# Appendix B for 5.8GWIFI Test Data

**Product Name: Portable Navigation Recorder**

**Test Model: A3073**

**Environmental Conditions**

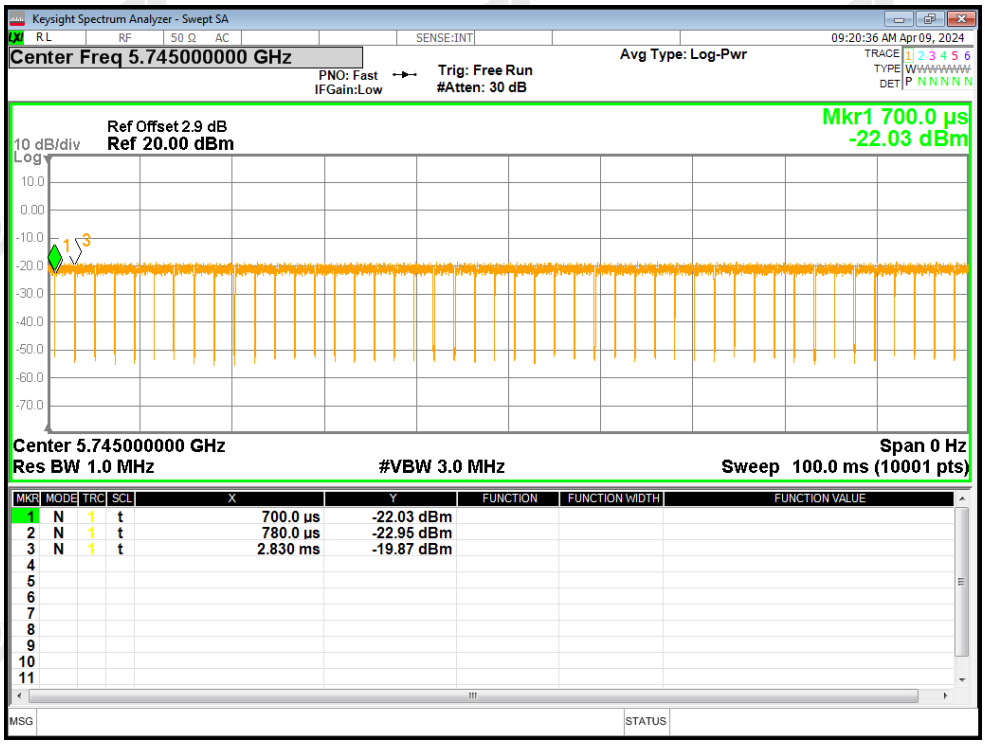
| | |
|---|---|
| Temperature: | 23.8℃ |
| Relative Humidity: | 52% |
| ATM Pressure: | 101.0 kPa |
| Test Engineer: | Kevin Yang |
| Supervised by: | Baret Wu |

**B1. Duty Cycle**

| Condition | Mode | Frequency (MHz) | Antenna | Duty Cycle (%) | Correction Factor (dB) | 1/T (kHz) |
|---|---|---|---|---|---|---|
| NVNT | a | 5745 | Ant1 | 96.24 | 0.17 | 0.49 |
| NVNT | a | 5785 | Ant1 | 93.21 | 0.31 | 0.49 |
| NVNT | a | 5825 | Ant1 | 91.96 | 0.36 | 0.49 |
| NVNT | n20 | 5745 | Ant1 | 96.95 | 0.13 | 0.52 |
| NVNT | n20 | 5785 | Ant1 | 96.46 | 0.16 | 0.52 |
| NVNT | n20 | 5825 | Ant1 | 91.39 | 0.39 | 0.52 |
| NVNT | n40 | 5755 | Ant1 | 92 | 0.36 | 1.09 |
| NVNT | n40 | 5795 | Ant1 | 86.24 | 0.64 | 1.06 |

## Test Graphs

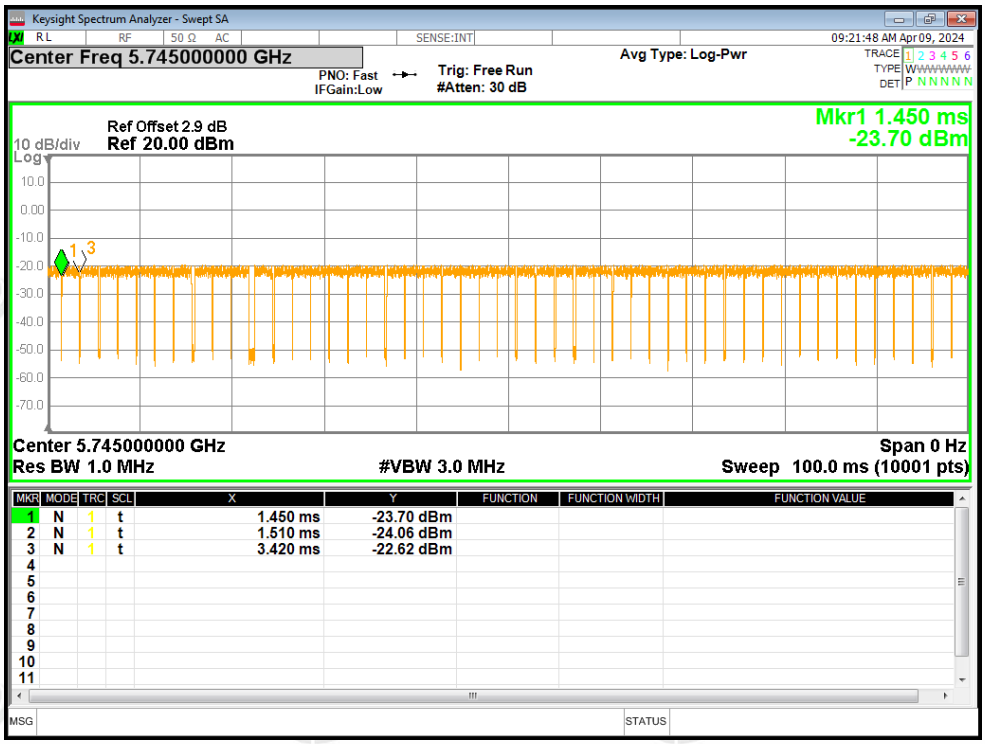
### Duty Cycle NVNT a 5745MHz Ant1




### Duty Cycle NVNT a 5785MHz Ant1

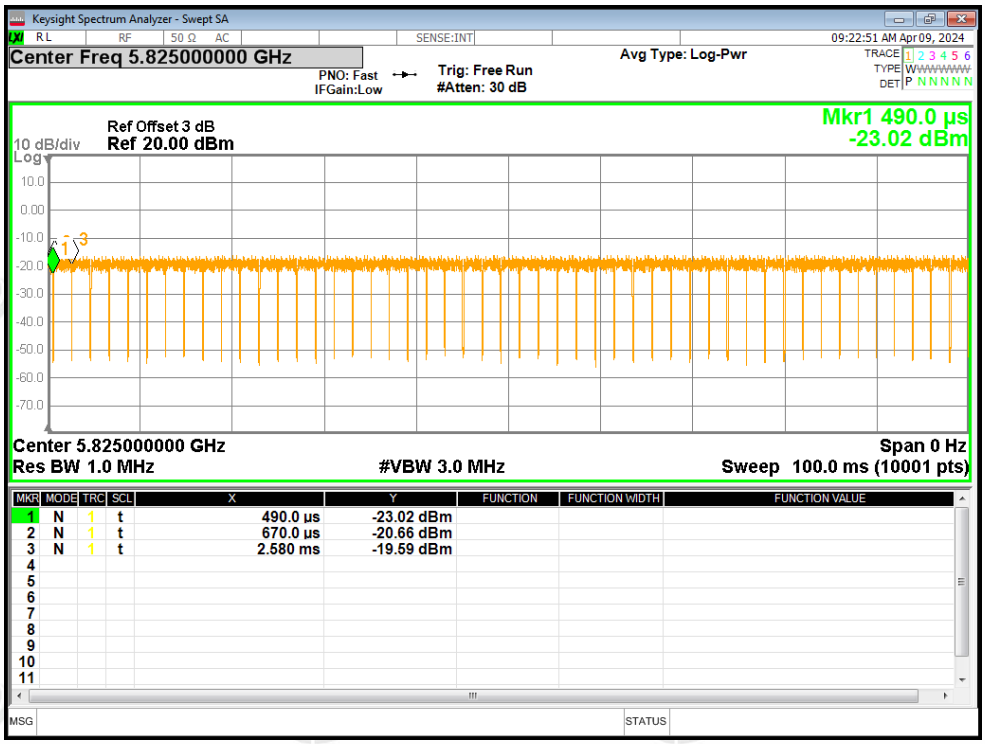
Duty Cycle NVNT a 5825MHz Ant1


Duty Cycle NVNT n20 5745MHz Ant1

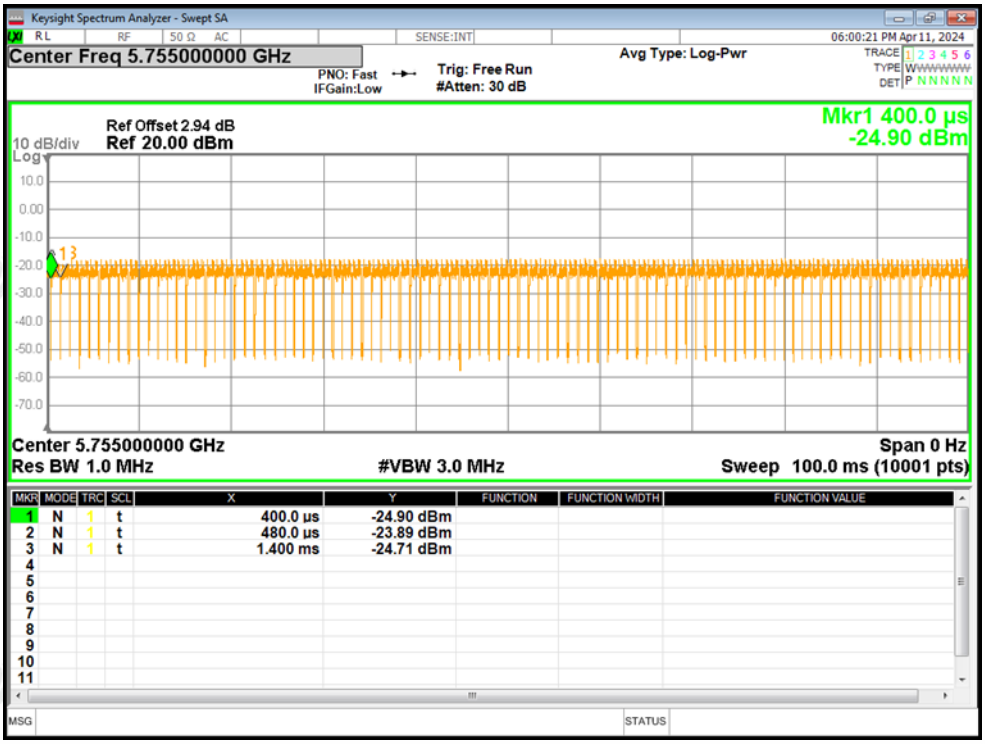


Duty Cycle NVNT n20 5785MHz Ant1


Duty Cycle NVNT n20 5825MHz Ant1



Duty Cycle NVNT n40 5755MHz Ant1



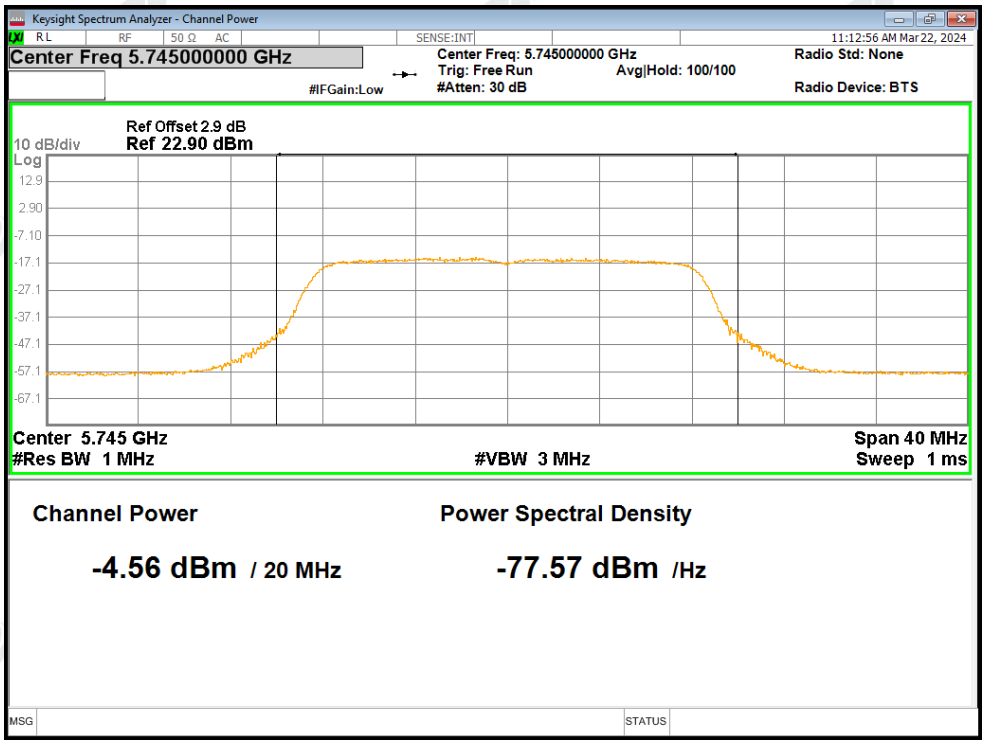

Duty Cycle NVNT n40 5795MHz Ant1

**B2. Maximum Conducted Output Power**

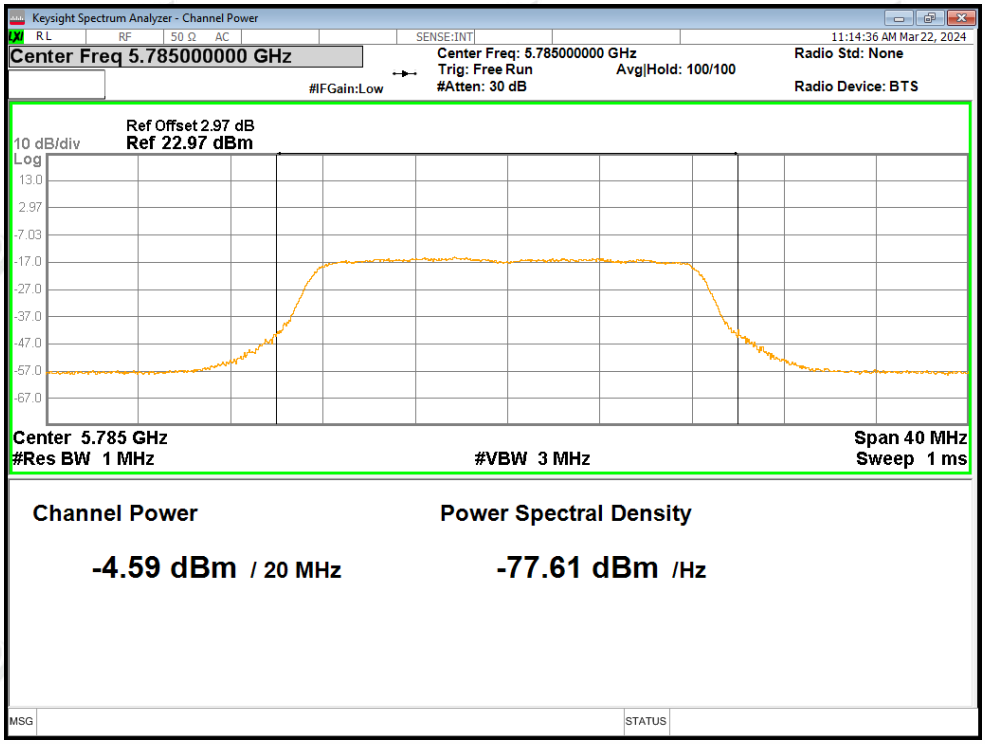
| Condition | Mode | Frequency (MHz) | Antenna | Total Power (dBm) | Limit (dBm) | Verdict |
|---|---|---|---|---|---|---|
| NVNT | a | 5745 | Ant1 | -4.1 | 30 | Pass |
| NVNT | a | 5785 | Ant1 | -4.13 | 30 | Pass |
| NVNT | a | 5825 | Ant1 | -4.36 | 30 | Pass |
| NVNT | n20 | 5745 | Ant1 | -3.99 | 30 | Pass |
| NVNT | n20 | 5785 | Ant1 | -3.7 | 30 | Pass |
| NVNT | n20 | 5825 | Ant1 | -4.34 | 30 | Pass |
| NVNT | n40 | 5755 | Ant1 | -2.18 | 30 | Pass |
| NVNT | n40 | 5795 | Ant1 | -4.32 | 30 | Pass |

## Test Graphs

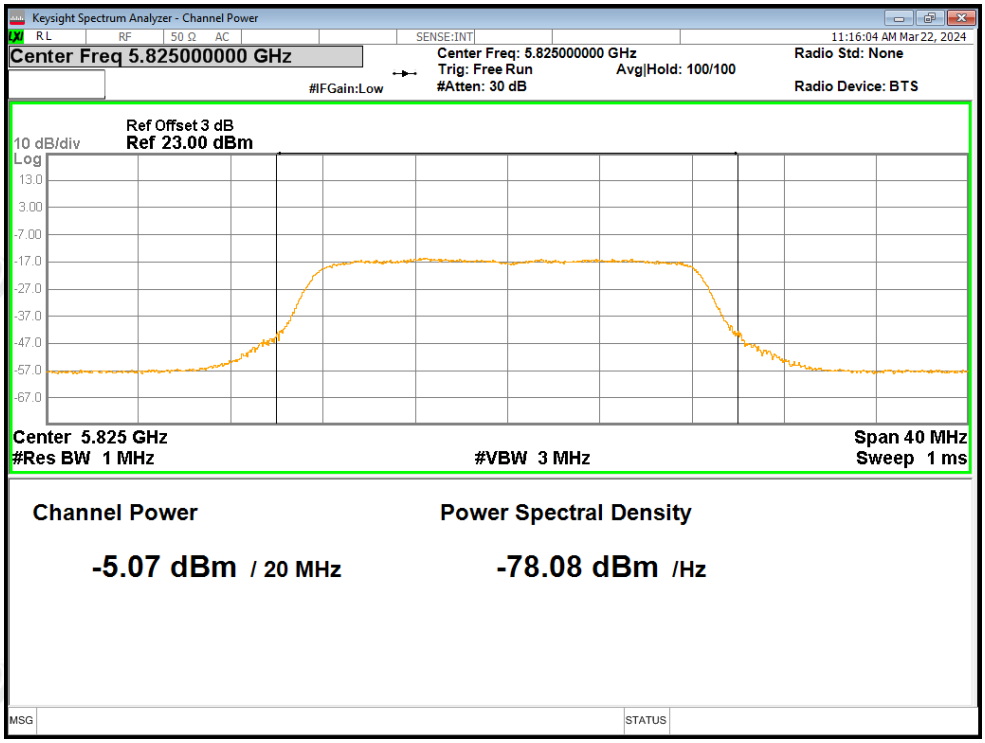
### Power NVNT a 5745MHz Ant1



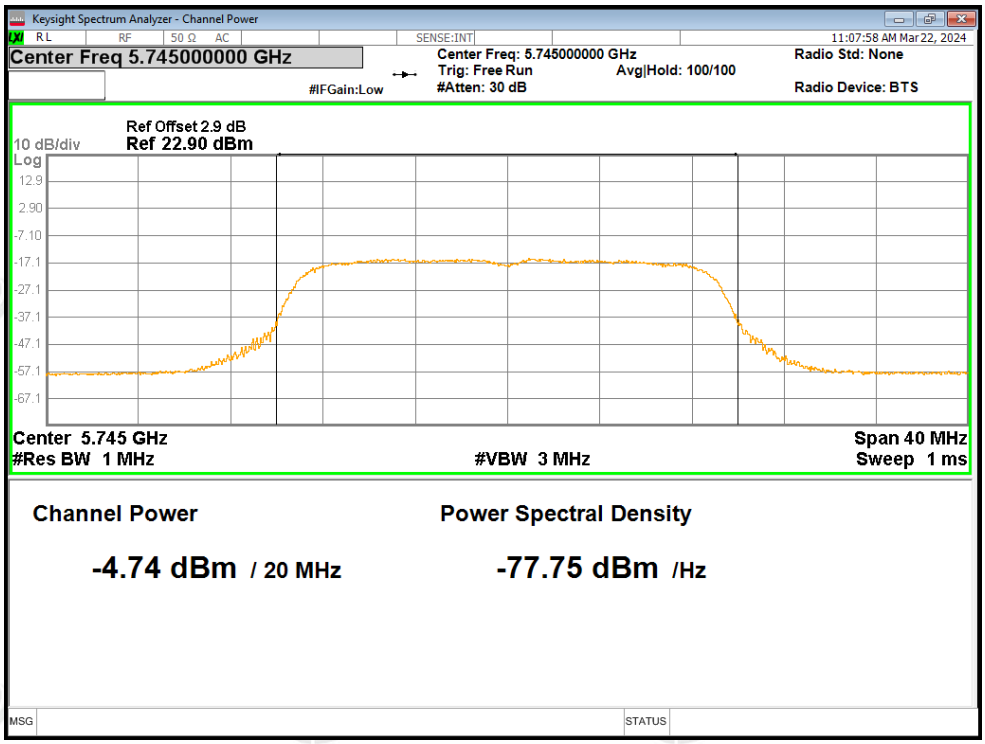

### Power NVNT a 5785MHz Ant1



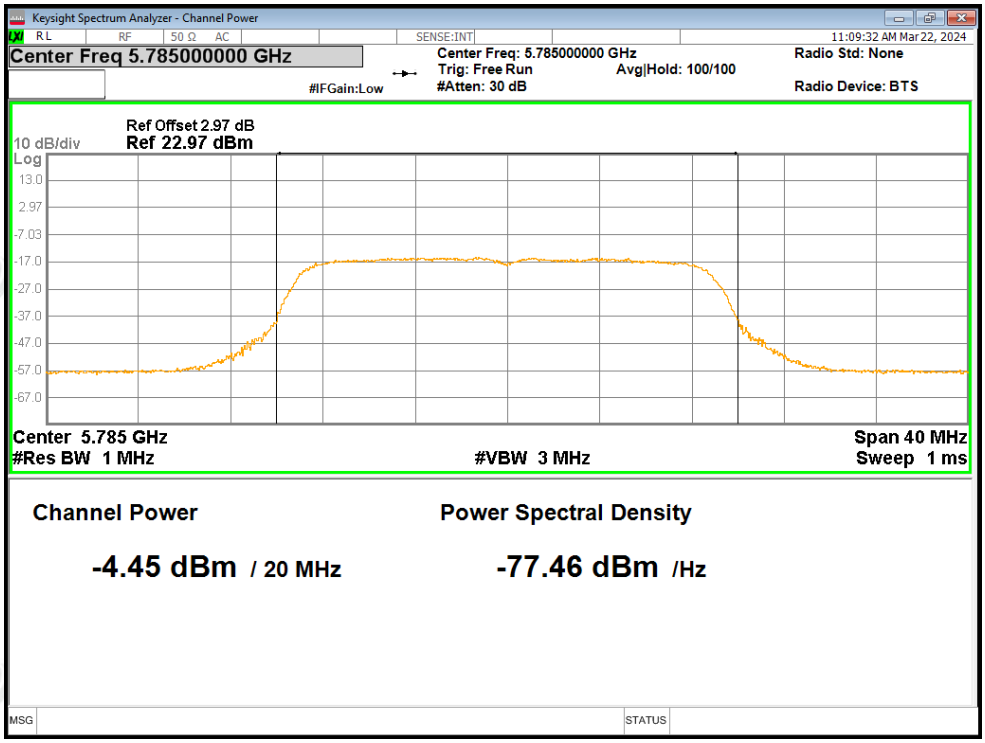
Power NVNT a 5825MHz Ant1



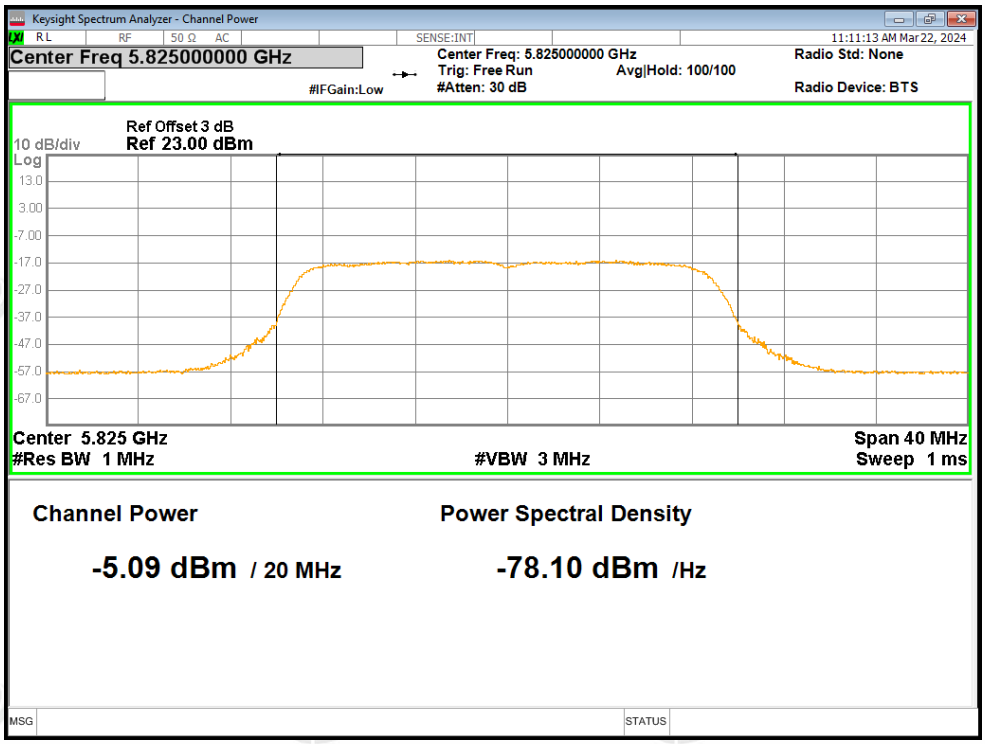

Power NVNT n20 5745MHz Ant1



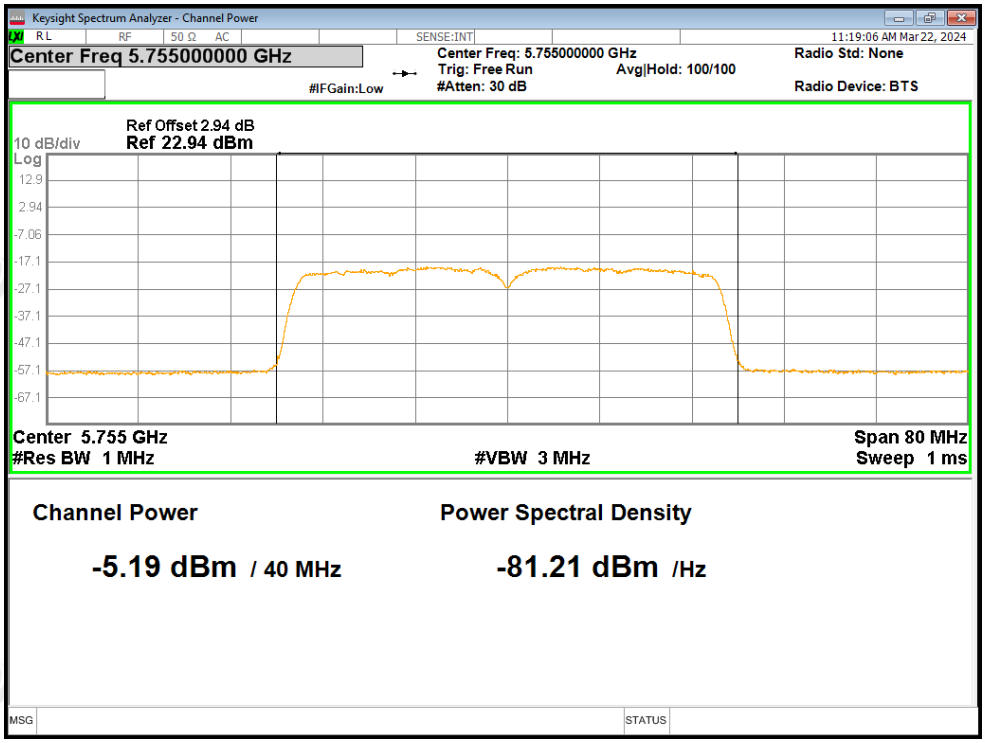
Power NVNT n20 5785MHz Ant1



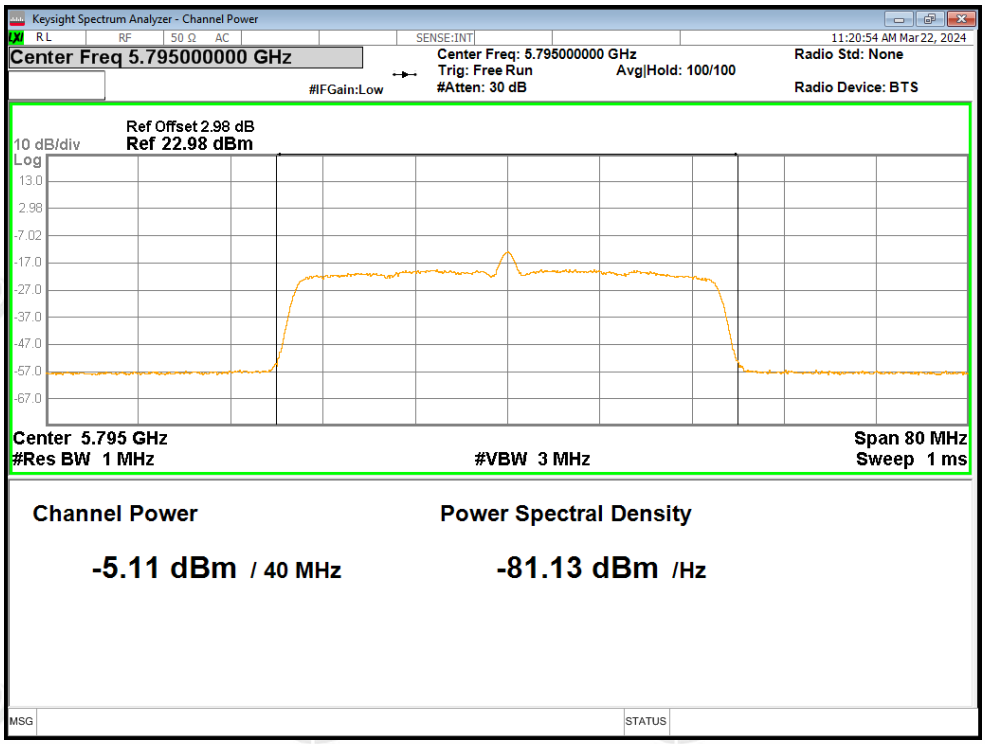

Power NVNT n20 5825MHz Ant1



Power NVNT n40 5755MHz Ant1




Power NVNT n40 5795MHz Ant1

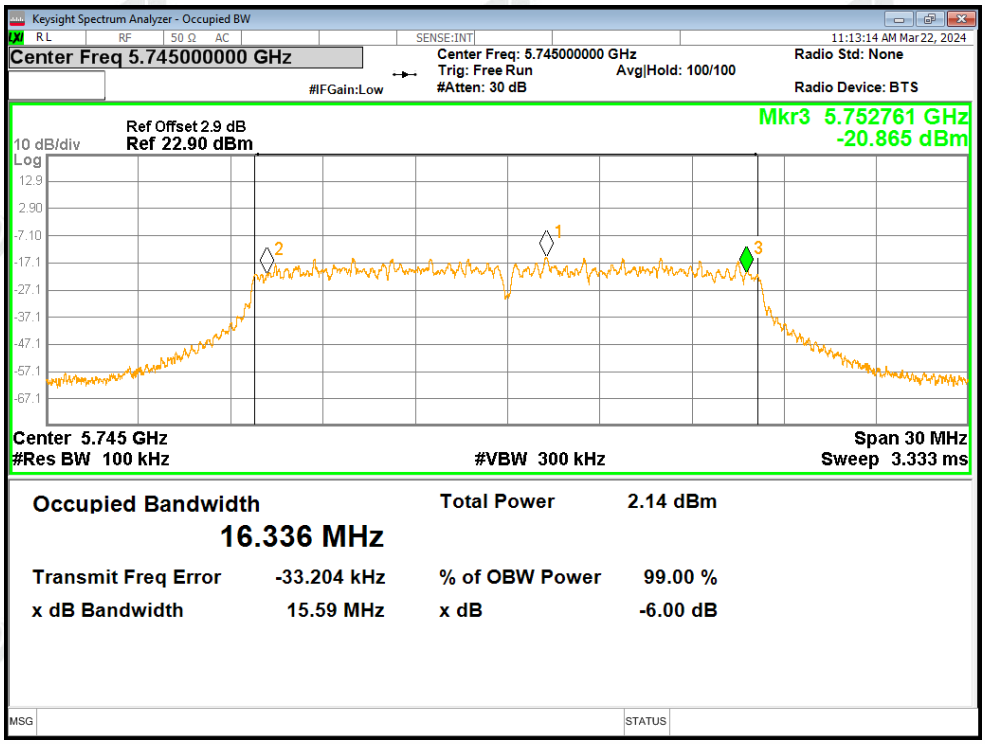


**B3. -6dB Bandwidth**

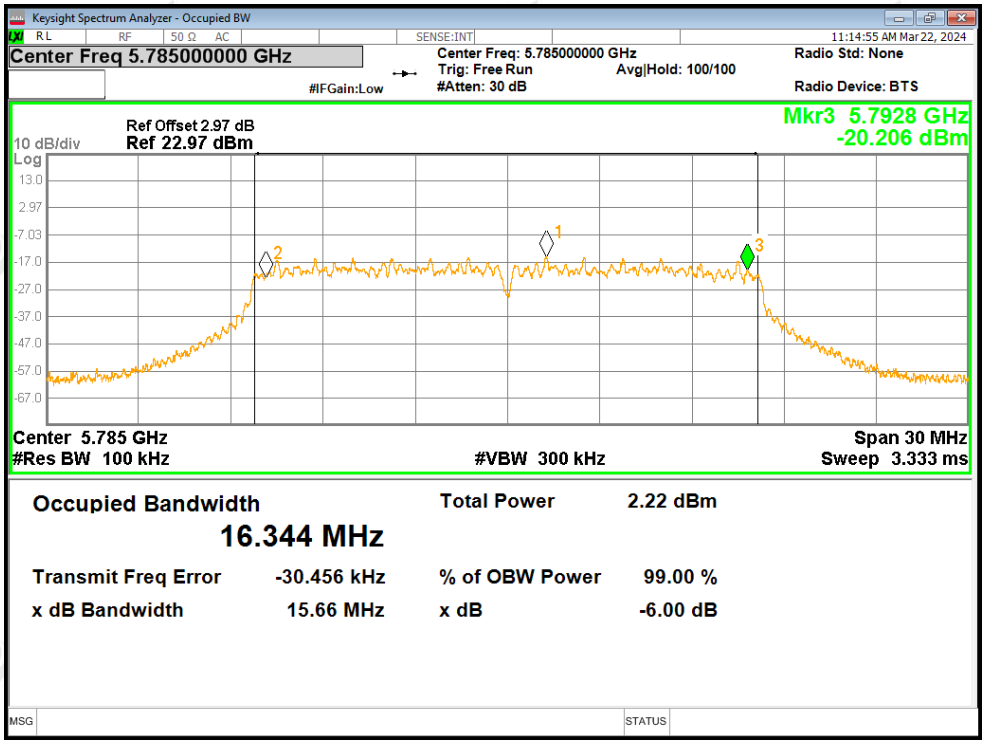
| Condition | Mode | Frequency (MHz) | Antenna | -6 dB Bandwidth (MHz) | Limit -6 dB Bandwidth (MHz) | Verdict |
|---|---|---|---|---|---|---|
| NVNT | a | 5745 | Ant1 | 15.589 | 0.5 | Pass |
| NVNT | a | 5785 | Ant1 | 15.661 | 0.5 | Pass |
| NVNT | a | 5825 | Ant1 | 16.337 | 0.5 | Pass |
| NVNT | n20 | 5745 | Ant1 | 16.522 | 0.5 | Pass |
| NVNT | n20 | 5785 | Ant1 | 16.533 | 0.5 | Pass |
| NVNT | n20 | 5825 | Ant1 | 17.321 | 0.5 | Pass |
| NVNT | n40 | 5755 | Ant1 | 35.13 | 0.5 | Pass |
| NVNT | n40 | 5795 | Ant1 | 20.022 | 0.5 | Pass |

## Test Graphs

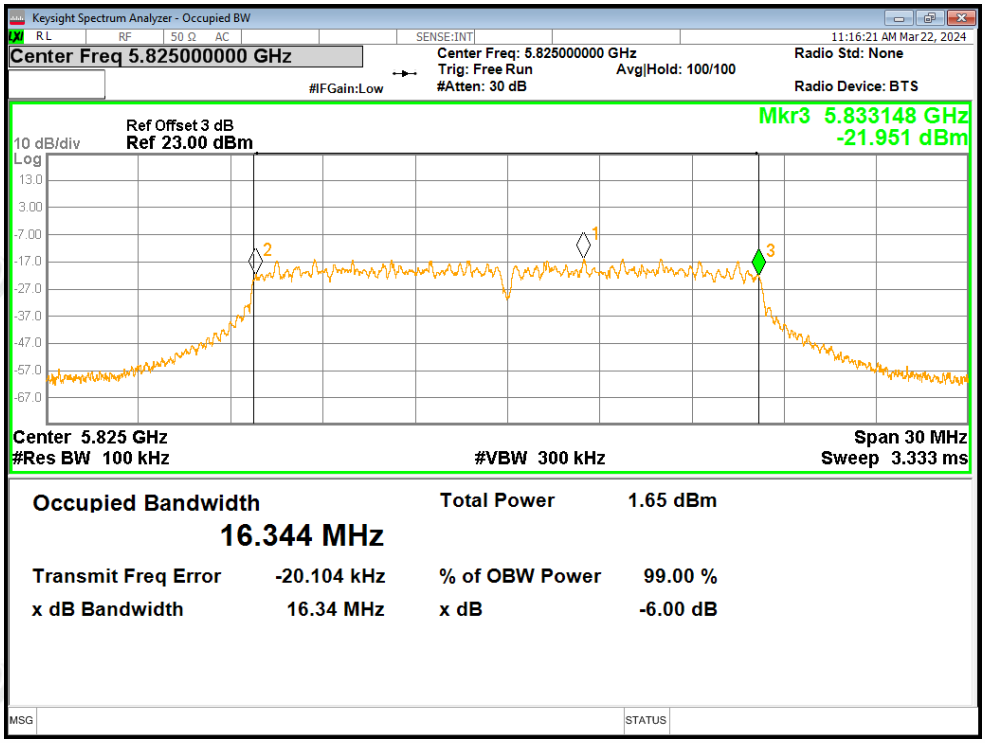
### -6dB Bandwidth NVNT a 5745MHz Ant1



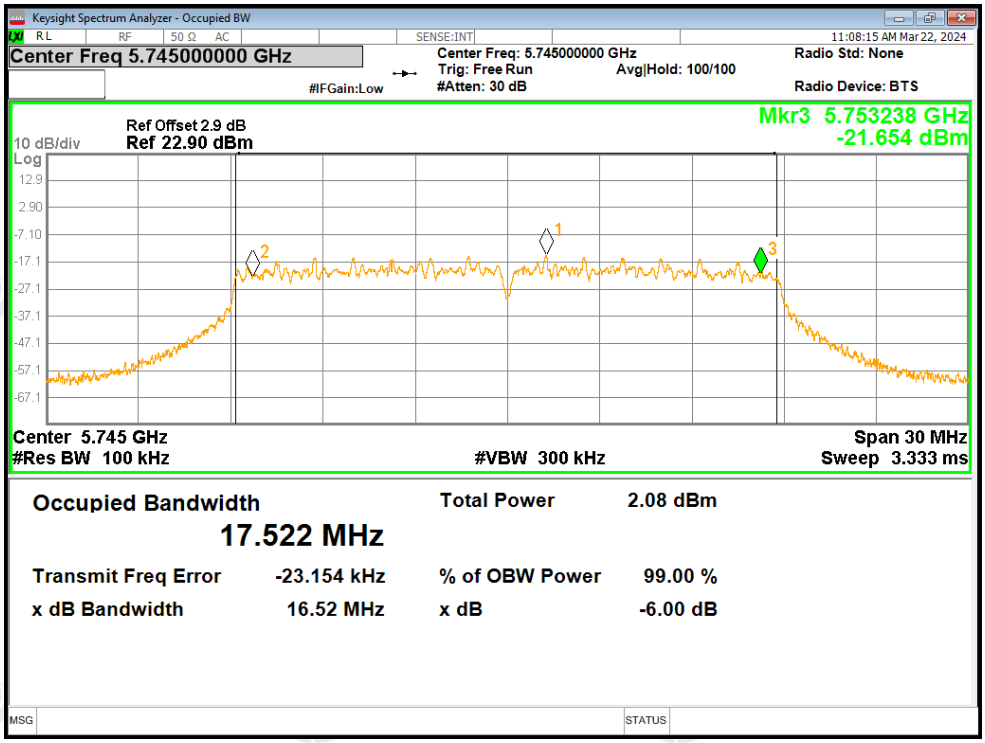

### -6dB Bandwidth NVNT a 5785MHz Ant1



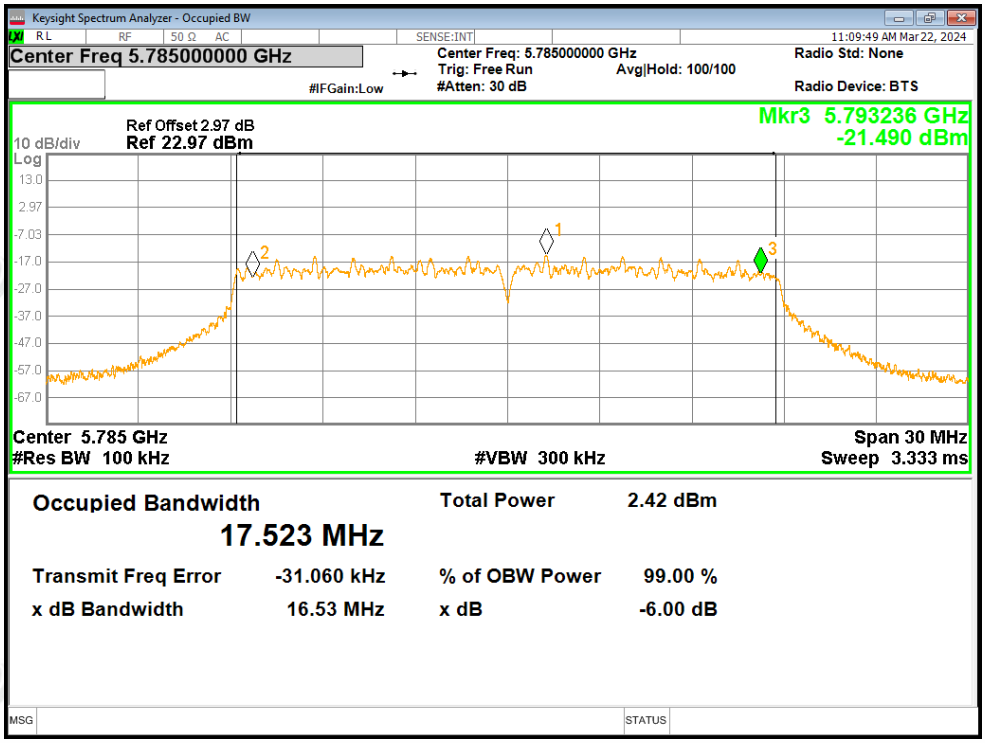
-6dB Bandwidth NVNT a 5825MHz Ant1



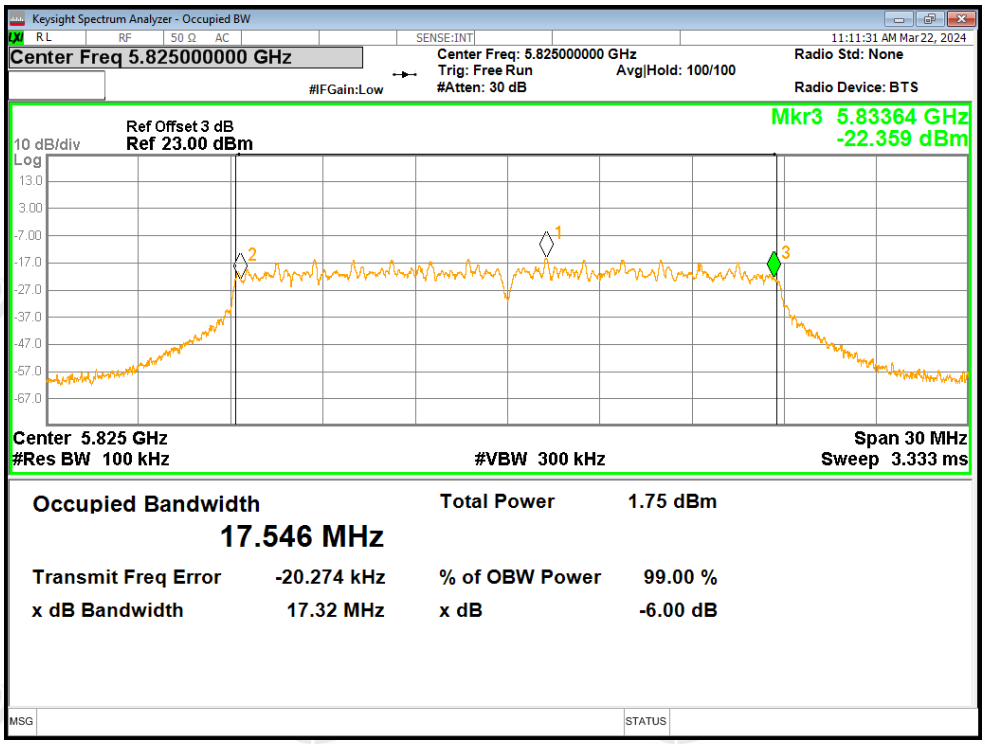

-6dB Bandwidth NVNT n20 5745MHz Ant1



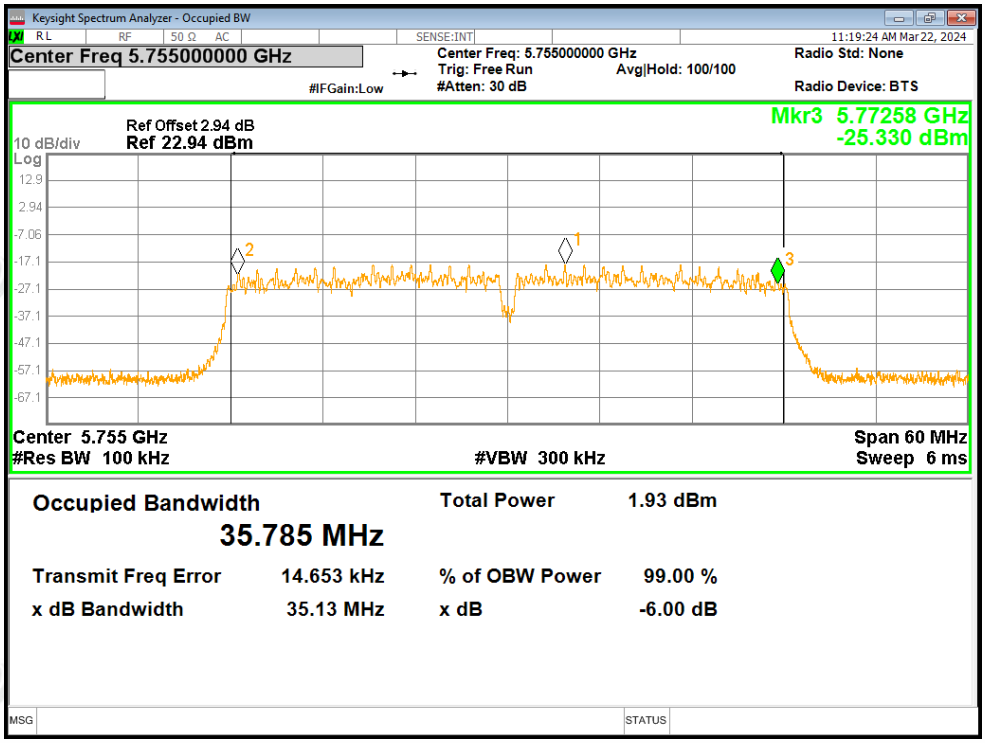
-6dB Bandwidth NVNT n20 5785MHz Ant1



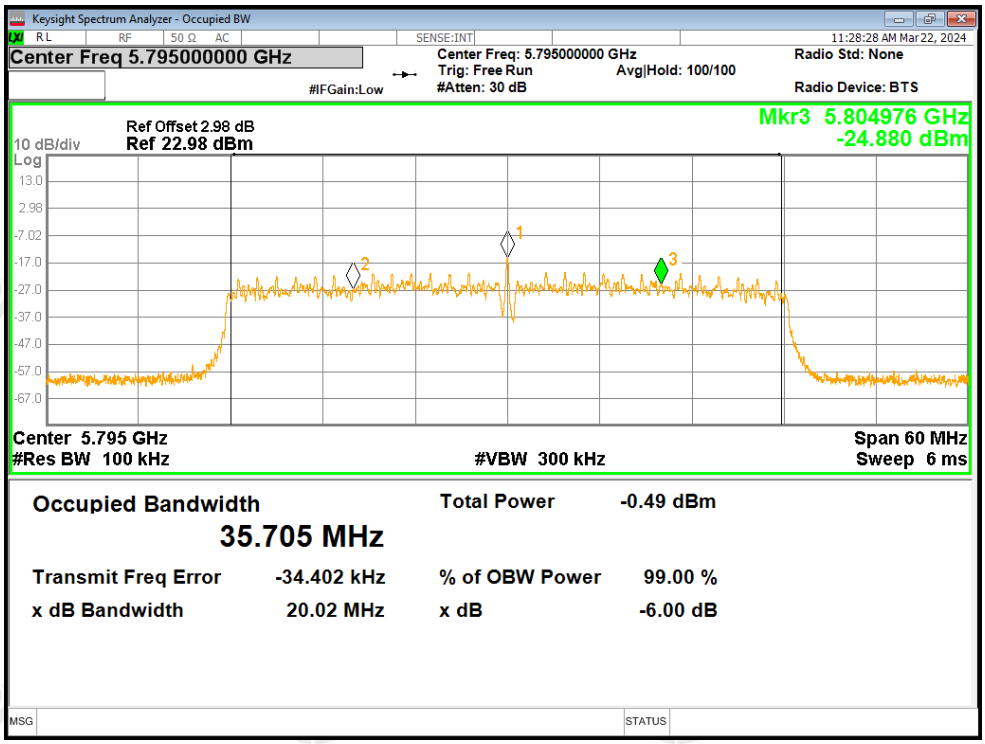

-6dB Bandwidth NVNT n20 5825MHz Ant1



-6dB Bandwidth NVNT n40 5755MHz Ant1




-6dB Bandwidth NVNT n40 5795MHz Ant1

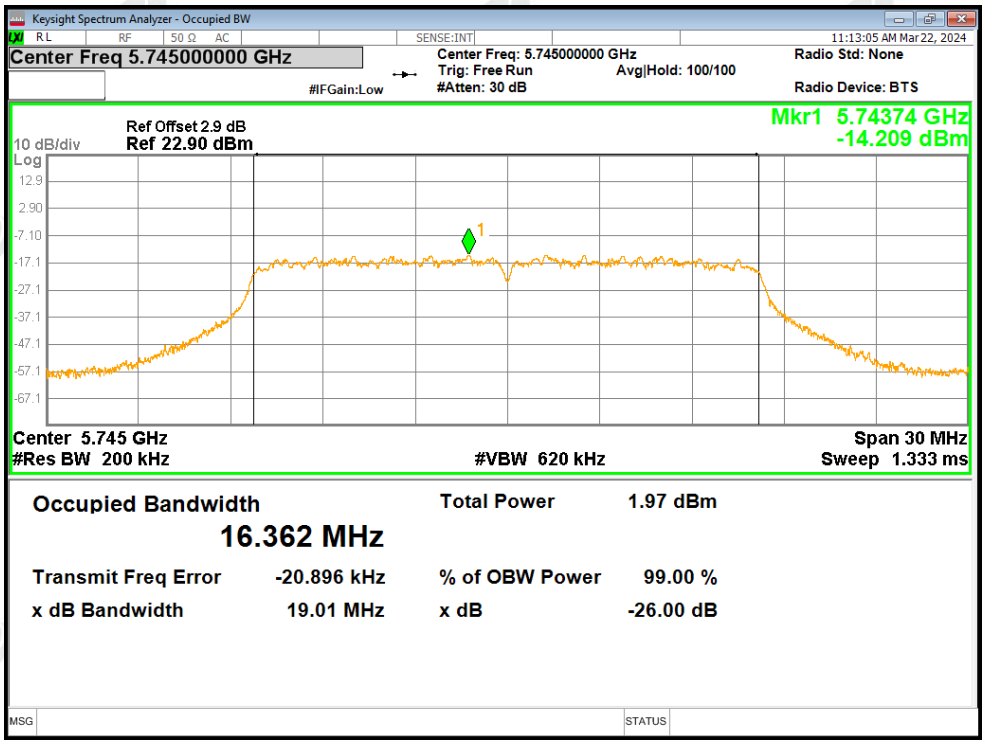


**B4. Occupied Channel Bandwidth**

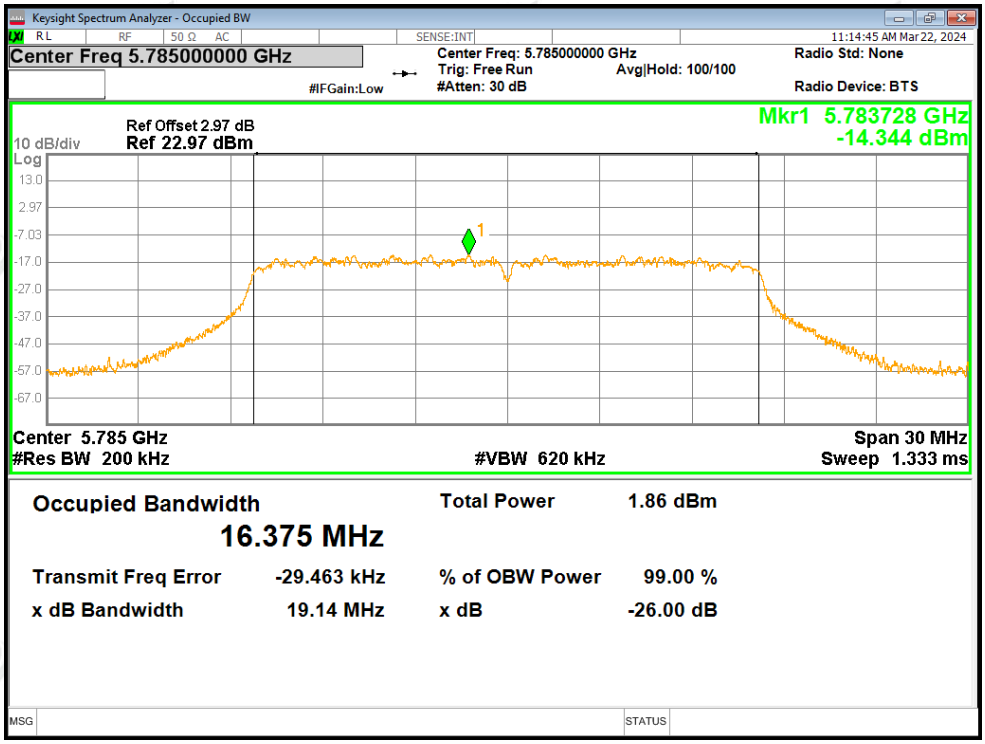
| Condition | Mode | Frequency (MHz) | Antenna | 99% OBW (MHz) |
|---|---|---|---|---|
| NVNT | a | 5745 | Ant1 | 16.362 |
| NVNT | a | 5785 | Ant1 | 16.375 |
| NVNT | a | 5825 | Ant1 | 16.39 |
| NVNT | n20 | 5745 | Ant1 | 17.558 |
| NVNT | n20 | 5785 | Ant1 | 17.607 |
| NVNT | n20 | 5825 | Ant1 | 17.638 |
| NVNT | n40 | 5755 | Ant1 | 35.857 |
| NVNT | n40 | 5795 | Ant1 | 35.801 |

## Test Graphs

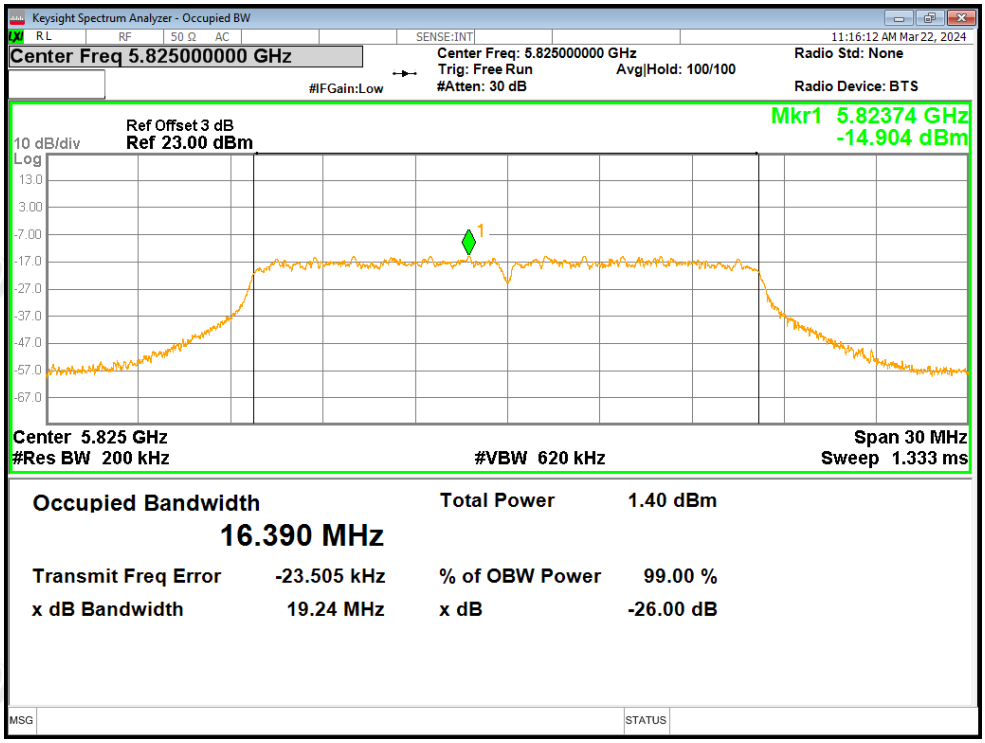
### OBW NVNT a 5745MHz Ant1



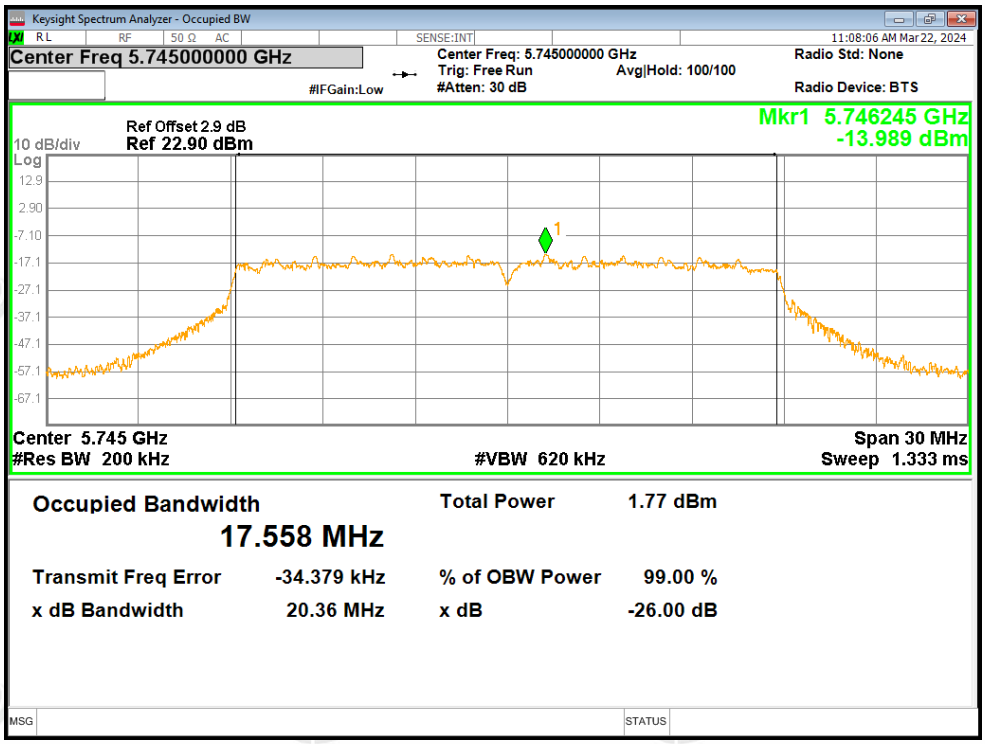

### OBW NVNT a 5785MHz Ant1



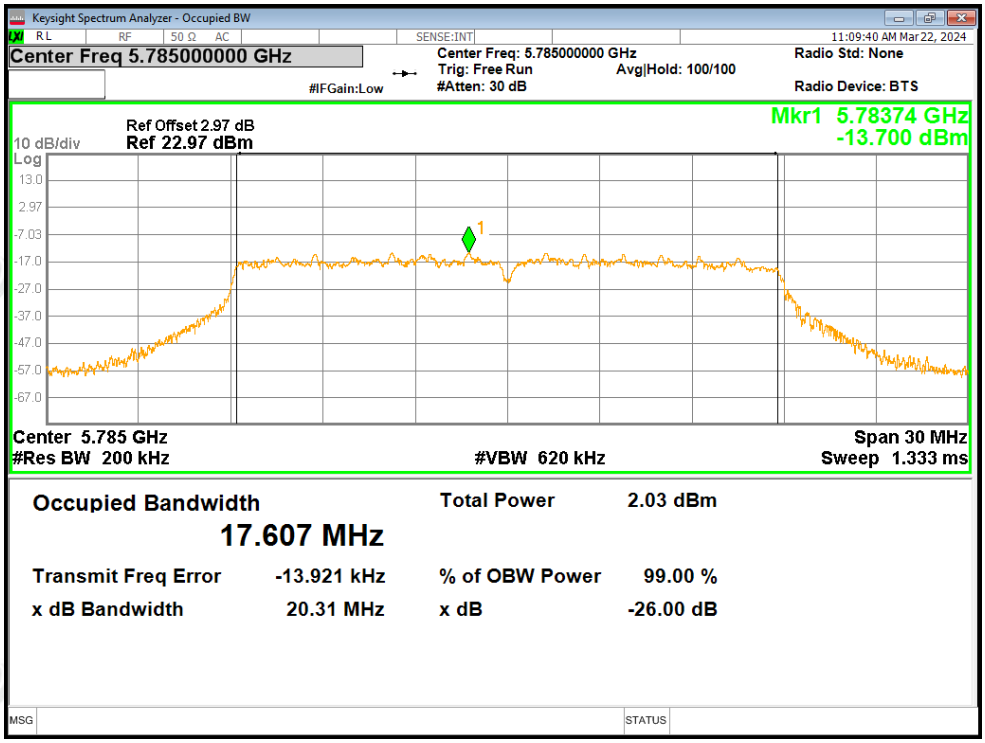
OBW NVNT a 5825MHz Ant1



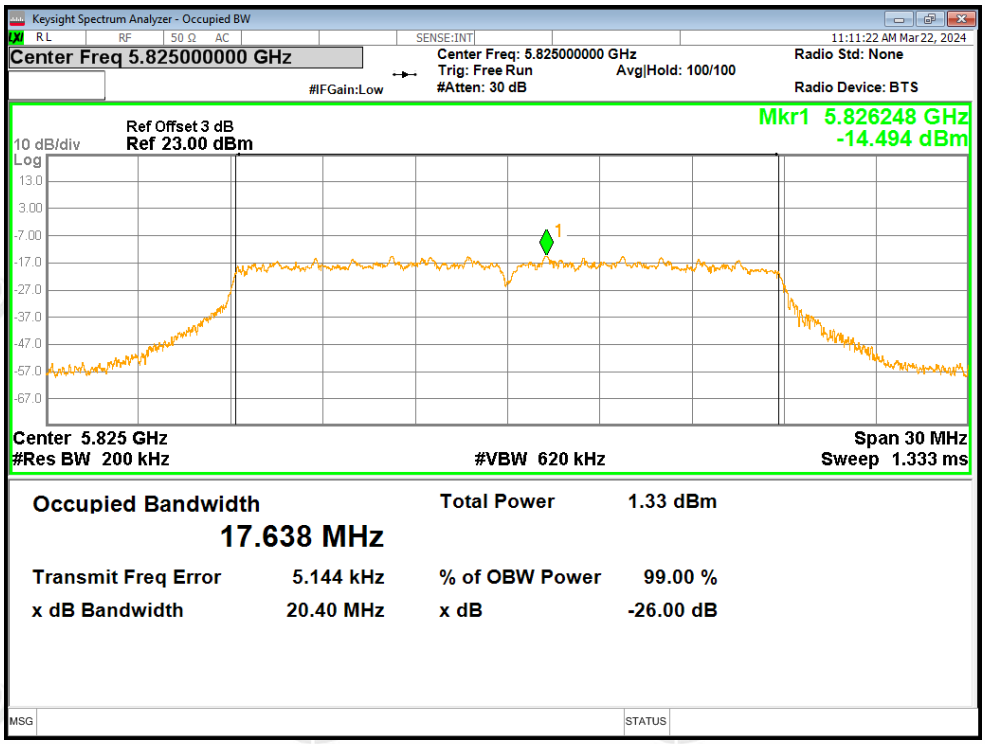

OBW NVNT n20 5745MHz Ant1



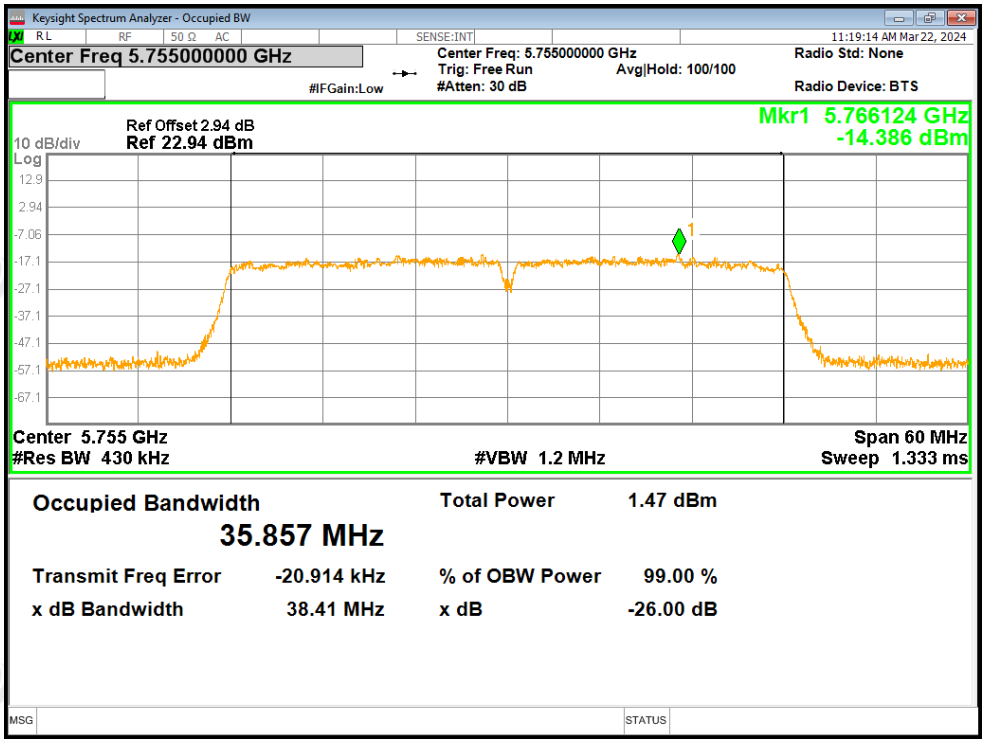
OBW NVNT n20 5785MHz Ant1



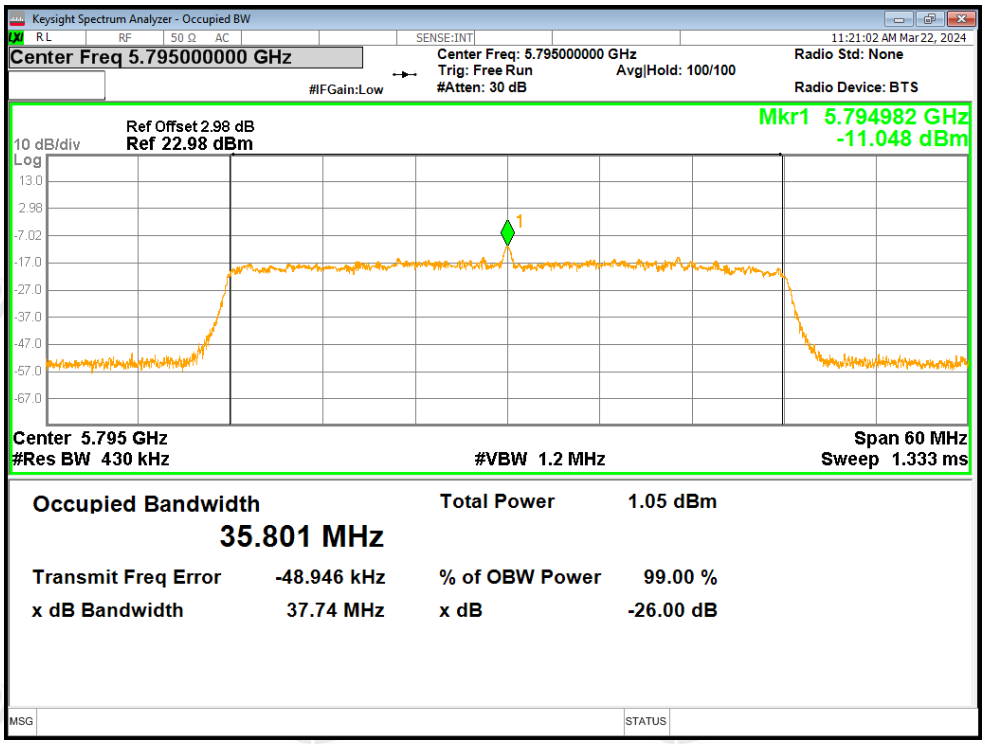

OBW NVNT n20 5825MHz Ant1



OBW NVNT n40 5755MHz Ant1




OBW NVNT n40 5795MHz Ant1

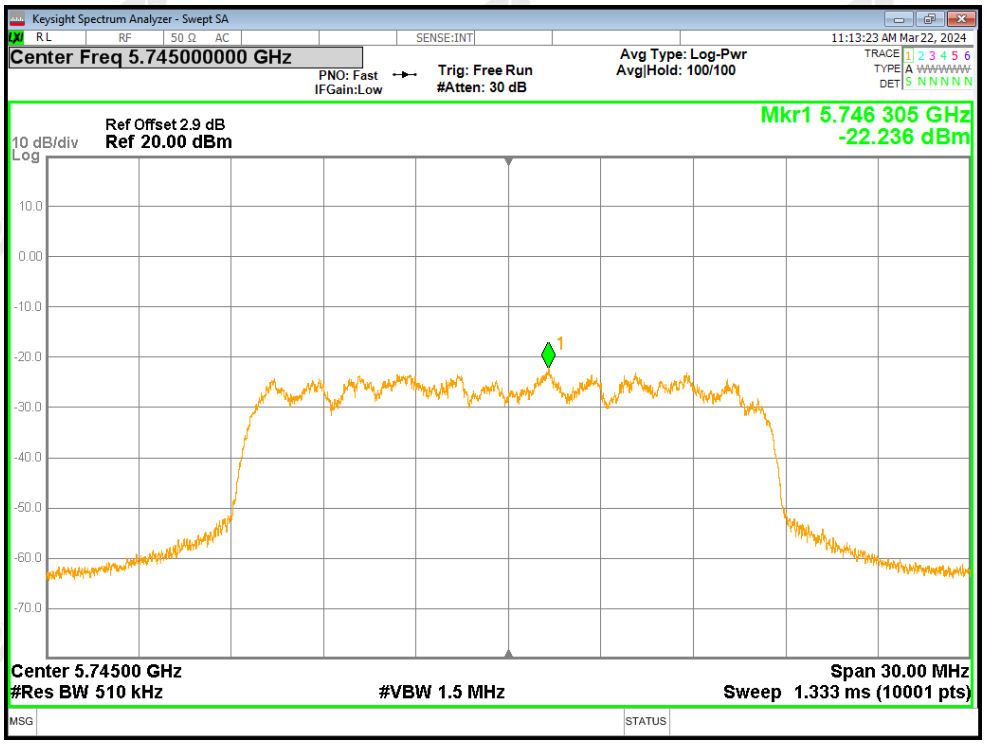


**B5. Maximum Power Spectral Density Level**

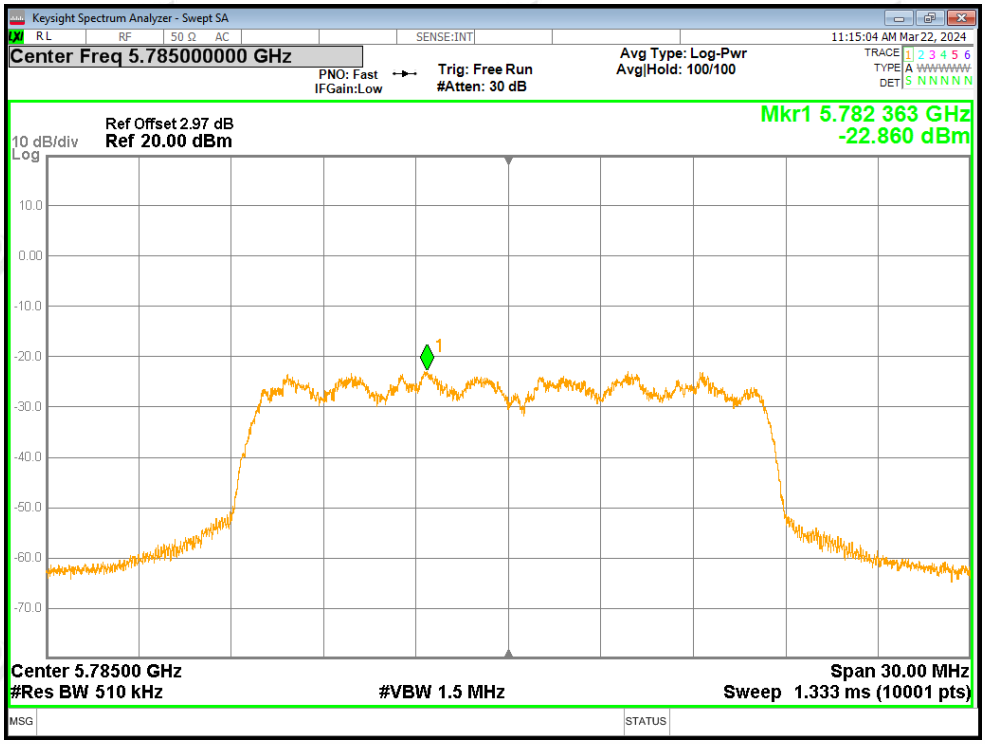
| Condition | Mode | Frequency (MHz) | Antenna | Conducted PSD (dBm) | Duty Factor (dB) | Total PSD (dBm) | Limit (dBm) | Verdict |
|---|---|---|---|---|---|---|---|---|
| NVNT | a | 5745 | Ant1 | -22.24 | 0.46 | -21.78 | 30 | Pass |
| NVNT | a | 5785 | Ant1 | -22.86 | 0.46 | -22.4 | 30 | Pass |
| NVNT | a | 5825 | Ant1 | -23.5 | 0.71 | -22.79 | 30 | Pass |
| NVNT | n20 | 5745 | Ant1 | -22.75 | 0.75 | -22 | 30 | Pass |
| NVNT | n20 | 5785 | Ant1 | -22.13 | 0.75 | -21.38 | 30 | Pass |
| NVNT | n20 | 5825 | Ant1 | -23.18 | 0.75 | -22.43 | 30 | Pass |
| NVNT | n40 | 5755 | Ant1 | -27.8 | 3.01 | -24.79 | 30 | Pass |
| NVNT | n40 | 5795 | Ant1 | -24.94 | 0.79 | -24.15 | 30 | Pass |

## Test Graphs

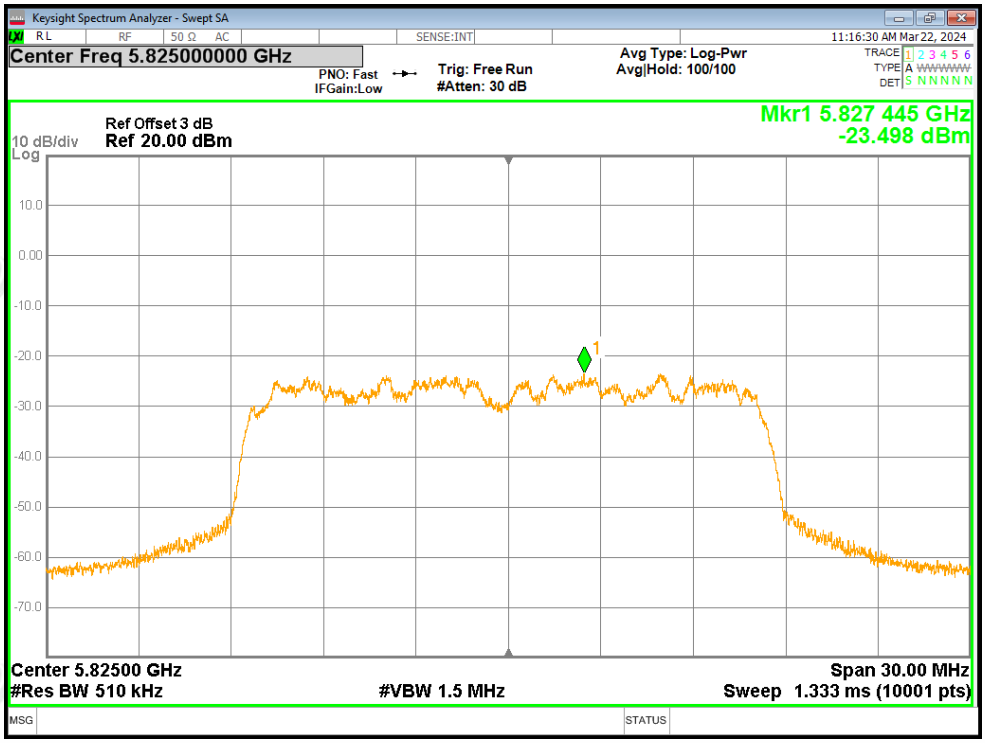
### PSD NVNT a 5745MHz Ant1



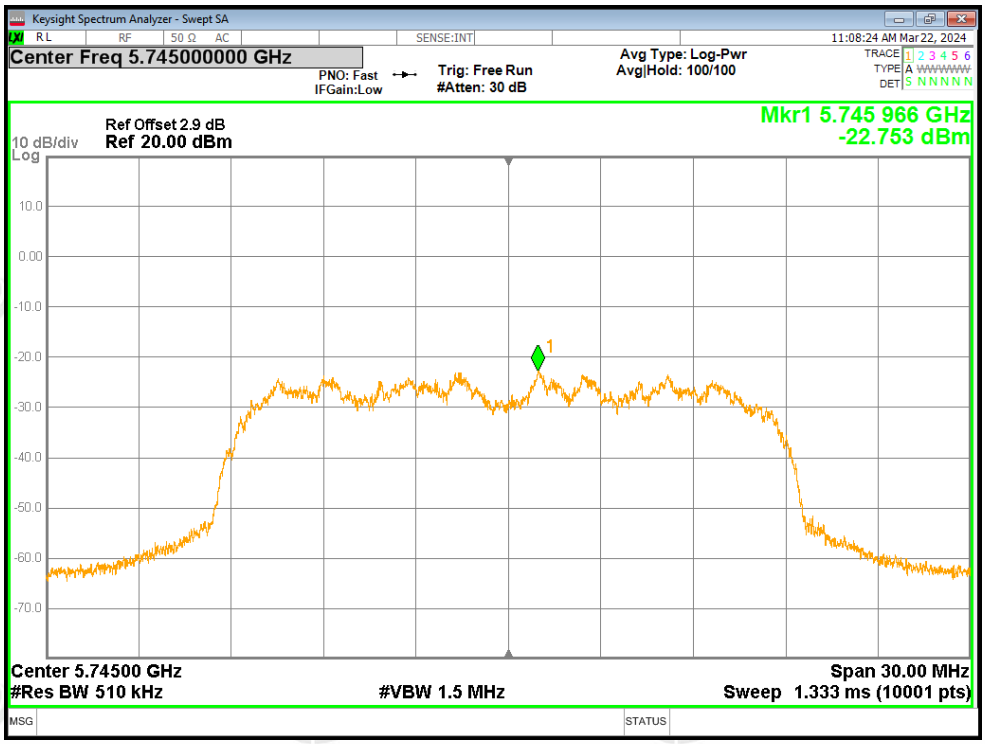

### PSD NVNT a 5785MHz Ant1



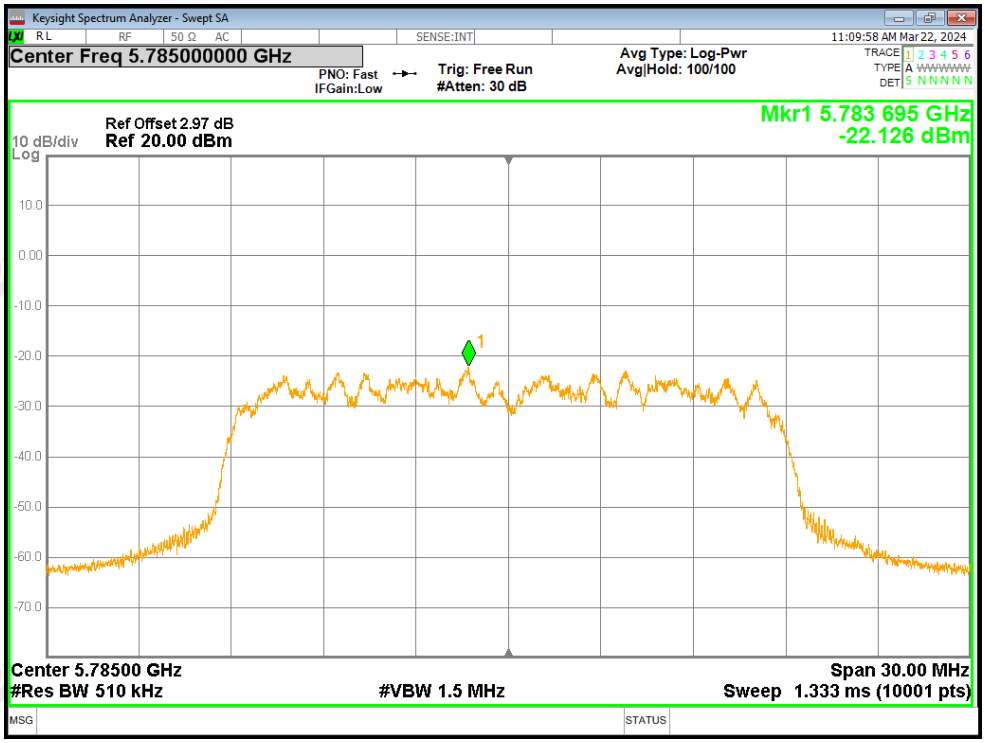
PSD NVNT a 5825MHz Ant1



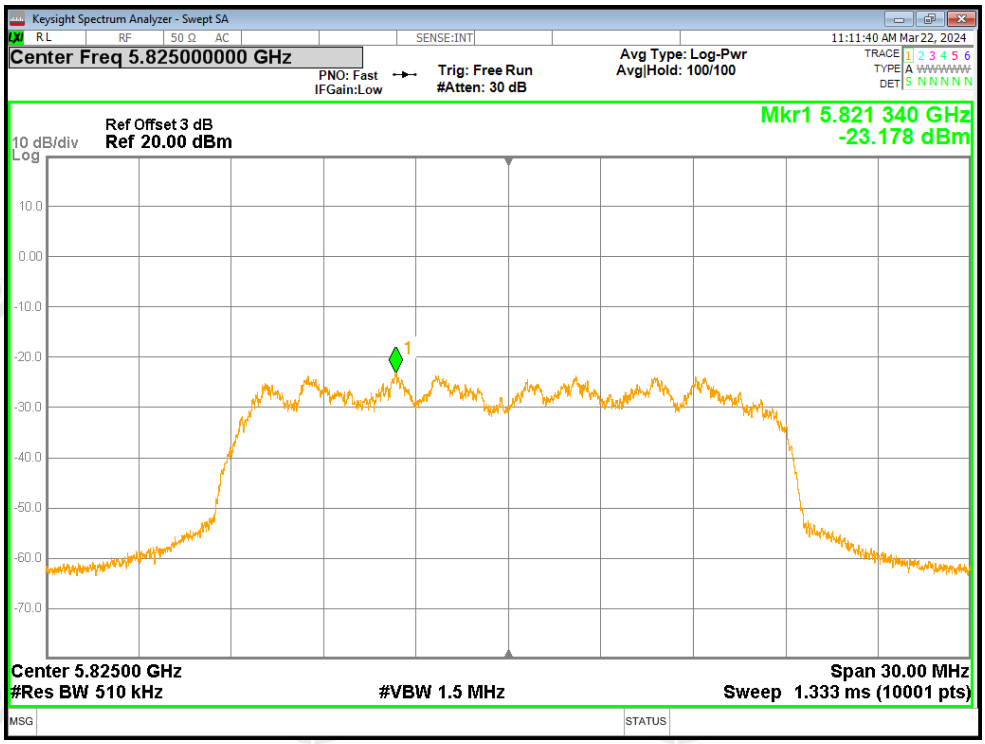

PSD NVNT n20 5745MHz Ant1



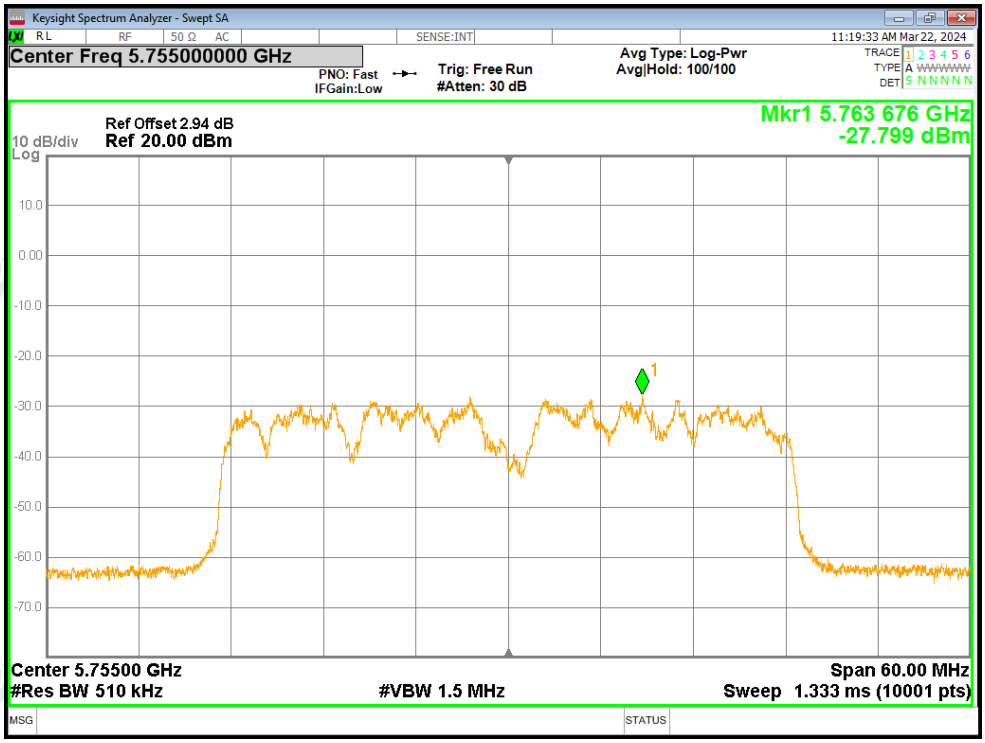
PSD NVNT n20 5785MHz Ant1



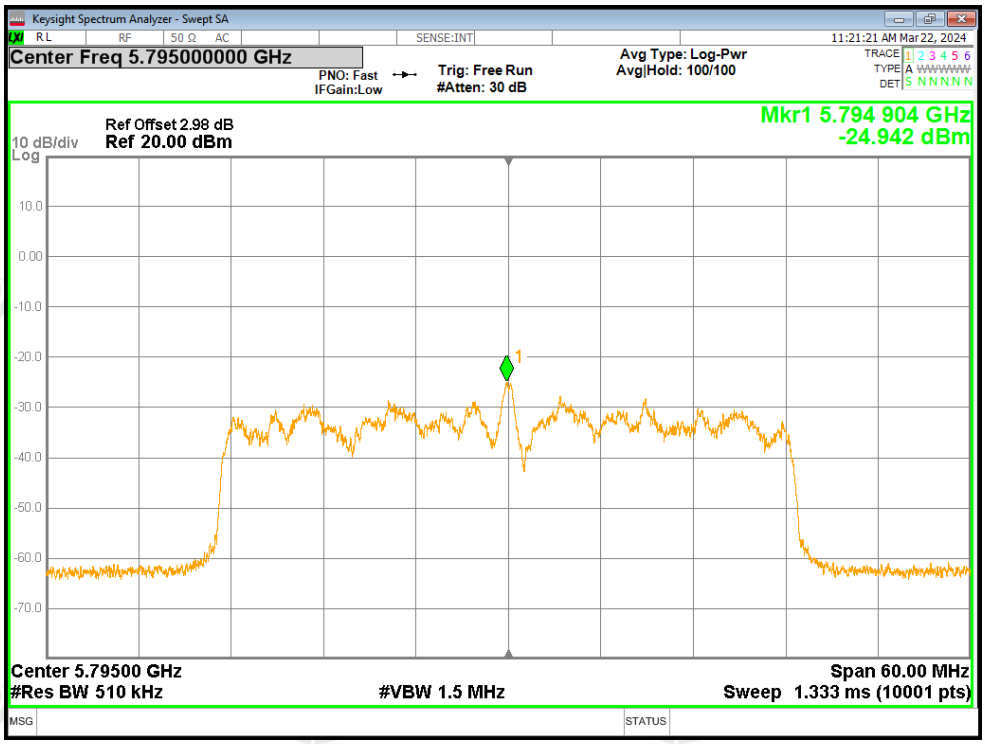

PSD NVNT n20 5825MHz Ant1



PSD NVNT n40 5755MHz Ant1




PSD NVNT n40 5795MHz Ant1

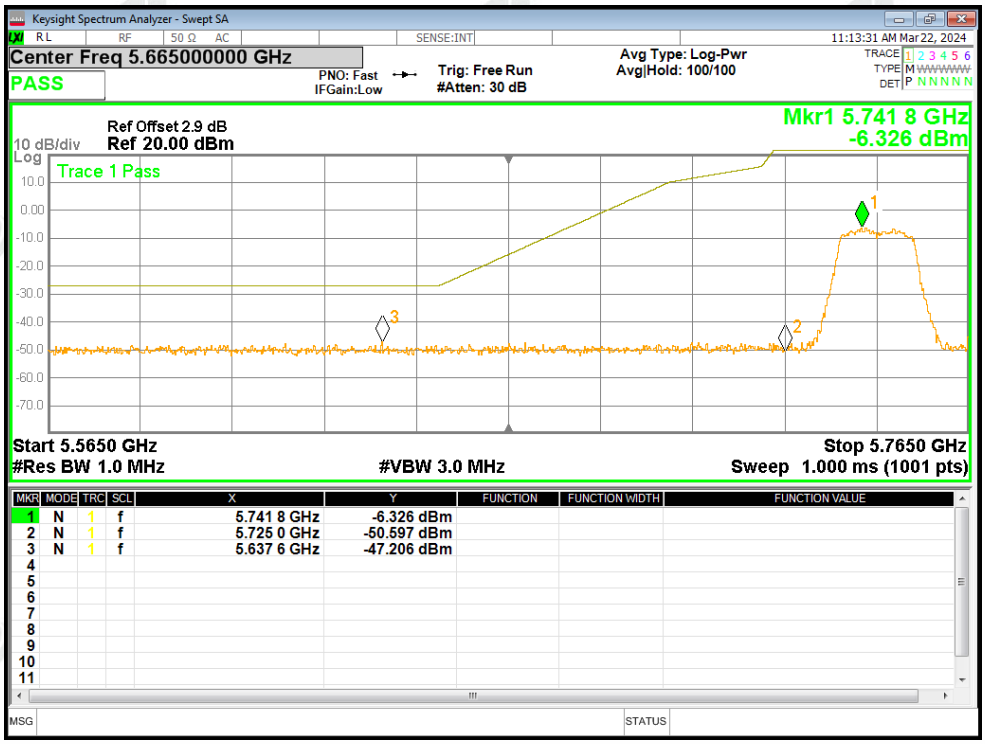


**B6. Band Edge**

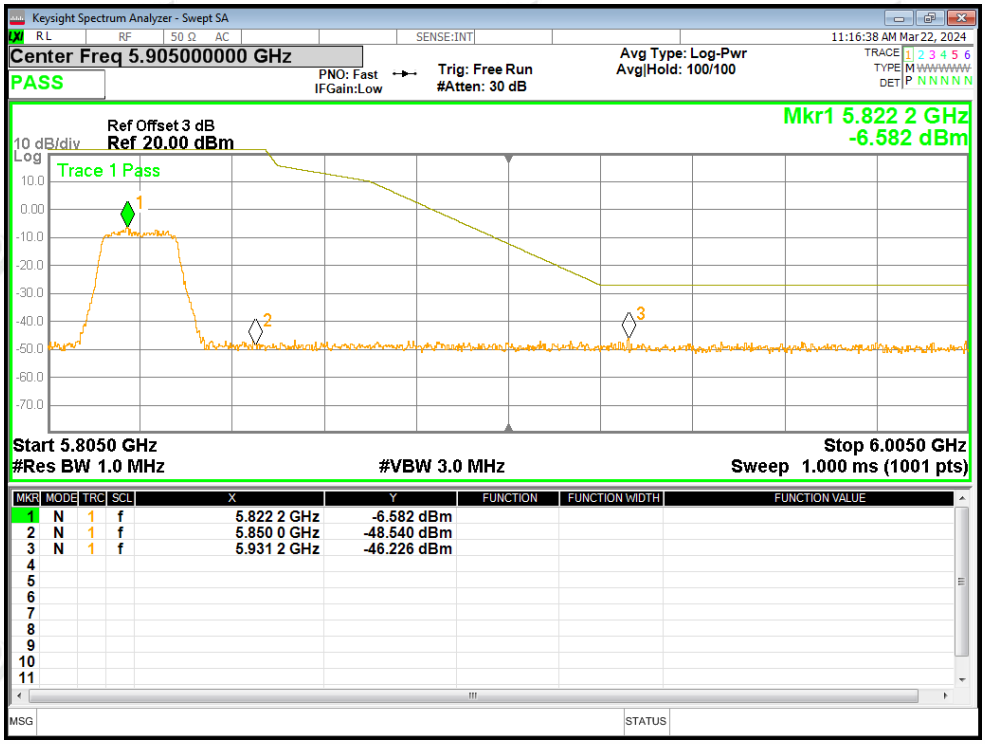
| Condition | Mode | Frequency (MHz) | Antenna | Max Value (dBm) | Limit (dBm) | Verdict |
|---|---|---|---|---|---|---|
| NVNT | a | 5745 | Ant1 | -47.2 | Refer to below test plot | Pass |
| NVNT | a | 5825 | Ant1 | -46.22 | Refer to below test plot | Pass |
| NVNT | n20 | 5745 | Ant1 | -46.79 | Refer to below test plot | Pass |
| NVNT | n20 | 5825 | Ant1 | -45.75 | Refer to below test plot | Pass |
| NVNT | n40 | 5755 | Ant1 | -45.93 | Refer to below test plot | Pass |
| NVNT | n40 | 5795 | Ant1 | -46.12 | Refer to below test plot | Pass |

## Test Graphs

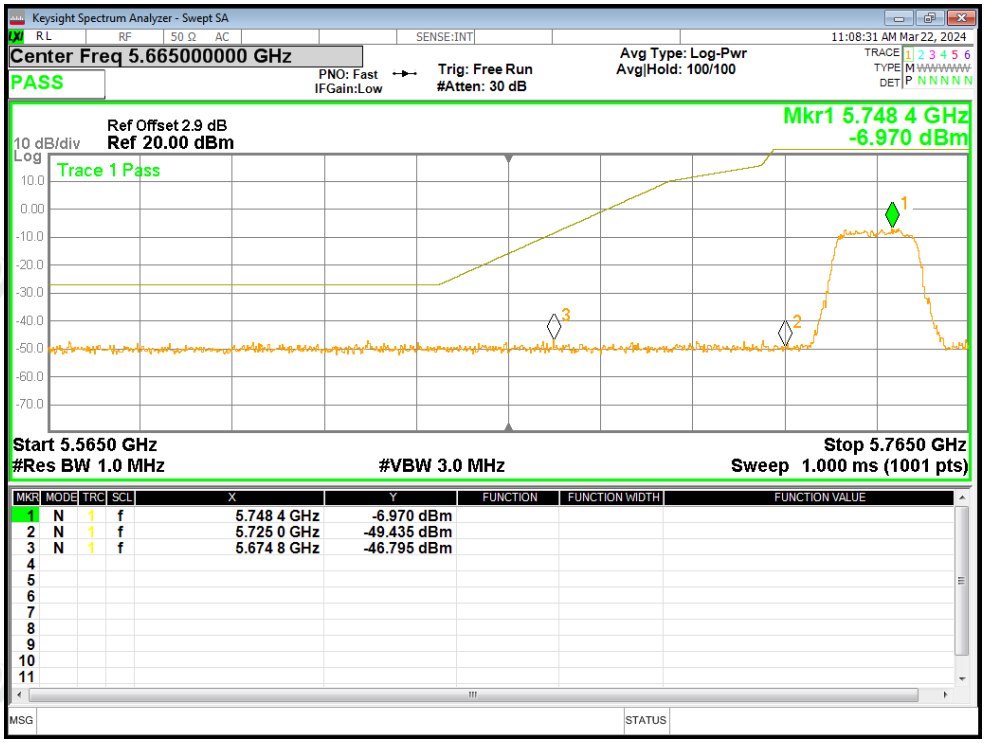
### Band Edge NVNT a 5745MHz Low Ant1



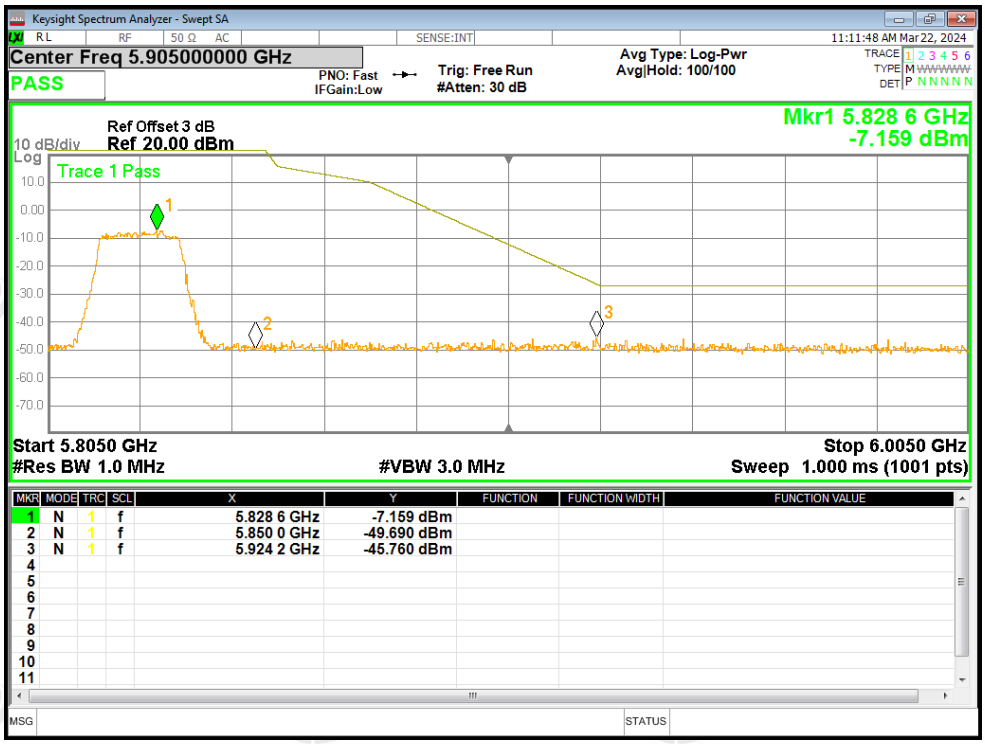

### Band Edge NVNT a 5825MHz High Ant1



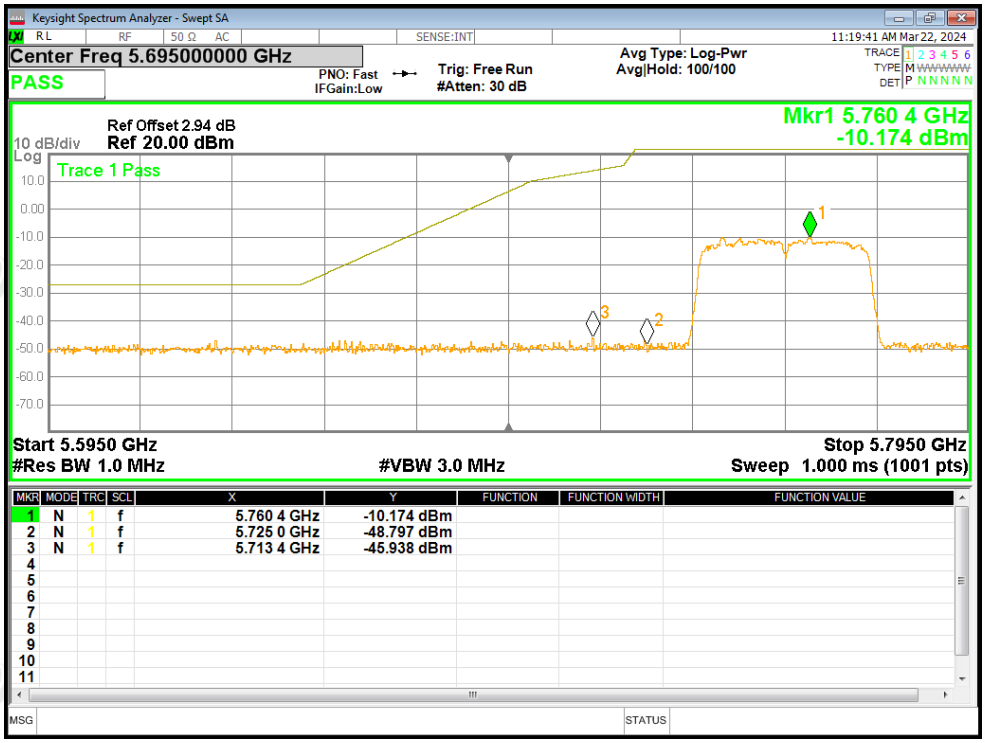
Band Edge NVNT n20 5745MHz Low Ant1



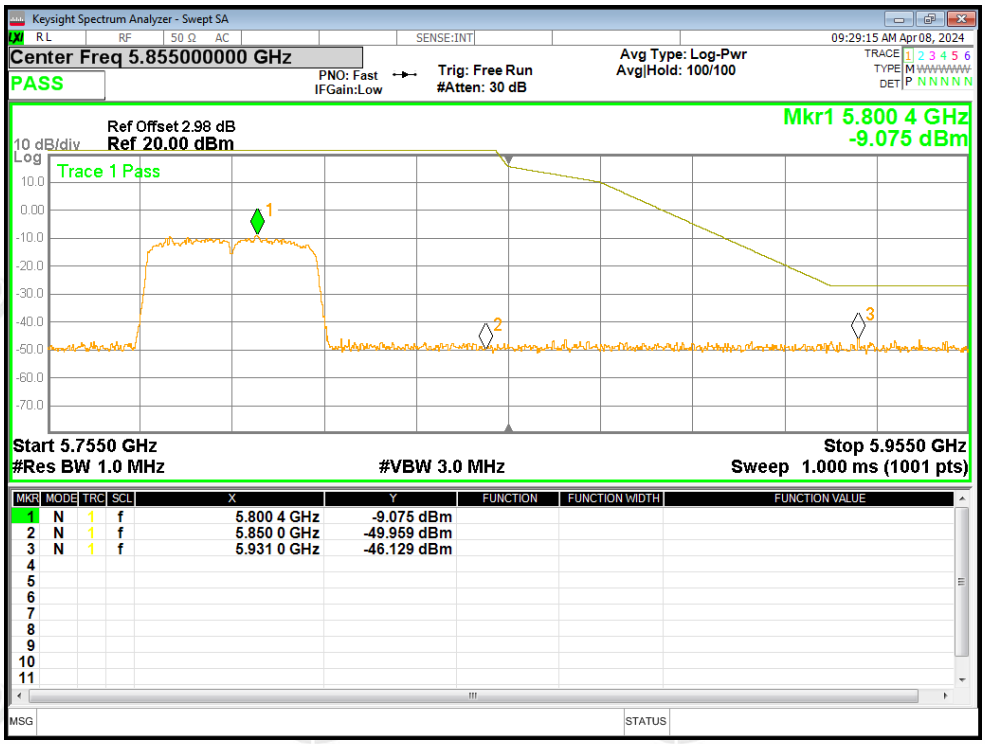

Band Edge NVNT n20 5825MHz High Ant1



Band Edge NVNT n40 5755MHz Low Ant1




Band Edge NVNT n40 5795MHz High Ant1



**B7. Frequency Stability**

| Voltage | | | | | | | |
|---|---|---|---|---|---|---|---|
| TestMode | Channel | Voltage [Vdc] | Temperature (℃) | Frequency Error (Hz) | Deviation (ppm) | Limit (ppm) | Verdict |
| a | 5745 | NV | NT | -20000 | -3.48 | Within 5745-5825MHz | Pass |
| | | LV | NT | -20000 | -3.48 | | |
| | | HV | NT | -20000 | -3.48 | | |
| | 5785 | NV | NT | -20000 | -3.46 | | |
| | | LV | NT | -20000 | -3.46 | | |
| | | HV | NT | -20000 | -3.46 | | |
| | 5825 | NV | NT | -20000 | -3.43 | | |
| | | LV | NT | -20000 | -3.43 | | |
| | | HV | NT | -20000 | -3.43 | | |
| n20 | 5745 | NV | NT | -20000 | -3.48 | | |
| | | LV | NT | -20000 | -3.48 | | |
| | | HV | NT | -20000 | -3.48 | | |
| | 5785 | NV | NT | -20000 | -3.46 | | |
| | | LV | NT | -20000 | -3.46 | | |
| | | HV | NT | -20000 | -3.46 | | |
| | 5825 | NV | NT | -20000 | -3.43 | | |
| | | LV | NT | -20000 | -3.43 | | |
| | | HV | NT | -20000 | -3.43 | | |
| n40 | 5755 | NV | NT | 40000 | 6.95 | Within 5755-5795MHz | Pass |
| | | LV | NT | 40000 | 6.95 | | |
| | | HV | NT | 40000 | 6.95 | | |
| | 5795 | NV | NT | 0 | 0 | | |
| | | LV | NT | 0 | 0 | | |
| | | HV | NT | 0 | 0 | | |

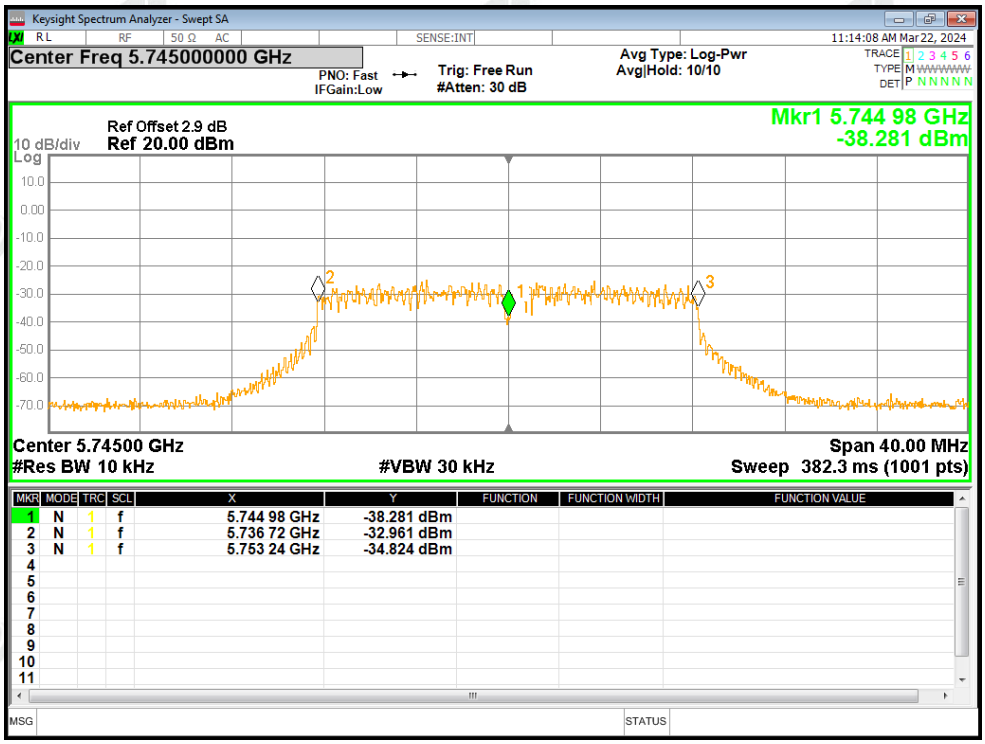
| Temperature | | | | | | | |
|---|---|---|---|---|---|---|---|
| TestMode | Channel | Voltage [Vdc] | Temperature (℃) | Frequency Error (Hz) | Deviation (ppm) | Limit (ppm) | Verdict |
| a | 5745 | NV | -20 | 0 | 0 | Within 5745-5825MHz | Pass |
| | | NV | -10 | 0 | 0 | | |
| | | NV | 0 | 0 | 0 | | |
| | | NV | 20 | 0 | 0 | | |
| | | NV | 40 | 0 | 0 | | |
| | | NV | 60 | 0 | 0 | | |
| | | NV | 70 | 0 | 0 | | |
| | 5785 | NV | -20 | 0 | 0 | | |
| | | NV | -10 | 0 | 0 | | |
| | | NV | 0 | 0 | 0 | | |
| | | NV | 20 | 0 | 0 | | |
| | | NV | 40 | 0 | 0 | | |
| | | NV | 60 | 0 | 0 | | |
| | | NV | 70 | 0 | 0 | | |
| | 5825 | NV | -20 | 0 | 0 | | |
| | | NV | -10 | 0 | 0 | | |
| | | NV | 0 | 0 | 0 | | |
| | | NV | 20 | 0 | 0 | | |
| | | NV | 40 | 0 | 0 | | |
| | | NV | 60 | 0 | 0 | | |
| | | NV | 70 | 0 | 0 | | |
| N20 | 5745 | NV | -20 | 0 | 0 | | |
| | | NV | -10 | 0 | 0 | | |
| | | NV | 0 | 0 | 0 | | |
| | | NV | 20 | 0 | 0 | | |
| | | NV | 40 | 0 | 0 | | |
| | | NV | 60 | 0 | 0 | | |
| | | NV | 70 | 0 | 0 | | |
| | 5785 | NV | -20 | 0 | 0 | | |
| | | NV | -10 | 0 | 0 | | |
| | | NV | 0 | 0 | 0 | | |
| | | NV | 20 | 0 | 0 | | |
| | | NV | 40 | 0 | 0 | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | NV | 60 | 0 | 0 | Within 5745-5825MHz | Pass |
| | | NV | 70 | 0 | 0 | | |
| | 5825 | NV | -20 | 0 | 0 | | |
| | | NV | -10 | 0 | 0 | | |
| | | NV | 0 | 0 | 0 | | |
| | | NV | 20 | 0 | 0 | | |
| | | NV | 40 | 0 | 0 | | |
| | | NV | 60 | 0 | 0 | | |
| | | NV | 70 | 0 | 0 | | |
| N40 | 5755 | NV | -20 | 0 | 0 | Within 5755-5790MHz | Pass |
| | | NV | -10 | 0 | 0 | | |
| | | NV | 0 | 0 | 0 | | |
| | | NV | 20 | 0 | 0 | | |
| | | NV | 40 | 0 | 0 | | |
| | | NV | 60 | 0 | 0 | | |
| | | NV | 70 | 0 | 0 | | |
| | 5795 | NV | -20 | 0 | 0 | | |
| | | NV | -10 | 0 | 0 | | |
| | | NV | 0 | 0 | 0 | | |
| | | NV | 20 | 0 | 0 | | |
| | | NV | 40 | 0 | 0 | | |
| | | NV | 60 | 0 | 0 | | |
| | | NV | 70 | 0 | 0 | | |

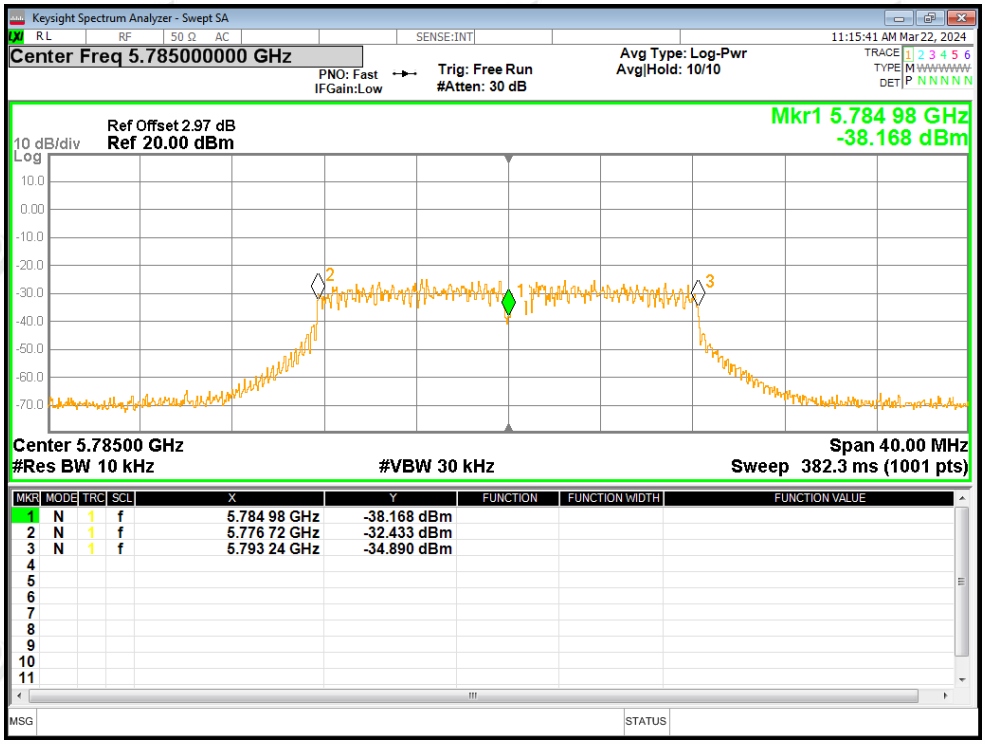
Note:Test temperature:−20°to + 70°. At room temperature, the test results are the worst, only reflecting the test results graphs at room temperature

## Test Graphs

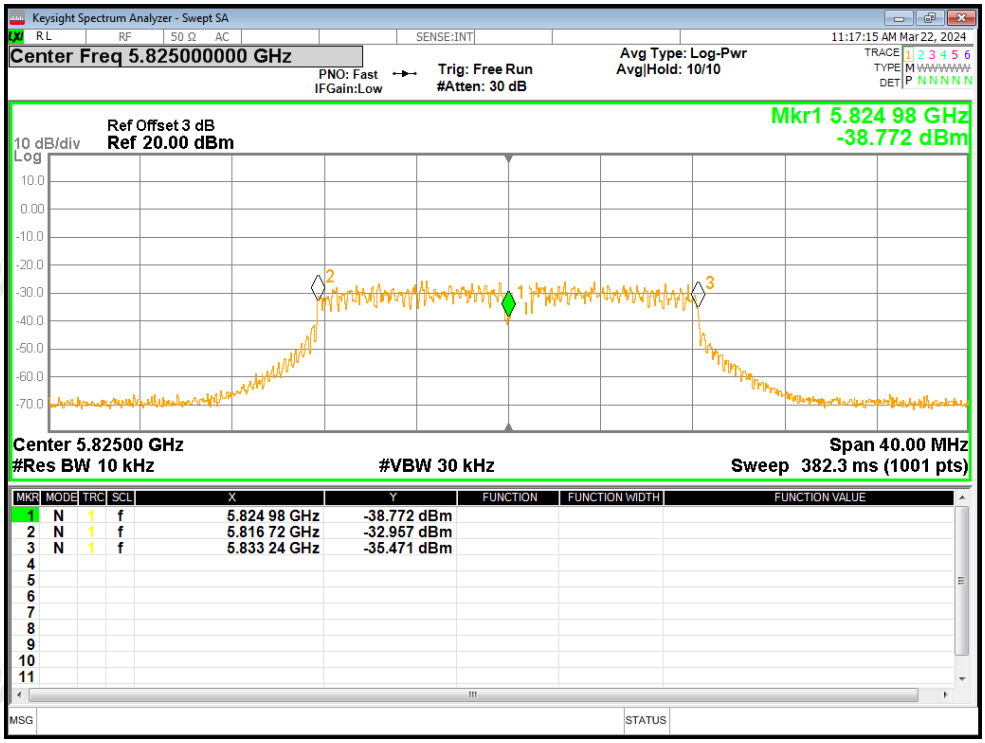
### Freq. Stability NVNT a 5745MHz Ant1



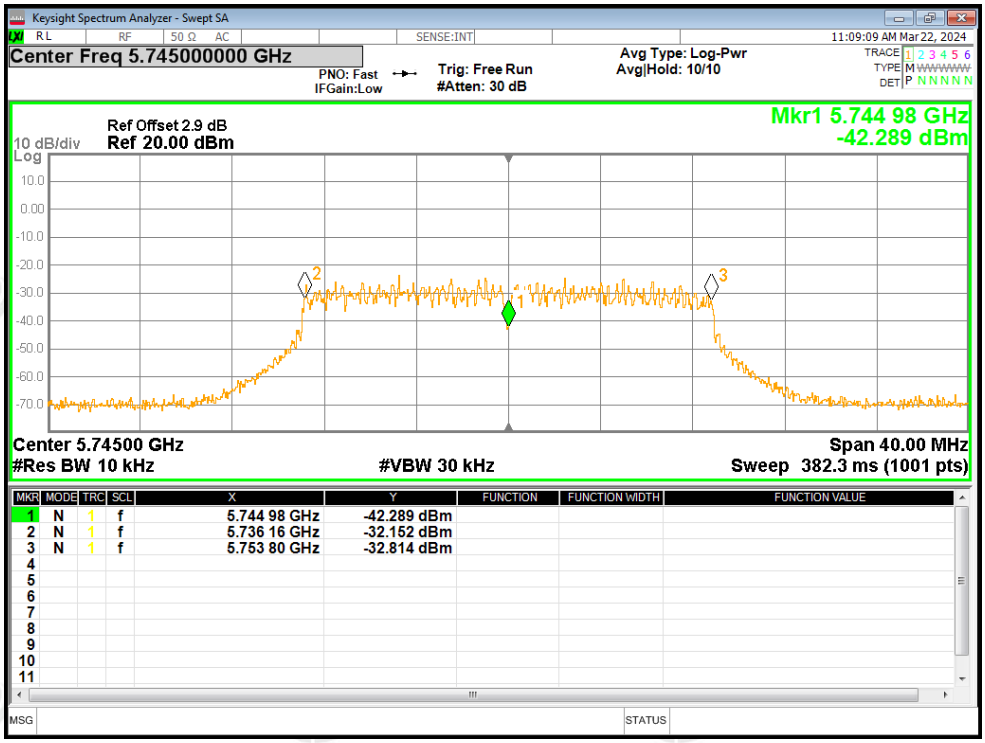

### Freq. Stability NVNT a 5785MHz Ant1



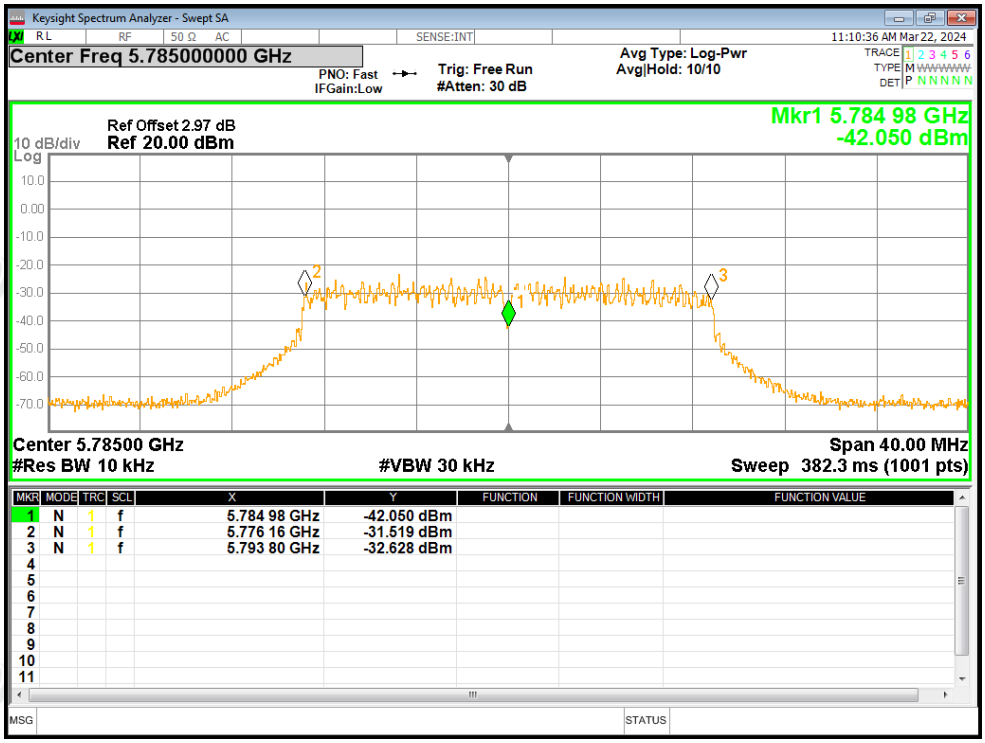
Freq. Stability NVNT a 5825MHz Ant1



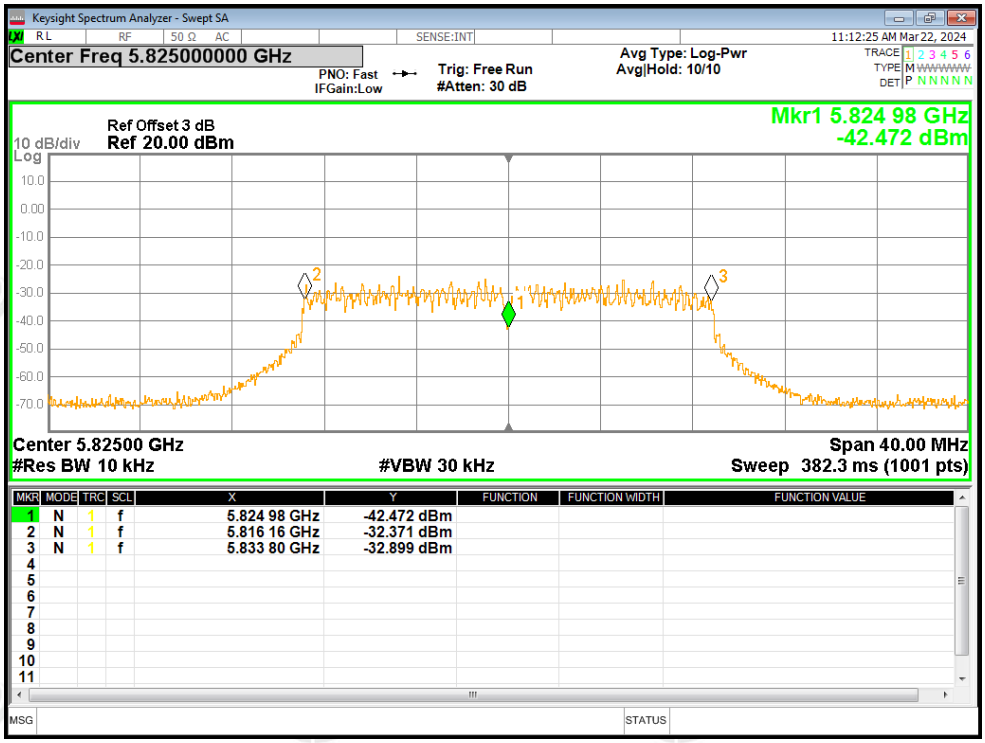

Freq. Stability NVNT n20 5745MHz Ant1



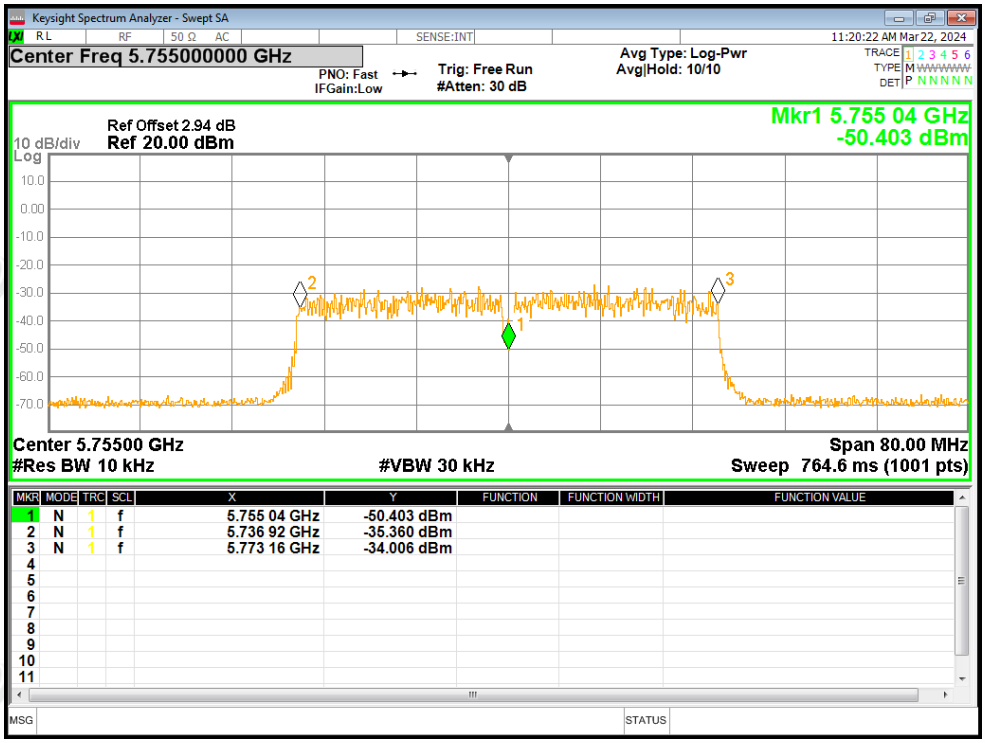
Freq. Stability NVNT n20 5785MHz Ant1



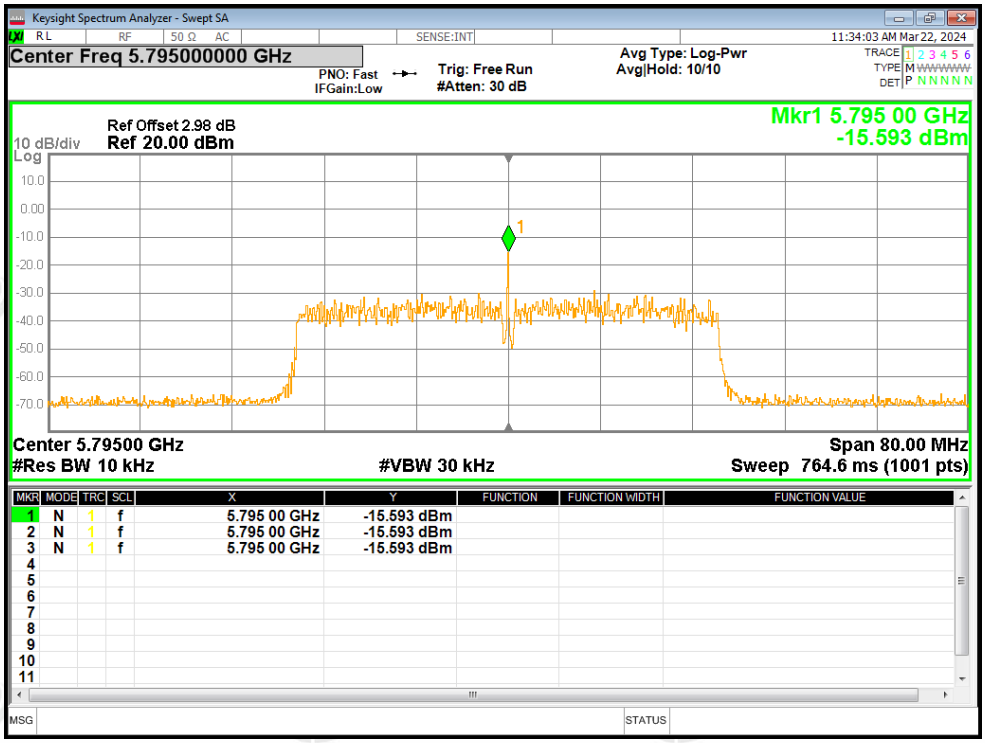

Freq. Stability NVNT n20 5825MHz Ant1



Freq. Stability NVNT n40 5755MHz Ant1




Freq. Stability NVNT n40 5795MHz Ant1

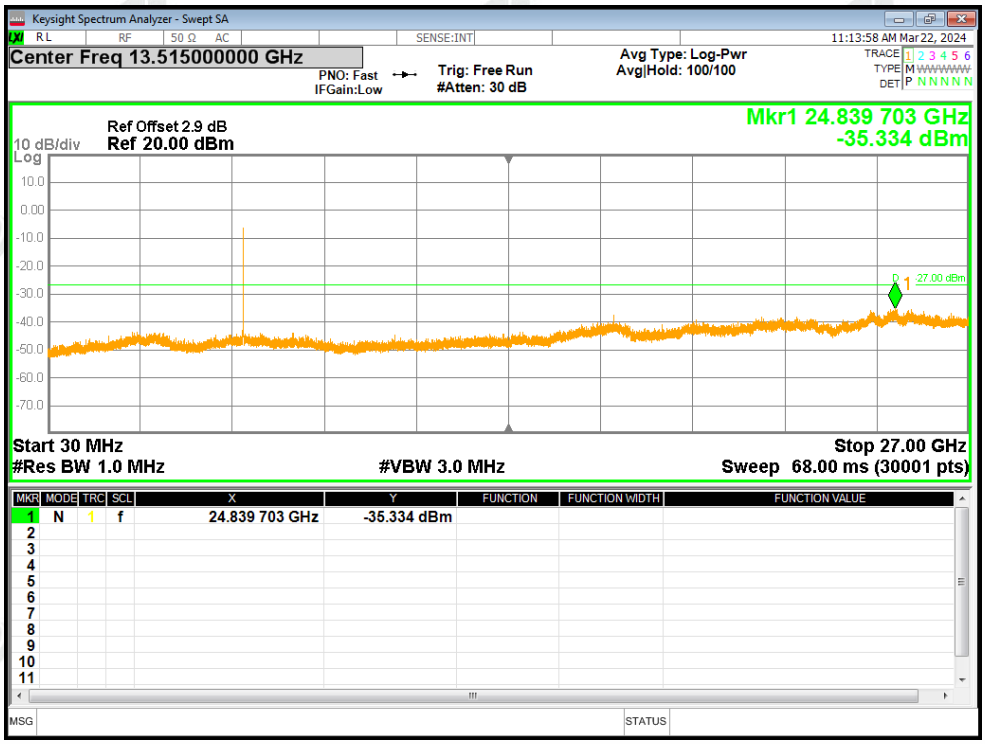


**B8. Conducted RF Spurious Emission**

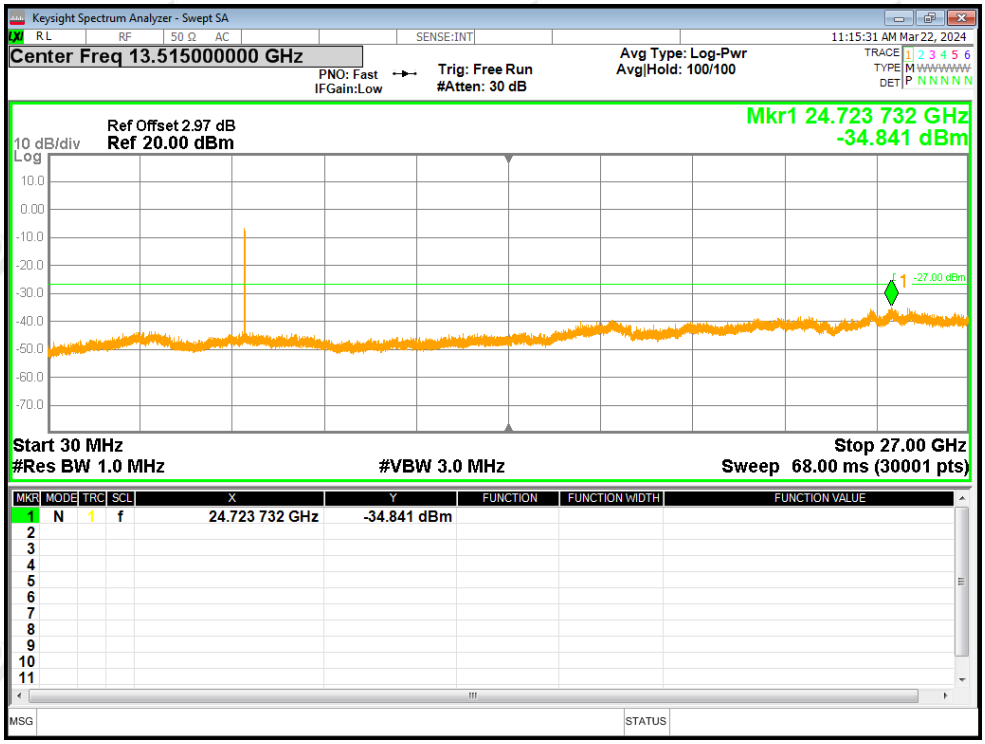
| Condition | Mode | Frequency (MHz) | Antenna | Max Value (dBc) | Limit (dBc) | Verdict |
|---|---|---|---|---|---|---|
| NVNT | a | 5745 | Ant1 | -35.33 | -27 | Pass |
| NVNT | a | 5785 | Ant1 | -34.84 | -27 | Pass |
| NVNT | a | 5825 | Ant1 | -35.33 | -27 | Pass |
| NVNT | n20 | 5745 | Ant1 | -35.76 | -27 | Pass |
| NVNT | n20 | 5785 | Ant1 | -35.94 | -27 | Pass |
| NVNT | n20 | 5825 | Ant1 | -35.58 | -27 | Pass |
| NVNT | n40 | 5755 | Ant1 | -35.4 | -27 | Pass |
| NVNT | n40 | 5795 | Ant1 | -35.27 | -27 | Pass |

## Test Graphs

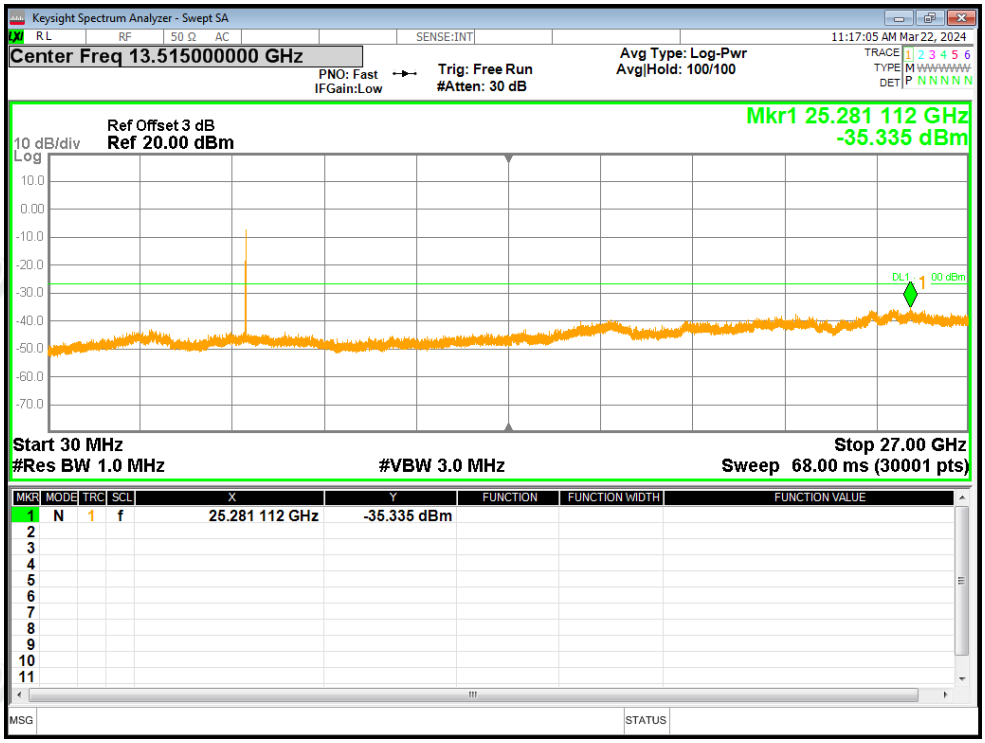
### Tx. Spurious NVNT a 5745MHz Ant1 Emission



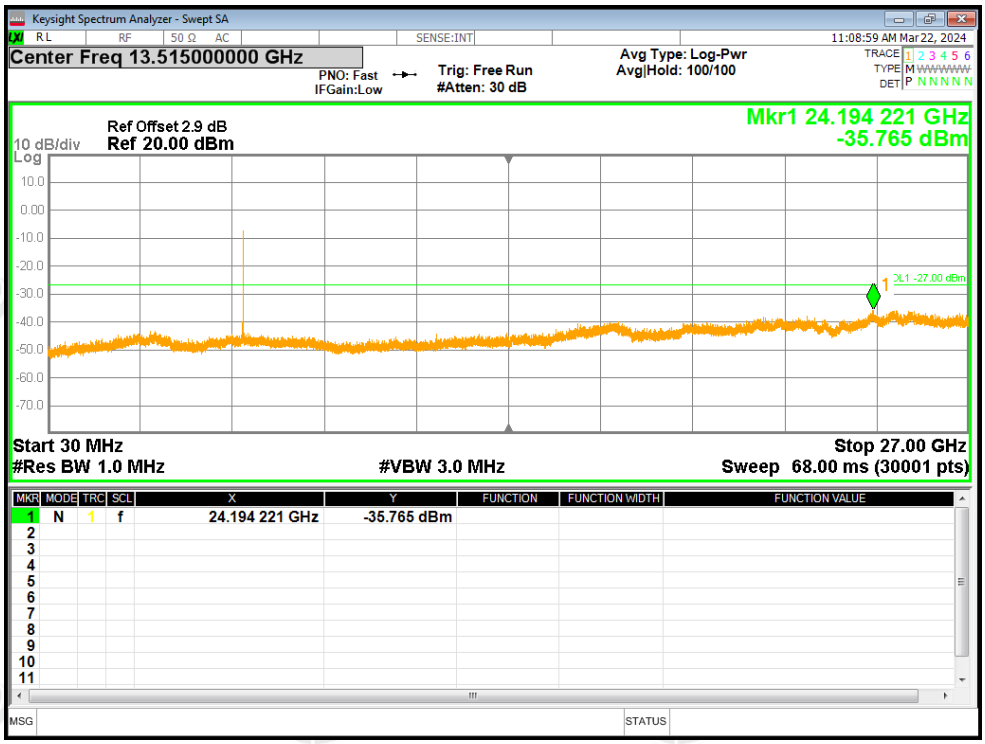

### Tx. Spurious NVNT a 5785MHz Ant1 Emission



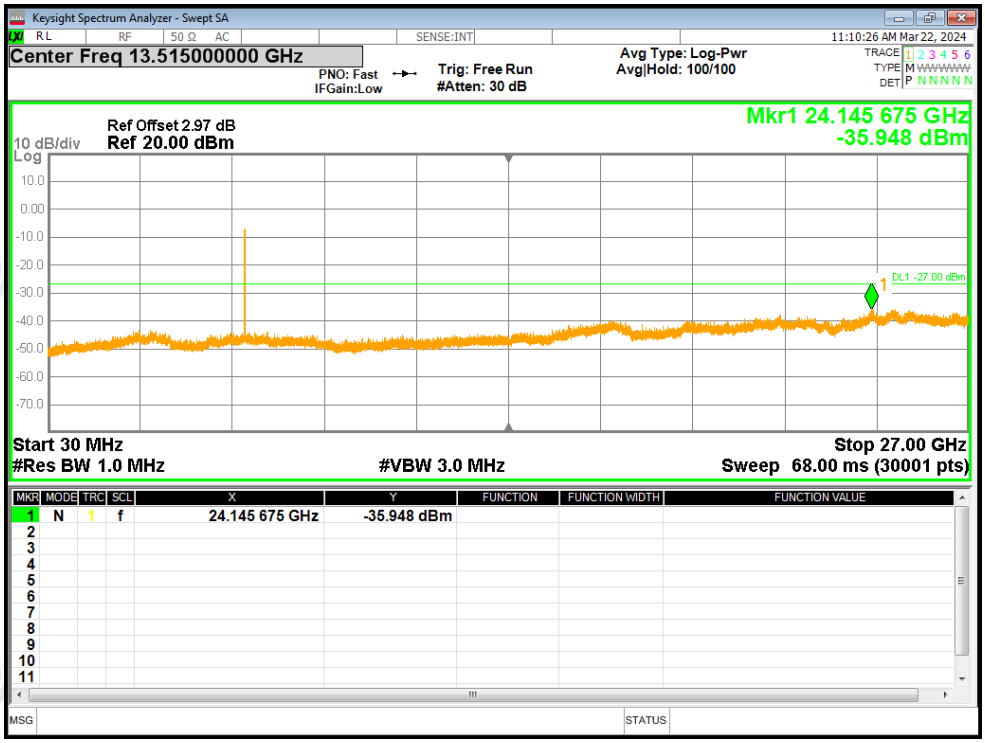
Tx. Spurious NVNT a 5825MHz Ant1 Emission



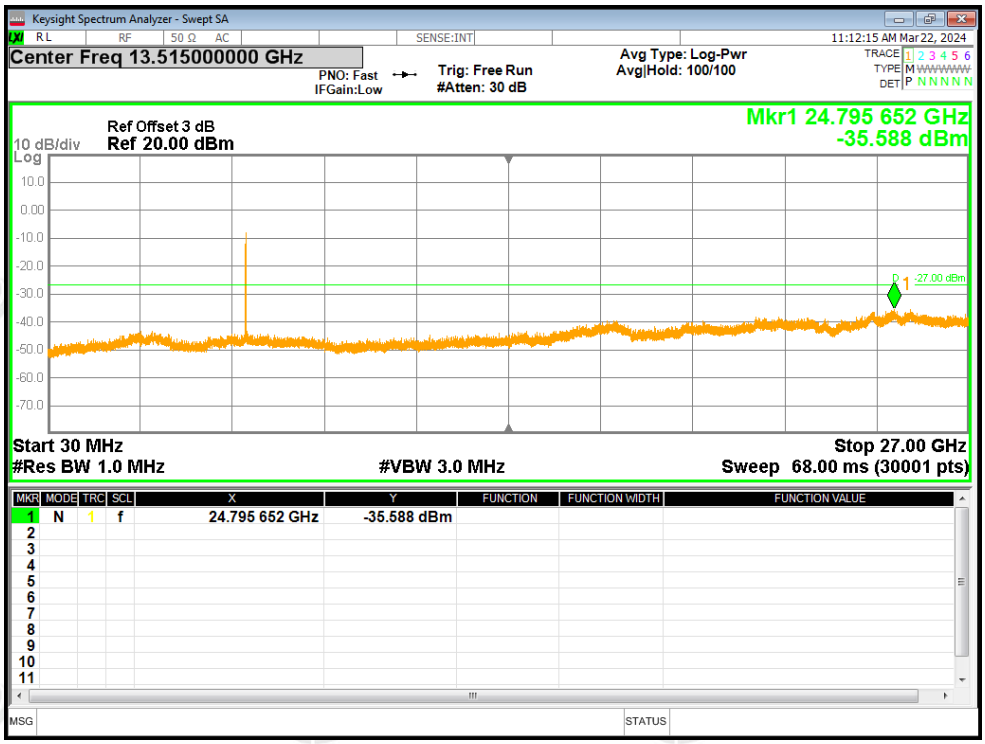

Tx. Spurious NVNT n20 5745MHz Ant1 Emission



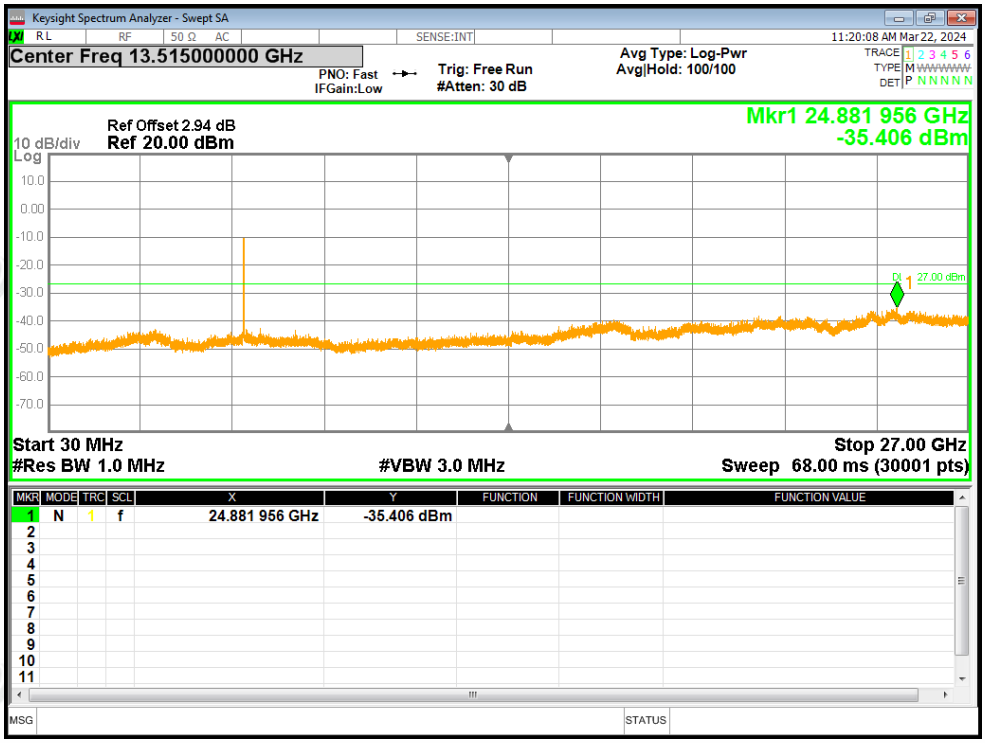
Tx. Spurious NVNT n20 5785MHz Ant1 Emission




Tx. Spurious NVNT n20 5825MHz Ant1 Emission



Tx. Spurious NVNT n40 5755MHz Ant1 Emission




Tx. Spurious NVNT n40 5795MHz Ant1 Emission