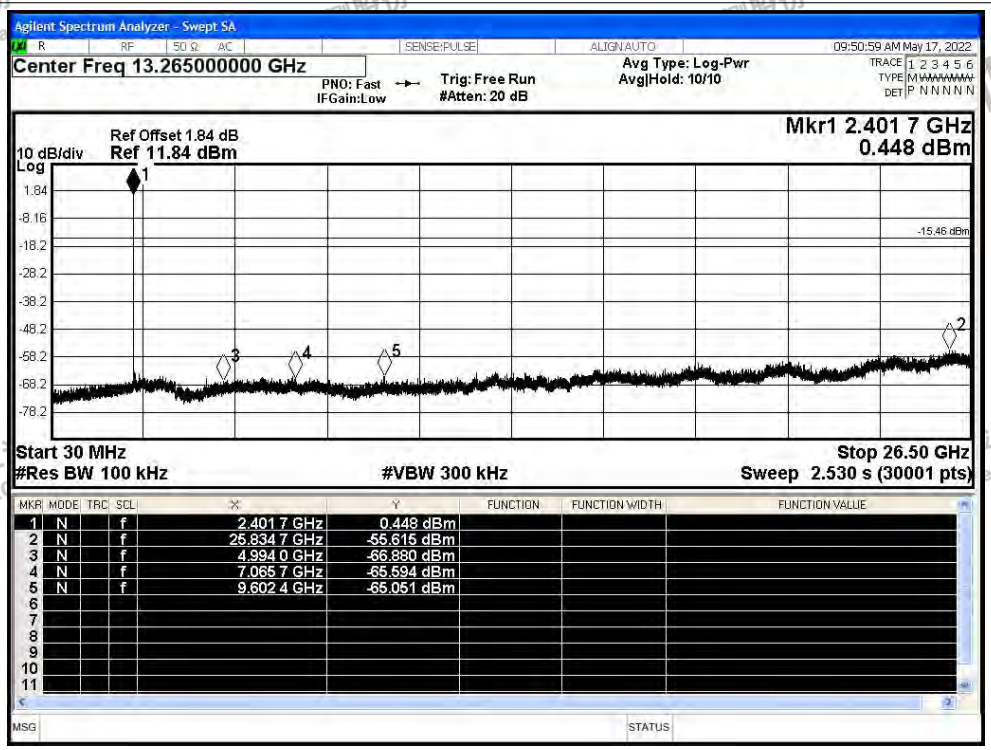

Tx. Spurious NVNT 2-DH5 2480MHz Ant1 Emission



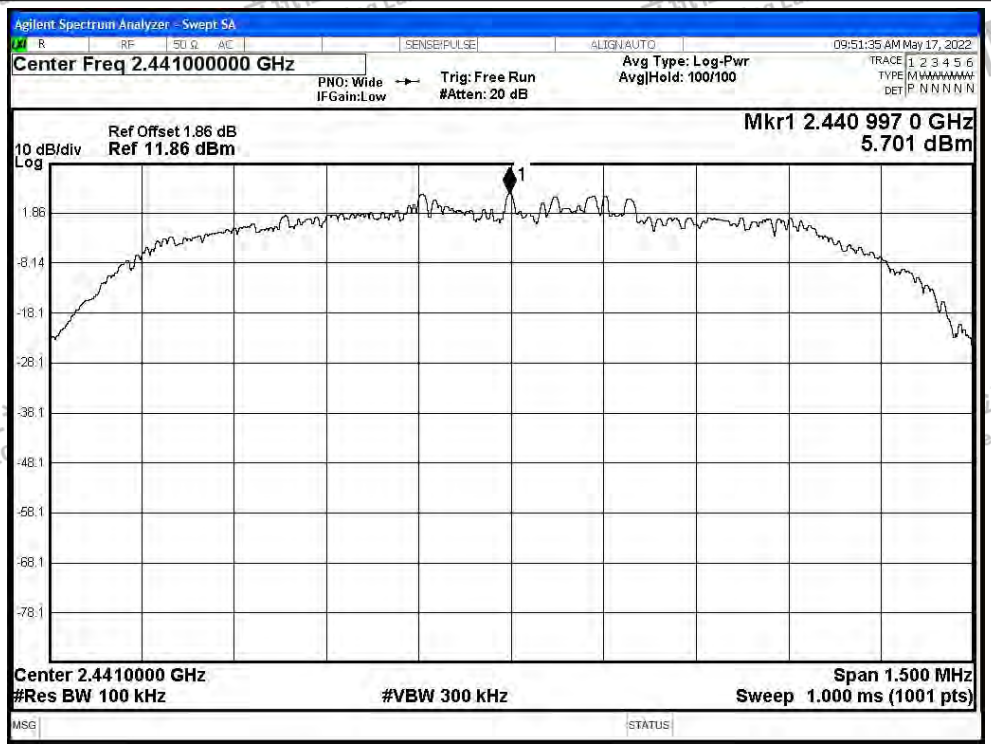
Tx. Spurious NVNT 3-DH5 2402MHz Ant1 Ref



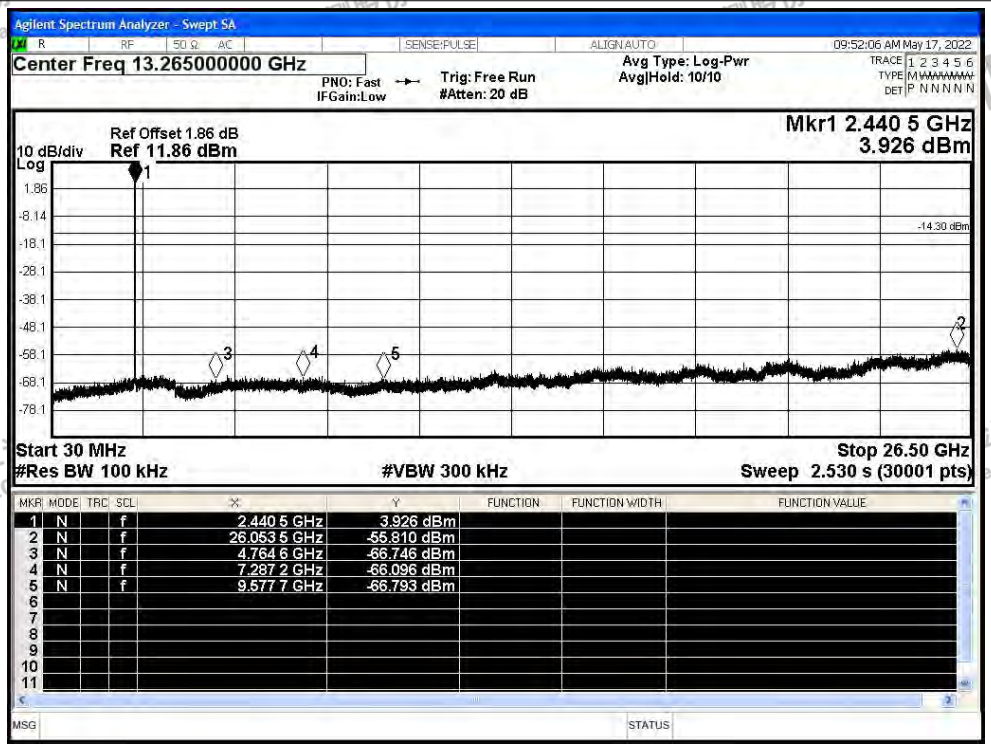

Tx. Spurious NVNT 3-DH5 2402MHz Ant1 Emission



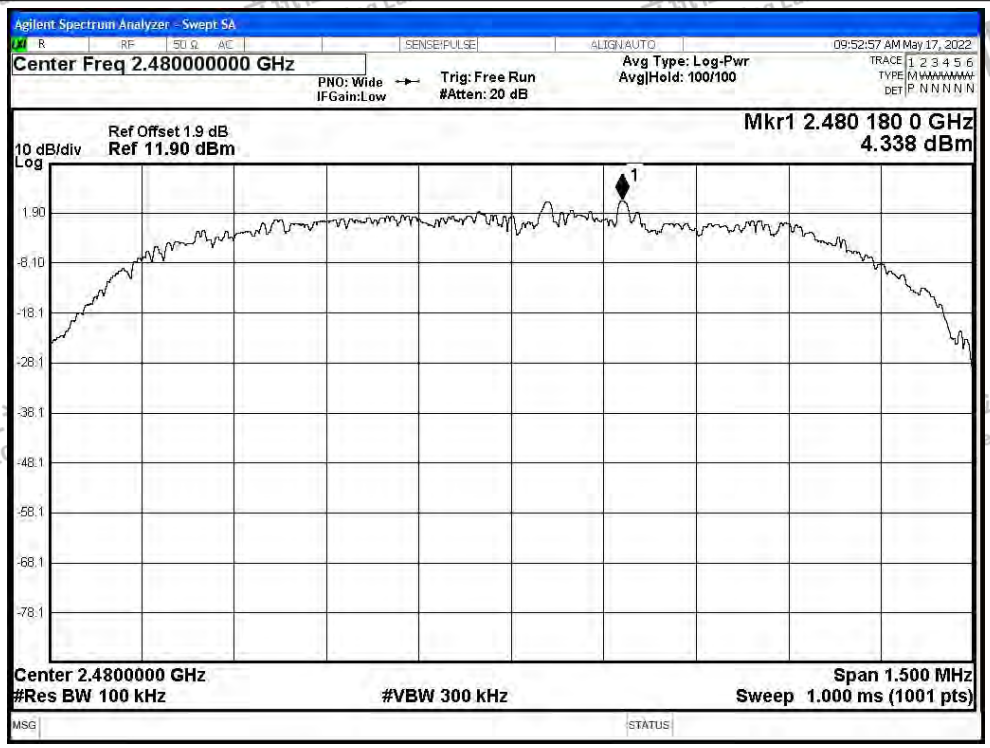
Tx. Spurious NVNT 3-DH5 2441MHz Ant1 Ref



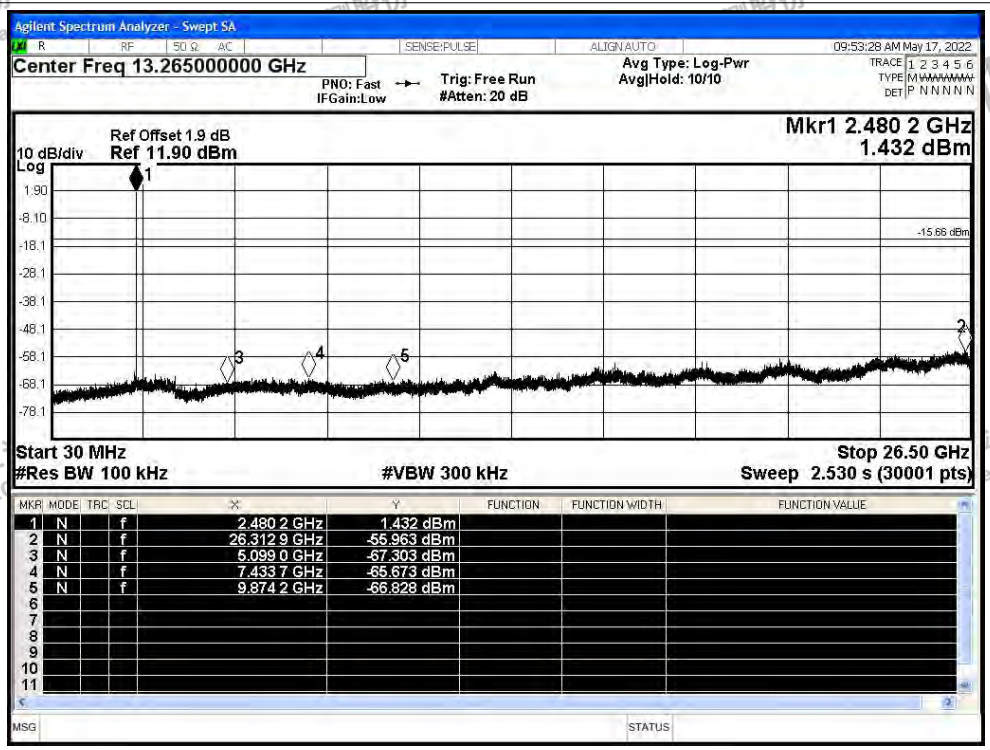

Tx. Spurious NVNT 3-DH5 2441MHz Ant1 Emission



Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Ref




Tx. Spurious NVNT 3-DH5 2480MHz Ant1 Emission

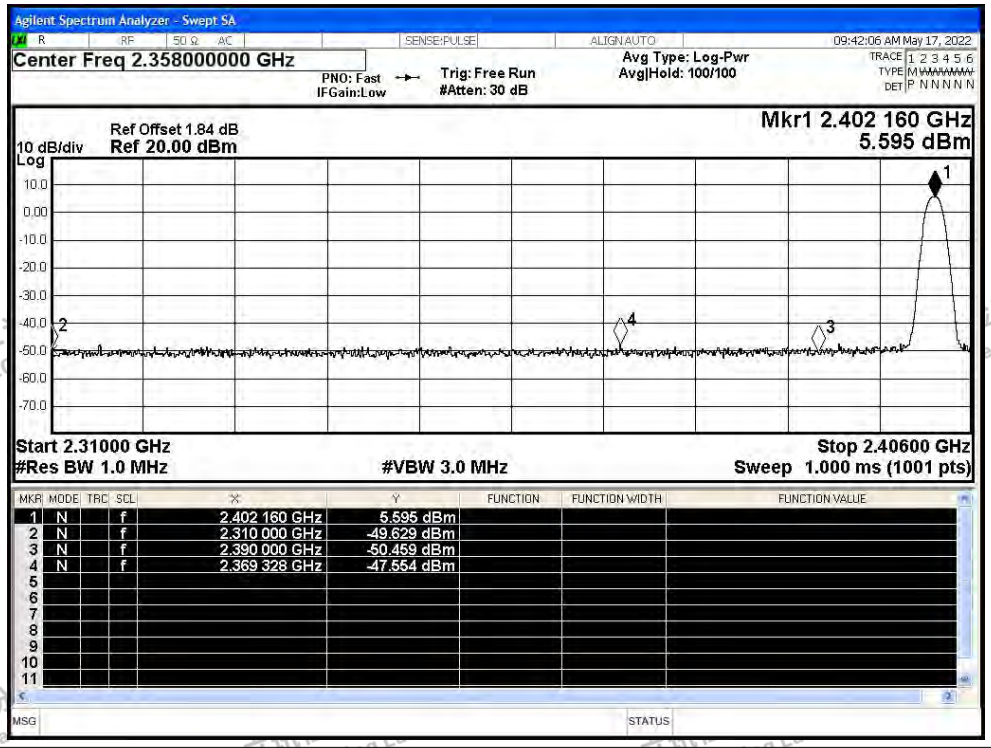


## A.8 Restrict Band

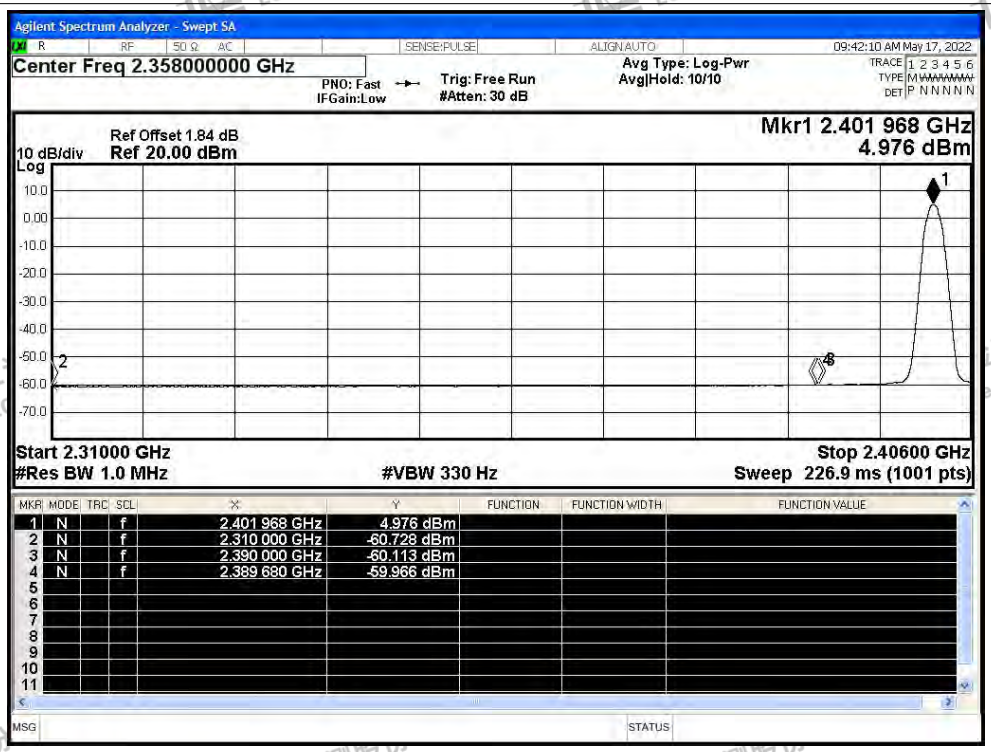
| Condition | Mode | Frequency (MHz) | Antenna | Hopping Mode | Spur Freq (MHz) | Power (dBm) | Gain (dBi) | E (dBuV/m) | Detector | Limit (dBuV/m) | Verdict |
|---|---|---|---|---|---|---|---|---|---|---|---|
| NVNT | 1-DH5 | 2402 | Ant1 | No-Hopping | 2310 | -49.63 | 2 | 47.63 | Peak | 74 | Pass |
| NVNT | 1-DH5 | 2402 | Ant1 | No-Hopping | 2310 | -60.73 | 2 | 36.53 | Average | 54 | Pass |
| NVNT | 1-DH5 | 2402 | Ant1 | No-Hopping | 2369.328 | -47.55 | 2 | 49.71 | Peak | 74 | Pass |
| NVNT | 1-DH5 | 2402 | Ant1 | No-Hopping | 2389.68 | -59.97 | 2 | 37.29 | Average | 54 | Pass |
| NVNT | 1-DH5 | 2402 | Ant1 | No-Hopping | 2390 | -51.16 | 2 | 46.1 | Peak | 74 | Pass |
| NVNT | 1-DH5 | 2402 | Ant1 | No-Hopping | 2390 | -60.03 | 2 | 37.23 | Average | 54 | Pass |
| NVNT | 1-DH5 | 2480 | Ant1 | No-Hopping | 2483.5 | -48.82 | 2 | 48.44 | Peak | 74 | Pass |
| NVNT | 1-DH5 | 2480 | Ant1 | No-Hopping | 2483.5 | -58.93 | 2 | 38.33 | Average | 54 | Pass |
| NVNT | 1-DH5 | 2480 | Ant1 | No-Hopping | 2492.824 | -46.1 | 2 | 51.16 | Peak | 74 | Pass |
| NVNT | 1-DH5 | 2480 | Ant1 | No-Hopping | 2483.728 | -58.9 | 2 | 38.36 | Average | 54 | Pass |
| NVNT | 1-DH5 | 2480 | Ant1 | No-Hopping | 2500 | -50.23 | 2 | 47.03 | Peak | 74 | Pass |
| NVNT | 1-DH5 | 2480 | Ant1 | No-Hopping | 2500 | -59.94 | 2 | 37.32 | Average | 54 | Pass |
| NVNT | 2-DH5 | 2402 | Ant1 | No-Hopping | 2310 | -50.74 | 2 | 46.52 | Peak | 74 | Pass |
| NVNT | 2-DH5 | 2402 | Ant1 | No-Hopping | 2310 | -60.75 | 2 | 36.51 | Average | 54 | Pass |
| NVNT | 2-DH5 | 2402 | Ant1 | No-Hopping | 2386.896 | -47.91 | 2 | 49.35 | Peak | 74 | Pass |
| NVNT | 2-DH5 | 2402 | Ant1 | No-Hopping | 2389.776 | -59.89 | 2 | 37.37 | Average | 54 | Pass |
| NVNT | 2-DH5 | 2402 | Ant1 | No-Hopping | 2390 | -51.64 | 2 | 45.62 | Peak | 74 | Pass |
| NVNT | 2-DH5 | 2402 | Ant1 | No-Hopping | 2390 | -60.07 | 2 | 37.19 | Average | 54 | Pass |
| NVNT | 2-DH5 | 2480 | Ant1 | No-Hopping | 2483.5 | -49.14 | 2 | 48.12 | Peak | 74 | Pass |
| NVNT | 2-DH5 | 2480 | Ant1 | No-Hopping | 2483.5 | -58.41 | 2 | 38.85 | Average | 54 | Pass |
| NVNT | 2-DH5 | 2480 | Ant1 | No-Hopping | 2484.472 | -46.98 | 2 | 50.28 | Peak | 74 | Pass |
| NVNT | 2-DH5 | 2480 | Ant1 | No-Hopping | 2483.536 | -58.37 | 2 | 38.89 | Average | 54 | Pass |
| NVNT | 2-DH5 | 2480 | Ant1 | No-Hopping | 2500 | -51.23 | 2 | 46.03 | Peak | 74 | Pass |
| NVNT | 2-DH5 | 2480 | Ant1 | No-Hopping | 2500 | -60.02 | 2 | 37.24 | Average | 54 | Pass |
| NVNT | 3-DH5 | 2402 | Ant1 | No-Hopping | 2310 | -50.41 | 2 | 46.85 | Peak | 74 | Pass |
| NVNT | 3-DH5 | 2402 | Ant1 | No-Hopping | 2310 | -60.6 | 2 | 36.66 | Average | 54 | Pass |
| NVNT | 3-DH5 | 2402 | Ant1 | No-Hopping | 2330.736 | -48.32 | 2 | 48.94 | Peak | 74 | Pass |
| NVNT | 3-DH5 | 2402 | Ant1 | No-Hopping | 2389.008 | -59.9 | 2 | 37.36 | Average | 54 | Pass |
| NVNT | 3-DH5 | 2402 | Ant1 | No-Hopping | 2390 | -49.15 | 2 | 48.11 | Peak | 74 | Pass |
| NVNT | 3-DH5 | 2402 | Ant1 | No-Hopping | 2390 | -60.13 | 2 | 37.13 | Average | 54 | Pass |
| NVNT | 3-DH5 | 2480 | Ant1 | No-Hopping | 2483.5 | -47.7 | 2 | 49.56 | Peak | 74 | Pass |
| NVNT | 3-DH5 | 2480 | Ant1 | No-Hopping | 2483.5 | -58.43 | 2 | 38.83 | Average | 54 | Pass |
| NVNT | 3-DH5 | 2480 | Ant1 | No-Hopping | 2485.192 | -46.52 | 2 | 50.74 | Peak | 74 | Pass |
| NVNT | 3-DH5 | 2480 | Ant1 | No-Hopping | 2483.512 | -58.43 | 2 | 38.83 | Average | 54 | Pass |
| NVNT | 3-DH5 | 2480 | Ant1 | No-Hopping | 2500 | -50.72 | 2 | 46.54 | Peak | 74 | Pass |
| NVNT | 3-DH5 | 2480 | Ant1 | No-Hopping | 2500 | -59.91 | 2 | 37.35 | Average | 54 | Pass |

Test Graphs

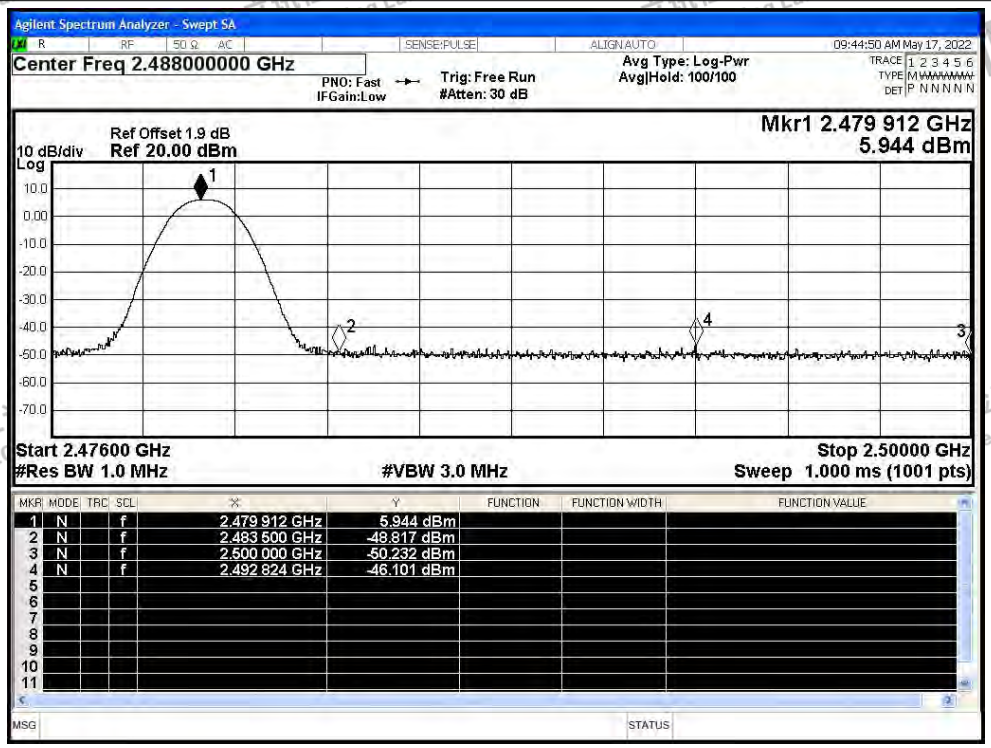
Restrict Band NVNT 1-DH5 2402MHz Ant1 No-Hopping Peak



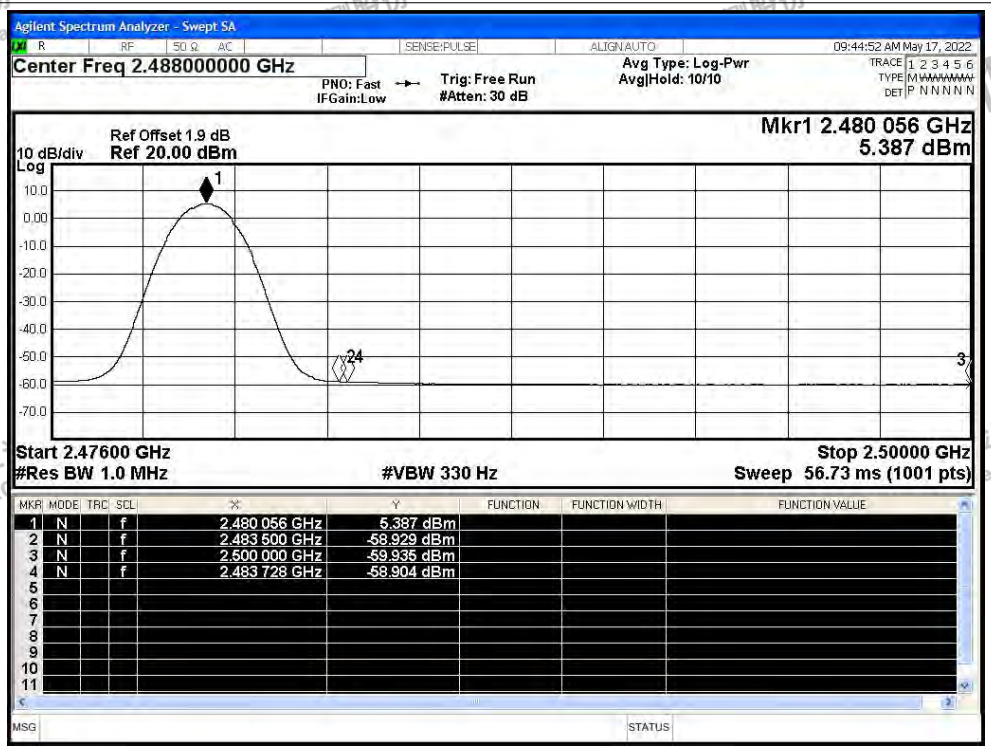

Restrict Band NVNT 1-DH5 2402MHz Ant1 No-Hopping Average



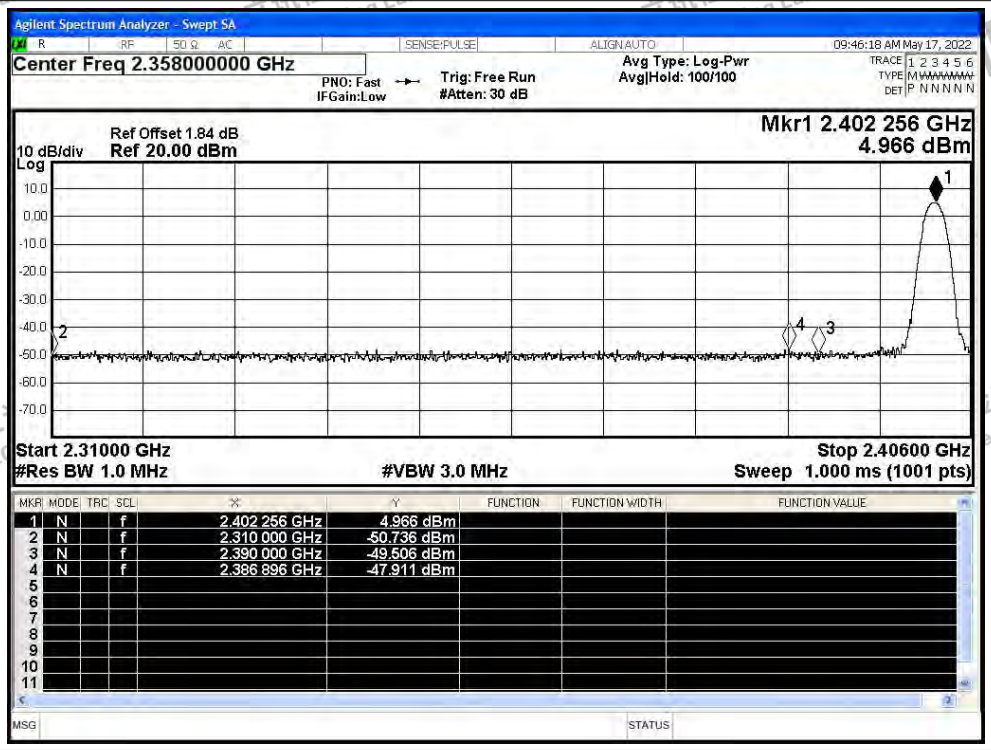
Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Peak



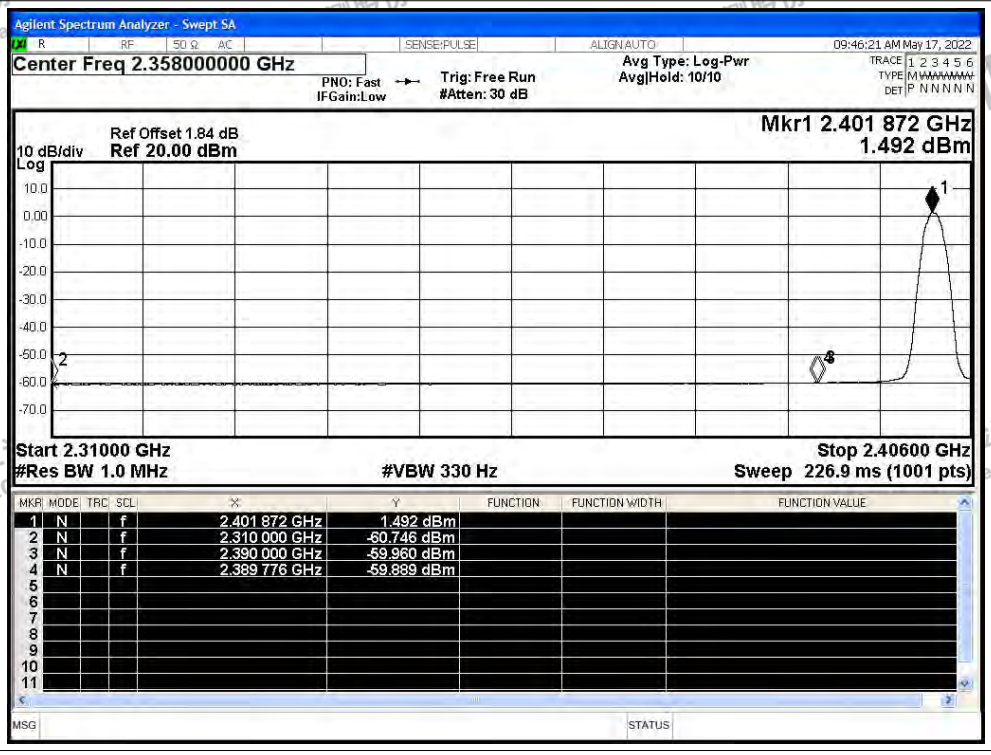

Restrict Band NVNT 1-DH5 2480MHz Ant1 No-Hopping Average



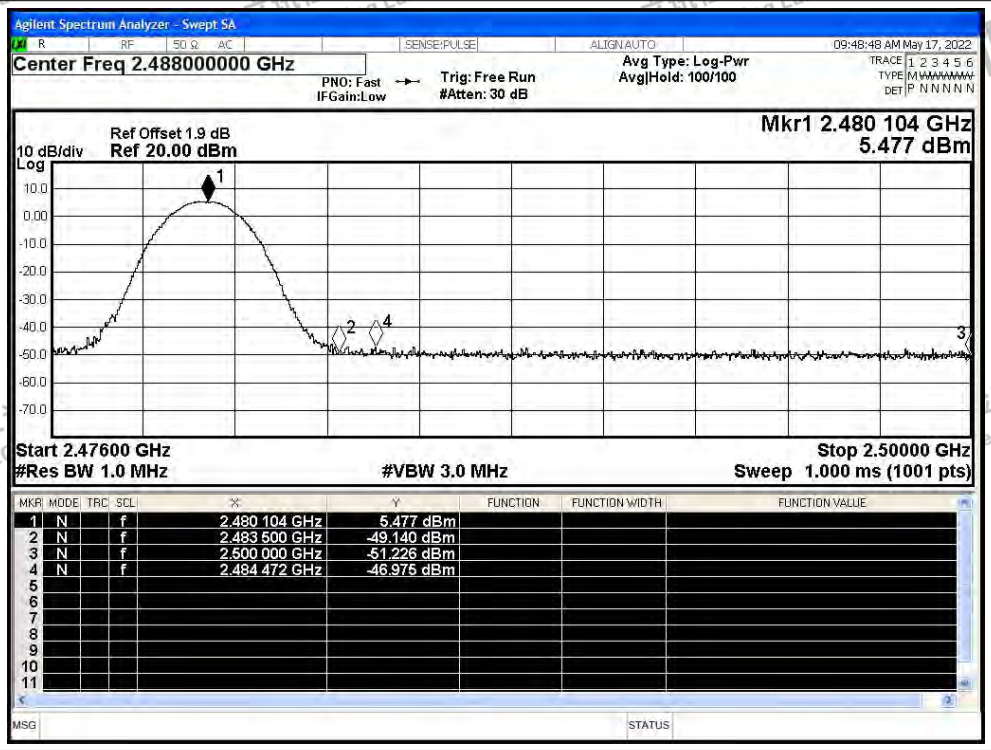
Restrict Band NVNT 2-DH5 2402MHz Ant1 No-Hopping Peak



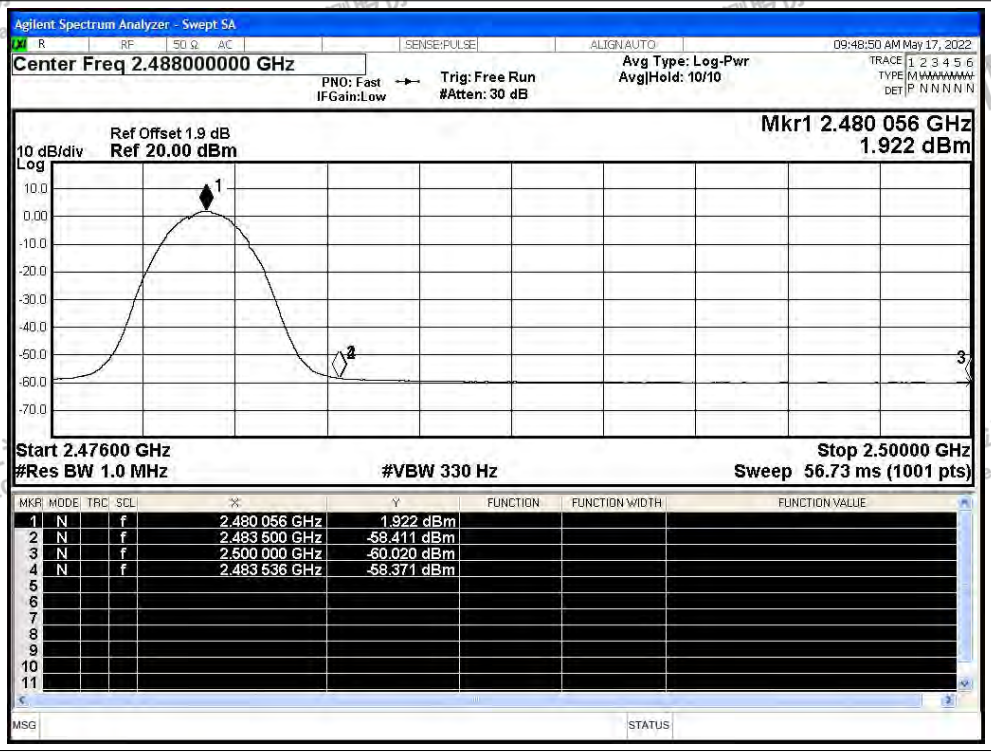

Restrict Band NVNT 2-DH5 2402MHz Ant1 No-Hopping Average



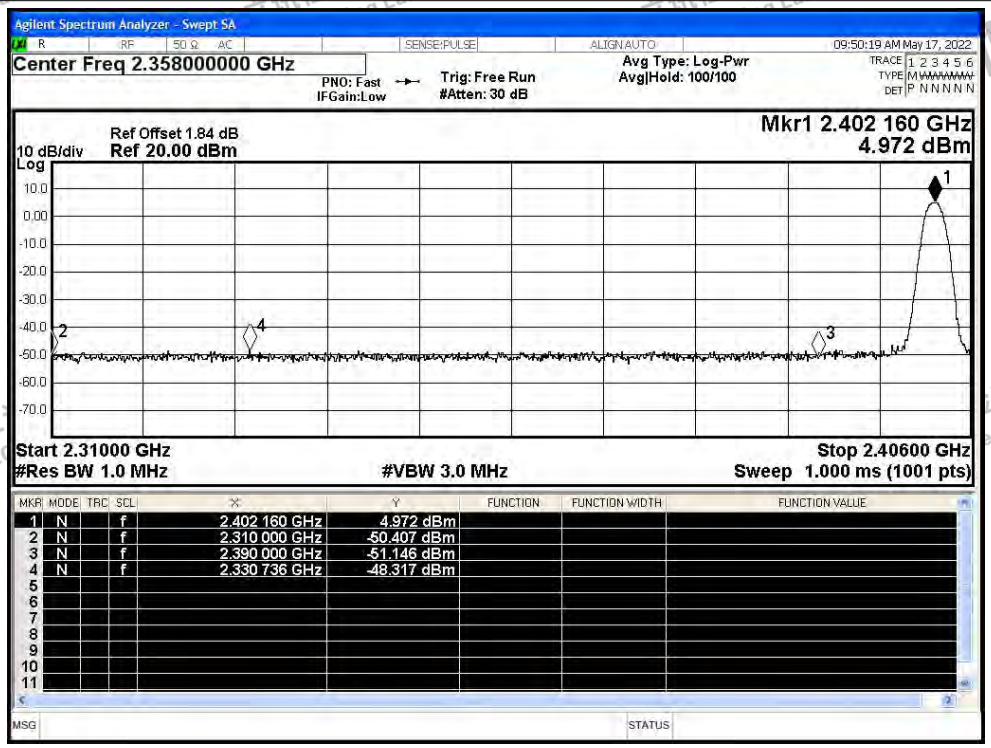
Restrict Band NVNT 2-DH5 2480MHz Ant1 No-Hopping Peak



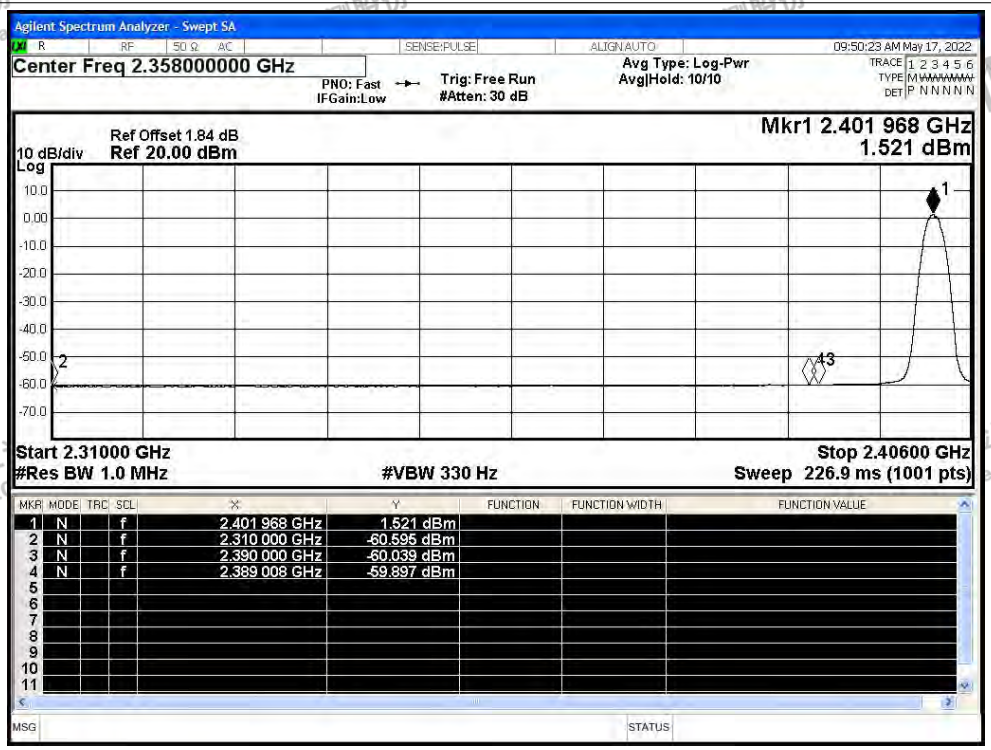

Restrict Band NVNT 2-DH5 2480MHz Ant1 No-Hopping Average



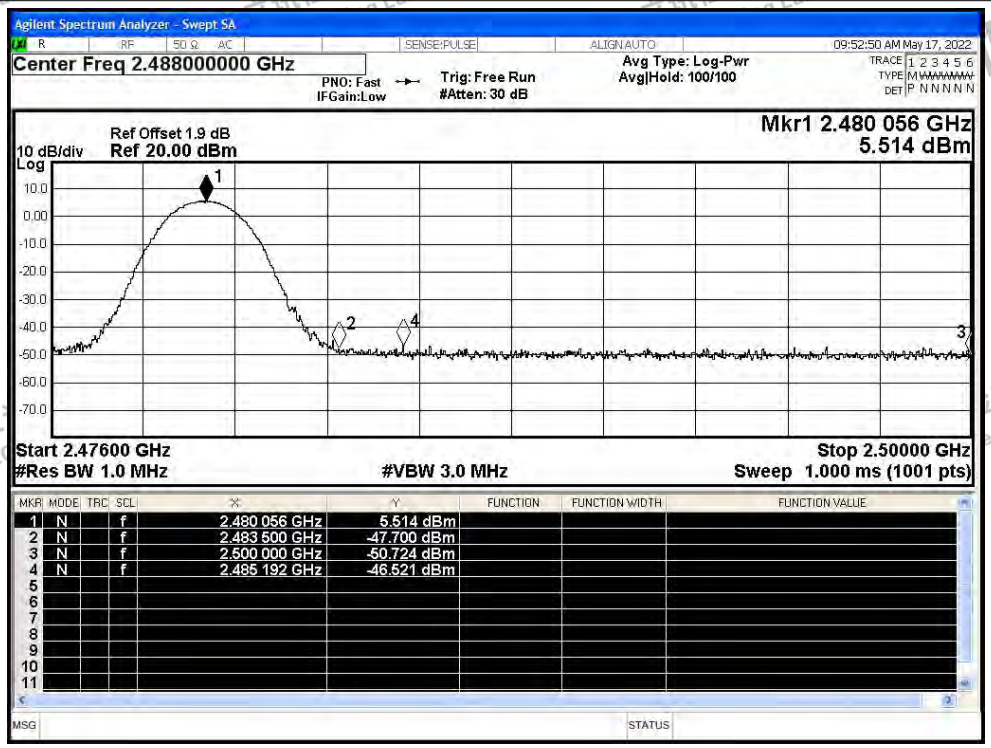
Restrict Band NVNT 3-DH5 2402MHz Ant1 No-Hopping Peak

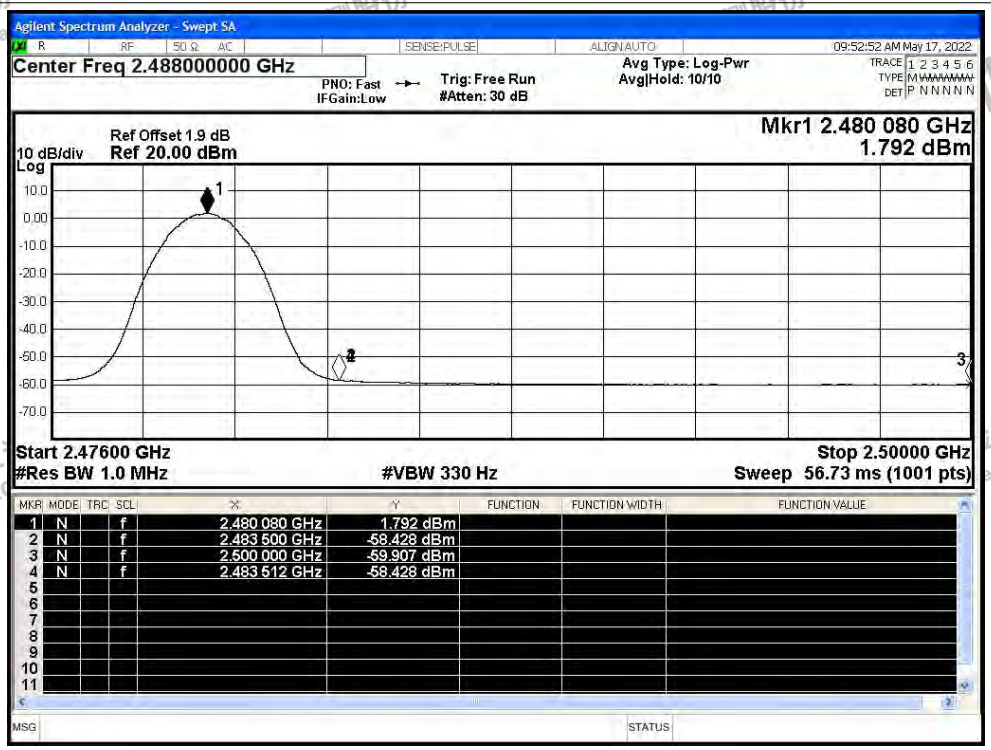



Restrict Band NVNT 3-DH5 2402MHz Ant1 No-Hopping Average



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




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