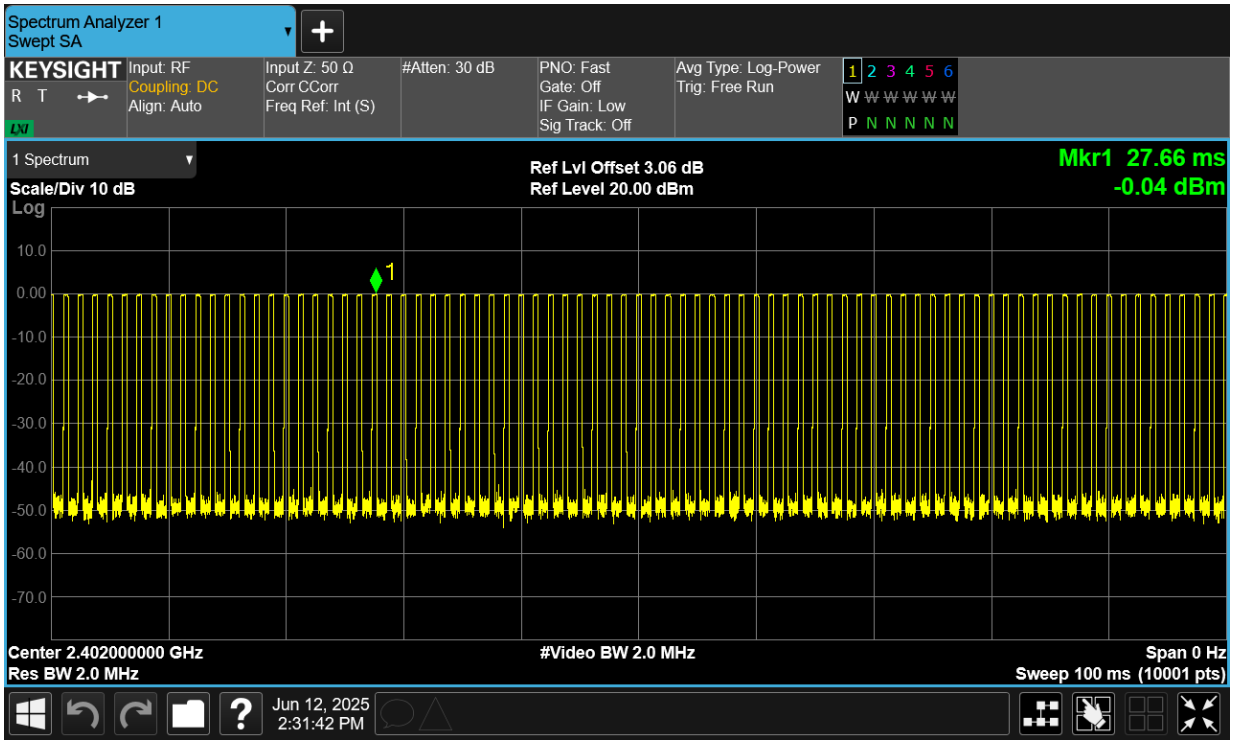
# Test Data

## Duty Cycle

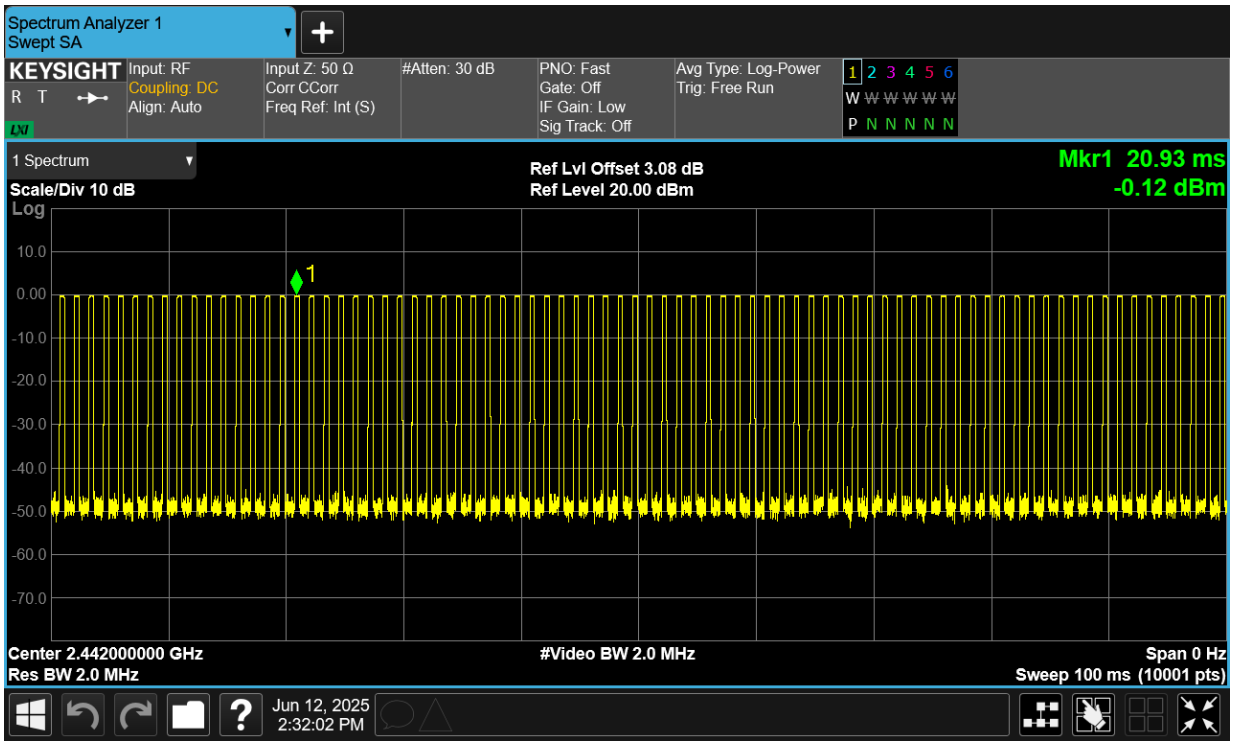
| Condition | Mode | Frequency (MHz) | Antenna | Duty Cycle (%) | Correction Factor (dB) |
|---|---|---|---|---|---|
| NVNT | BLE | 2402 | Ant1 | 36.01 | 4.44 |
| NVNT | BLE | 2442 | Ant1 | 36 | 4.44 |
| NVNT | BLE | 2480 | Ant1 | 36 | 4.44 |

Test Graphs

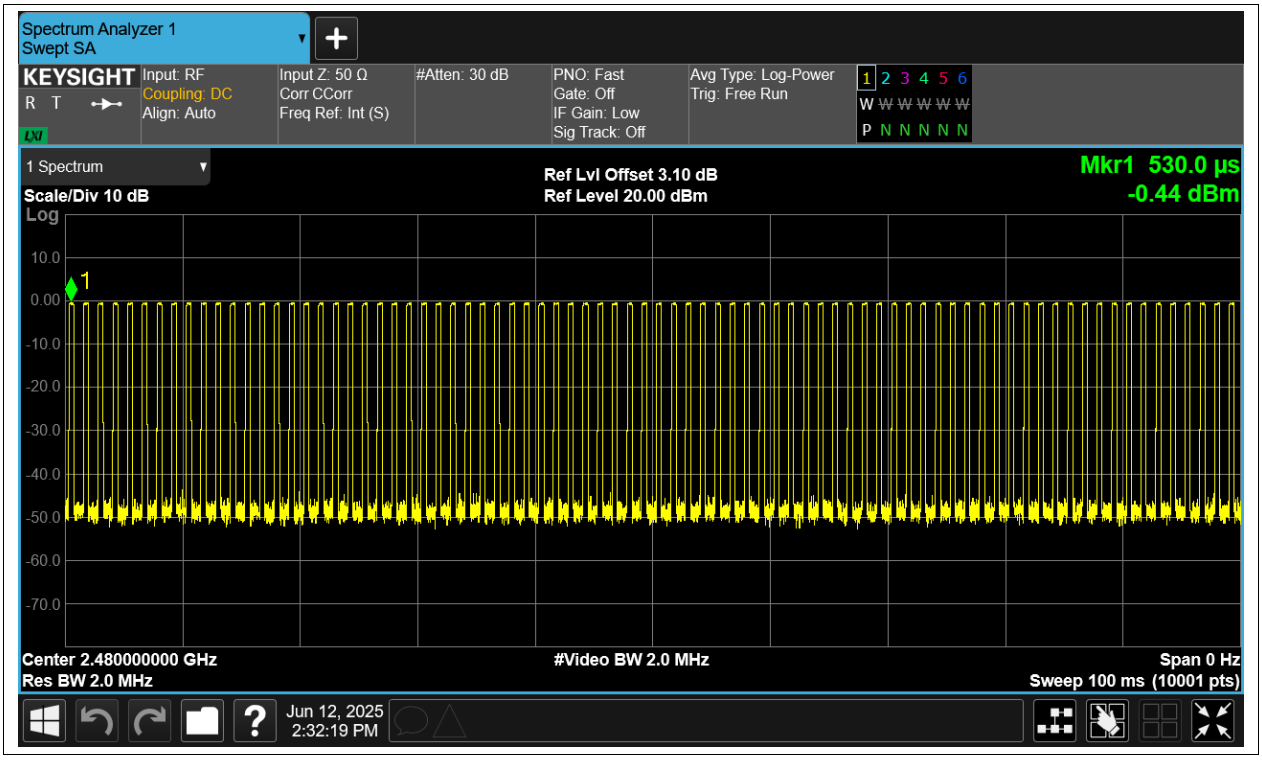
Duty Cycle NVNT BLE 2402MHz Ant1




Duty Cycle NVNT BLE 2442MHz Ant1




Duty Cycle NVNT BLE 2480MHz Ant1

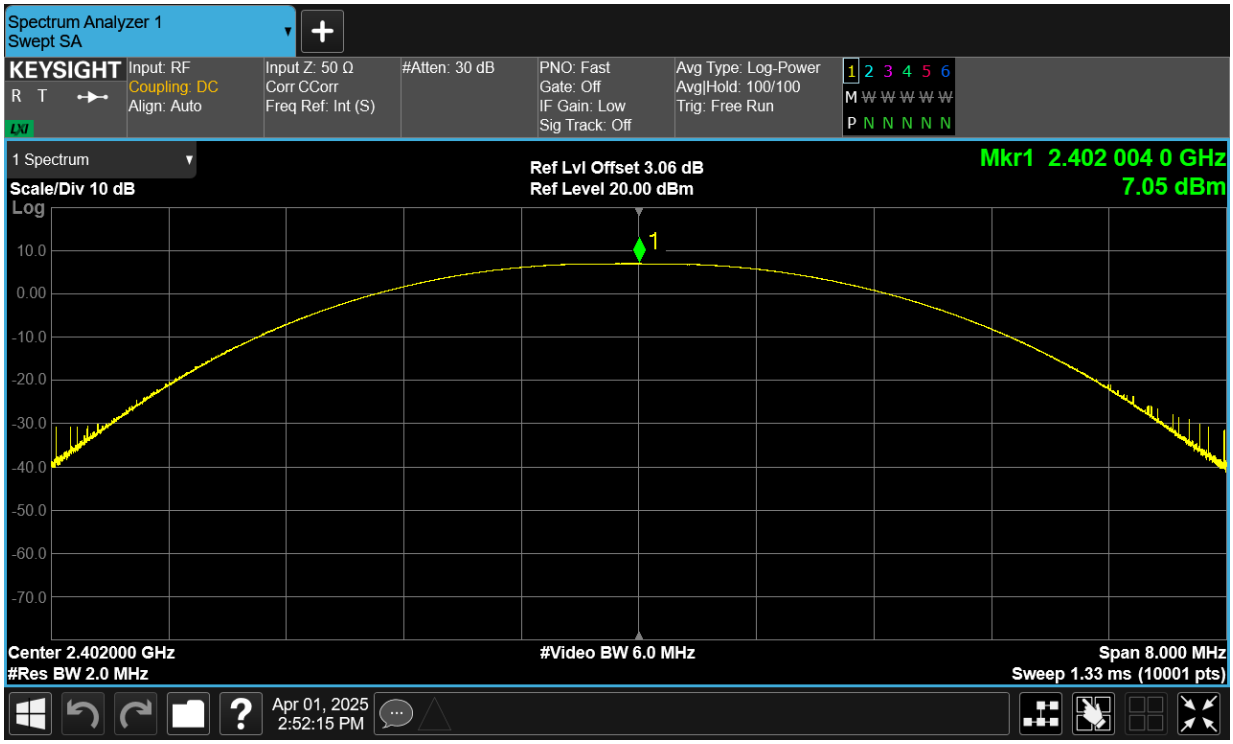

Spectrum Analyzer 1
Swept SA
KEYSIGHT
Input: RF
Coupling: DC
Align: Auto
Input Z: 50 Ω
Corr CCorr
Freq Ref: Int (S)
#Atten: 30 dB
PNO: Fast
Gate: Off
IF Gain: Low
Sig Track: Off
Avg Type: Log-Power
Trig: Free Run
1 Spectrum
Scale/Div 10 dB
Log
Ref Lvl Offset 3.10 dB
Ref Level 20.00 dBm
Mkr1 530.0 µs
-0.44 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
Center 2.480000000 GHz
Res BW 2.0 MHz
#Video BW 2.0 MHz
Span 0 Hz
Sweep 100 ms (10001 pts)
Jun 12, 2025
2:32:19 PM

# Maximum Conducted Output Pwer

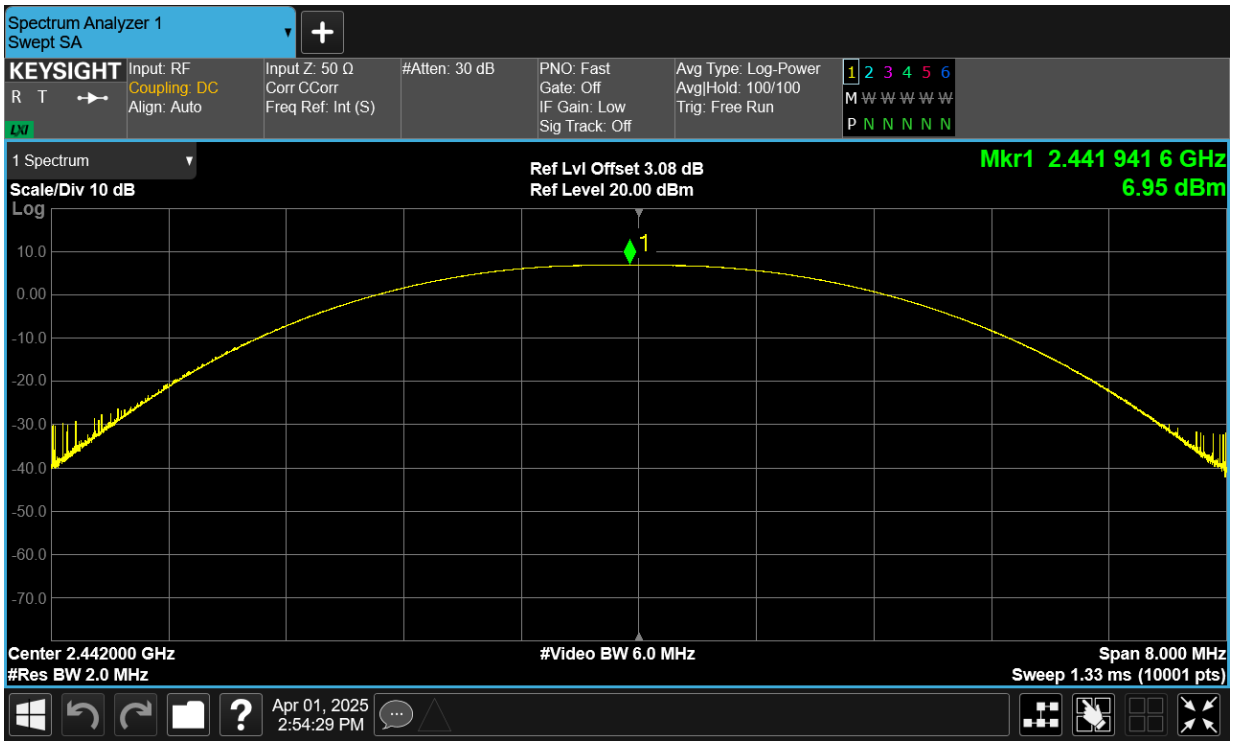
| Condition | Mode | Frequency (MHz) | Antenna | Conducted Power (dBm) | Limit (dBm) | Verdict |
|---|---|---|---|---|---|---|
| NVNT | BLE | 2402 | Ant1 | 7.046 | 30 | Pass |
| NVNT | BLE | 2442 | Ant1 | 6.946 | 30 | Pass |
| NVNT | BLE | 2480 | Ant1 | 6.912 | 30 | Pass |

Test Graphs

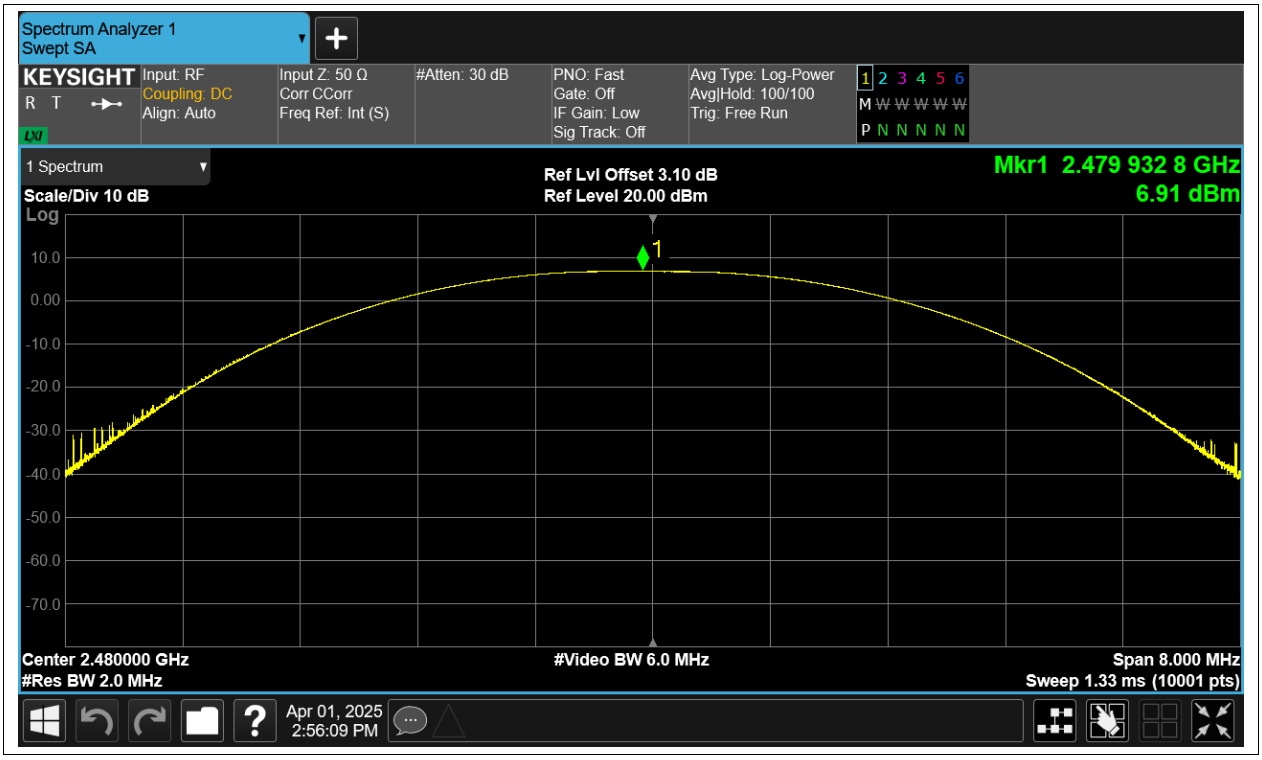
Power NVNT BLE 2402MHz Ant1




Power NVNT BLE 2442MHz Ant1




Power NVNT BLE 2480MHz Ant1


Spectrum Analyzer 1
Swept SA
KEYSIGHT
Input: RF
Coupling: DC
Align: Auto
Input Z: 50 Ω
Corr CCorr
Freq Ref: Int (S)
#Atten: 30 dB
PNO: Fast
Gate: Off
IF Gain: Low
Sig Track: Off
Avg Type: Log-Power
Avg|Hold: 100/100
Trig: Free Run
1 Spectrum
Scale/Div 10 dB
Log
Ref Lvl Offset 3.10 dB
Ref Level 20.00 dBm
Mkr1 2.479 932 8 GHz
6.91 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
Center 2.480000 GHz
#Res BW 2.0 MHz
#Video BW 6.0 MHz
Span 8.000 MHz
Sweep 1.33 ms (10001 pts)
Apr 01, 2025
2:56:09 PM

# -6dB Bandwidth

| Condition | Mode | Frequency (MHz) | Antenna | -6 dB Bandwidth (MHz) | limit(MHz) | Verdic |
|---|---|---|---|---|---|---|
| NVNT | BLE | 2402 | Ant1 | 0.716 | 0.5 | Pass |
| NVNT | BLE | 2442 | Ant1 | 0.716 | 0.5 | Pass |
| NVNT | BLE | 2480 | Ant1 | 0.715 | 0.5 | Pass |

Test Graphs

-6dB Bandwidth NVNT BLE 2402MHz Ant1

-6dB Bandwidth NVNT BLE 2442MHz Ant1

-6dB Bandwidth NVNT BLE 2480MHz Ant1

Spectrum Analyzer 1
Occupied BW
KEYSIGHT
Input: RF
Coupling: DC
Align: Auto
Input Z: 50 Ω
Corr CCorr
Freq Ref: Int (S)
Atten: 30 dB
Trig: Free Run
Gate: Off
#IF Gain: Low
Center Freq: 2.480000000 GHz
Avg|Hold: 1000/1000
Radio Std: None
1 Graph
Scale/Div 10.0 dB
Ref Lvl Offset 3.10 dB
Ref Value 23.10 dBm
Mkr3 2.480365000 GHz
-0.46 dBm
Log
13.1
3.10
-6.90
-16.9
-26.9
-36.9
-46.9
-56.9
-66.9
Center 2.480000 GHz
#Res BW 100.00 kHz
#Video BW 300.00 kHz
Span 2 MHz
Sweep 1.33 ms (10001 pts)
2 Metrics
Occupied Bandwidth
1.0590 MHz
Transmit Freq Error 6.951 kHz
x dB Bandwidth 715.4 kHz
Total Power 13.1 dBm
% of OBW Power 99.00 %
x dB -6.00 dB
Apr 01, 2025
2:56:39 PM

# Occupied Channel Bandwidth

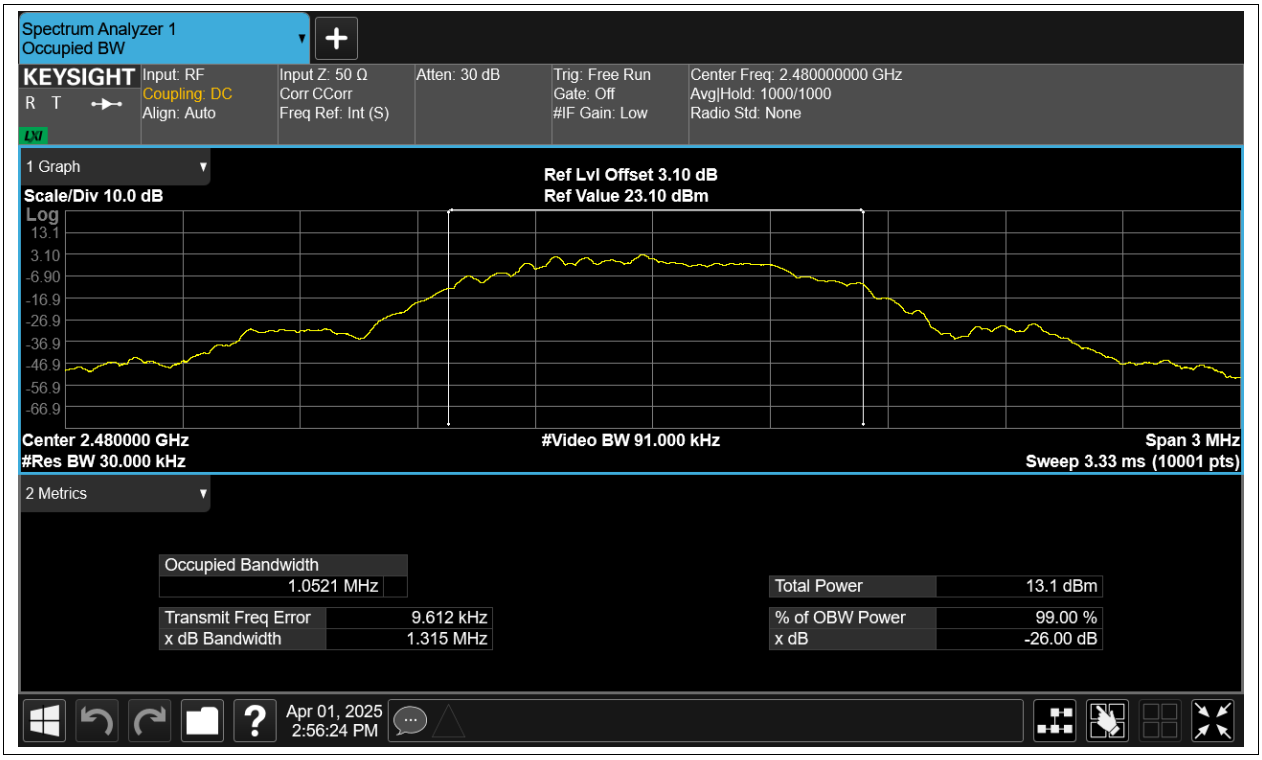
| Condition | Mode | Frequency (MHz) | Antenna | 99% OBW (MHz) |
|---|---|---|---|---|
| NVNT | BLE | 2402 | Ant1 | 1.064 |
| NVNT | BLE | 2442 | Ant1 | 1.054 |
| NVNT | BLE | 2480 | Ant1 | 1.052 |

Test Graphs

OBW NVNT BLE 2402MHz Ant1

OBW NVNT BLE 2442MHz Ant1

OBW NVNT BLE 2480MHz Ant1

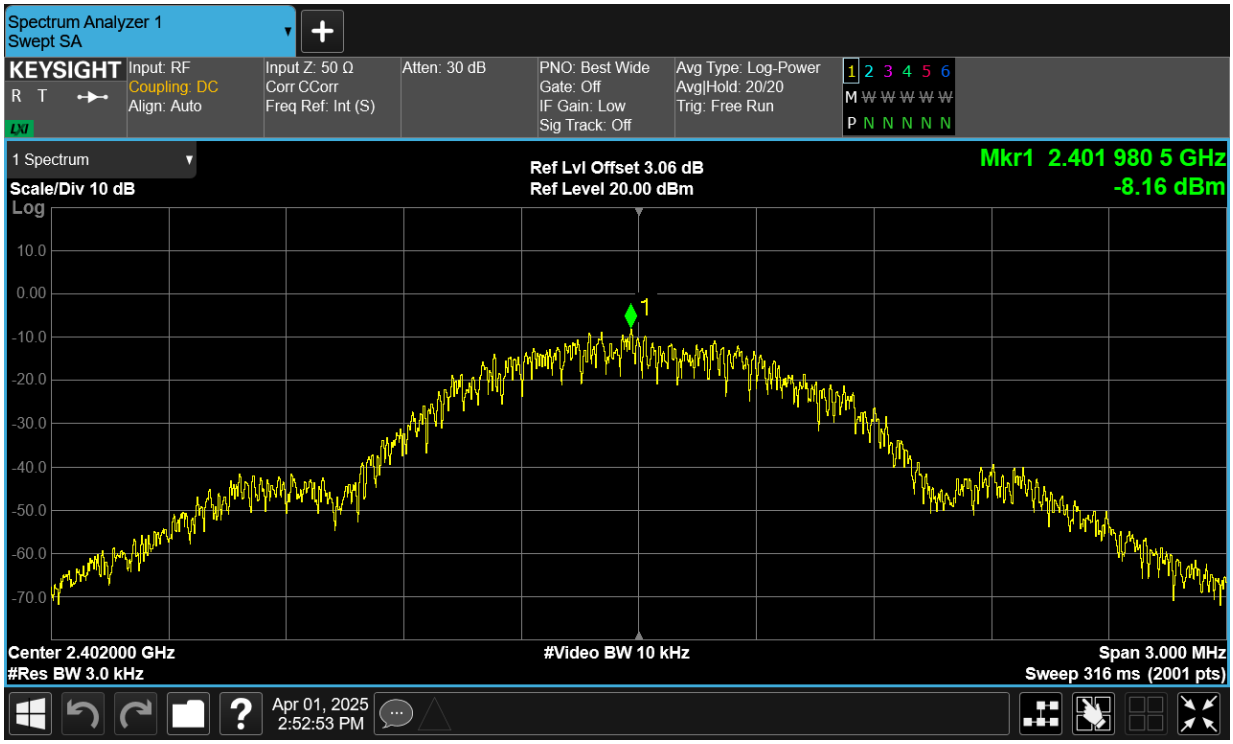

Spectrum Analyzer 1
Occupied BW
KEYSIGHT
Input: RF
Coupling: DC
Align: Auto
Input Z: 50 Ω
Corr CCorr
Freq Ref: Int (S)
Atten: 30 dB
Trig: Free Run
Gate: Off
#IF Gain: Low
Center Freq: 2.480000000 GHz
Avg|Hold: 1000/1000
Radio Std: None
1 Graph
Scale/Div 10.0 dB
Log
13.1
3.10
-6.90
-16.9
-26.9
-36.9
-46.9
-56.9
-66.9
Ref Lvl Offset 3.10 dB
Ref Value 23.10 dBm
Center 2.480000 GHz
#Res BW 30.000 kHz
#Video BW 91.000 kHz
Span 3 MHz
Sweep 3.33 ms (10001 pts)
2 Metrics
Occupied Bandwidth
1.0521 MHz
Transmit Freq Error 9.612 kHz
x dB Bandwidth 1.315 MHz
Total Power 13.1 dBm
% of OBW Power 99.00 %
x dB -26.00 dB
Apr 01, 2025
2:56:24 PM

# Maximum Power Spectral Density Level

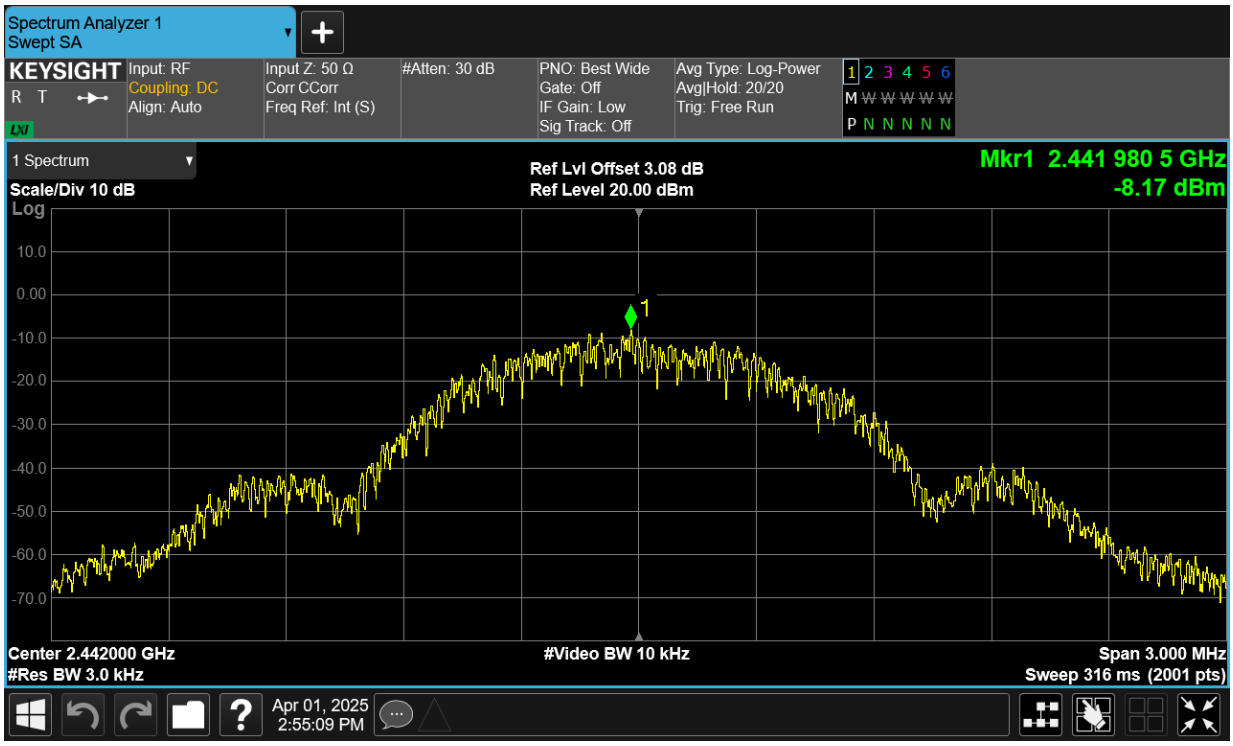
| Condition | Mode | Frequency (MHz) | Antenna | Max PSD (dBm/3KHz) | Limit (dBm/3KHz) | Verdict |
|---|---|---|---|---|---|---|
| NVNT | BLE | 2402 | Ant1 | -8.162 | 8 | Pass |
| NVNT | BLE | 2442 | Ant1 | -8.172 | 8 | Pass |
| NVNT | BLE | 2480 | Ant1 | -8.197 | 8 | Pass |

Test Graphs

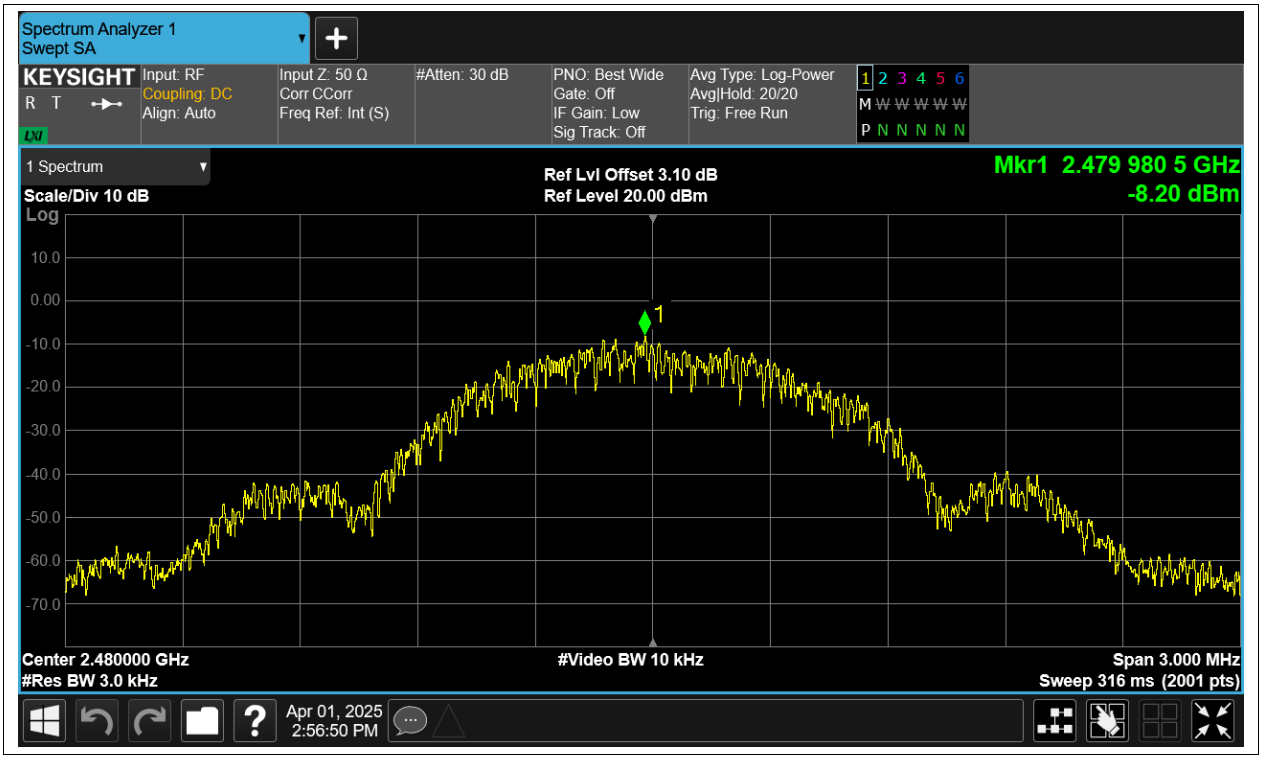
PSD NVNT BLE 2402MHz Ant1




PSD NVNT BLE 2442MHz Ant1




PSD NVNT BLE 2480MHz Ant1

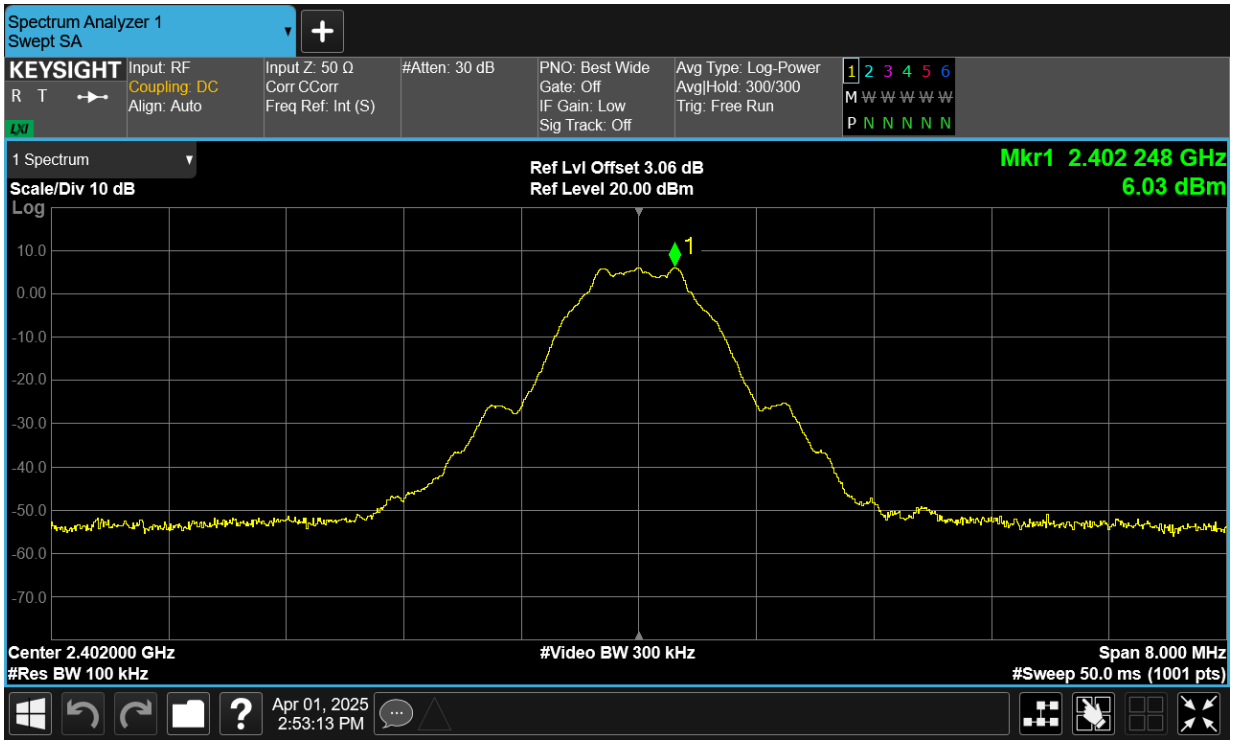

Spectrum Analyzer 1
Swept SA
KEYSIGHT
Input: RF
Coupling: DC
Align: Auto
Input Z: 50 Ω
Corr CCorr
Freq Ref: Int (S)
#Atten: 30 dB
PNO: Best Wide
Gate: Off
IF Gain: Low
Sig Track: Off
Avg Type: Log-Power
Avg|Hold: 20/20
Trig: Free Run
1 Spectrum
Scale/Div 10 dB
Log
Ref Lvl Offset 3.10 dB
Ref Level 20.00 dBm
Mkr1 2.479 980 5 GHz
-8.20 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
Center 2.480000 GHz
#Res BW 3.0 kHz
#Video BW 10 kHz
Span 3.000 MHz
Sweep 316 ms (2001 pts)
Apr 01, 2025
2:56:50 PM

# Band Edge

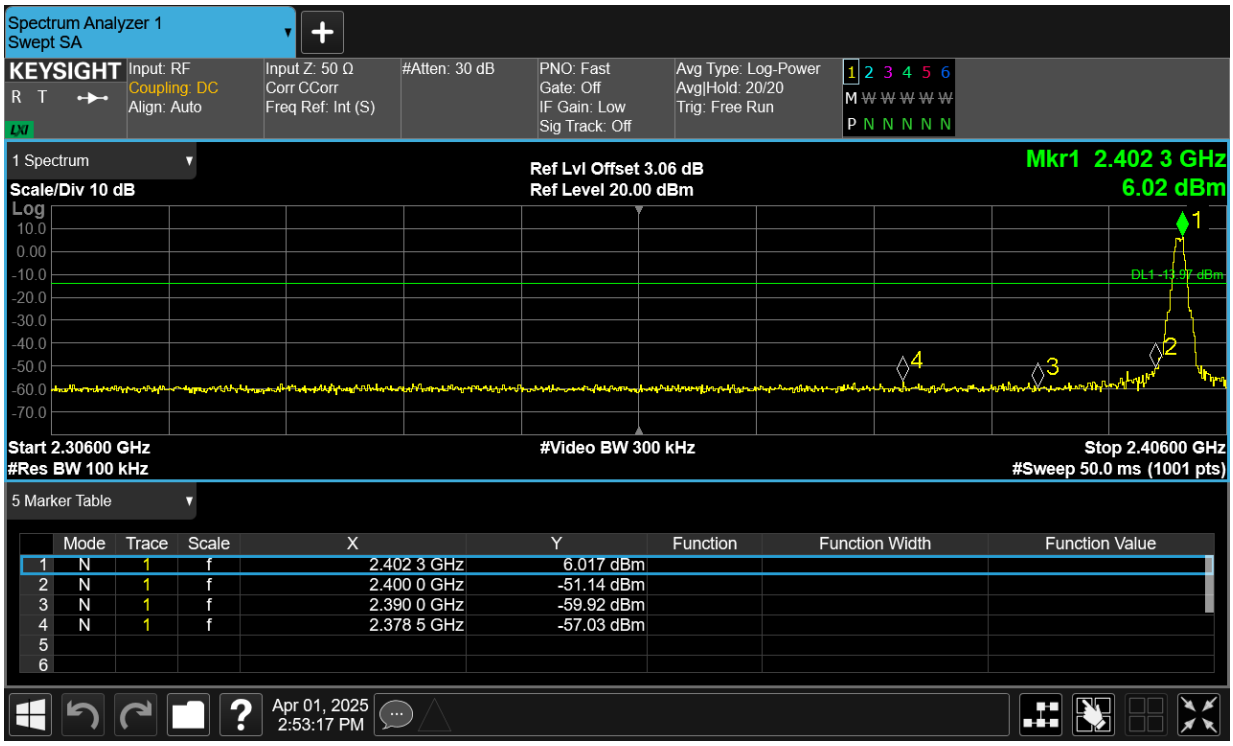
| Condition | Mode | Frequency (MHz) | Antenna | Max Value (dBc) | Limit (dBc) | Verdict |
|---|---|---|---|---|---|---|
| NVNT | BLE | 2402 | Ant1 | -63.06 | -20 | Pass |
| NVNT | BLE | 2480 | Ant1 | -59.42 | -20 | Pass |

Test Graphs

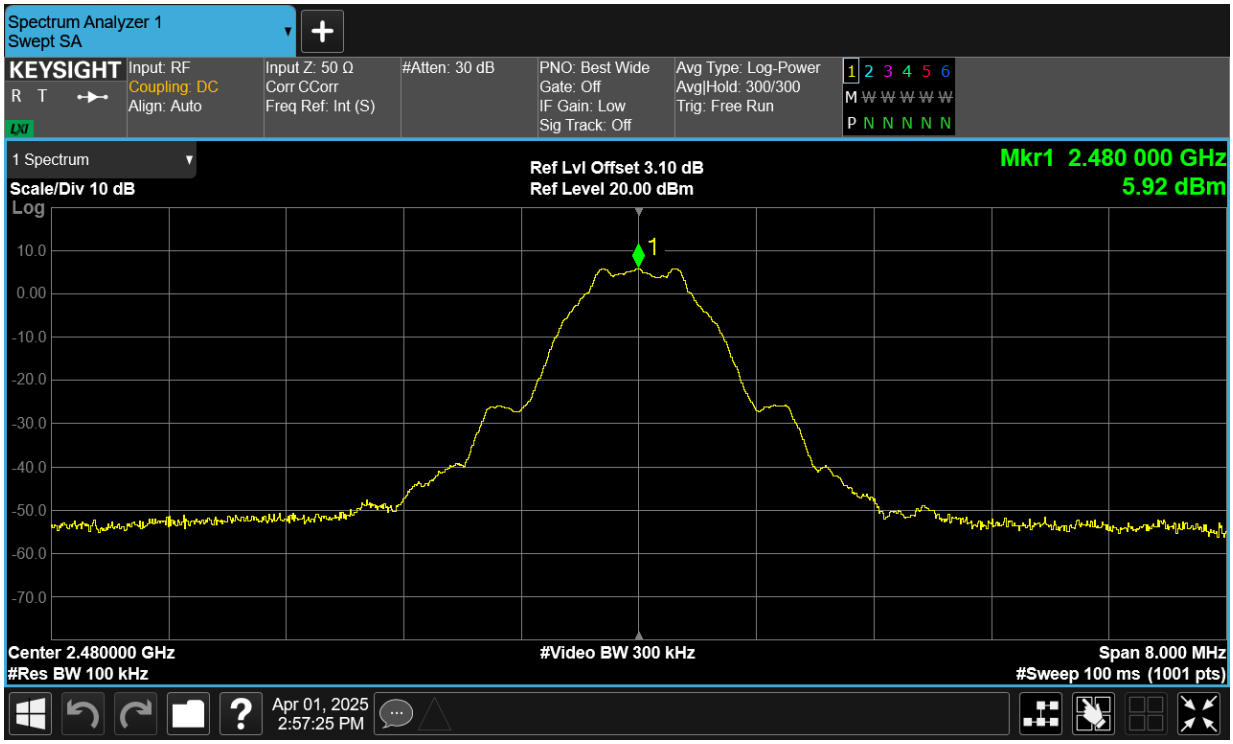
Band Edge NVNT BLE 2402MHz Ant1 Ref



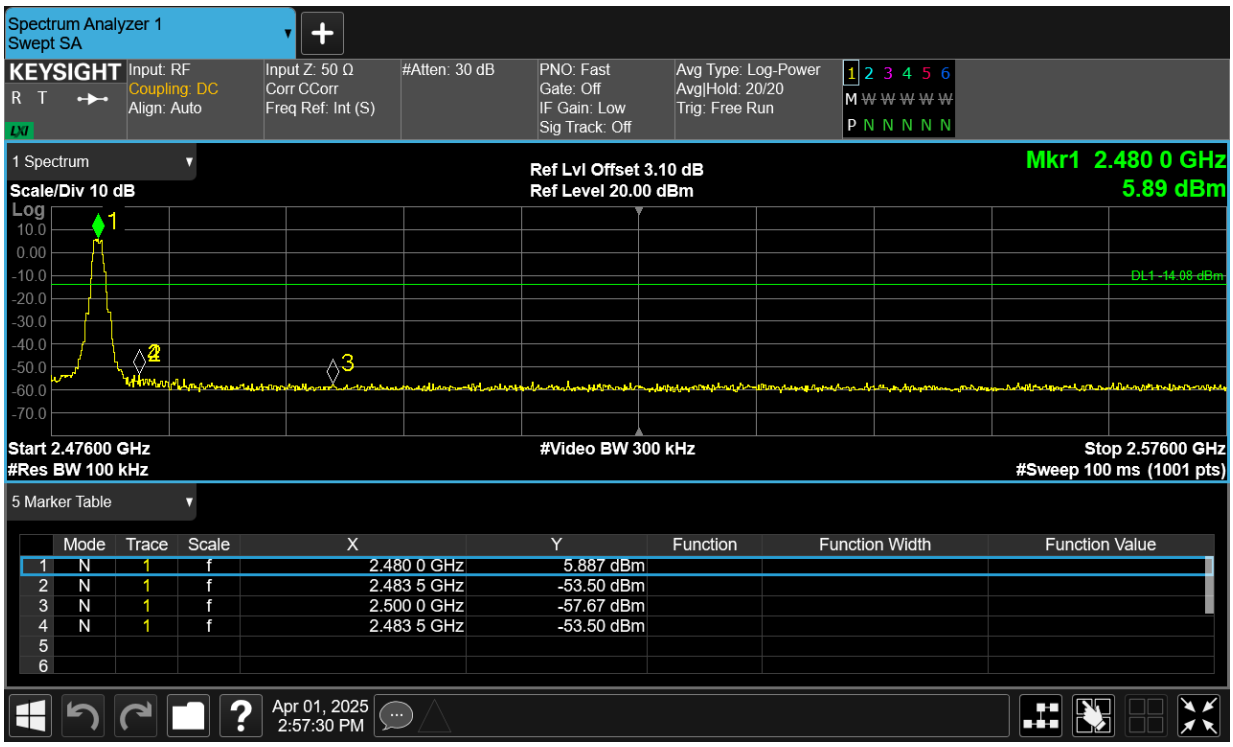

Band Edge NVNT BLE 2402MHz Ant1 Emission




Band Edge NVNT BLE 2480MHz Ant1 Ref




Band Edge NVNT BLE 2480MHz Ant1 Emission



# Conducted RF Spurious Emission

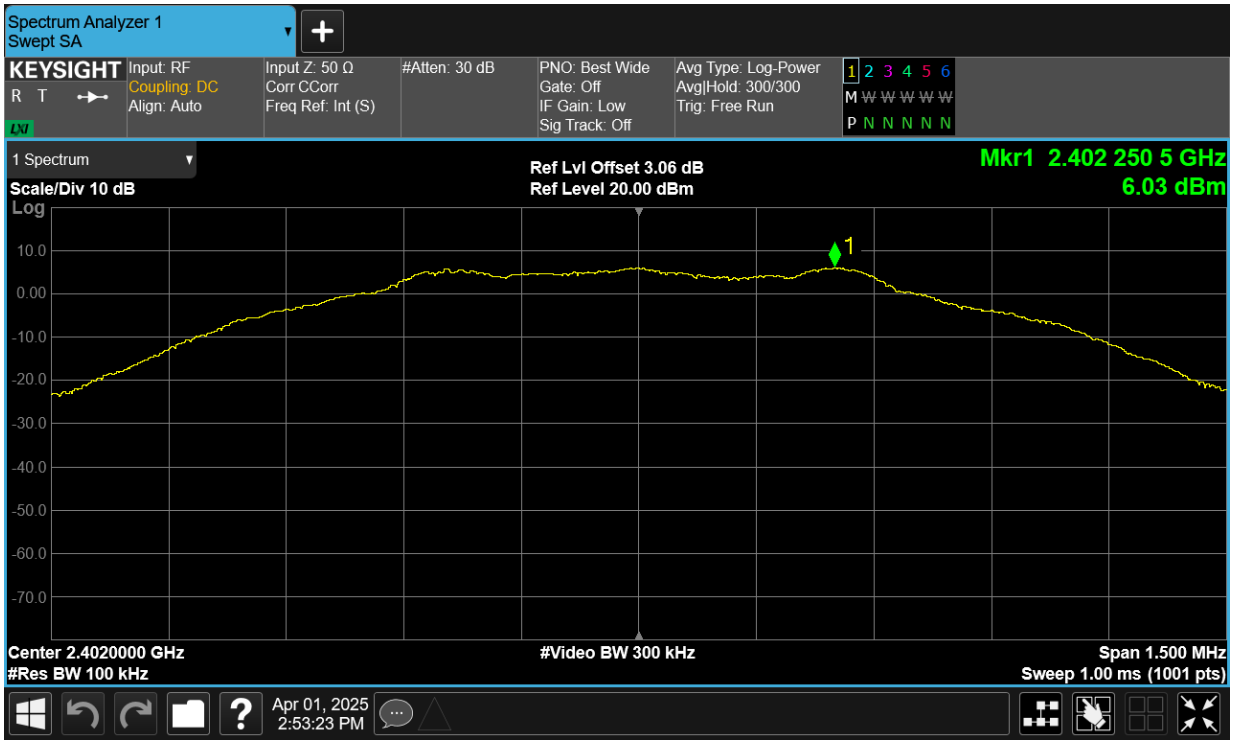
| Condition | Mode | Frequency (MHz) | Antenna | Max Value (dBc) | Limit (dBc) | Verdict |
|---|---|---|---|---|---|---|
| NVNT | BLE | 2402 | Ant1 | -53 | -20 | Pass |
| NVNT | BLE | 2442 | Ant1 | -53.6 | -20 | Pass |
| NVNT | BLE | 2480 | Ant1 | -54.22 | -20 | Pass |

Remark:

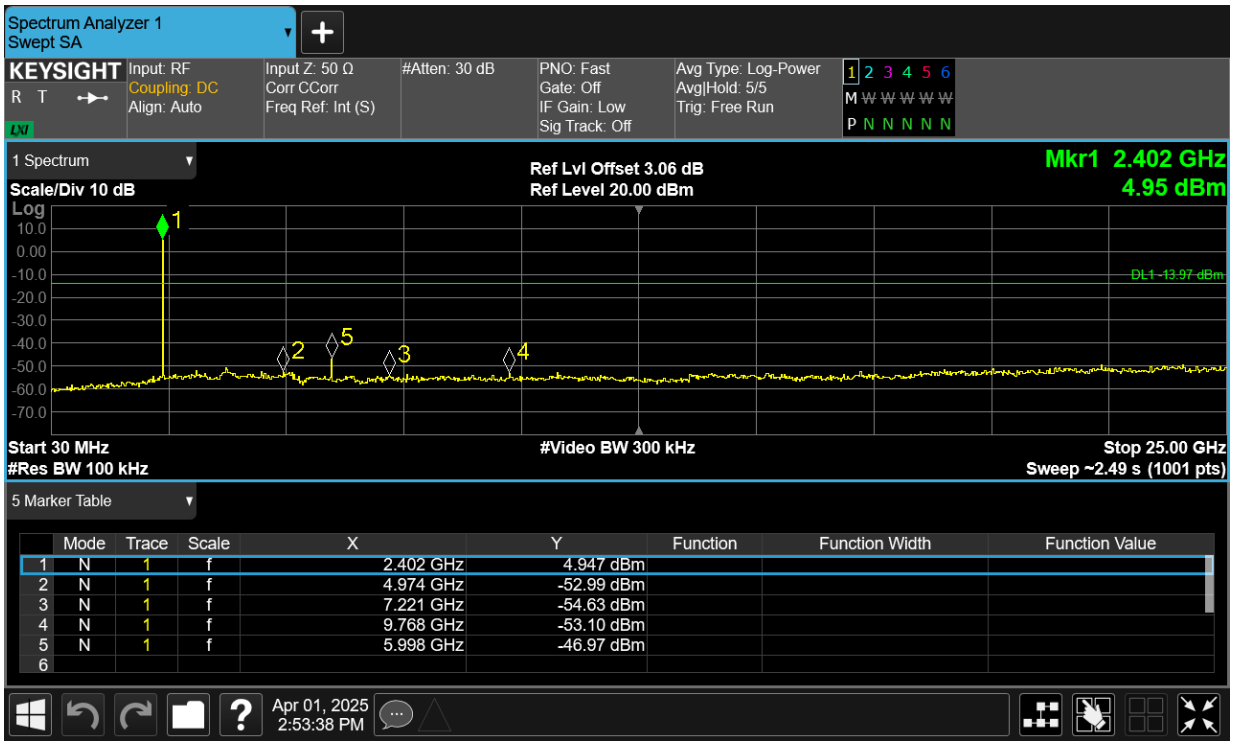
1. Rel Lvl Offset=External cable loss + Internal loss(Internal cable loss+ RF Control Unit loss+ Power Detector Box loss)
2. Internal loss: It varies with the test frequency.

Test Graphs

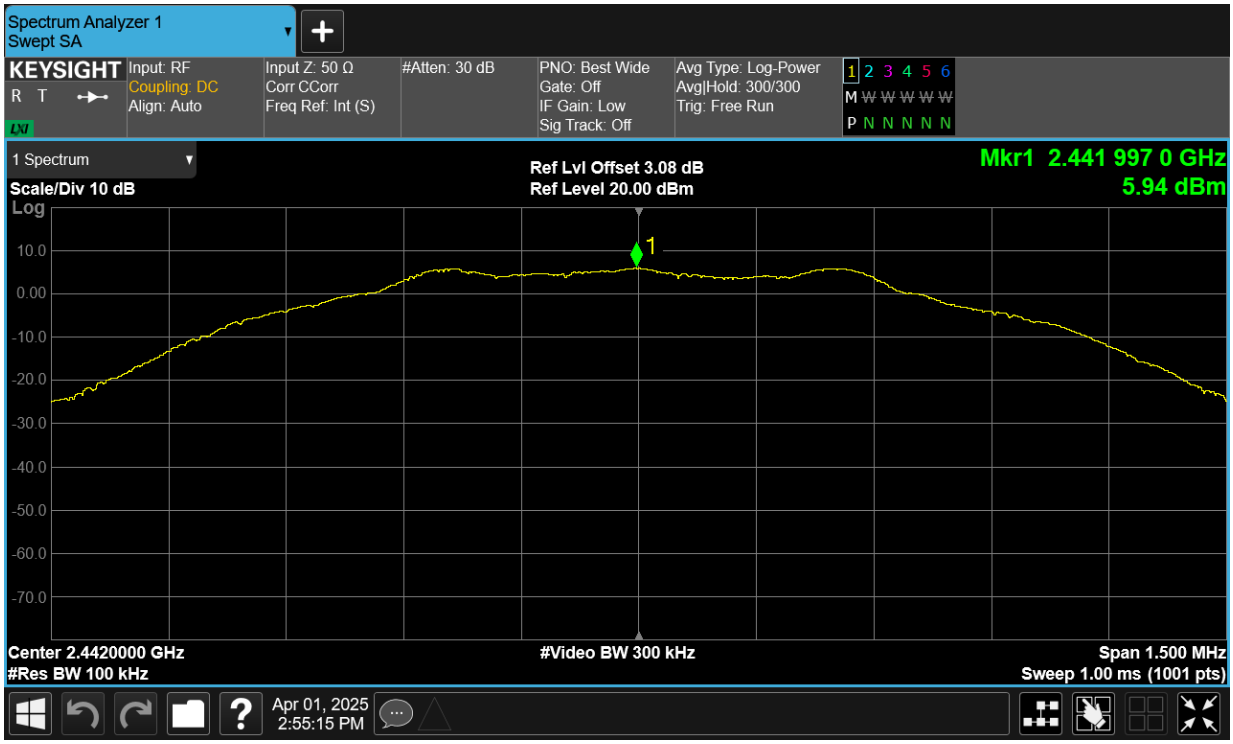
Tx. Spurious NVNT BLE 2402MHz Ant1 Ref



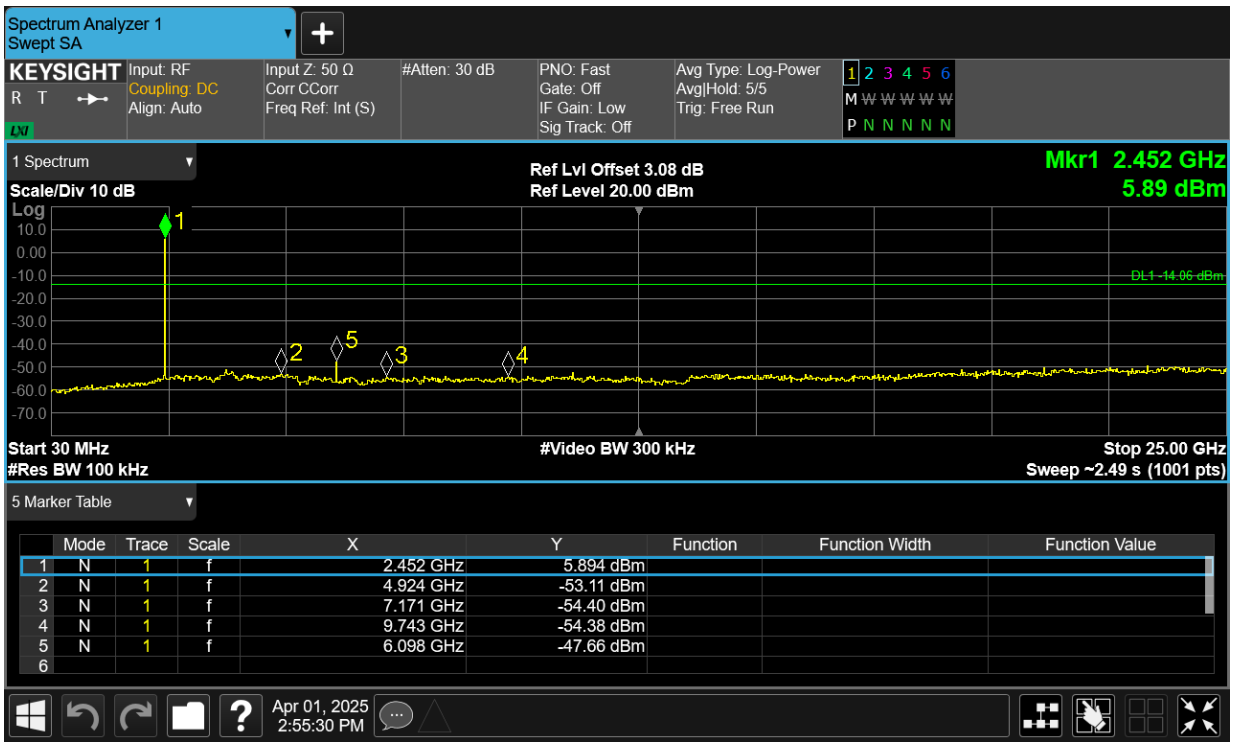

Tx. Spurious NVNT BLE 2402MHz Ant1 Emission



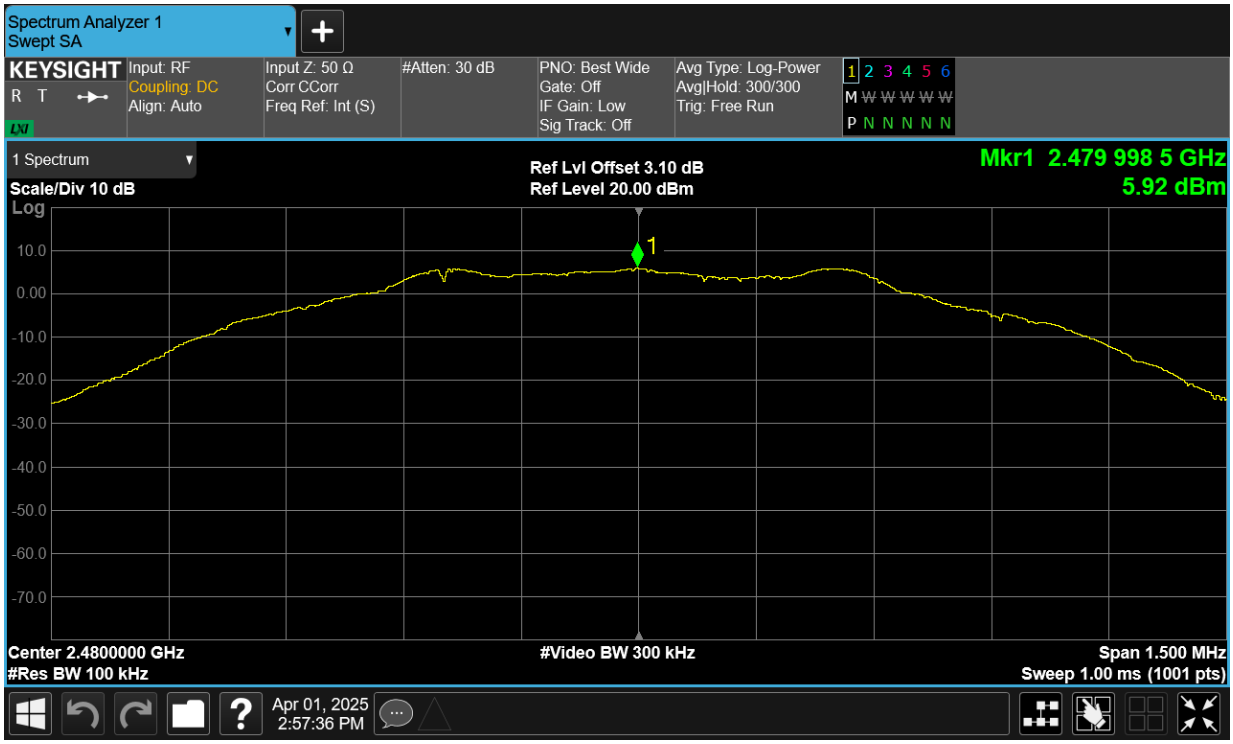

Tx. Spurious NVNT BLE 2442MHz Ant1 Ref

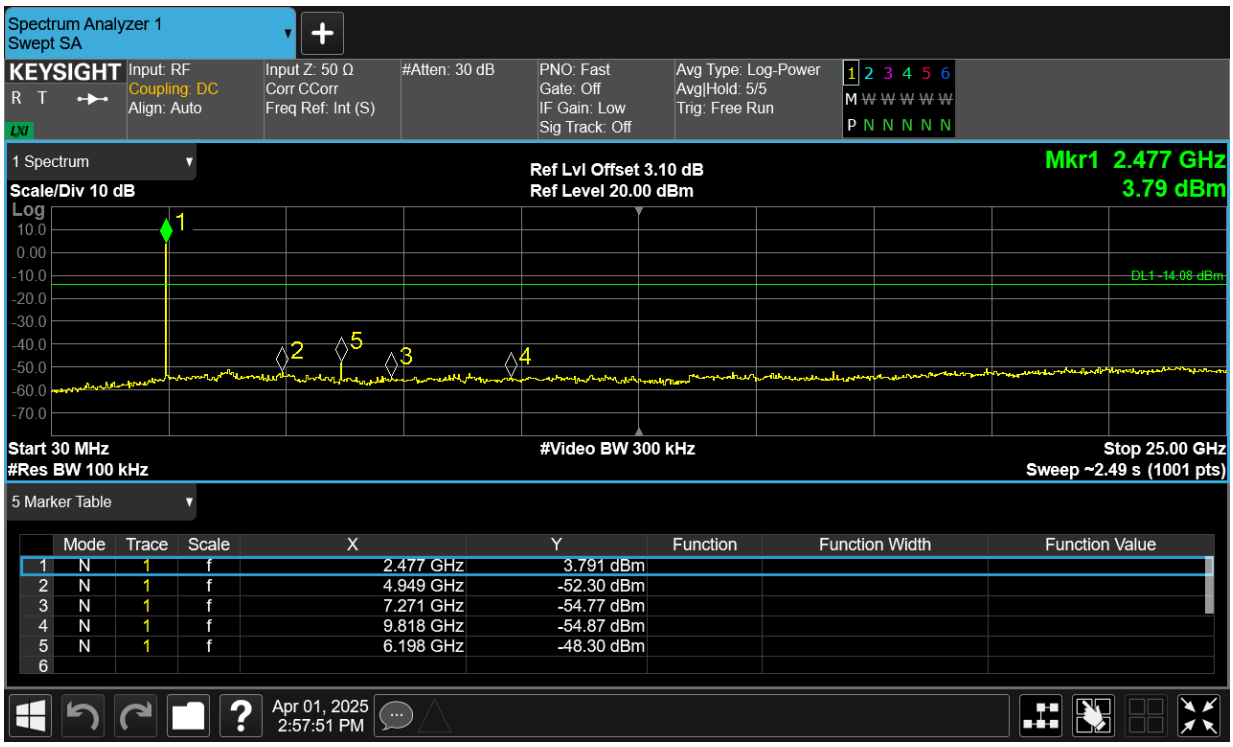



Tx. Spurious NVNT BLE 2442MHz Ant1 Emission




Tx. Spurious NVNT BLE 2480MHz Ant1 Ref




Tx. Spurious NVNT BLE 2480MHz Ant1 Emission