# RF Test Data for Bluetooth LE (Conducted Measurements)

| General Description of EUT | |
|---|---|
| **Product Name:** | Wireless Headphone |
| **Test Model:** | iKF R1 |
| **Sample ID:** | 202308-0210-3-2# |
| **Environmental Conditions** | |
| **Temperature:** | 25℃ |
| **Relative Humidity:** | 55% |
| **Test Voltage:** | DC 3.7V |
| **Test Engineer:** | Huang jian ping |
| Note: For a more detailed features description, please refer to the report TBR-C-202308-0210-51<br>The report only show the worst case data. | |

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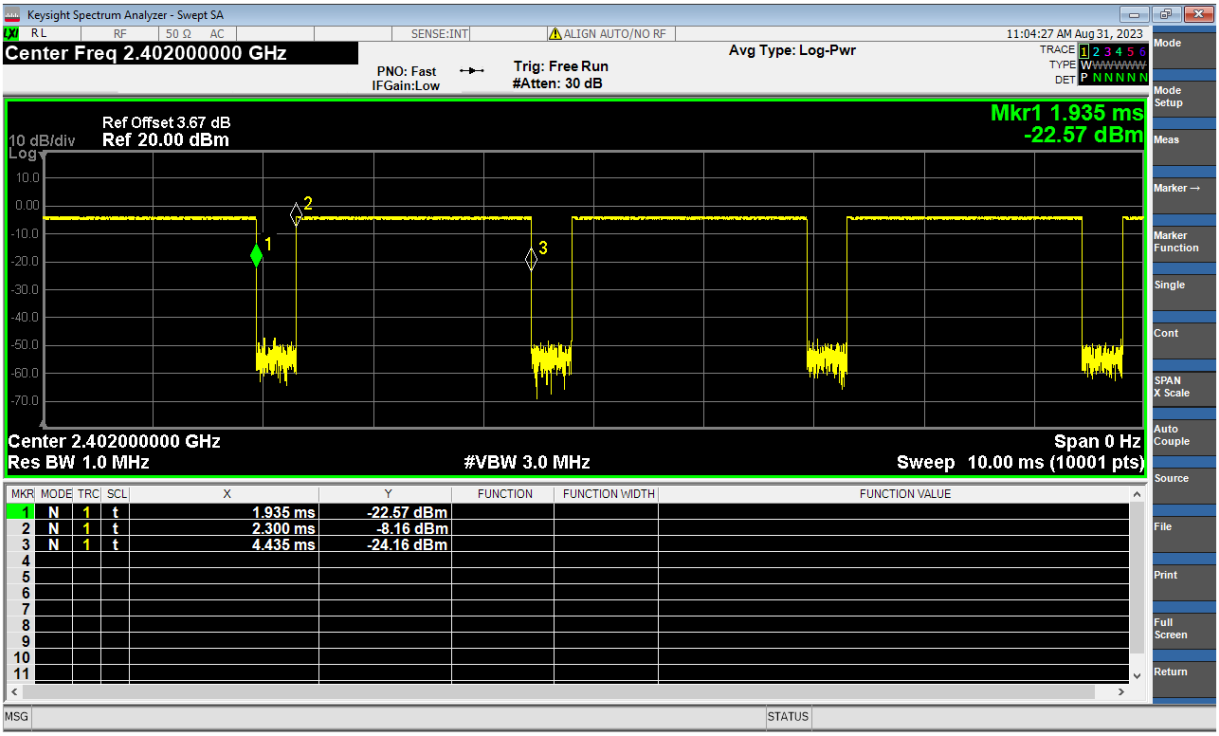
# 1. Duty Cycle

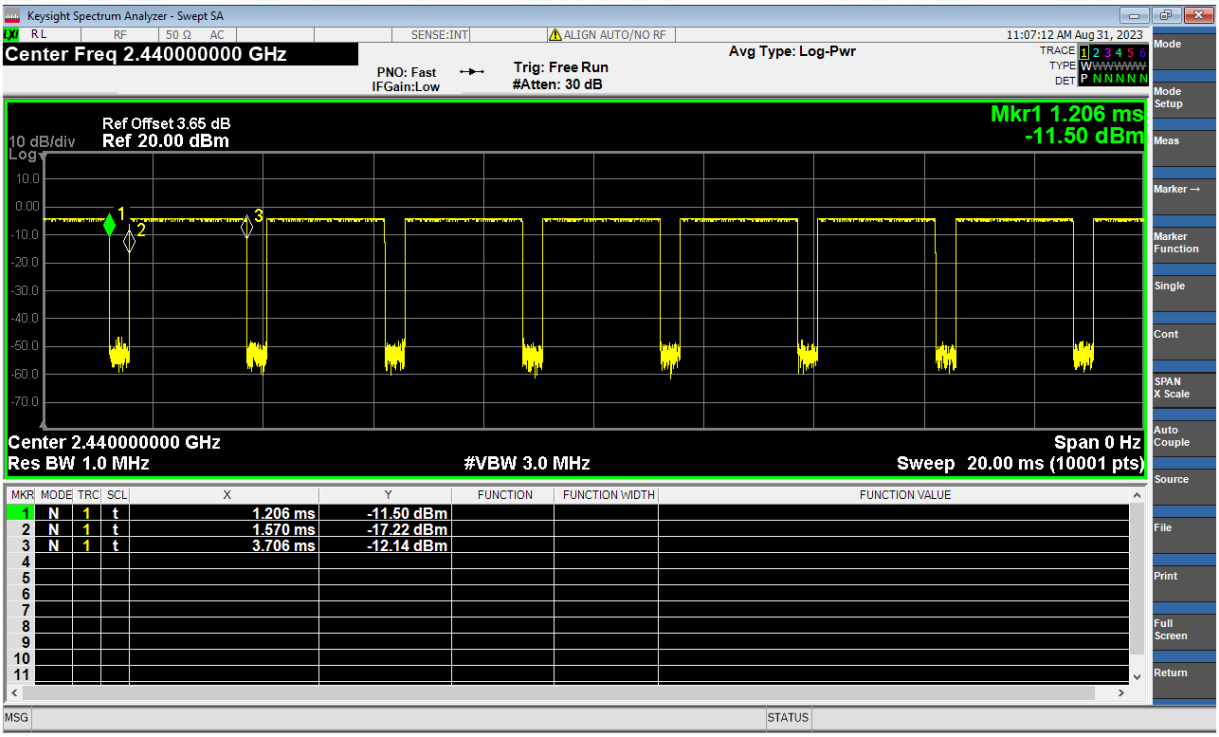
| Condition | Mode | Frequency (MHz) | Antenna | Duty Cycle (%) | Correction Factor (dB) | 1/T (kHz) |
|---|---|---|---|---|---|---|
| NVNT | BLE 1Mbps | 2402 | Ant1 | 85.4 | 0.69 | 0.47 |
| NVNT | BLE 1Mbps | 2440 | Ant1 | 85.44 | 0.68 | 0.47 |
| NVNT | BLE 1Mbps | 2480 | Ant1 | 85.44 | 0.68 | 0.47 |
| NVNT | BLE 2Mbps | 2402 | Ant1 | 43.29 | 3.64 | 0.92 |
| NVNT | BLE 2Mbps | 2440 | Ant1 | 43.34 | 3.63 | 0.92 |
| NVNT | BLE 2Mbps | 2480 | Ant1 | 43.29 | 3.64 | 0.92 |

Test Graphs

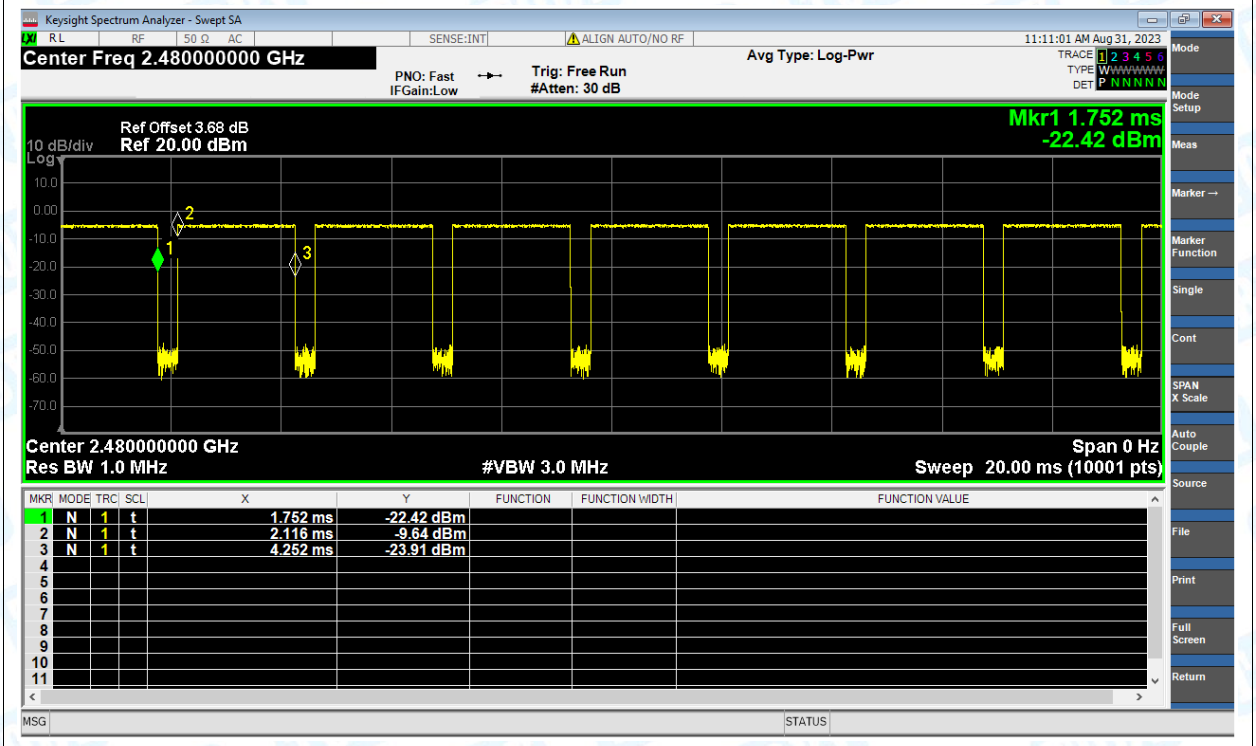
Duty Cycle NVNT BLE 1Mbps 2402MHz Ant1



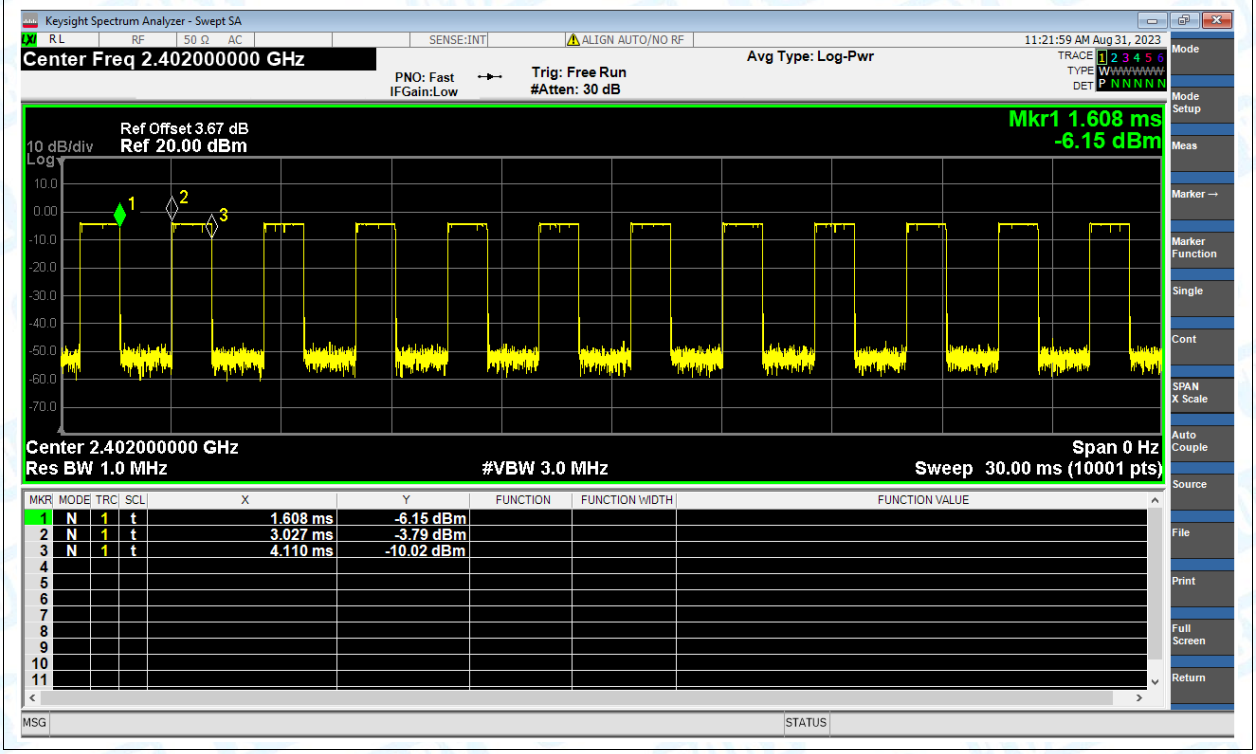

Duty Cycle NVNT BLE 1Mbps 2440MHz Ant1



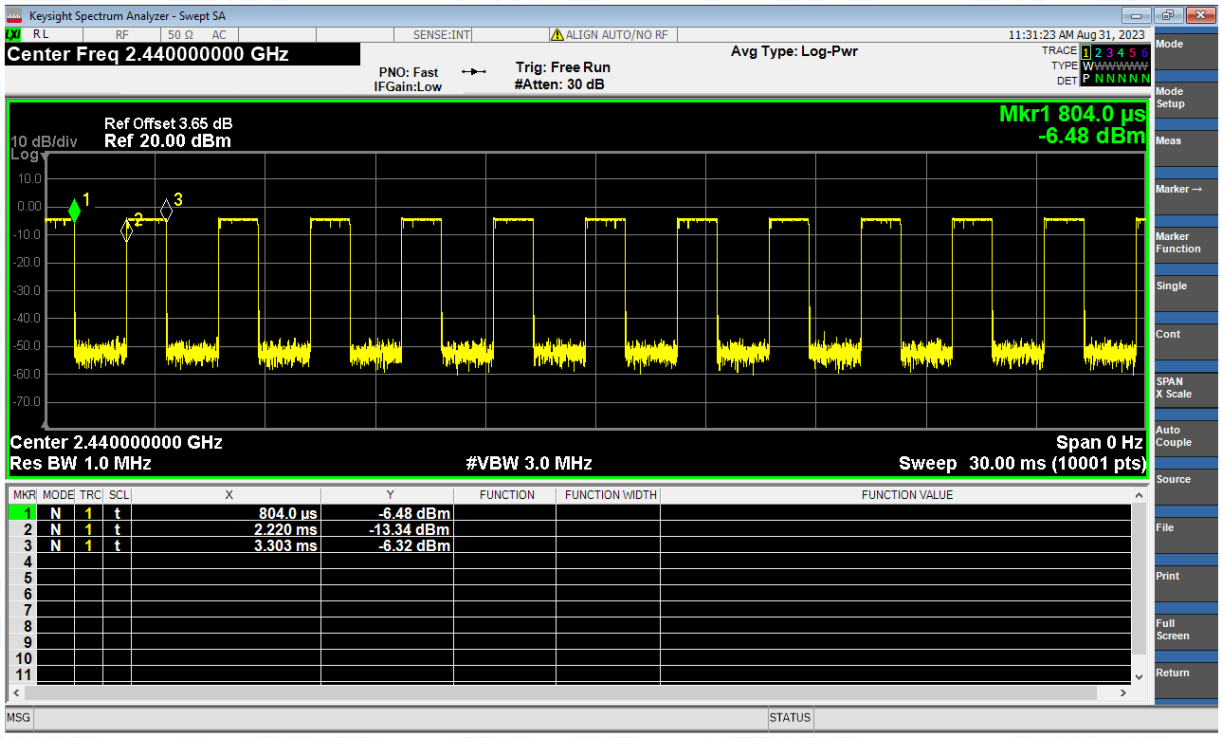
Duty Cycle NVNT BLE 1Mbps 2480MHz Ant1



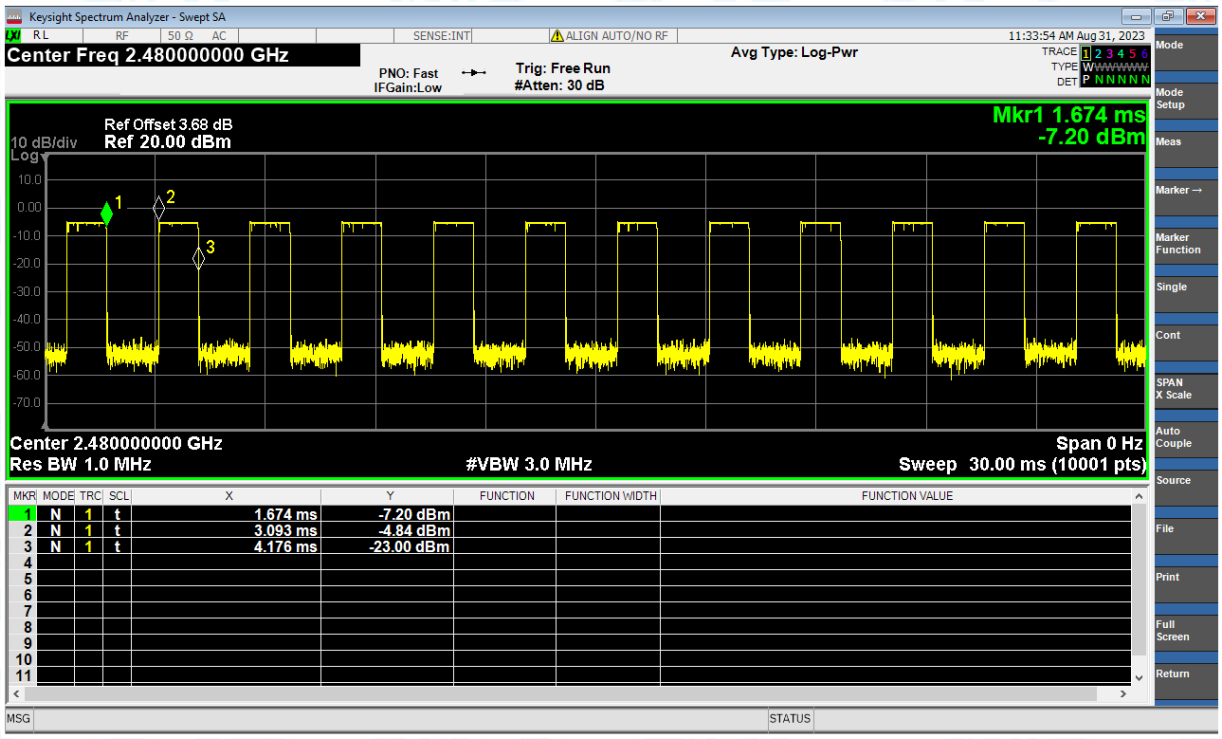

Duty Cycle NVNT BLE 2Mbps 2402MHz Ant1



Duty Cycle NVNT BLE 2Mbps 2440MHz Ant1




Duty Cycle NVNT BLE 2Mbps 2480MHz Ant1

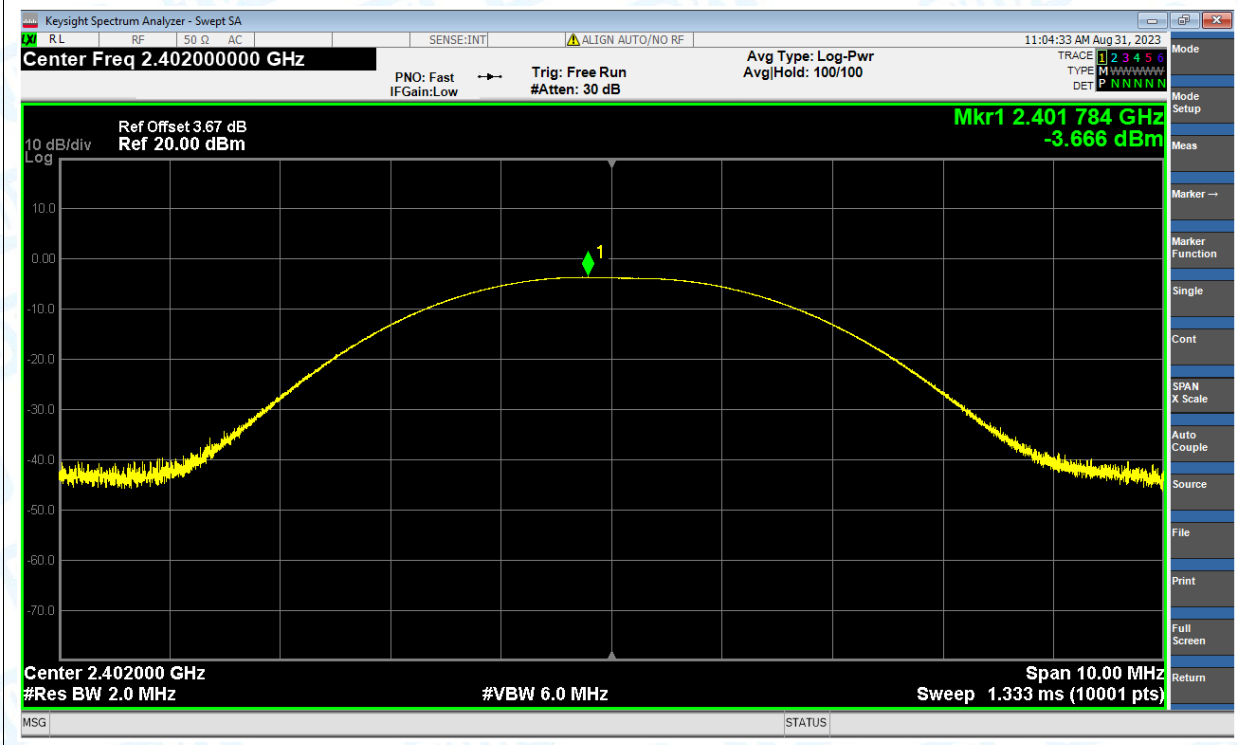


# 2. Maximum Conducted Output Power

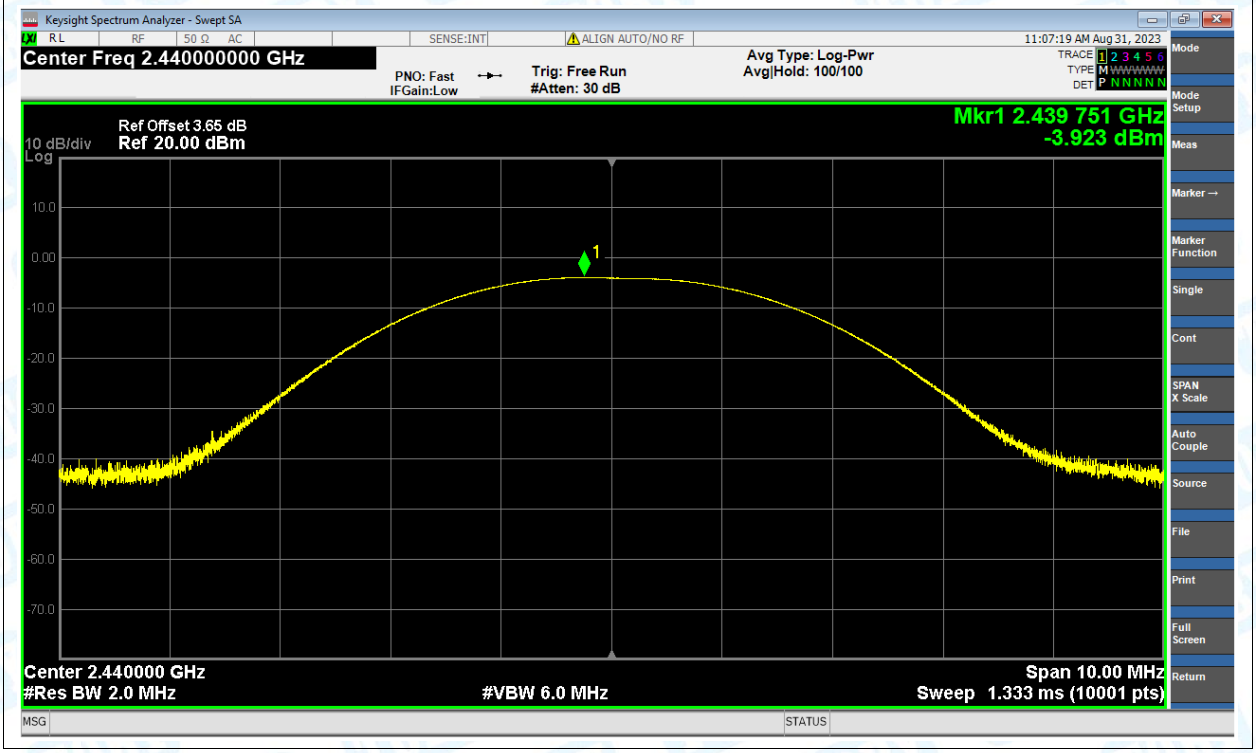
| Condition | Mode | Frequency (MHz) | Antenna | Conducted Power (dBm) | Limit (dBm) | Verdict |
|---|---|---|---|---|---|---|
| NVNT | BLE 1Mbps | 2402 | Ant1 | -3.666 | 30 | Pass |
| NVNT | BLE 1Mbps | 2440 | Ant1 | -3.923 | 30 | Pass |
| NVNT | BLE 1Mbps | 2480 | Ant1 | -4.717 | 30 | Pass |
| NVNT | BLE 2Mbps | 2402 | Ant1 | -3.467 | 30 | Pass |
| NVNT | BLE 2Mbps | 2440 | Ant1 | -3.6 | 30 | Pass |
| NVNT | BLE 2Mbps | 2480 | Ant1 | -4.489 | 30 | Pass |

Test Graphs

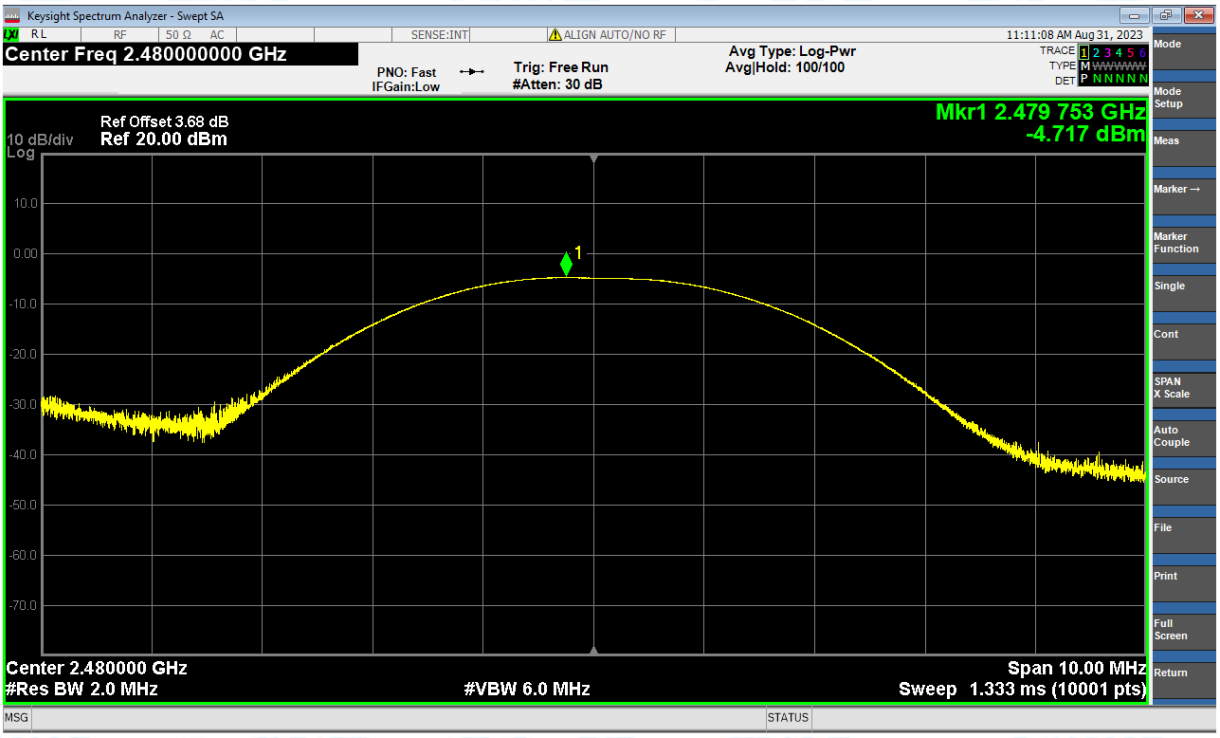
Power NVNT BLE 1Mbps 2402MHz Ant1



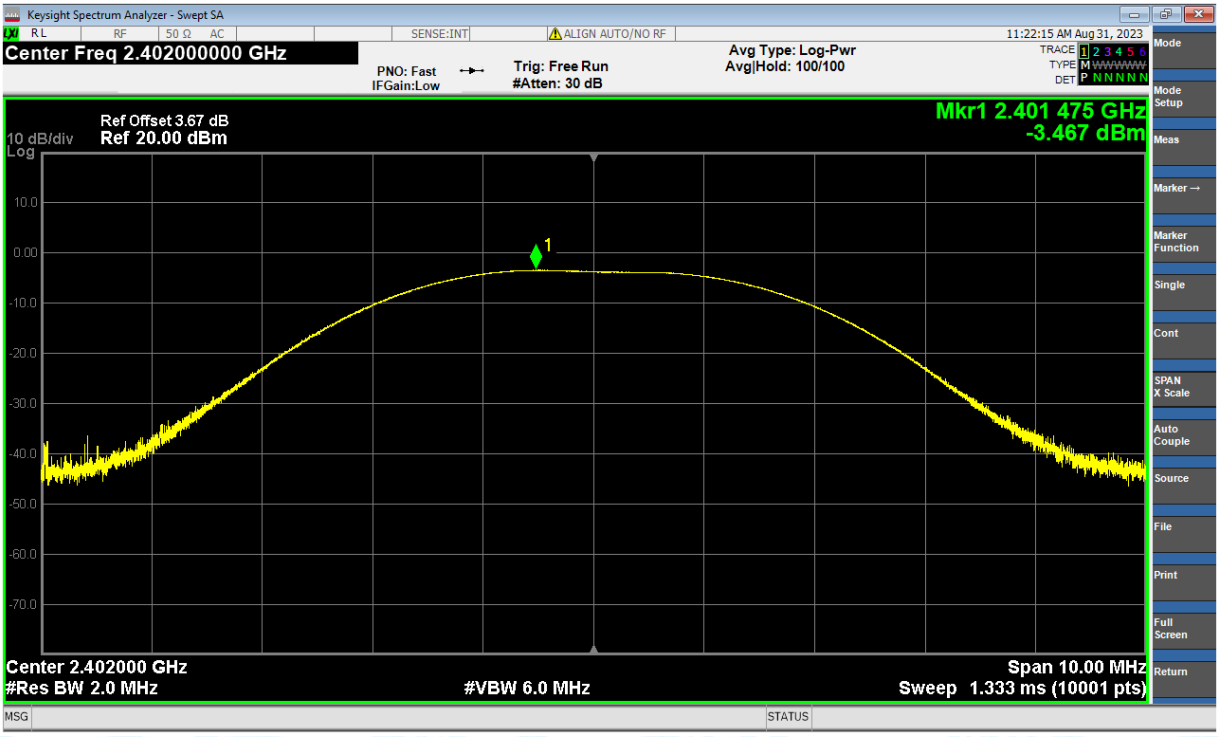

Power NVNT BLE 1Mbps 2440MHz Ant1



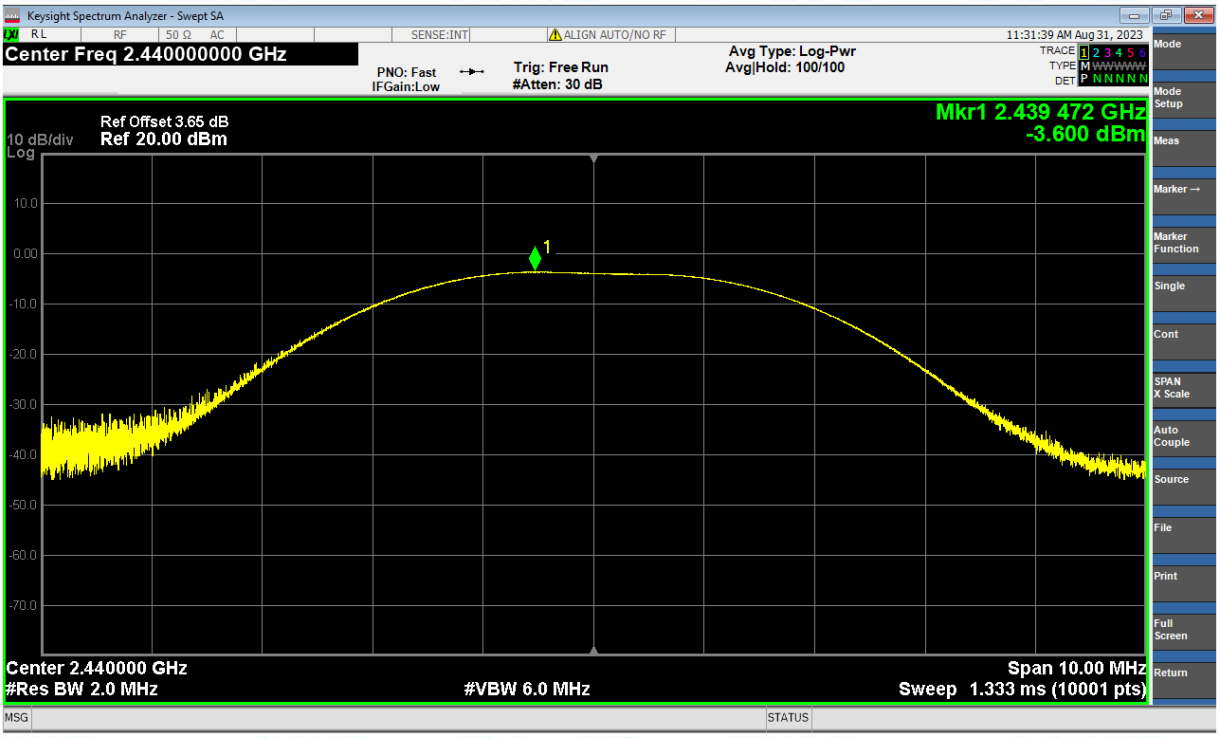
Power NVNT BLE 1Mbps 2480MHz Ant1



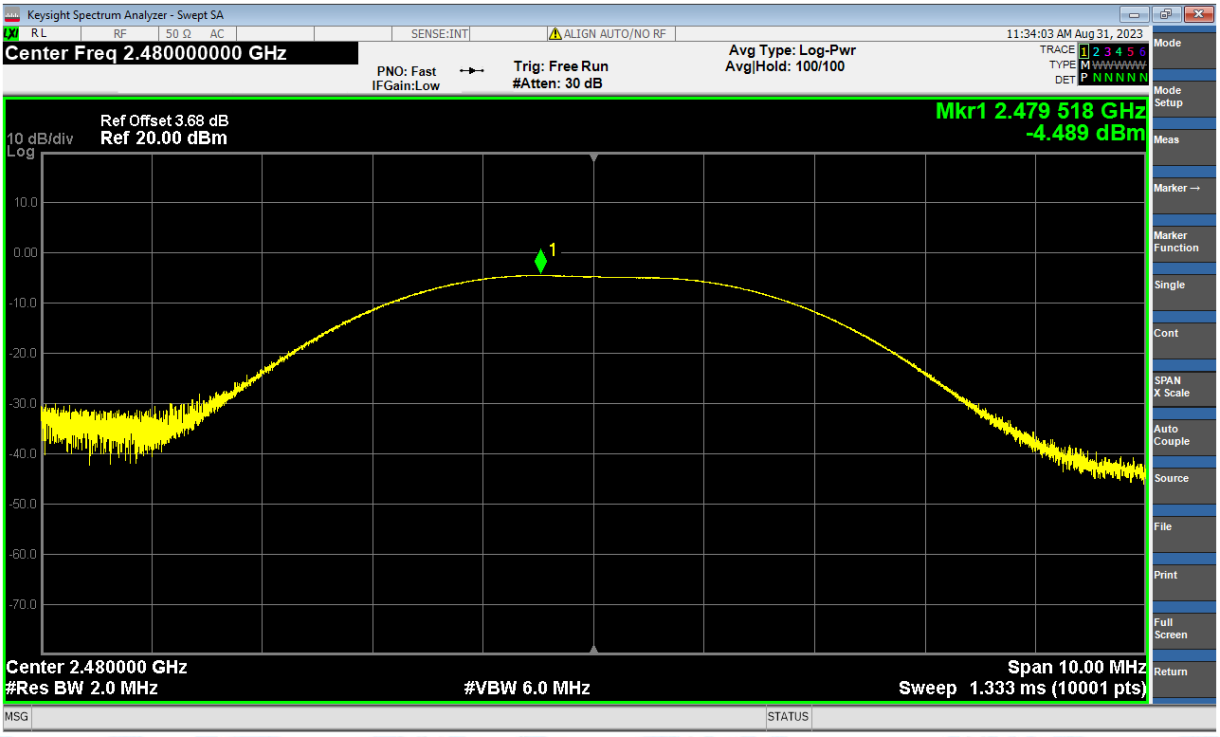

Power NVNT BLE 2Mbps 2402MHz Ant1



Power NVNT BLE 2Mbps 2440MHz Ant1




Power NVNT BLE 2Mbps 2480MHz Ant1

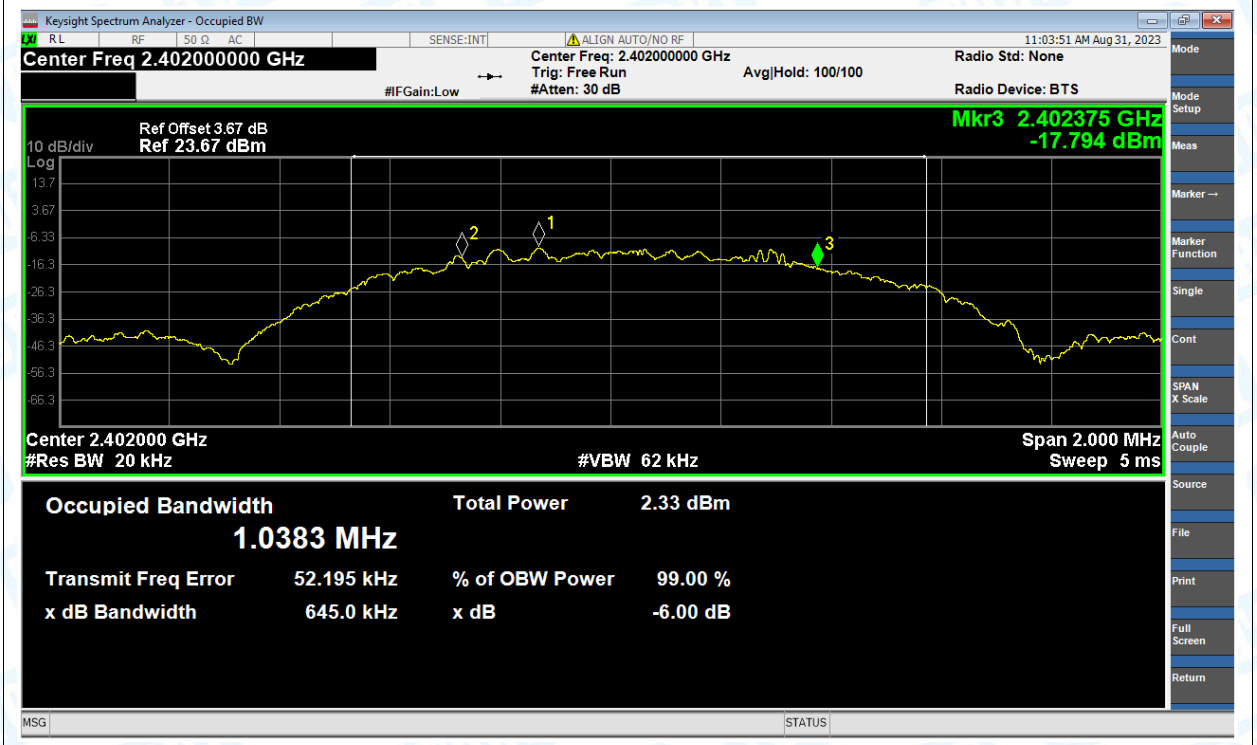


# 3. -6dB Bandwidth

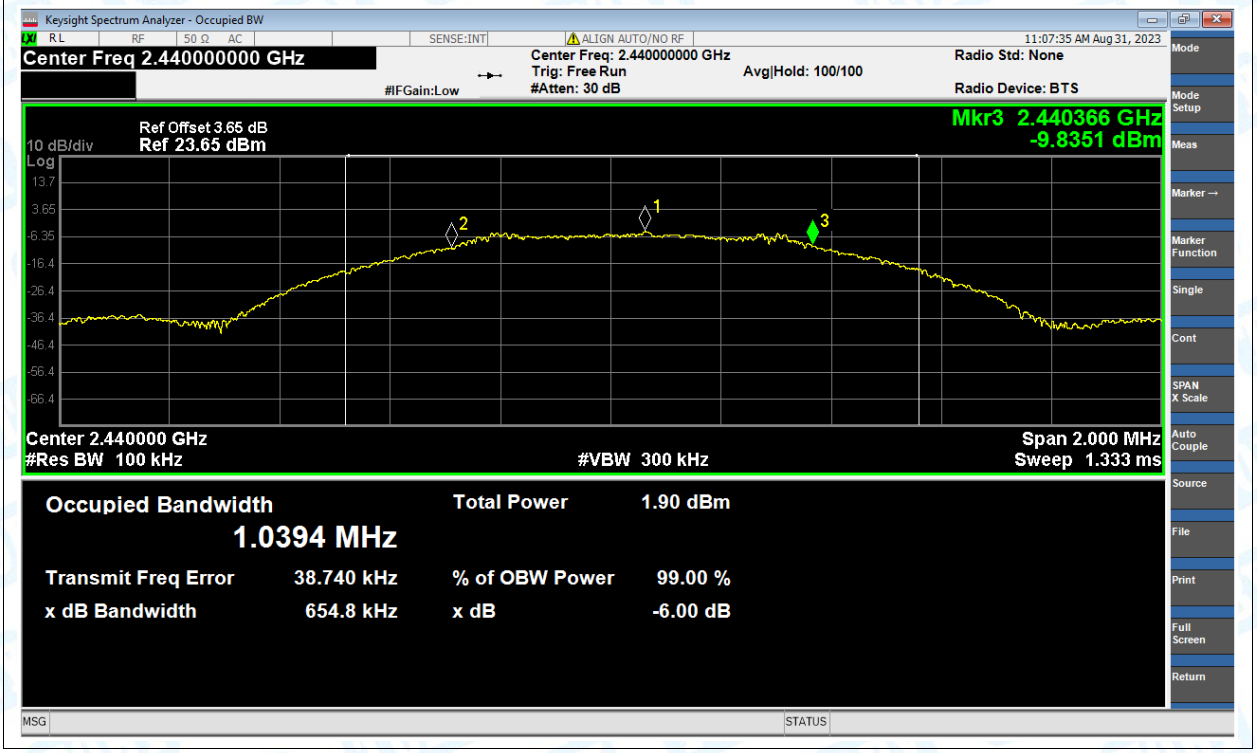
| Condition | Mode | Frequency (MHz) | Antenna | -6 dB Bandwidth (MHz) | Limit -6 dB Bandwidth (MHz) | Verdict |
|---|---|---|---|---|---|---|
| NVNT | BLE 1Mbps | 2402 | Ant1 | 0.65 | 0.5 | Pass |
| NVNT | BLE 1Mbps | 2440 | Ant1 | 0.65 | 0.5 | Pass |
| NVNT | BLE 1Mbps | 2480 | Ant1 | 0.7 | 0.5 | Pass |
| NVNT | BLE 2Mbps | 2402 | Ant1 | 1.23 | 0.5 | Pass |
| NVNT | BLE 2Mbps | 2440 | Ant1 | 0.99 | 0.5 | Pass |
| NVNT | BLE 2Mbps | 2480 | Ant1 | 1.13 | 0.5 | Pass |

Test Graphs

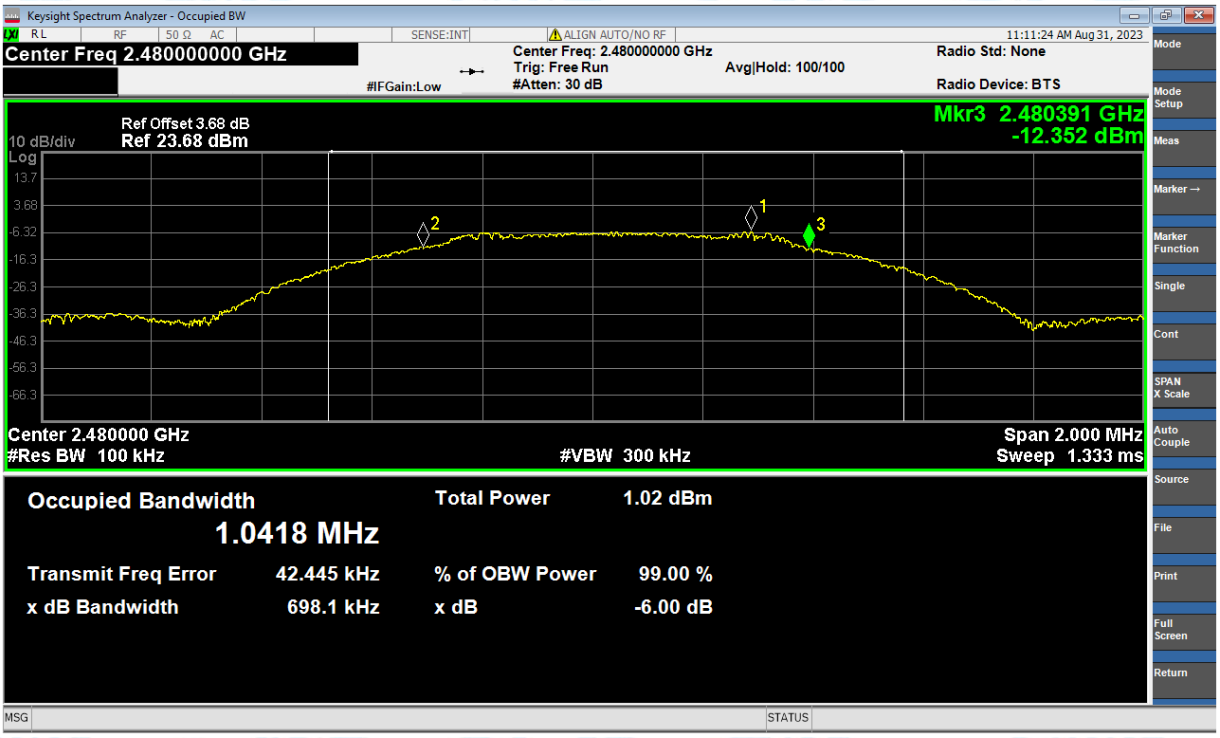
-6dB Bandwidth NVNT BLE 1Mbps 2402MHz Ant1



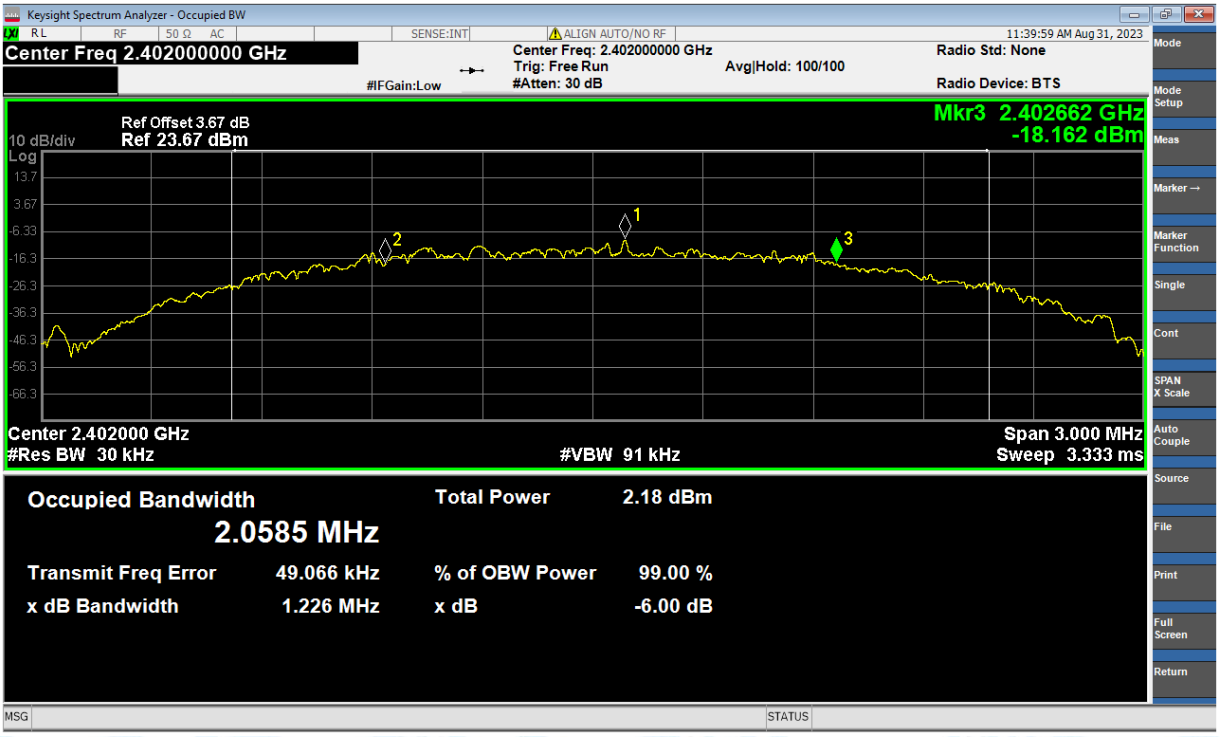

-6dB Bandwidth NVNT BLE 1Mbps 2440MHz Ant1



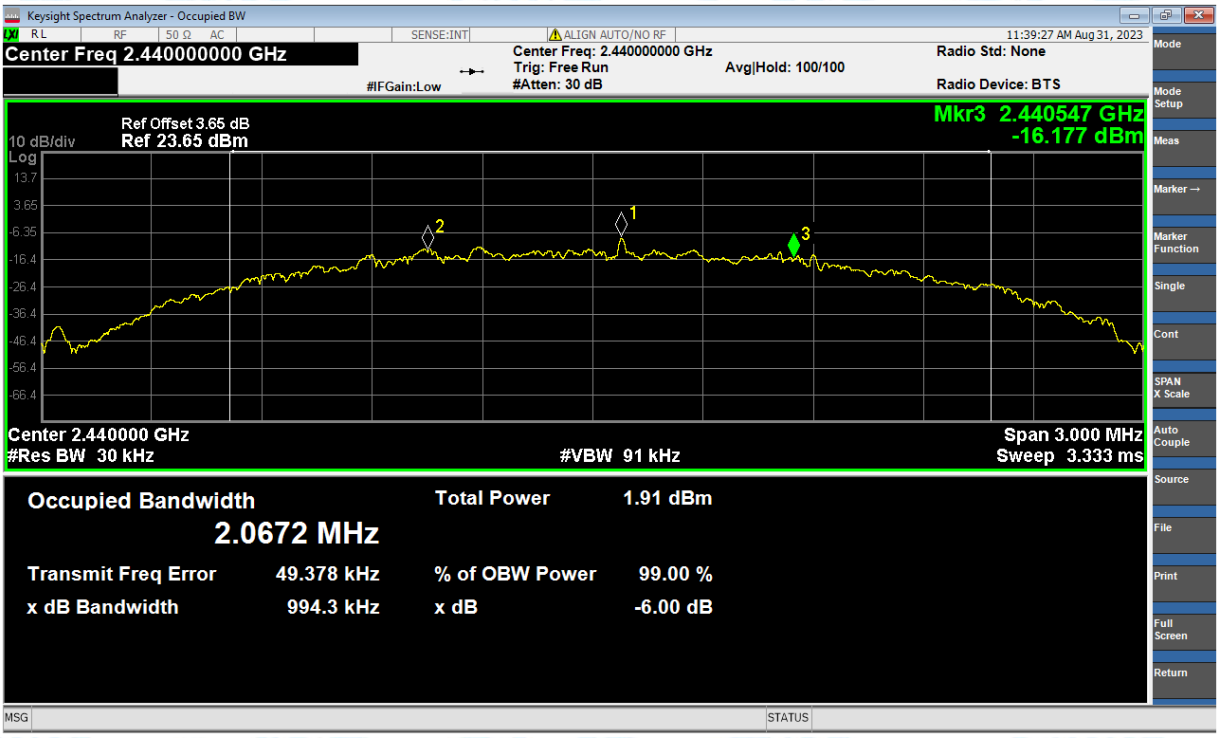
-6dB Bandwidth NVNT BLE 1Mbps 2480MHz Ant1



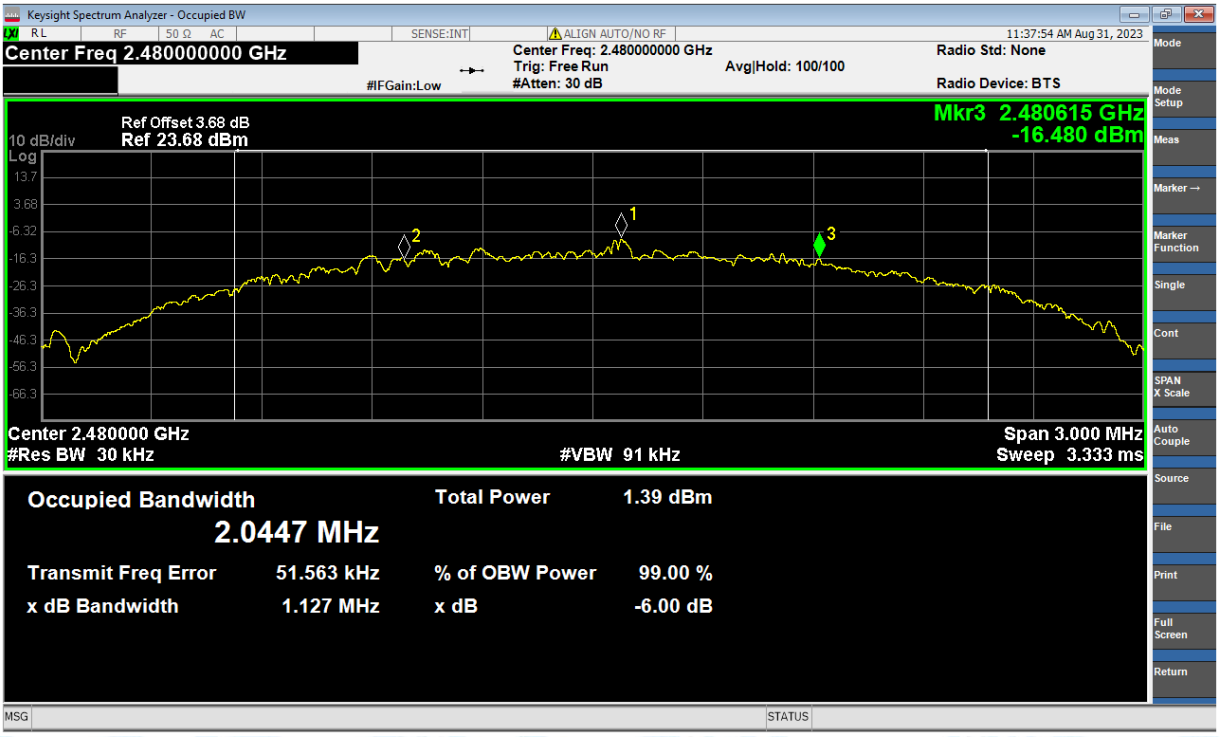

-6dB Bandwidth NVNT BLE 2Mbps 2402MHz Ant1



-6dB Bandwidth NVNT BLE 2Mbps 2440MHz Ant1




-6dB Bandwidth NVNT BLE 2Mbps 2480MHz Ant1

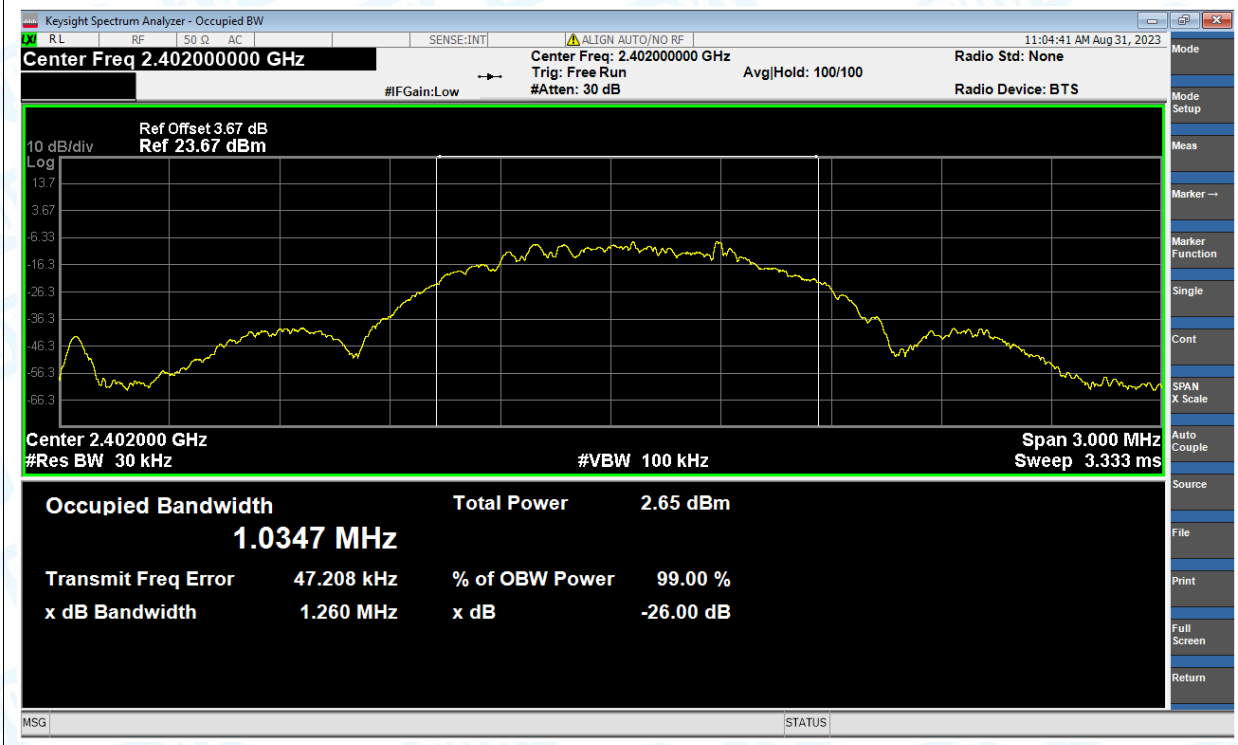


# 4. Occupied Channel Bandwidth

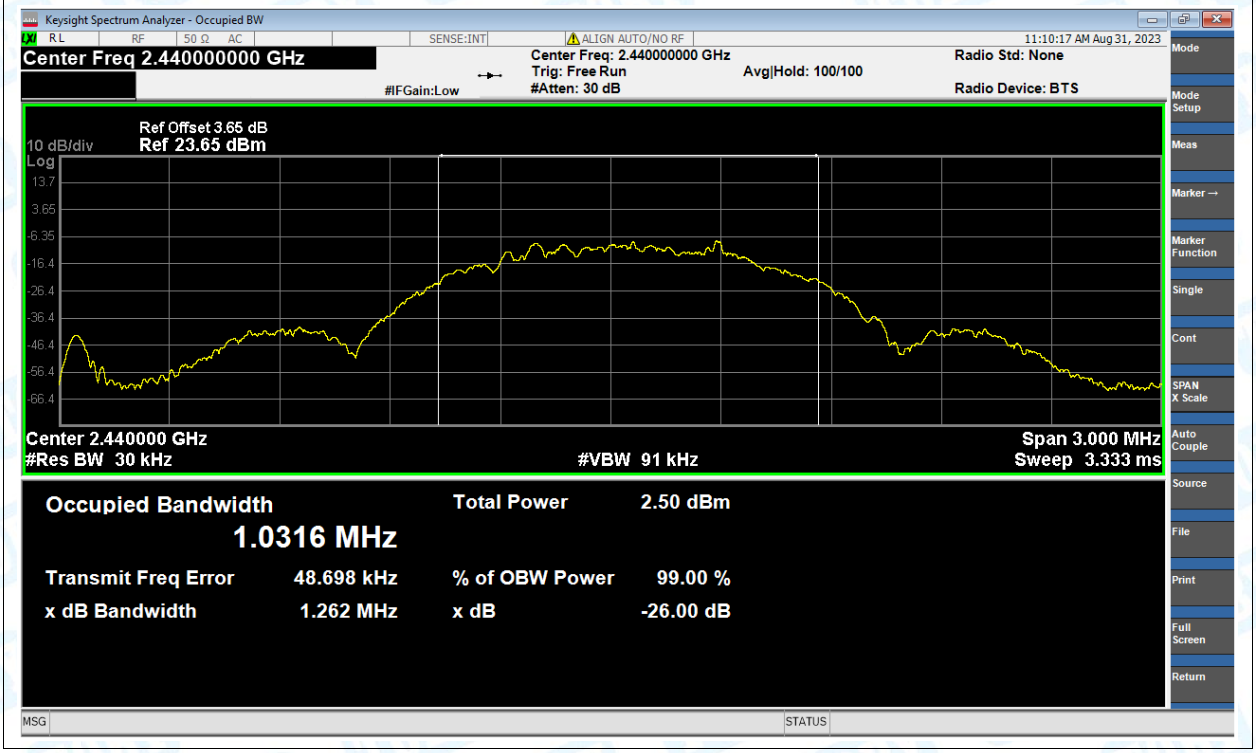
| Condition | Mode | Frequency (MHz) | Antenna | 99% OBW (MHz) |
|---|---|---|---|---|
| NVNT | BLE 1Mbps | 2402 | Ant1 | 1.035 |
| NVNT | BLE 1Mbps | 2440 | Ant1 | 1.032 |
| NVNT | BLE 1Mbps | 2480 | Ant1 | 1.032 |
| NVNT | BLE 2Mbps | 2402 | Ant1 | 2.031 |
| NVNT | BLE 2Mbps | 2440 | Ant1 | 2.052 |
| NVNT | BLE 2Mbps | 2480 | Ant1 | 2.058 |

Test Graphs

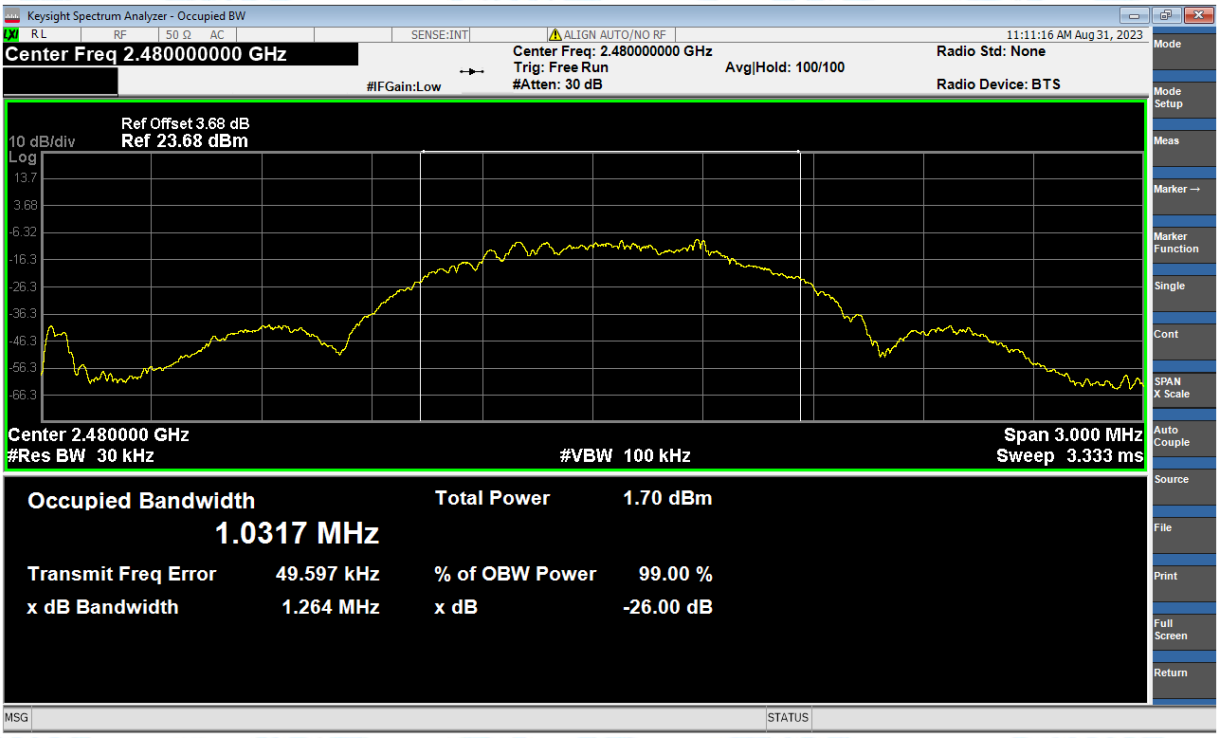
OBW NVNT BLE 1Mbps 2402MHz Ant1



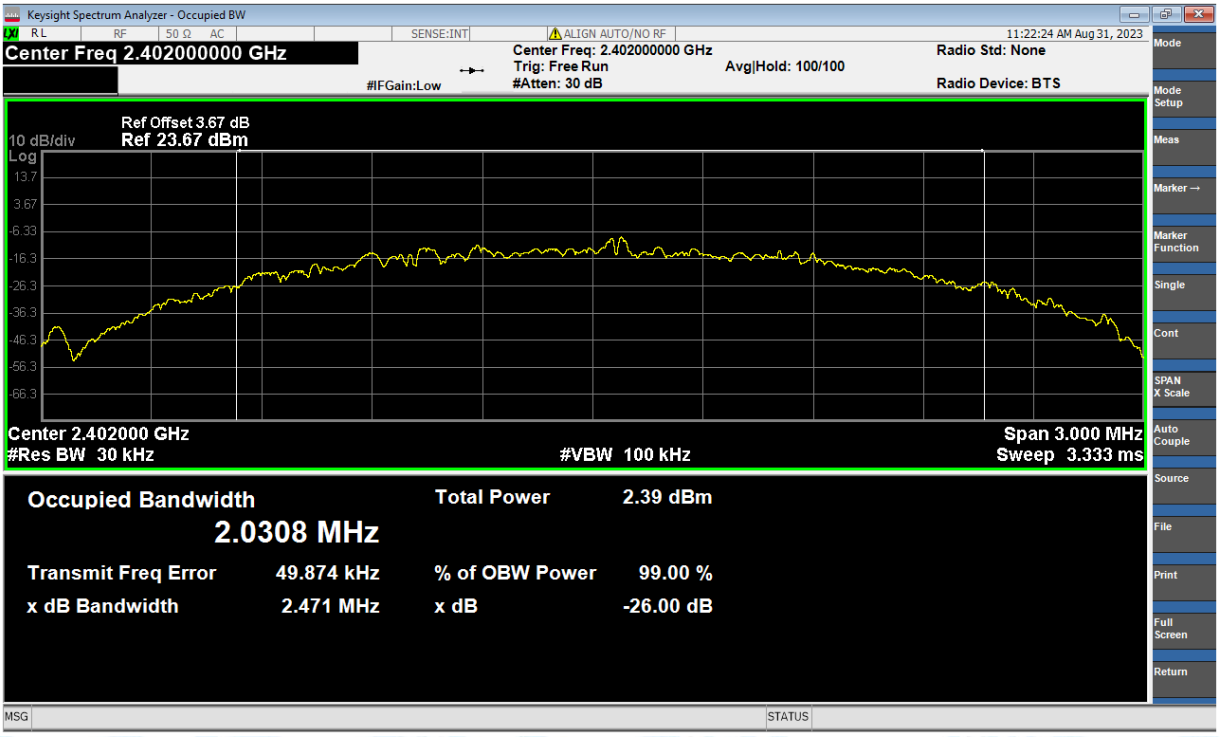

OBW NVNT BLE 1Mbps 2440MHz Ant1



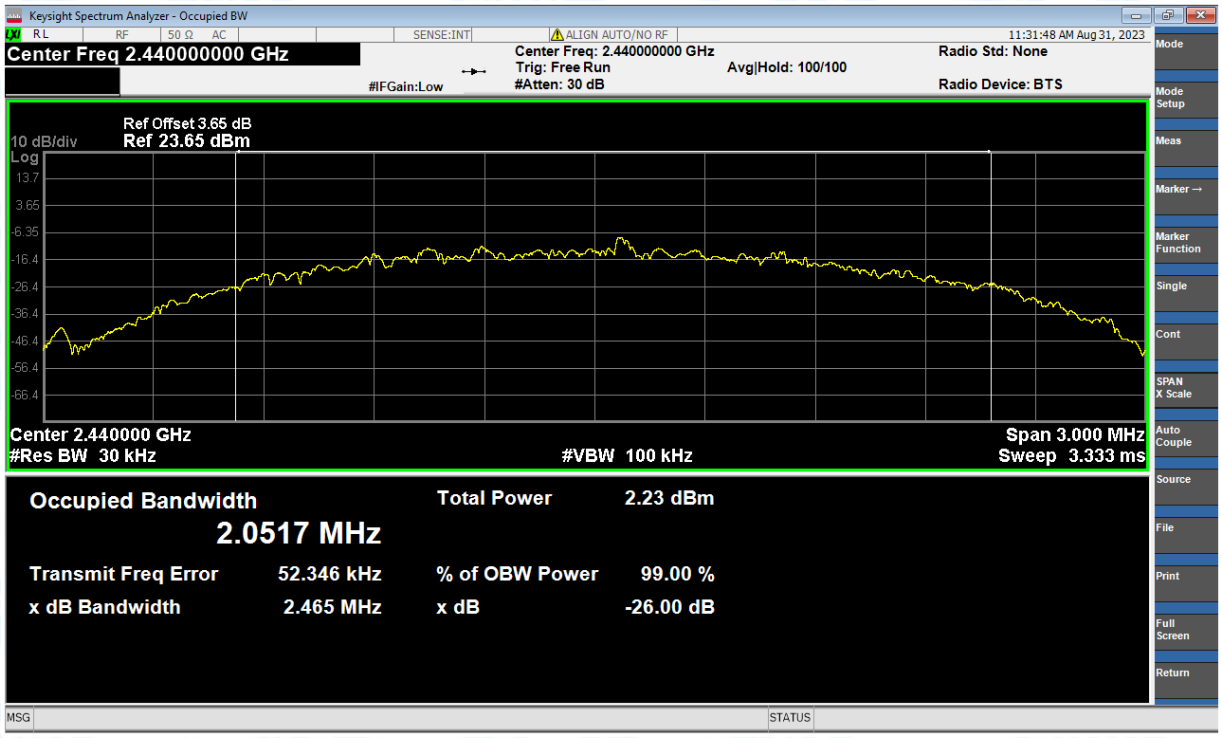
OBW NVNT BLE 1Mbps 2480MHz Ant1



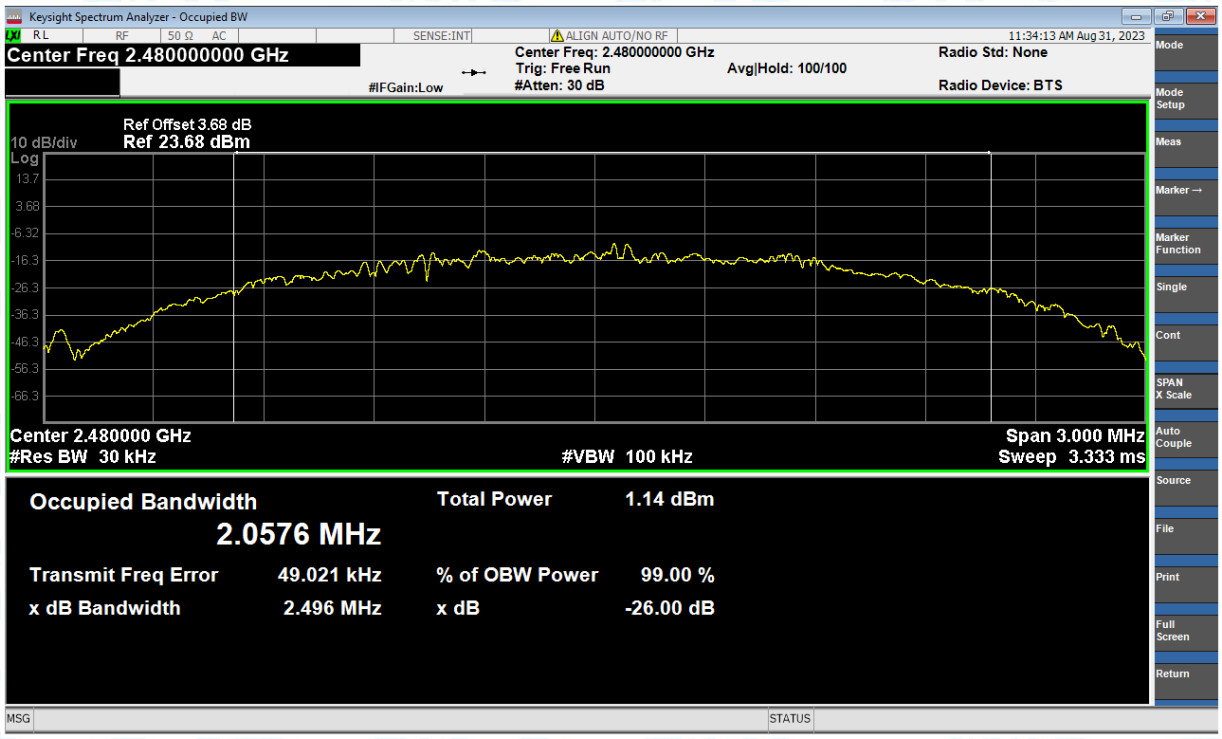

OBW NVNT BLE 2Mbps 2402MHz Ant1



OBW NVNT BLE 2Mbps 2440MHz Ant1




OBW NVNT BLE 2Mbps 2480MHz Ant1

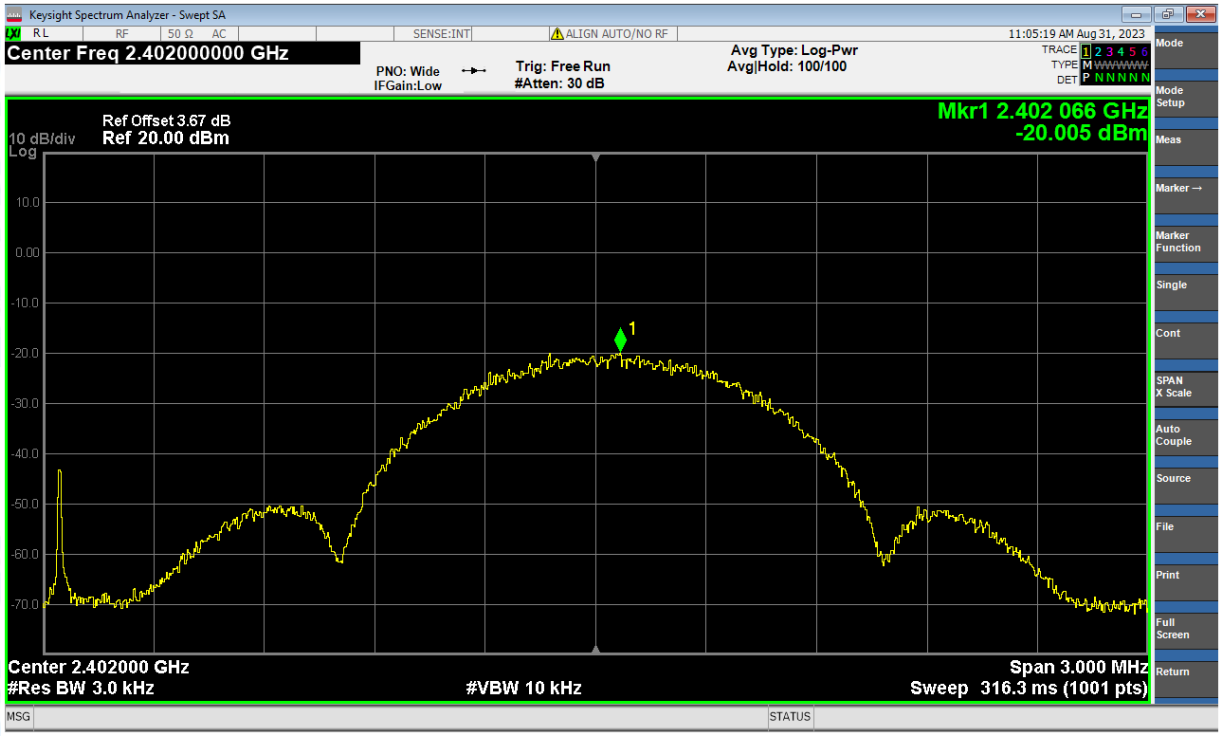


# 5. Maximum Power Spectral Density Level

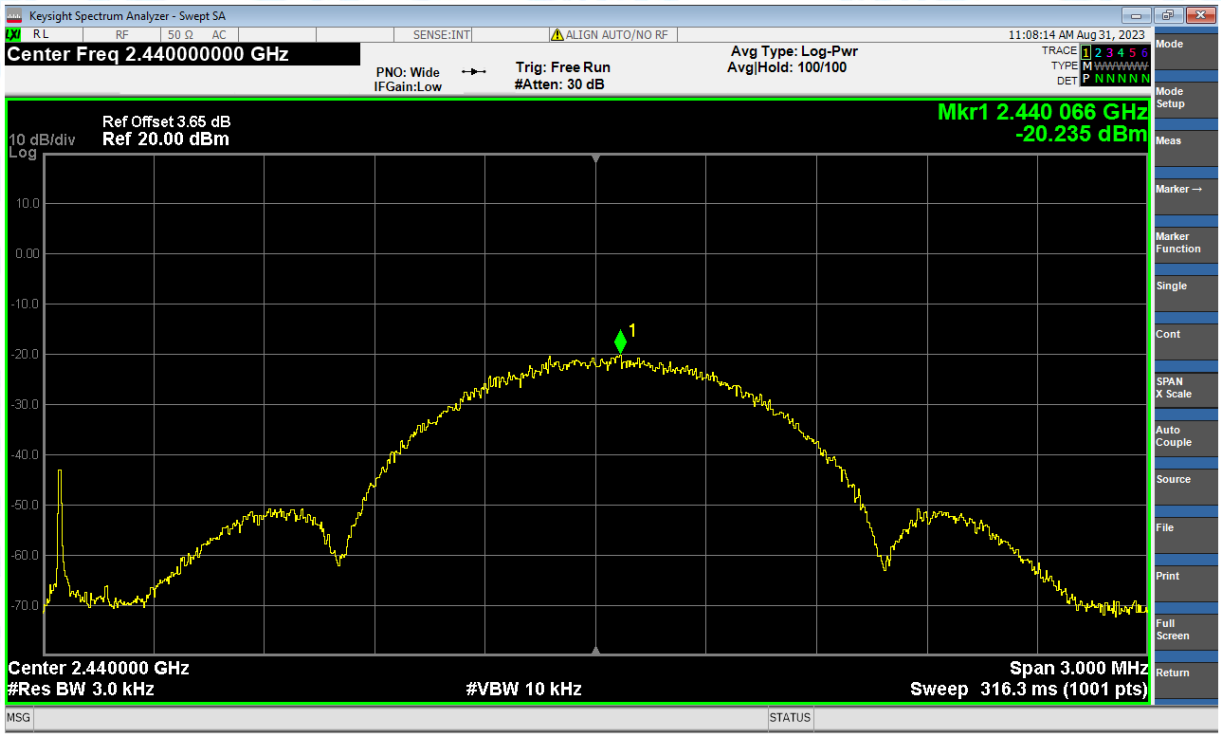
| Condition | Mode | Frequency (MHz) | Antenna | Max PSD (dBm) | Limit (dBm) | Verdict |
|---|---|---|---|---|---|---|
| NVNT | BLE 1Mbps | 2402 | Ant1 | -20.005 | 8 | Pass |
| NVNT | BLE 1Mbps | 2440 | Ant1 | -20.235 | 8 | Pass |
| NVNT | BLE 1Mbps | 2480 | Ant1 | -20.997 | 8 | Pass |
| NVNT | BLE 2Mbps | 2402 | Ant1 | -21.967 | 8 | Pass |
| NVNT | BLE 2Mbps | 2440 | Ant1 | -22.26 | 8 | Pass |
| NVNT | BLE 2Mbps | 2480 | Ant1 | -23.077 | 8 | Pass |

Test Graphs

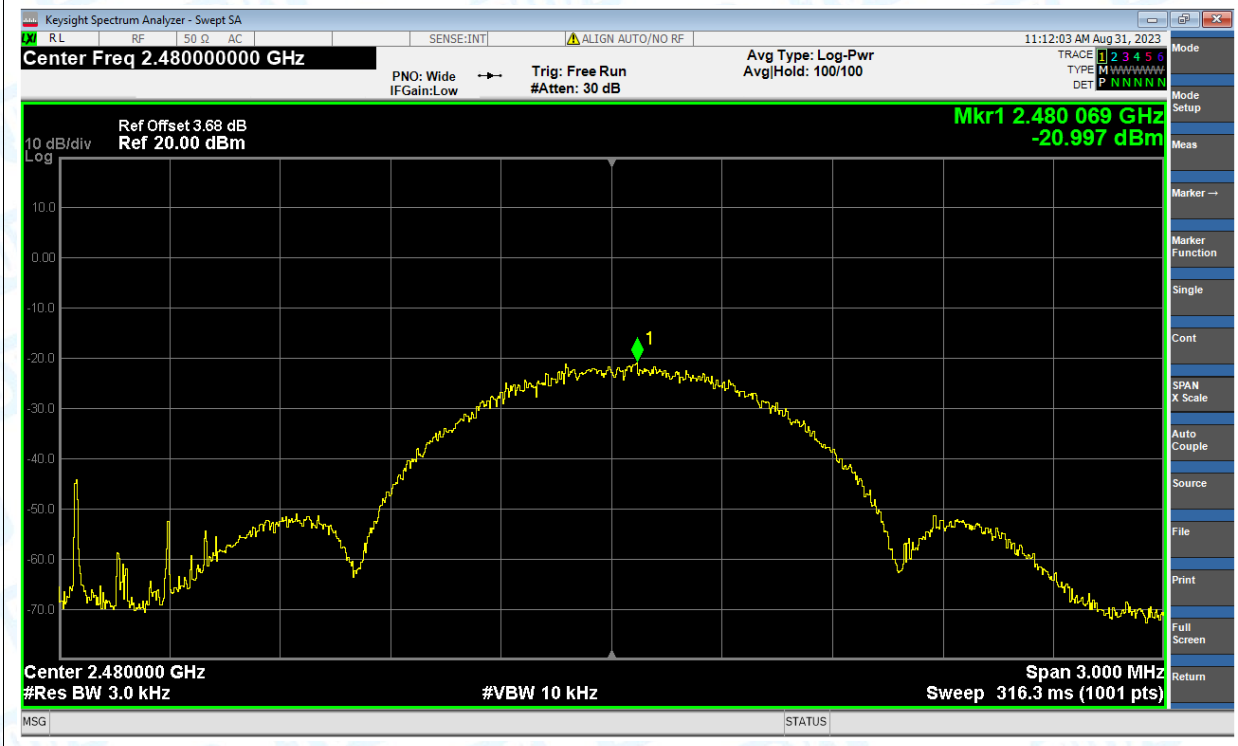
PSD NVNT BLE 1Mbps 2402MHz Ant1



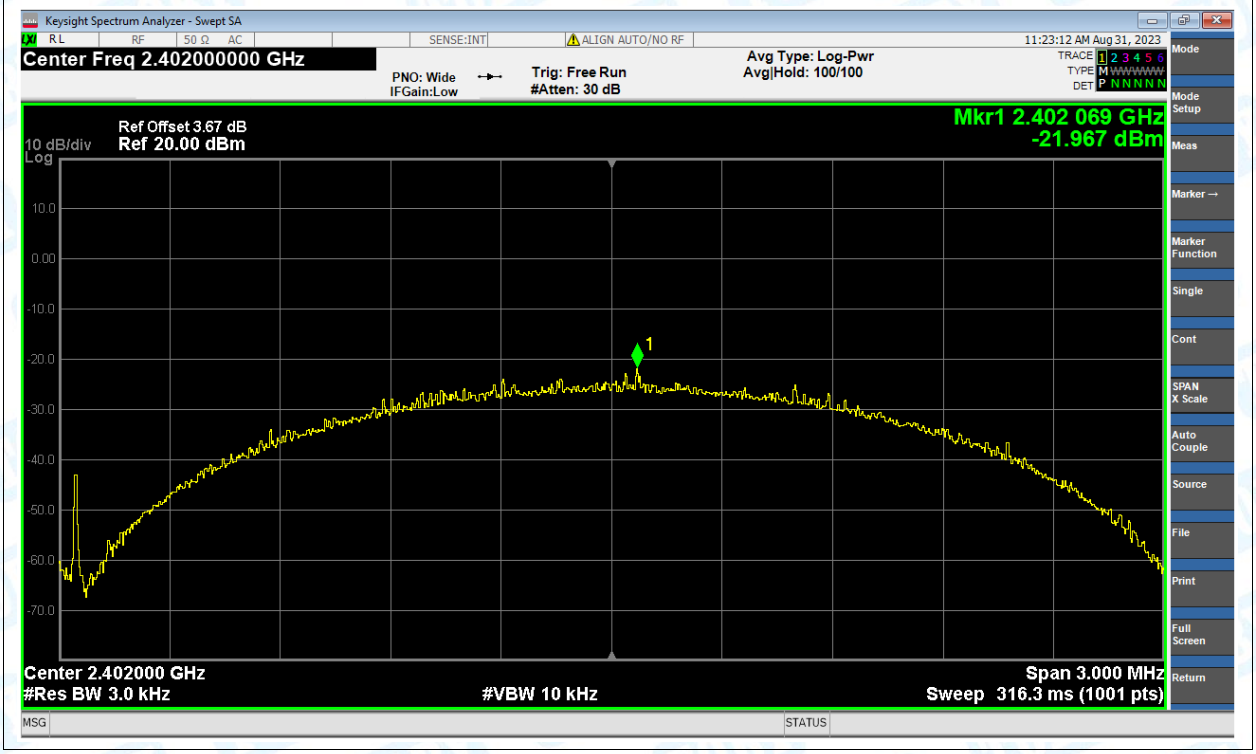

PSD NVNT BLE 1Mbps 2440MHz Ant1



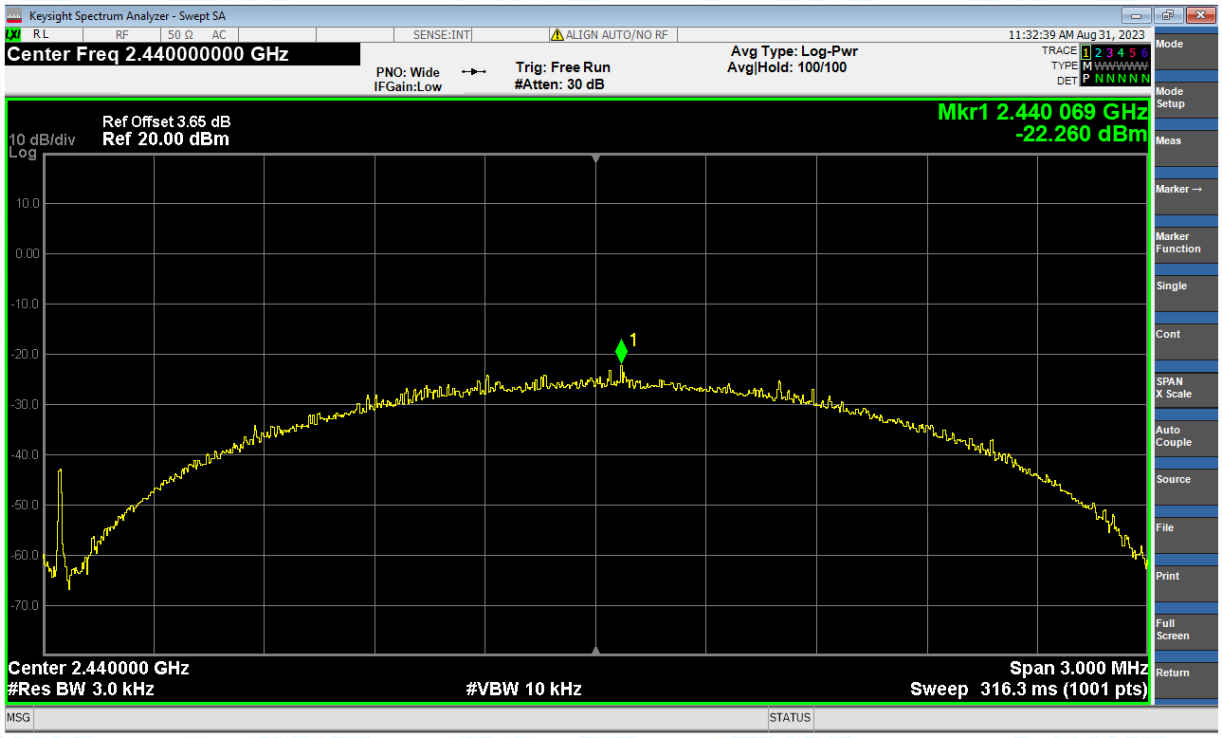
PSD NVNT BLE 1Mbps 2480MHz Ant1



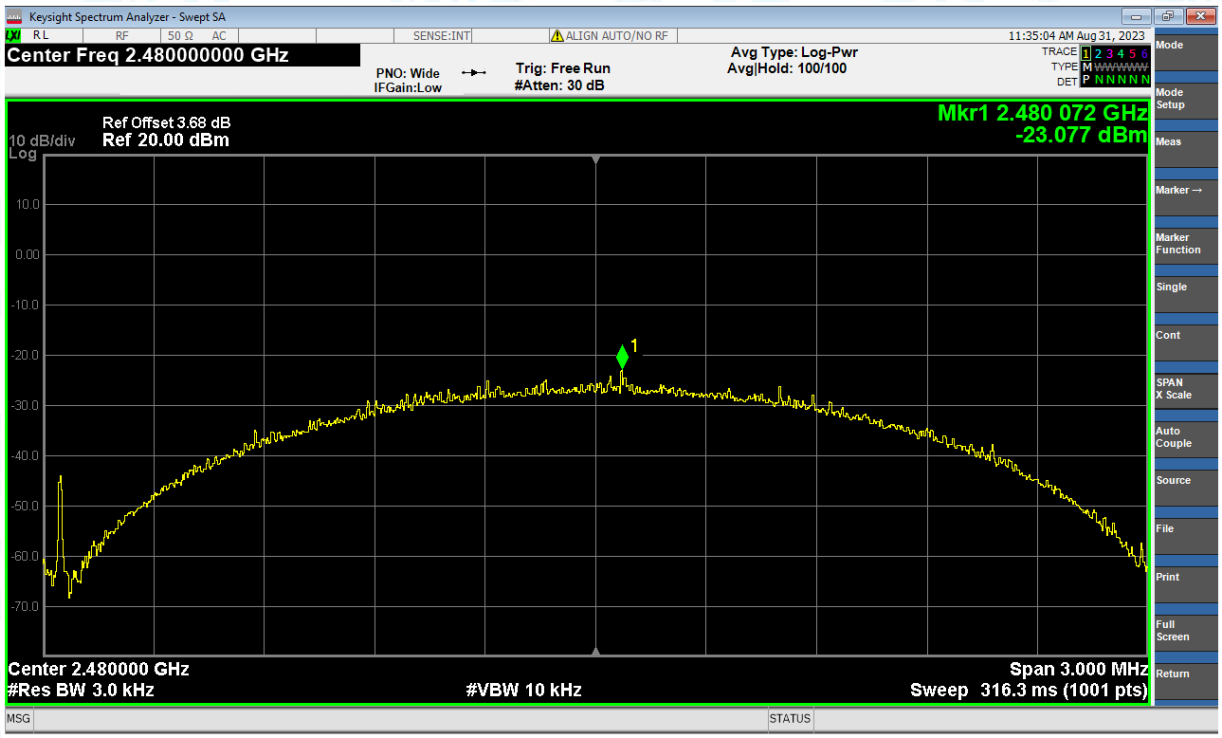

PSD NVNT BLE 2Mbps 2402MHz Ant1



PSD NVNT BLE 2Mbps 2440MHz Ant1




PSD NVNT BLE 2Mbps 2480MHz Ant1

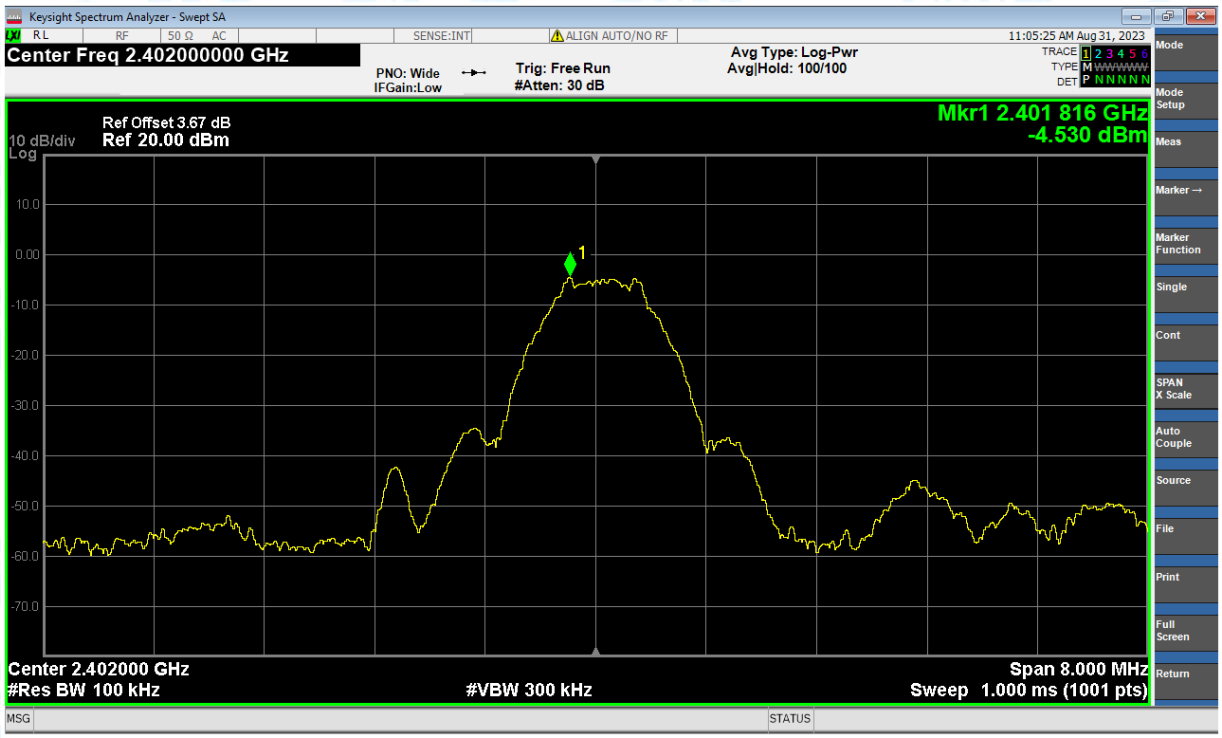


# 6. Band Edge

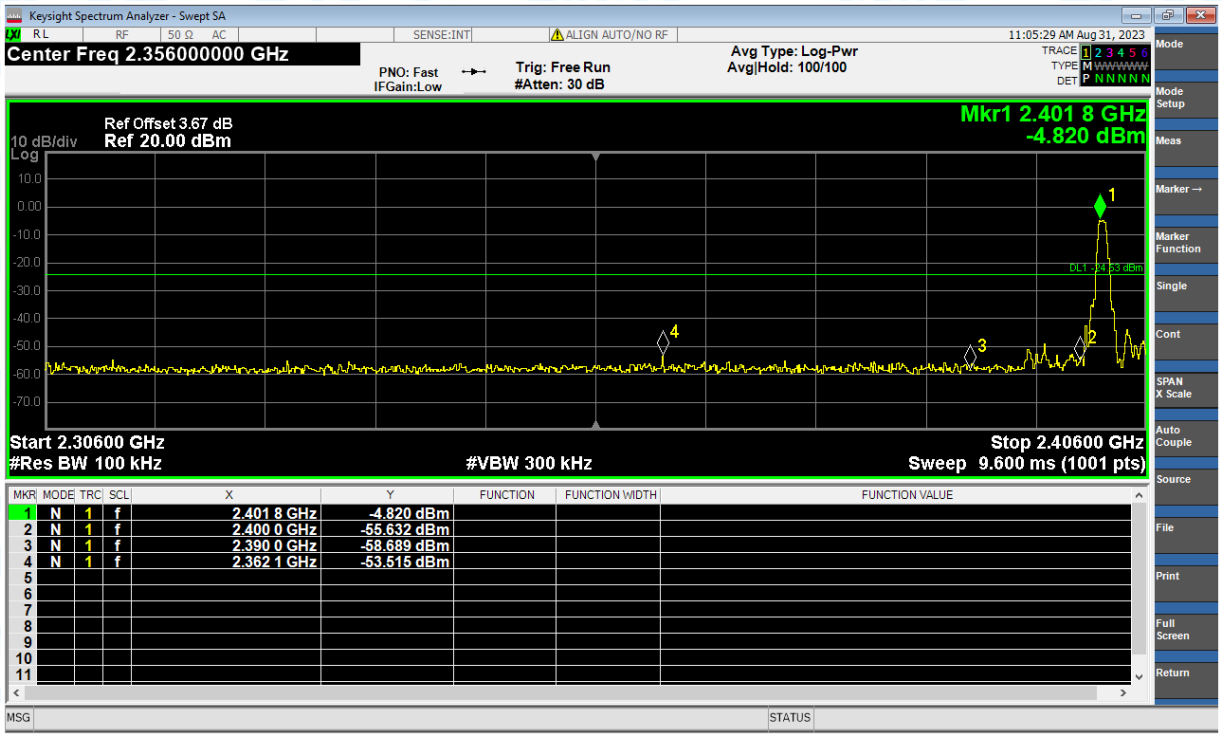
| Condition | Mode | Frequency (MHz) | Antenna | Max Value (dBc) | Limit (dBc) | Verdict |
|---|---|---|---|---|---|---|
| NVNT | BLE 1Mbps | 2402 | Ant1 | -48.98 | -20 | Pass |
| NVNT | BLE 1Mbps | 2480 | Ant1 | -41.54 | -20 | Pass |
| NVNT | BLE 2Mbps | 2402 | Ant1 | -49.02 | -20 | Pass |
| NVNT | BLE 2Mbps | 2480 | Ant1 | -46.47 | -20 | Pass |

Test Graphs

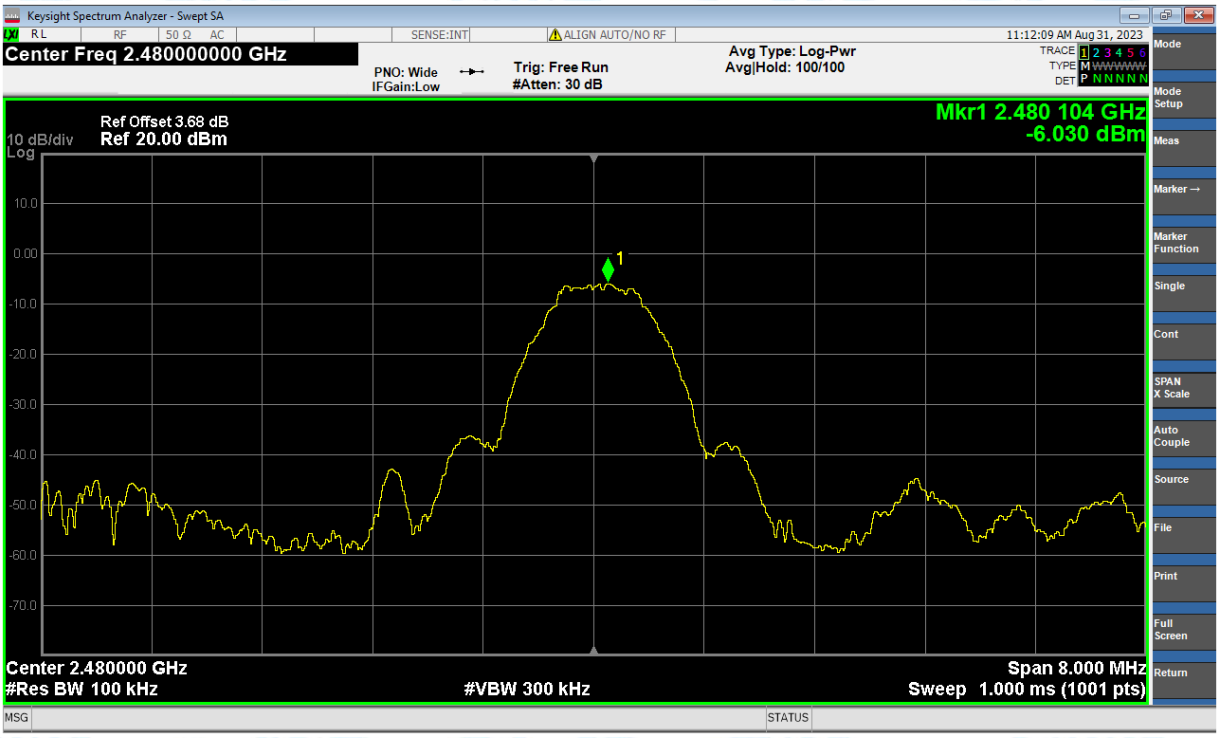
Band Edge NVNT BLE 1Mbps 2402MHz Ant1 Ref



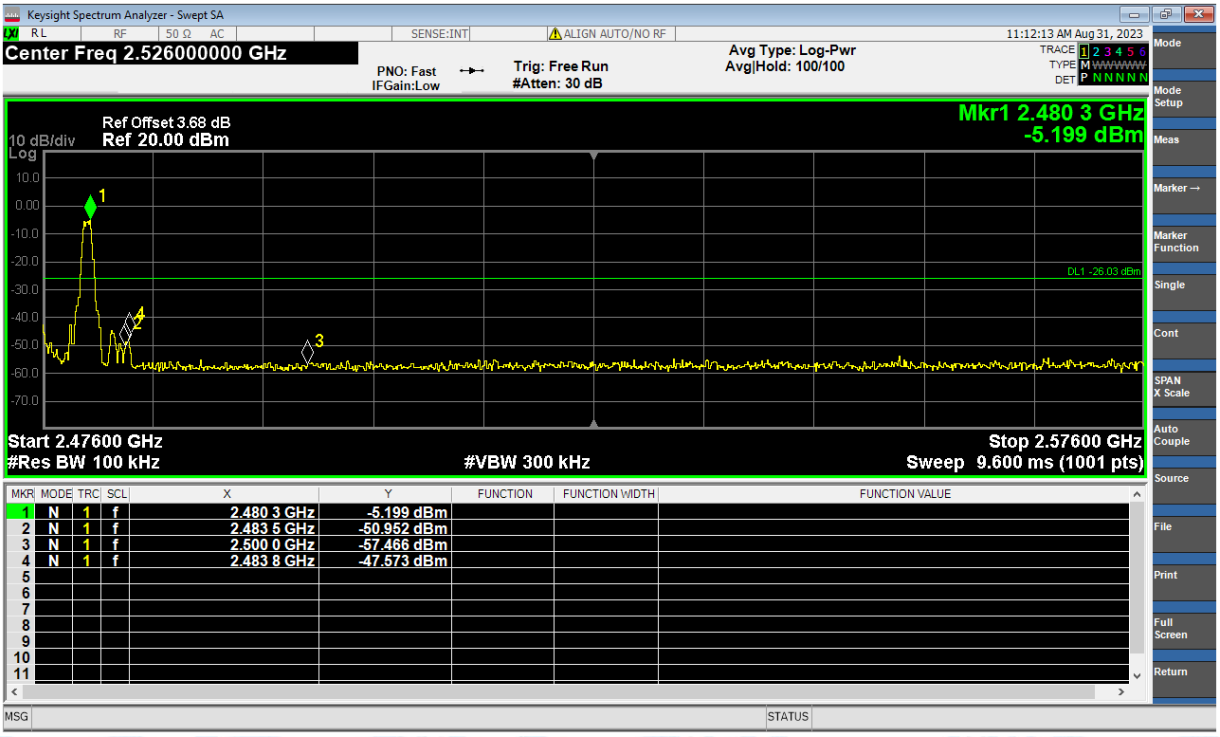

Band Edge NVNT BLE 1Mbps 2402MHz Ant1 Emission



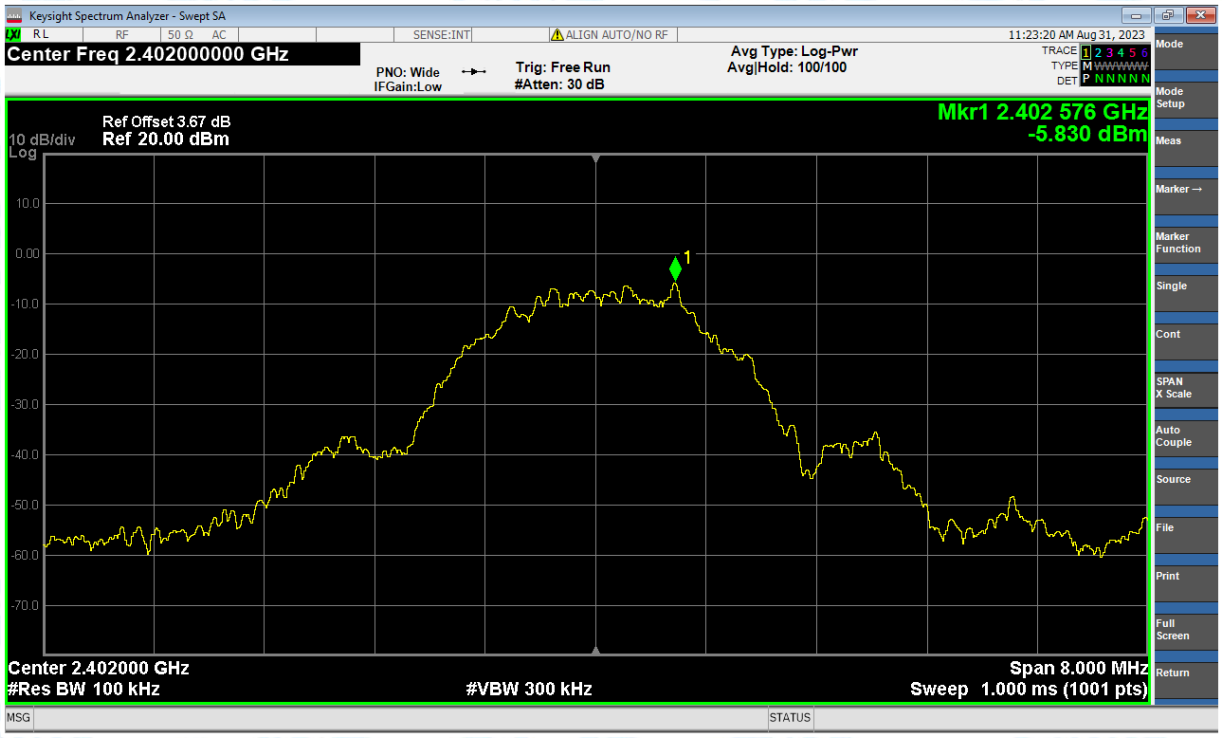
Band Edge NVNT BLE 1Mbps 2480MHz Ant1 Ref



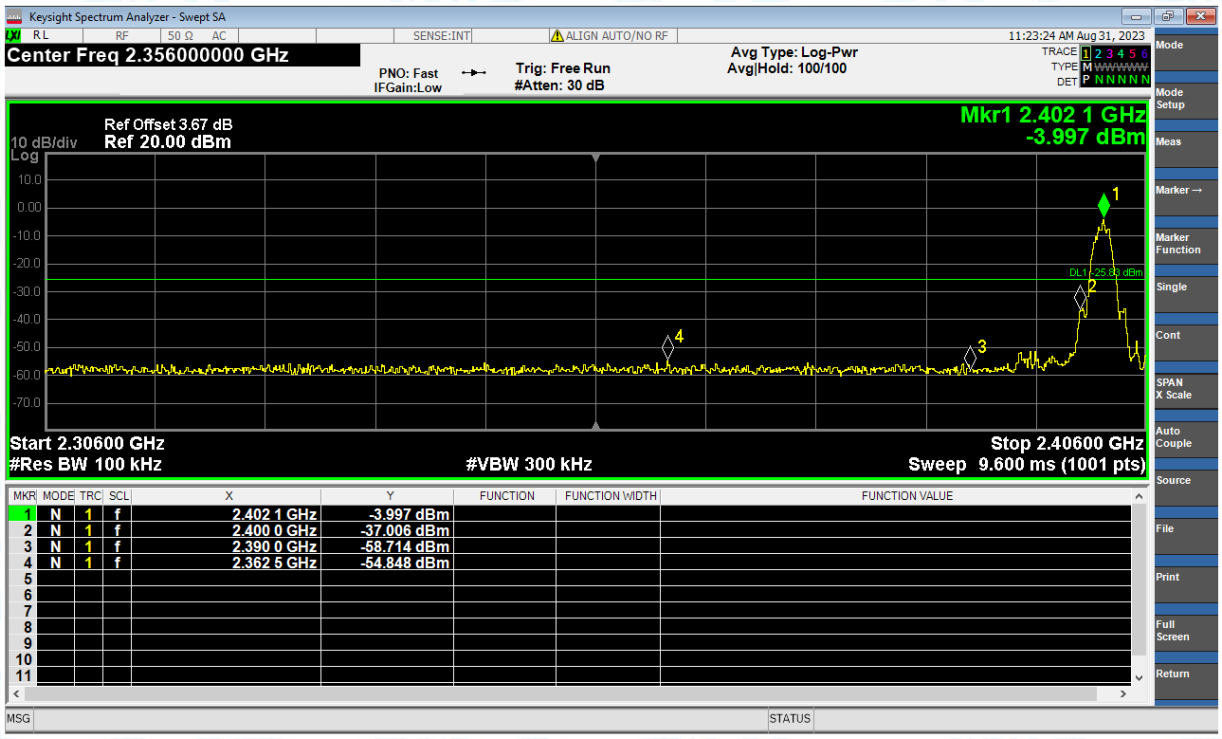

Band Edge NVNT BLE 1Mbps 2480MHz Ant1 Emission



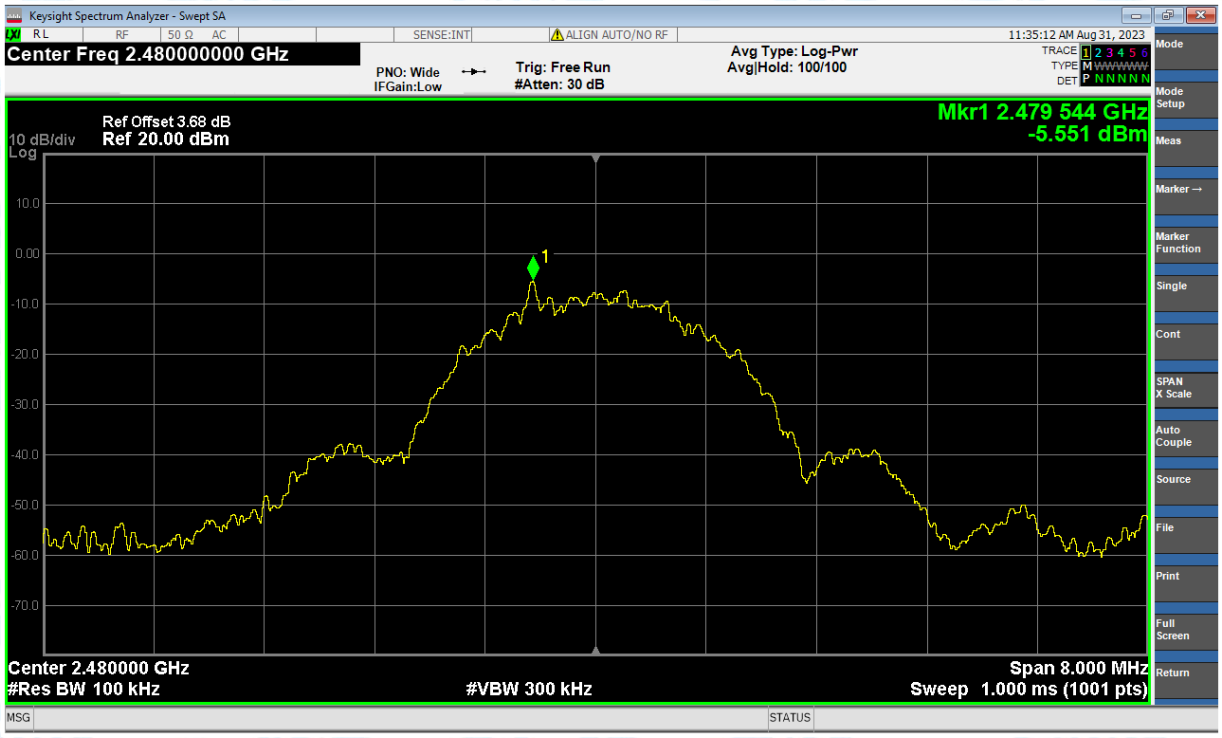
Band Edge NVNT BLE 2Mbps 2402MHz Ant1 Ref



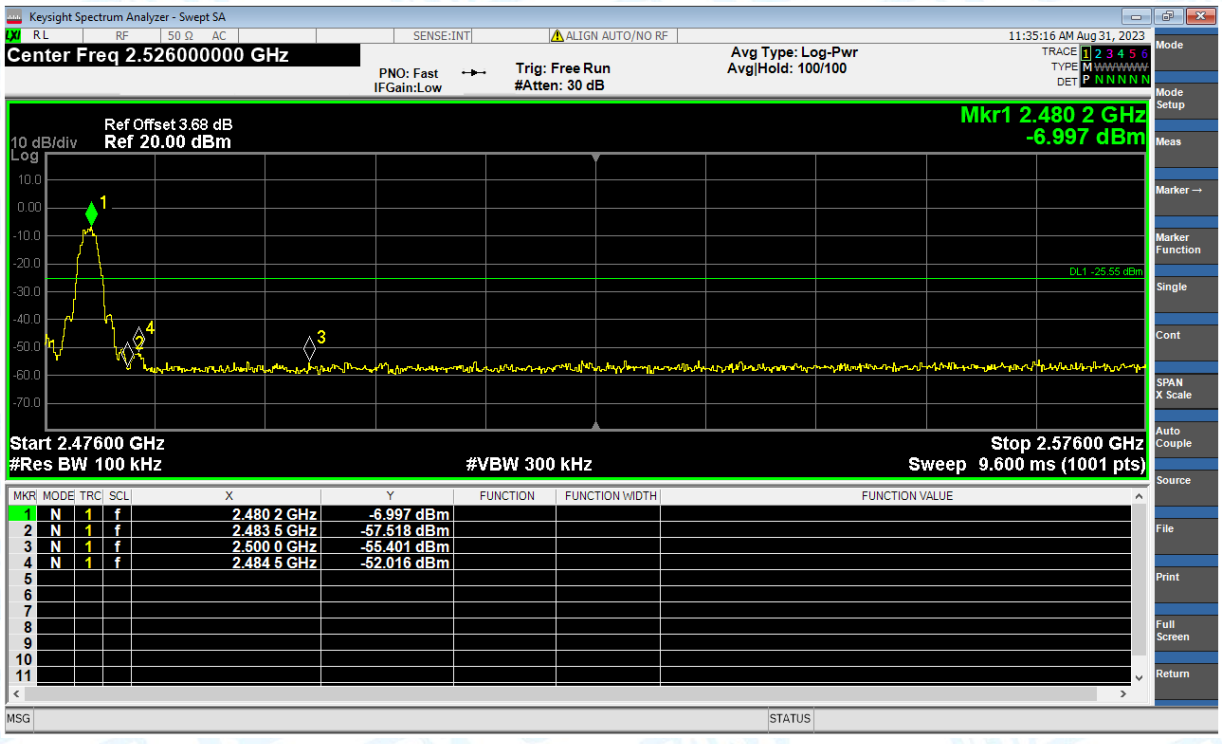

Band Edge NVNT BLE 2Mbps 2402MHz Ant1 Emission



Band Edge NVNT BLE 2Mbps 2480MHz Ant1 Ref




Band Edge NVNT BLE 2Mbps 2480MHz Ant1 Emission

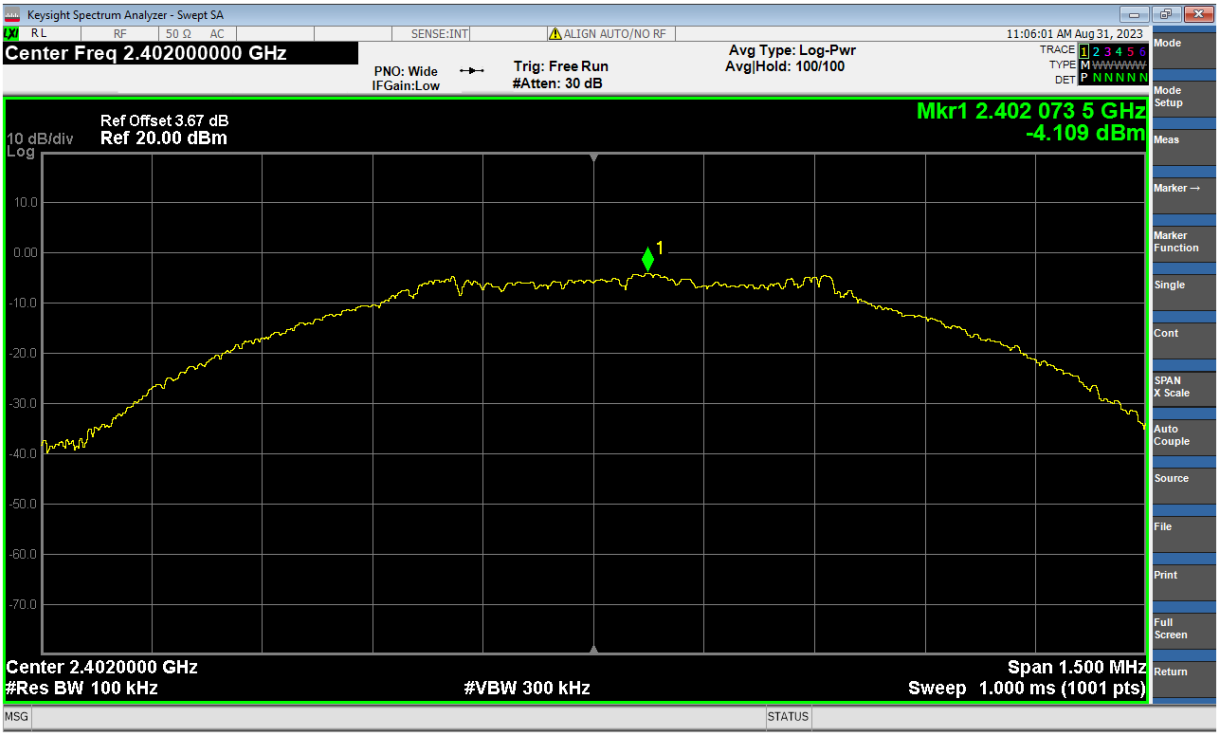


# 7. Conducted RF Spurious Emission

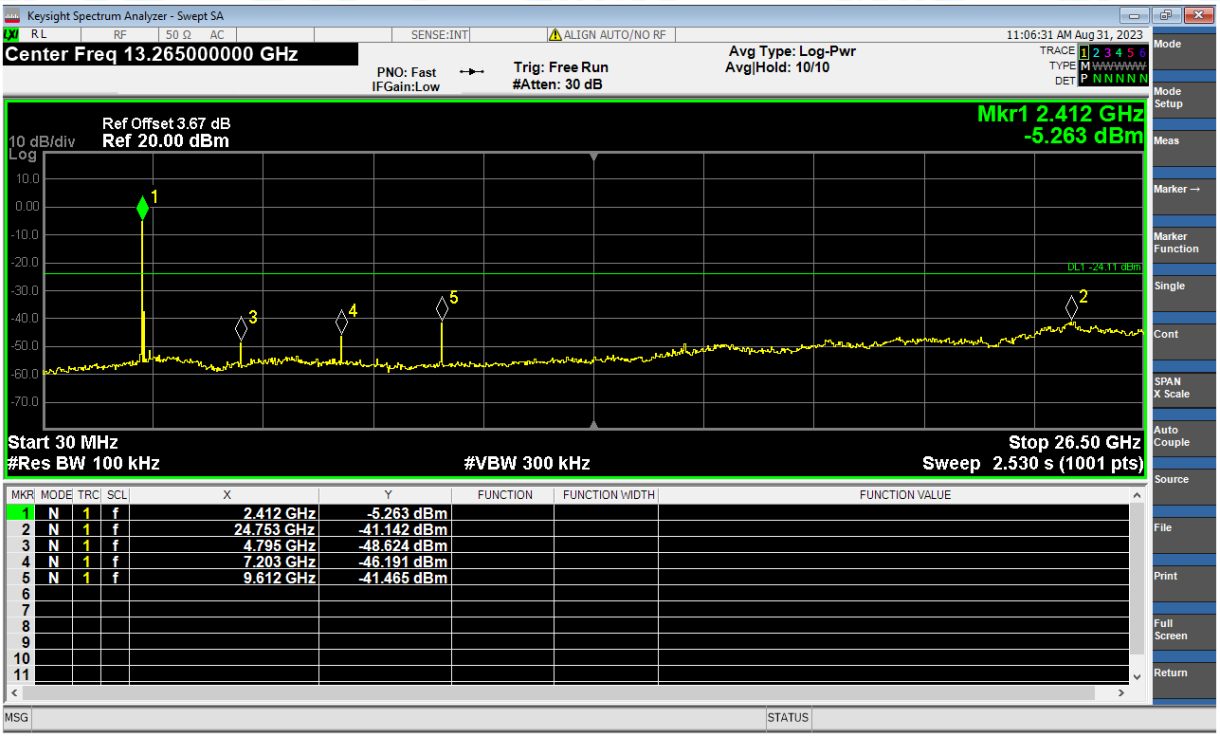
| Condition | Mode | Frequency (MHz) | Antenna | Max Value (dBc) | Limit (dBc) | Verdict |
|---|---|---|---|---|---|---|
| NVNT | BLE 1Mbps | 2402 | Ant1 | -37.03 | -20 | Pass |
| NVNT | BLE 1Mbps | 2440 | Ant1 | -37.15 | -20 | Pass |
| NVNT | BLE 1Mbps | 2480 | Ant1 | -35.58 | -20 | Pass |
| NVNT | BLE 2Mbps | 2402 | Ant1 | -37.3 | -20 | Pass |
| NVNT | BLE 2Mbps | 2440 | Ant1 | -35.62 | -20 | Pass |
| NVNT | BLE 2Mbps | 2480 | Ant1 | -35.45 | -20 | Pass |

Test Graphs

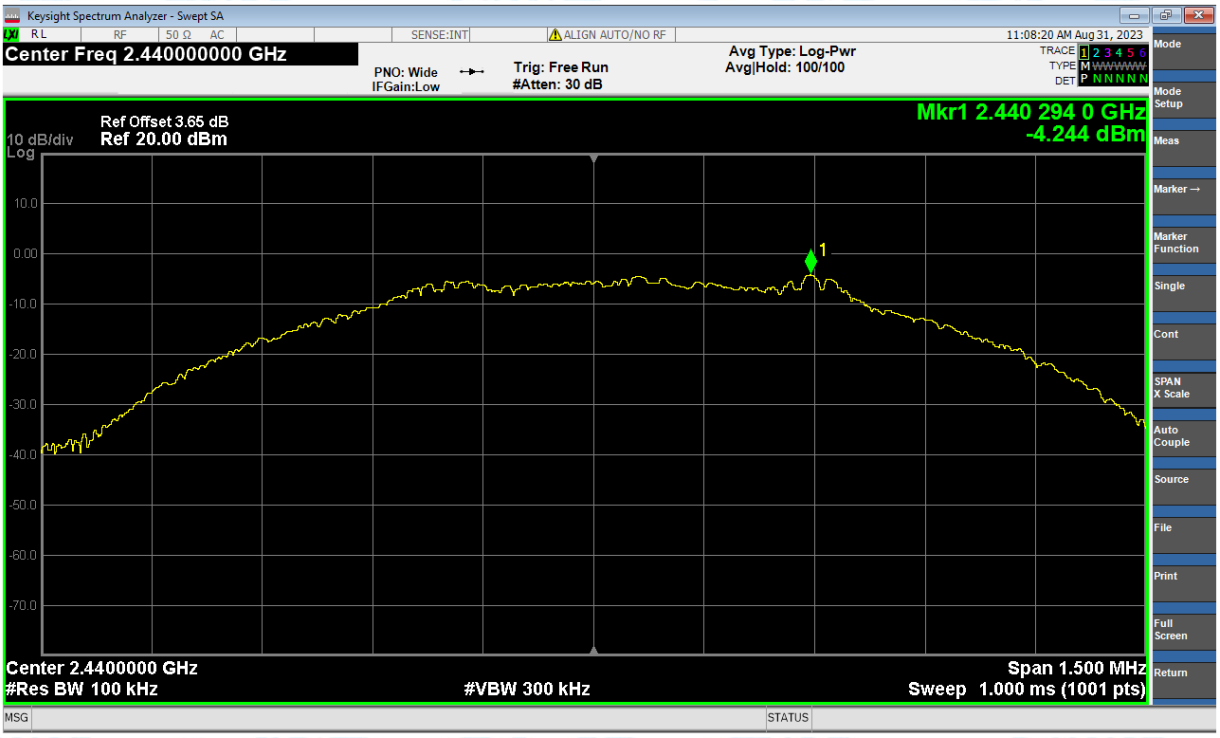
Tx. Spurious NVNT BLE 1Mbps 2402MHz Ant1 Ref



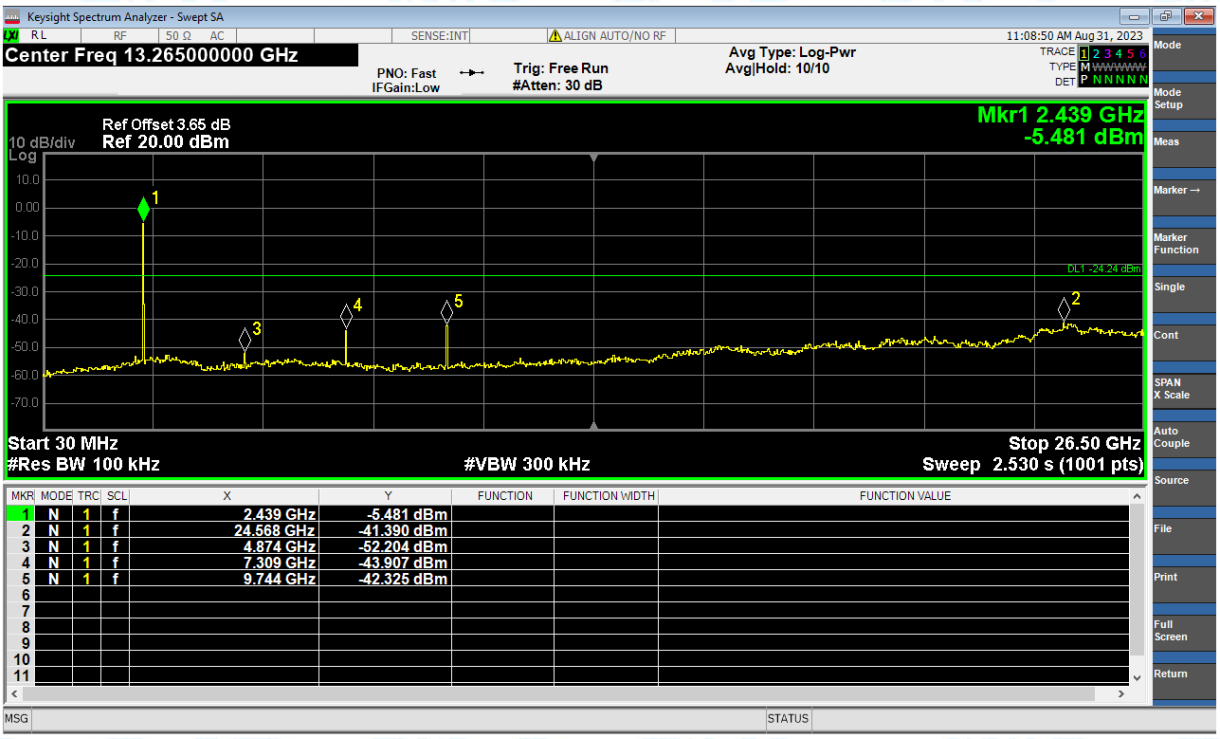

Tx. Spurious NVNT BLE 1Mbps 2402MHz Ant1 Emission



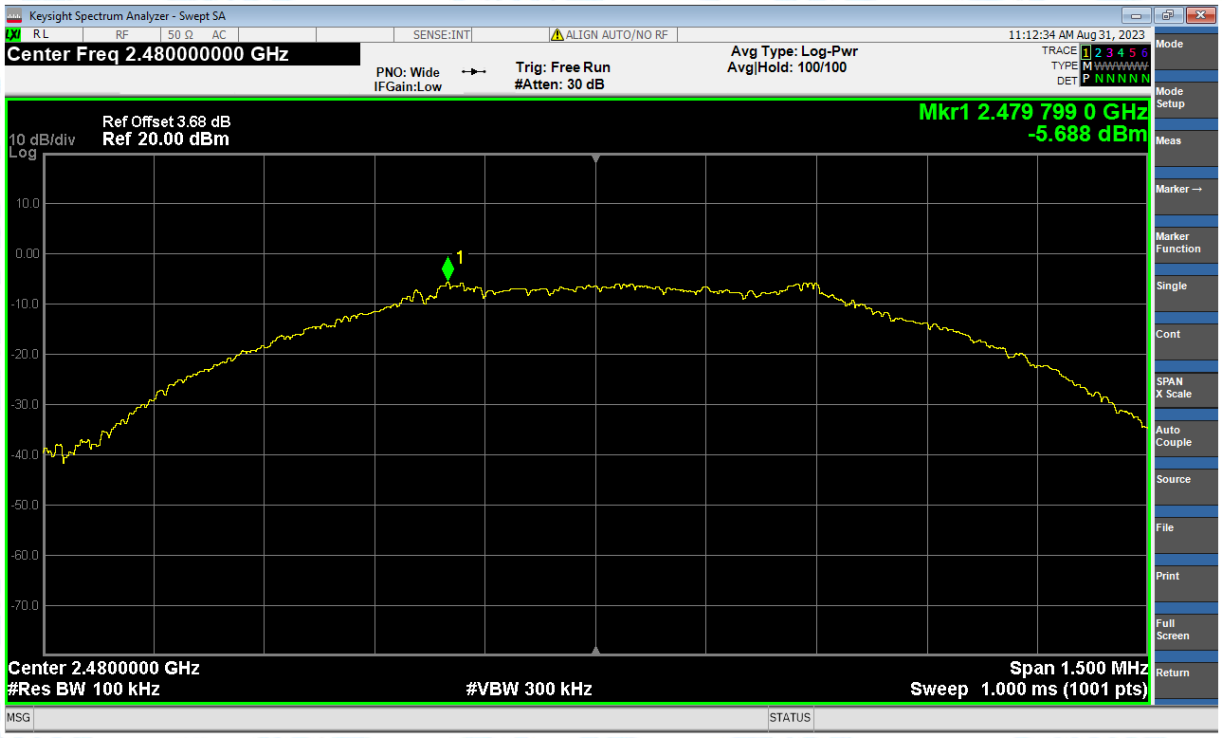
Tx. Spurious NVNT BLE 1Mbps 2440MHz Ant1 Ref



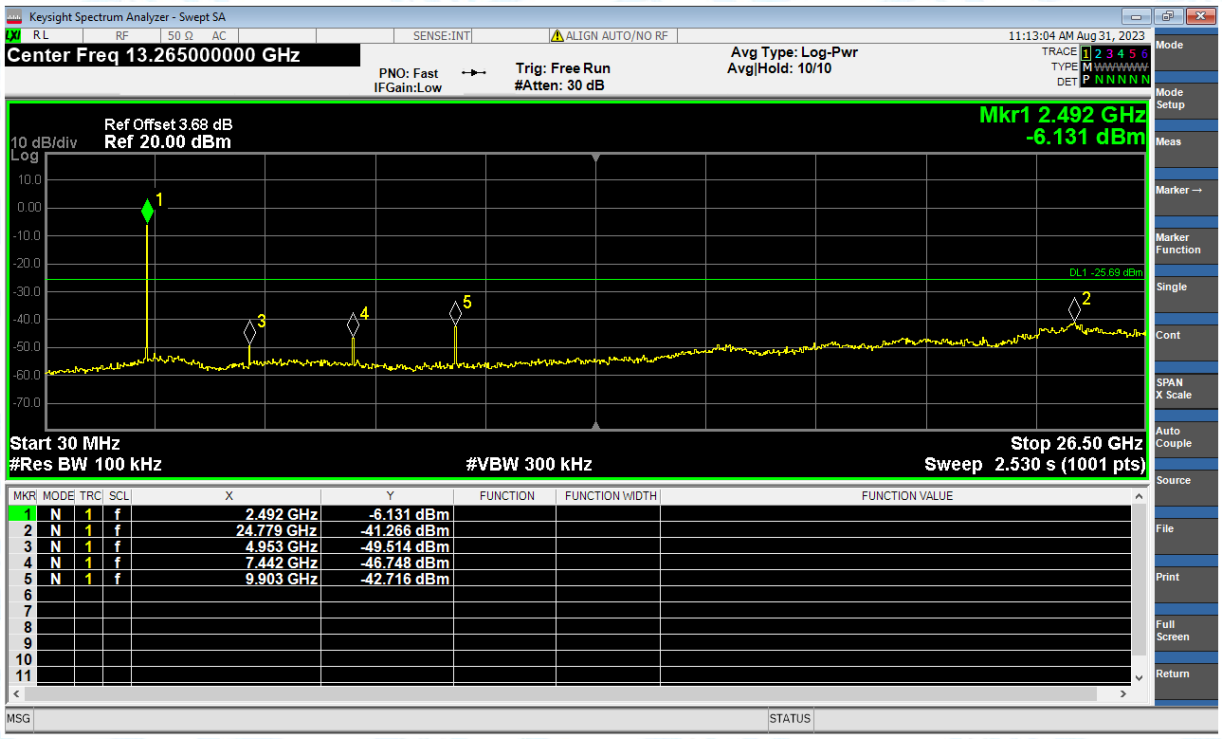

Tx. Spurious NVNT BLE 1Mbps 2440MHz Ant1 Emission



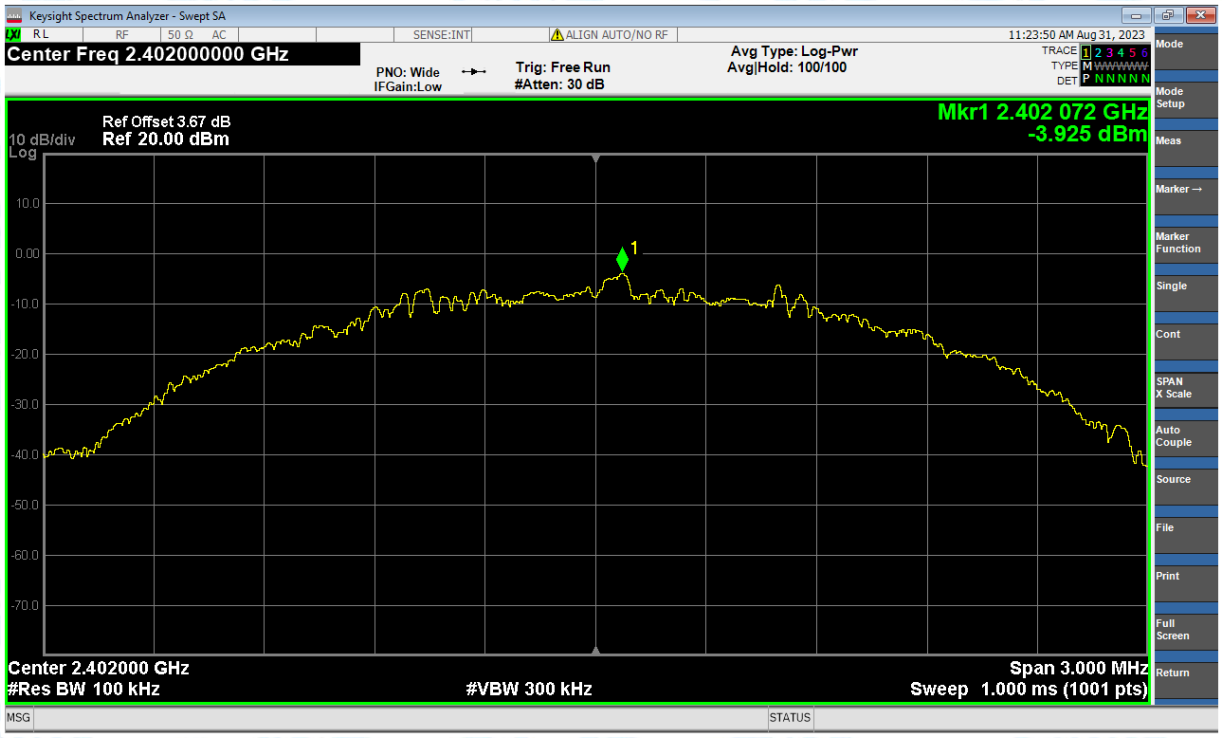
Tx. Spurious NVNT BLE 1Mbps 2480MHz Ant1 Ref



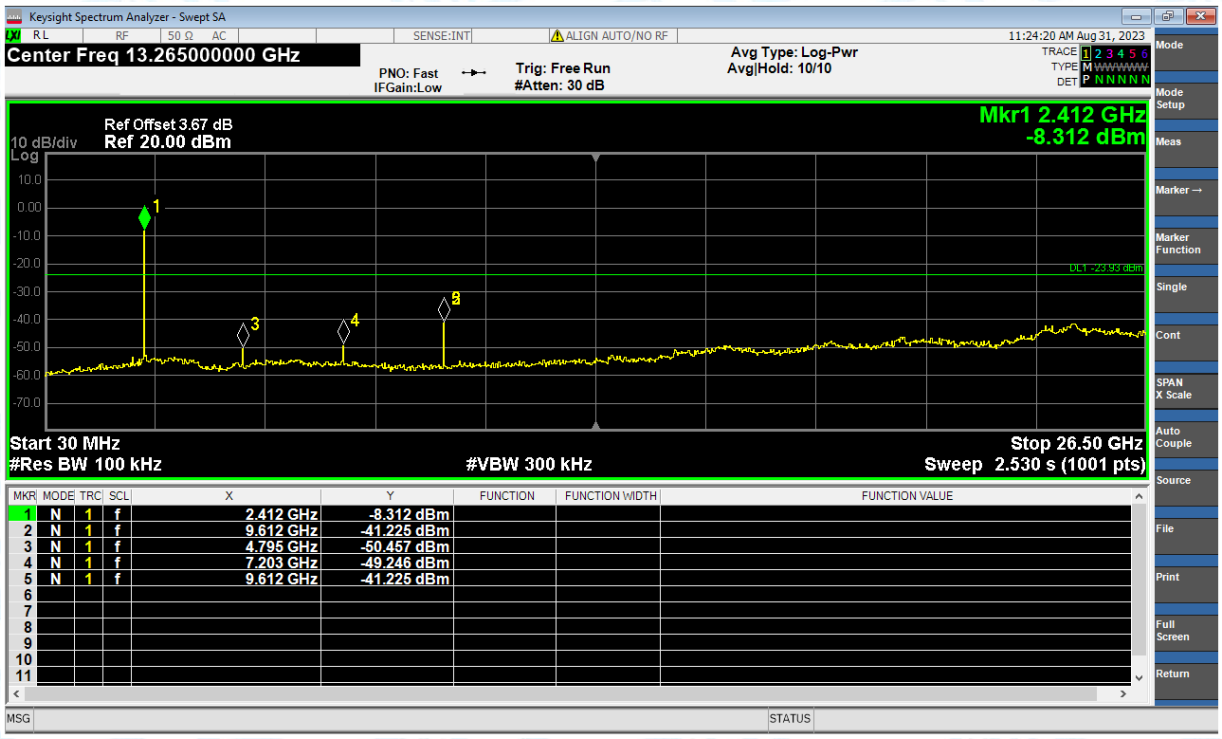

Tx. Spurious NVNT BLE 1Mbps 2480MHz Ant1 Emission



Tx. Spurious NVNT BLE 2Mbps 2402MHz Ant1 Ref




Tx. Spurious NVNT BLE 2Mbps 2402MHz Ant1 Emission



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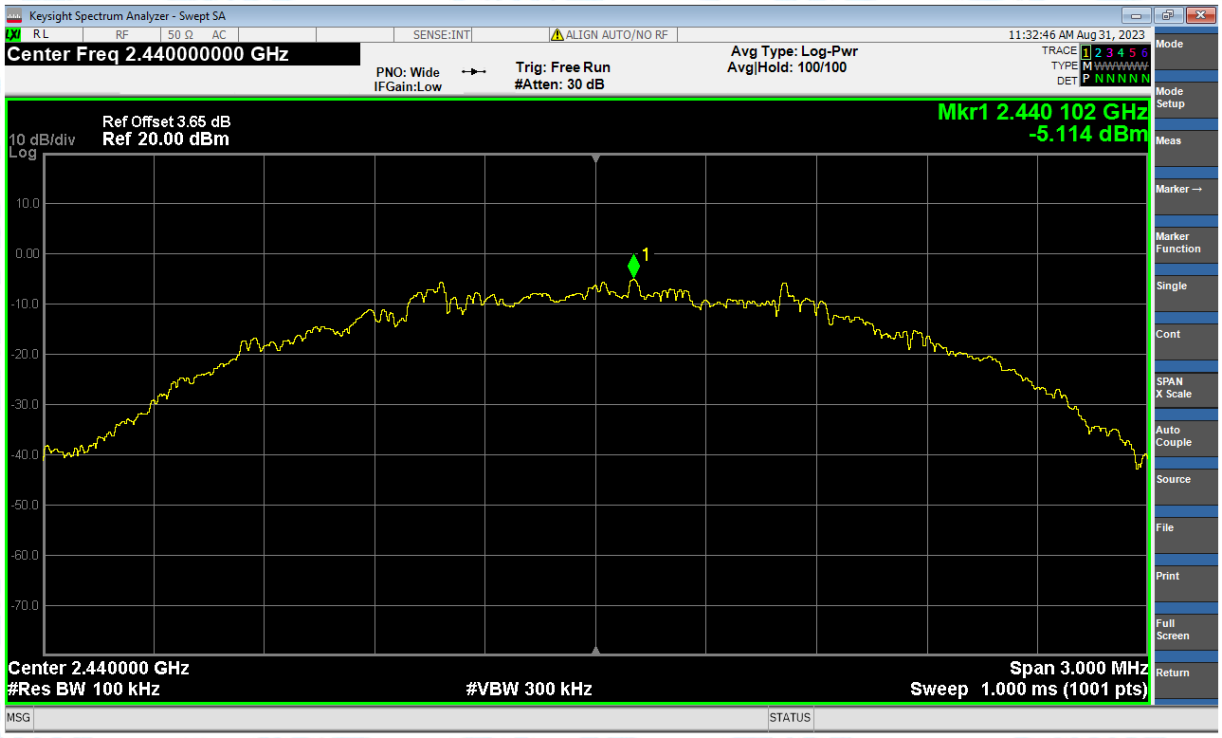
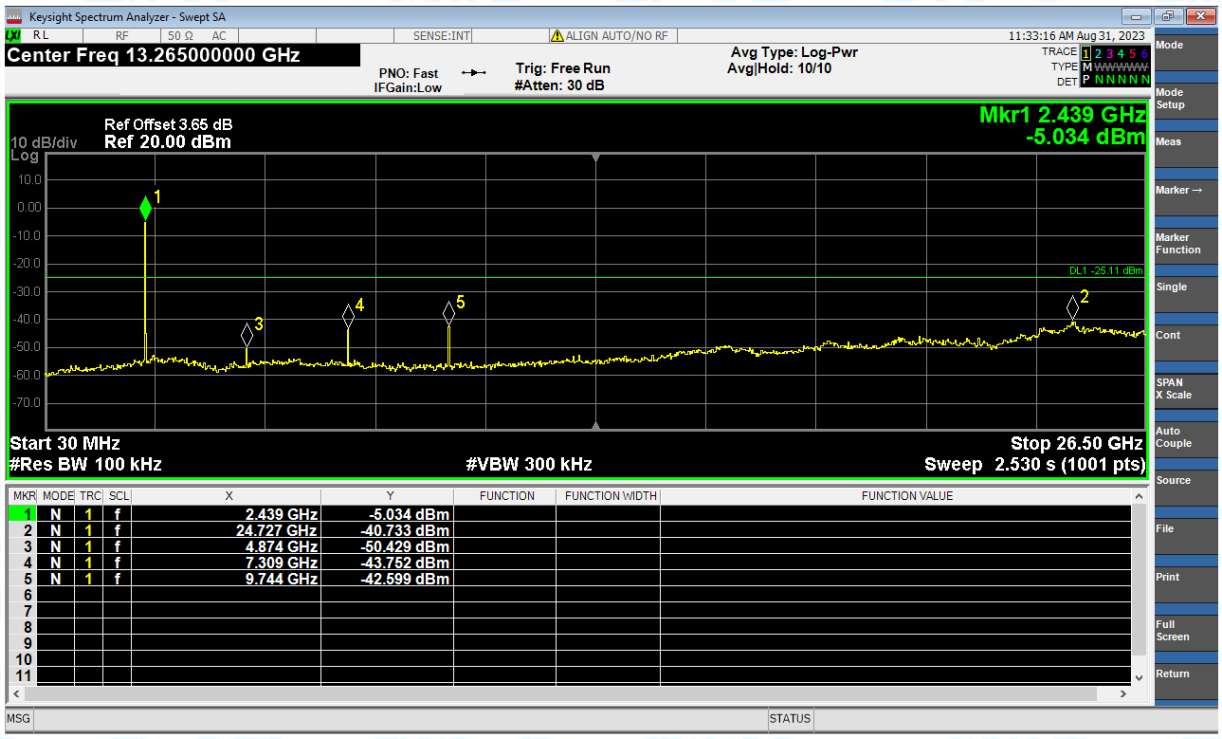
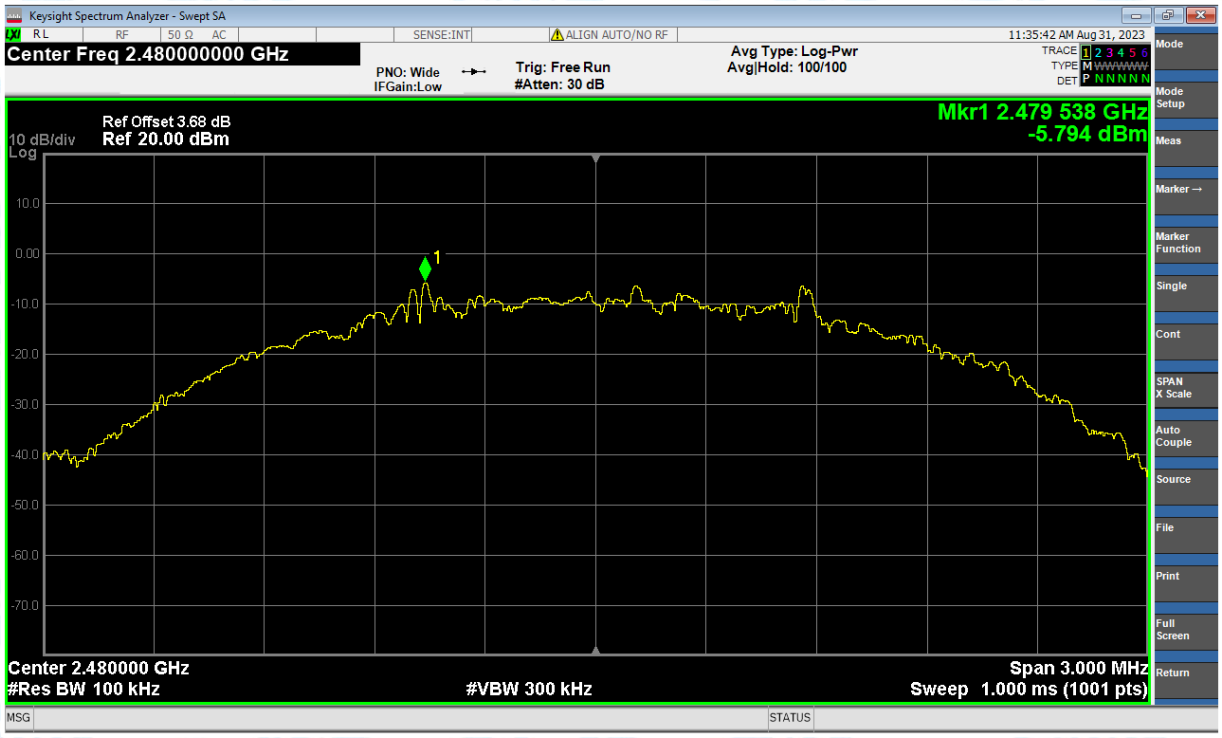


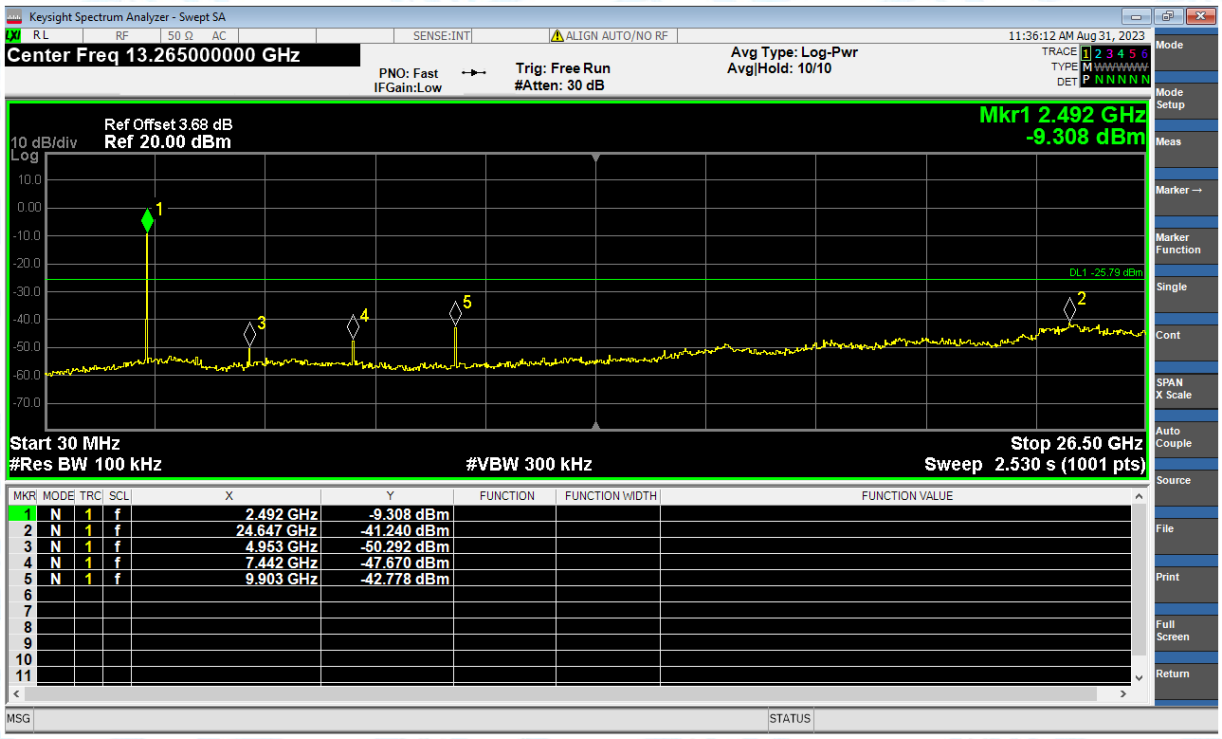

Tx. Spurious NVNT BLE 2Mbps 2440MHz Ant1 Emission



Tx. Spurious NVNT BLE 2Mbps 2480MHz Ant1 Ref




Tx. Spurious NVNT BLE 2Mbps 2480MHz Ant1 Emission

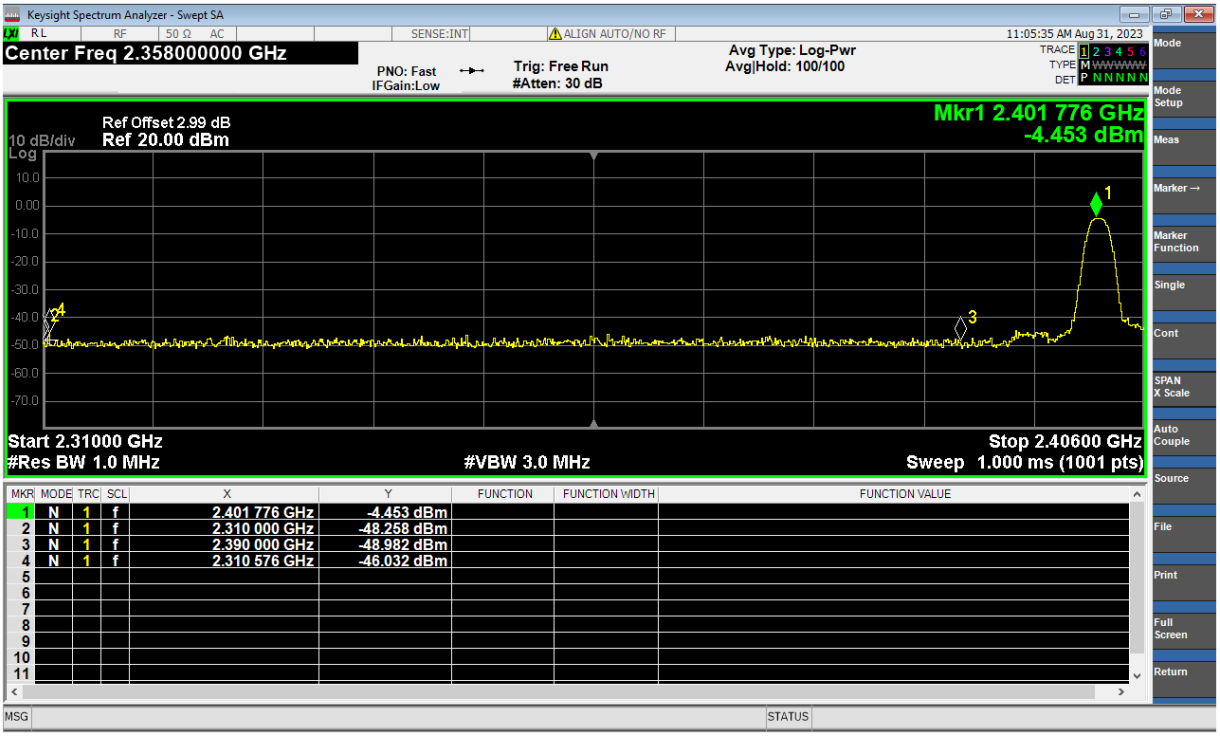


# 8. Restrict Band

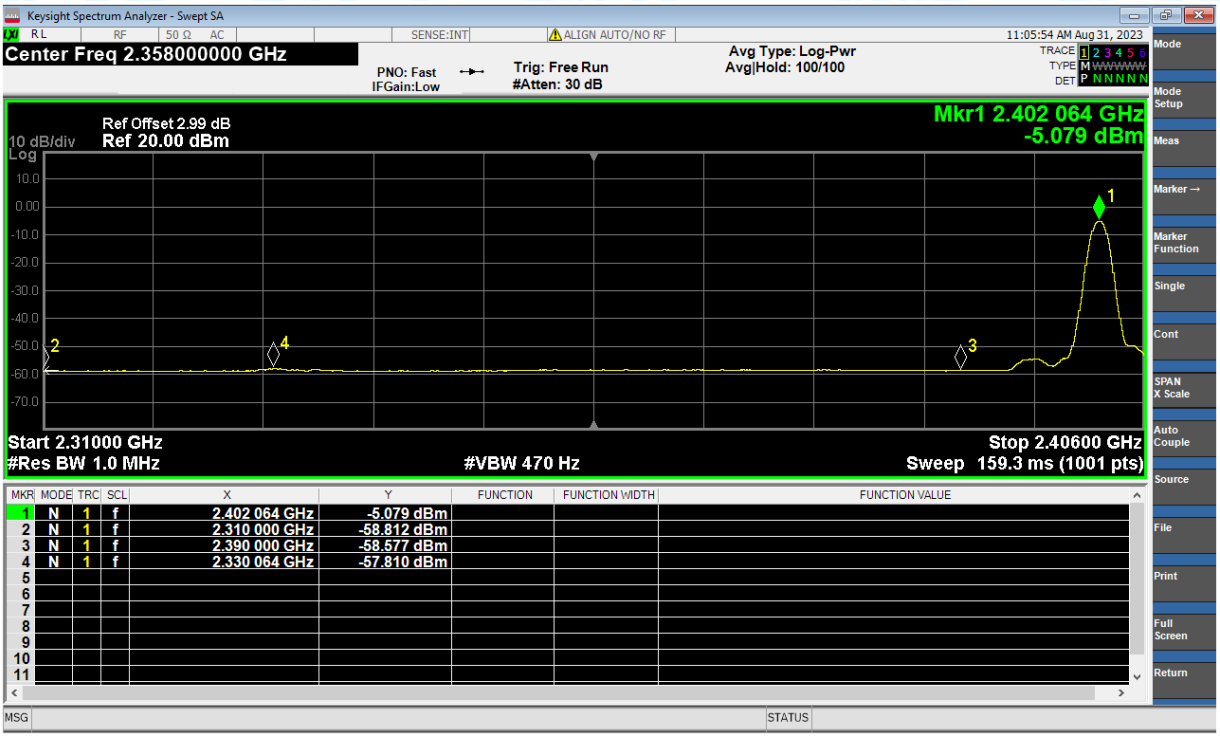
| Condition | Mode | Frequency (MHz) | Antenna | Spur Freq (MHz) | Power (dBm) | Gain (dBi) | E (dBuV/m) | Detector | Limit (dBuV/m) | Verdict |
|---|---|---|---|---|---|---|---|---|---|---|
| NVNT | BLE 1Mbps | 2402 | Ant1 | 2310 | -48.26 | 2 | 49 | Peak | 74 | Pass |
| NVNT | BLE 1Mbps | 2402 | Ant1 | 2310 | -58.81 | 2 | 38.45 | Average | 54 | Pass |
| NVNT | BLE 1Mbps | 2402 | Ant1 | 2310.576 | -46.03 | 2 | 51.23 | Peak | 74 | Pass |
| NVNT | BLE 1Mbps | 2402 | Ant1 | 2330.064 | -57.81 | 2 | 39.45 | Average | 54 | Pass |
| NVNT | BLE 1Mbps | 2402 | Ant1 | 2390 | -49.71 | 2 | 47.55 | Peak | 74 | Pass |
| NVNT | BLE 1Mbps | 2402 | Ant1 | 2390 | -58.56 | 2 | 38.7 | Average | 54 | Pass |
| NVNT | BLE 1Mbps | 2480 | Ant1 | 2483.5 | -43.48 | 2 | 53.78 | Peak | 74 | Pass |
| NVNT | BLE 1Mbps | 2480 | Ant1 | 2483.5 | -51.14 | 2 | 46.12 | Average | 54 | Pass |
| NVNT | BLE 1Mbps | 2480 | Ant1 | 2483.608 | -42.9 | 2 | 54.36 | Peak | 74 | Pass |
| NVNT | BLE 1Mbps | 2480 | Ant1 | 2483.512 | -51.14 | 2 | 46.12 | Average | 54 | Pass |
| NVNT | BLE 1Mbps | 2480 | Ant1 | 2500 | -49.55 | 2 | 47.71 | Peak | 74 | Pass |
| NVNT | BLE 1Mbps | 2480 | Ant1 | 2500 | -58.39 | 2 | 38.87 | Average | 54 | Pass |
| NVNT | BLE 2Mbps | 2402 | Ant1 | 2310 | -48.97 | 2 | 48.29 | Peak | 74 | Pass |
| NVNT | BLE 2Mbps | 2402 | Ant1 | 2310 | -58.65 | 2 | 38.61 | Average | 54 | Pass |
| NVNT | BLE 2Mbps | 2402 | Ant1 | 2334.288 | -46.19 | 2 | 51.07 | Peak | 74 | Pass |
| NVNT | BLE 2Mbps | 2402 | Ant1 | 2371.824 | -57.92 | 2 | 39.34 | Average | 54 | Pass |
| NVNT | BLE 2Mbps | 2402 | Ant1 | 2390 | -48.51 | 2 | 48.75 | Peak | 74 | Pass |
| NVNT | BLE 2Mbps | 2402 | Ant1 | 2390 | -58.3 | 2 | 38.96 | Average | 54 | Pass |
| NVNT | BLE 2Mbps | 2480 | Ant1 | 2483.5 | -45.33 | 2 | 51.93 | Peak | 74 | Pass |
| NVNT | BLE 2Mbps | 2480 | Ant1 | 2483.5 | -54.29 | 2 | 42.97 | Average | 54 | Pass |
| NVNT | BLE 2Mbps | 2480 | Ant1 | 2484.472 | -42.91 | 2 | 54.35 | Peak | 74 | Pass |
| NVNT | BLE 2Mbps | 2480 | Ant1 | 2484.256 | -53.33 | 2 | 43.93 | Average | 54 | Pass |
| NVNT | BLE 2Mbps | 2480 | Ant1 | 2500 | -48.83 | 2 | 48.43 | Peak | 74 | Pass |
| NVNT | BLE 2Mbps | 2480 | Ant1 | 2500 | -58.16 | 2 | 39.1 | Average | 54 | Pass |

Test Graphs

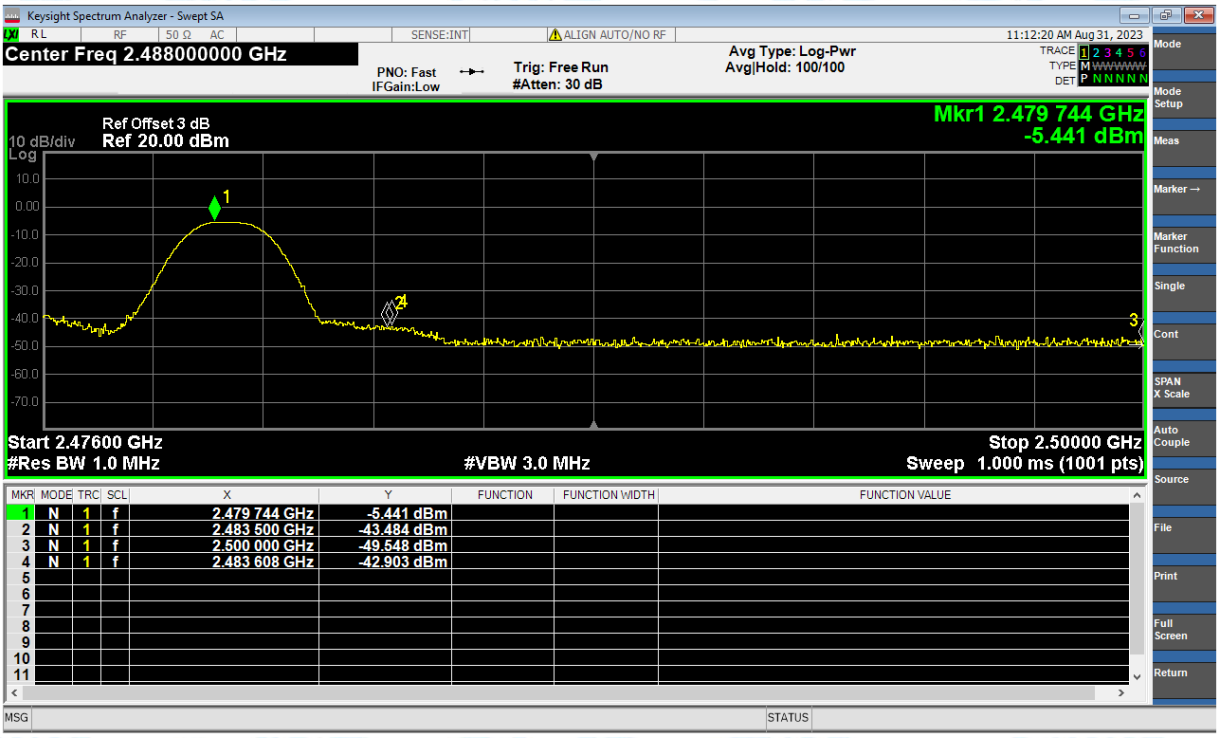
Restrict Band NVNT BLE 1Mbps 2402MHz Ant1 Peak




Restrict Band NVNT BLE 1Mbps 2402MHz Ant1 Average

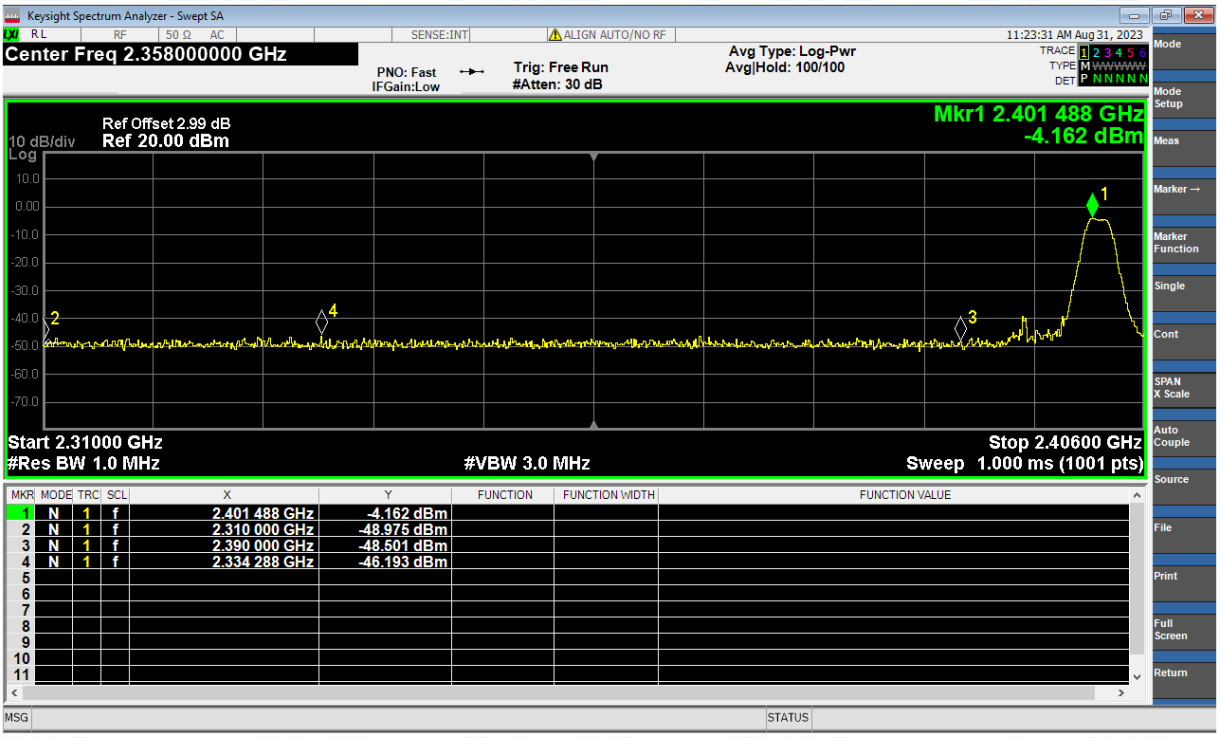


Restrict Band NVNT BLE 1Mbps 2480MHz Ant1 Peak

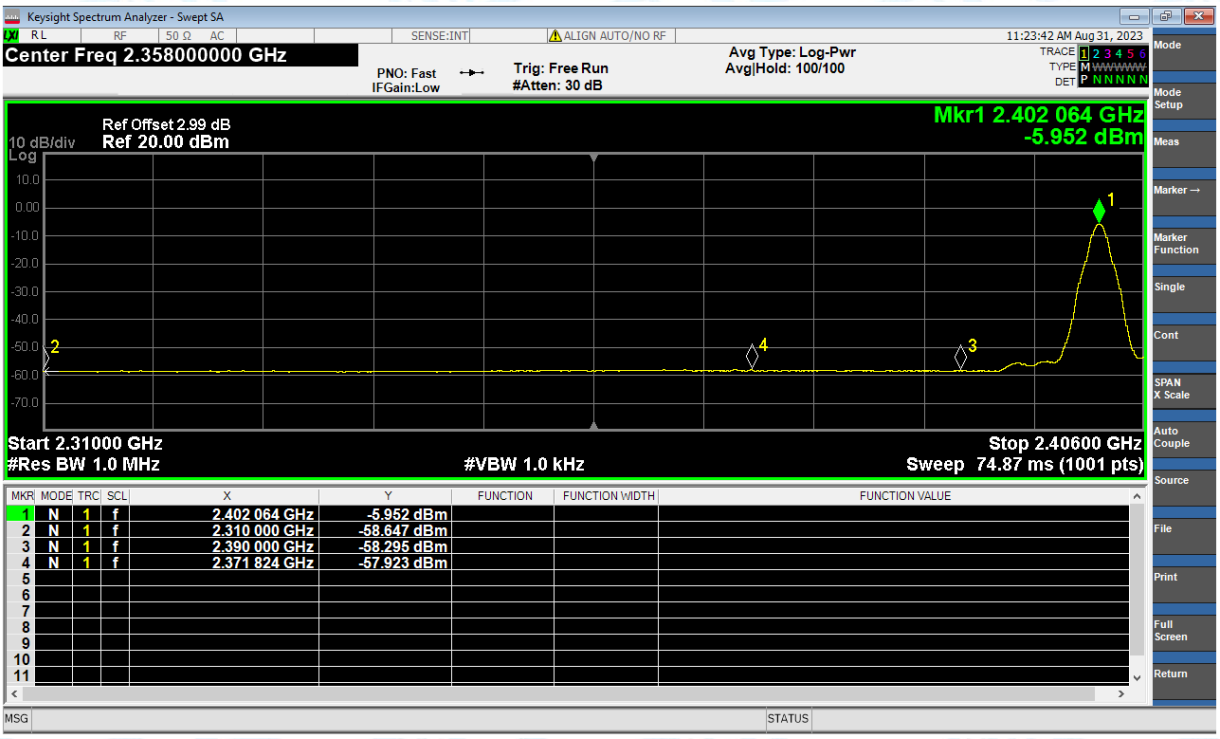



Restrict Band NVNT BLE 1Mbps 2480MHz Ant1 Average

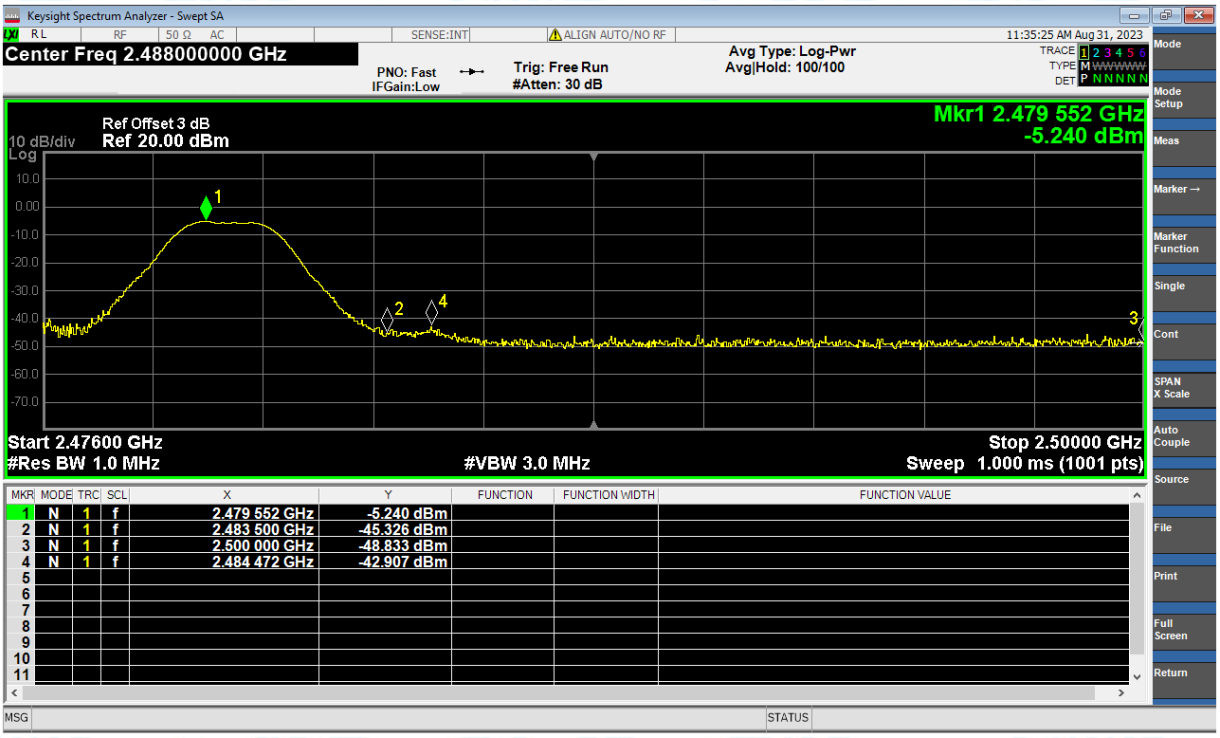
Restrict Band NVNT BLE 2Mbps 2402MHz Ant1 Peak




Restrict Band NVNT BLE 2Mbps 2402MHz Ant1 Average



Restrict Band NVNT BLE 2Mbps 2480MHz Ant1 Peak




Restrict Band NVNT BLE 2Mbps 2480MHz Ant1 Average

**-----END OF THE REPORT-----**