# Appendix for 15.247

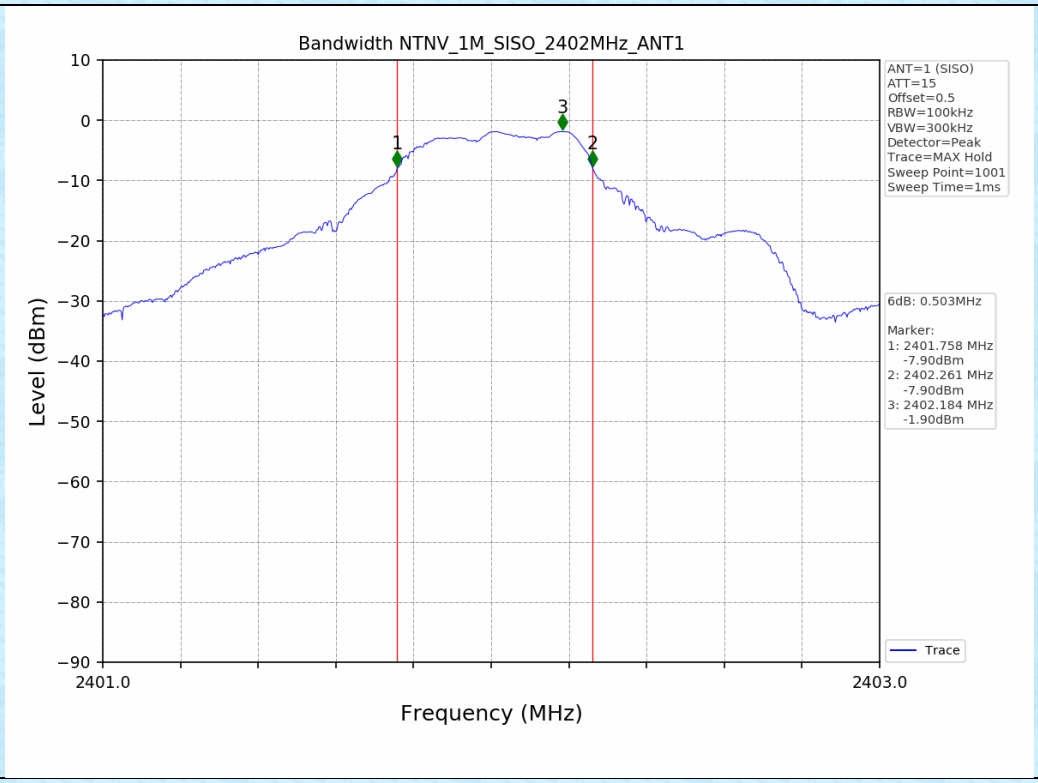
## 1. Bandwidth

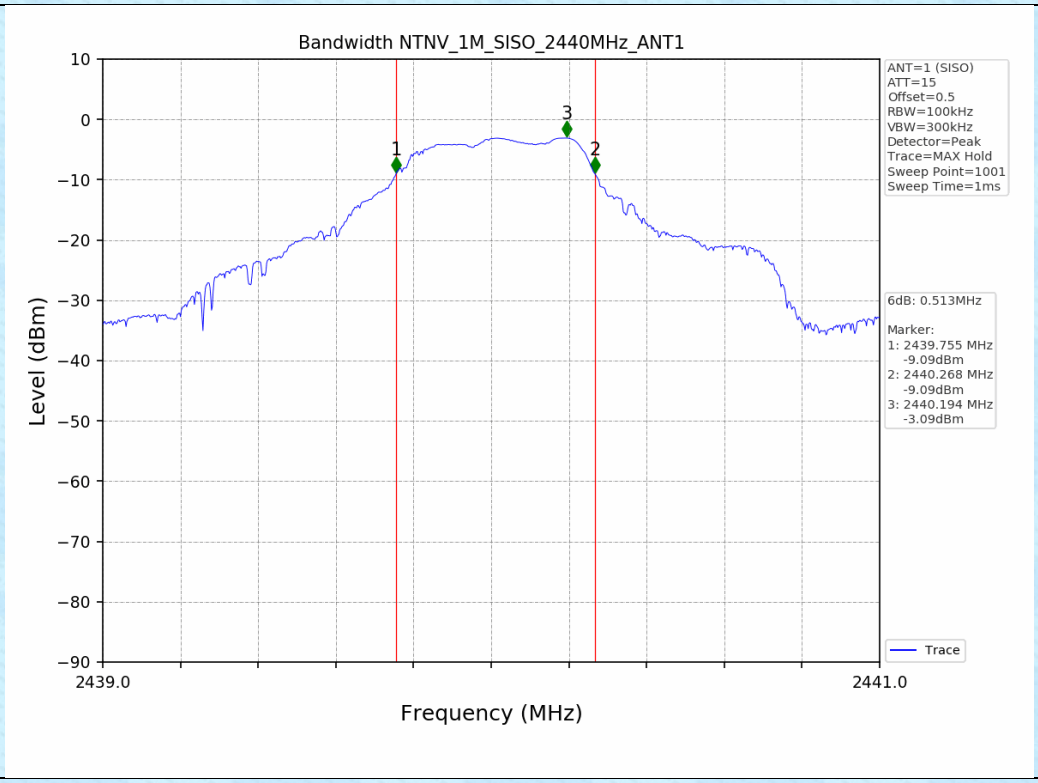
### 1.1 Test Result

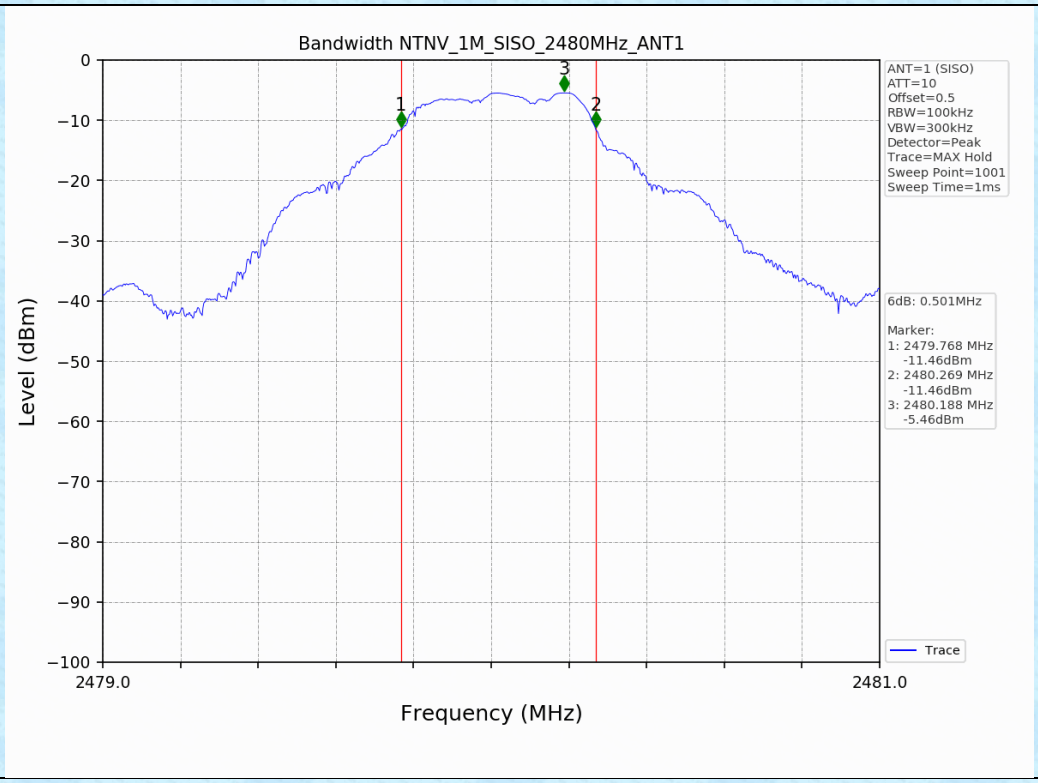
| Test Mode | Frequency (MHz) | TX Type | ANT No. | 6dB Bandwidth | | Verdict |
|---|---|---|---|---|---|---|
| | | | | Test Result (MHz) | Limits (MHz) | |
| GFSK | 2402 | SISO | 1 | 0.503 | ≥0.5 | PASS |
| | 2440 | SISO | 1 | 0.513 | ≥0.5 | PASS |
| | 2480 | SISO | 1 | 0.501 | ≥0.5 | PASS |

| Test Mode | Frequency (MHz) | TX Type | ANT No. | 99% Occupied Bandwidth | |
|---|---|---|---|---|---|
| | | | | Test Result (MHz) | |
| GFSK | 2402 | SISO | 1 | 0.881 | Only for Report Use |
| | 2440 | SISO | 1 | 0.851 | Only for Report Use |
| | 2480 | SISO | 1 | 0.764 | Only for Report Use |

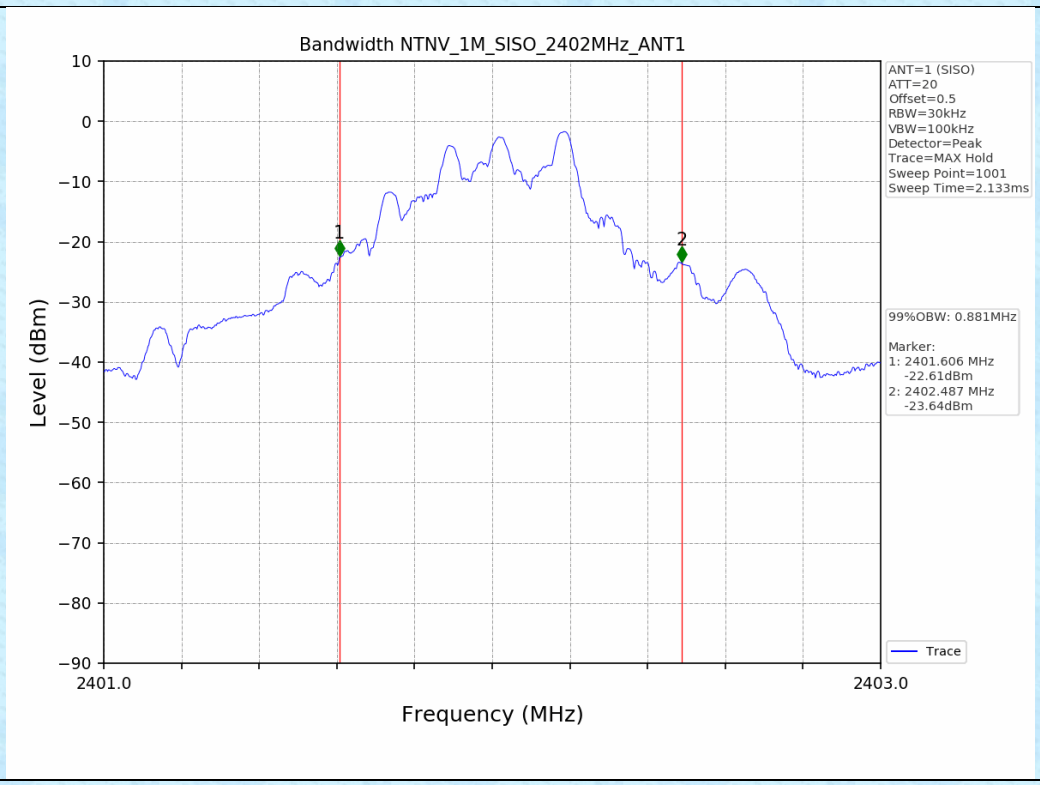
### 1.2 Test Graph - 6dB Bandwidth

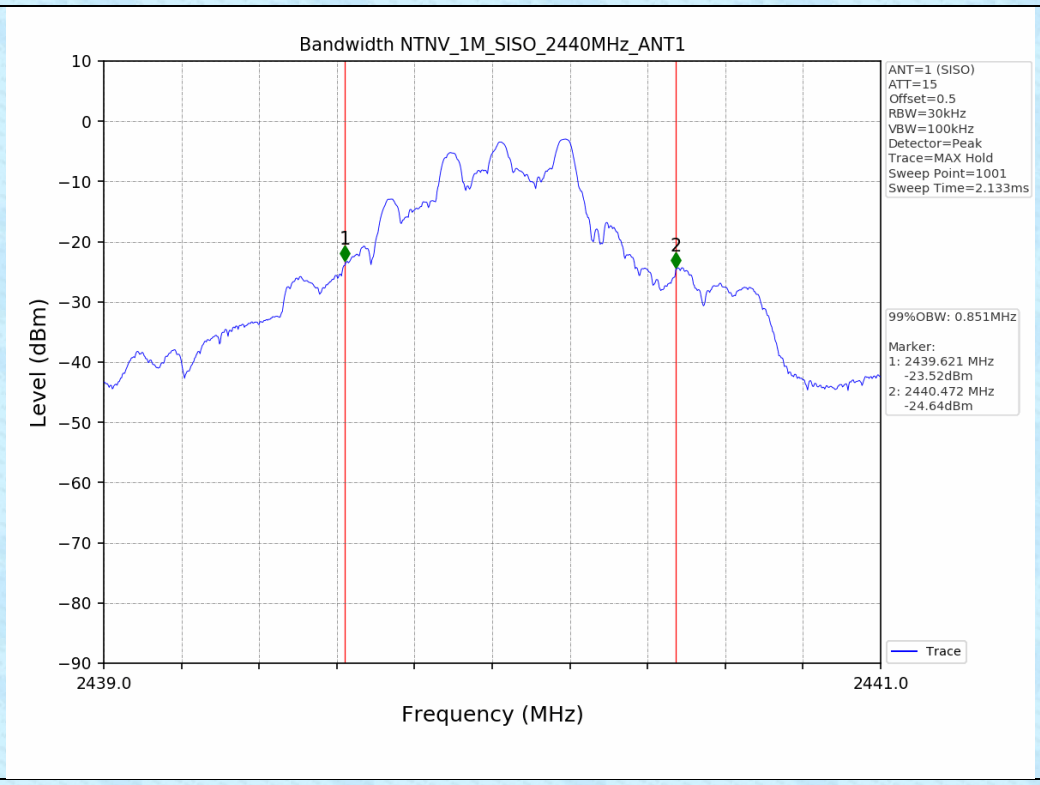


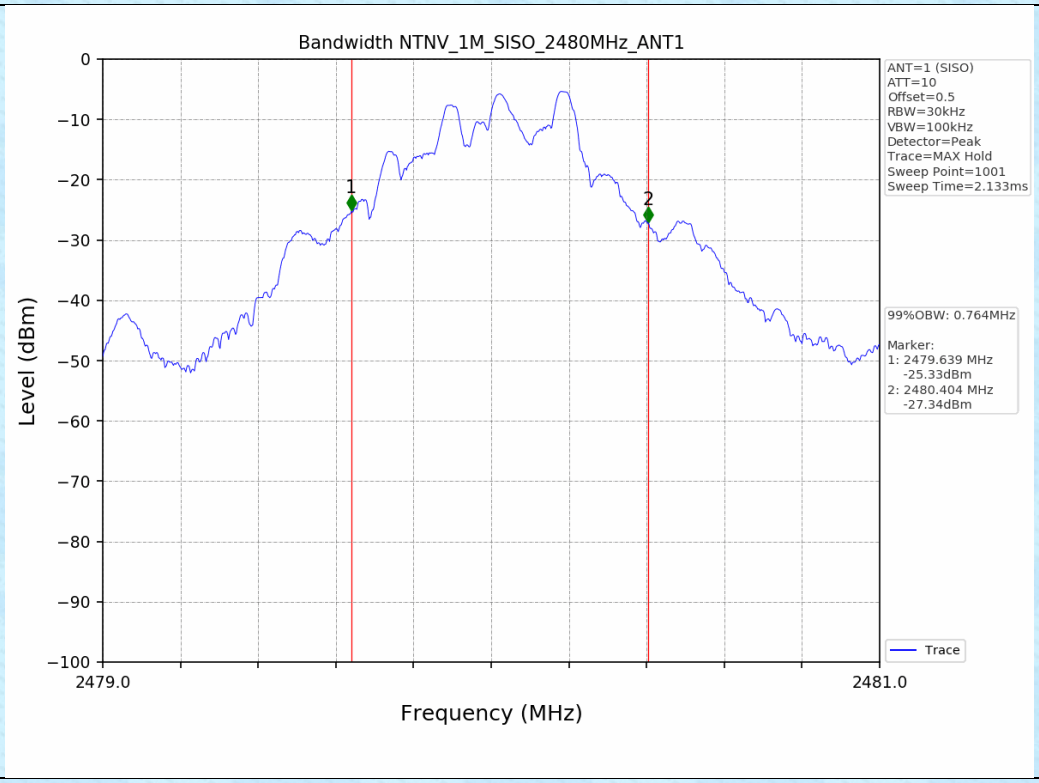

Bandwidth NTNV_1M_SISO_2440MHz_ANT1
ANT=1 (SISO)
ATT=15
Offset=0.5
RBW=100kHz
VBW=300kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=1ms
6dB: 0.513MHz
Marker:
1: 2439.755 MHz
-9.09dBm
2: 2440.268 MHz
-9.09dBm
3: 2440.194 MHz
-3.09dBm
Trace
Level (dBm)
Frequency (MHz)
2439.0
2441.0


Bandwidth NTNV_1M_SISO_2480MHz_ANT1
ANT=1 (SISO)
ATT=10
Offset=0.5
RBW=100kHz
VBW=300kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=1ms
6dB: 0.501MHz
Marker:
1: 2479.768 MHz
-11.46dBm
2: 2480.269 MHz
-11.46dBm
3: 2480.188 MHz
-5.46dBm
Trace
Level (dBm)
Frequency (MHz)
2479.0
2481.0

### 1.3 Test Graph - 99% Occupied Bandwidth



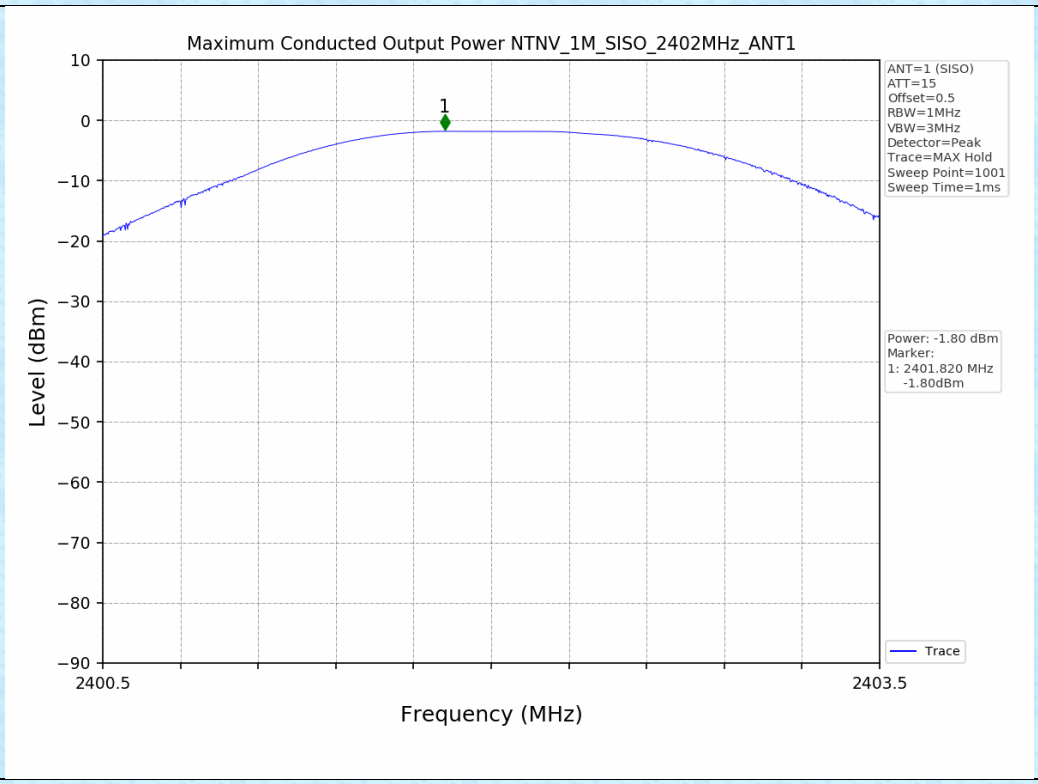

Bandwidth NTNV_1M_SISO_2480MHz_ANT1
ANT=1 (SISO)
ATT=10
Offset=0.5
RBW=30kHz
VBW=100kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=2.133ms
99%OBW: 0.764MHz
Marker:
1: 2479.639 MHz
-25.33dBm
2: 2480.404 MHz
-27.34dBm
Trace
Level (dBm)
Frequency (MHz)
0
−10
−20
−30
−40
−50
−60
−70
−80
−90
−100
2479.0
2481.0
1
2

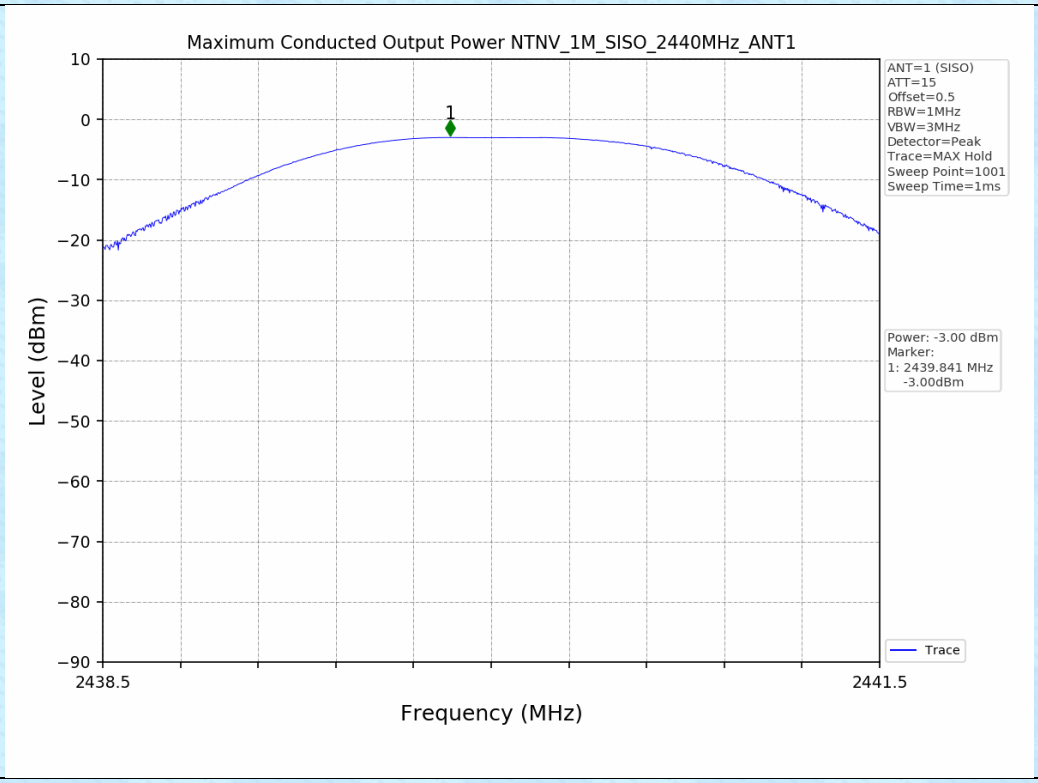
## 2. Maximum Conducted Output Power

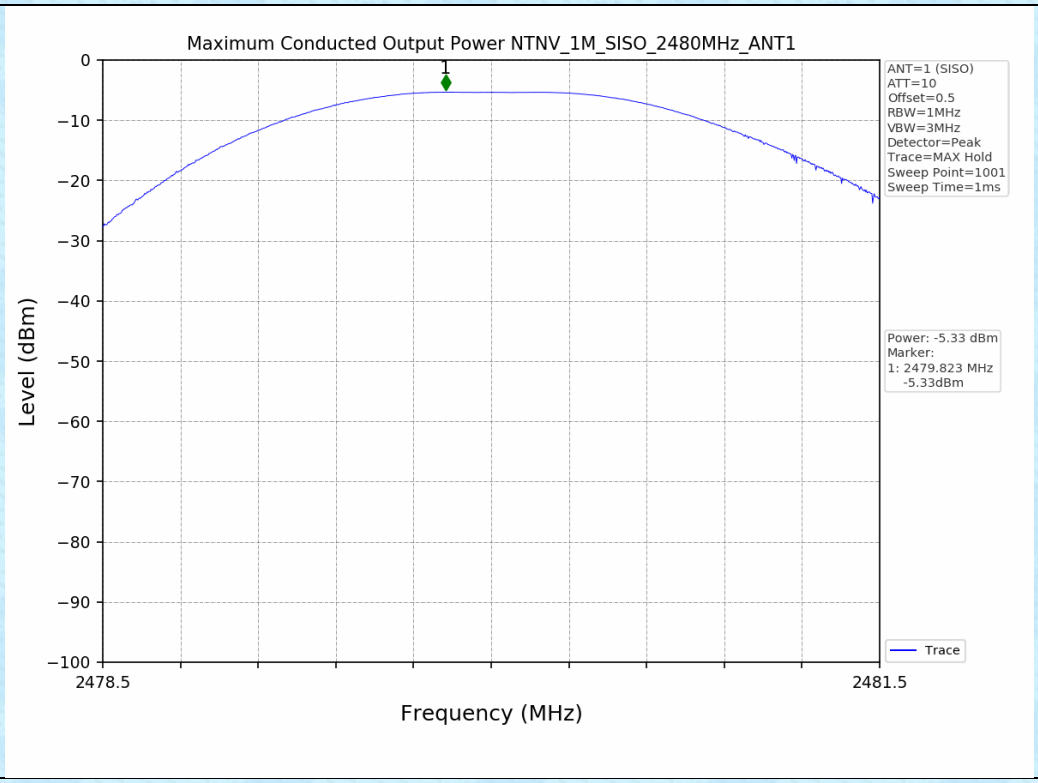
### 2.1 Test Result

| Test Mode | Frequency (MHz) | Tx Type | Measured Peak Output Power (dBm) | Limits (dBm) | Verdict |
|---|---|---|---|---|---|
| | | | Ant 1 | | |
| GFSK | 2402 | SISO | -1.80 | 30 | PASS |
| | 2440 | SISO | -3.00 | 30 | PASS |
| | 2480 | SISO | -5.33 | 30 | PASS |

### 2.2 Test Graph




Maximum Conducted Output Power NTNV_1M_SISO_2440MHz_ANT1
ANT=1 (SISO)
ATT=15
Offset=0.5
RBW=1MHz
VBW=3MHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=1ms
Power: -3.00 dBm
Marker:
1: 2439.841 MHz
-3.00dBm
Trace
Level (dBm)
Frequency (MHz)
2438.5
2441.5

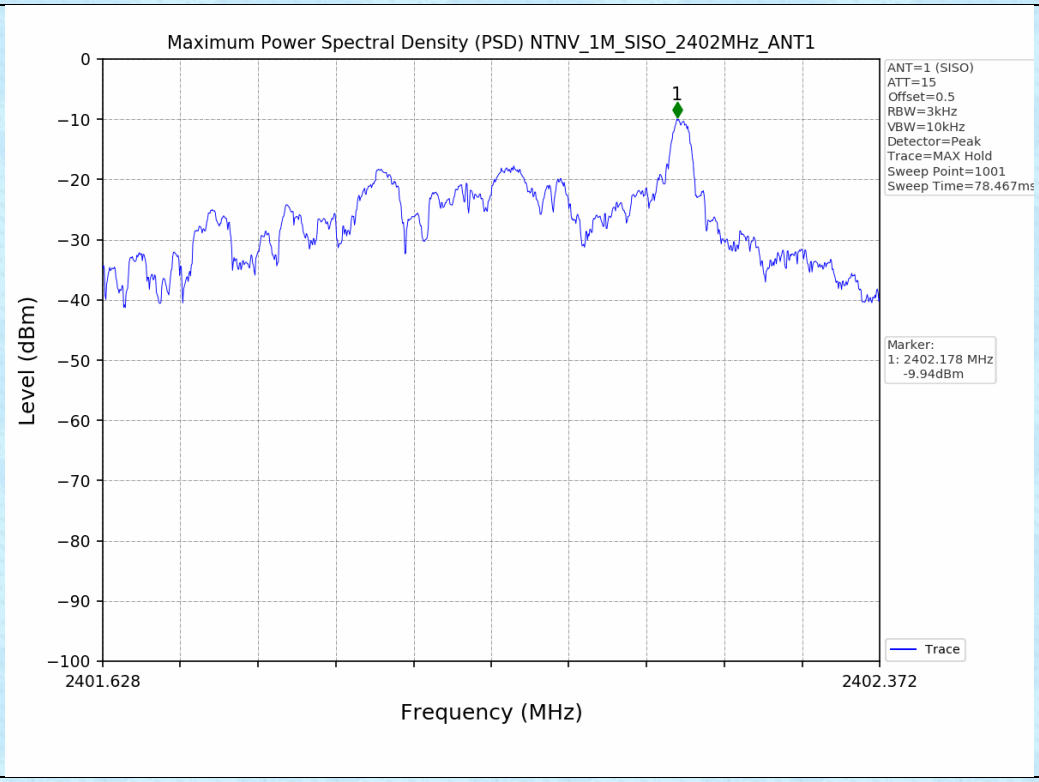

Maximum Conducted Output Power NTNV_1M_SISO_2480MHz_ANT1
ANT=1 (SISO)
ATT=10
Offset=0.5
RBW=1MHz
VBW=3MHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=1ms
Power: -5.33 dBm
Marker:
1: 2479.823 MHz
-5.33dBm
Trace
Level (dBm)
Frequency (MHz)
2478.5
2481.5

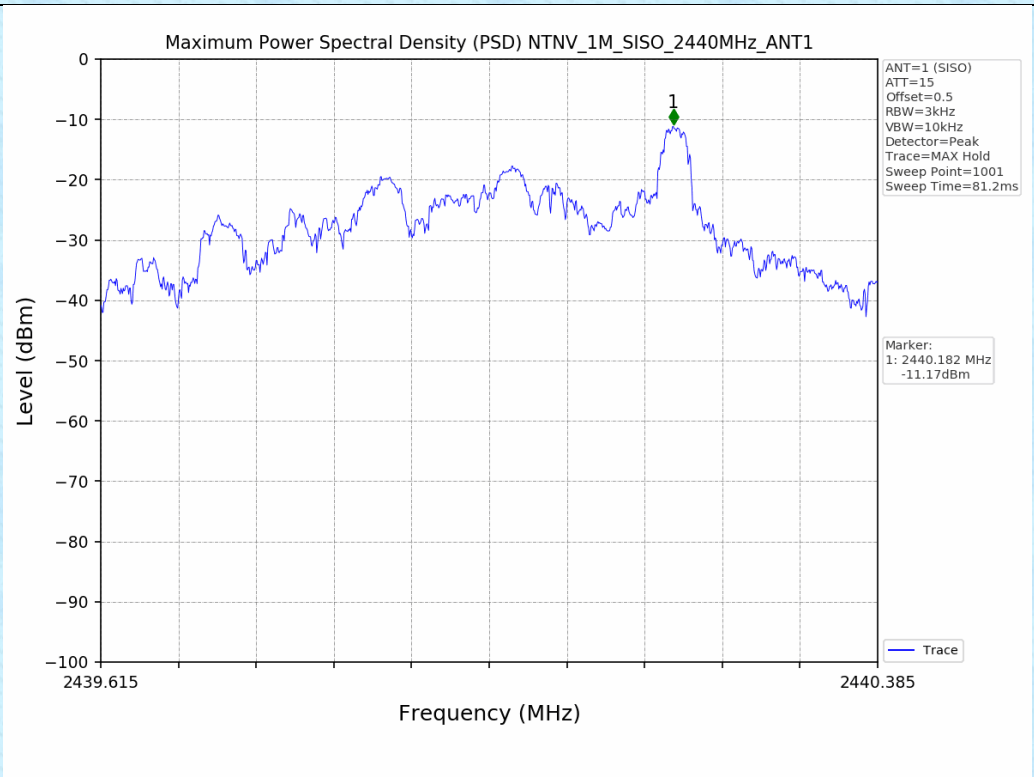
# 3. Maximum Power Spectral Density (PSD)

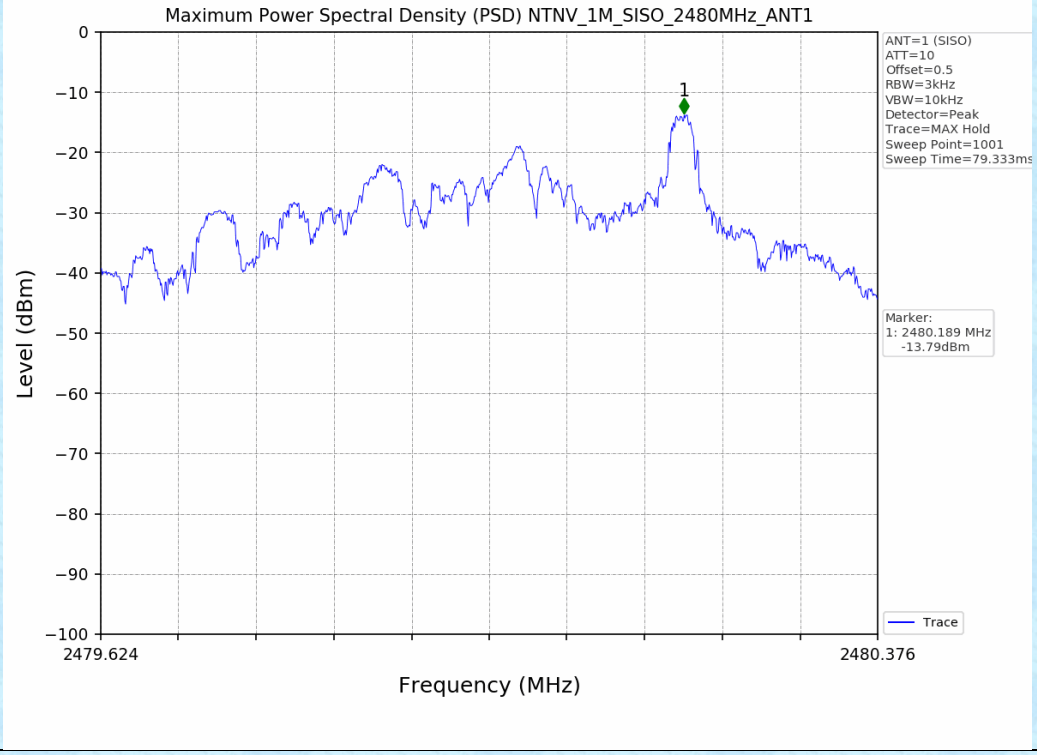
## 3.1 Test Result

| Test Mode | Frequency (MHz) | Tx Type | Maximum Power Spectral Density (dBm/3KHz) | Limits (dBm/3kHz) | Verdict |
|---|---|---|---|---|---|
| | | | Ant 1 | | |
| GFSK | 2402 | SISO | -9.94 | ≤8 | PASS |
| | 2440 | SISO | -11.17 | ≤8 | PASS |
| | 2480 | SISO | -13.79 | ≤8 | PASS |

## 3.2 Test Graph




Maximum Power Spectral Density (PSD) NTNV_1M_SISO_2440MHz_ANT1
ANT=1 (SISO)
ATT=15
Offset=0.5
RBW=3kHz
VBW=10kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=81.2ms
Marker:
1: 2440.182 MHz
-11.17dBm
Trace
Level (dBm)
Frequency (MHz)
2439.615
2440.385

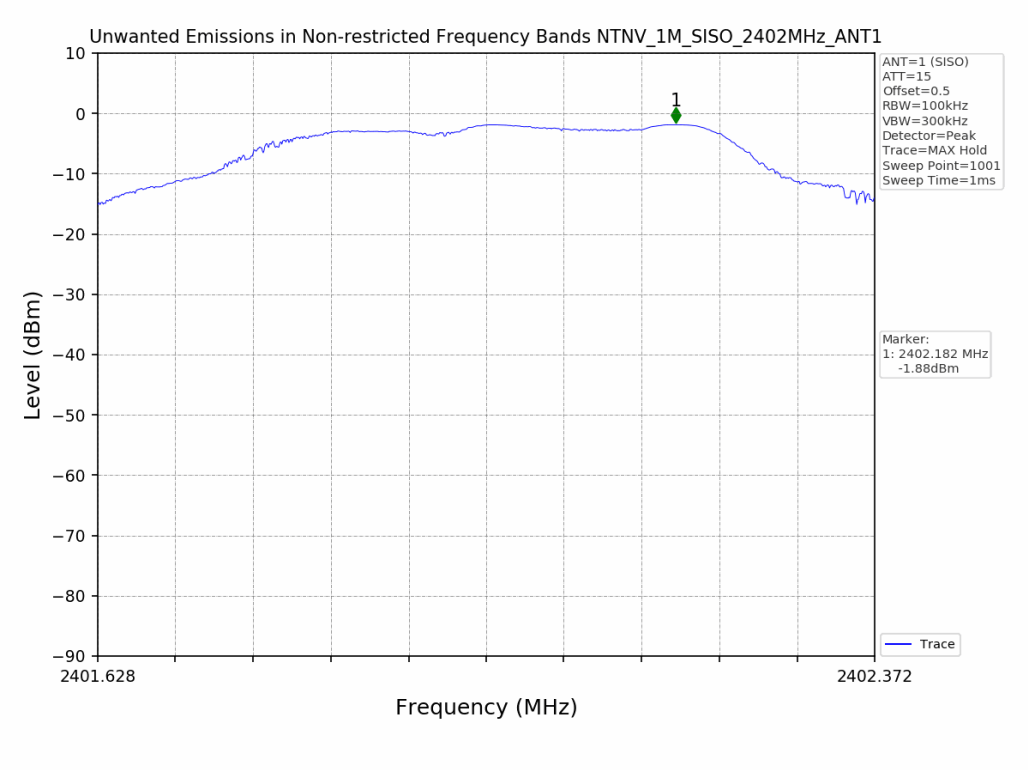

Maximum Power Spectral Density (PSD) NTNV_1M_SISO_2480MHz_ANT1
ANT=1 (SISO)
ATT=10
Offset=0.5
RBW=3kHz
VBW=10kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=79.333ms
Marker:
1: 2480.189 MHz
-13.79dBm
Trace
Level (dBm)
Frequency (MHz)
2479.624
2480.376

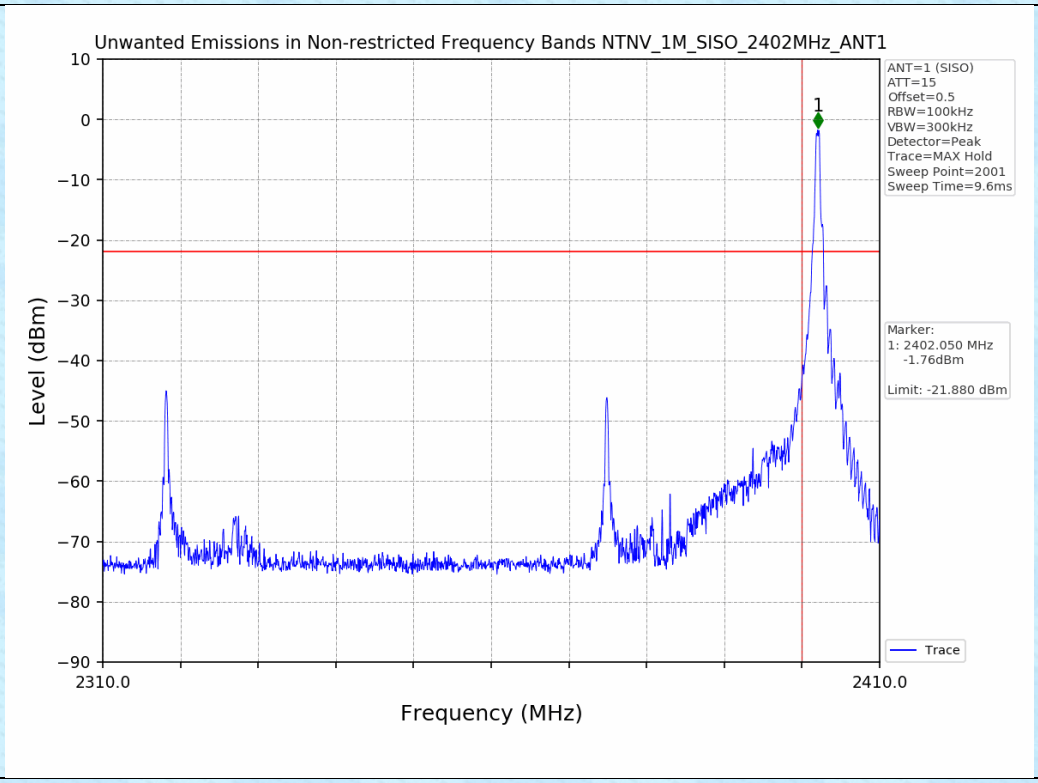
# 4. Unwanted Emissions in Non-restricted Frequency Bands

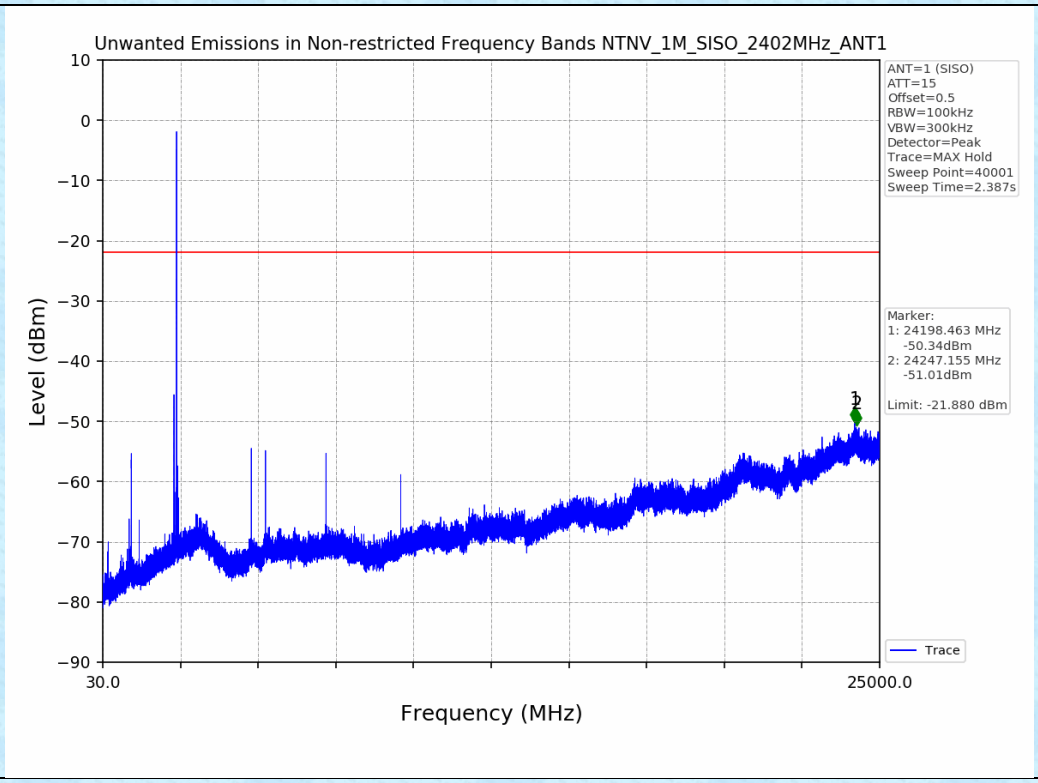
## 4.1 Test Result

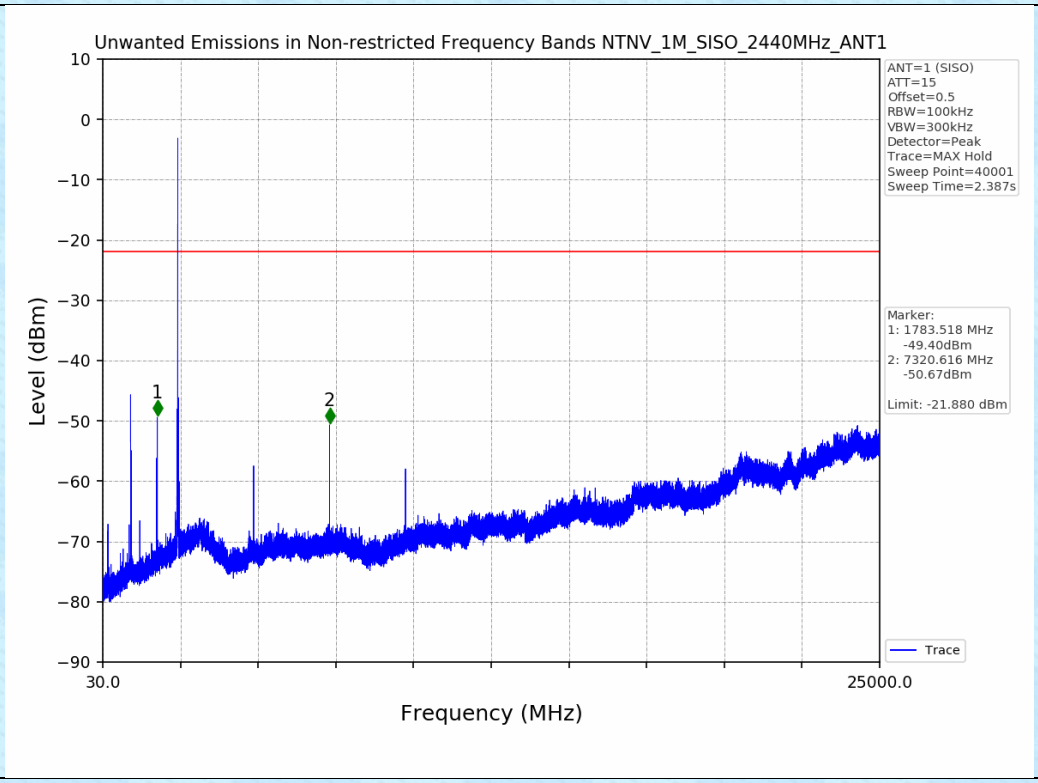
| Test Mode | Frequency (MHz) | TX Type | ANT No. | Spurious Conducted Emission (dBm) | Limits (dBm) | Verdict |
|---|---|---|---|---|---|---|
| GFSK | 2402 | SISO | 1 | Refer to test graph | -21.88 | PASS |
| | 2440 | SISO | 1 | Refer to test graph | -21.88 | PASS |
| | 2480 | SISO | 1 | Refer to test graph | -21.88 | PASS |

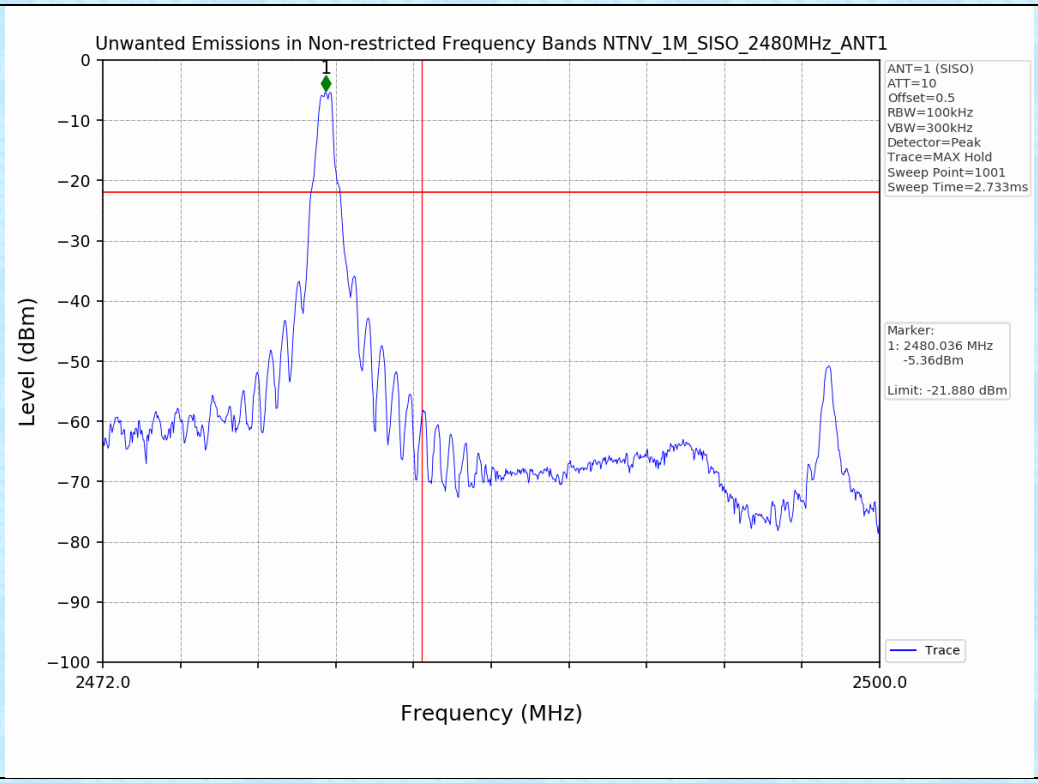
## 4.2 Test Graph

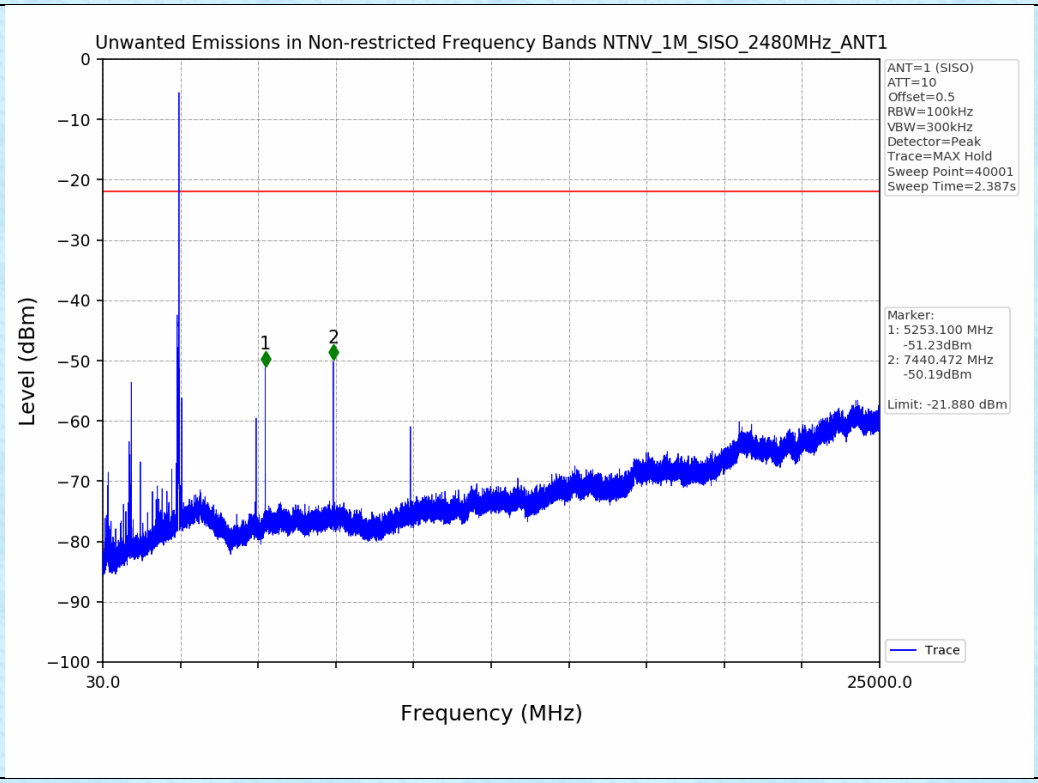



Unwanted Emissions in Non-restricted Frequency Bands NTNV_1M_SISO_2402MHz_ANT1
ANT=1 (SISO)
ATT=15
Offset=0.5
RBW=100kHz
VBW=300kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=2001
Sweep Time=9.6ms
Marker:
1: 2402.050 MHz
-1.76dBm
Limit: -21.880 dBm
Trace
Level (dBm)
Frequency (MHz)
2310.0
2410.0


Unwanted Emissions in Non-restricted Frequency Bands NTNV_1M_SISO_2402MHz_ANT1
ANT=1 (SISO)
ATT=15
Offset=0.5
RBW=100kHz
VBW=300kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=40001
Sweep Time=2.387s
Marker:
1: 24198.463 MHz
-50.34dBm
2: 24247.155 MHz
-51.01dBm
Limit: -21.880 dBm
Trace
Level (dBm)
Frequency (MHz)
30.0
25000.0


Unwanted Emissions in Non-restricted Frequency Bands NTNV_1M_SISO_2440MHz_ANT1
ANT=1 (SISO)
ATT=15
Offset=0.5
RBW=100kHz
VBW=300kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=40001
Sweep Time=2.387s
Marker:
1: 1783.518 MHz
-49.40dBm
2: 7320.616 MHz
-50.67dBm
Limit: -21.880 dBm
Trace
Level (dBm)
Frequency (MHz)
30.0
25000.0


Unwanted Emissions in Non-restricted Frequency Bands NTNV_1M_SISO_2480MHz_ANT1
ANT=1 (SISO)
ATT=10
Offset=0.5
RBW=100kHz
VBW=300kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=2.733ms
Marker:
1: 2480.036 MHz
-5.36dBm
Limit: -21.880 dBm
Trace
Level (dBm)
Frequency (MHz)
2472.0
2500.0


Unwanted Emissions in Non-restricted Frequency Bands NTNV_1M_SISO_2480MHz_ANT1
ANT=1 (SISO)
ATT=10
Offset=0.5
RBW=100kHz
VBW=300kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=40001
Sweep Time=2.387s
Marker:
1: 5253.100 MHz
-51.23dBm
2: 7440.472 MHz
-50.19dBm
Limit: -21.880 dBm
Trace
Level (dBm)
Frequency (MHz)
30.0
25000.0
0
−10
−20
−30
−40
−50
−60
−70
−80
−90
−100
1
2

------End------