

## Appendix for 15.247

### 1. Duty Cycle

#### 1.1 Test Result

##### ANT 1:

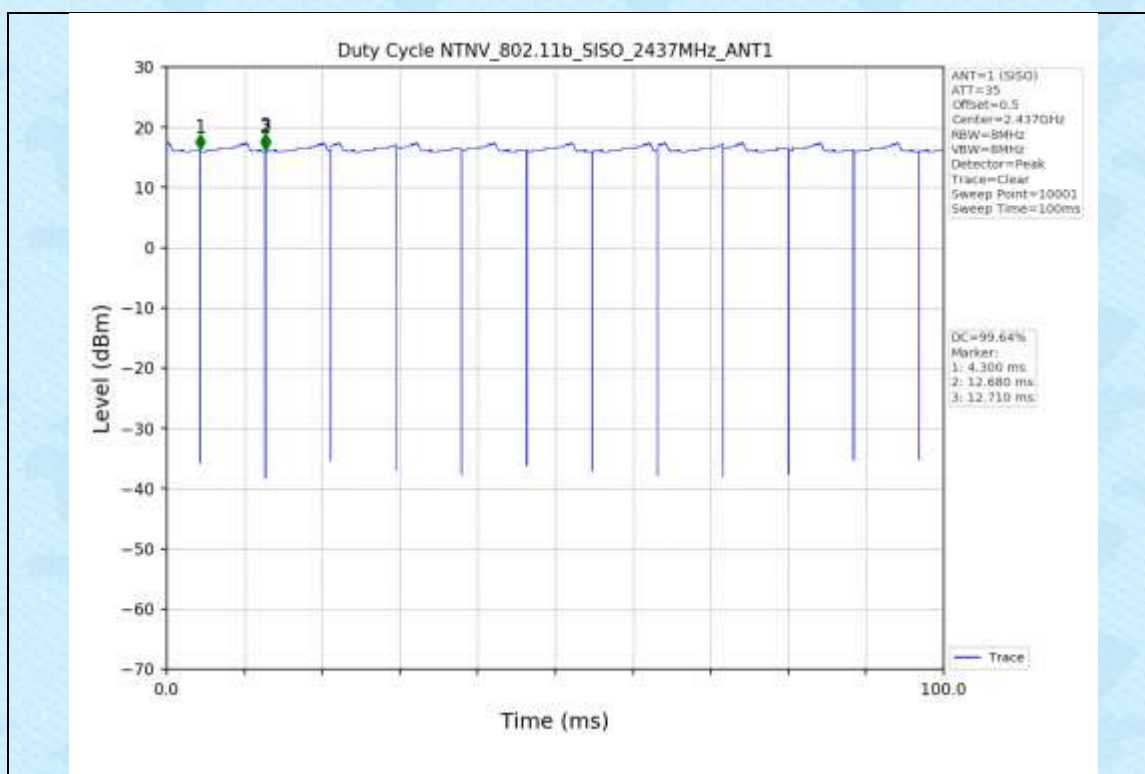
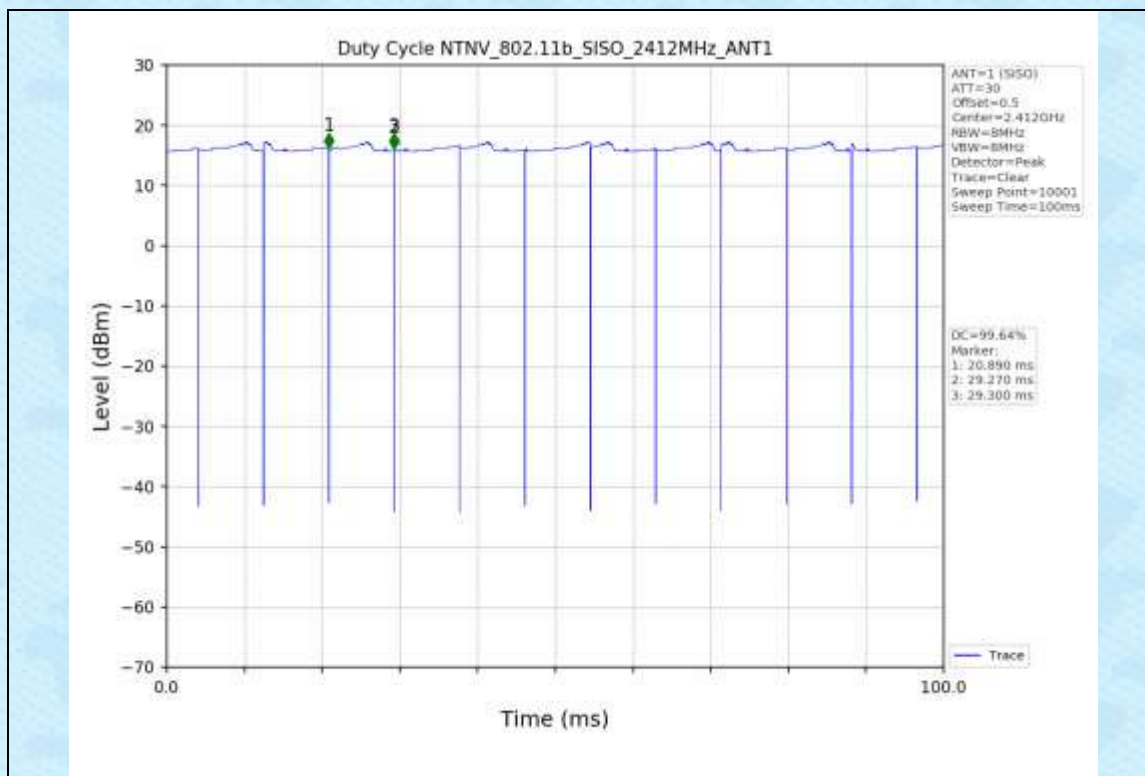
| Test Mode     | Channel Frequency(M Hz) | TX Type | ANT No. | T_on (ms) | Period (ms) | Duty Cycle (%) | Duty Cycle Correction Factor (dB) |
|---------------|-------------------------|---------|---------|-----------|-------------|----------------|-----------------------------------|
| 802.11b       | 2412                    | SISO    | 1       | 8.380     | 8.410       | 99.64          | 0.02                              |
|               | 2437                    | SISO    | 1       | 8.380     | 8.410       | 99.64          | 0.02                              |
|               | 2462                    | SISO    | 1       | 8.380     | 8.410       | 99.64          | 0.02                              |
| 802.11g       | 2412                    | SISO    | 1       | 1.360     | 1.396       | 97.42          | 0.11                              |
|               | 2437                    | SISO    | 1       | 1.360     | 1.396       | 97.42          | 0.11                              |
|               | 2462                    | SISO    | 1       | 1.360     | 1.396       | 97.42          | 0.11                              |
| 802.11n(HT20) | 2412                    | SISO    | 1       | 1.299     | 1.336       | 97.23          | 0.12                              |
|               | 2437                    | SISO    | 1       | 1.300     | 1.336       | 97.31          | 0.12                              |
|               | 2462                    | SISO    | 1       | 1.300     | 1.336       | 97.31          | 0.12                              |
| 802.11n(HT40) | 2422                    | SISO    | 1       | 0.618     | 0.651       | 94.93          | 0.23                              |
|               | 2437                    | SISO    | 1       | 0.618     | 0.652       | 94.79          | 0.23                              |
|               | 2452                    | SISO    | 1       | 0.618     | 0.652       | 94.79          | 0.23                              |

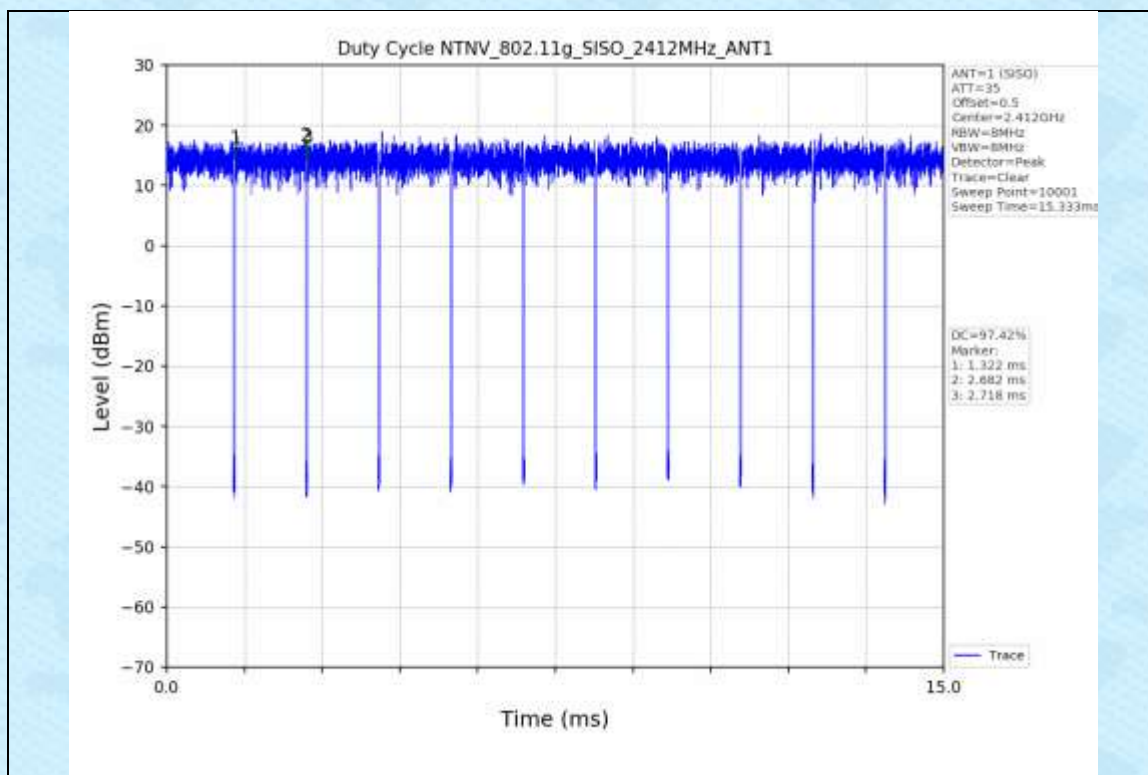
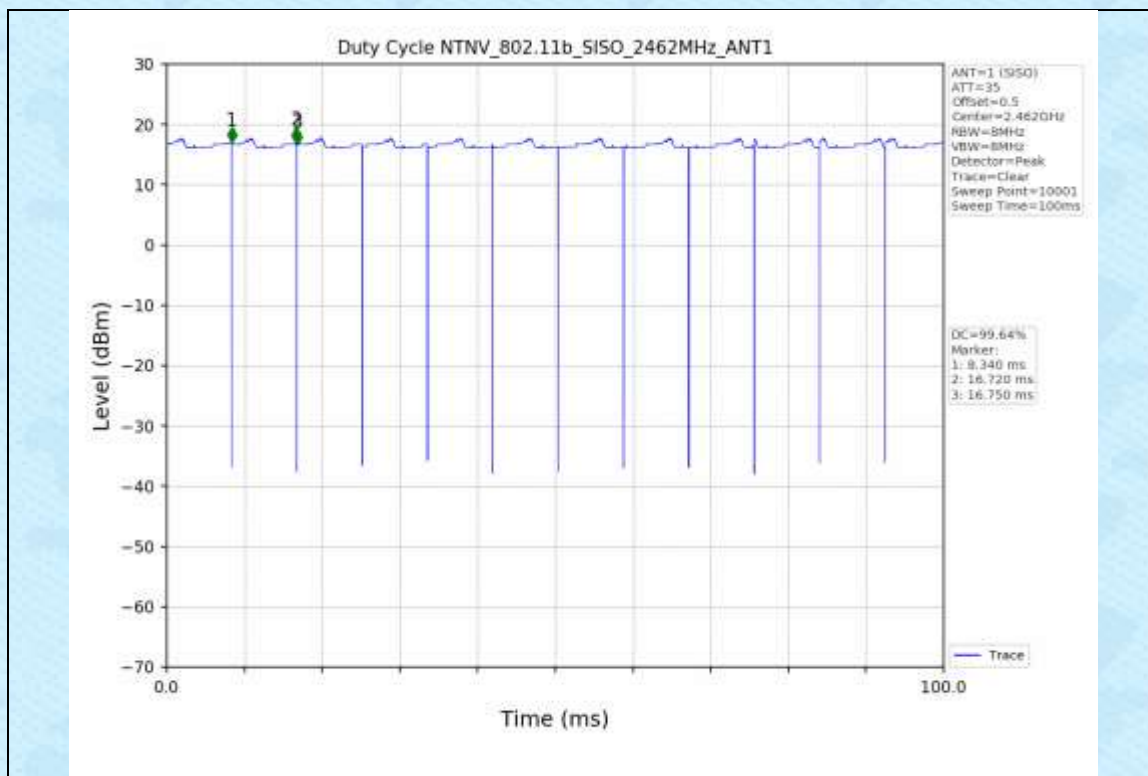
##### ANT 2:

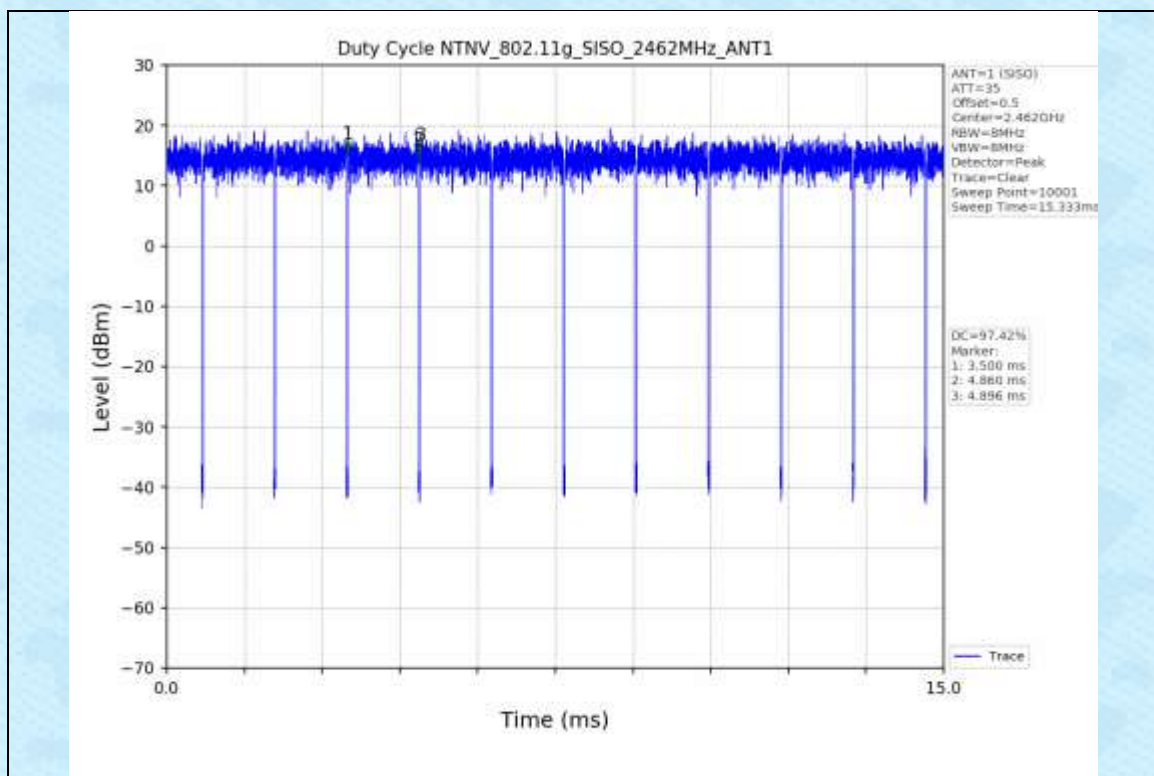
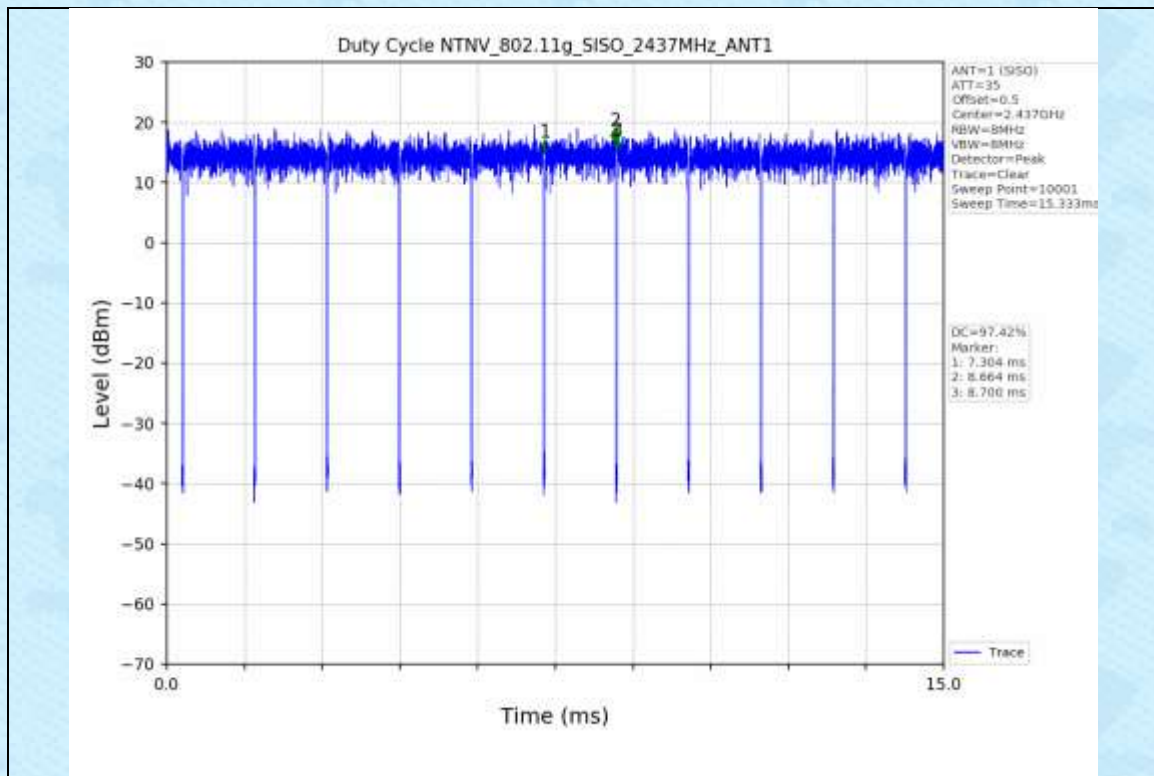
| Test Mode     | Channel Frequency(M Hz) | TX Type | ANT No. | T_on (ms) | Period (ms) | Duty Cycle (%) | Duty Cycle Correction Factor (dB) |
|---------------|-------------------------|---------|---------|-----------|-------------|----------------|-----------------------------------|
| 802.11b       | 2412                    | SISO    | 1       | 8.380     | 8.410       | 99.64          | 0.02                              |
|               | 2437                    | SISO    | 1       | 8.380     | 8.410       | 99.64          | 0.02                              |
|               | 2462                    | SISO    | 1       | 8.380     | 8.410       | 99.64          | 0.02                              |
| 802.11g       | 2412                    | SISO    | 1       | 1.361     | 1.397       | 97.42          | 0.11                              |
|               | 2437                    | SISO    | 1       | 1.360     | 1.396       | 97.42          | 0.11                              |
|               | 2462                    | SISO    | 1       | 1.360     | 1.396       | 97.42          | 0.11                              |
| 802.11n(HT20) | 2412                    | SISO    | 1       | 1.300     | 1.336       | 97.31          | 0.12                              |
|               | 2437                    | SISO    | 1       | 1.300     | 1.336       | 97.31          | 0.12                              |
|               | 2462                    | SISO    | 1       | 1.299     | 1.336       | 97.23          | 0.12                              |
| 802.11n(HT40) | 2422                    | SISO    | 1       | 0.618     | 0.651       | 94.93          | 0.23                              |
|               | 2437                    | SISO    | 1       | 0.618     | 0.652       | 94.79          | 0.23                              |
|               | 2452                    | SISO    | 1       | 0.618     | 0.652       | 94.79          | 0.23                              |

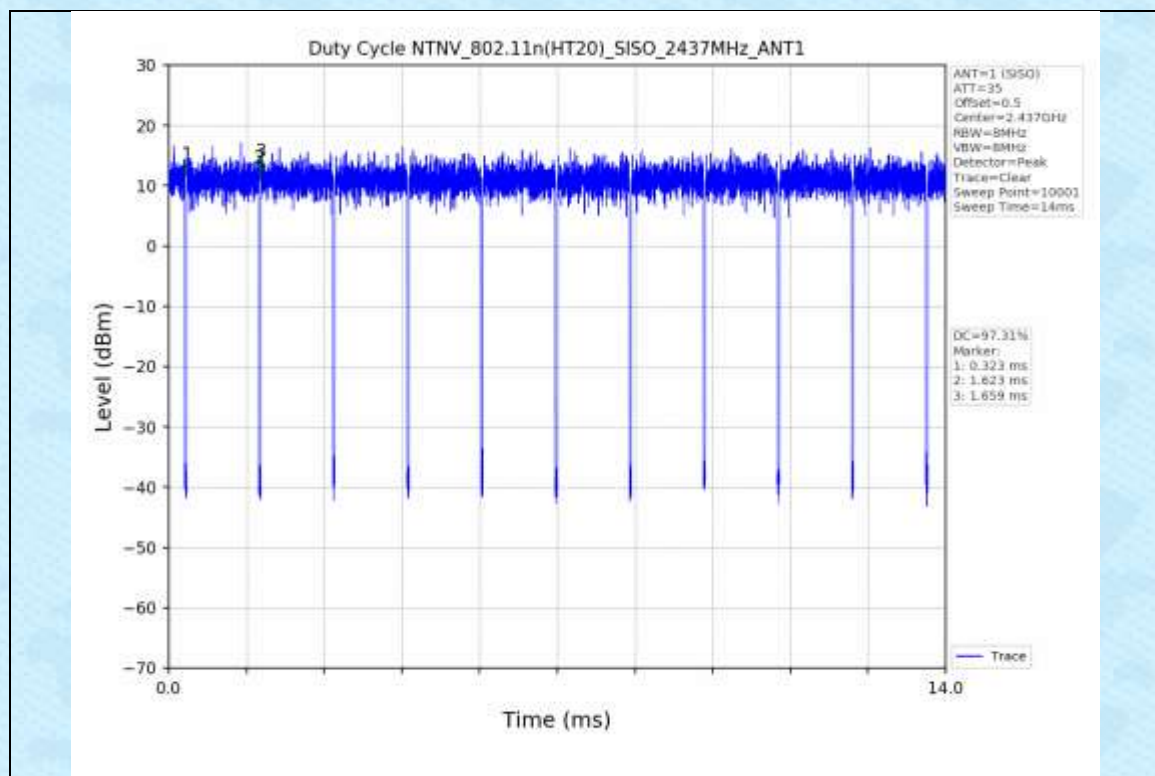
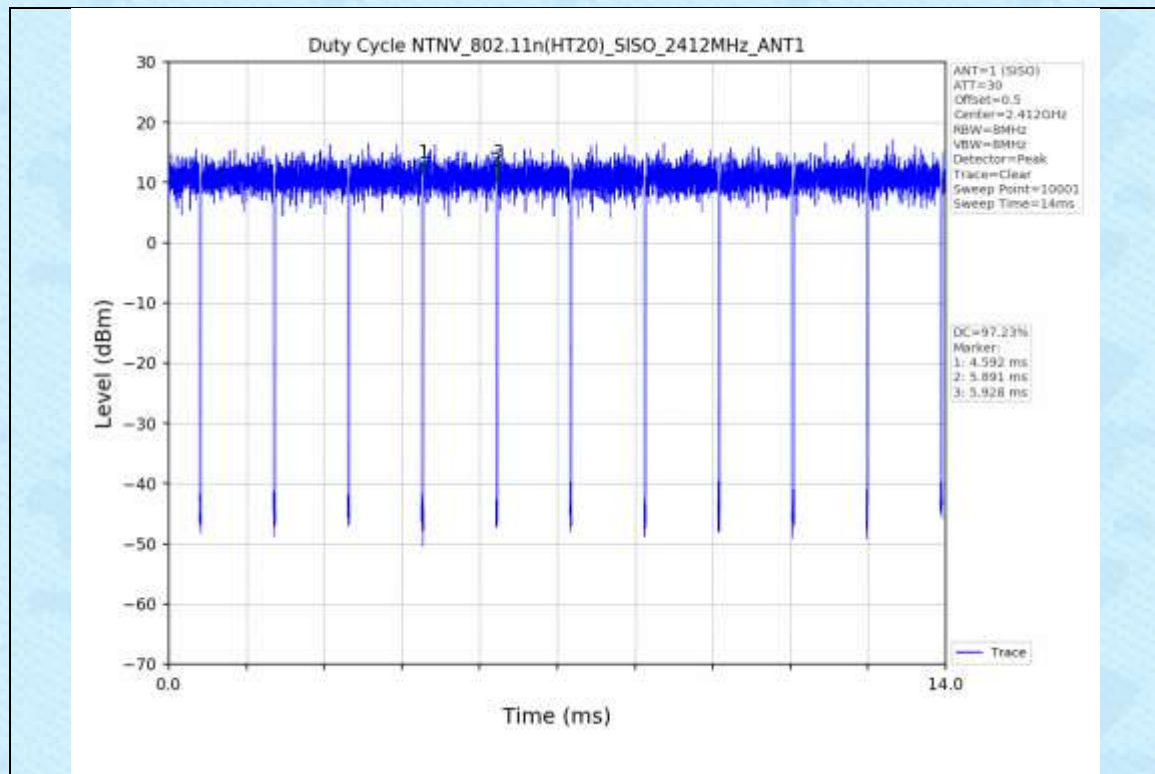
## 1.2 Test Graph

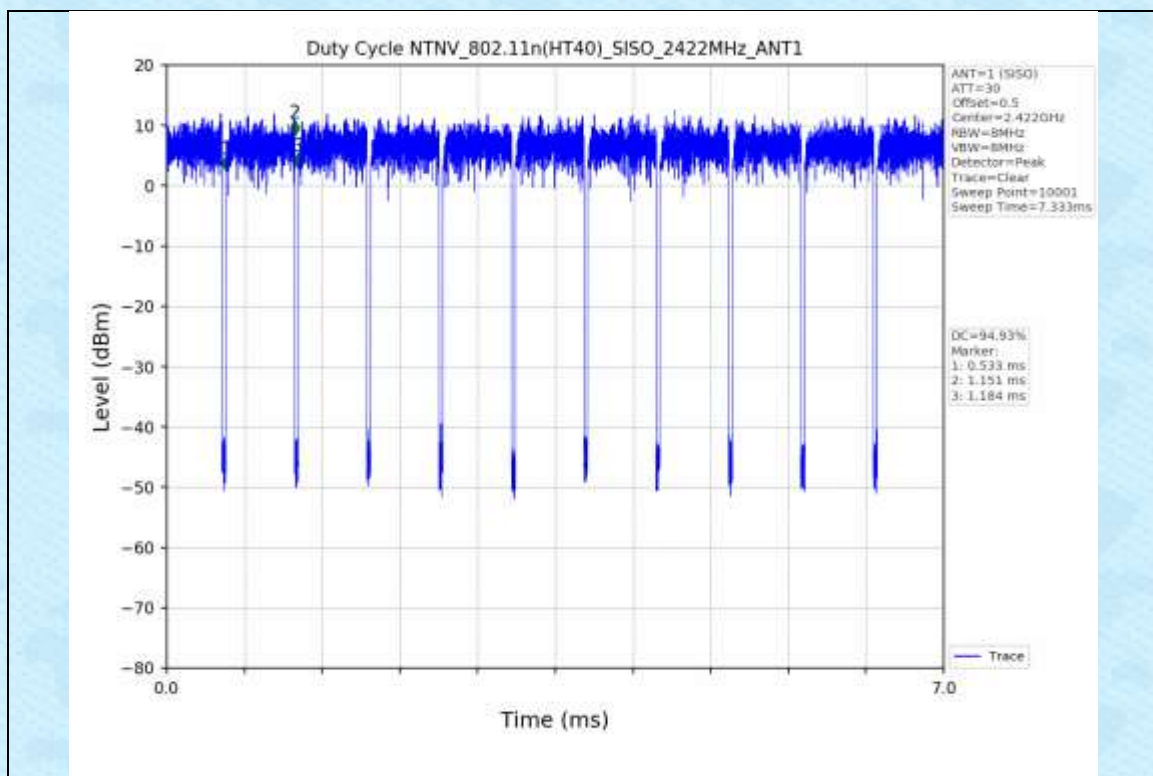
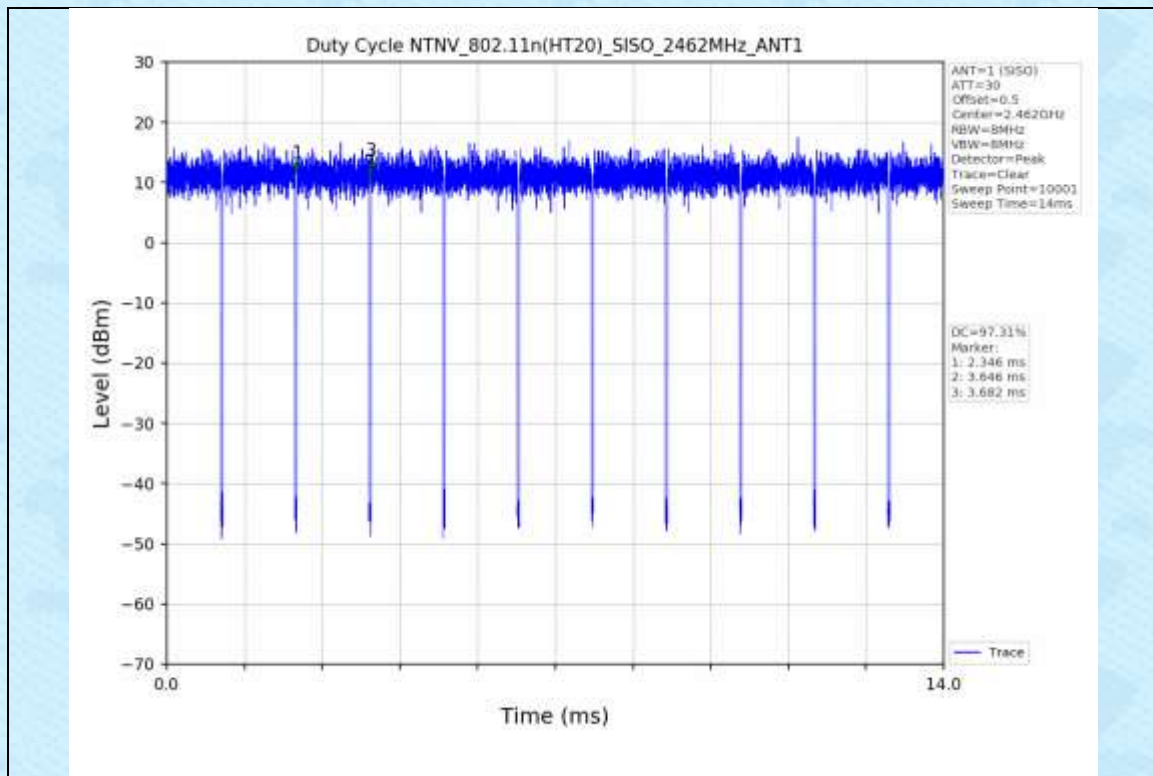
ANT 1:

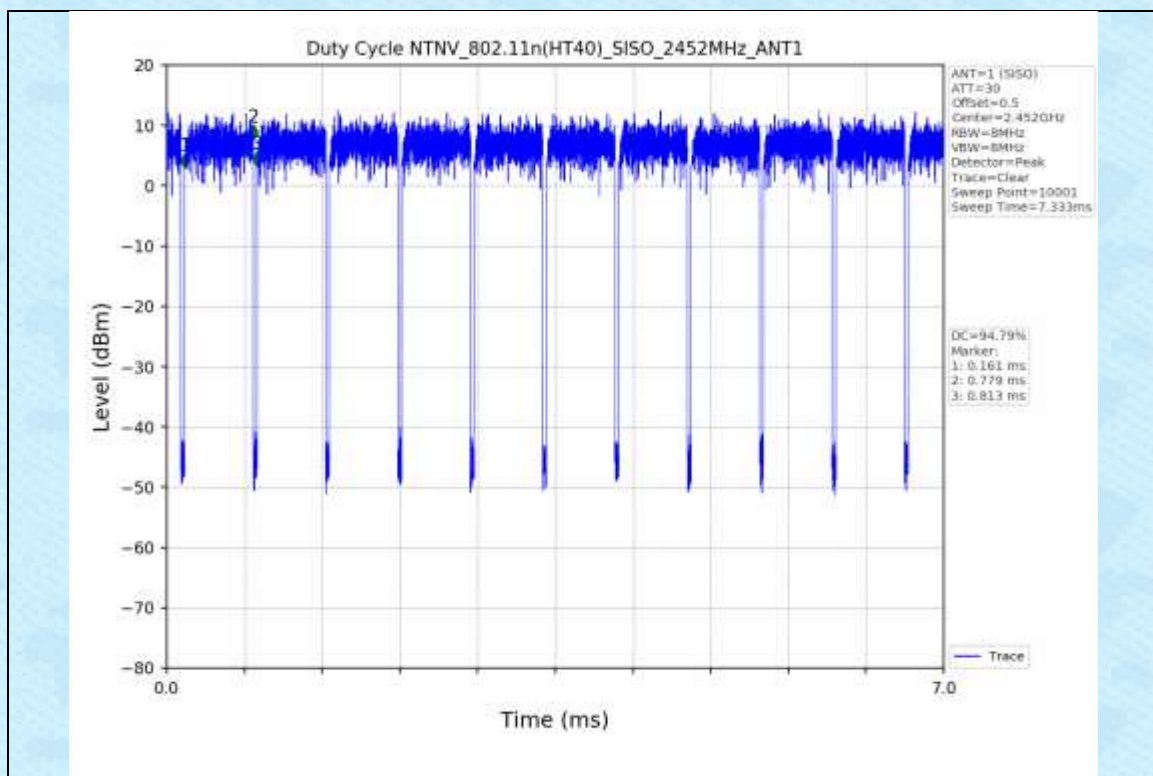
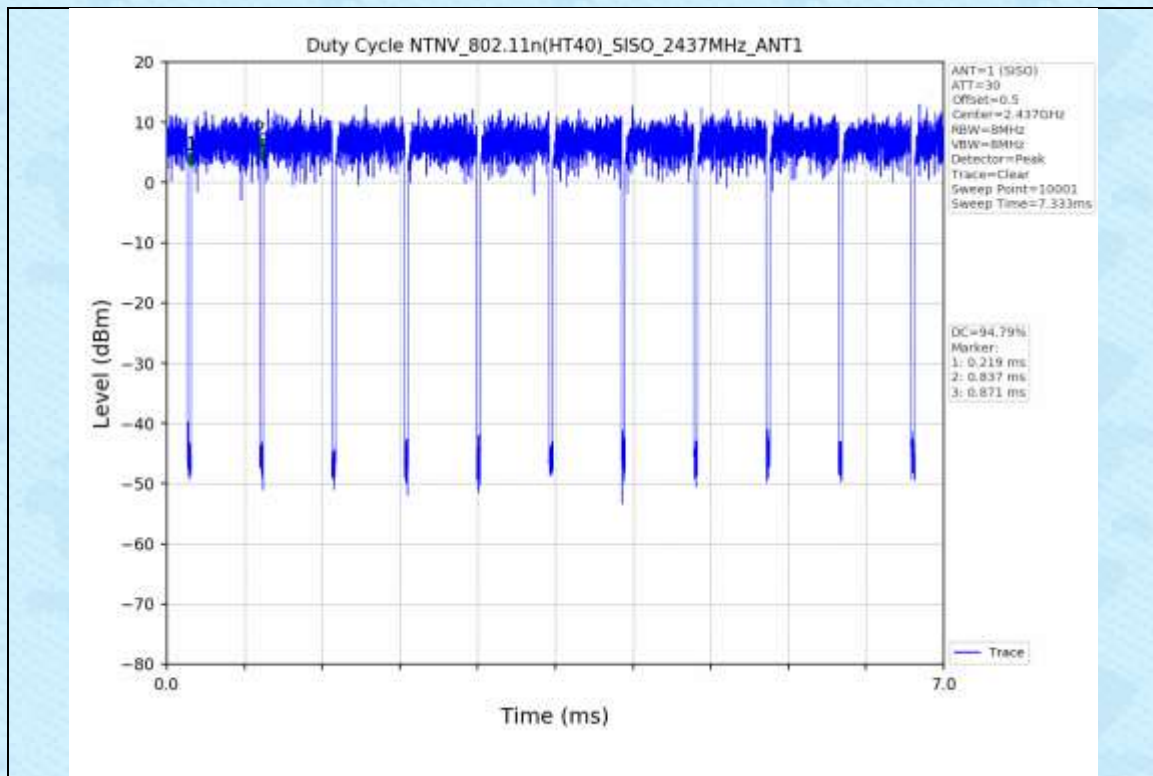




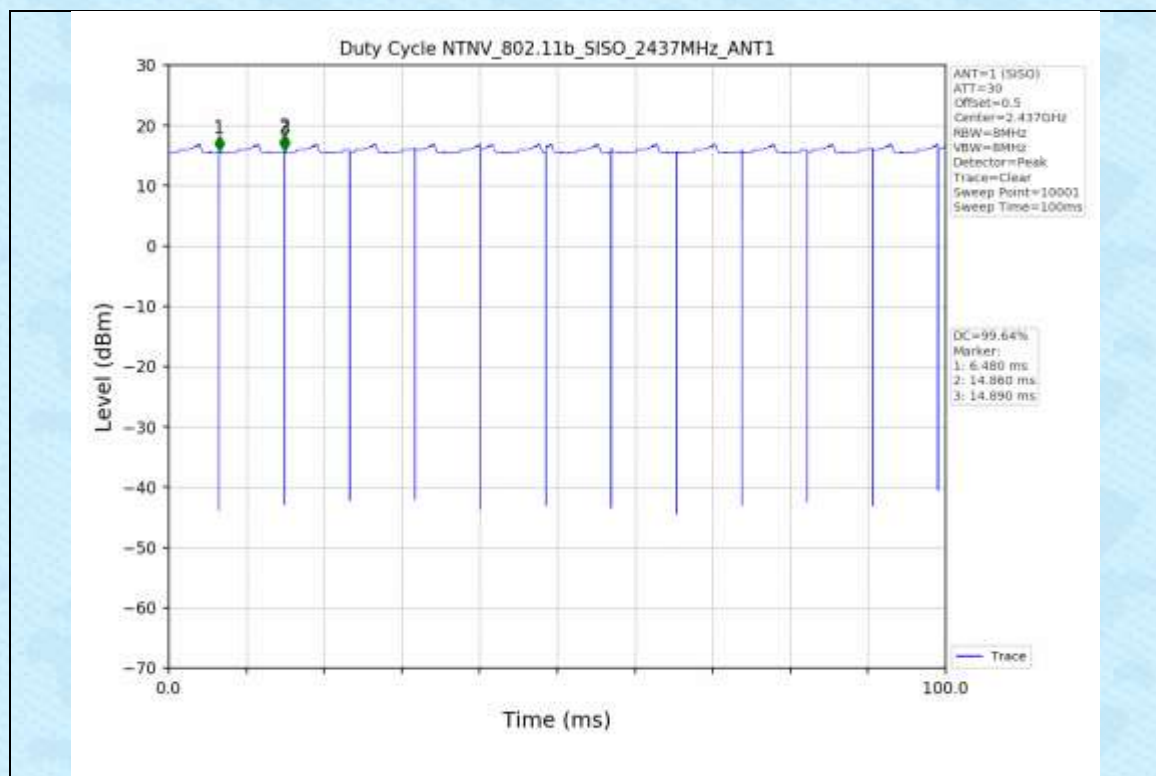
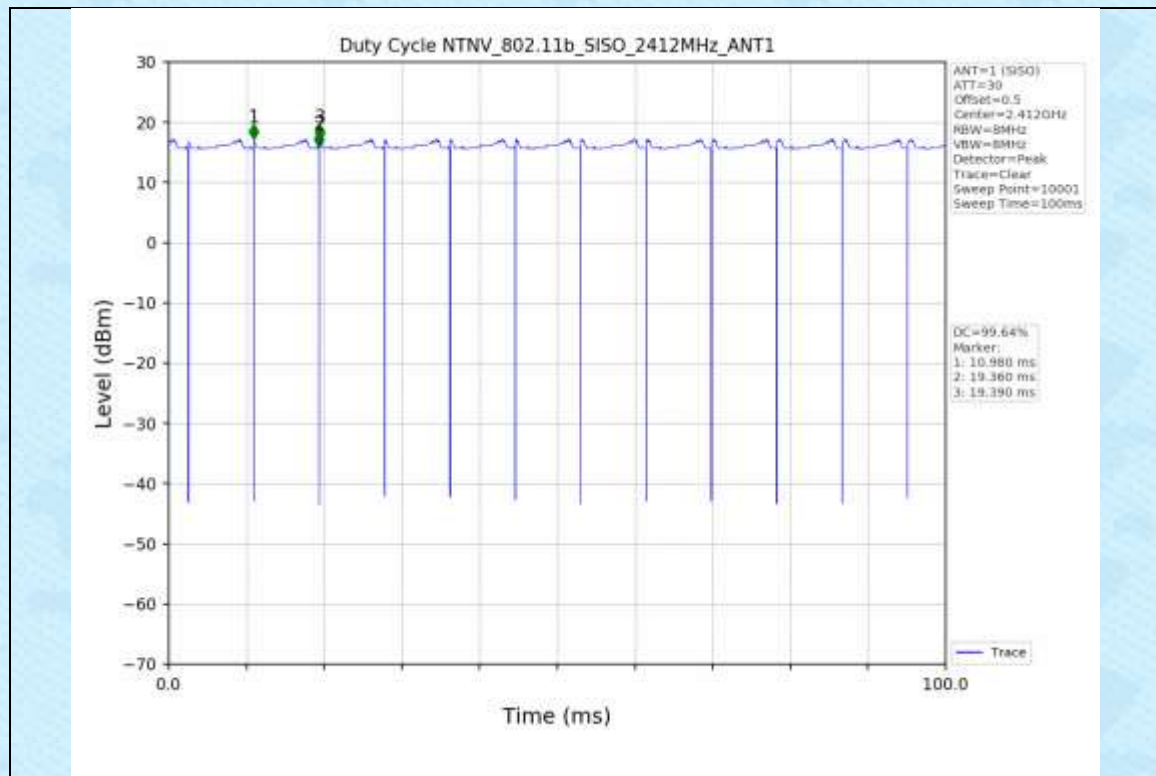


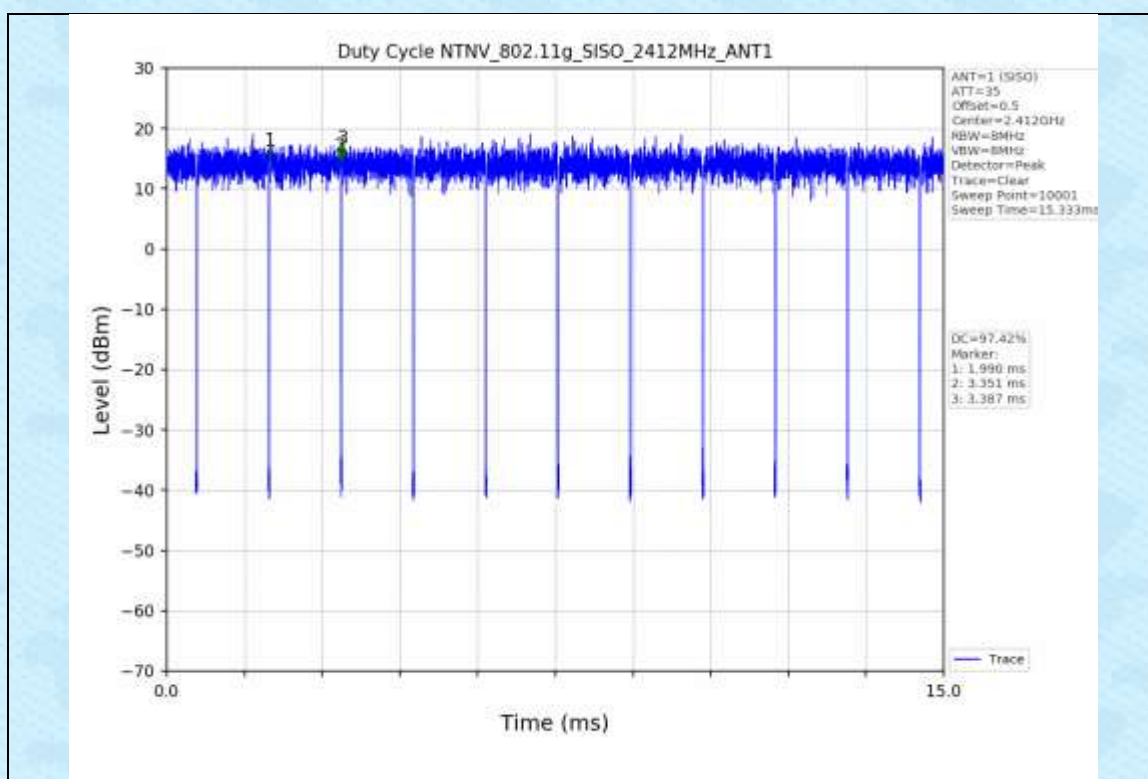
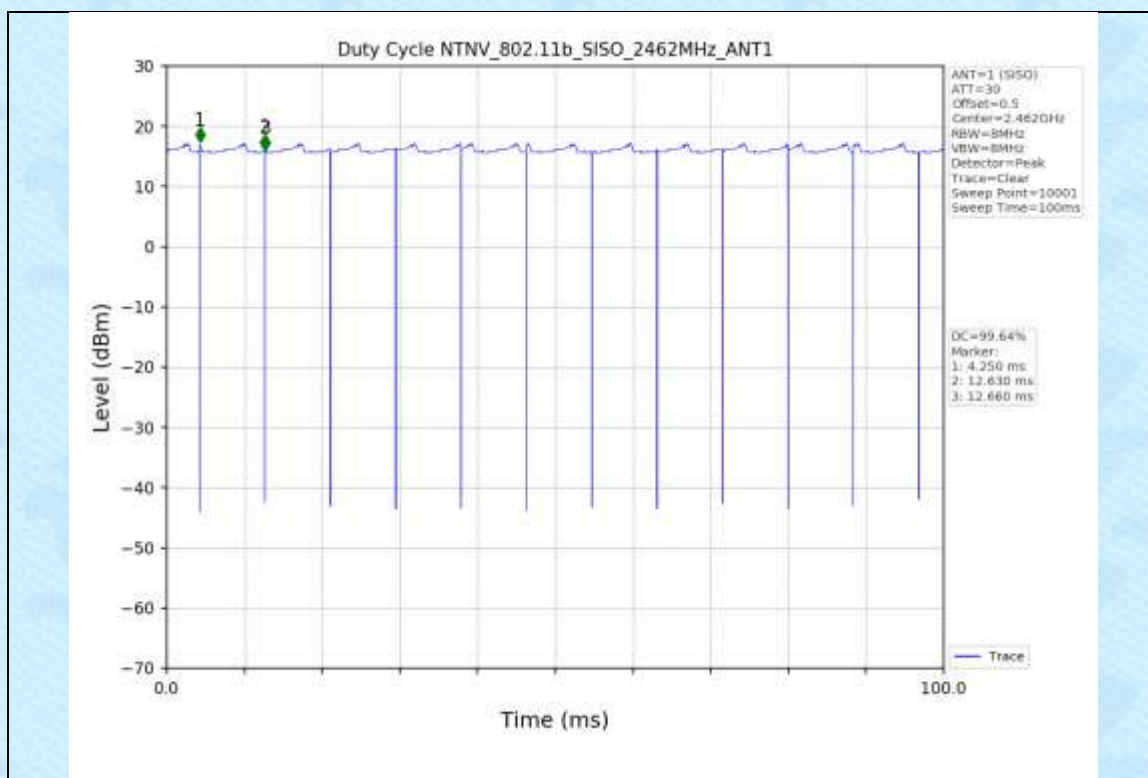


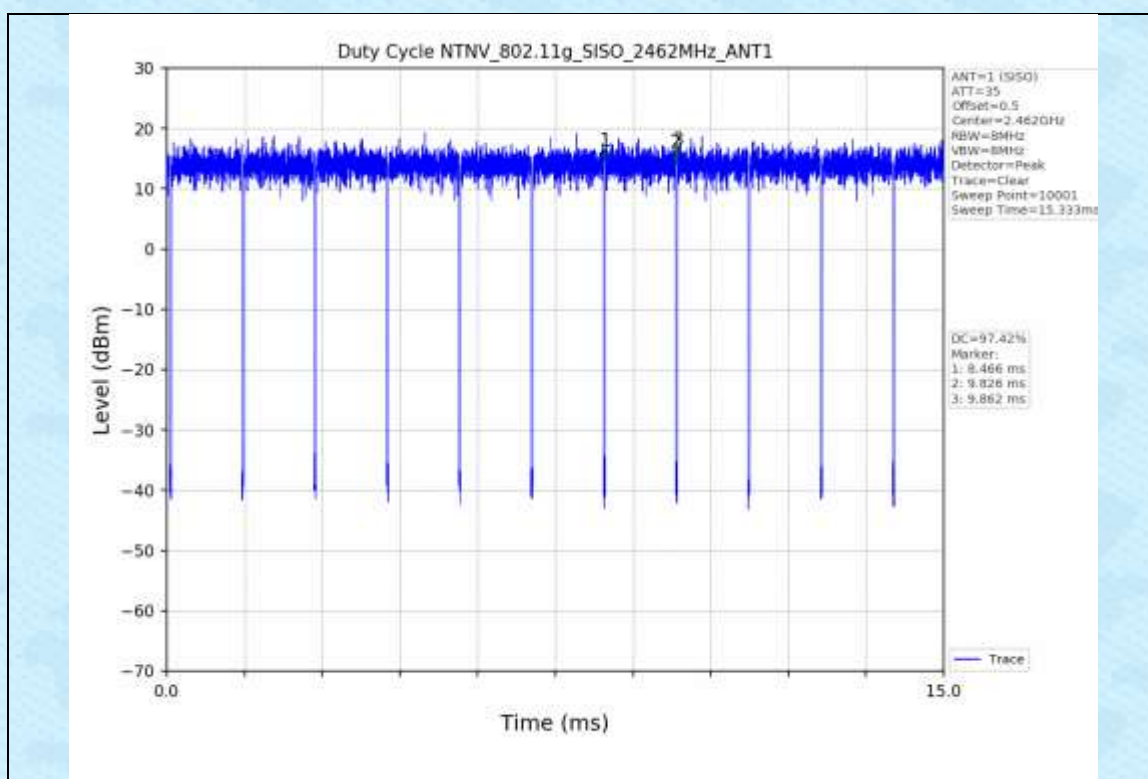
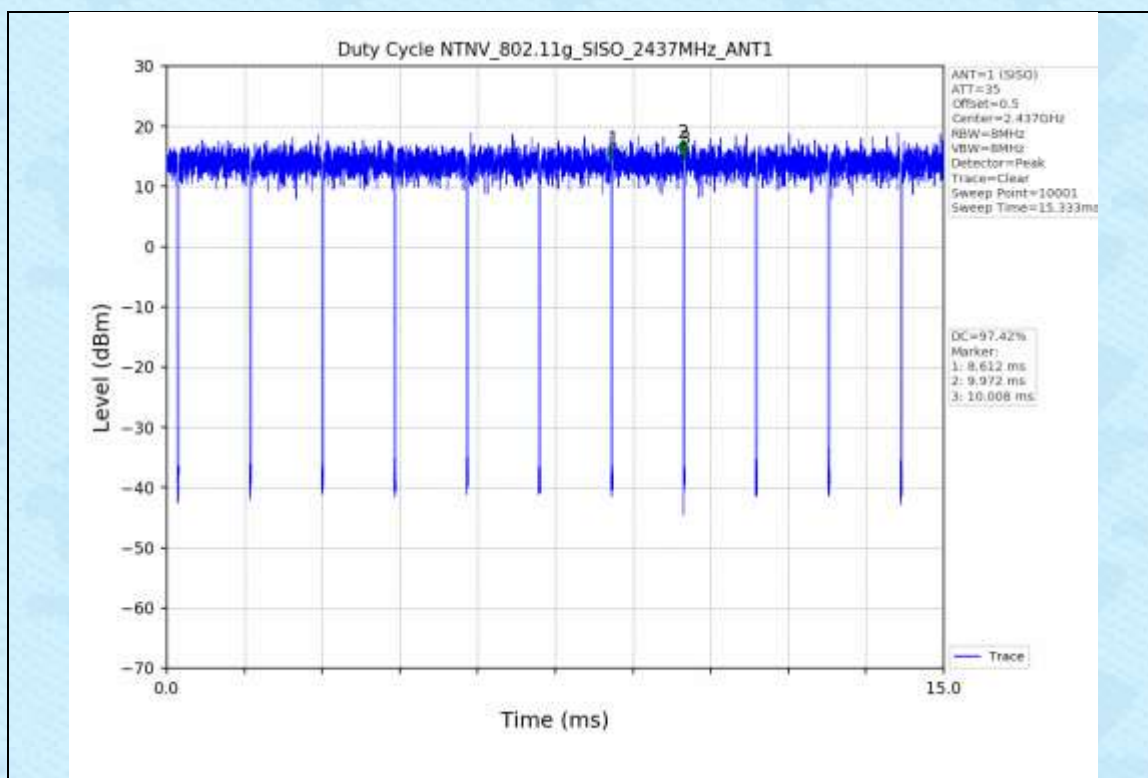


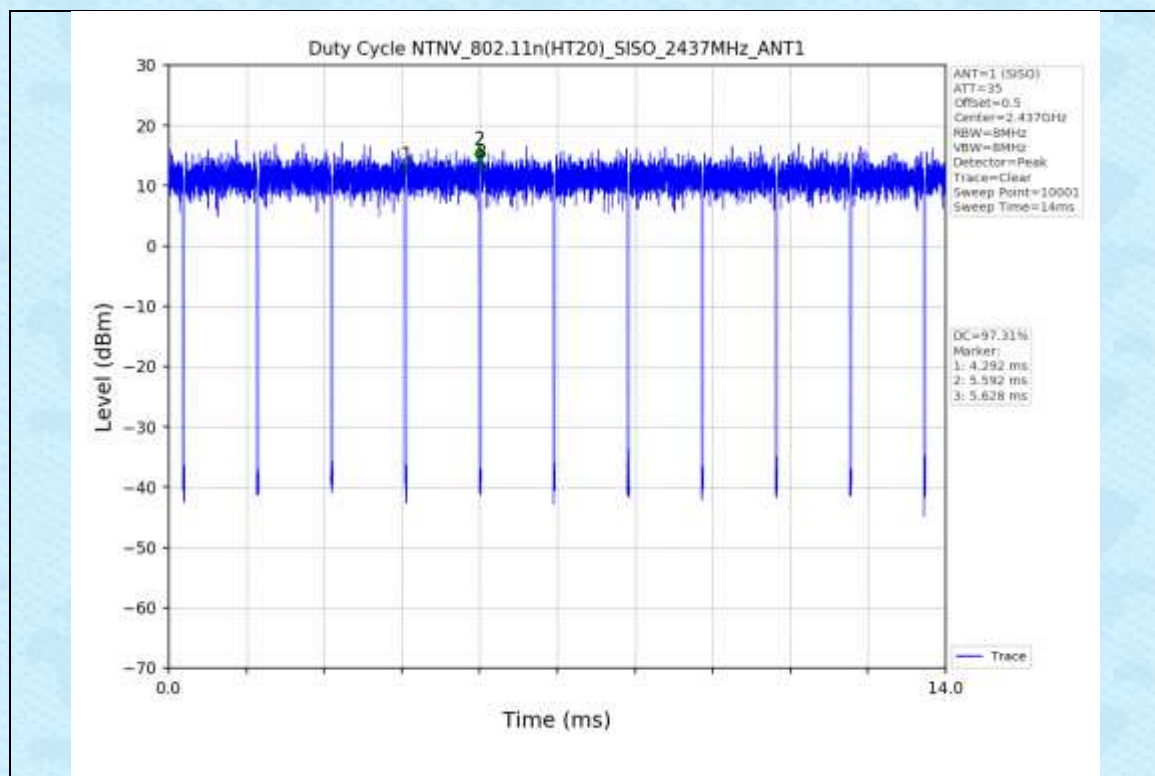
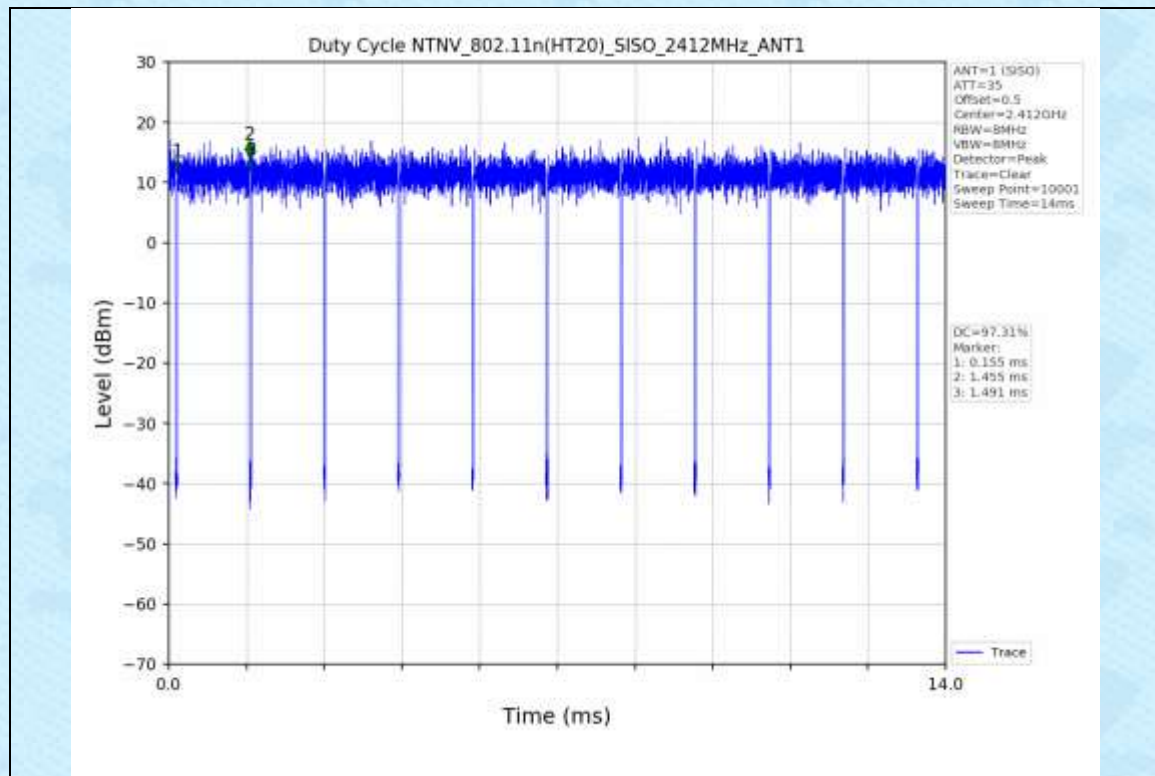


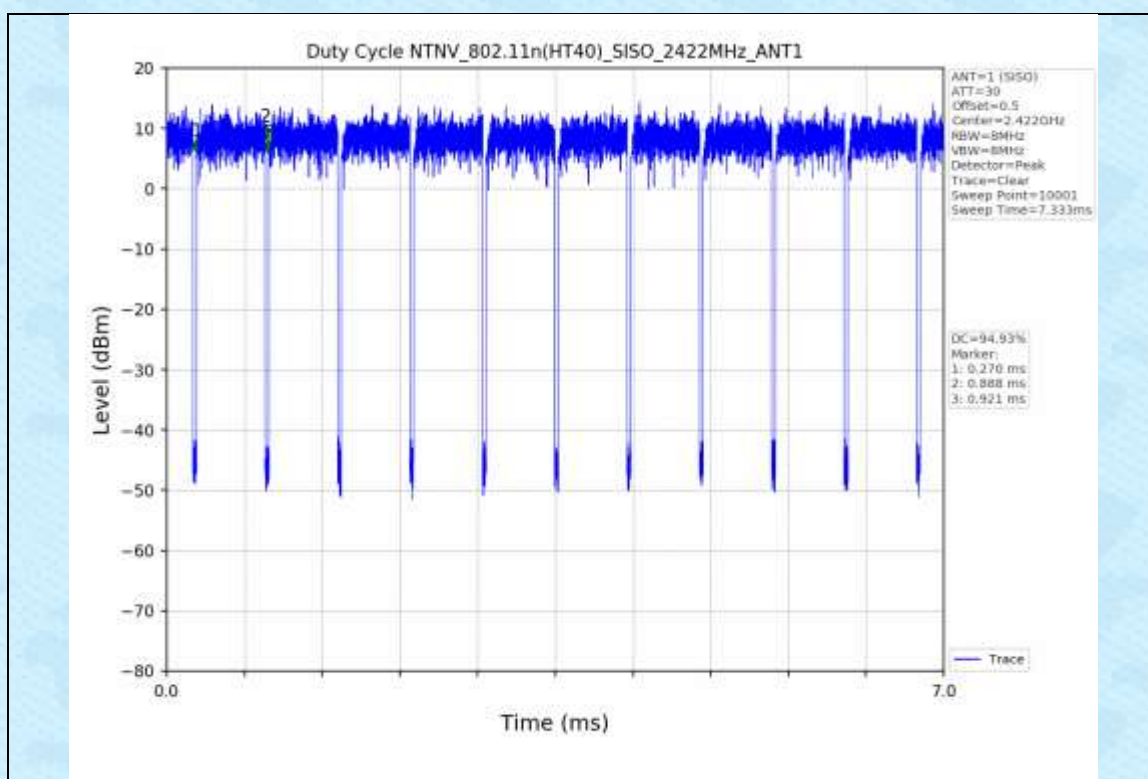
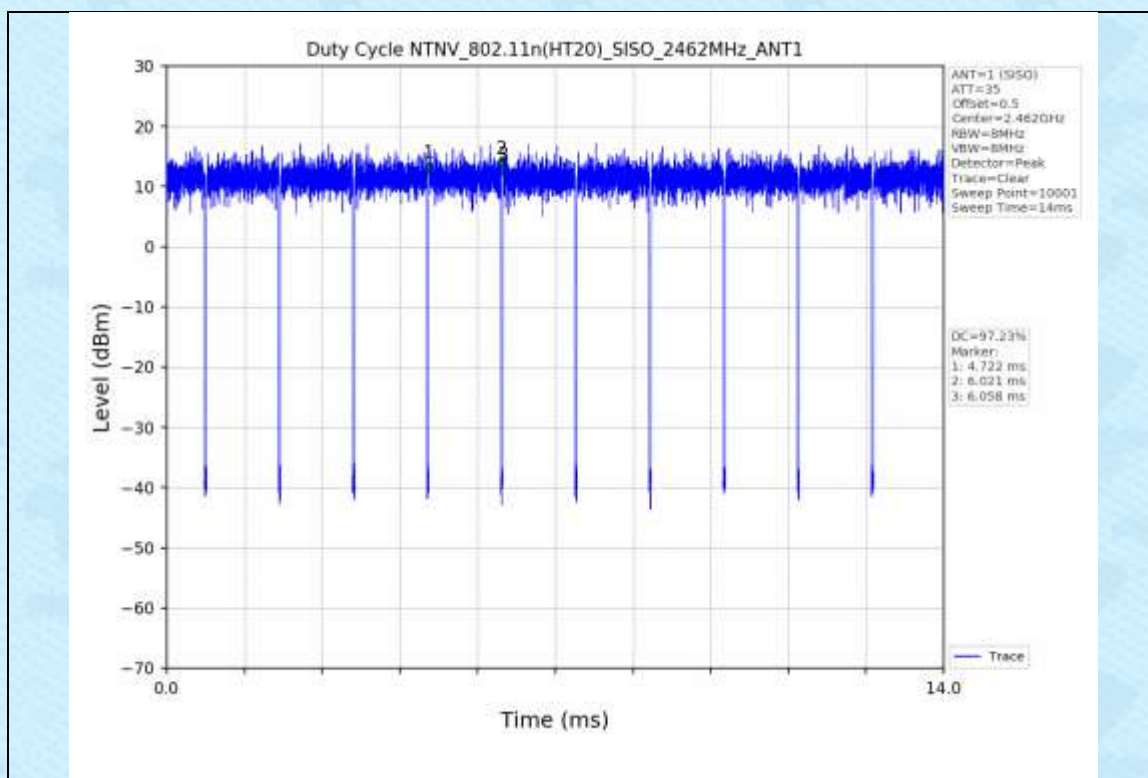
## ANT 2:

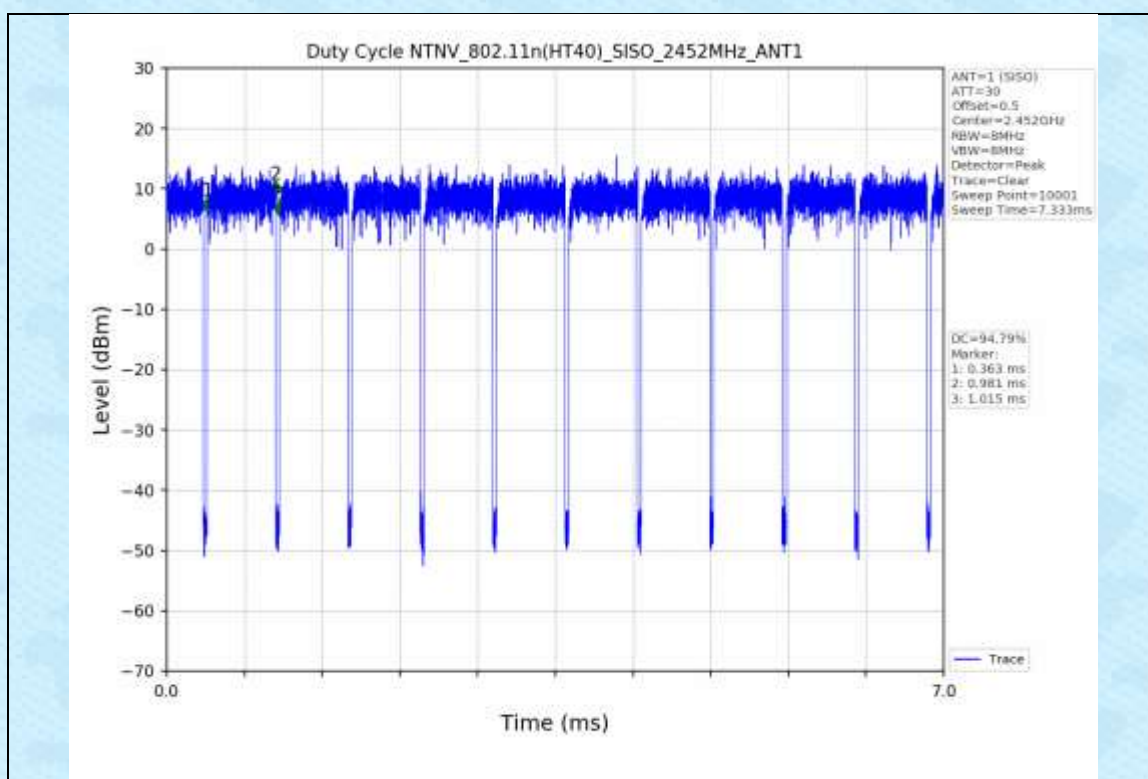
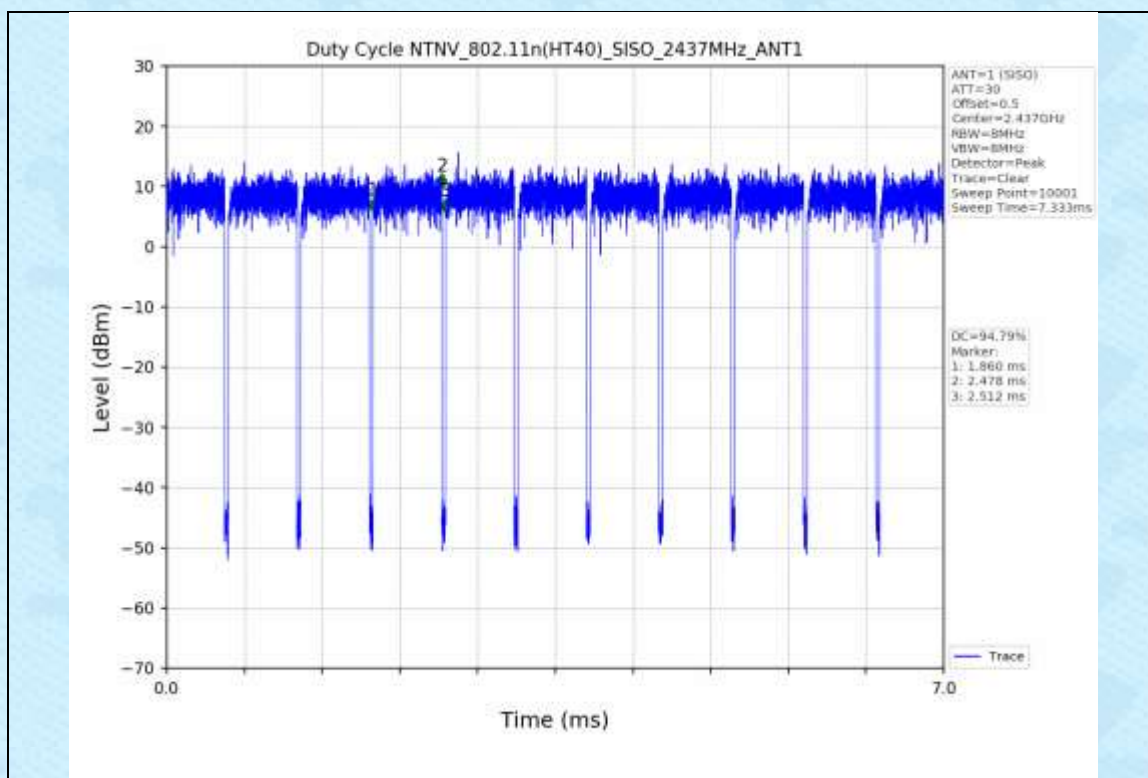












## 2. Bandwidth

### 2.1 Test Result

#### ANT 1:

| Test Mode     | Frequency (MHz) | TX Type | ANT No. | 6dB Bandwidth     |              | Verdict |
|---------------|-----------------|---------|---------|-------------------|--------------|---------|
|               |                 |         |         | Test Result (MHz) | Limits (MHz) |         |
| 802.11b       | 2412            | SISO    | 1       | 9.095             | ≥0.5         | PASS    |
|               | 2437            | SISO    | 1       | 9.085             | ≥0.5         | PASS    |
|               | 2462            | SISO    | 1       | 9.096             | ≥0.5         | PASS    |
| 802.11g       | 2412            | SISO    | 1       | 15.150            | ≥0.5         | PASS    |
|               | 2437            | SISO    | 1       | 15.143            | ≥0.5         | PASS    |
|               | 2462            | SISO    | 1       | 15.152            | ≥0.5         | PASS    |
| 802.11n(HT20) | 2412            | SISO    | 1       | 16.303            | ≥0.5         | PASS    |
|               | 2437            | SISO    | 1       | 16.304            | ≥0.5         | PASS    |
|               | 2462            | SISO    | 1       | 16.306            | ≥0.5         | PASS    |
| 802.11n(HT40) | 2422            | SISO    | 1       | 35.233            | ≥0.5         | PASS    |
|               | 2437            | SISO    | 1       | 35.213            | ≥0.5         | PASS    |
|               | 2452            | SISO    | 1       | 35.208            | ≥0.5         | PASS    |

| Test Mode     | Frequency (MHz) | TX Type | ANT No. | 99% Occupied Bandwidth |                     |
|---------------|-----------------|---------|---------|------------------------|---------------------|
|               |                 |         |         | Test Result (MHz)      |                     |
| 802.11b       | 2412            | SISO    | 1       | 13.361                 | Only for Report Use |
|               | 2437            | SISO    | 1       | 13.358                 | Only for Report Use |
|               | 2462            | SISO    | 1       | 13.366                 | Only for Report Use |
| 802.11g       | 2412            | SISO    | 1       | 16.465                 | Only for Report Use |
|               | 2437            | SISO    | 1       | 16.468                 | Only for Report Use |
|               | 2462            | SISO    | 1       | 16.464                 | Only for Report Use |
| 802.11n(HT20) | 2412            | SISO    | 1       | 17.510                 | Only for Report Use |
|               | 2437            | SISO    | 1       | 17.503                 | Only for Report Use |
|               | 2462            | SISO    | 1       | 17.496                 | Only for Report Use |
| 802.11n(HT40) | 2422            | SISO    | 1       | 36.624                 | Only for Report Use |
|               | 2437            | SISO    | 1       | 36.591                 | Only for Report Use |
|               | 2452            | SISO    | 1       | 36.497                 | Only for Report Use |

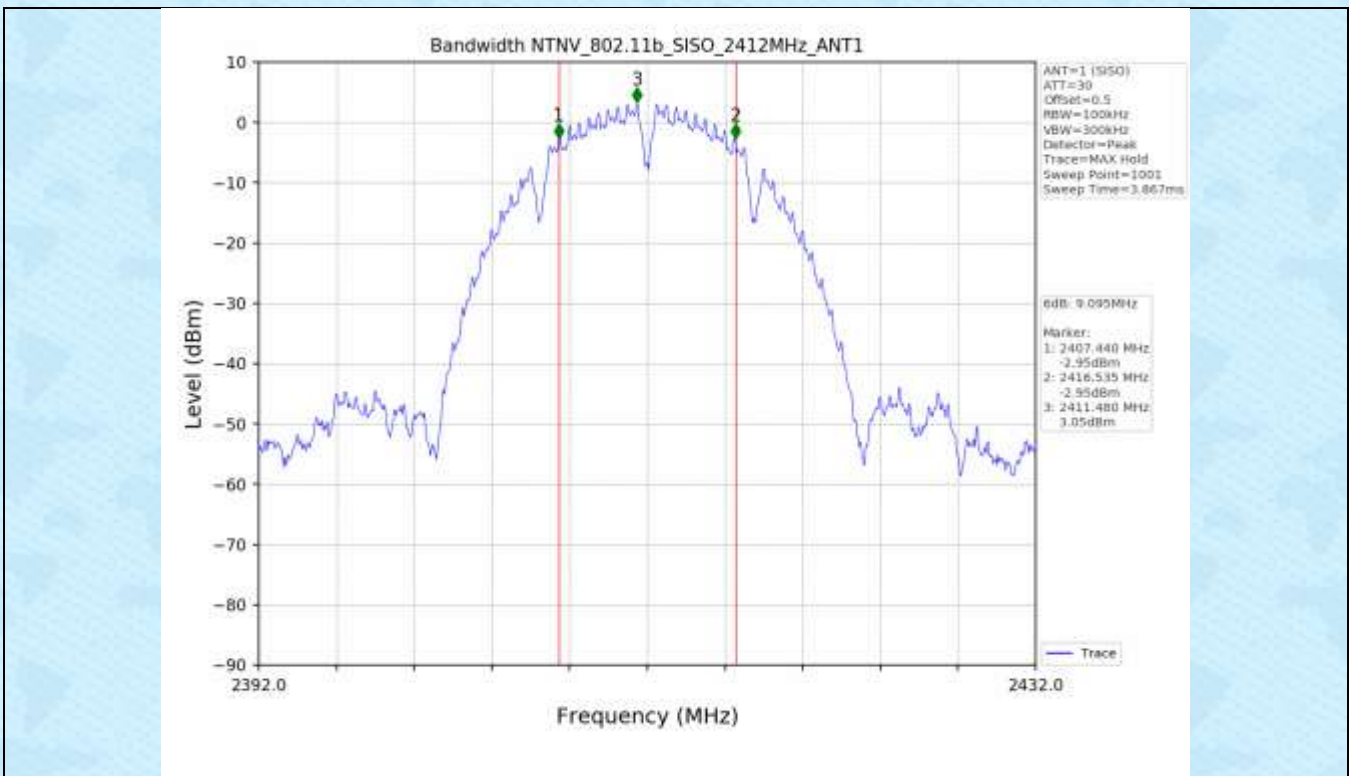
#### ANT 2:

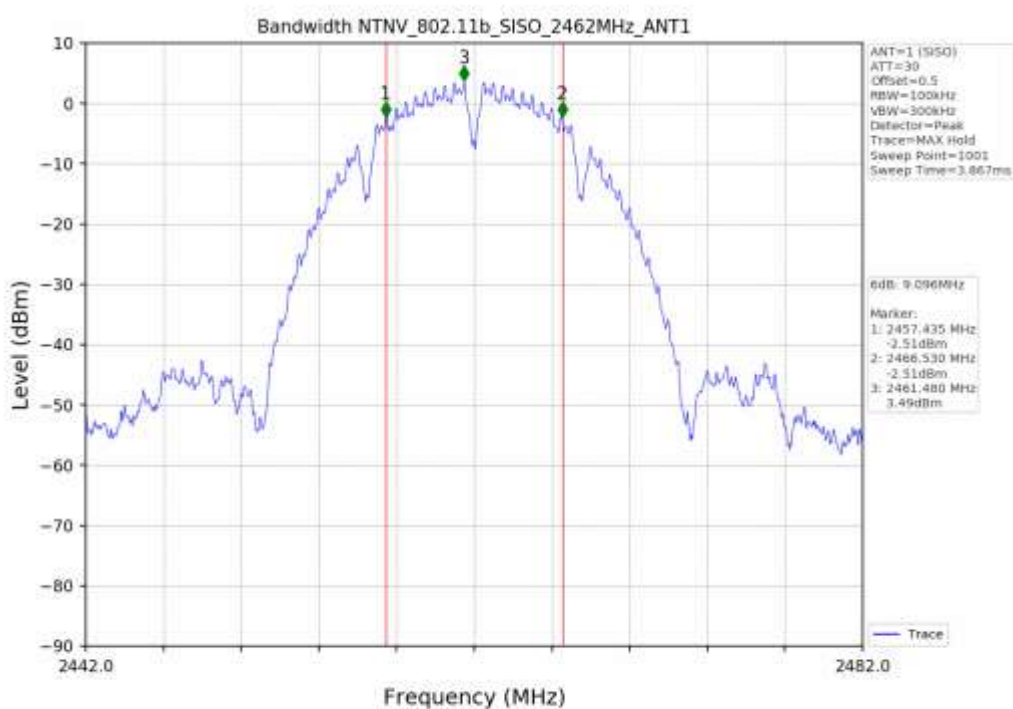
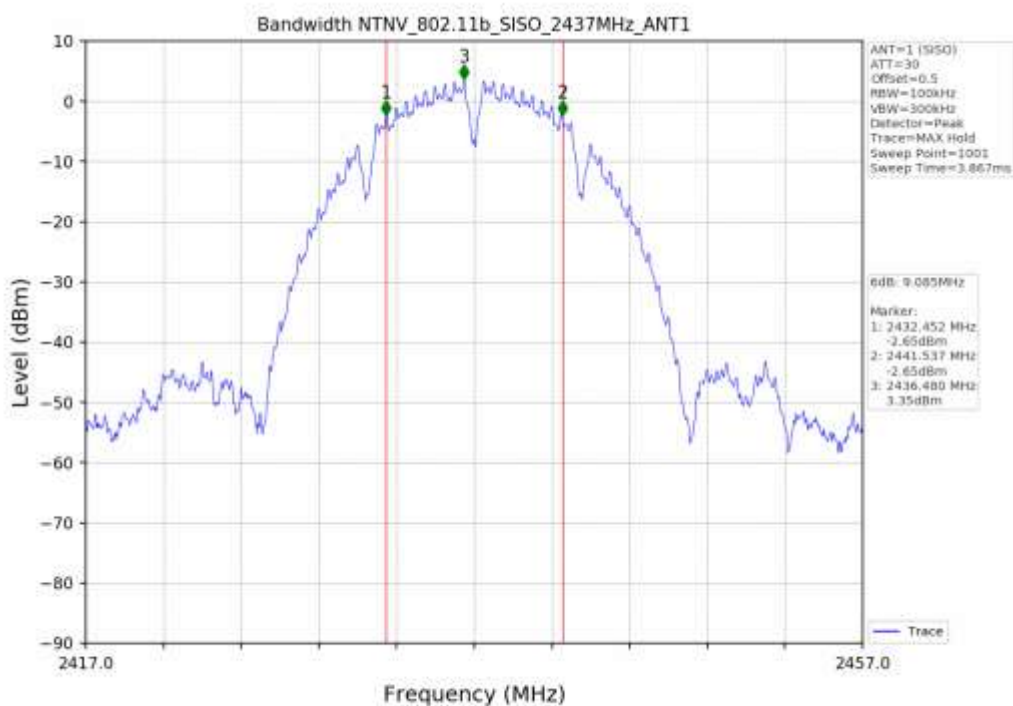
| Test Mode     | Frequency (MHz) | TX Type | ANT No. | 6dB Bandwidth     |              | Verdict |
|---------------|-----------------|---------|---------|-------------------|--------------|---------|
|               |                 |         |         | Test Result (MHz) | Limits (MHz) |         |
| 802.11b       | 2412            | SISO    | 1       | 9.086             | ≥0.5         | PASS    |
|               | 2437            | SISO    | 1       | 9.078             | ≥0.5         | PASS    |
|               | 2462            | SISO    | 1       | 9.092             | ≥0.5         | PASS    |
| 802.11g       | 2412            | SISO    | 1       | 15.149            | ≥0.5         | PASS    |
|               | 2437            | SISO    | 1       | 15.140            | ≥0.5         | PASS    |
|               | 2462            | SISO    | 1       | 15.157            | ≥0.5         | PASS    |
| 802.11n(HT20) | 2412            | SISO    | 1       | 15.141            | ≥0.5         | PASS    |
|               | 2437            | SISO    | 1       | 15.151            | ≥0.5         | PASS    |
|               | 2462            | SISO    | 1       | 15.147            | ≥0.5         | PASS    |
| 802.11n(HT40) | 2422            | SISO    | 1       | 35.203            | ≥0.5         | PASS    |
|               | 2437            | SISO    | 1       | 35.221            | ≥0.5         | PASS    |
|               | 2452            | SISO    | 1       | 35.200            | ≥0.5         | PASS    |

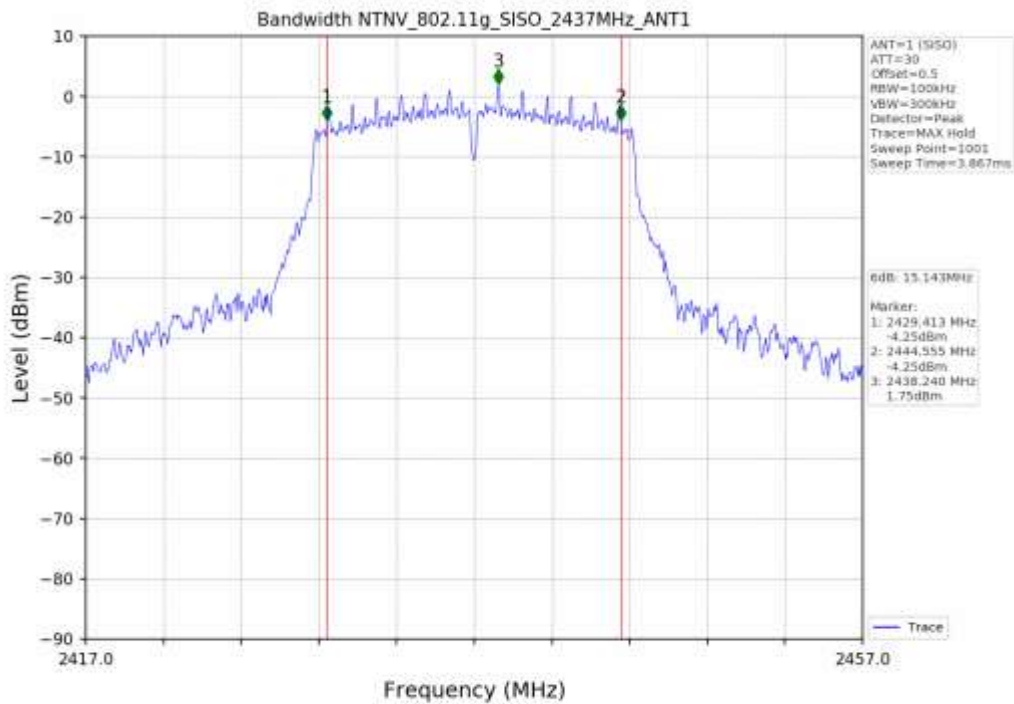
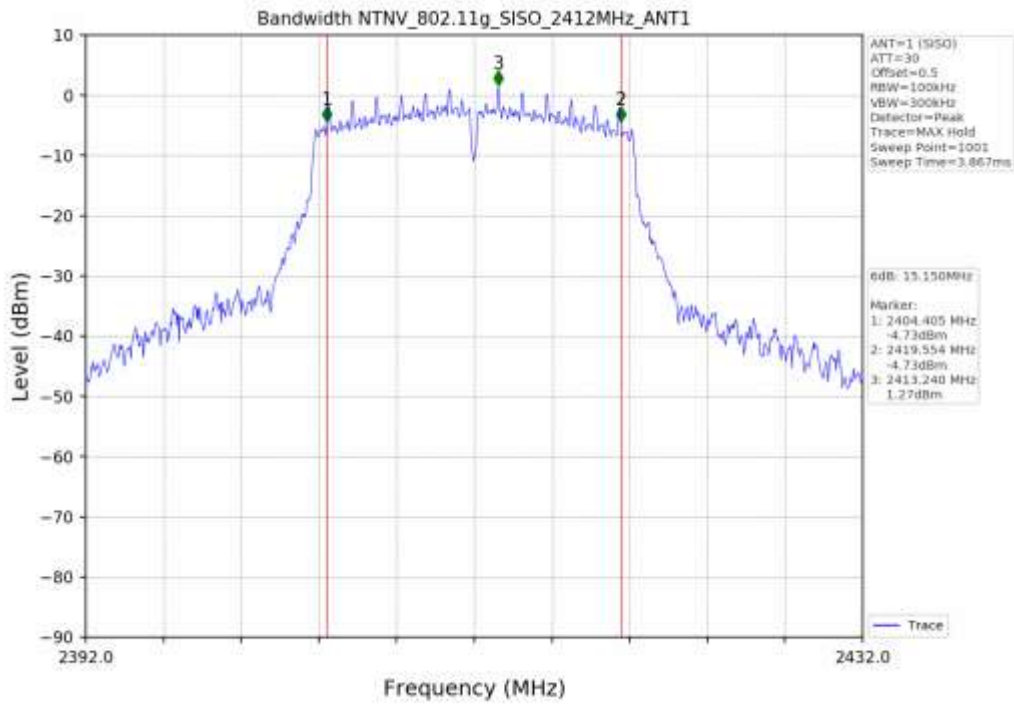
| Test Mode     | Frequency (MHz) | TX Type | ANT No. | 99% Occupied Bandwidth |                     |
|---------------|-----------------|---------|---------|------------------------|---------------------|
|               |                 |         |         | Test Result (MHz)      |                     |
| 802.11b       | 2412            | SISO    | 1       | 13.360                 | Only for Report Use |
|               | 2437            | SISO    | 1       | 13.403                 | Only for Report Use |
|               | 2462            | SISO    | 1       | 13.369                 | Only for Report Use |
| 802.11g       | 2412            | SISO    | 1       | 16.772                 | Only for Report Use |
|               | 2437            | SISO    | 1       | 16.766                 | Only for Report Use |
|               | 2462            | SISO    | 1       | 16.793                 | Only for Report Use |
| 802.11n(HT20) | 2412            | SISO    | 1       | 17.651                 | Only for Report Use |
|               | 2437            | SISO    | 1       | 17.678                 | Only for Report Use |
|               | 2462            | SISO    | 1       | 17.666                 | Only for Report Use |
| 802.11n(HT40) | 2422            | SISO    | 1       | 36.515                 | Only for Report Use |
|               | 2437            | SISO    | 1       | 36.490                 | Only for Report Use |
|               | 2452            | SISO    | 1       | 36.429                 | Only for Report Use |

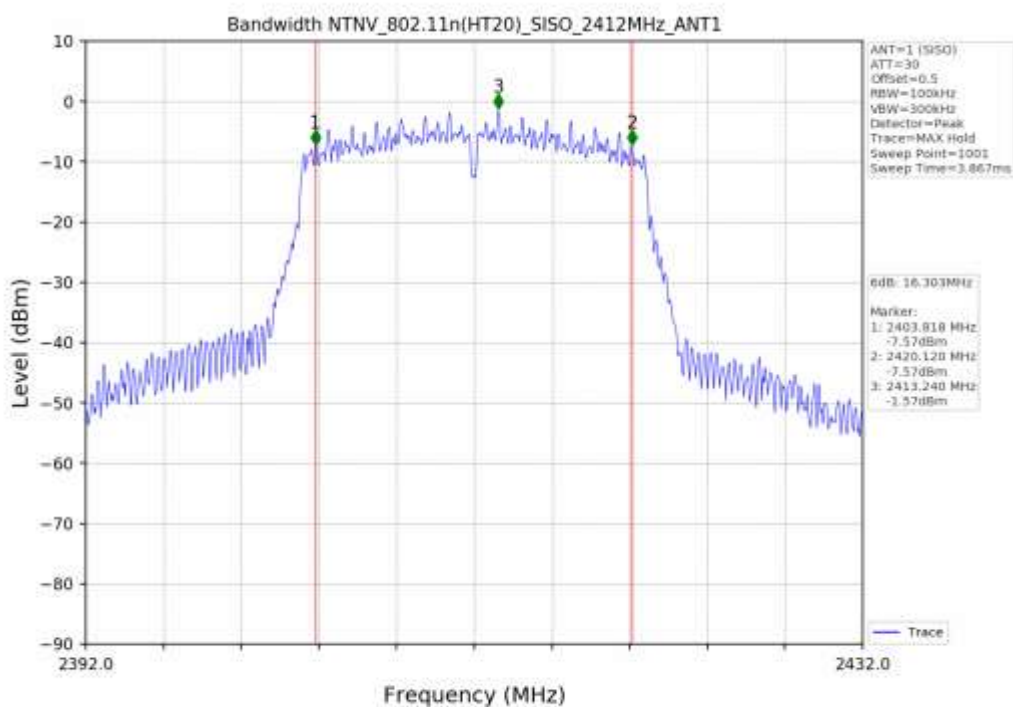
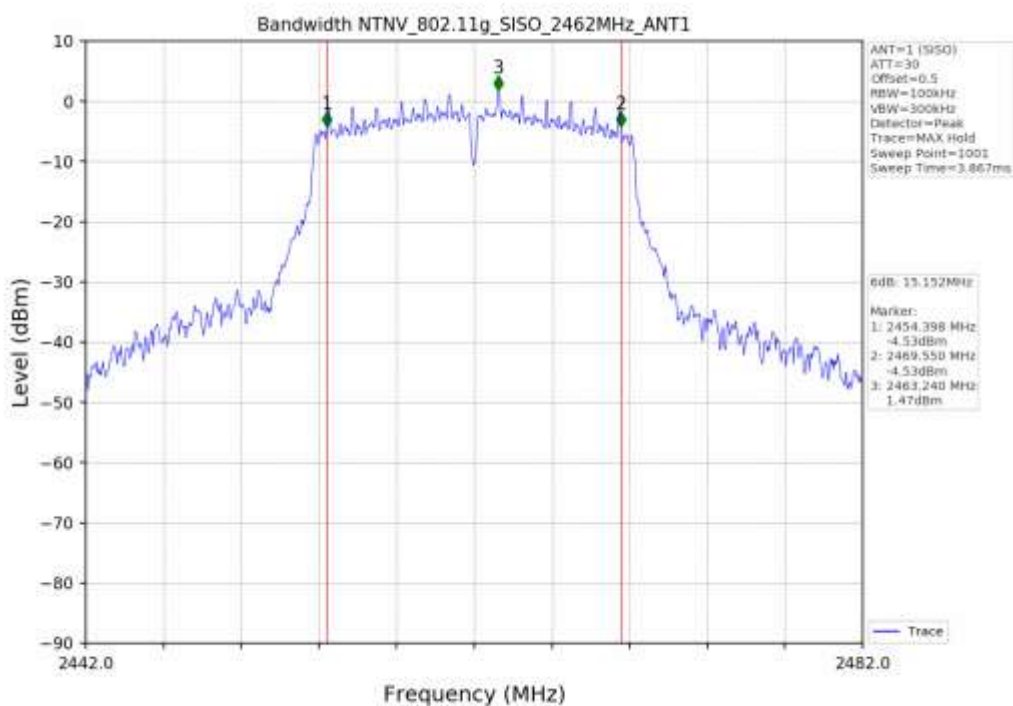
## 2.2 Test Graph - 6dB Bandwidth

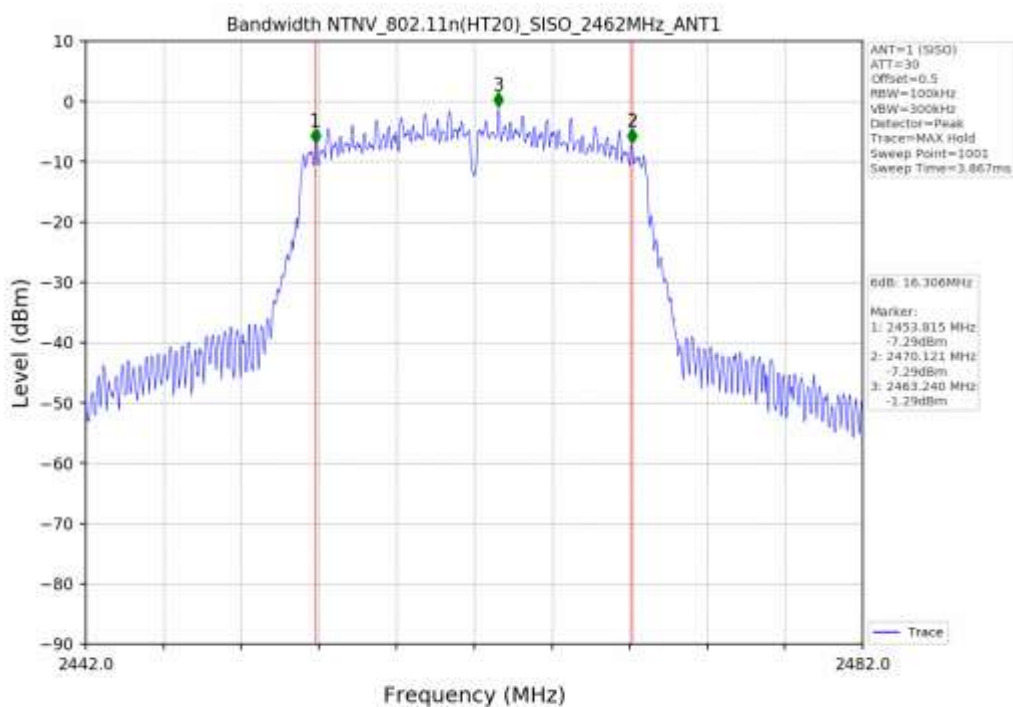
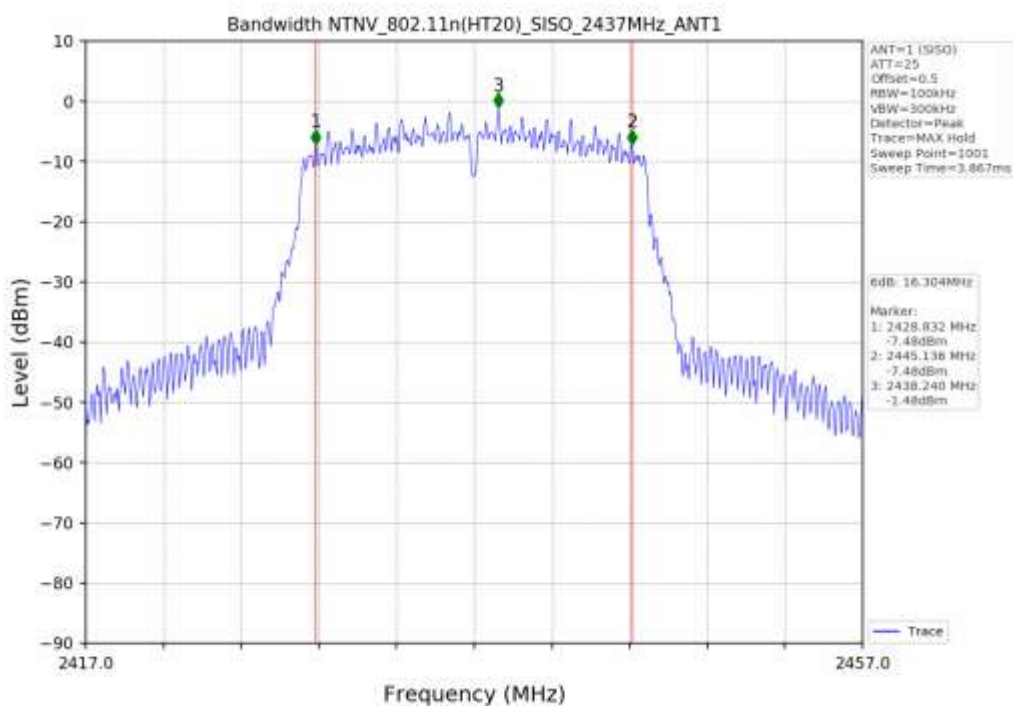
ANT 1:

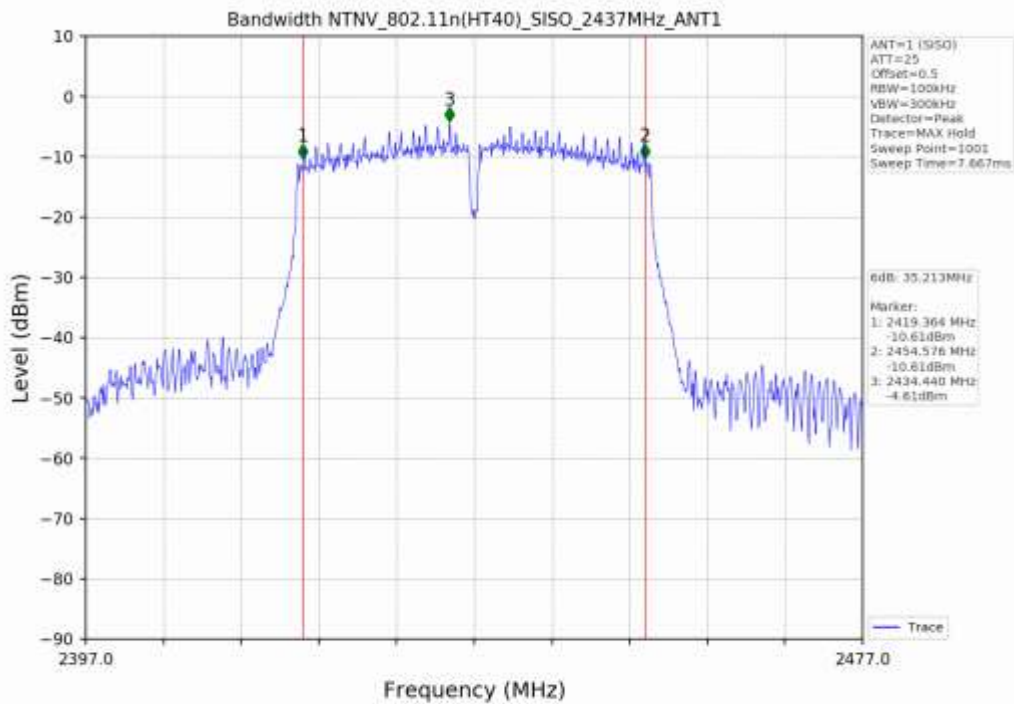
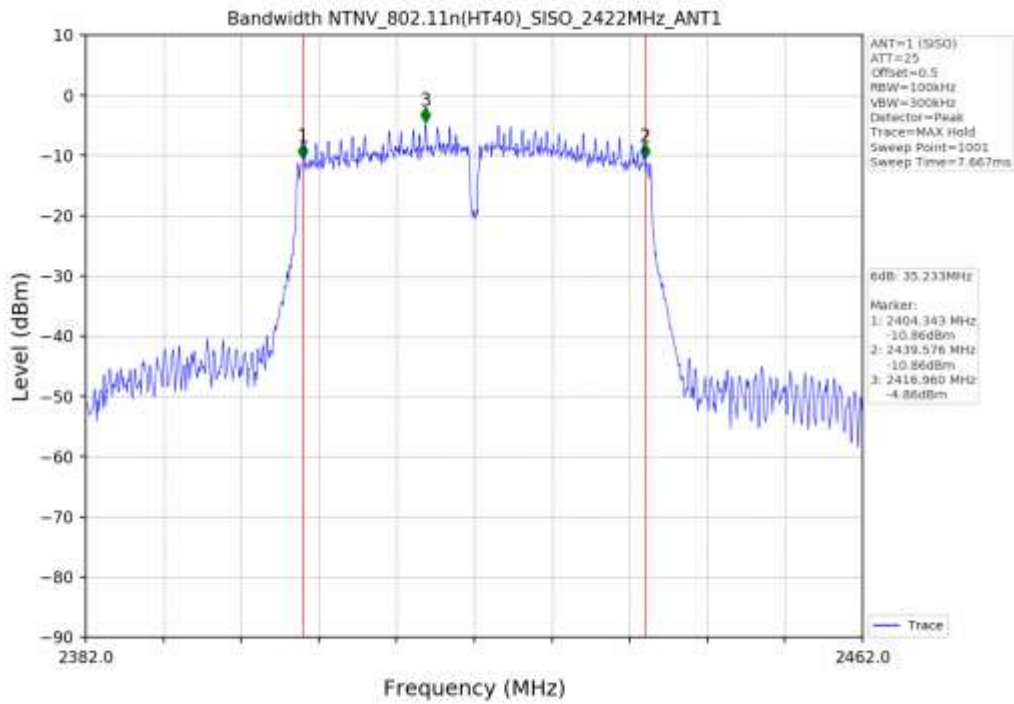


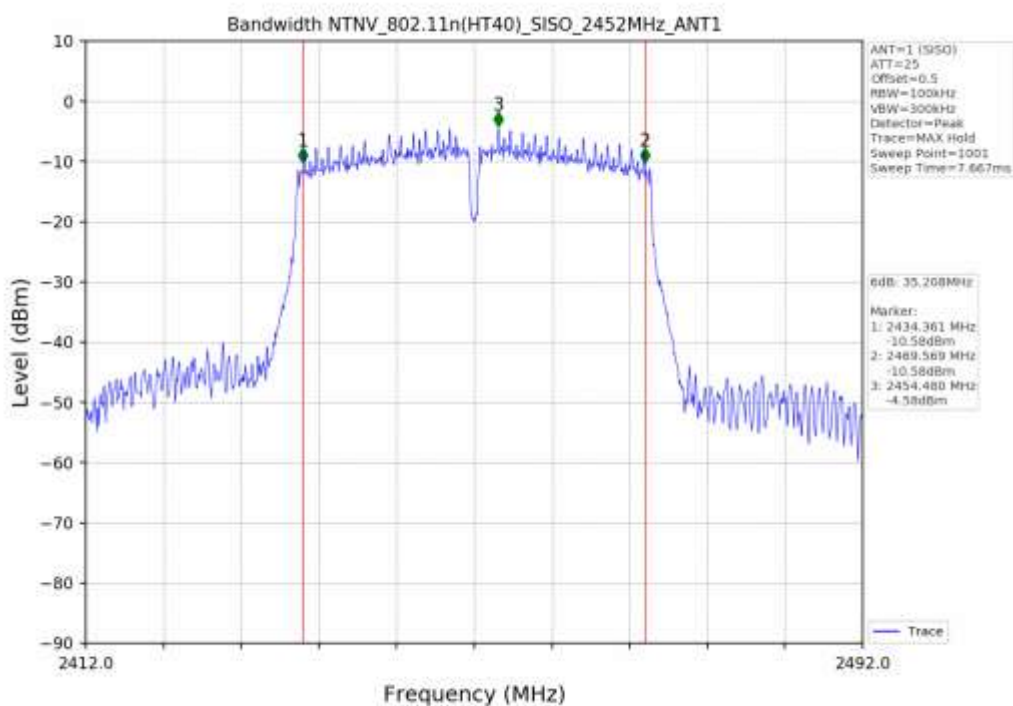




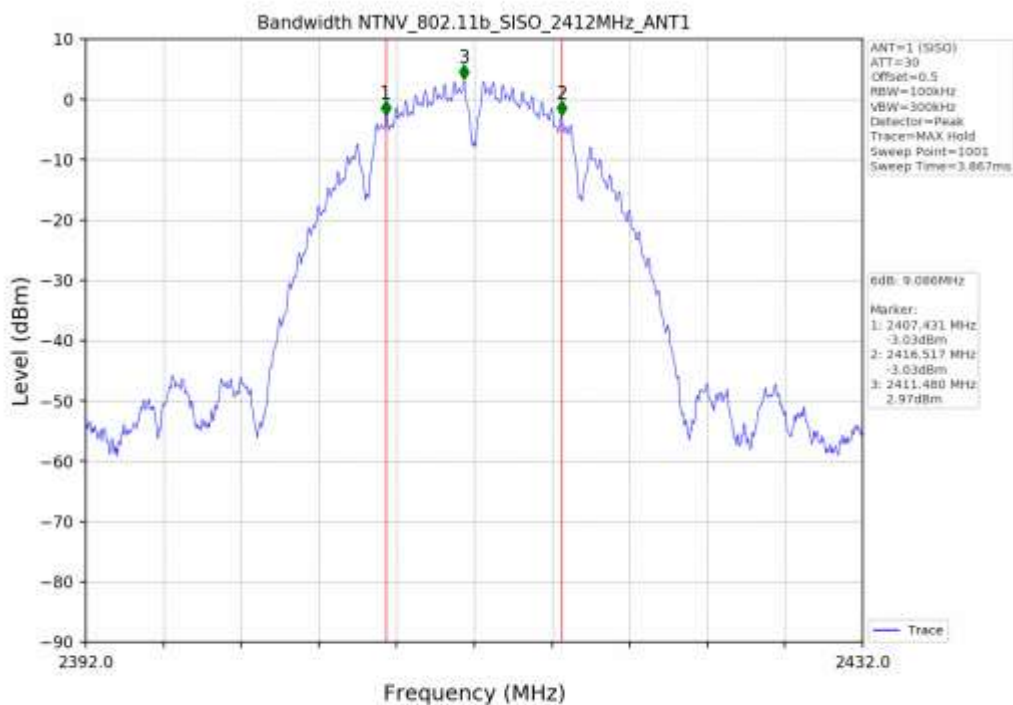


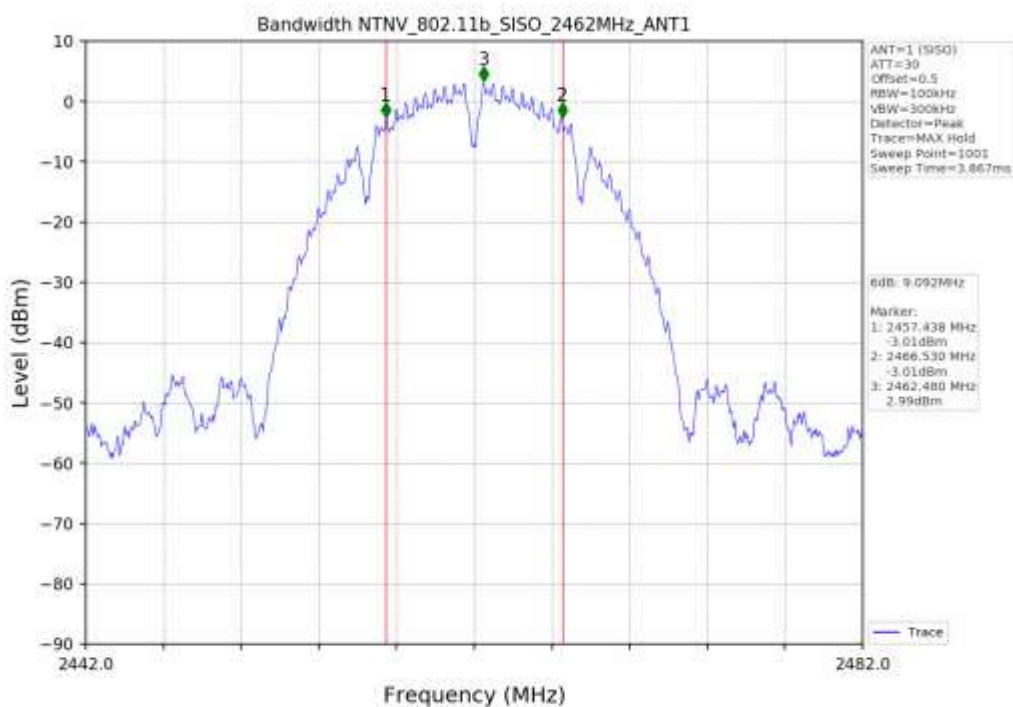
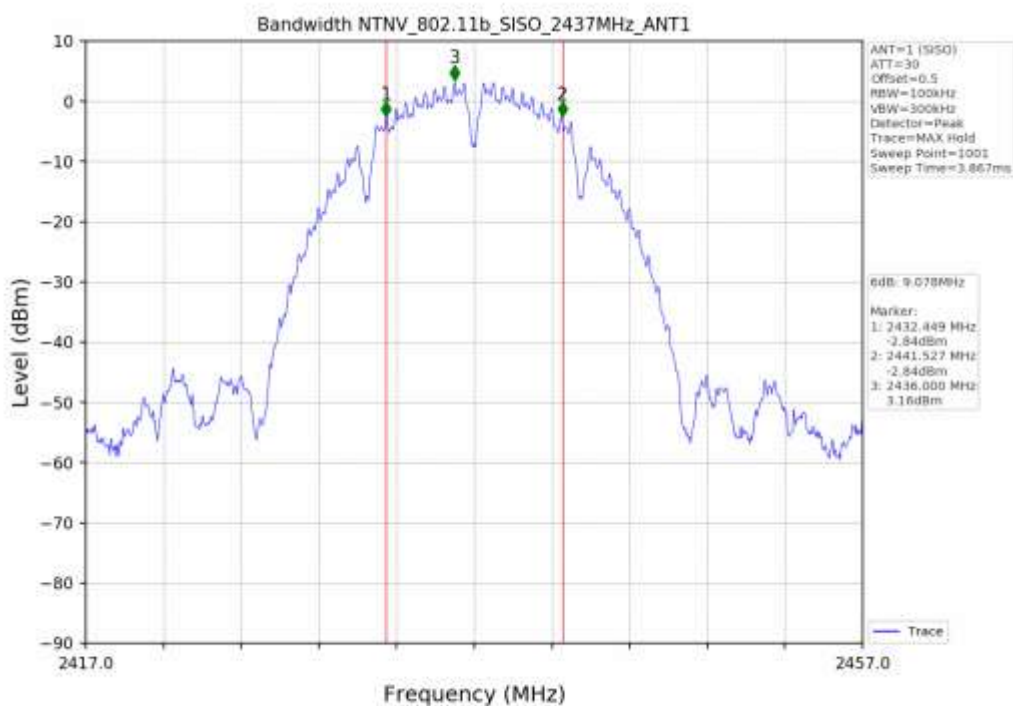


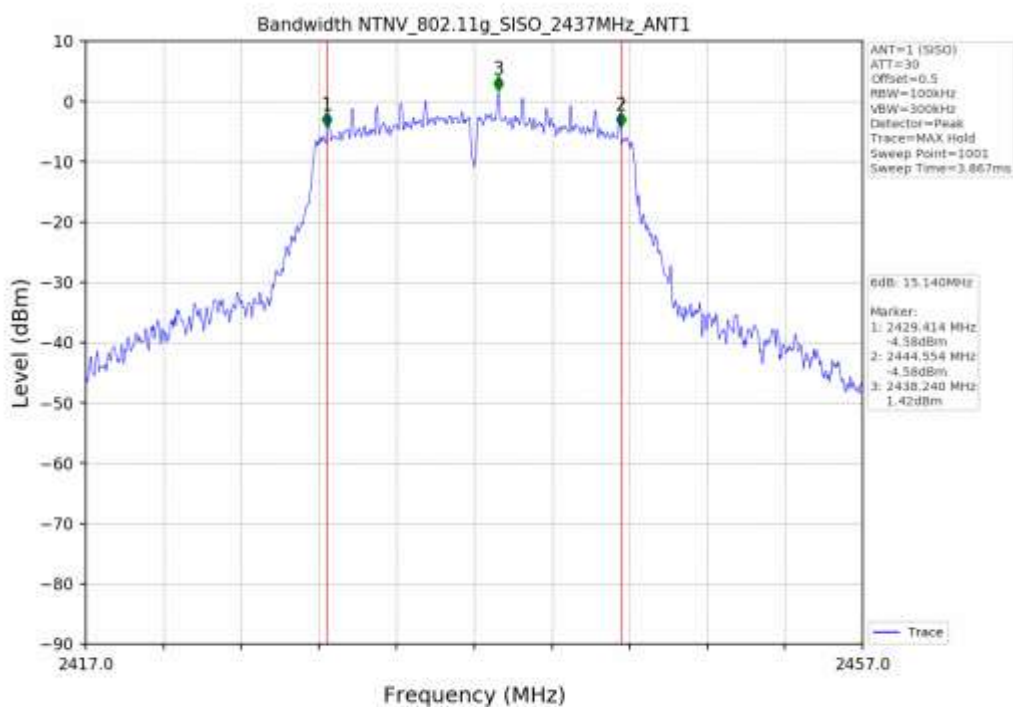
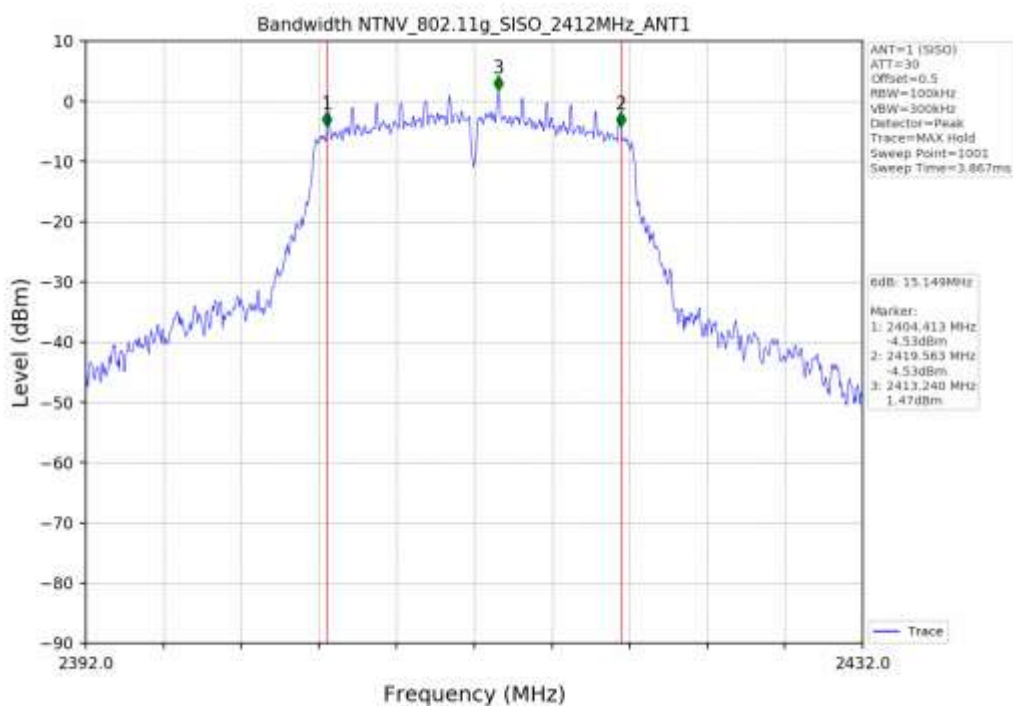


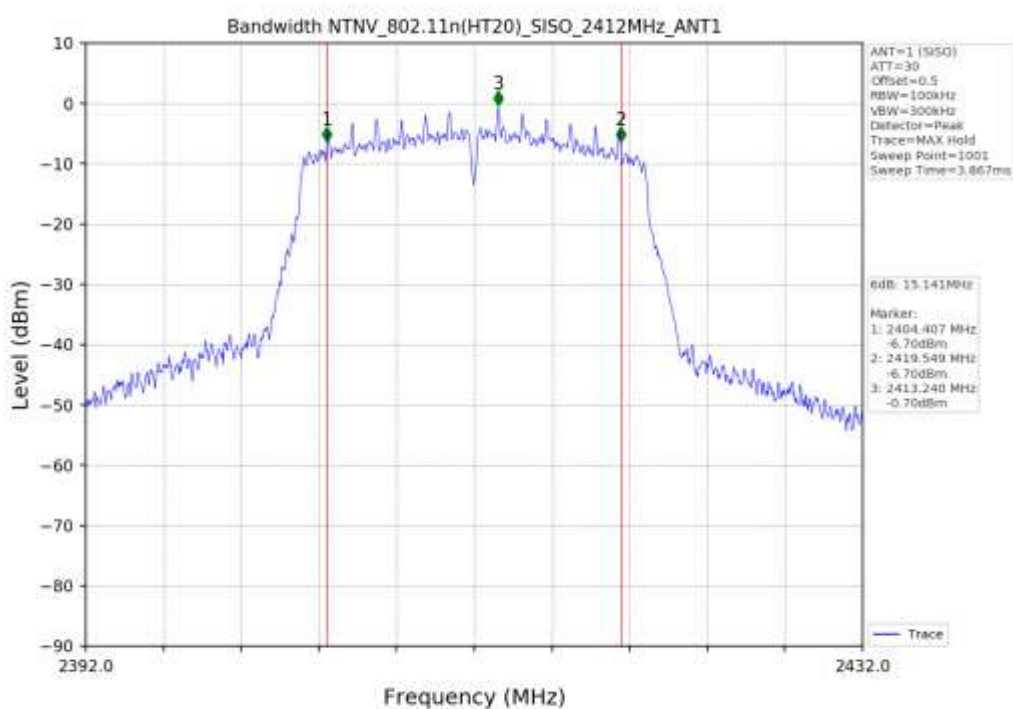
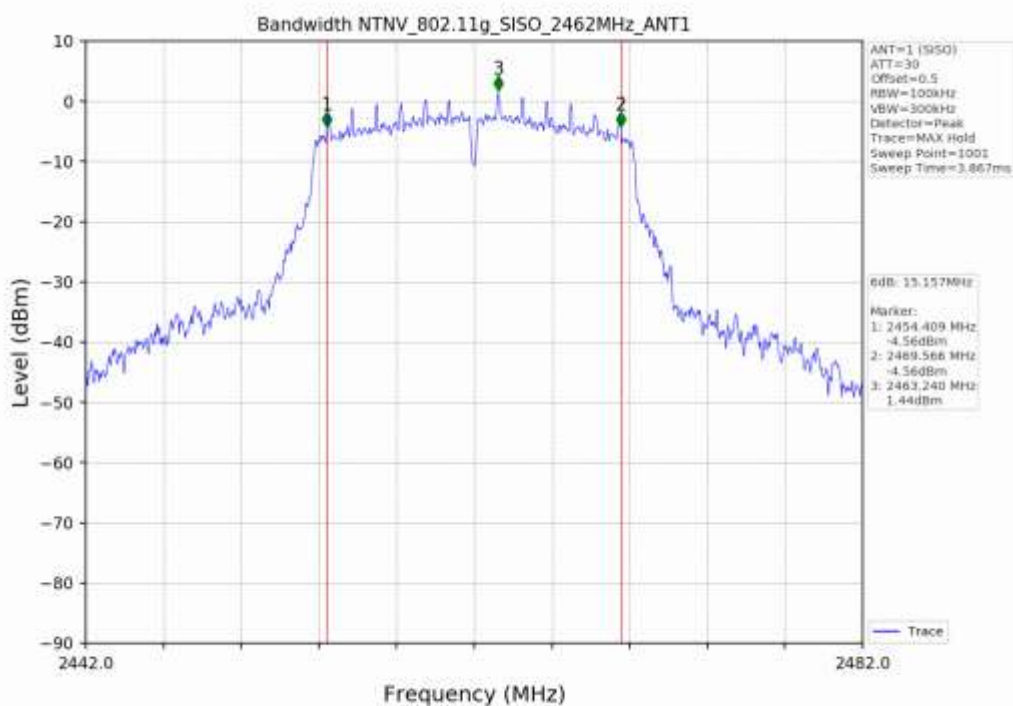


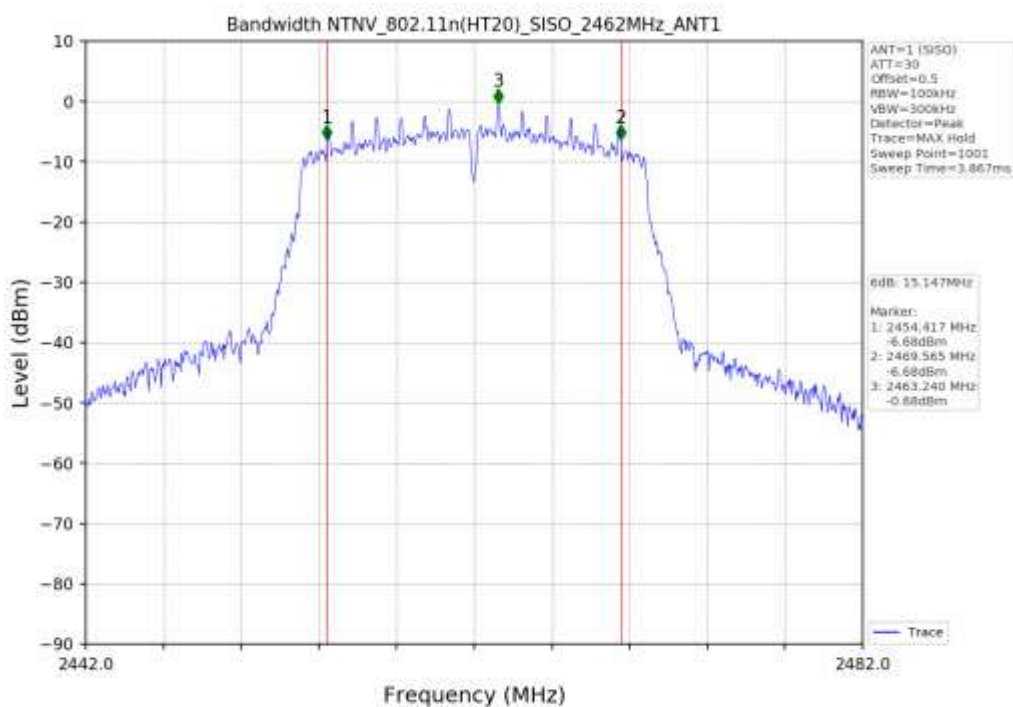
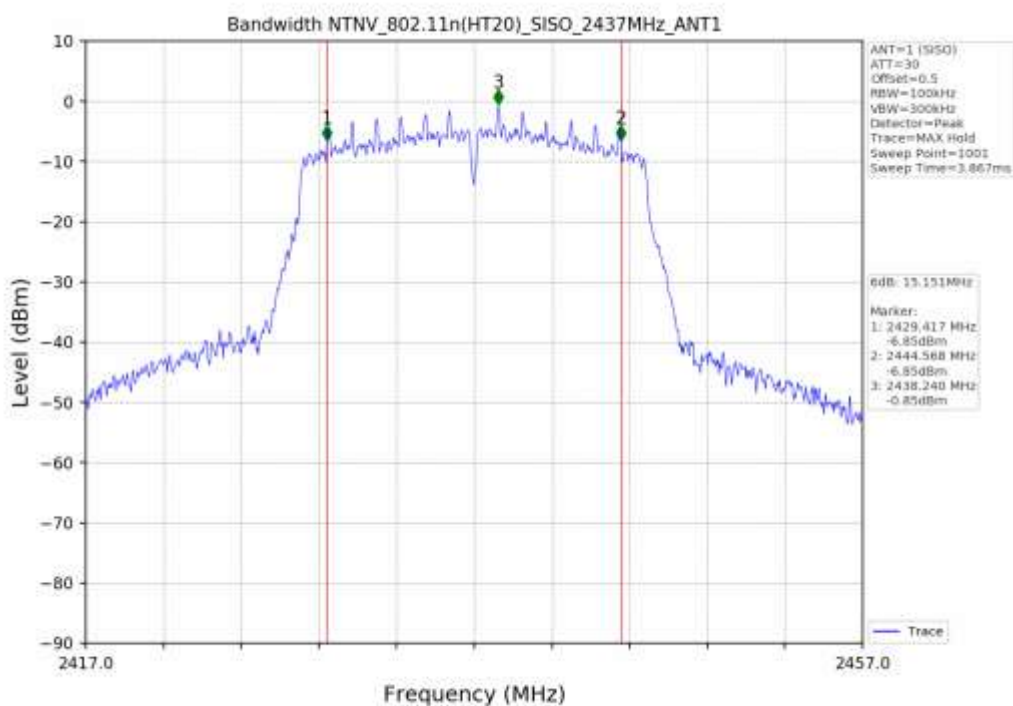
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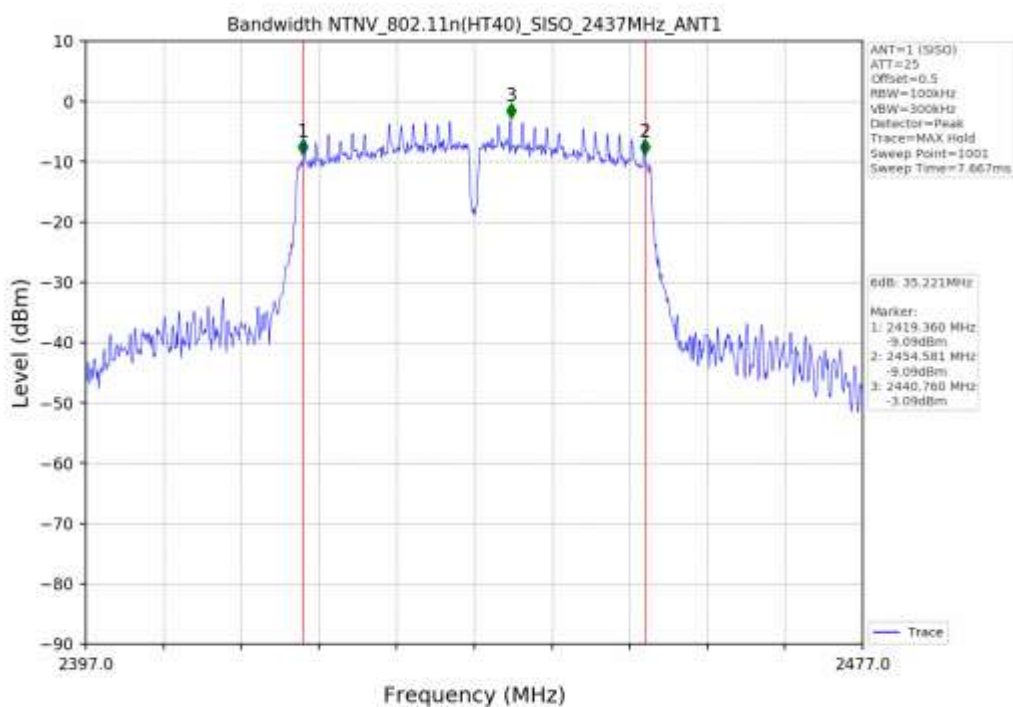
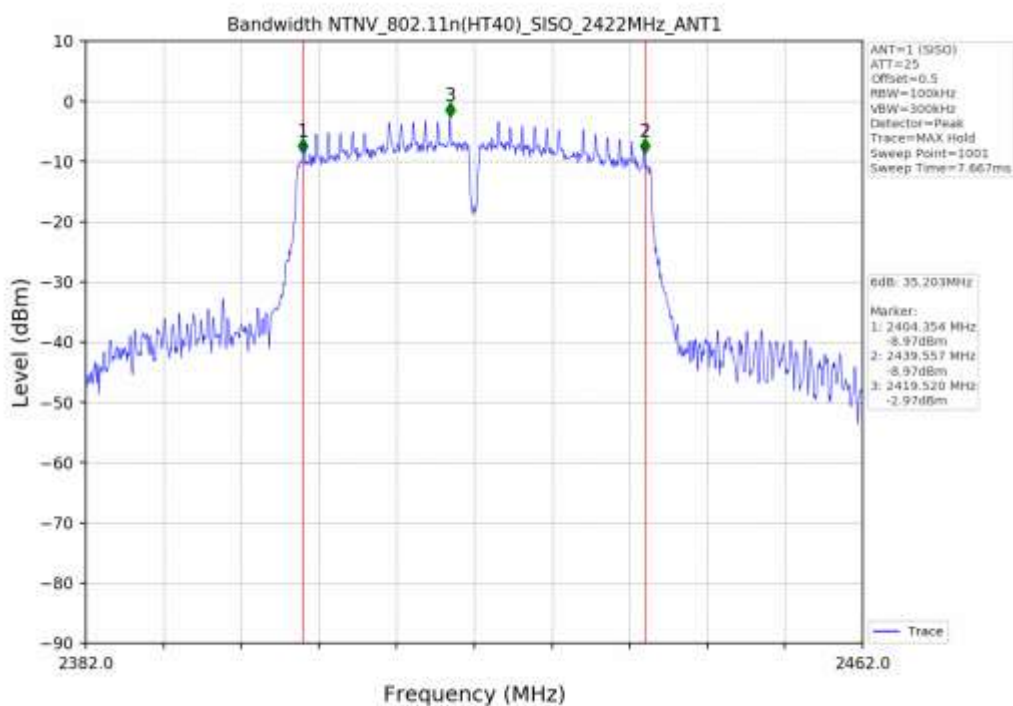


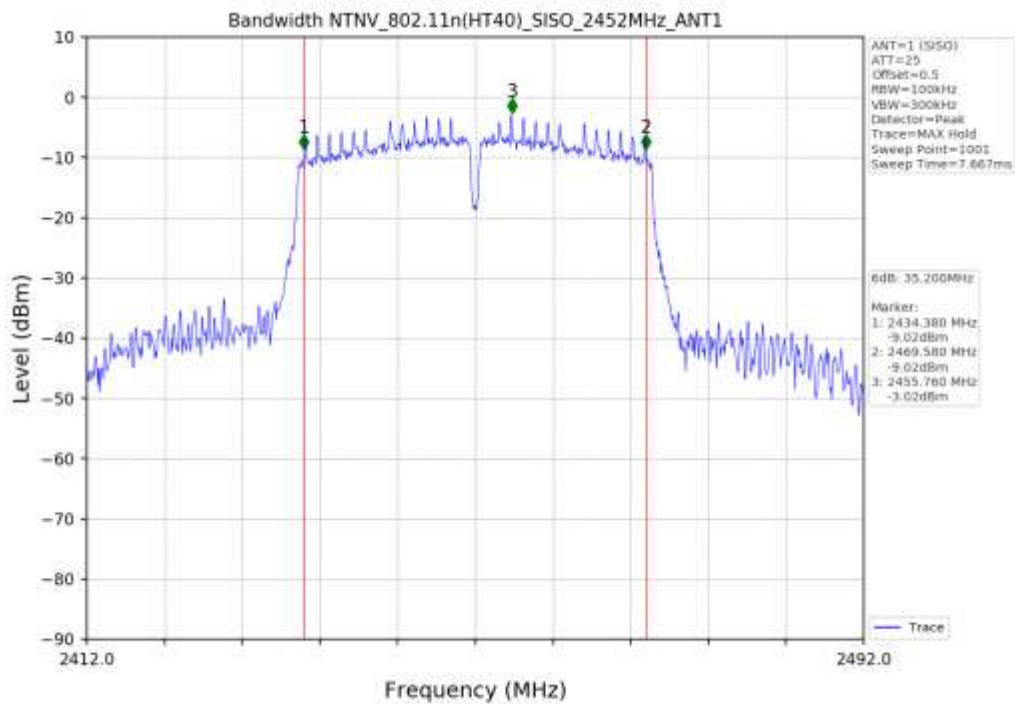






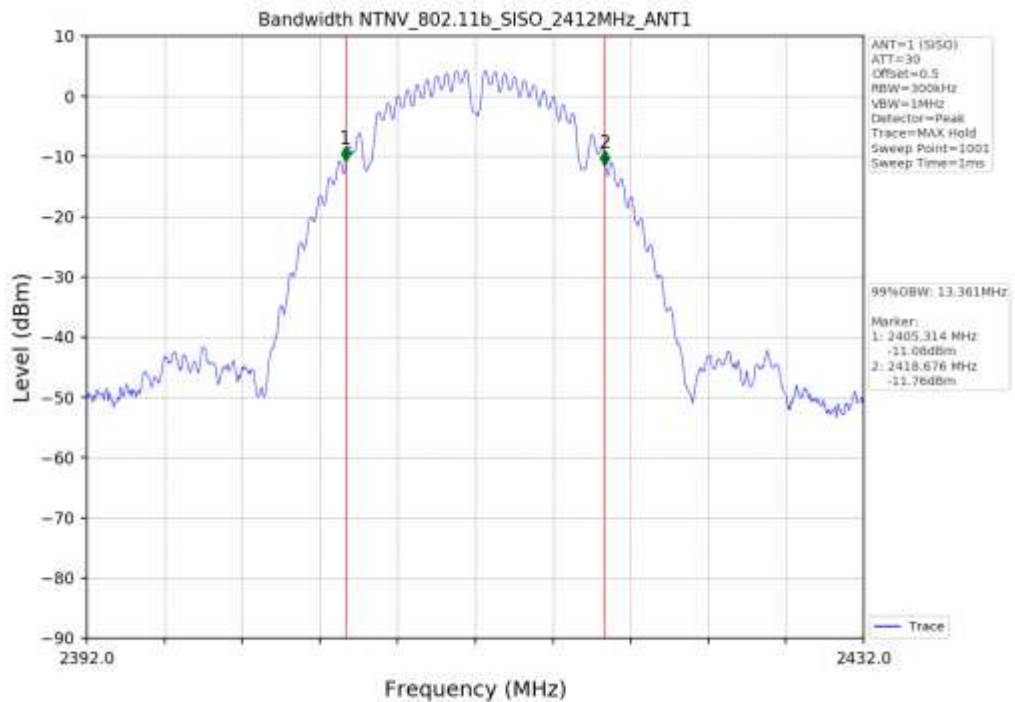


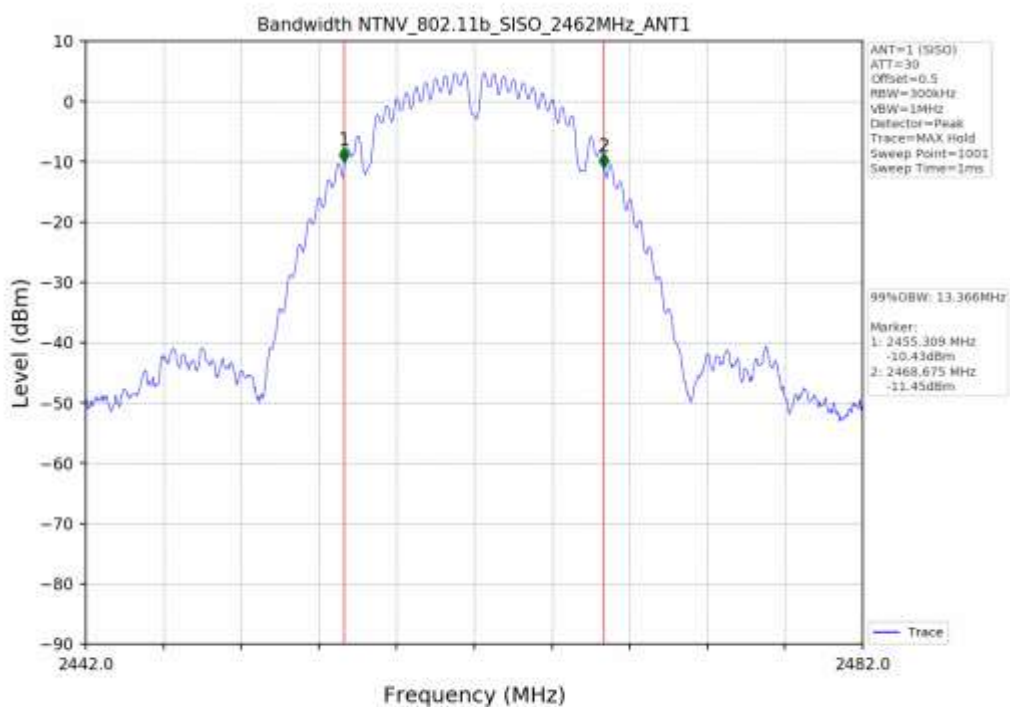
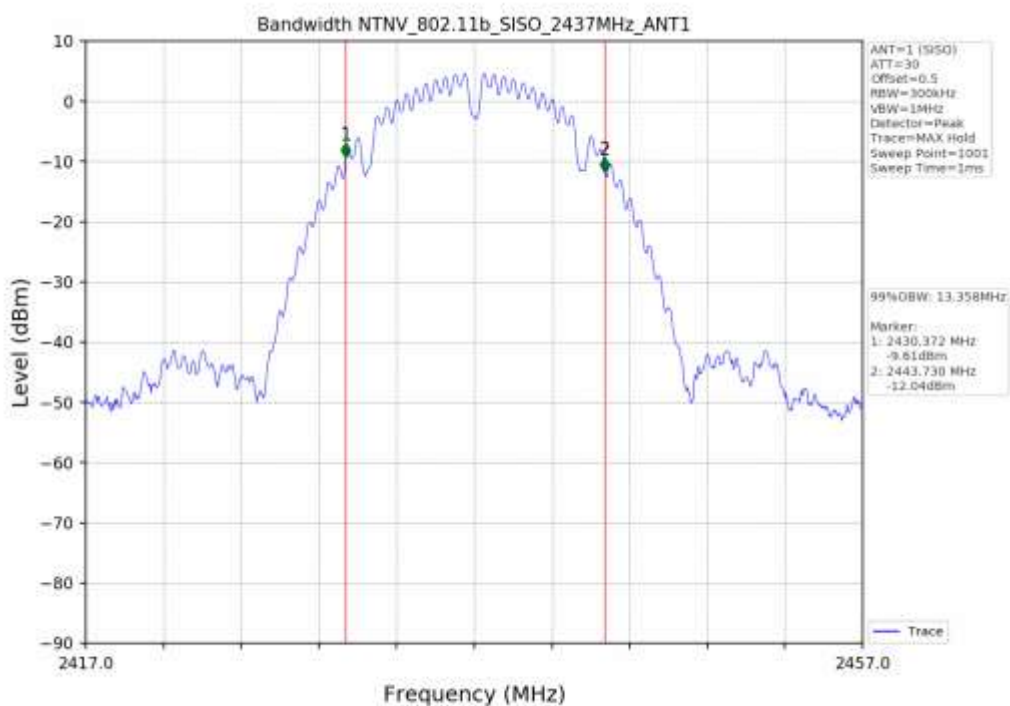


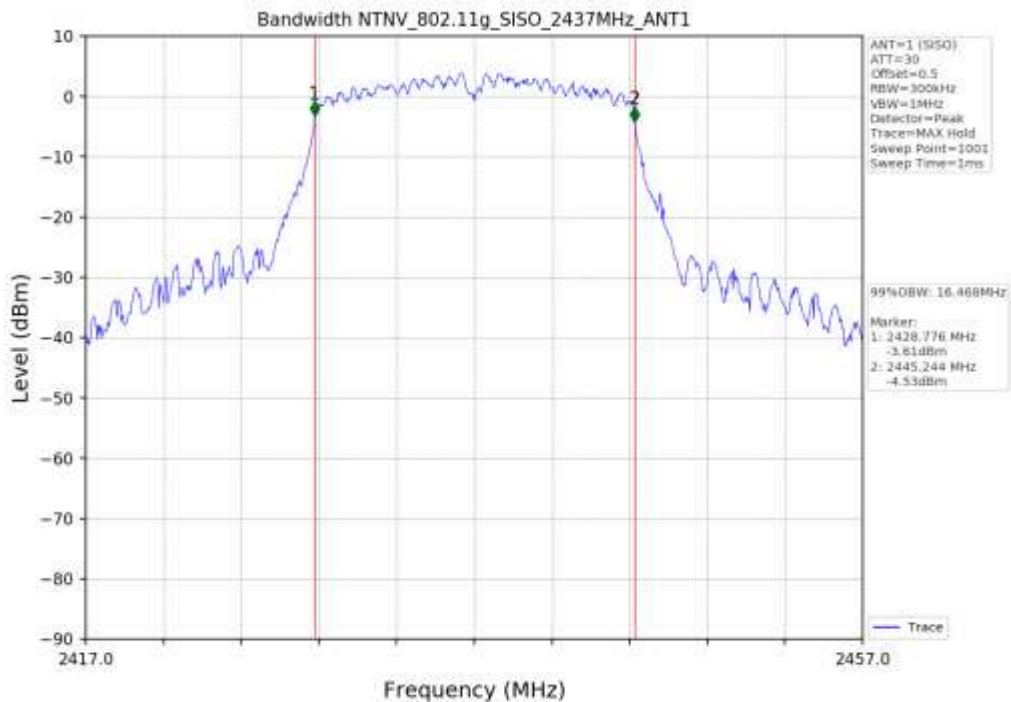
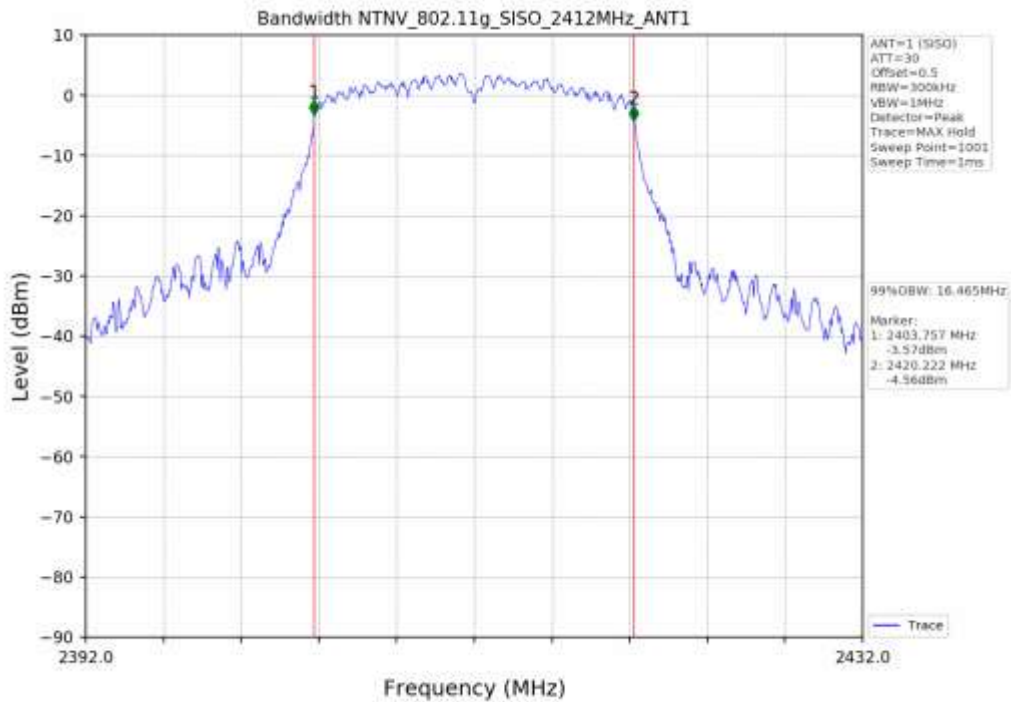


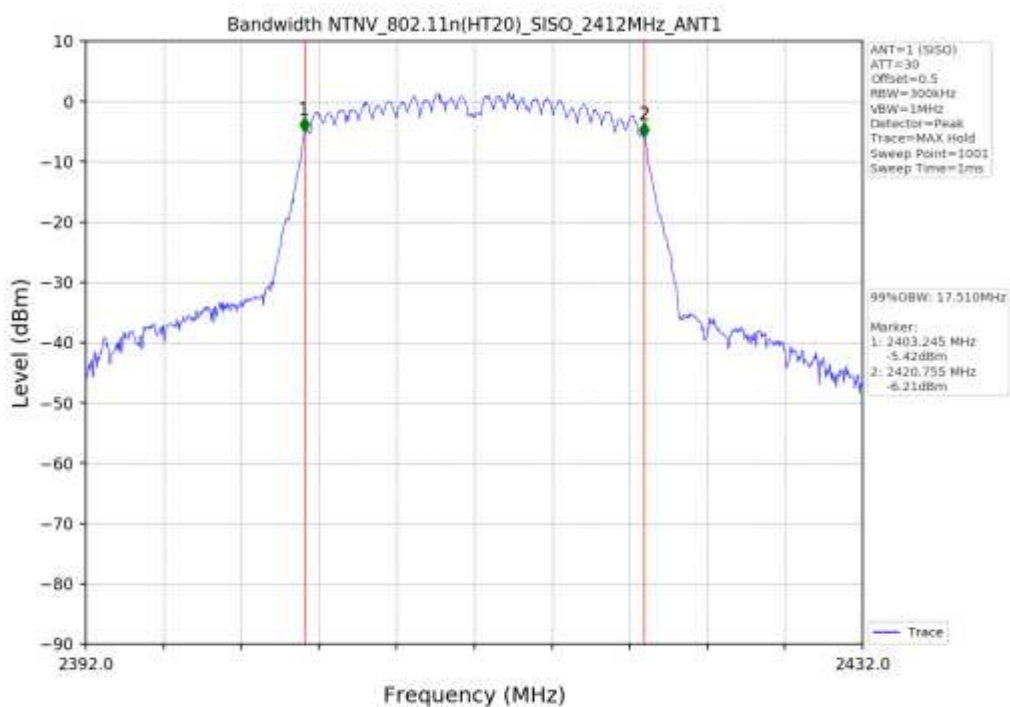
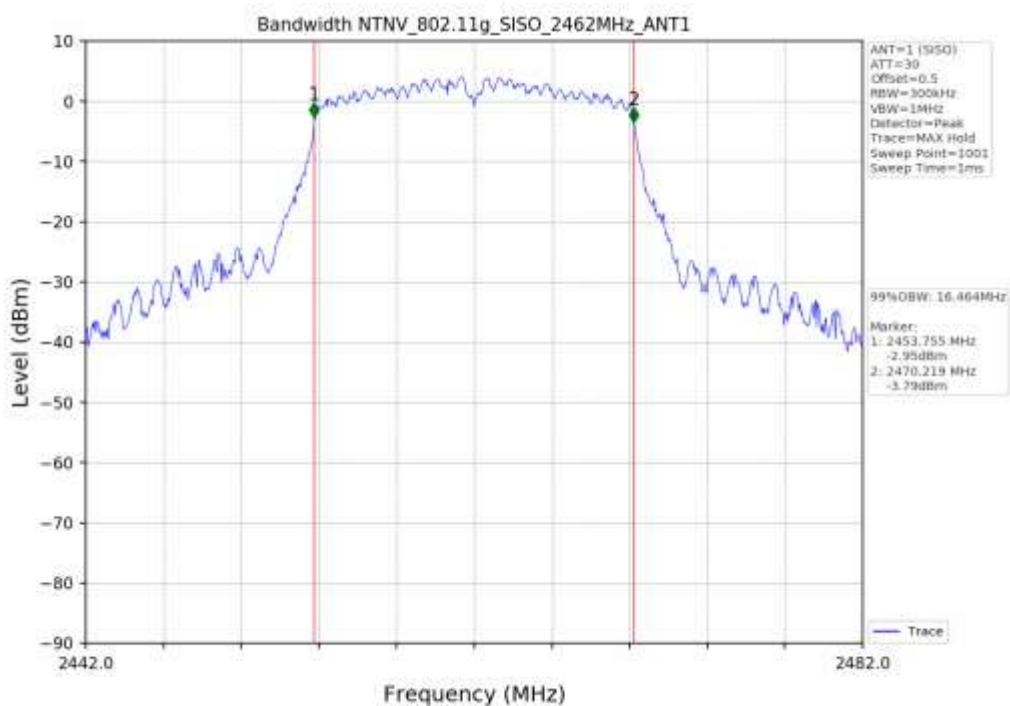
## 2.3 Test Graph - 99% Occupied Bandwidth

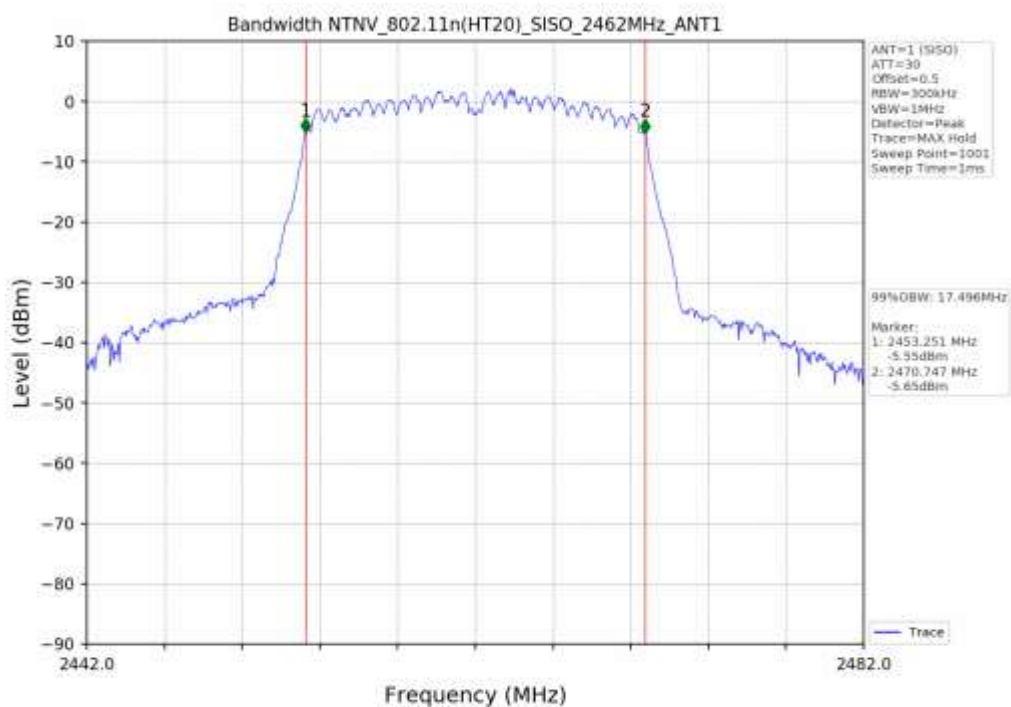
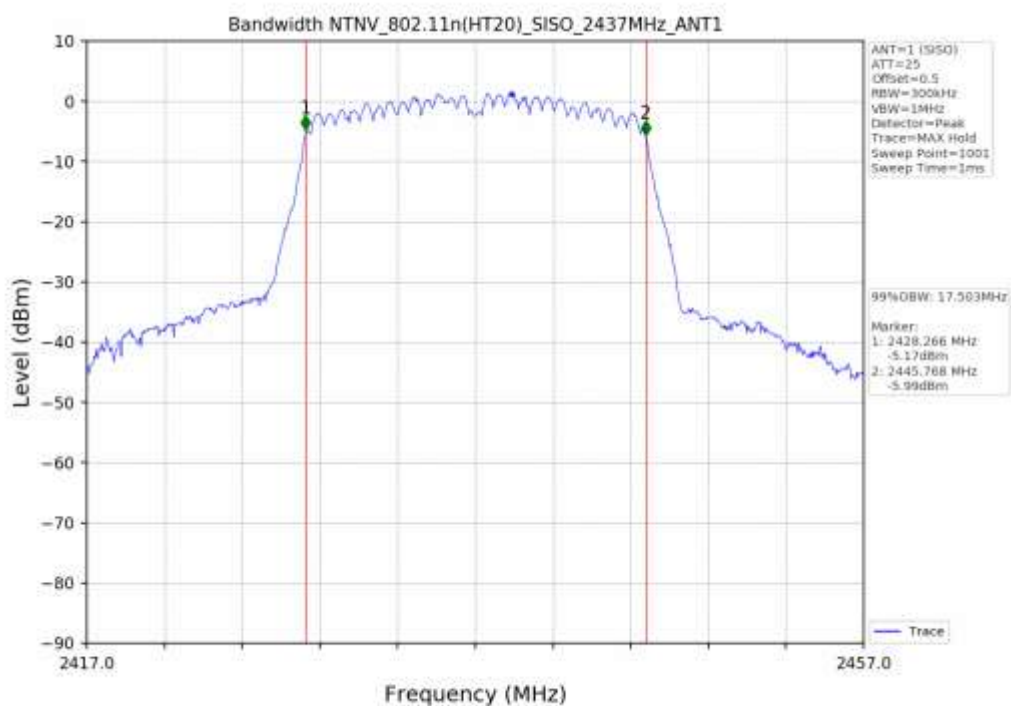
ANT 1:

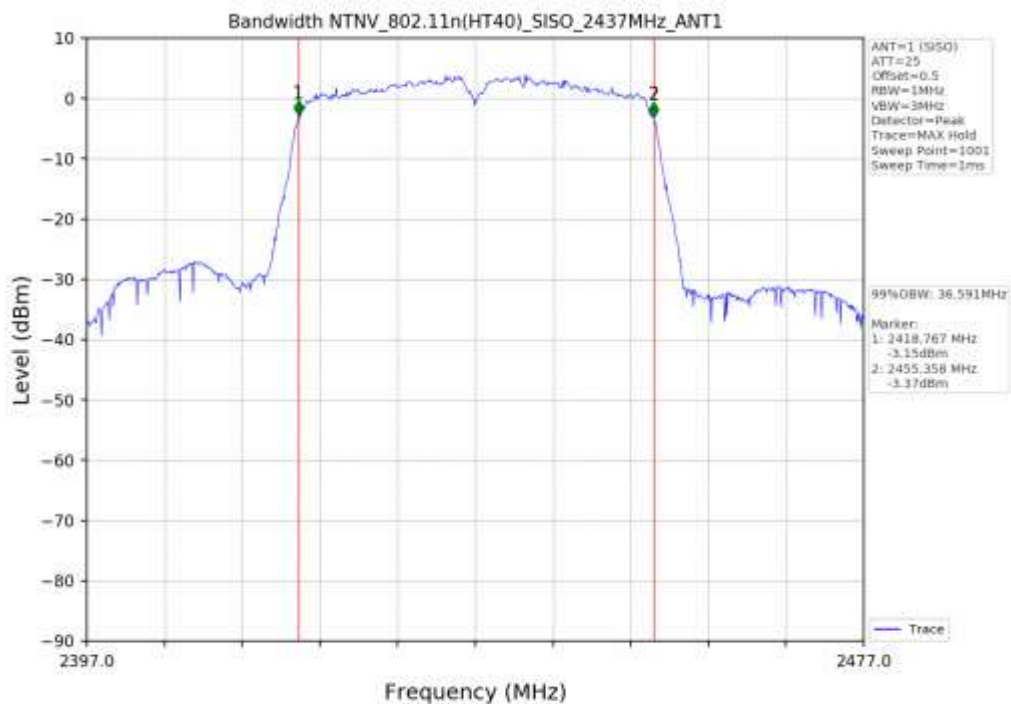
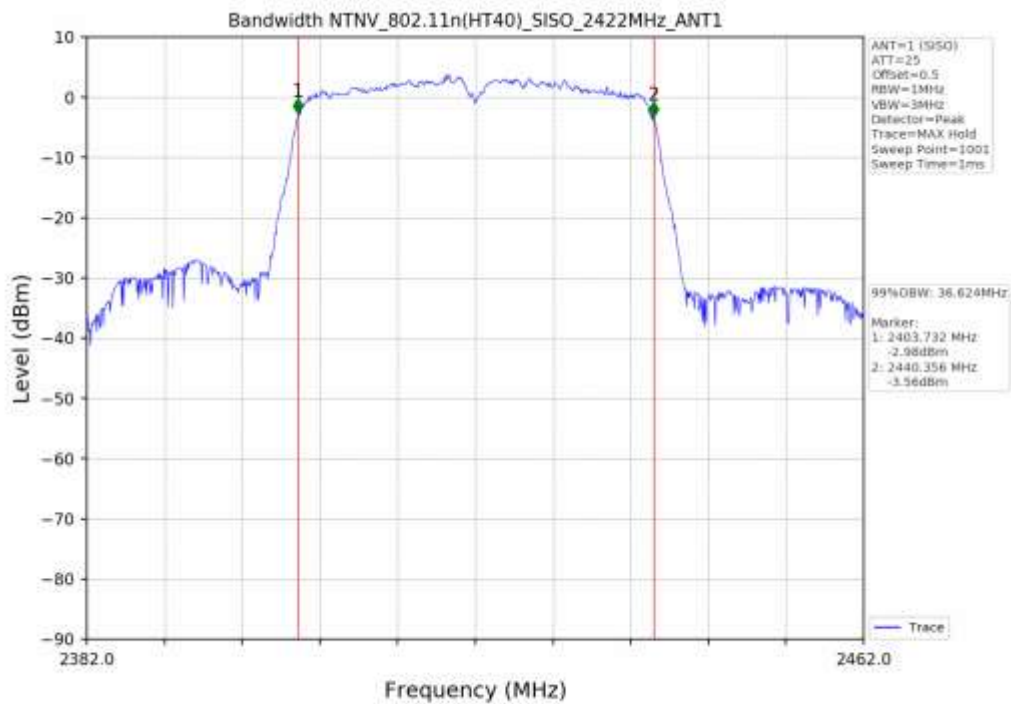


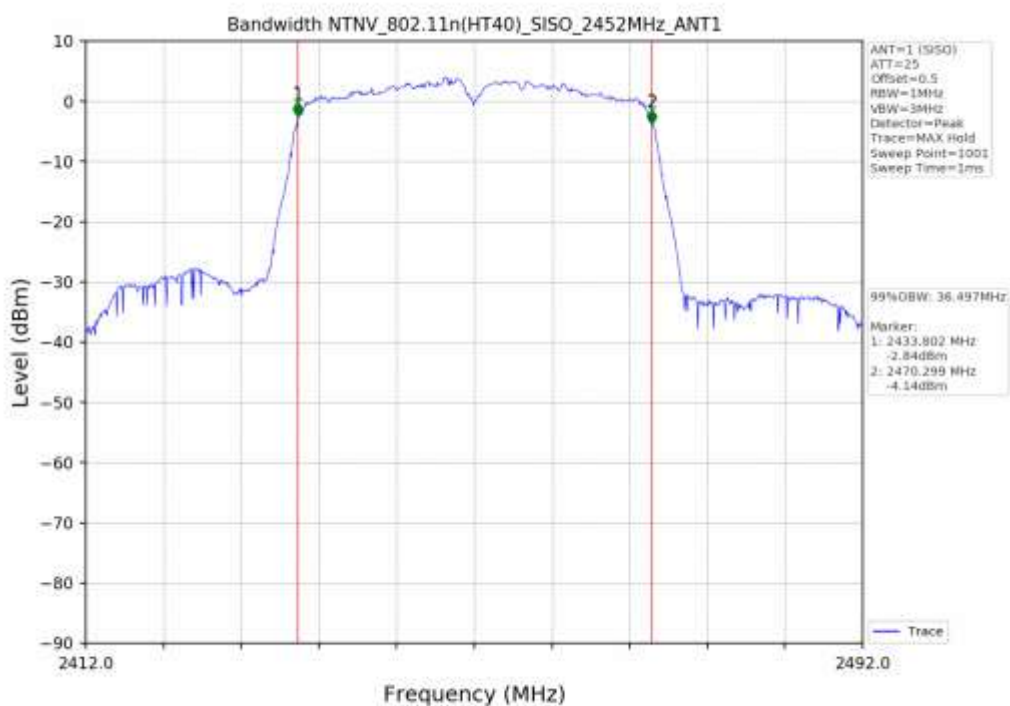




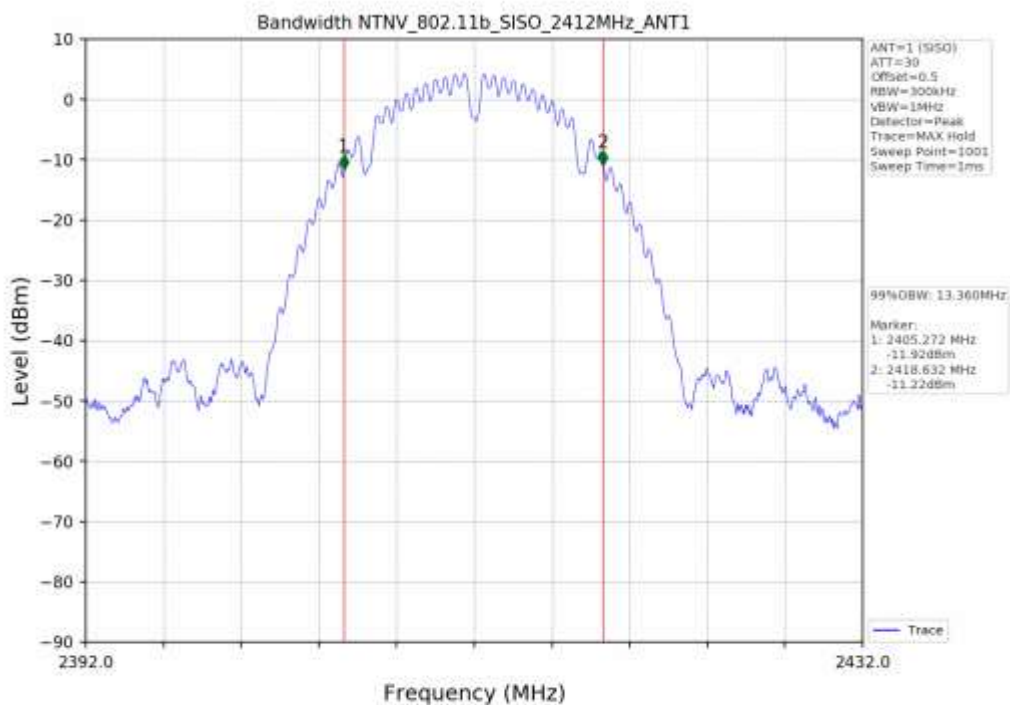


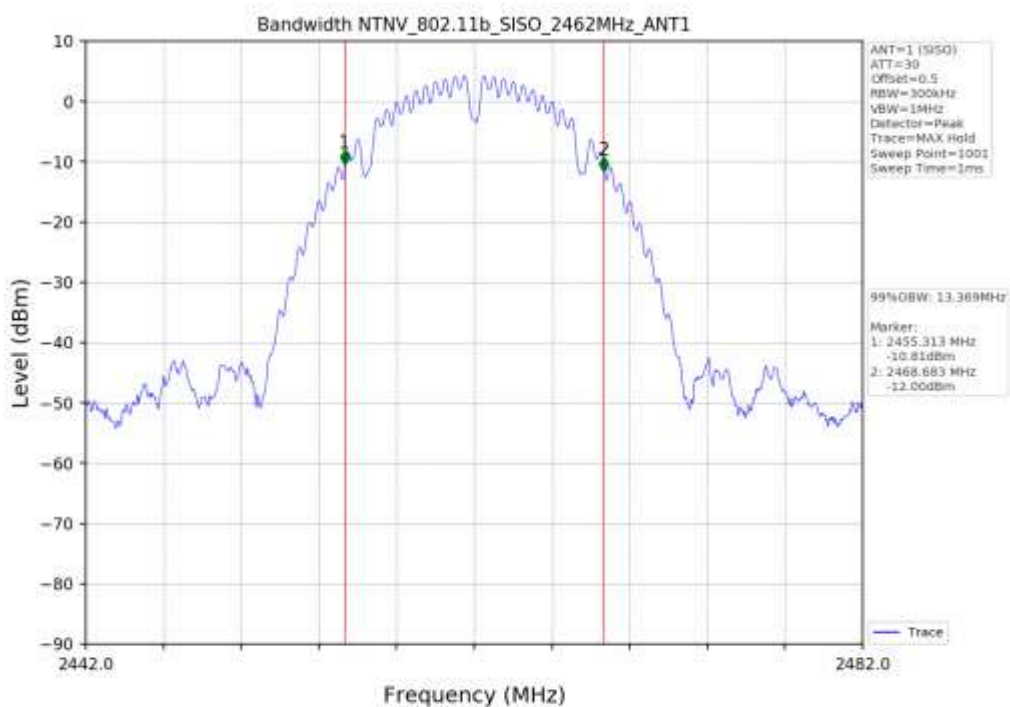
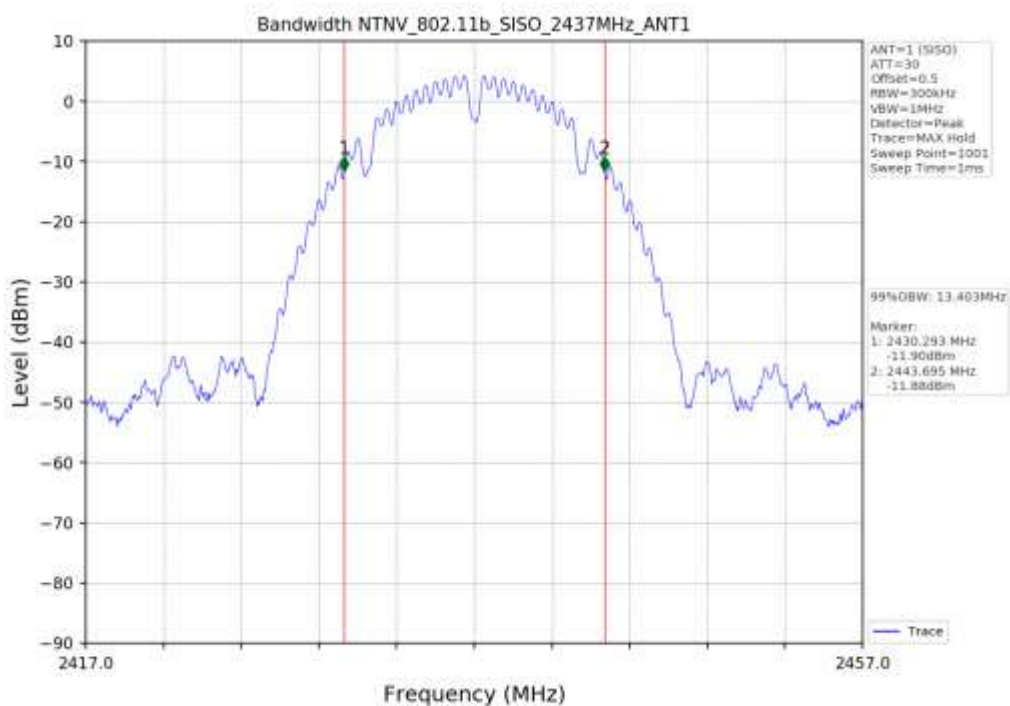


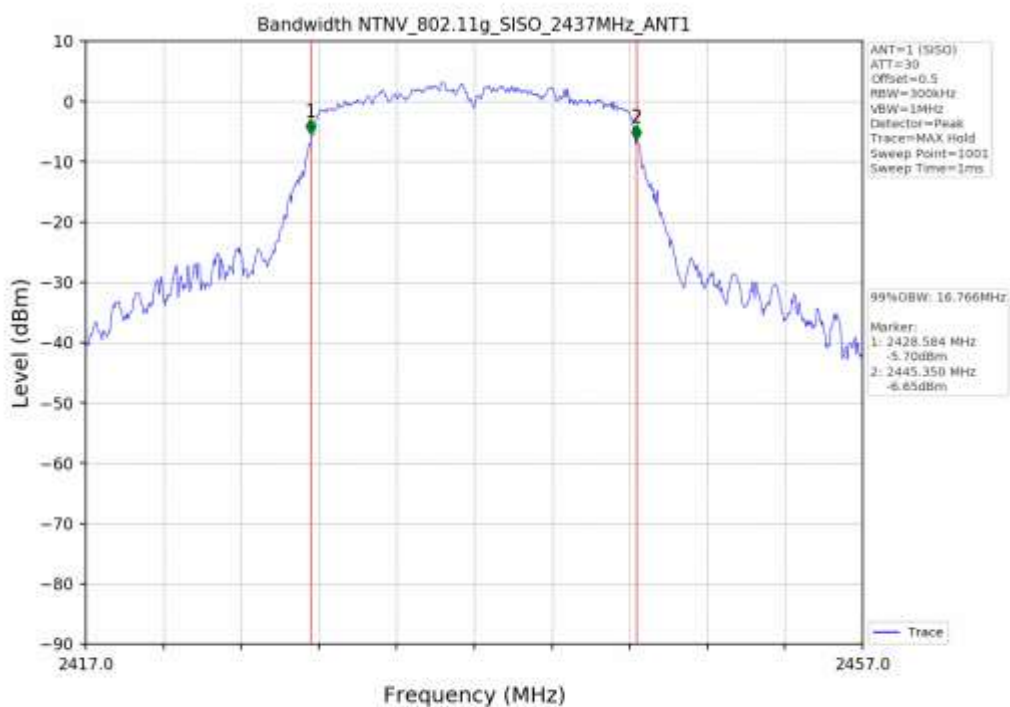
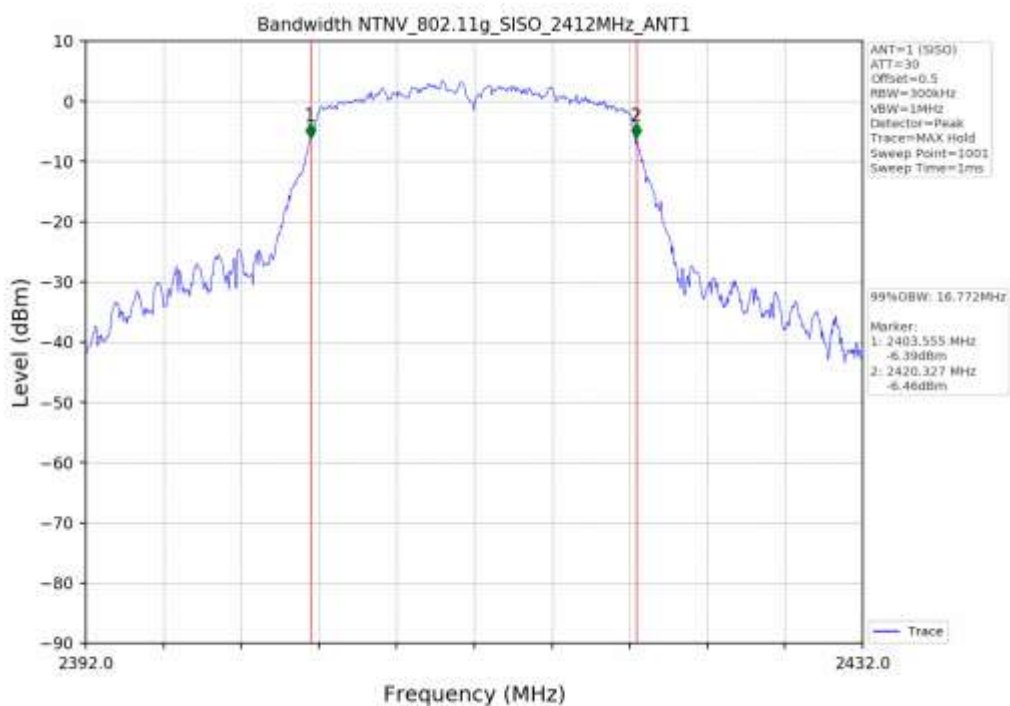


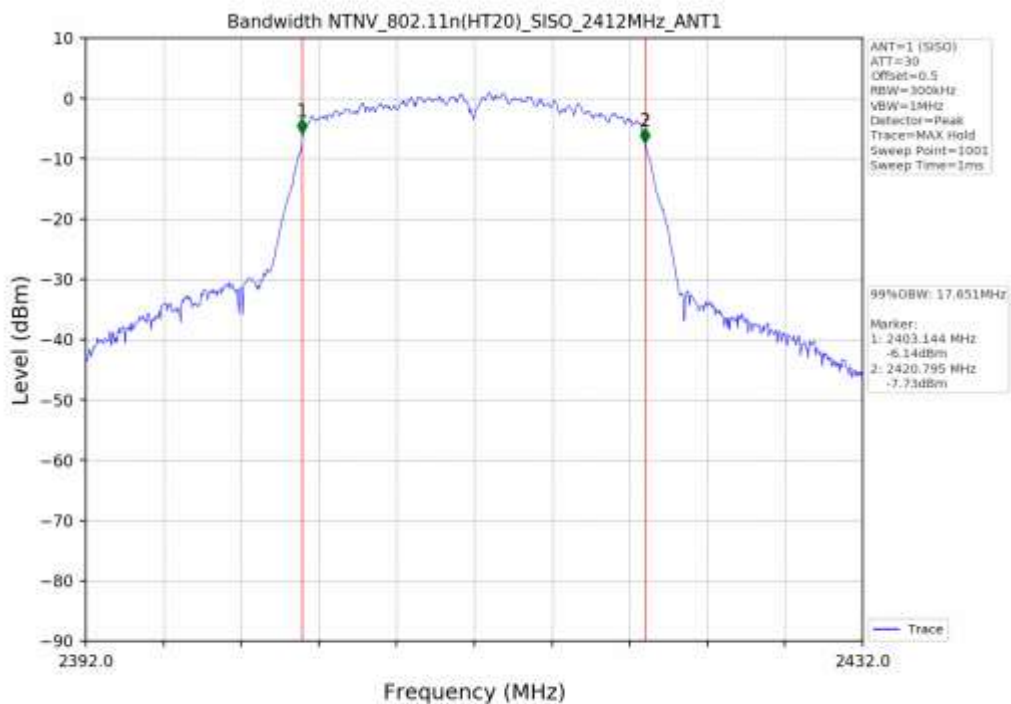
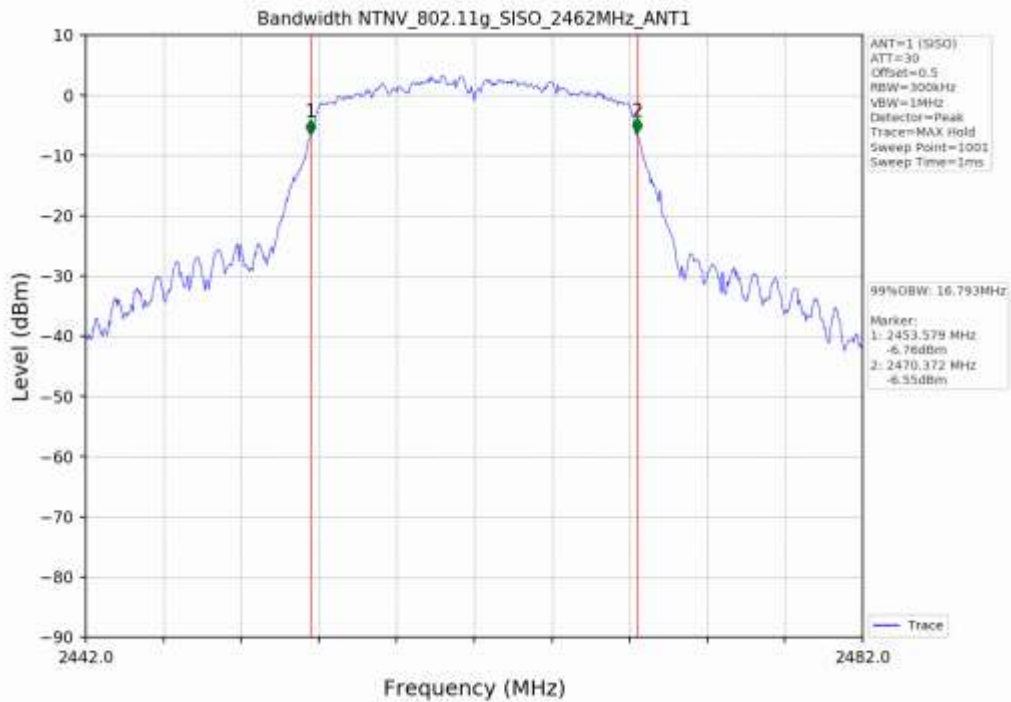


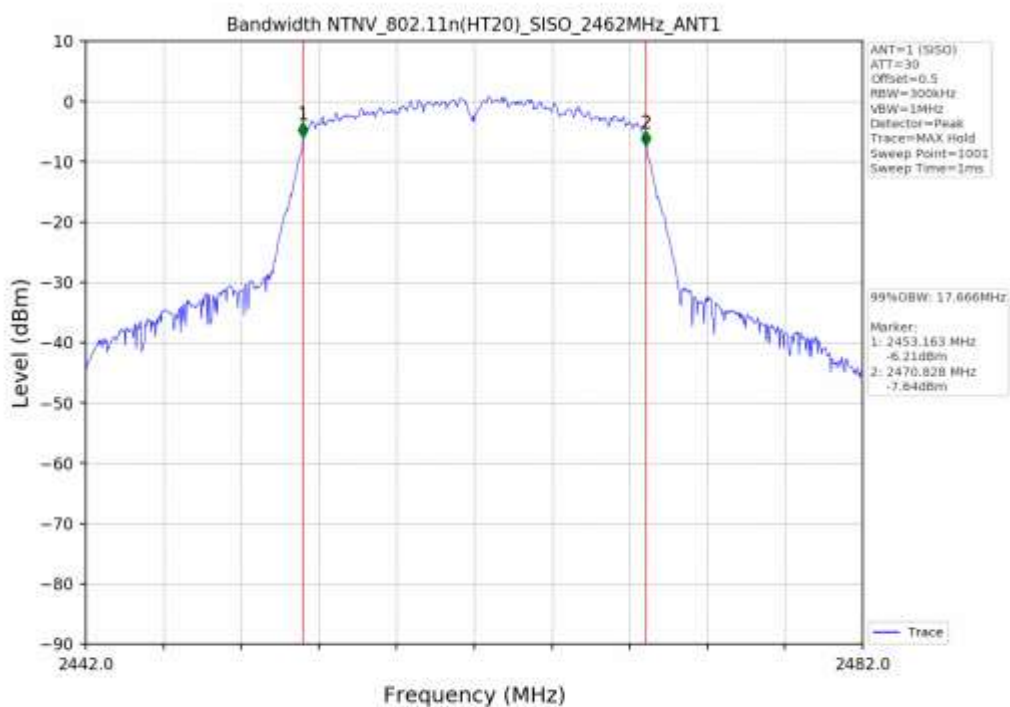
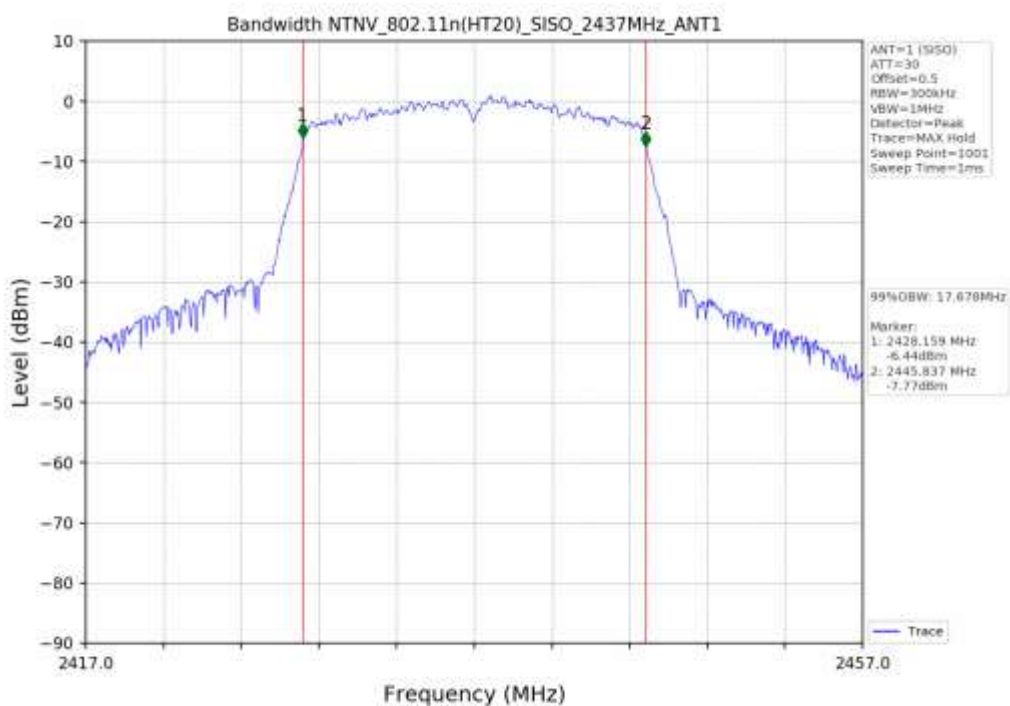
## ANT 2:

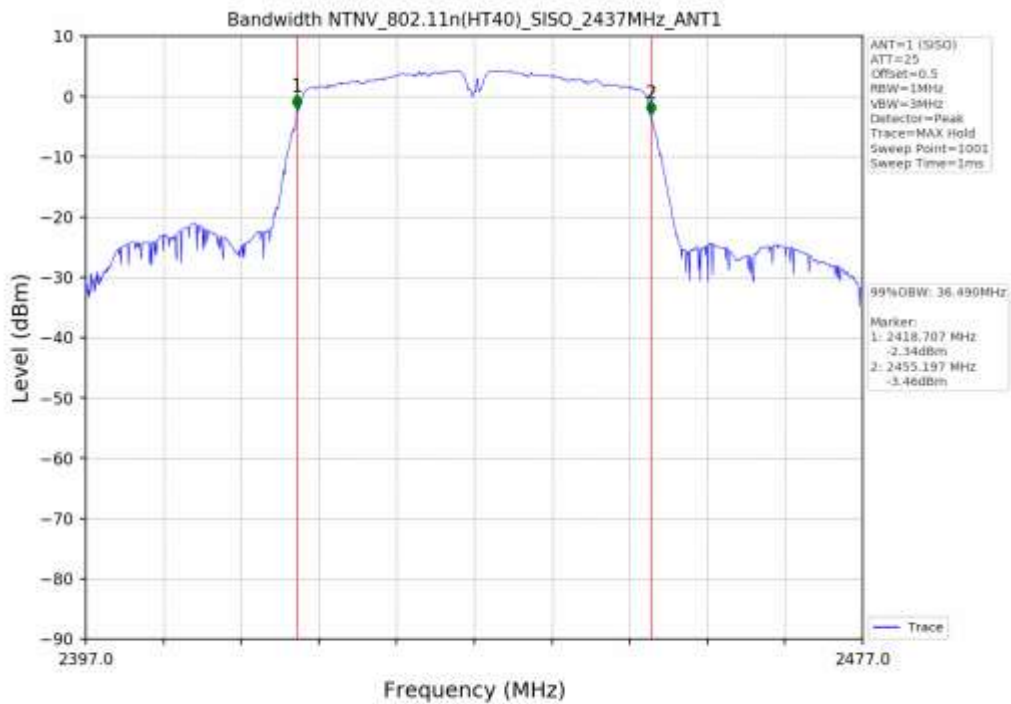
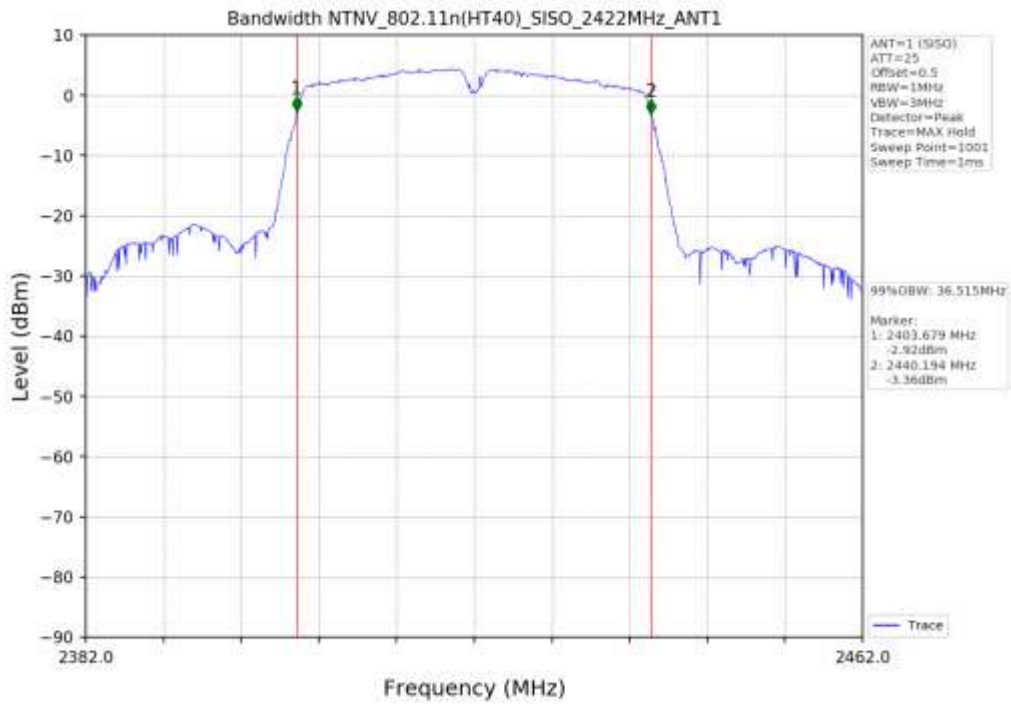


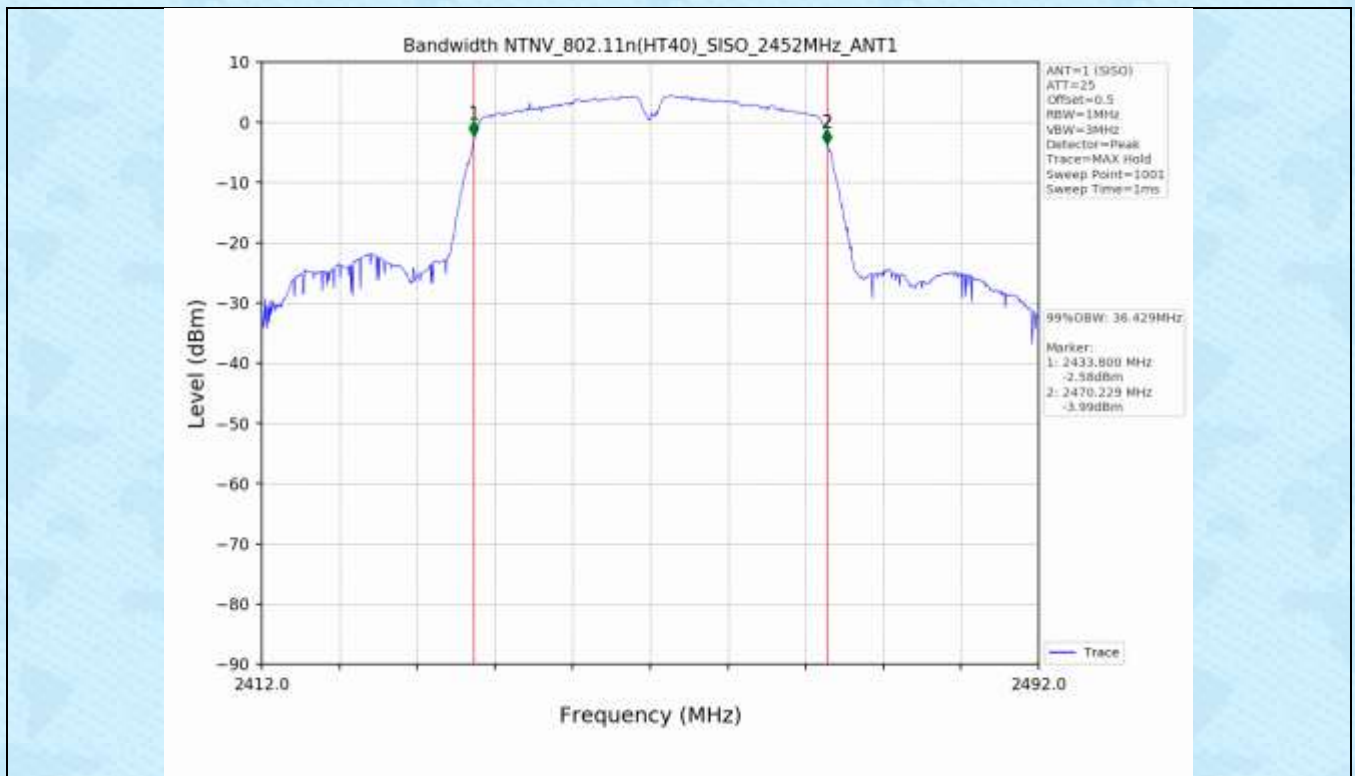












### 3. Maximum Conducted Output Power

#### 3.1 Test Result

| Test Mode     | Frequency (MHz) | Tx Type | Measured Peak Output Power (dBm) | Limits (dBm) | Verdict |
|---------------|-----------------|---------|----------------------------------|--------------|---------|
| 802.11b       | 2412            | 1       | 14.80                            | 30           | PASS    |
|               | 2412            | 2       | 14.72                            | 30           | PASS    |
|               | 2437            | 1       | 15.13                            | 30           | PASS    |
|               | 2437            | 2       | 14.79                            | 30           | PASS    |
|               | 2462            | 1       | 15.28                            | 30           | PASS    |
|               | 2462            | 2       | 14.78                            | 30           | PASS    |
| 802.11g       | 2412            | 1       | 19.10                            | 30           | PASS    |
|               | 2412            | 2       | 19.04                            | 30           | PASS    |
|               | 2437            | 1       | 19.33                            | 30           | PASS    |
|               | 2437            | 2       | 18.87                            | 30           | PASS    |
|               | 2462            | 1       | 19.49                            | 30           | PASS    |
|               | 2462            | 2       | 18.93                            | 30           | PASS    |
| 802.11n(HT20) | 2412            | 1       | 16.65                            | 30           | PASS    |
|               | 2412            | 2       | 16.59                            | 30           | PASS    |
|               | 2412            | Total   | 19.63                            | 28.69        | PASS    |
|               | 2437            | 1       | 16.71                            | 30           | PASS    |
|               | 2437            | 2       | 16.37                            | 30           | PASS    |
|               | 2437            | Total   | 19.55                            | 28.69        | PASS    |
|               | 2462            | 1       | 17.03                            | 30           | PASS    |
|               | 2462            | 2       | 16.58                            | 30           | PASS    |
| 802.11n(HT40) | 2422            | 1       | 16.54                            | 30           | PASS    |
|               | 2422            | 2       | 17.99                            | 30           | PASS    |
|               | 2422            | Total   | 20.34                            | 28.69        | PASS    |
|               | 2437            | 1       | 16.77                            | 30           | PASS    |
|               | 2437            | 2       | 17.92                            | 30           | PASS    |
|               | 2437            | Total   | 20.39                            | 28.69        | PASS    |
|               | 2452            | 1       | 16.77                            | 30           | PASS    |
|               | 2452            | 2       | 17.92                            | 30           | PASS    |
|               | 2452            | Total   | 20.39                            | 28.69        | PASS    |
|               |                 |         |                                  |              |         |

**Note:** transmit signals are completely *correlated*,

Directional gain= $10 \times \log[(10^{4.4/20} + 10^{4.2/20})/2]$ =7.31dBi

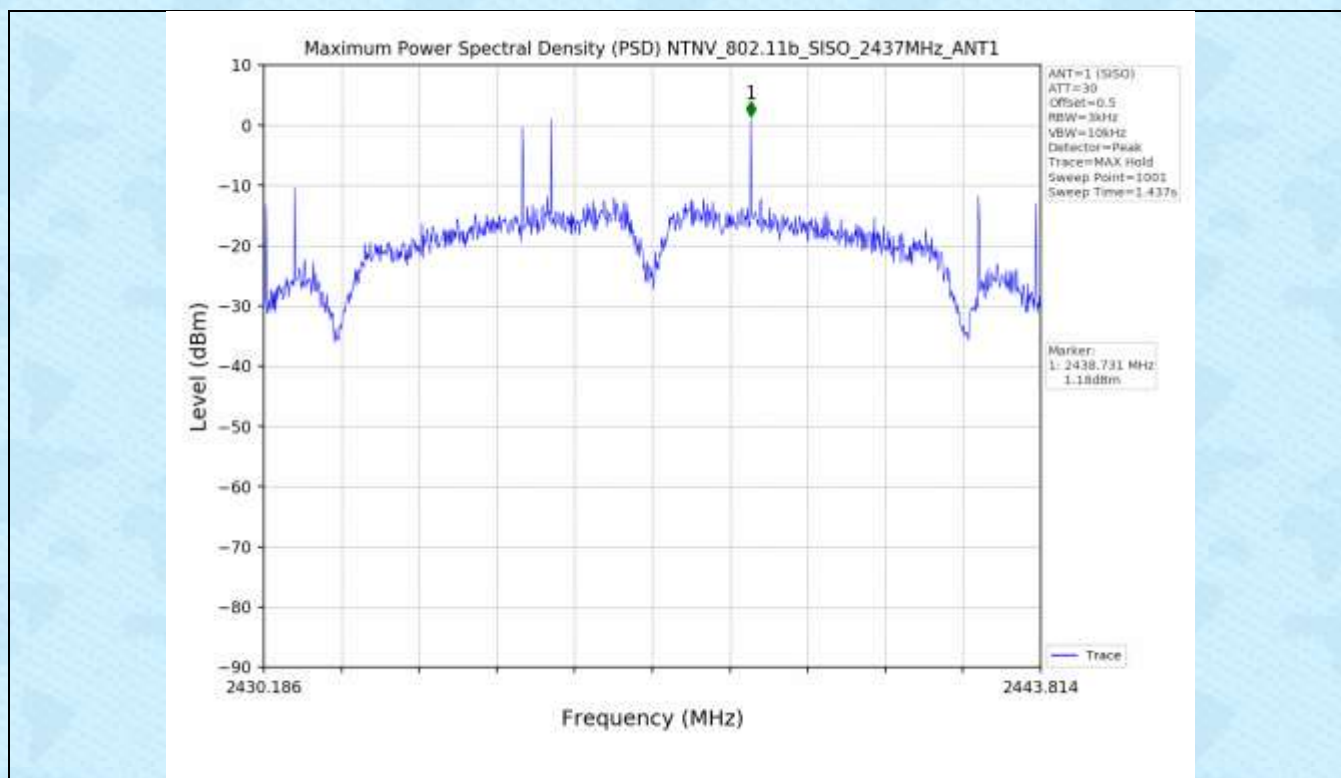
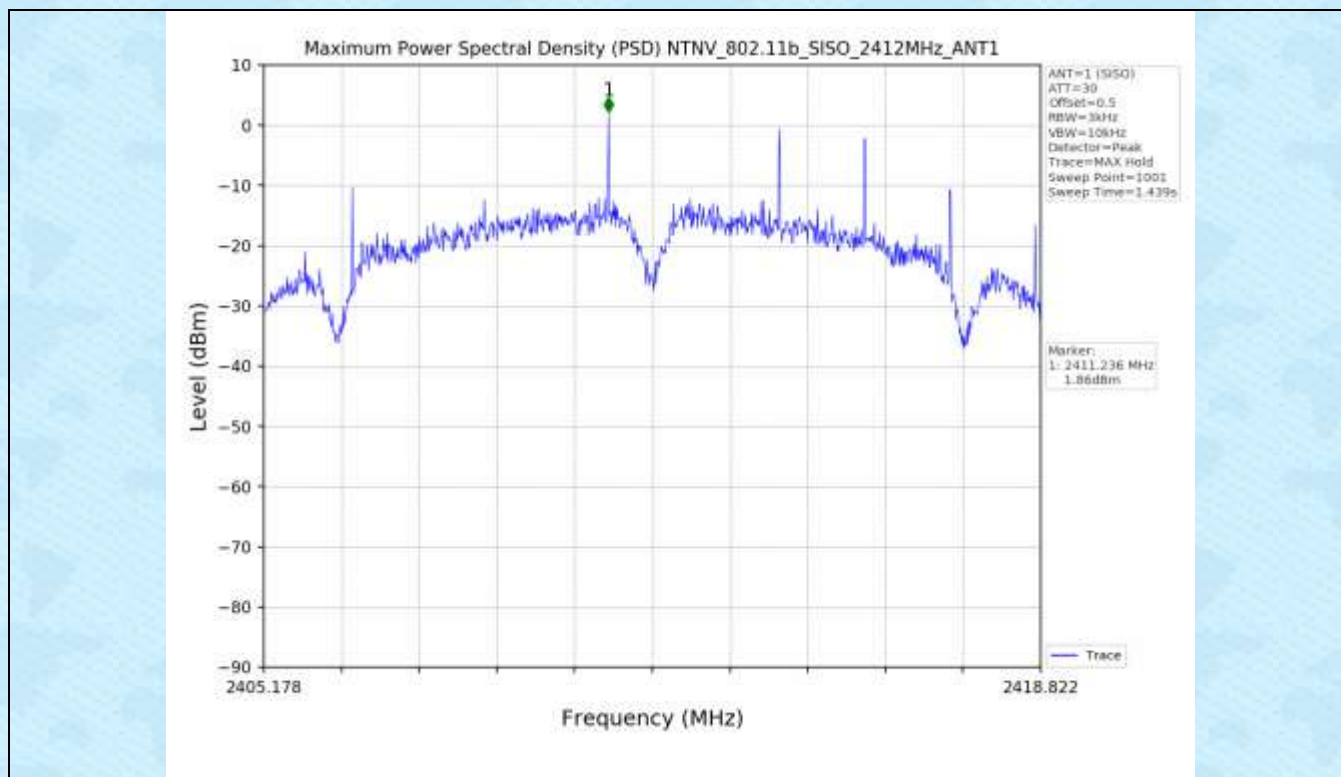
## 4. Maximum Power Spectral Density (PSD)

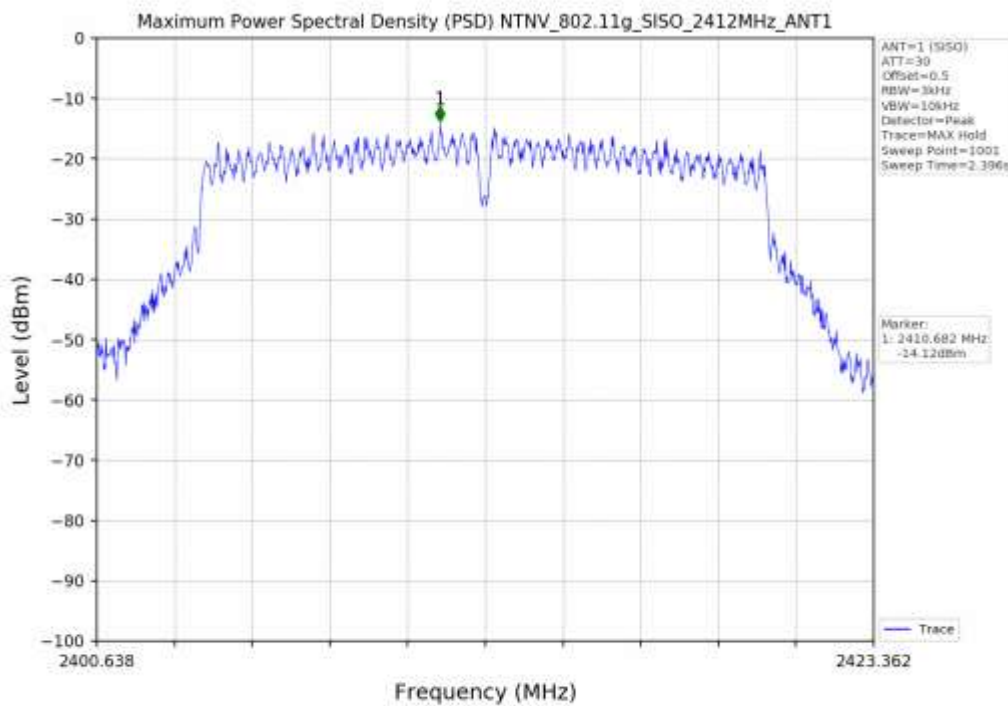
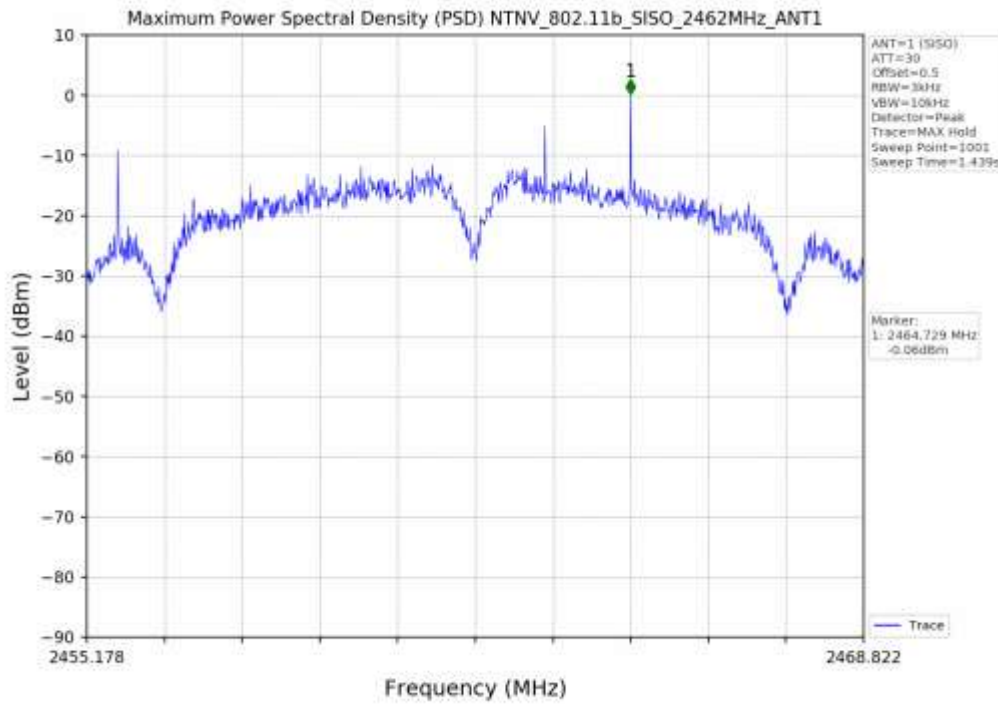
### 4.1 Test Result

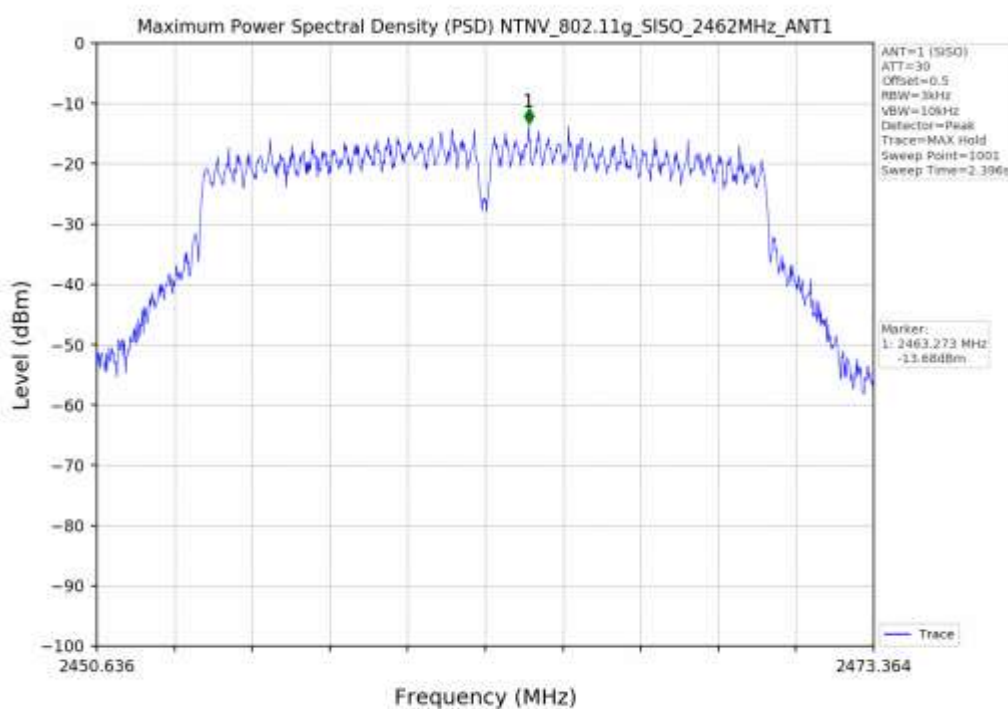
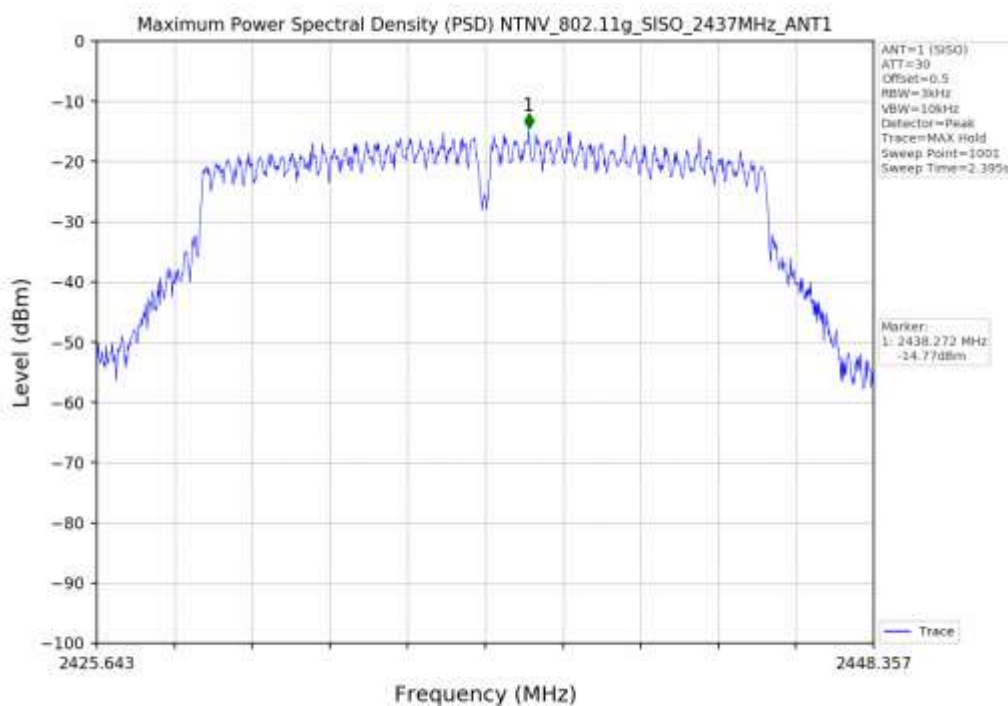
| Test Mode     | Frequency (MHz) | Tx Type | Maximum Power Spectral Density (dBm/3KHz) | Limits (dBm/3kHz) | Verdict |
|---------------|-----------------|---------|-------------------------------------------|-------------------|---------|
| 802.11b       | 2412            | 1       | 1.86                                      | ≤8                | PASS    |
|               | 2412            | 2       | 1.99                                      | ≤8                | PASS    |
|               | 2437            | 1       | 1.18                                      | ≤8                | PASS    |
|               | 2437            | 2       | -4.30                                     | ≤8                | PASS    |
|               | 2462            | 1       | -0.06                                     | ≤8                | PASS    |
|               | 2462            | 2       | 1.85                                      | ≤8                | PASS    |
| 802.11g       | 2412            | 1       | -14.12                                    | ≤8                | PASS    |
|               | 2412            | 2       | -14.65                                    | ≤8                | PASS    |
|               | 2437            | 1       | -14.77                                    | ≤8                | PASS    |
|               | 2437            | 2       | -12.65                                    | ≤8                | PASS    |
|               | 2462            | 1       | -13.68                                    | ≤8                | PASS    |
|               | 2462            | 2       | -13.48                                    | ≤8                | PASS    |
| 802.11n(HT20) | 2412            | 1       | -15.55                                    | ≤8                | PASS    |
|               | 2412            | 2       | -16.81                                    | ≤8                | PASS    |
|               | 2412            | Total   | -13.12                                    | ≤6.69             | PASS    |
|               | 2437            | 1       | -16.74                                    | ≤8                | PASS    |
|               | 2437            | 2       | -16.45                                    | ≤8                | PASS    |
|               | 2437            | Total   | -13.58                                    | ≤6.69             | PASS    |
|               | 2462            | 1       | -15.67                                    | ≤8                | PASS    |
|               | 2462            | 2       | -17.06                                    | ≤8                | PASS    |
| 802.11n(HT40) | 2422            | 1       | -20.37                                    | ≤8                | PASS    |
|               | 2422            | 2       | -18.82                                    | ≤8                | PASS    |
|               | 2422            | Total   | -16.52                                    | ≤6.69             | PASS    |
|               | 2437            | 1       | -20.06                                    | ≤8                | PASS    |
|               | 2437            | 2       | -18.56                                    | ≤8                | PASS    |
|               | 2437            | Total   | -16.24                                    | ≤6.69             | PASS    |
|               | 2452            | 1       | -19.98                                    | ≤8                | PASS    |
|               | 2452            | 2       | -18.72                                    | ≤8                | PASS    |
|               | 2452            | Total   | -16.29                                    | ≤6.69             | PASS    |

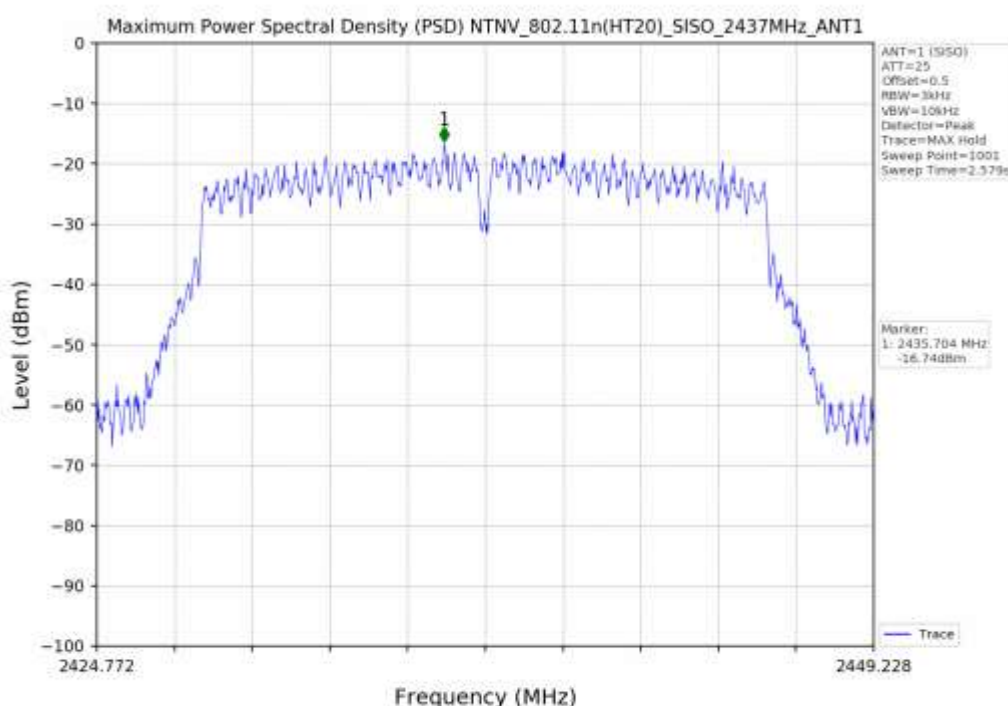
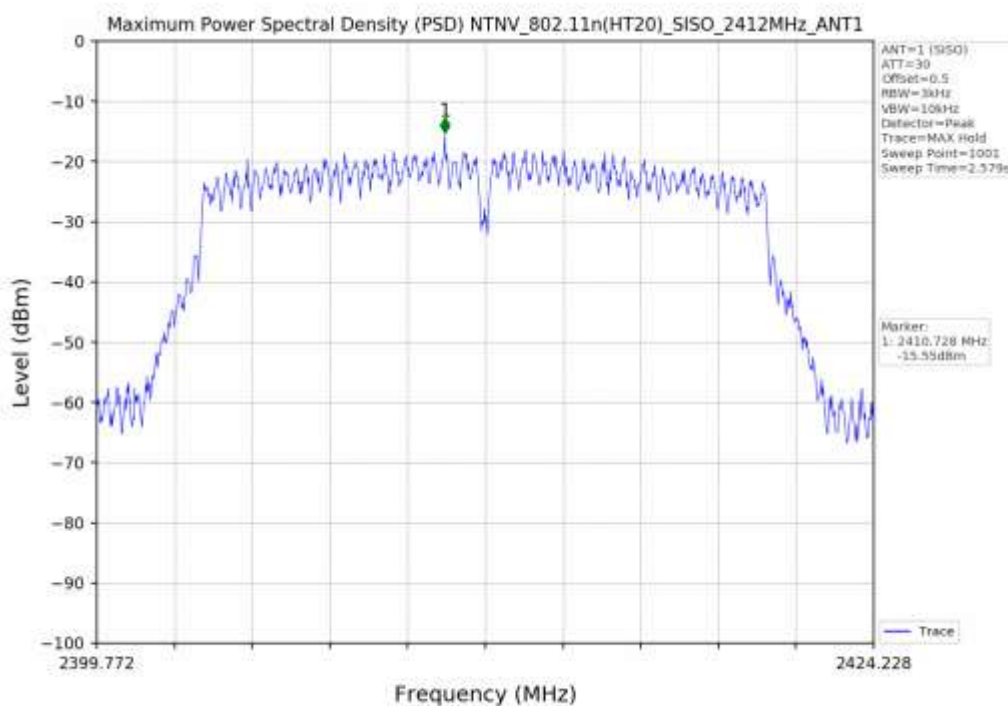
## 4.2 Test Graph

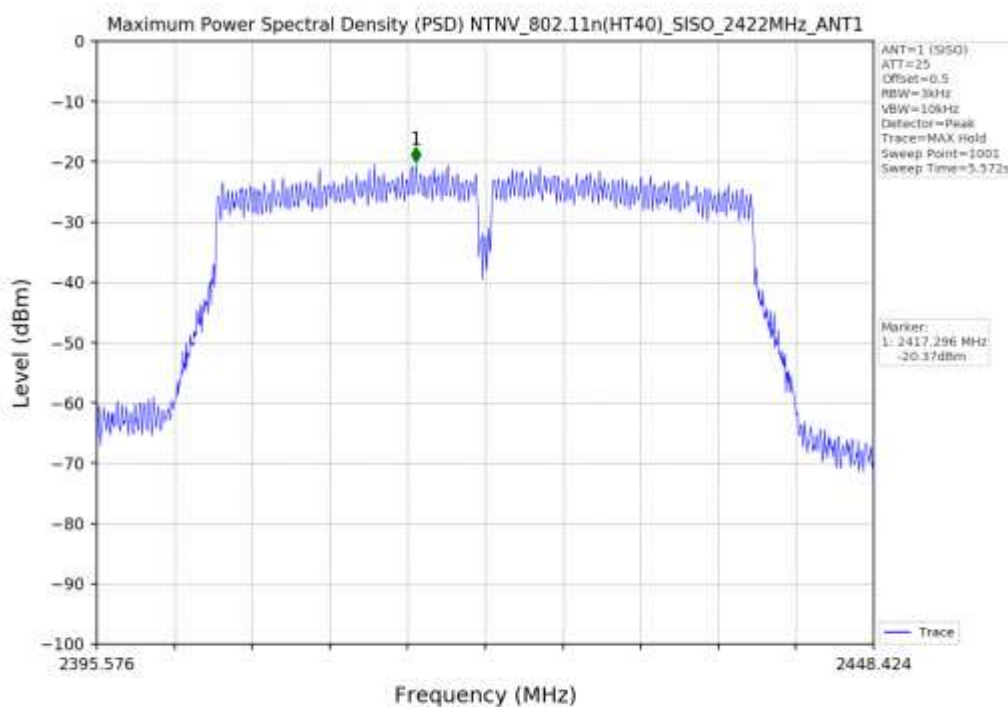
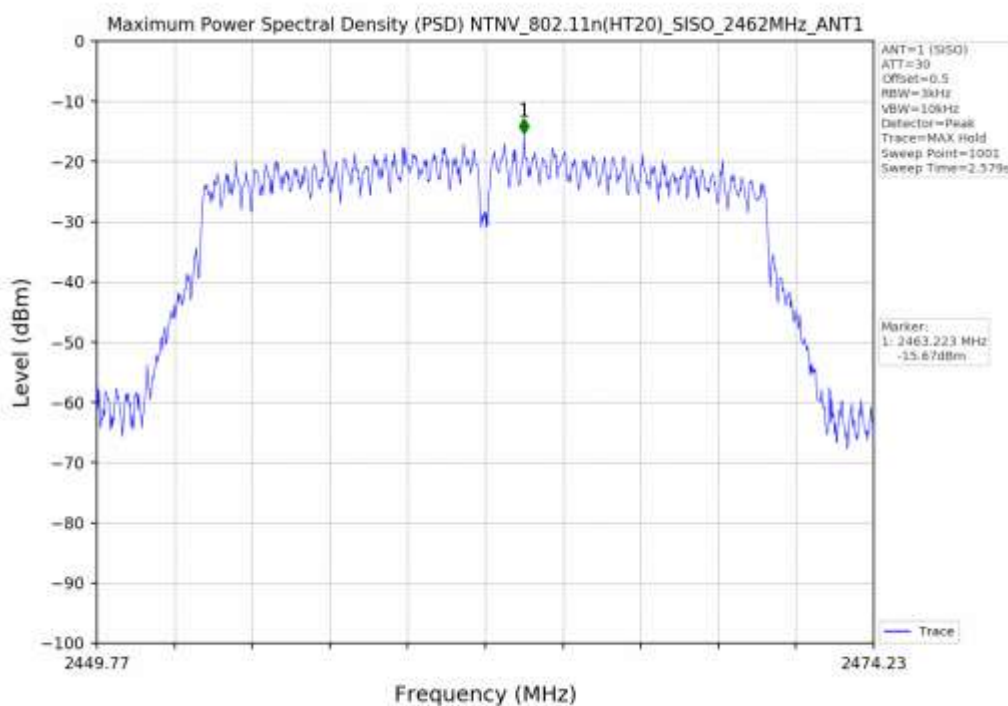
ANT 1:

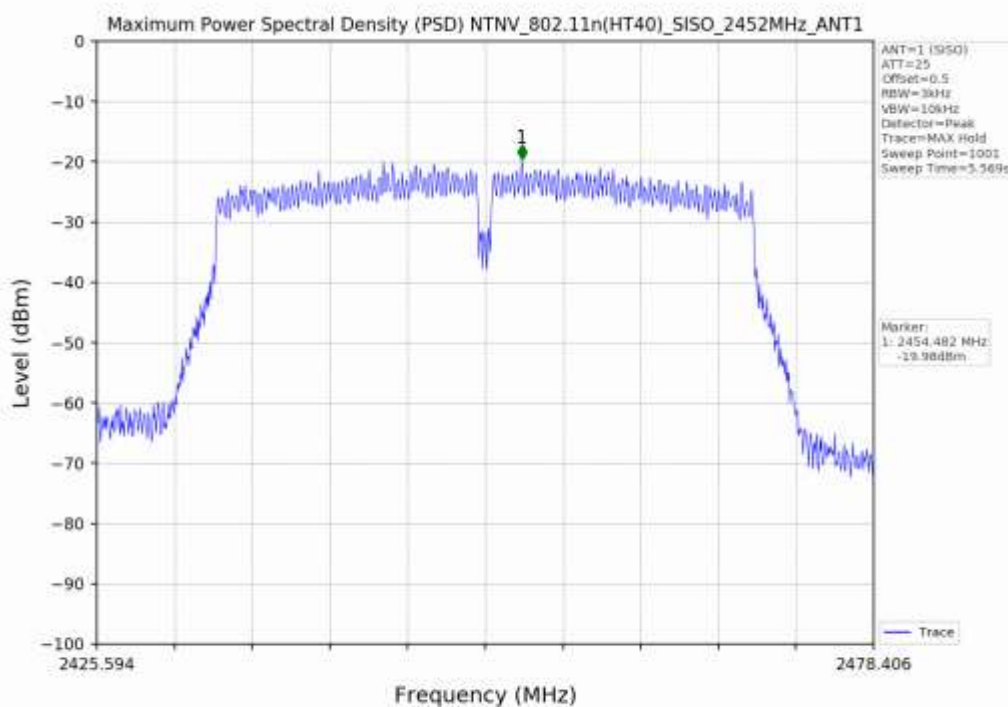
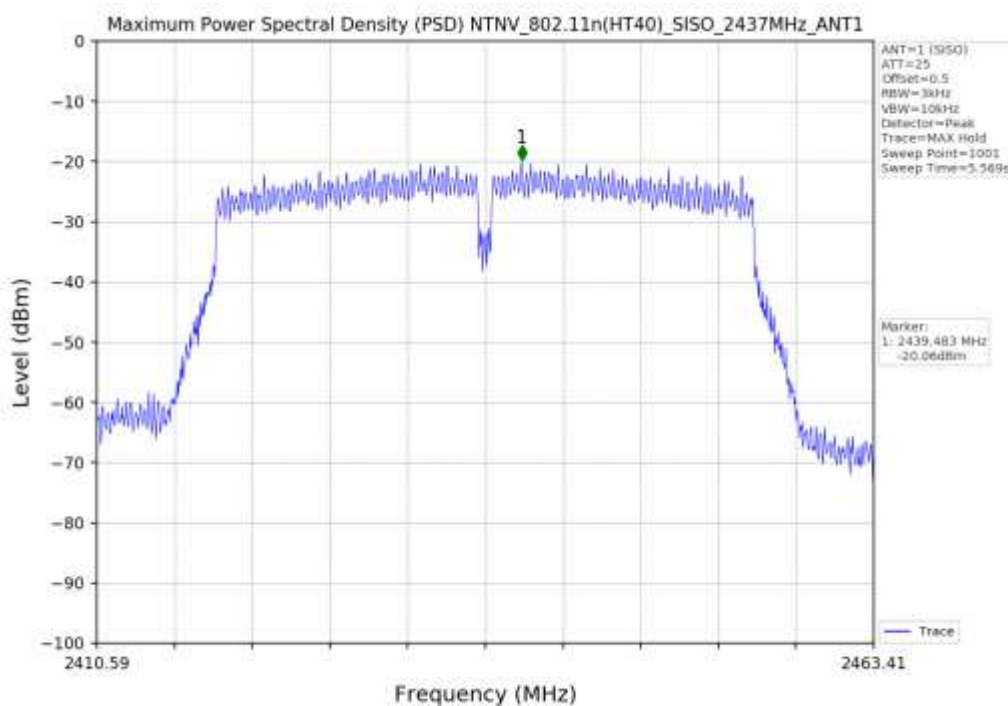




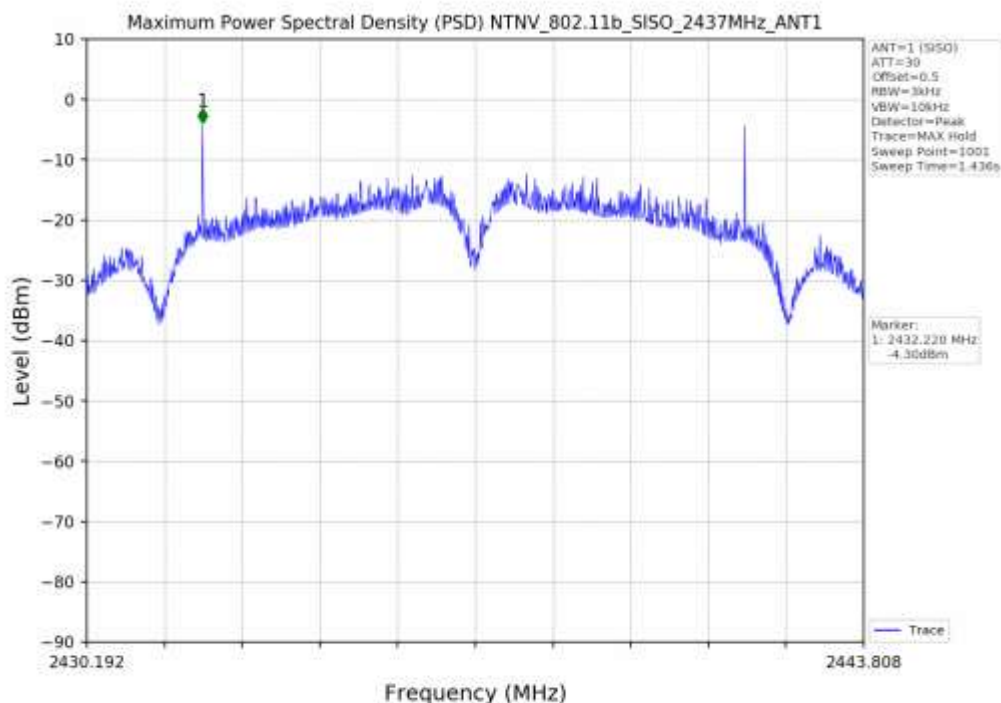
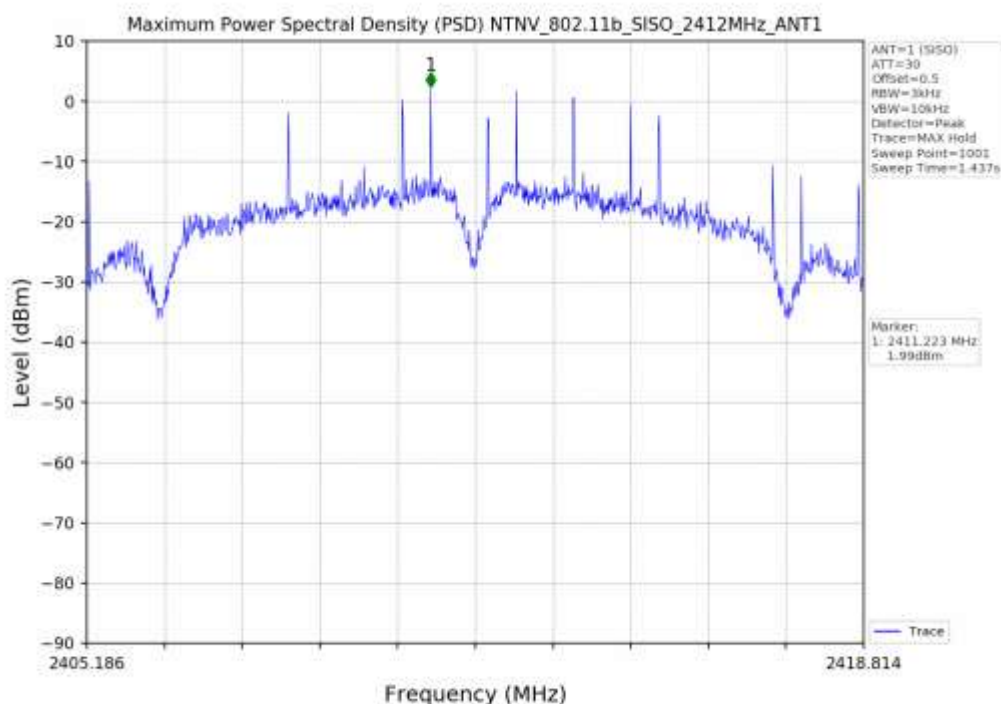


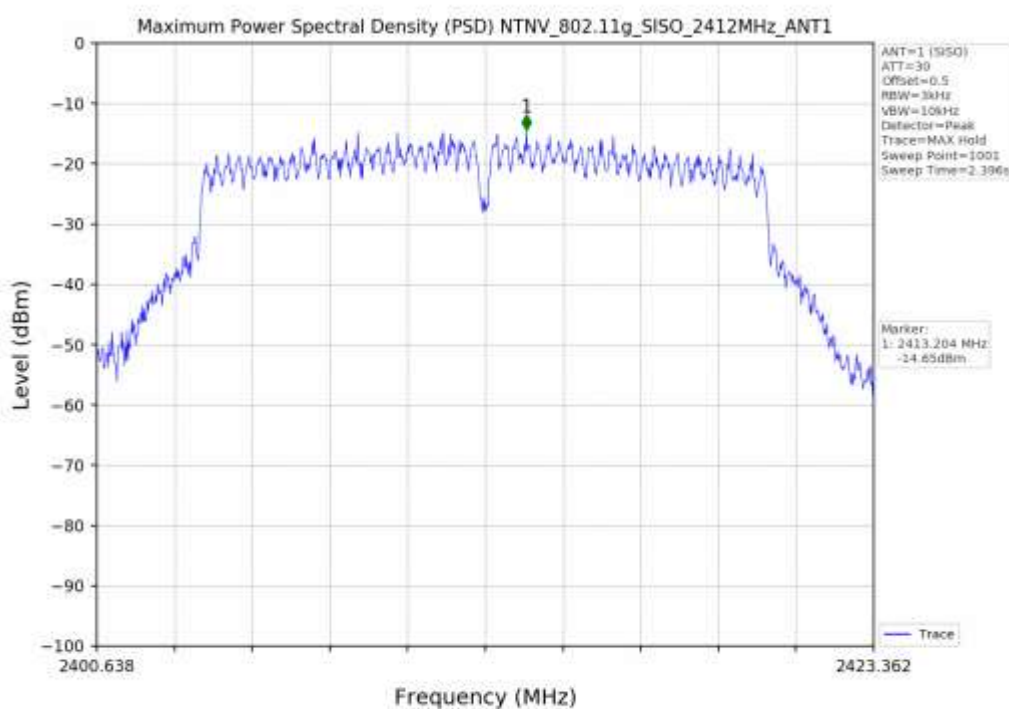
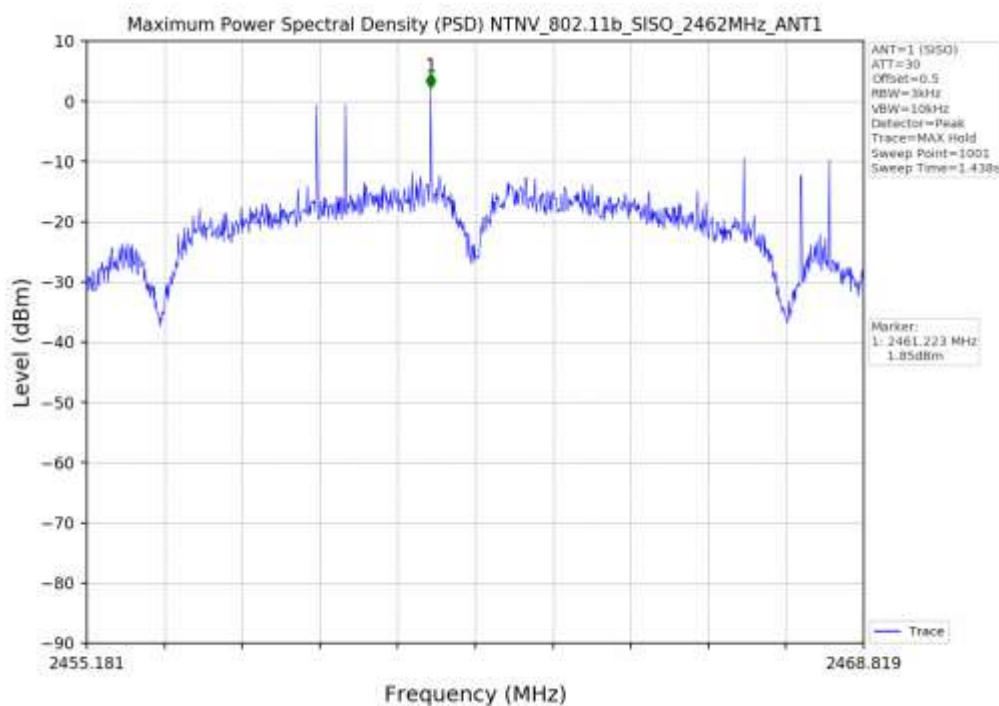


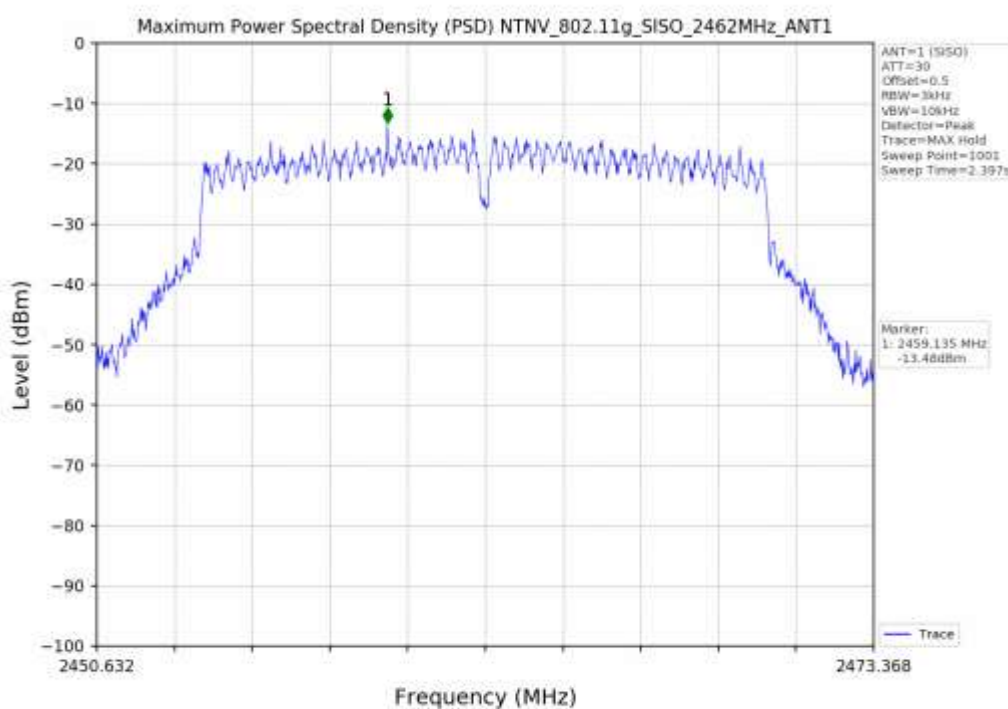
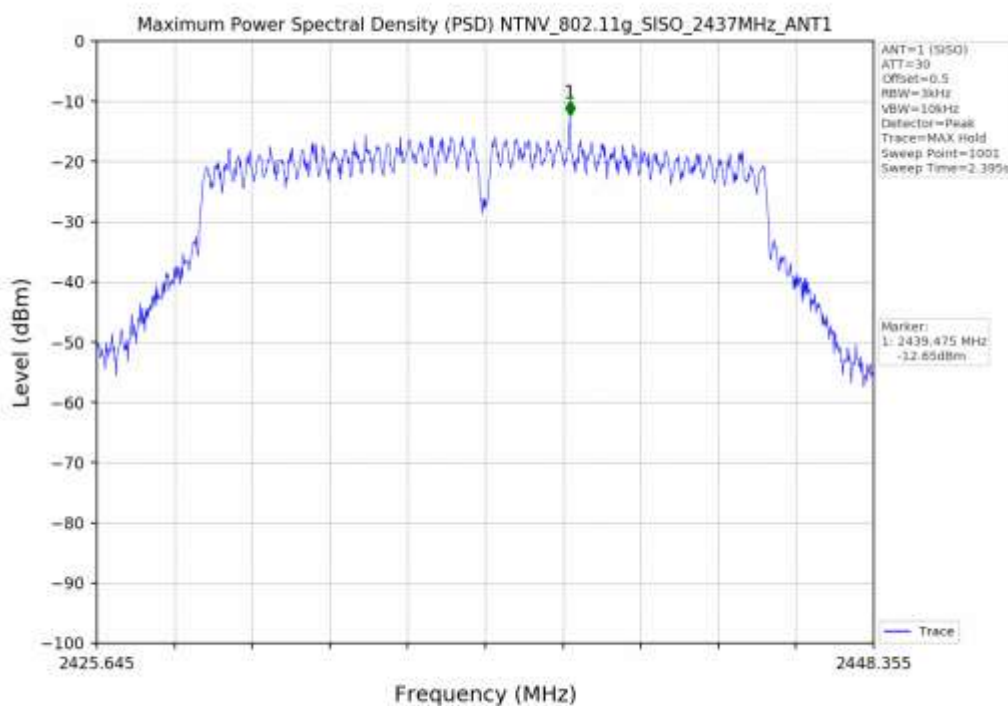


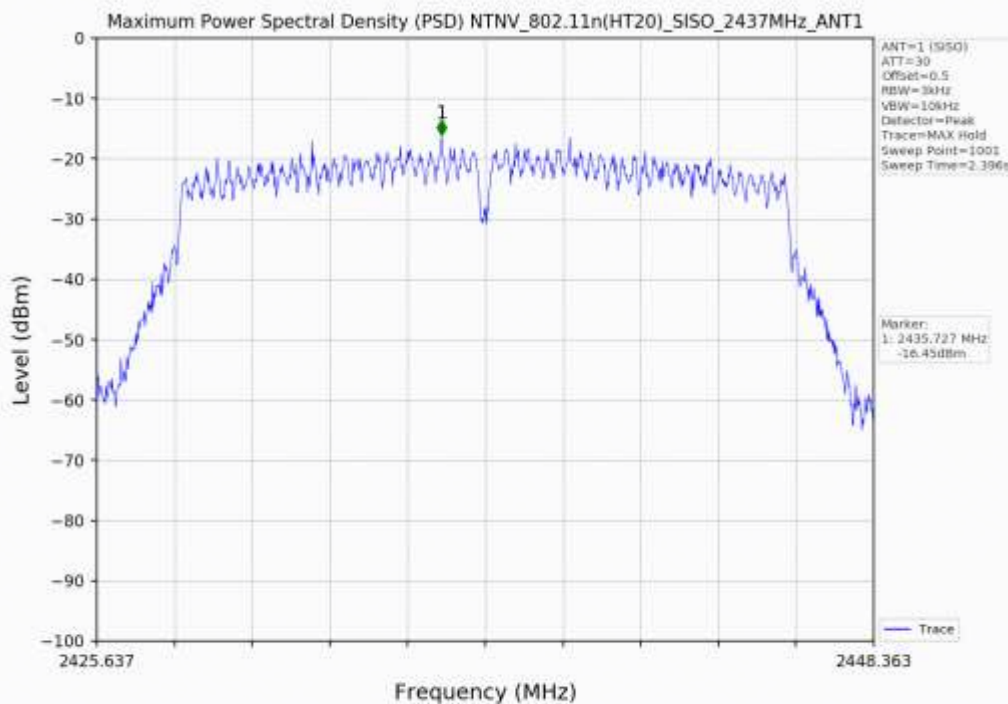
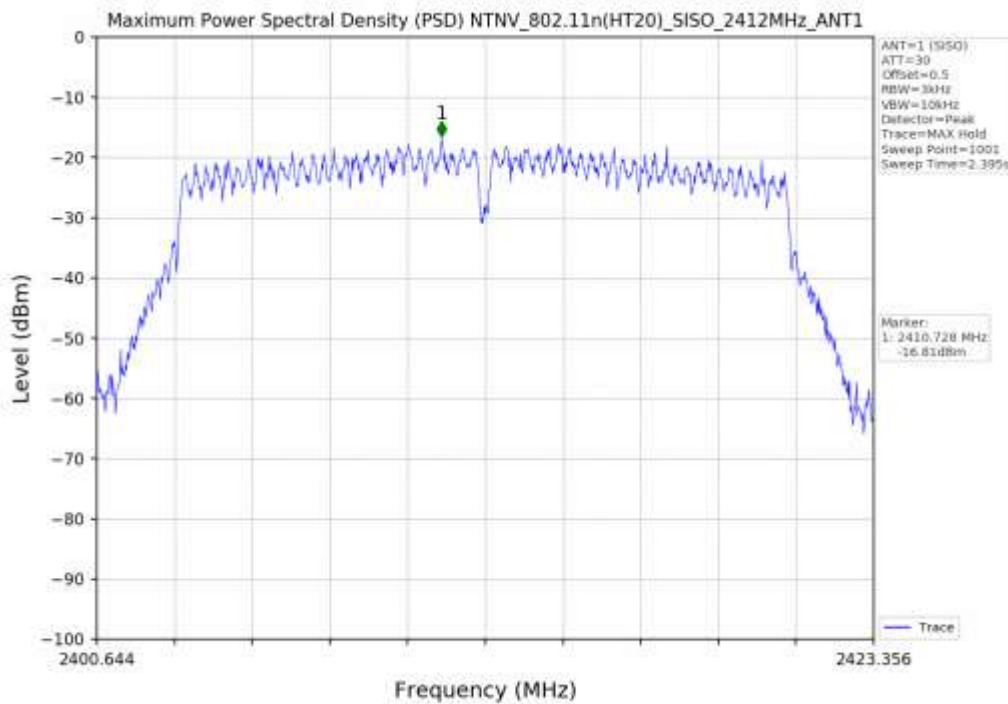


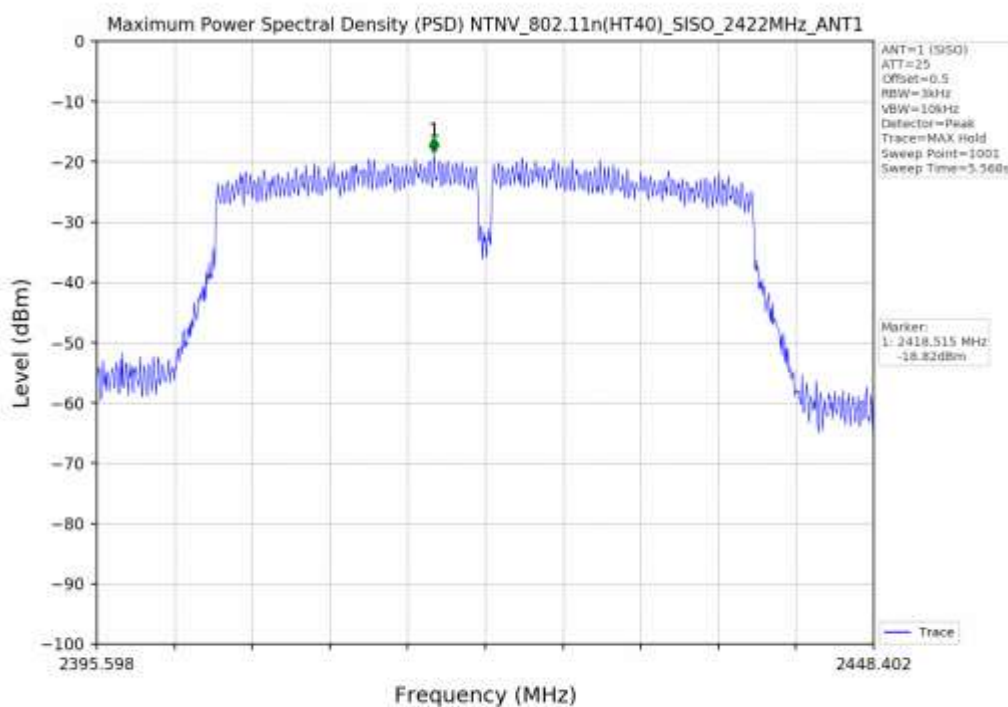
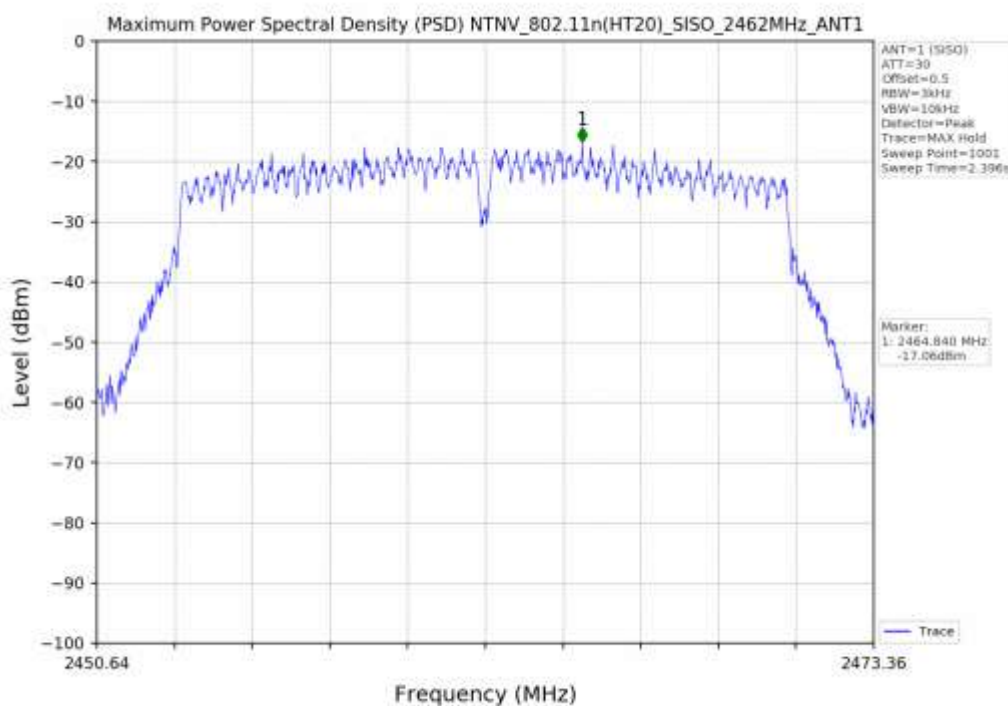
## ANT 2:

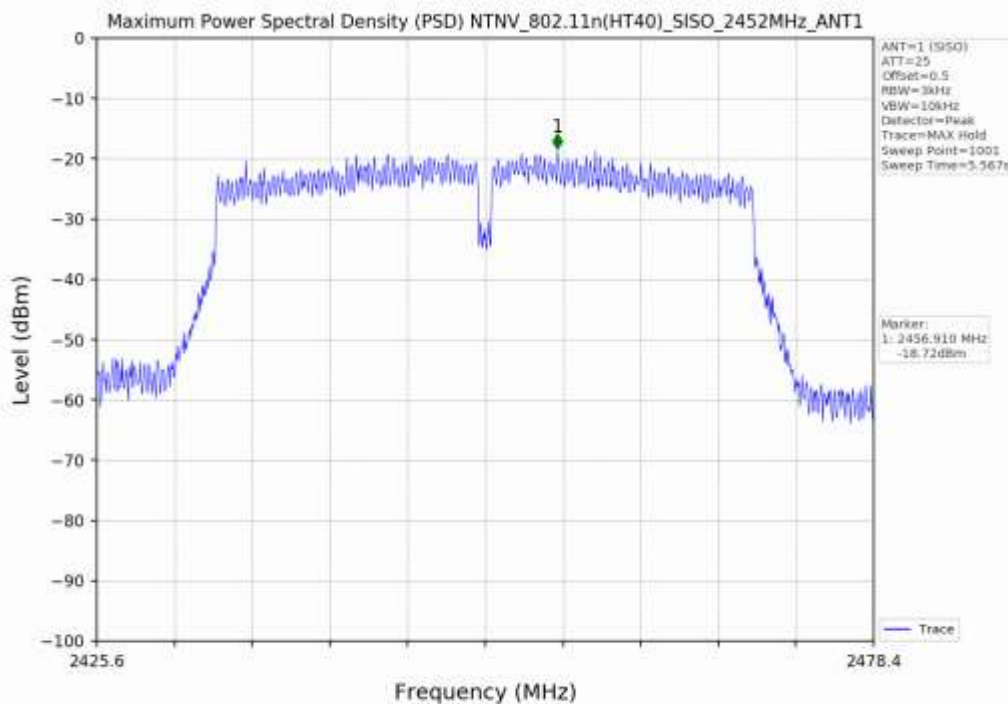
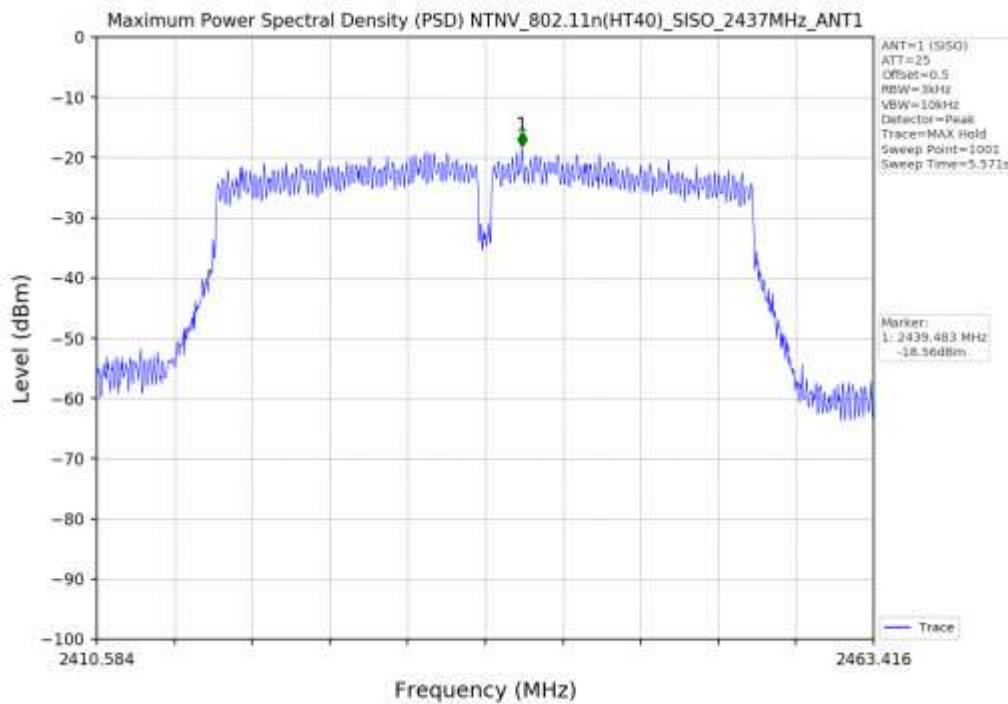












## 5. Unwanted Emissions in Non-restricted Frequency Bands

### 5.1 Test Result

#### ANT 1:

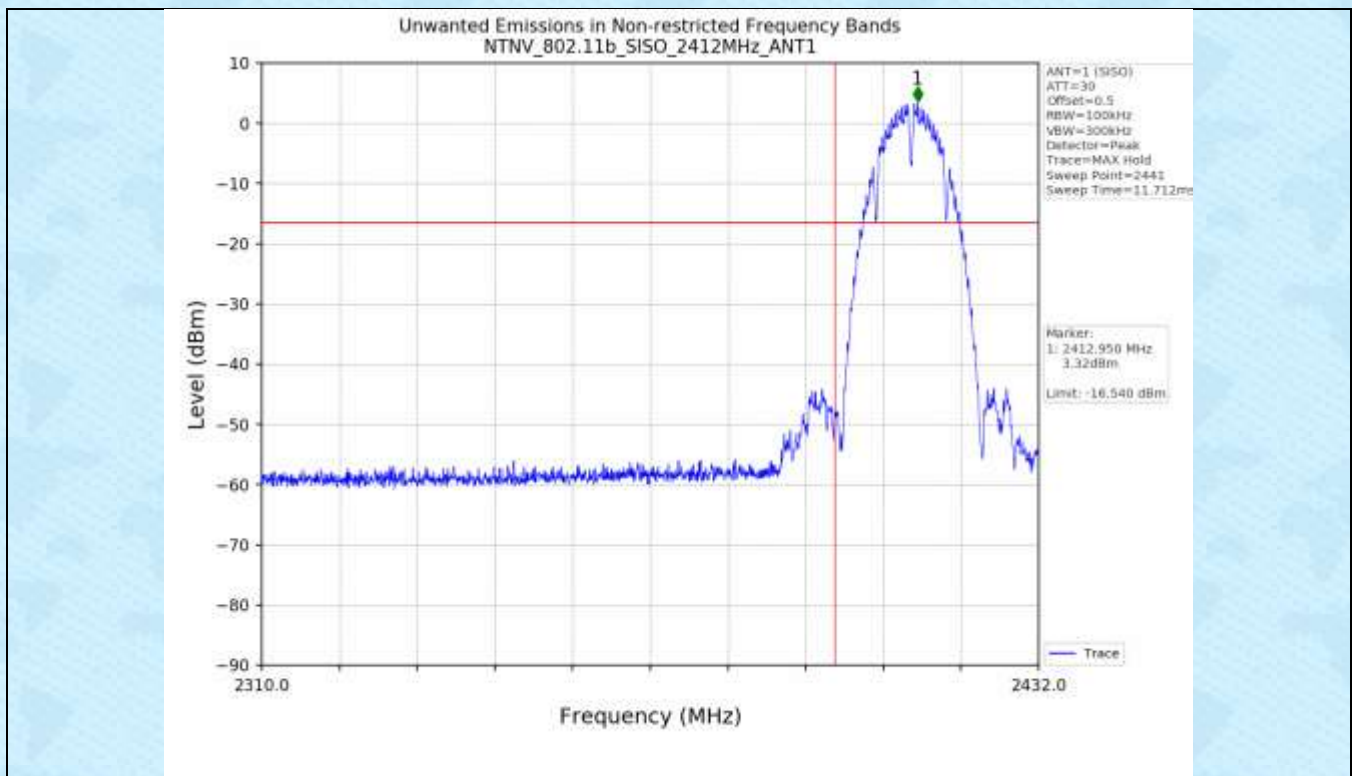
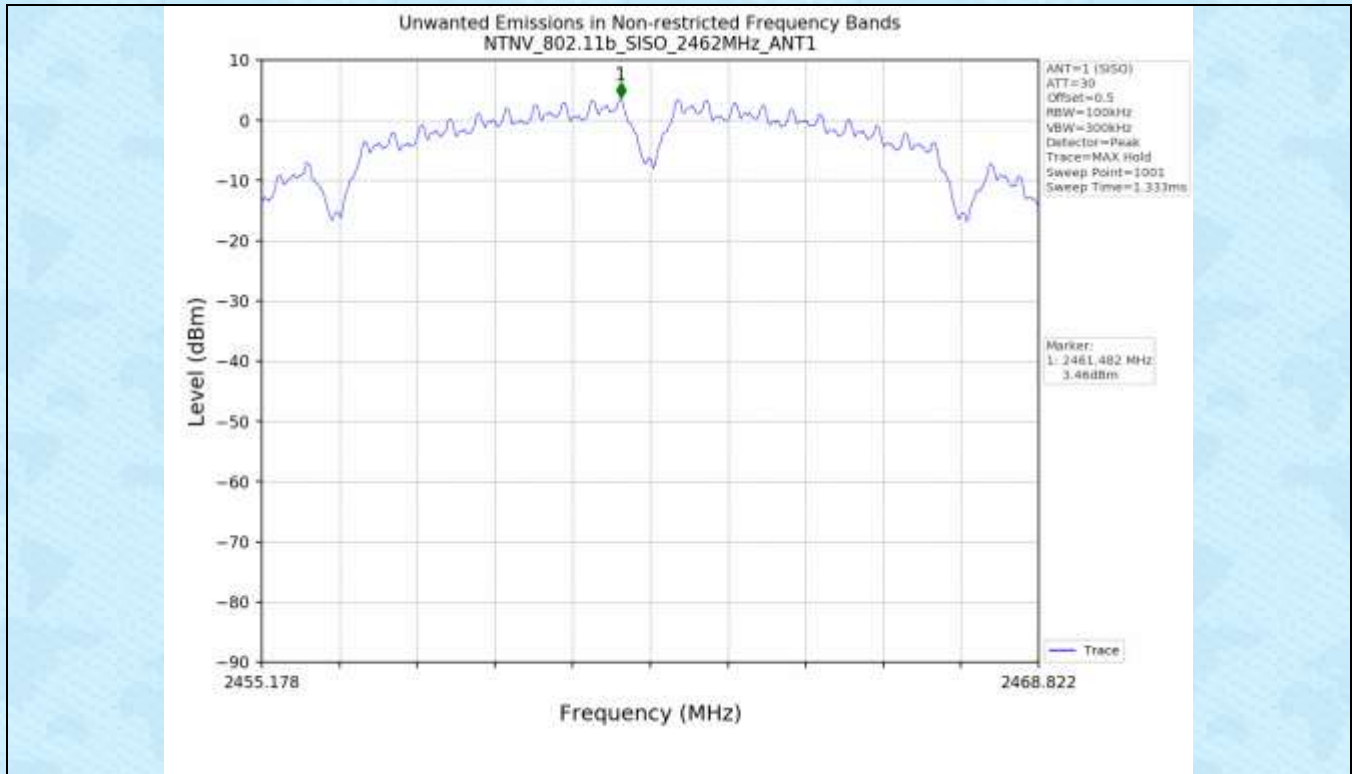
| Test Mode     | Frequency (MHz) | TX Type | ANT No. | Spurious Conducted Emission (dBm) | Limits (dBm) | Verdict |
|---------------|-----------------|---------|---------|-----------------------------------|--------------|---------|
| 802.11b       | 2412            | SISO    | 1       | Refer to test graph               | -16.54       | PASS    |
|               | 2437            | SISO    | 1       | Refer to test graph               | -16.54       | PASS    |
|               | 2462            | SISO    | 1       | Refer to test graph               | -16.54       | PASS    |
| 802.11g       | 2412            | SISO    | 1       | Refer to test graph               | -18.17       | PASS    |
|               | 2437            | SISO    | 1       | Refer to test graph               | -18.17       | PASS    |
|               | 2462            | SISO    | 1       | Refer to test graph               | -18.17       | PASS    |
| 802.11n(HT20) | 2412            | SISO    | 1       | Refer to test graph               | -21.26       | PASS    |
|               | 2437            | SISO    | 1       | Refer to test graph               | -21.26       | PASS    |
|               | 2462            | SISO    | 1       | Refer to test graph               | -21.26       | PASS    |
| 802.11n(HT40) | 2422            | SISO    | 1       | Refer to test graph               | -24.58       | PASS    |
|               | 2437            | SISO    | 1       | Refer to test graph               | -24.58       | PASS    |
|               | 2452            | SISO    | 1       | Refer to test graph               | -24.58       | PASS    |

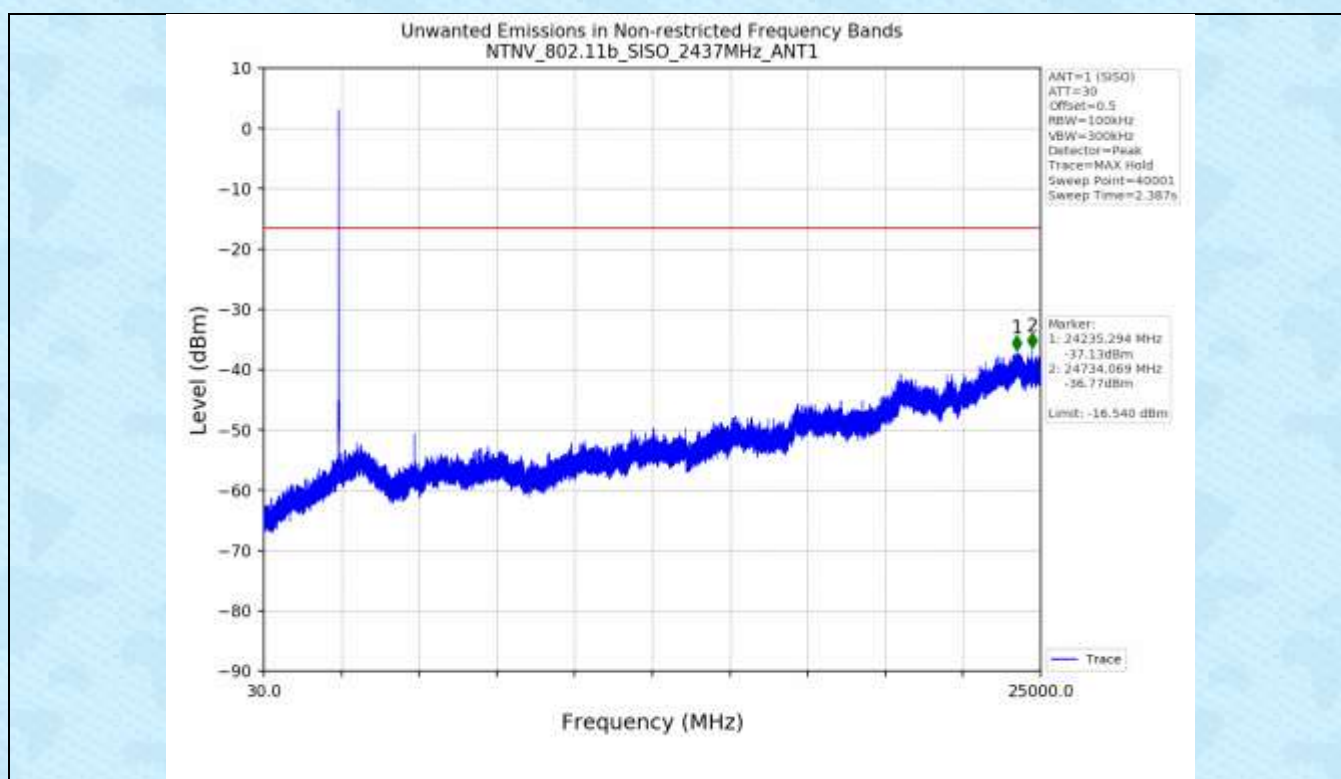
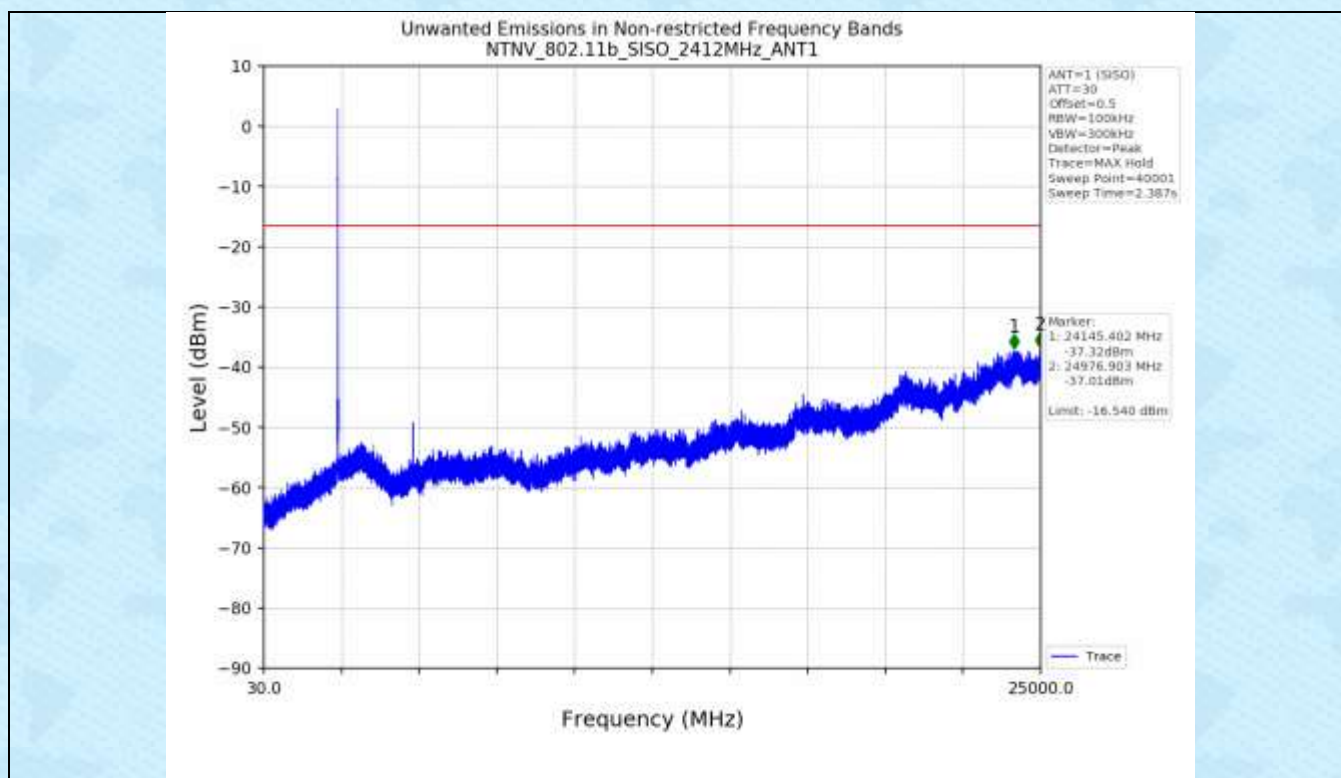
#### ANT 2:

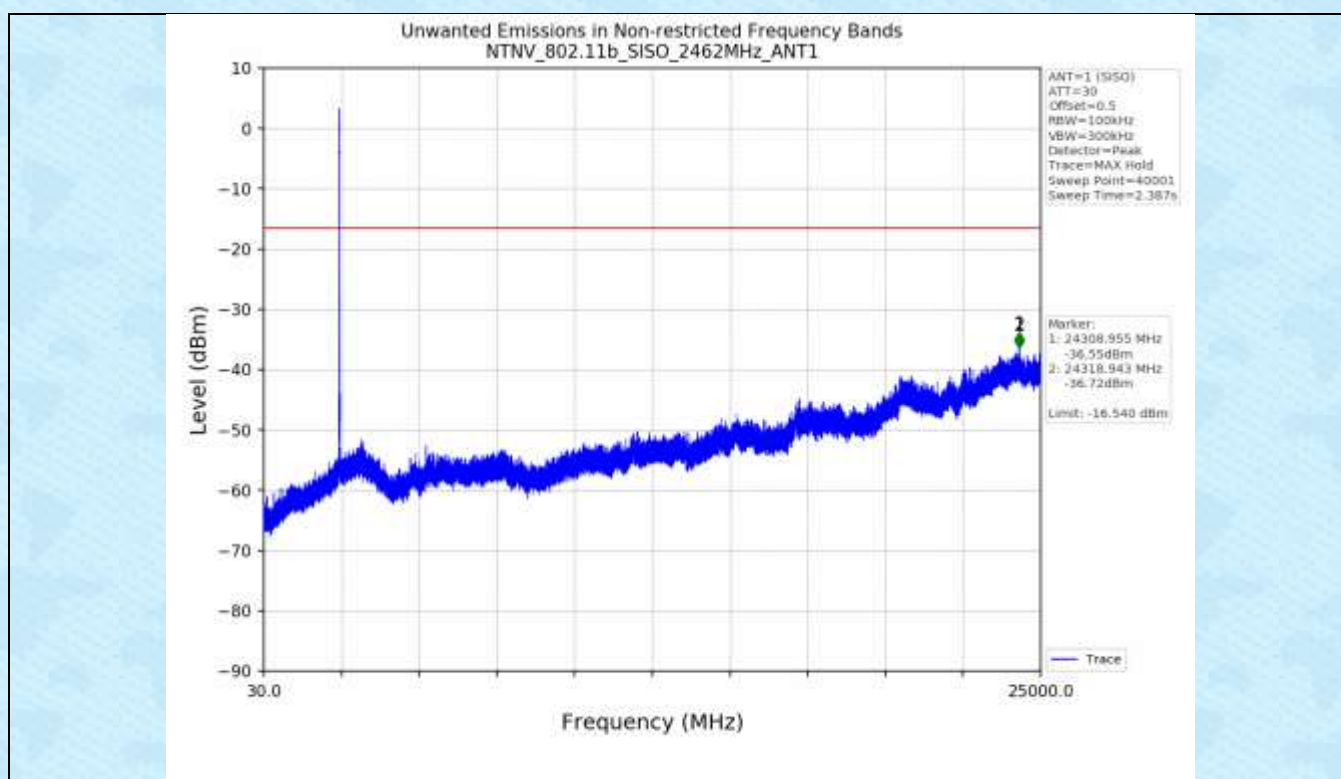
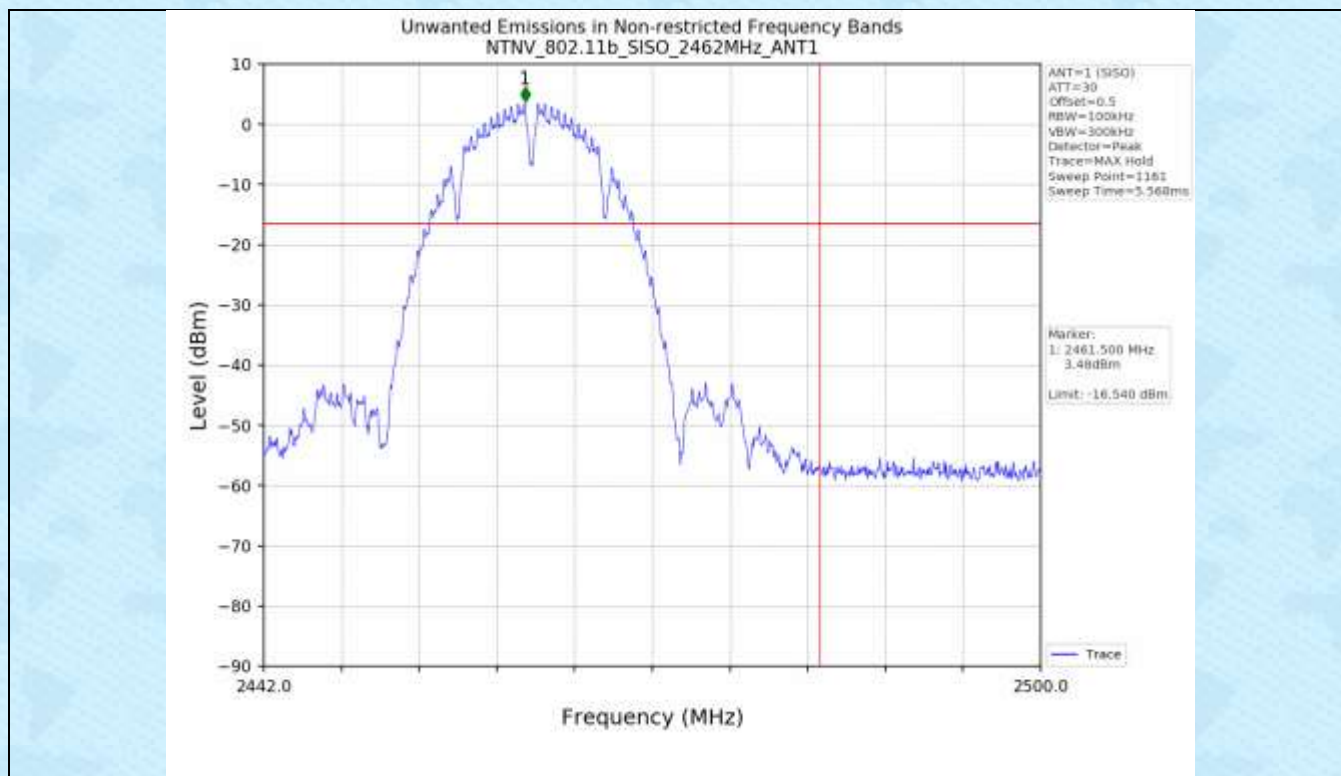
| Test Mode     | Frequency (MHz) | TX Type | ANT No. | Spurious Conducted Emission (dBm) | Limits (dBm) | Verdict |
|---------------|-----------------|---------|---------|-----------------------------------|--------------|---------|
| 802.11b       | 2412            | SISO    | 1       | Refer to test graph               | -16.92       | PASS    |
|               | 2437            | SISO    | 1       | Refer to test graph               | -16.92       | PASS    |
|               | 2462            | SISO    | 1       | Refer to test graph               | -16.92       | PASS    |
| 802.11g       | 2412            | SISO    | 1       | Refer to test graph               | -18.41       | PASS    |
|               | 2437            | SISO    | 1       | Refer to test graph               | -18.41       | PASS    |
|               | 2462            | SISO    | 1       | Refer to test graph               | -18.41       | PASS    |
| 802.11n(HT20) | 2412            | SISO    | 1       | Refer to test graph               | -20.68       | PASS    |
|               | 2437            | SISO    | 1       | Refer to test graph               | -20.68       | PASS    |
|               | 2462            | SISO    | 1       | Refer to test graph               | -20.68       | PASS    |
| 802.11n(HT40) | 2422            | SISO    | 1       | Refer to test graph               | -22.97       | PASS    |
|               | 2437            | SISO    | 1       | Refer to test graph               | -22.97       | PASS    |
|               | 2452            | SISO    | 1       | Refer to test graph               | -22.97       | PASS    |

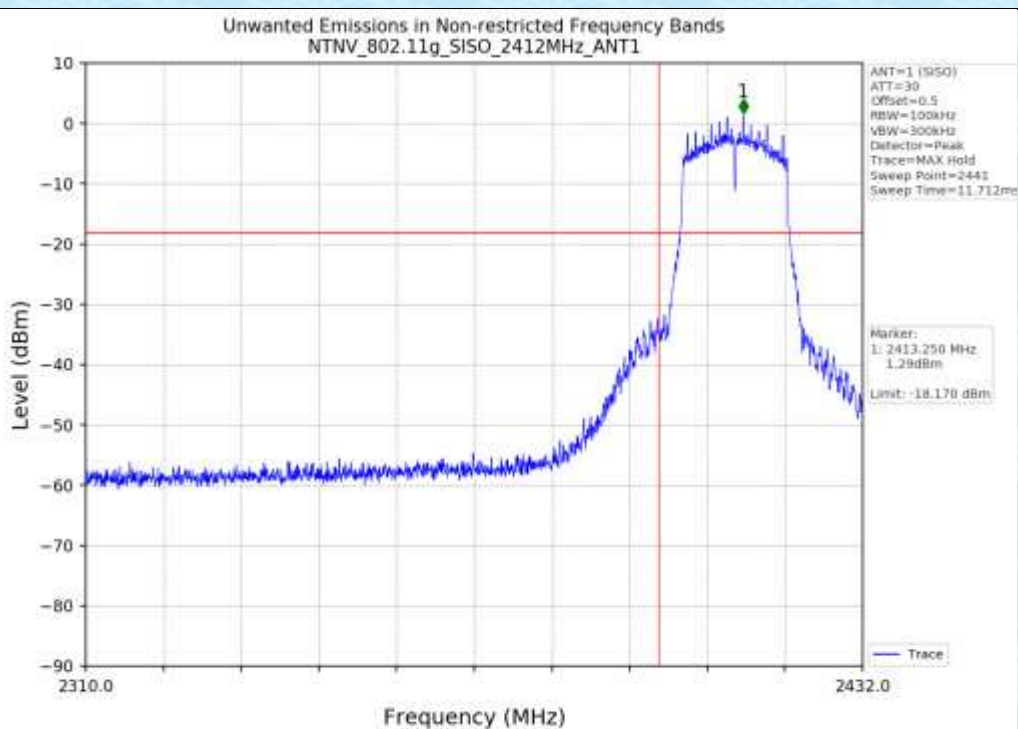
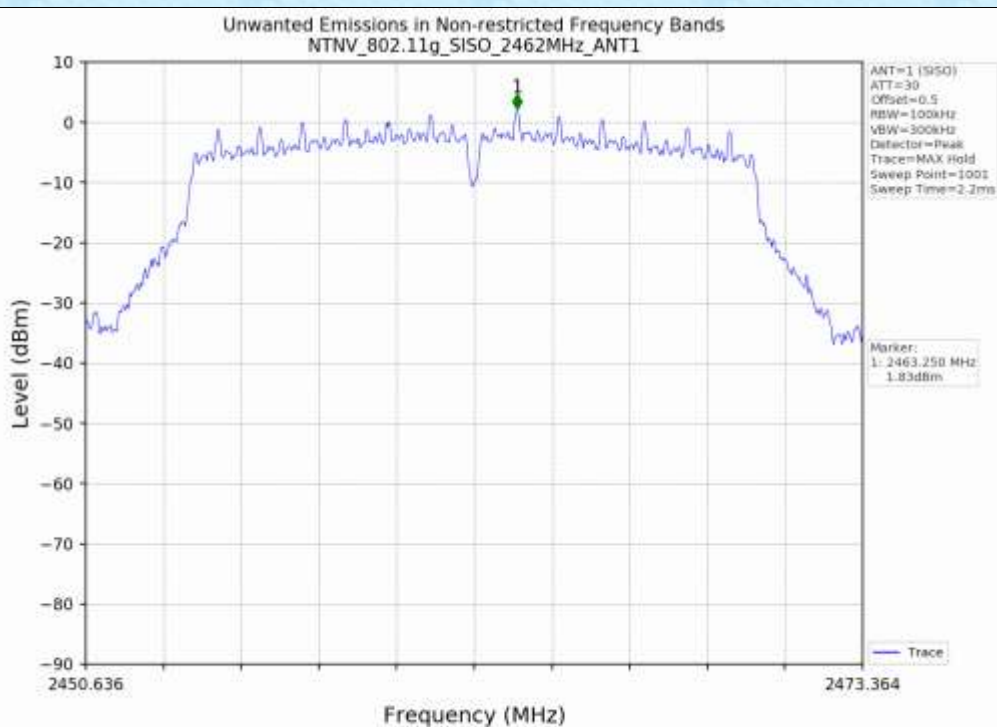
## 5.2 Test Graph

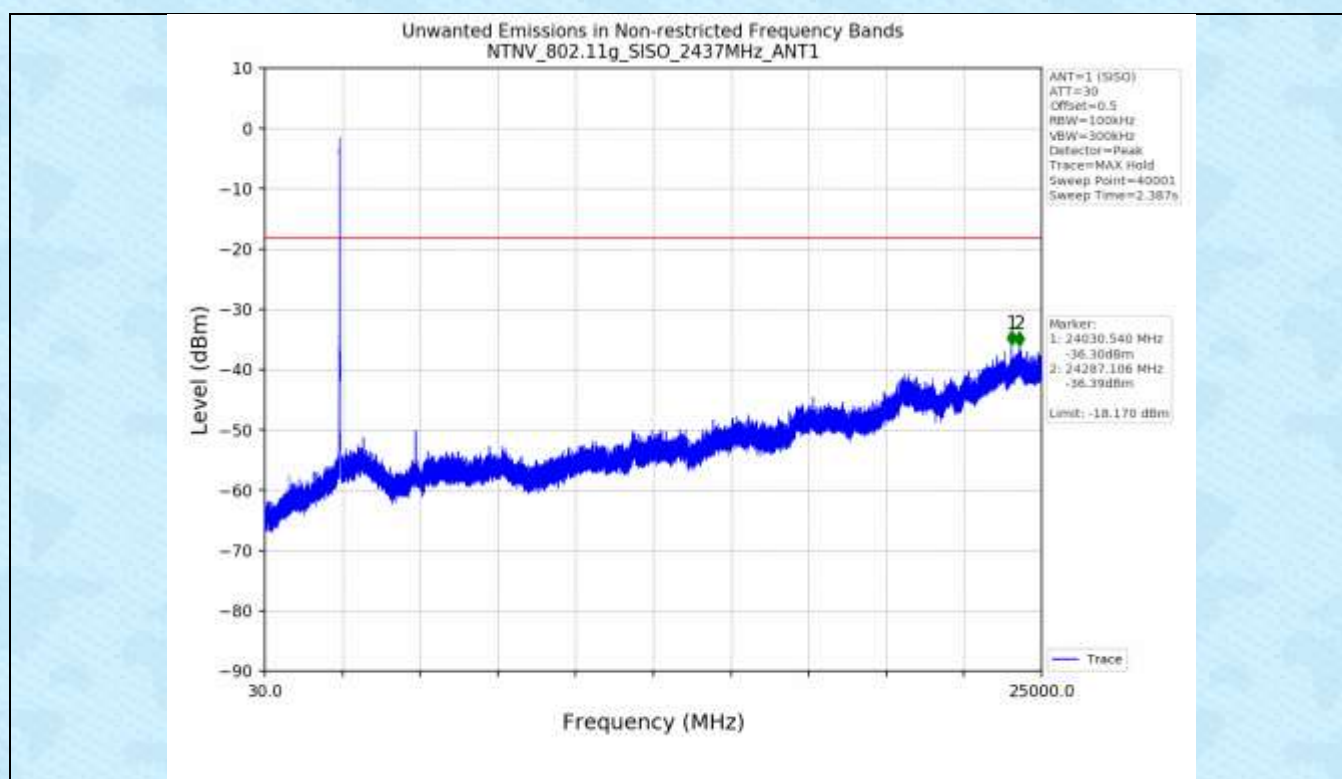
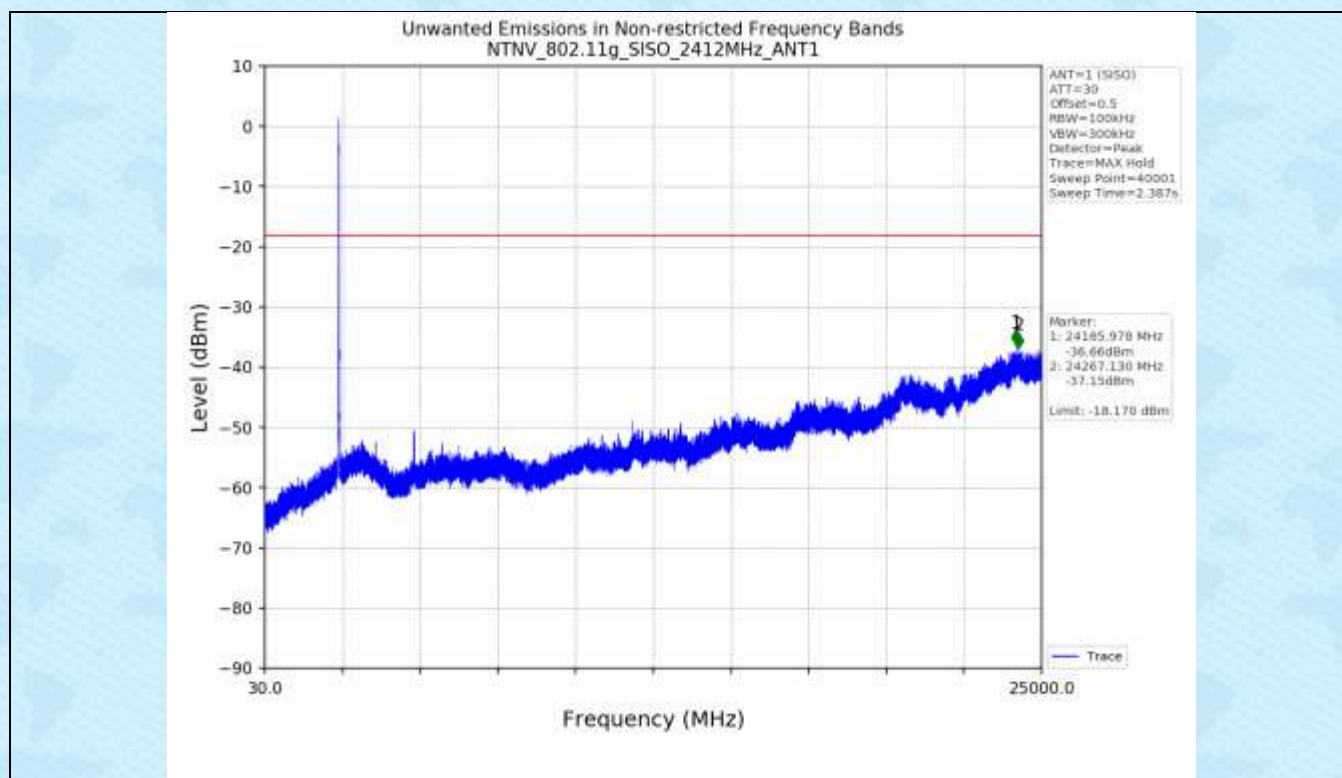
ANT 1:

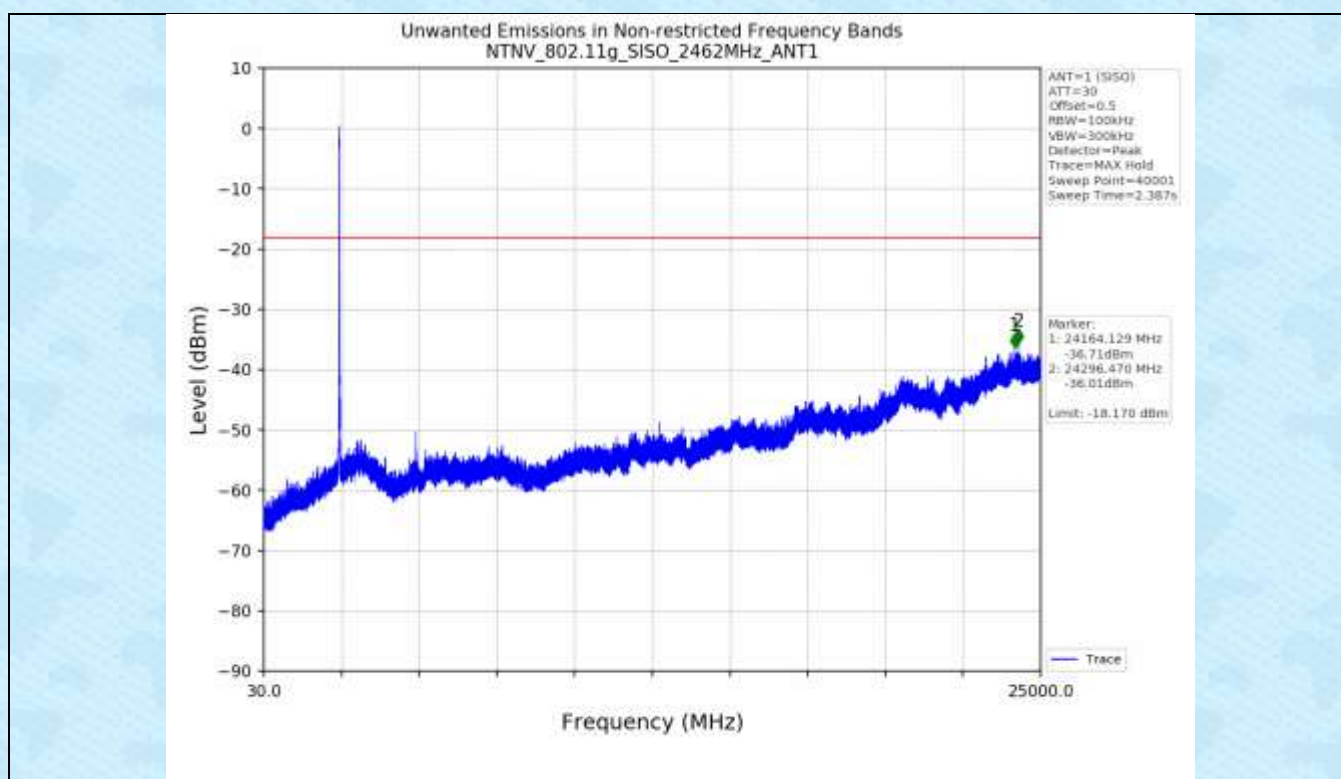
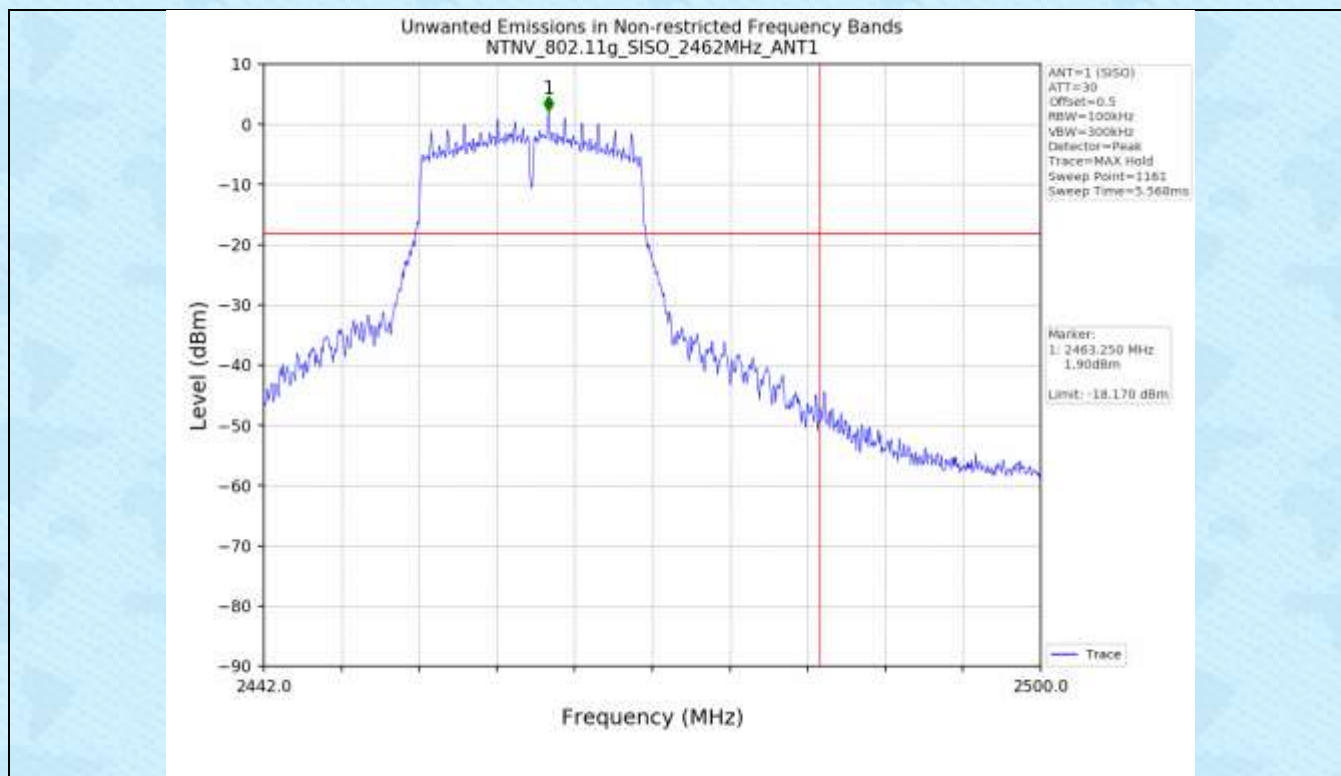


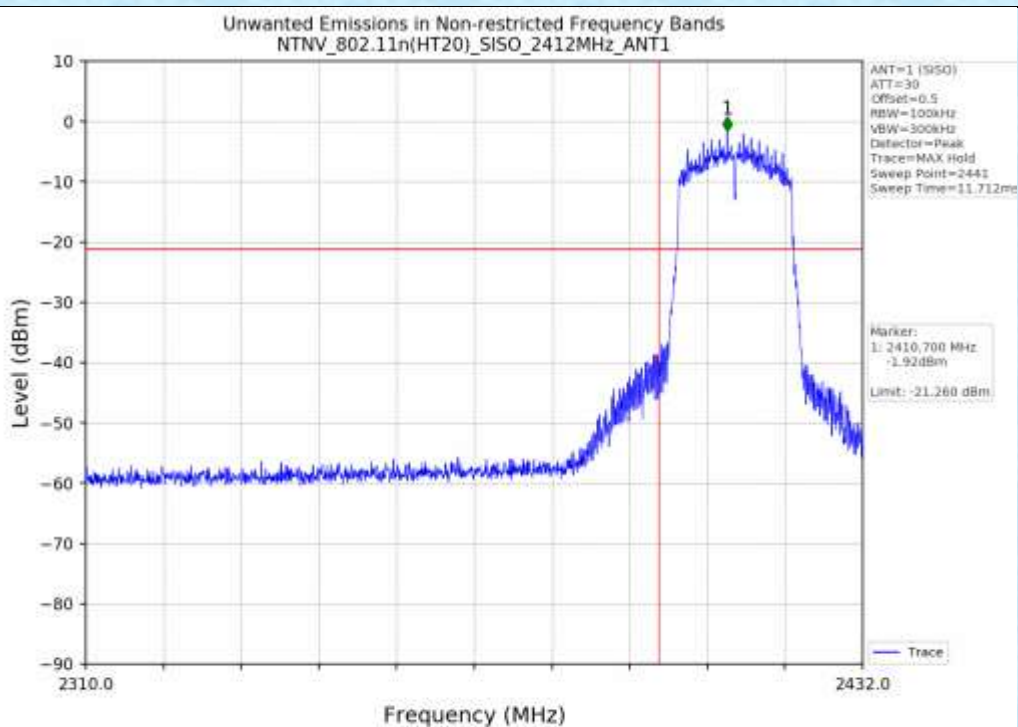
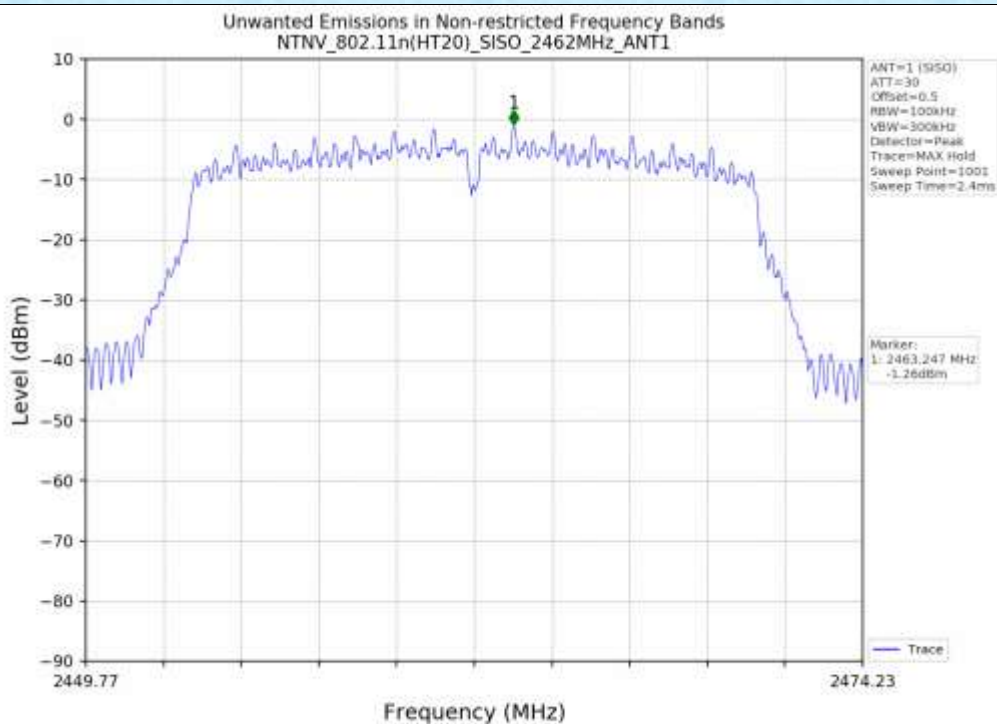


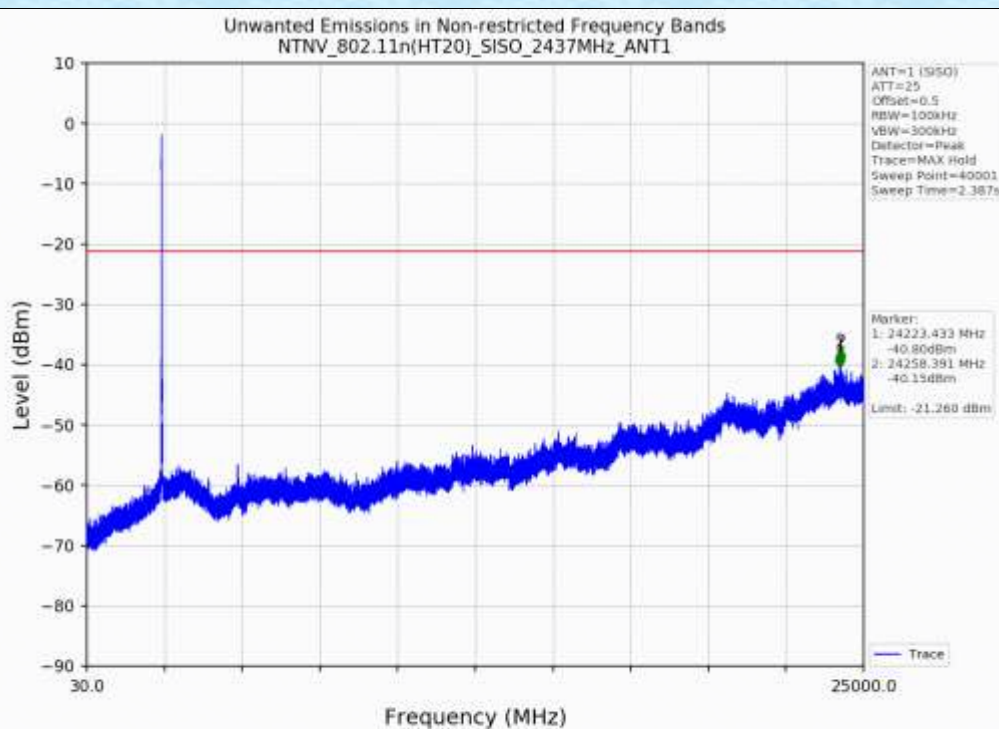
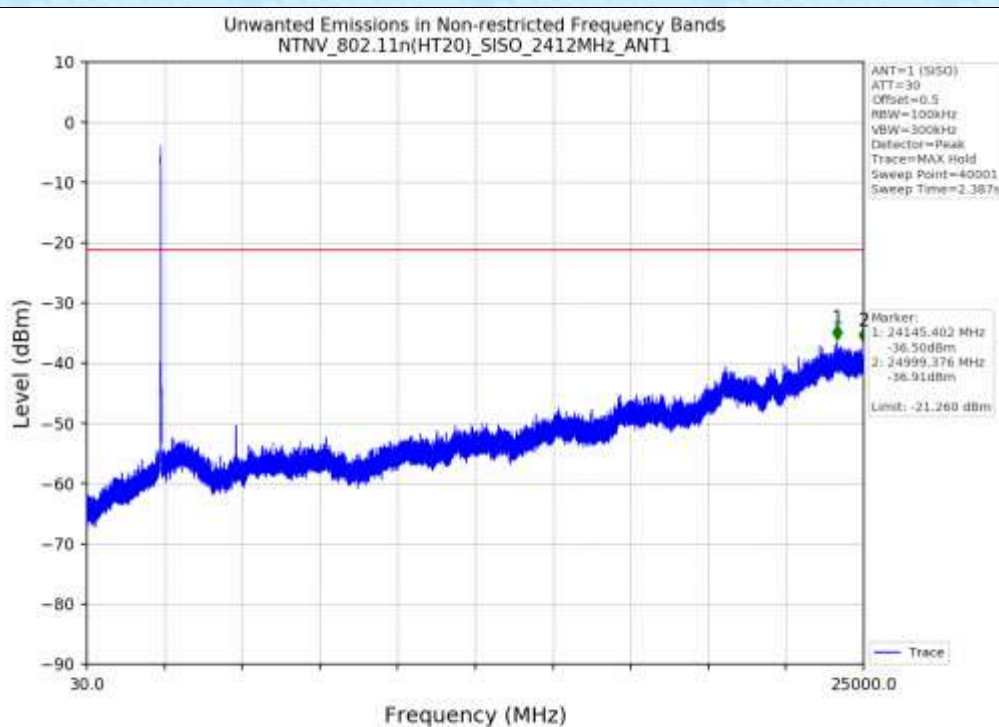


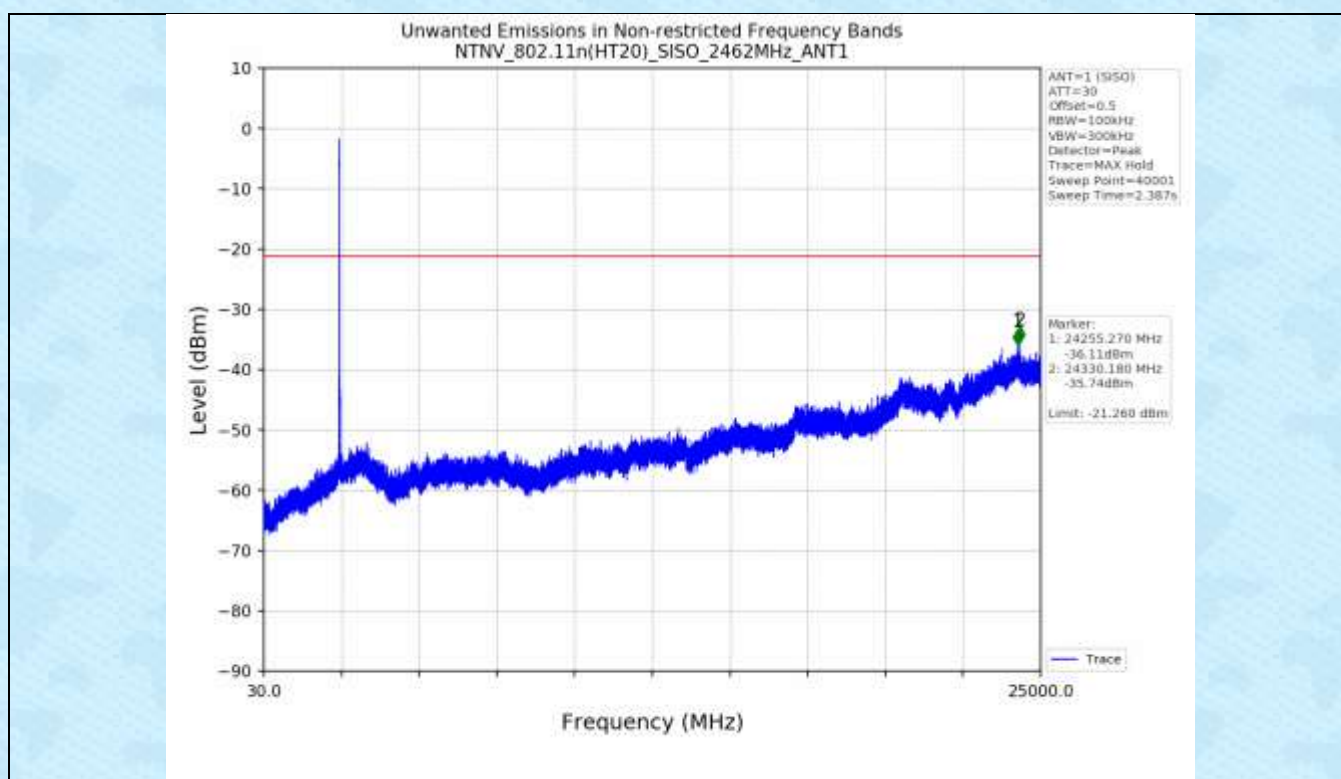
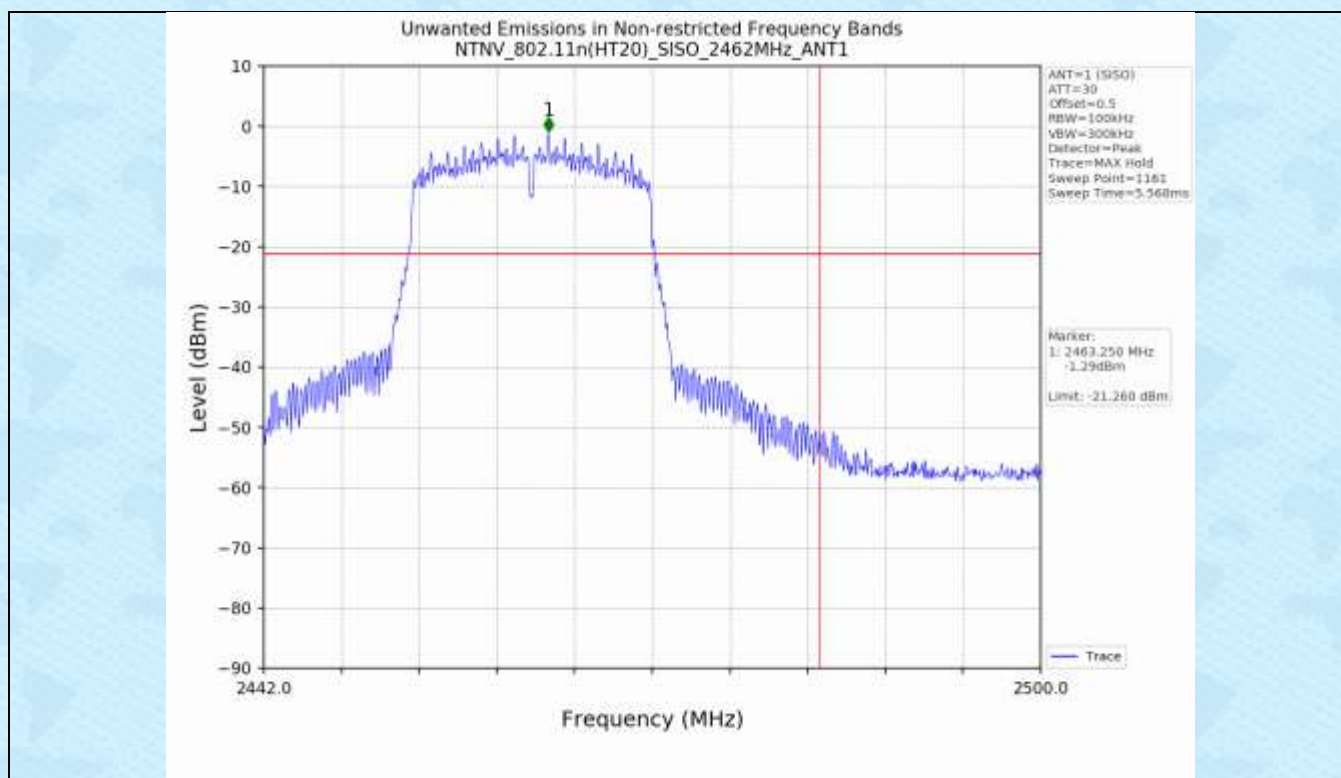


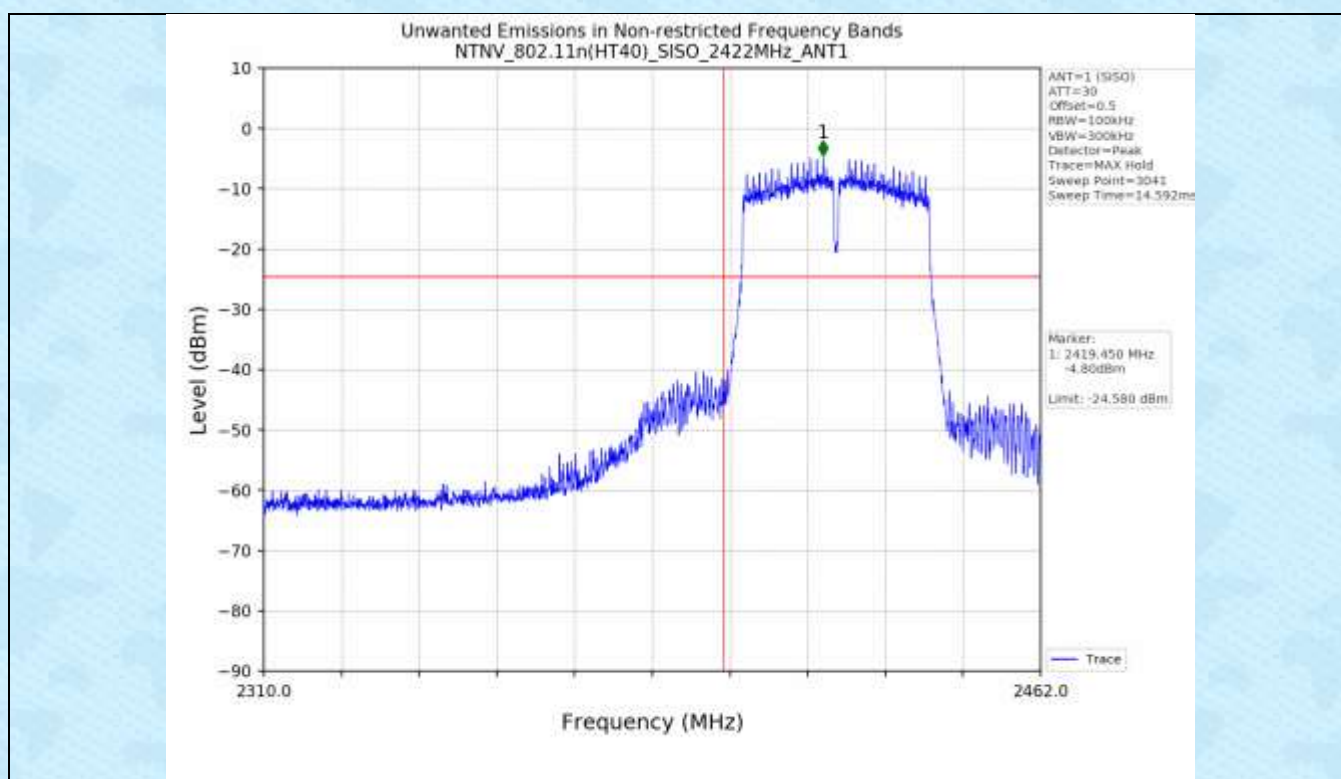
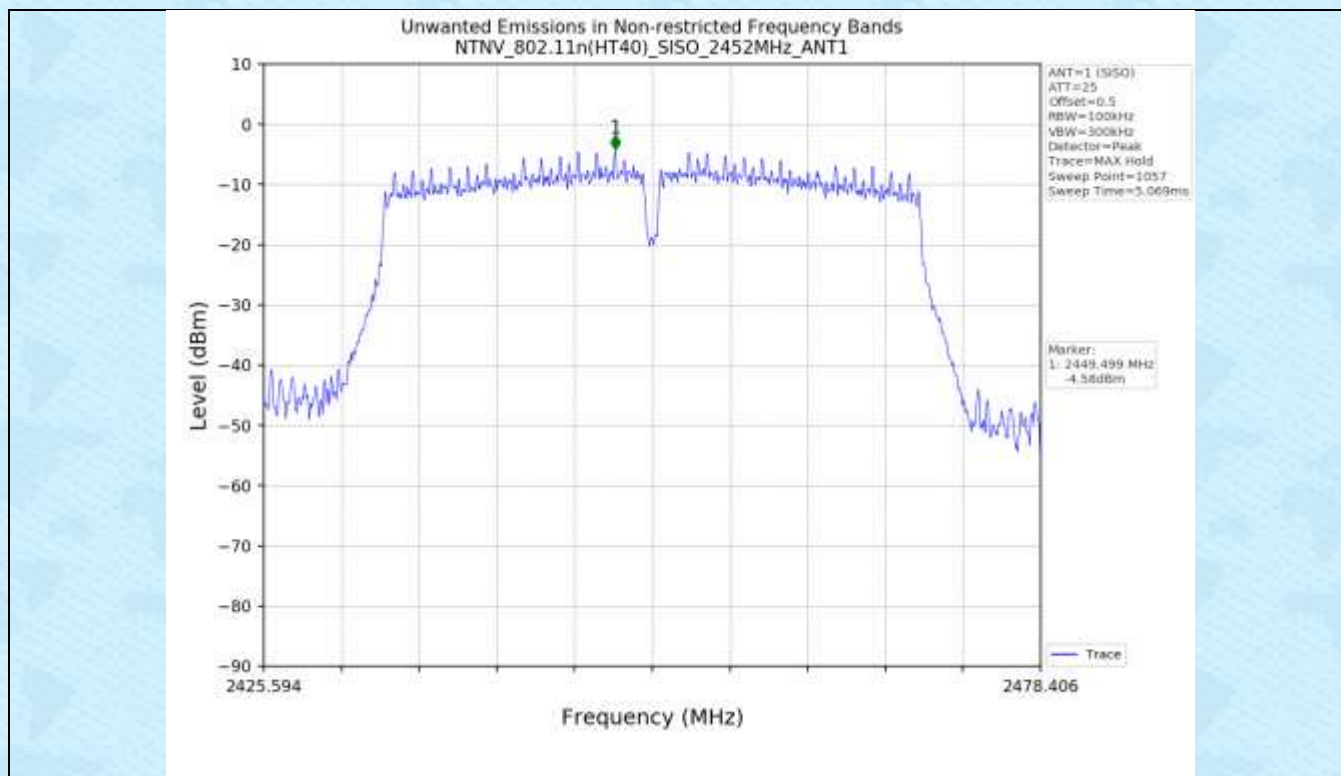


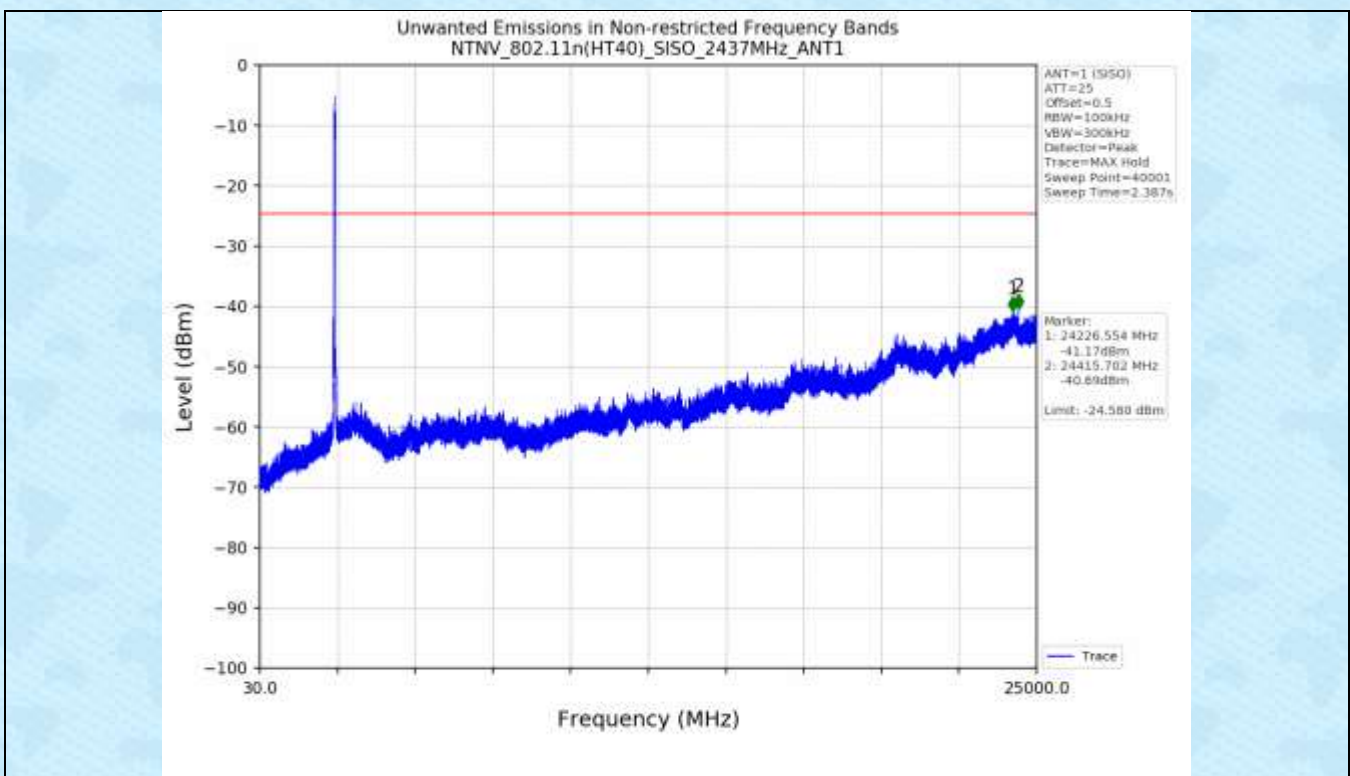
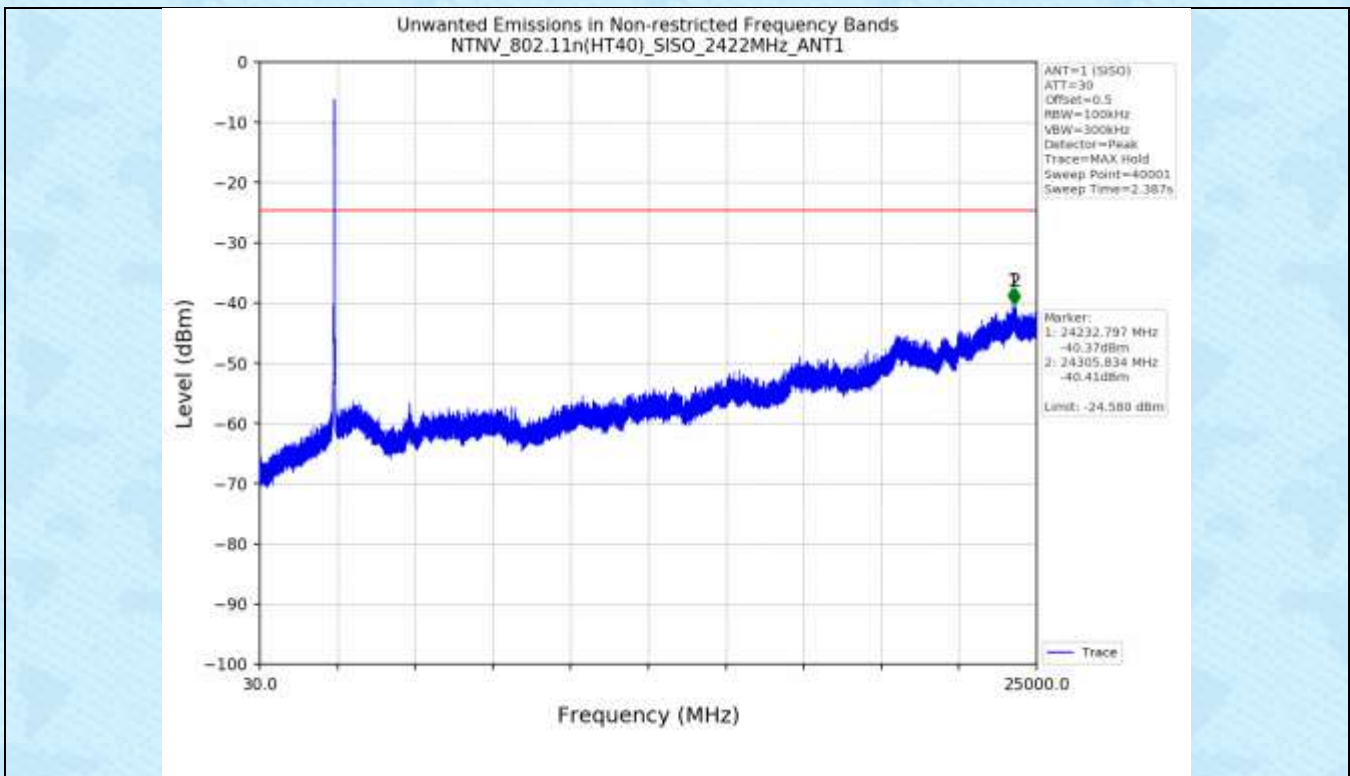


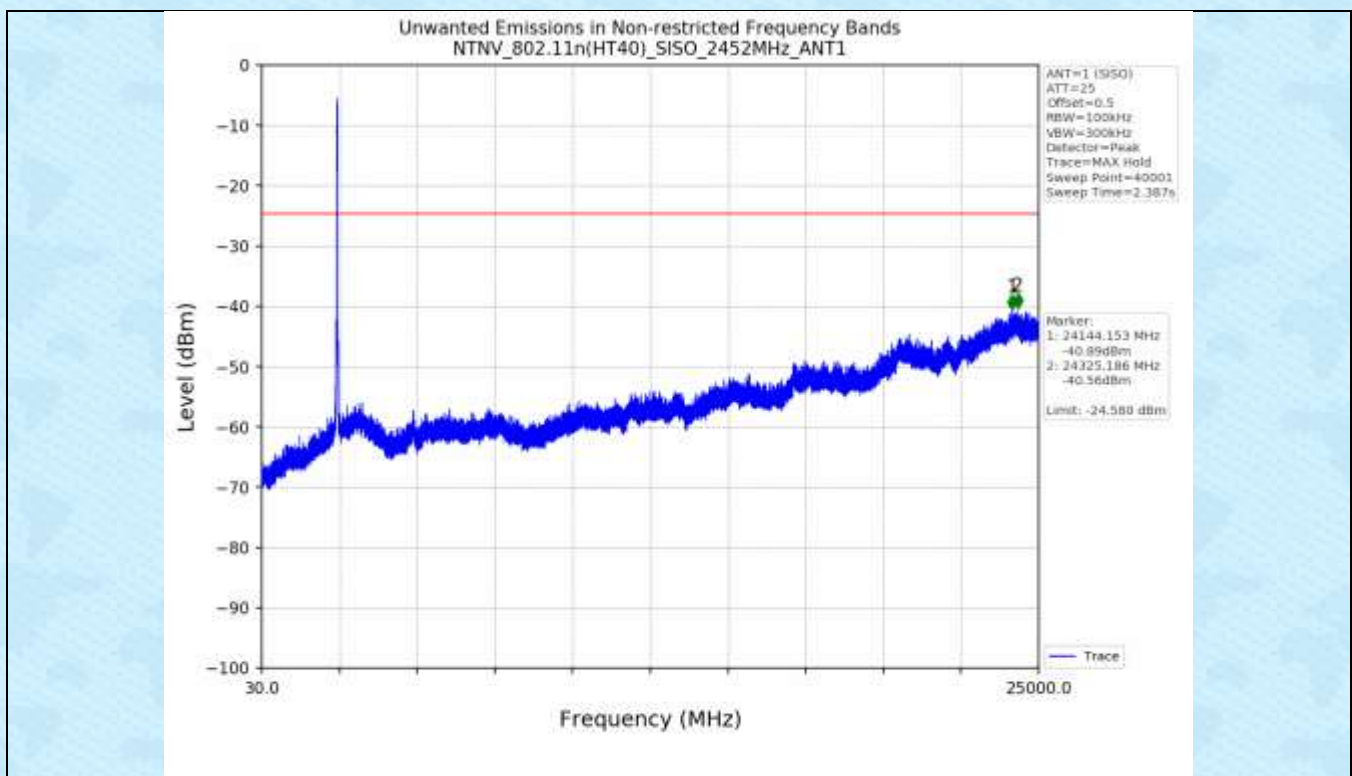
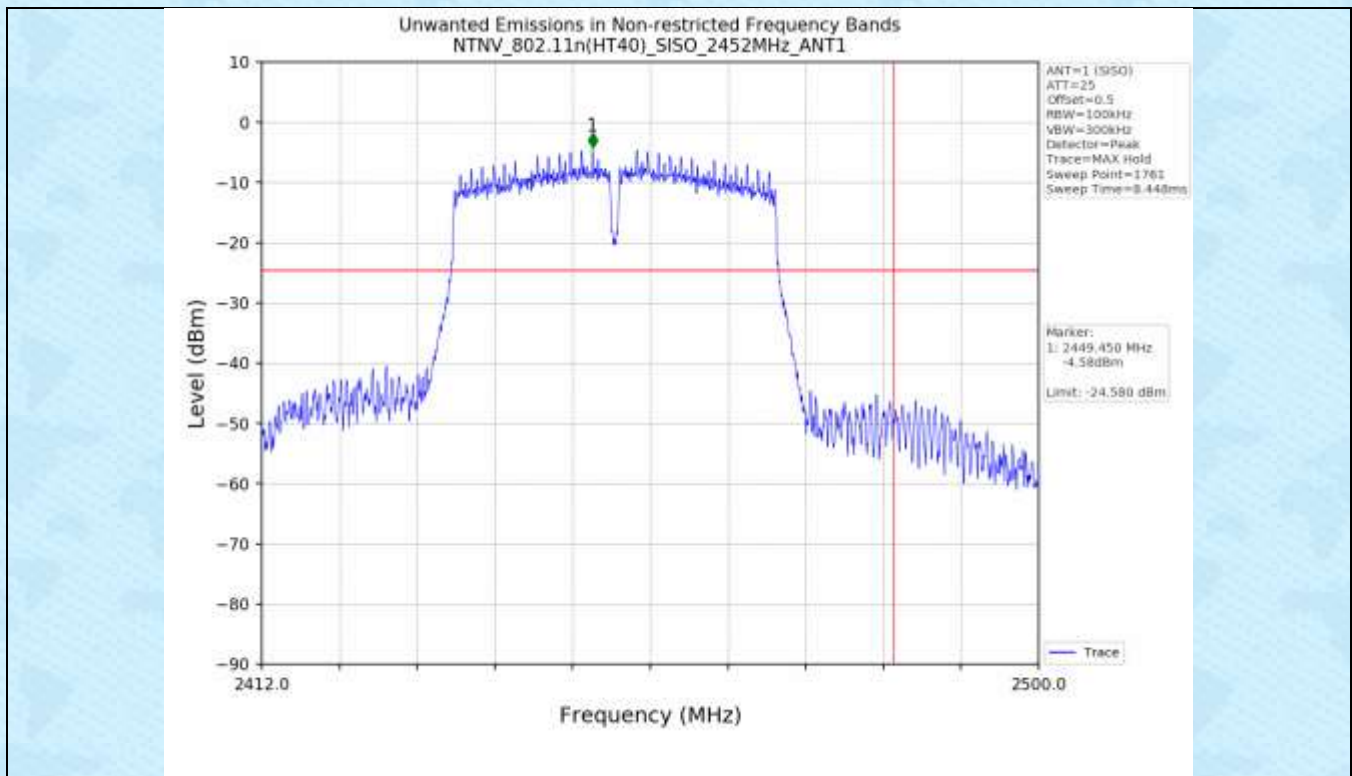




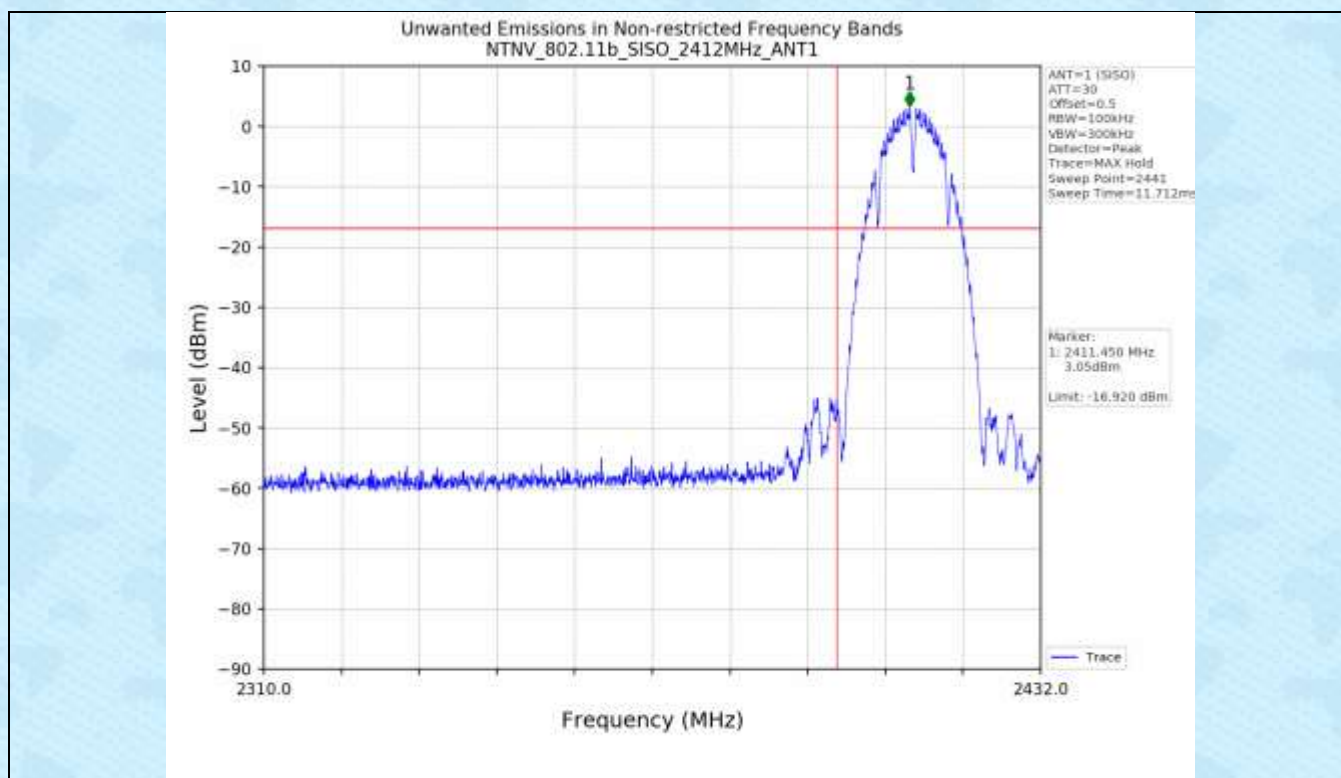
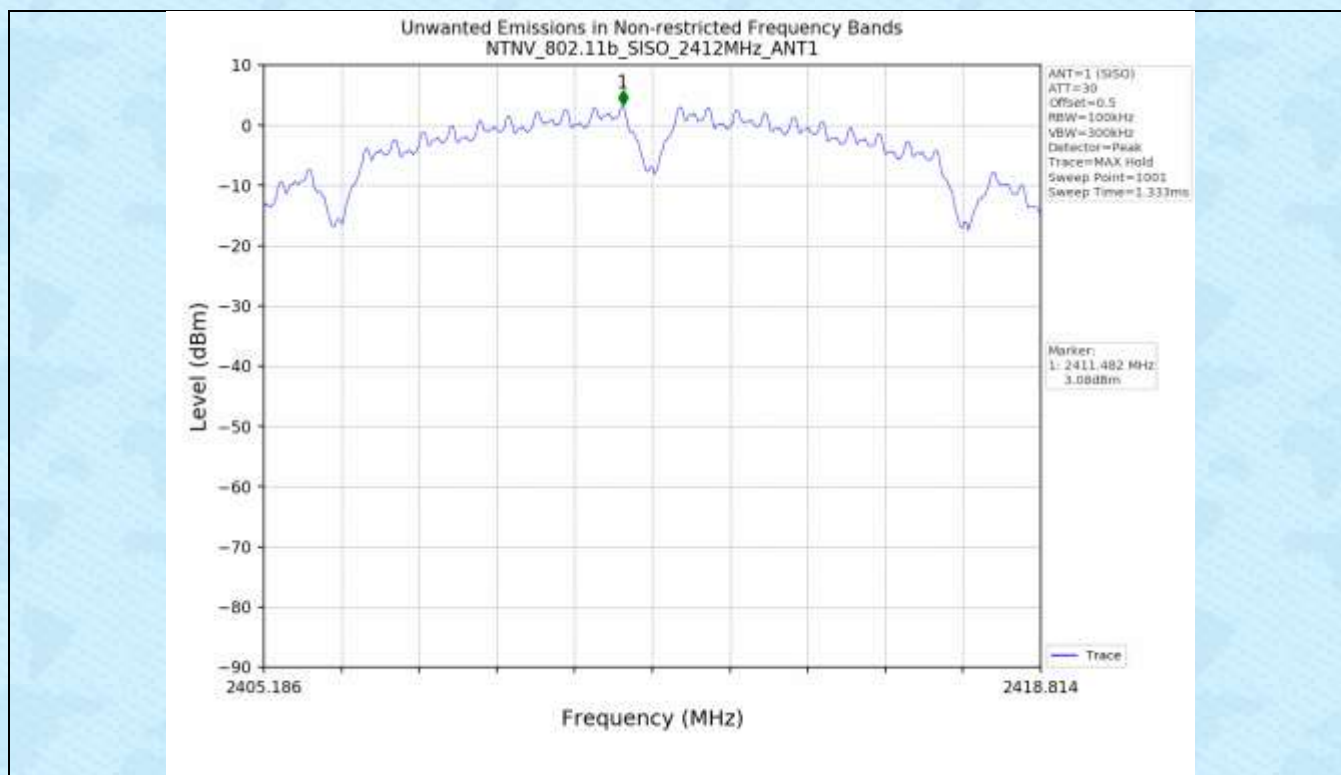


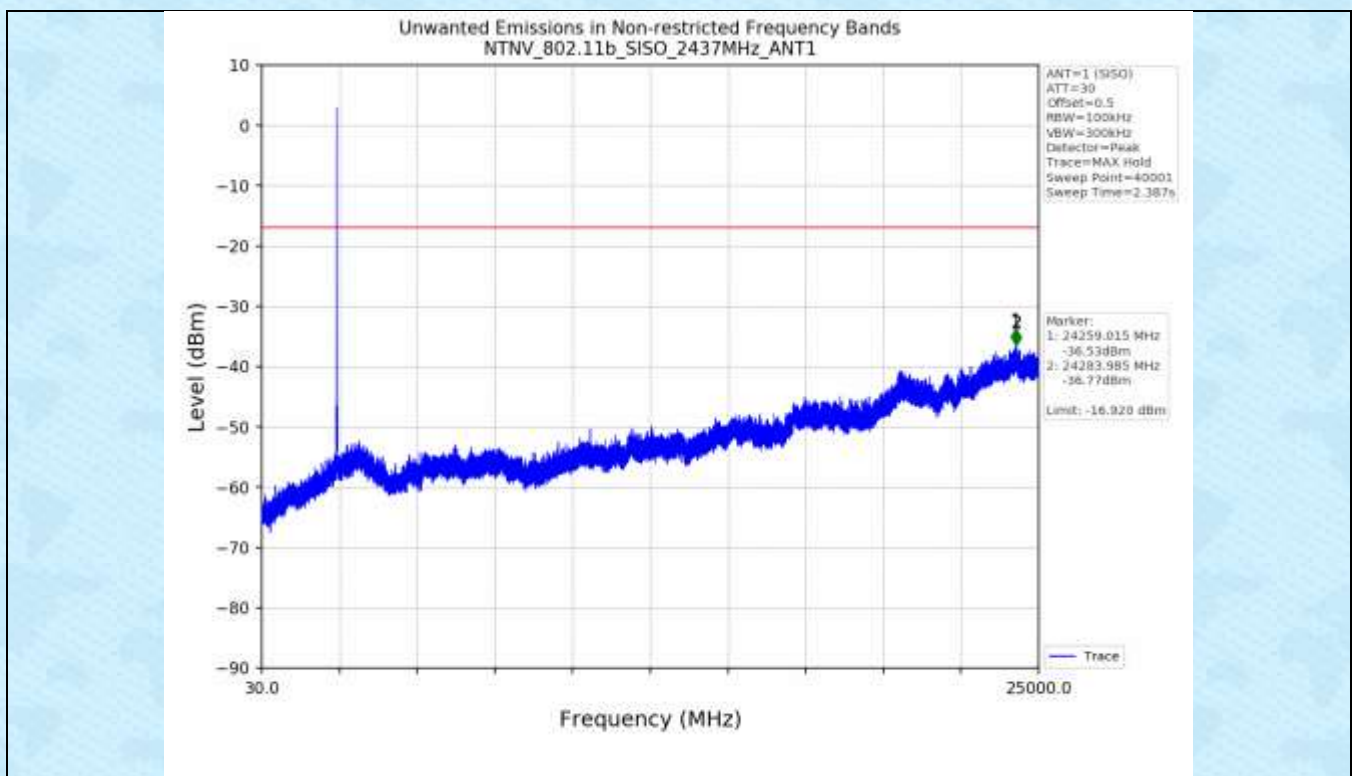
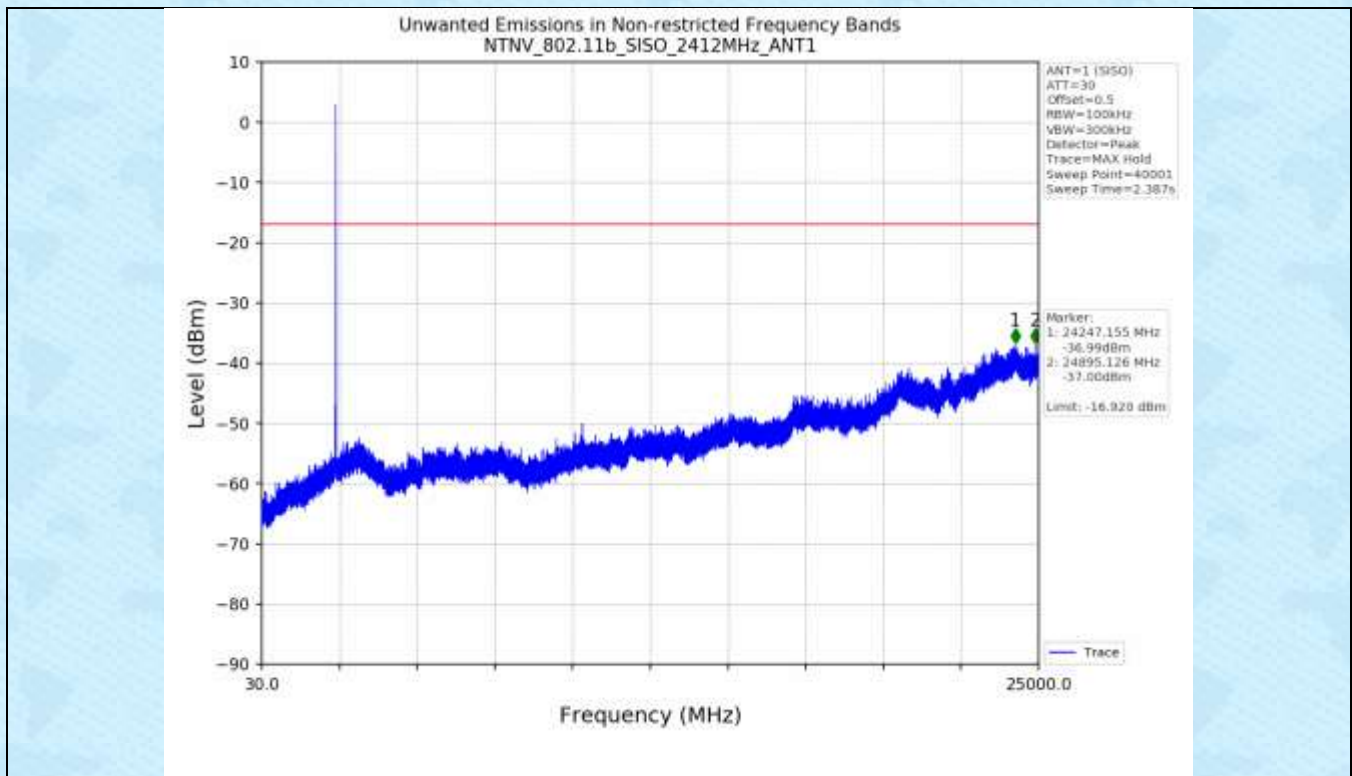


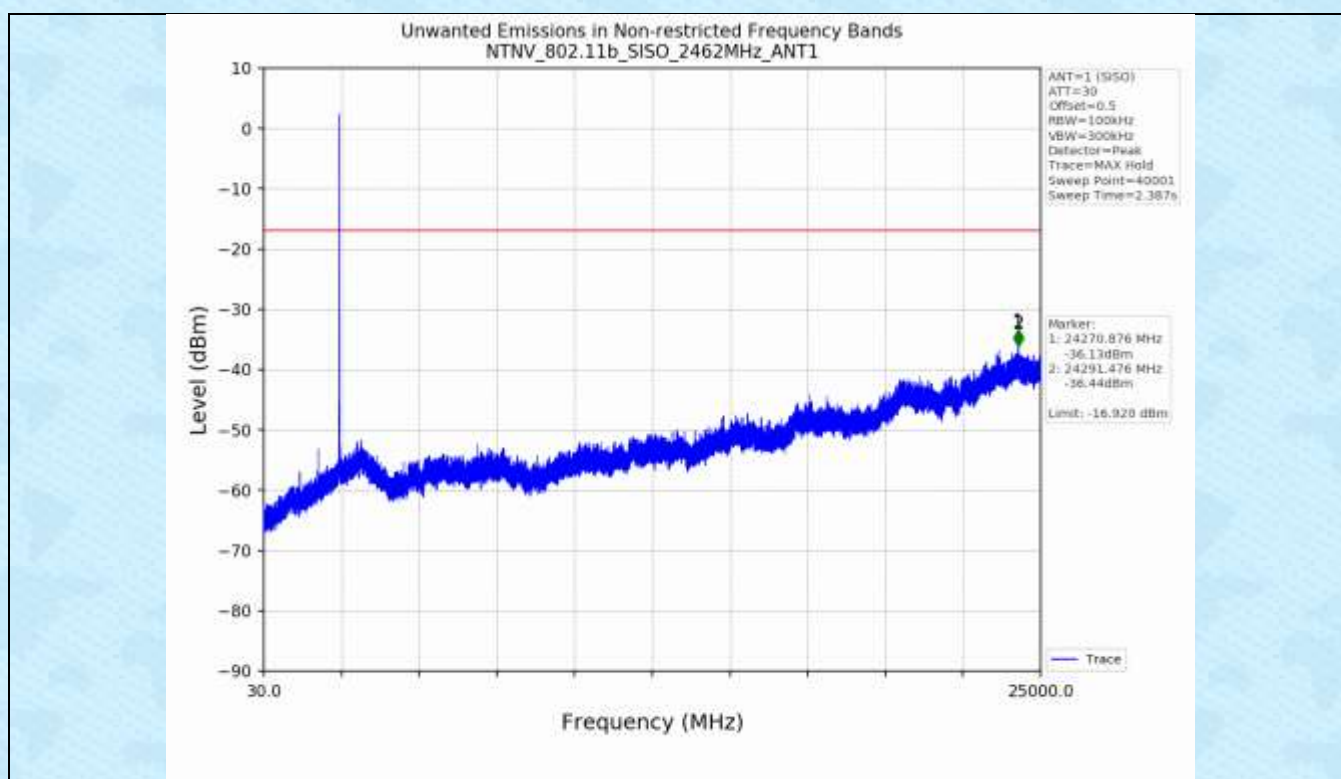
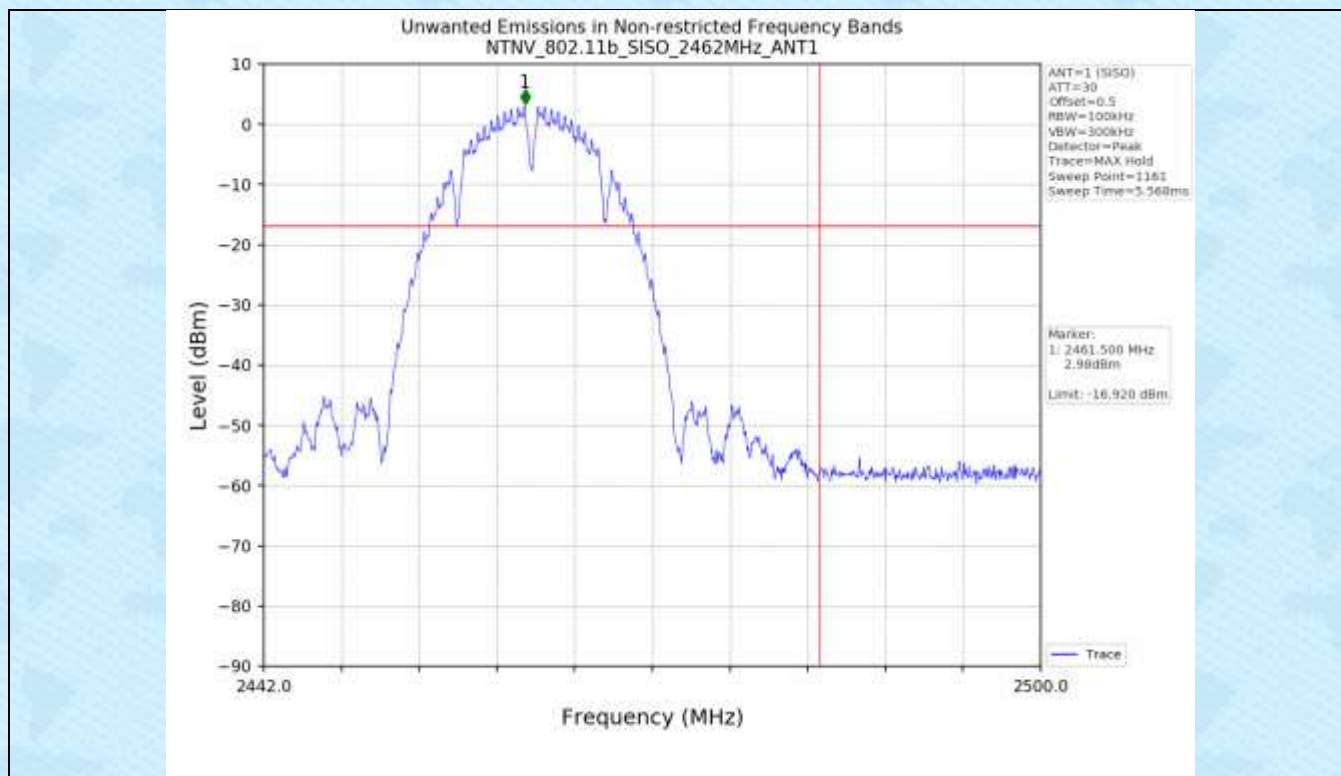


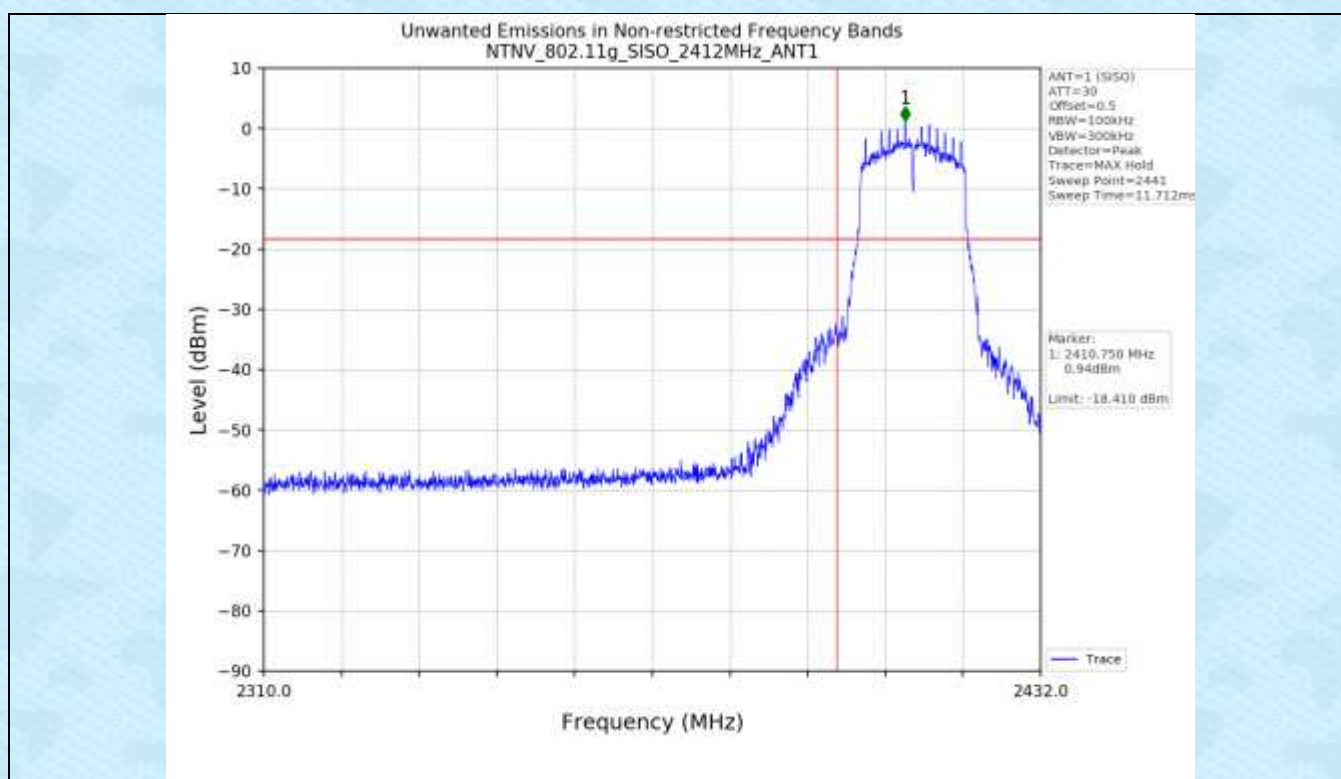
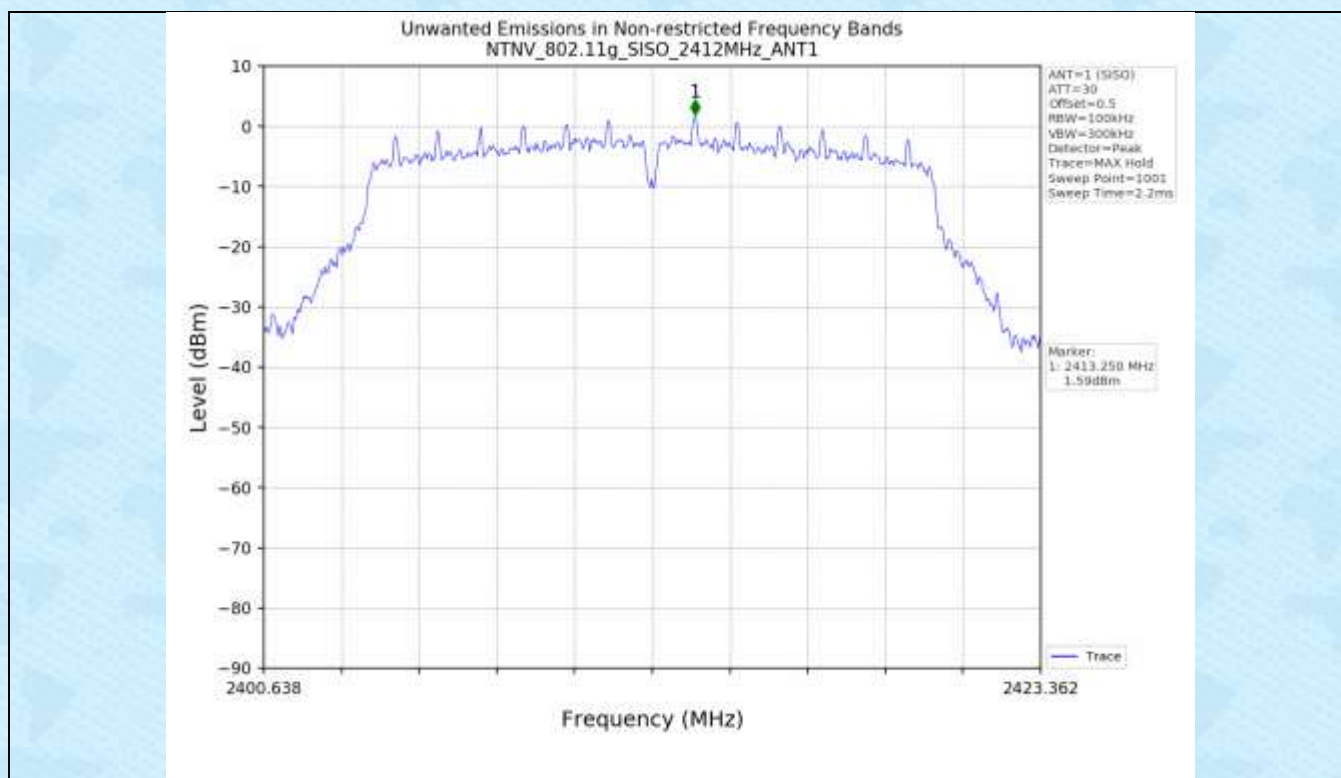


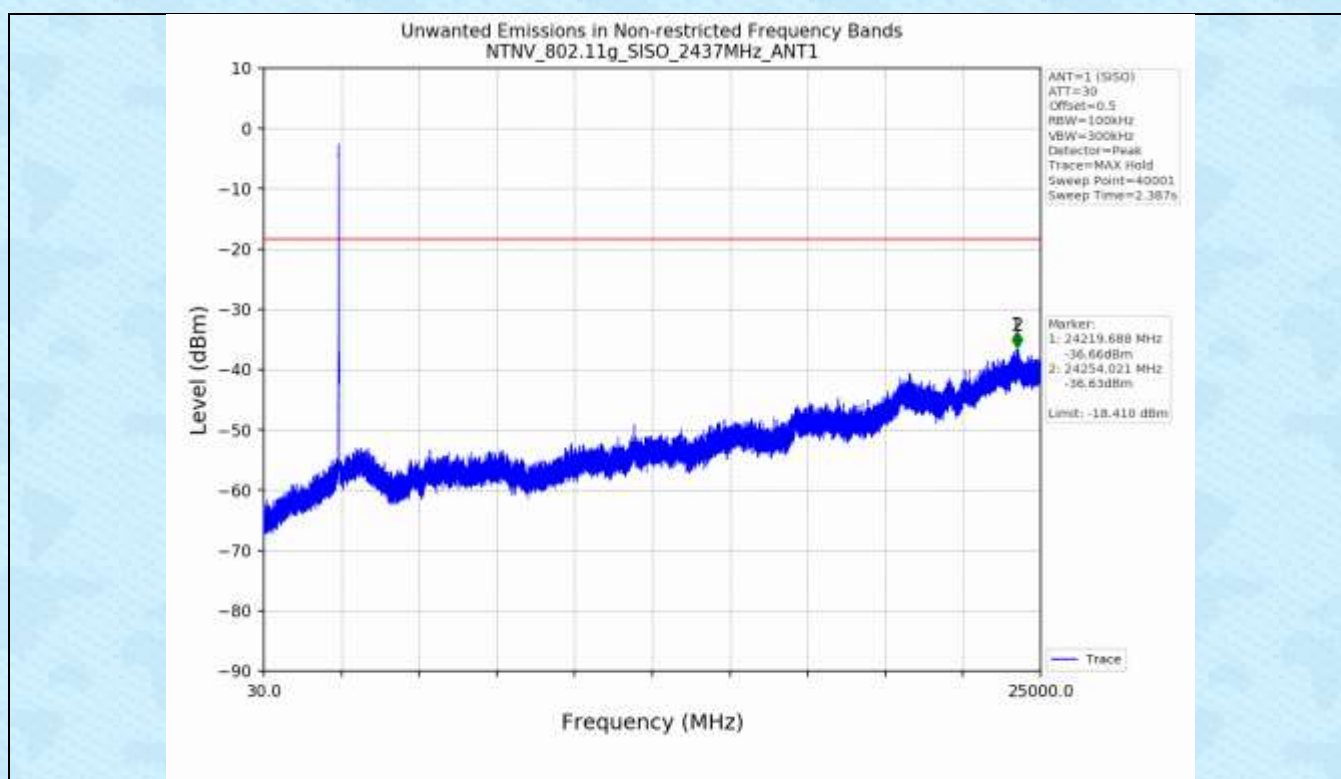
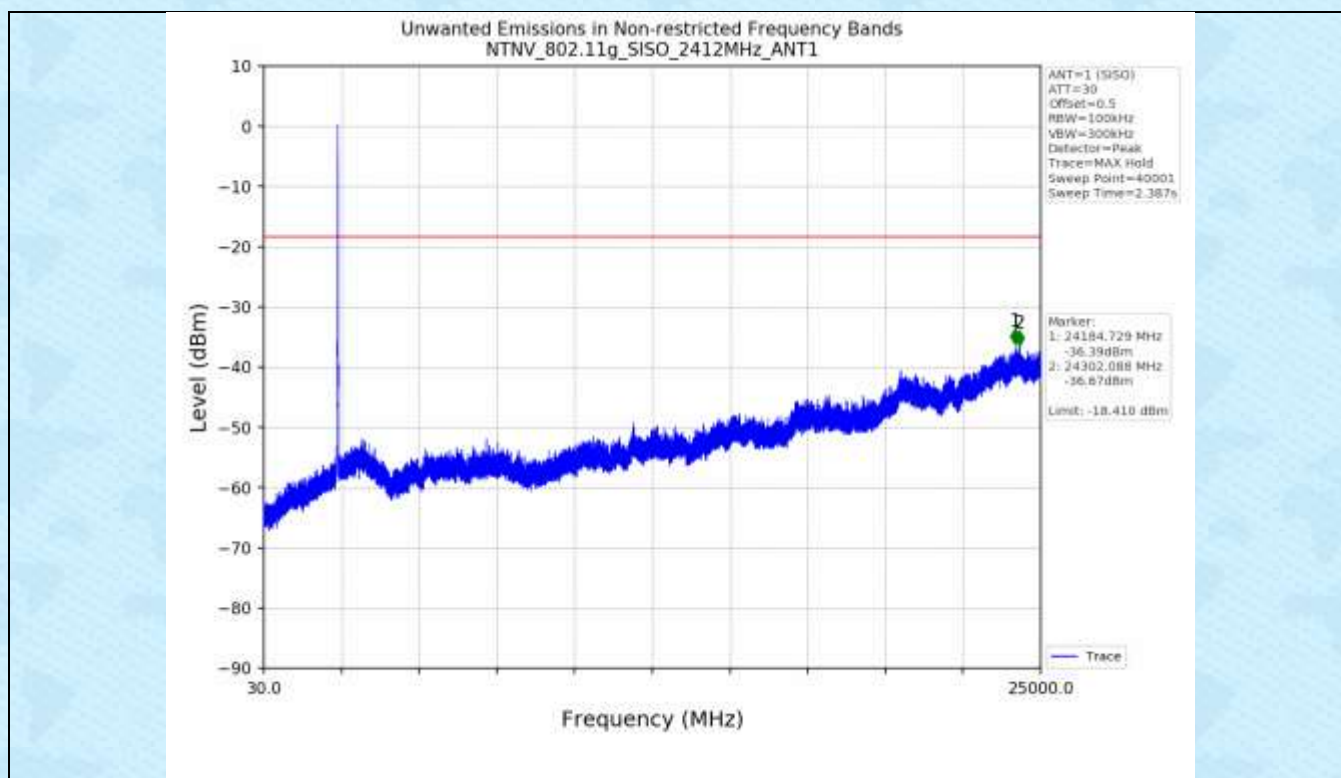
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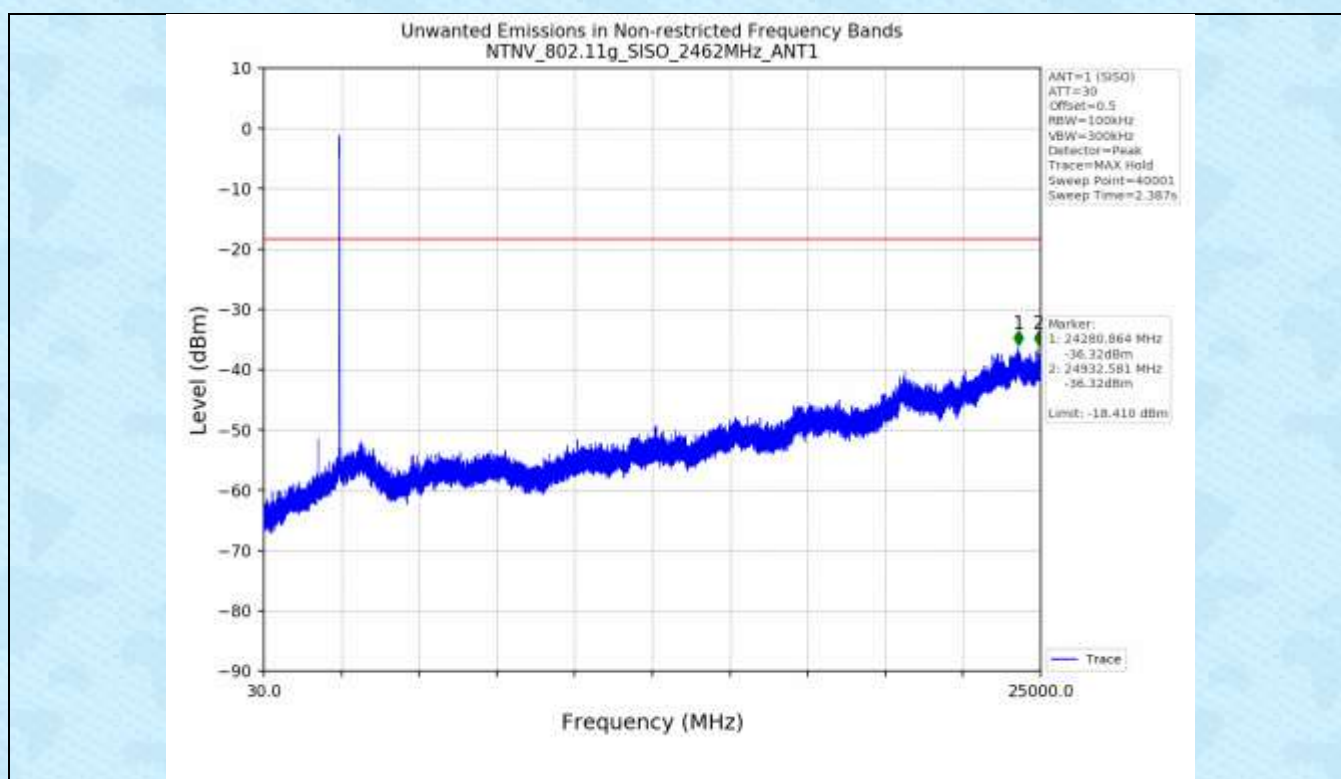
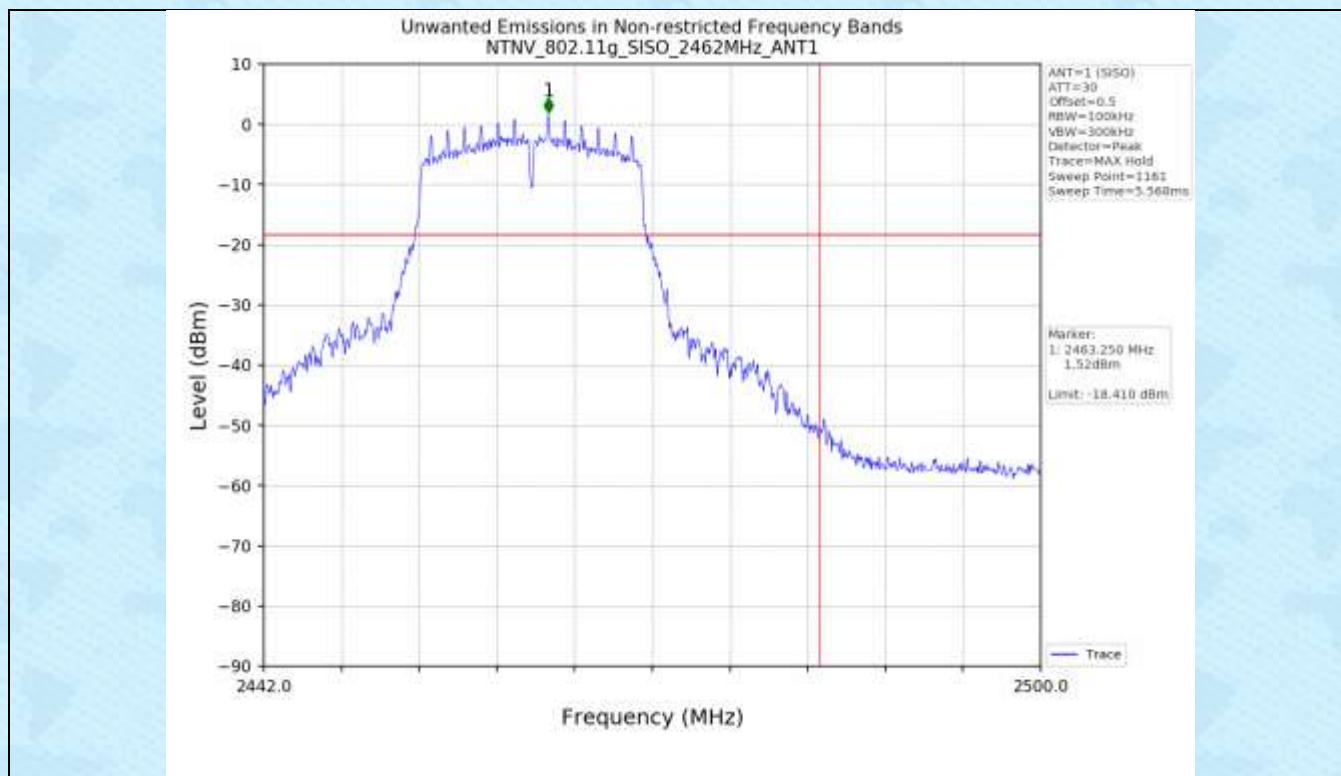


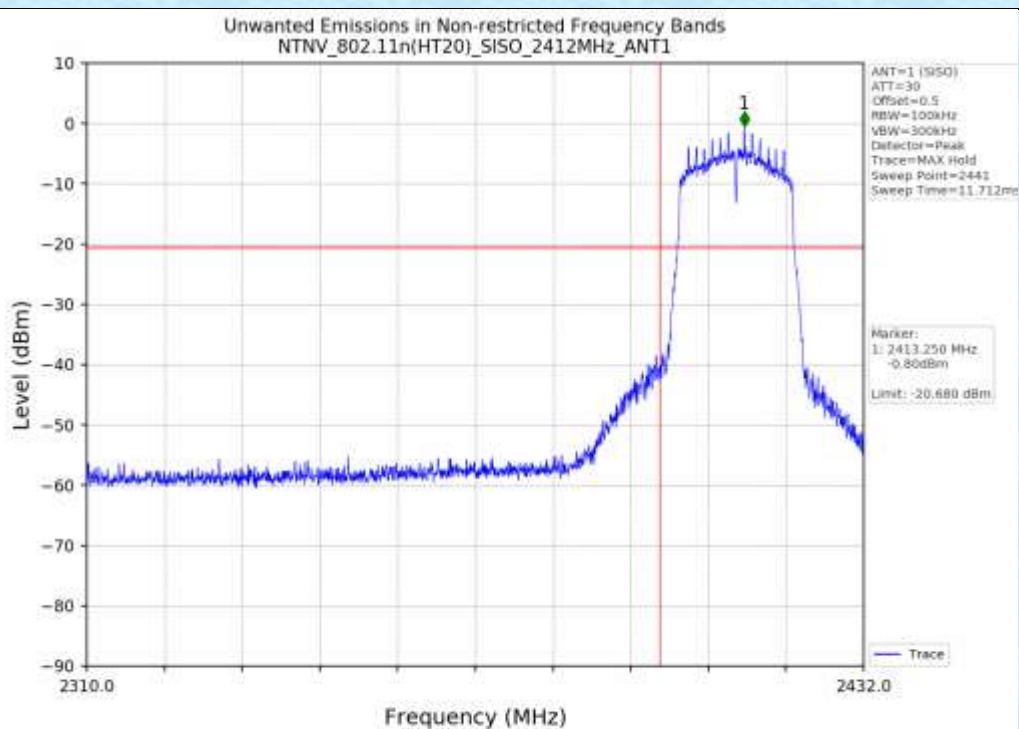
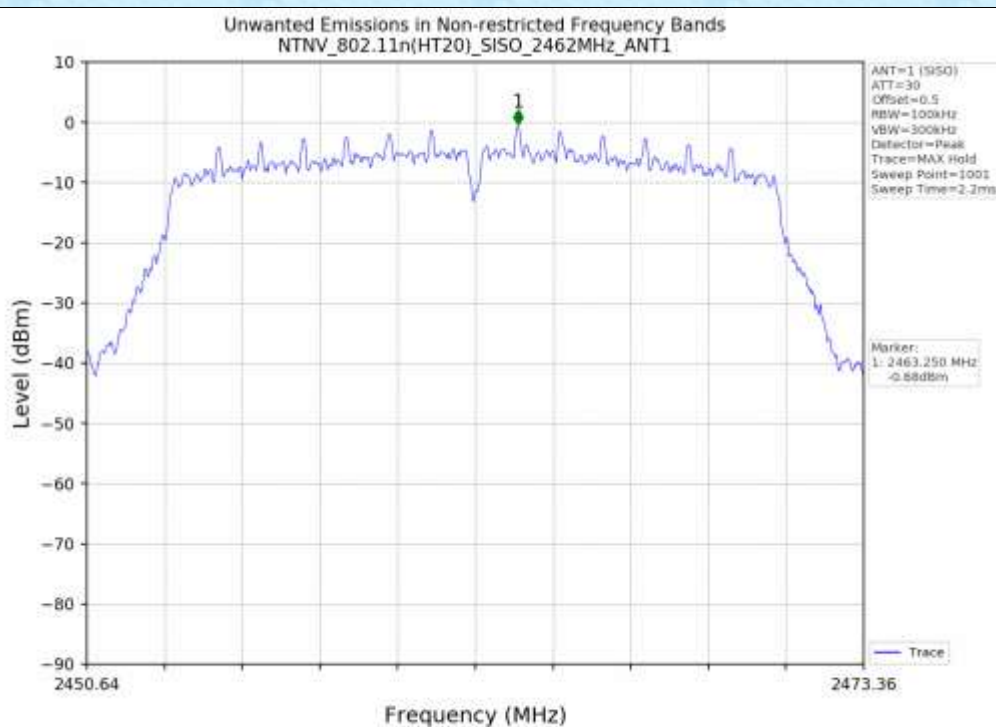


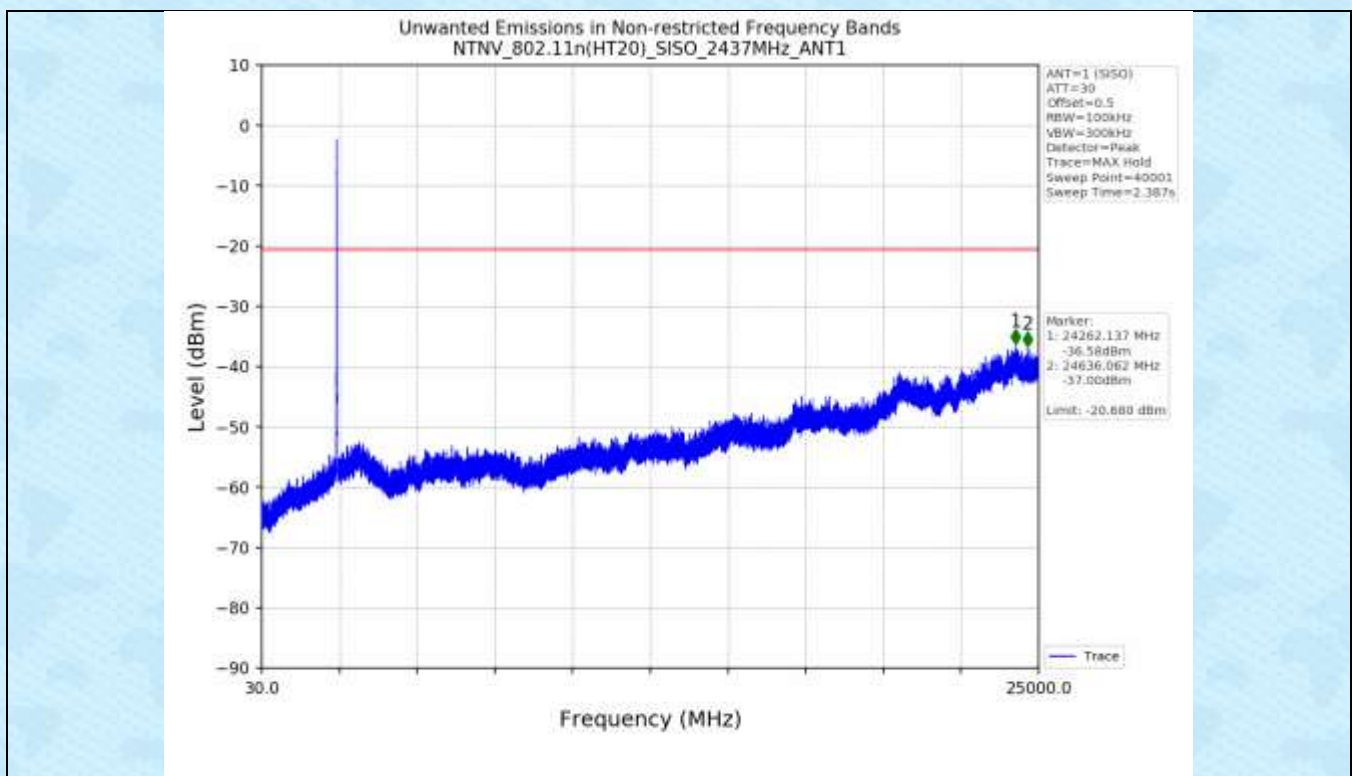
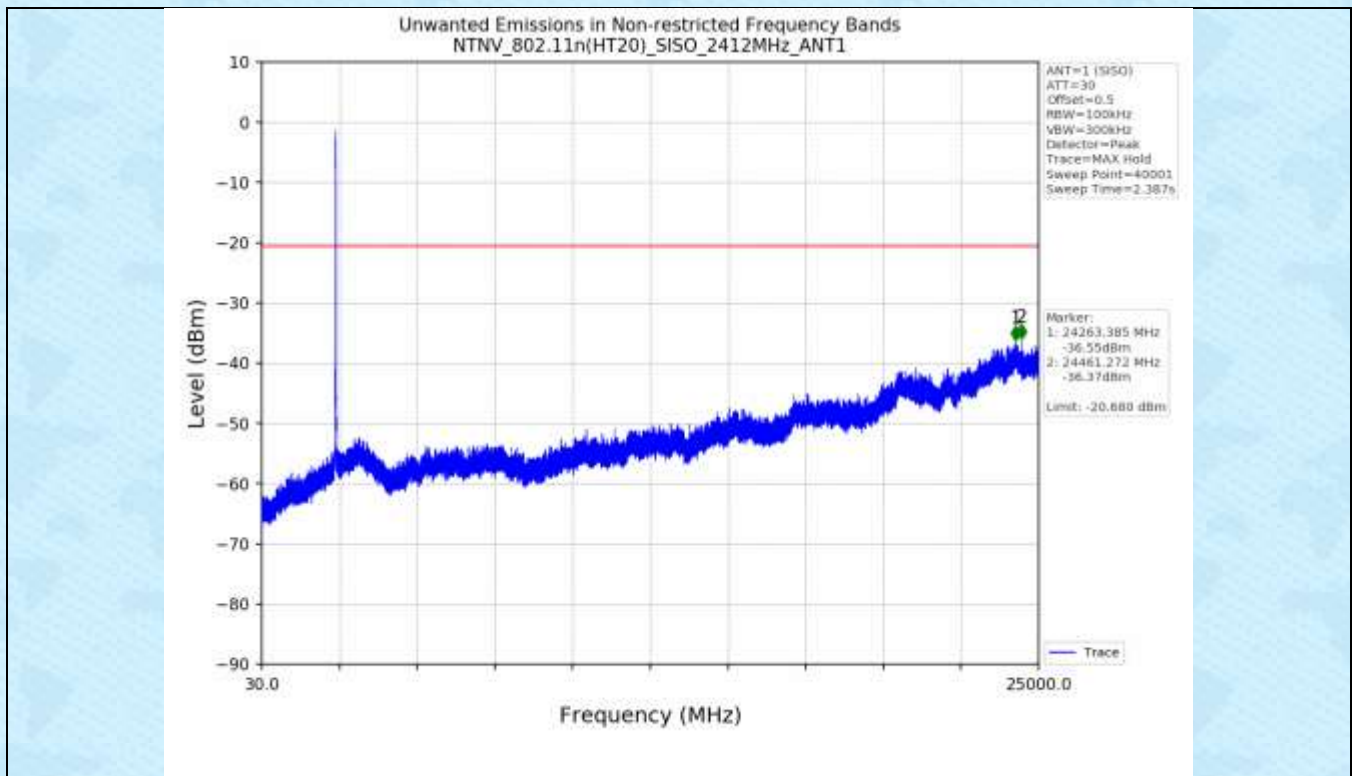


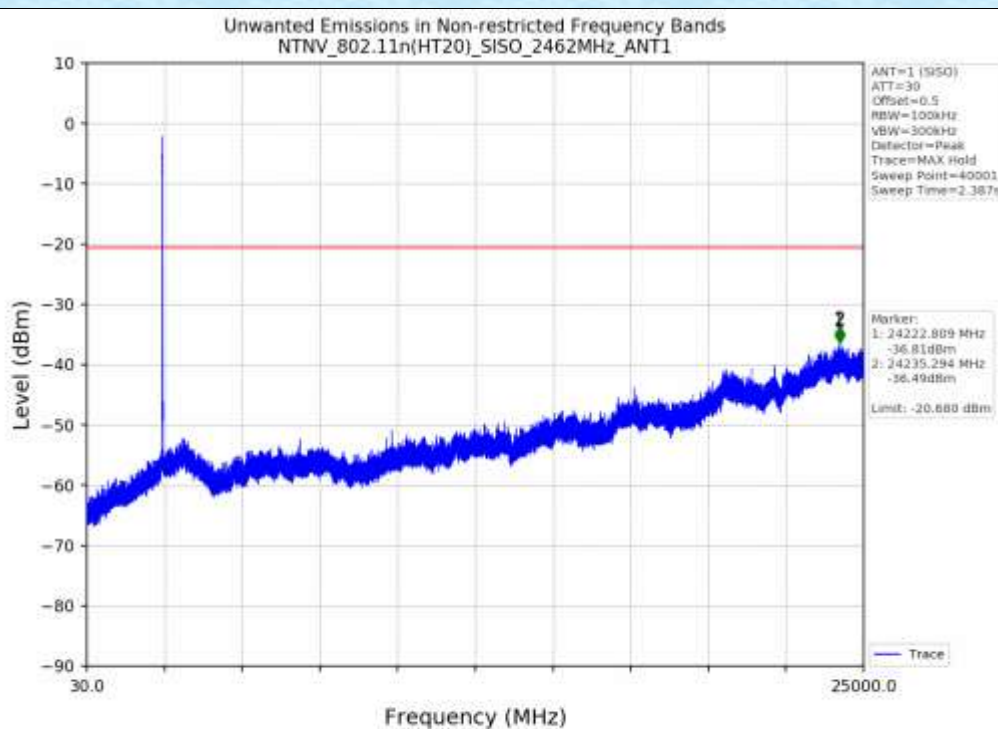
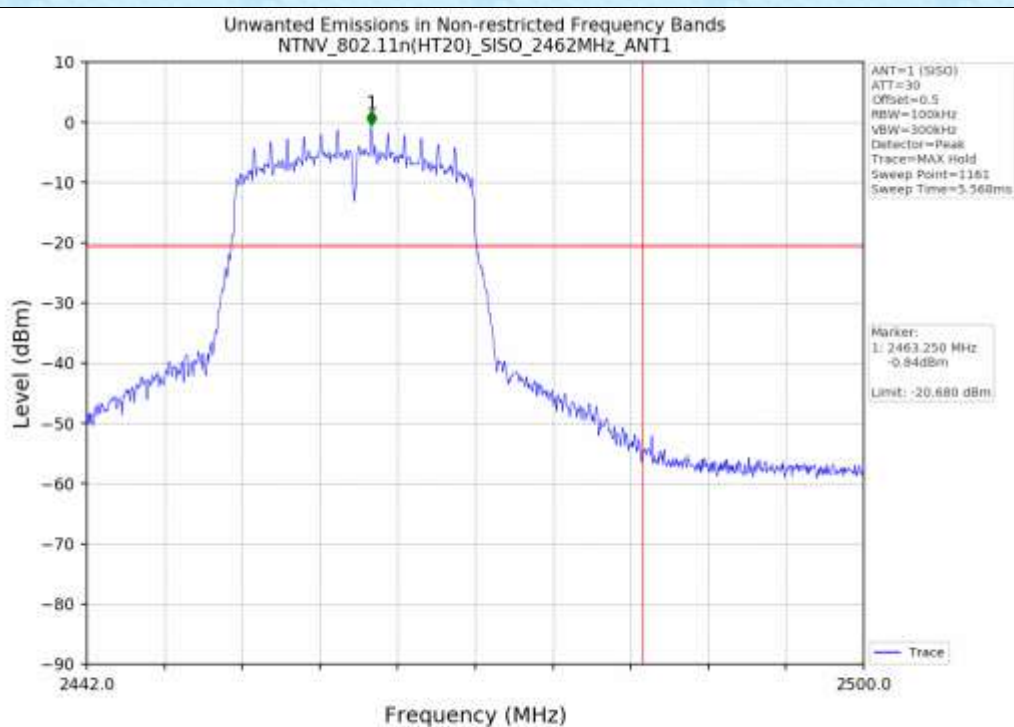


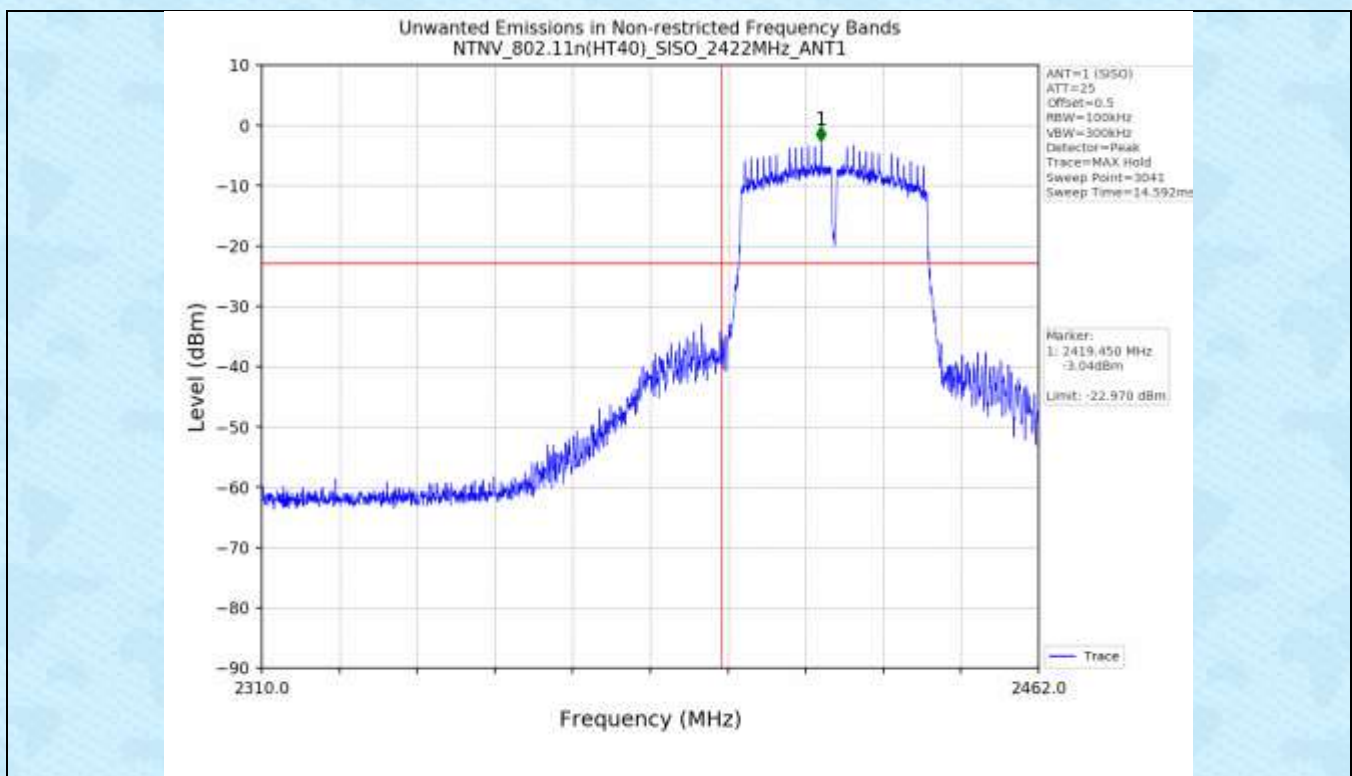
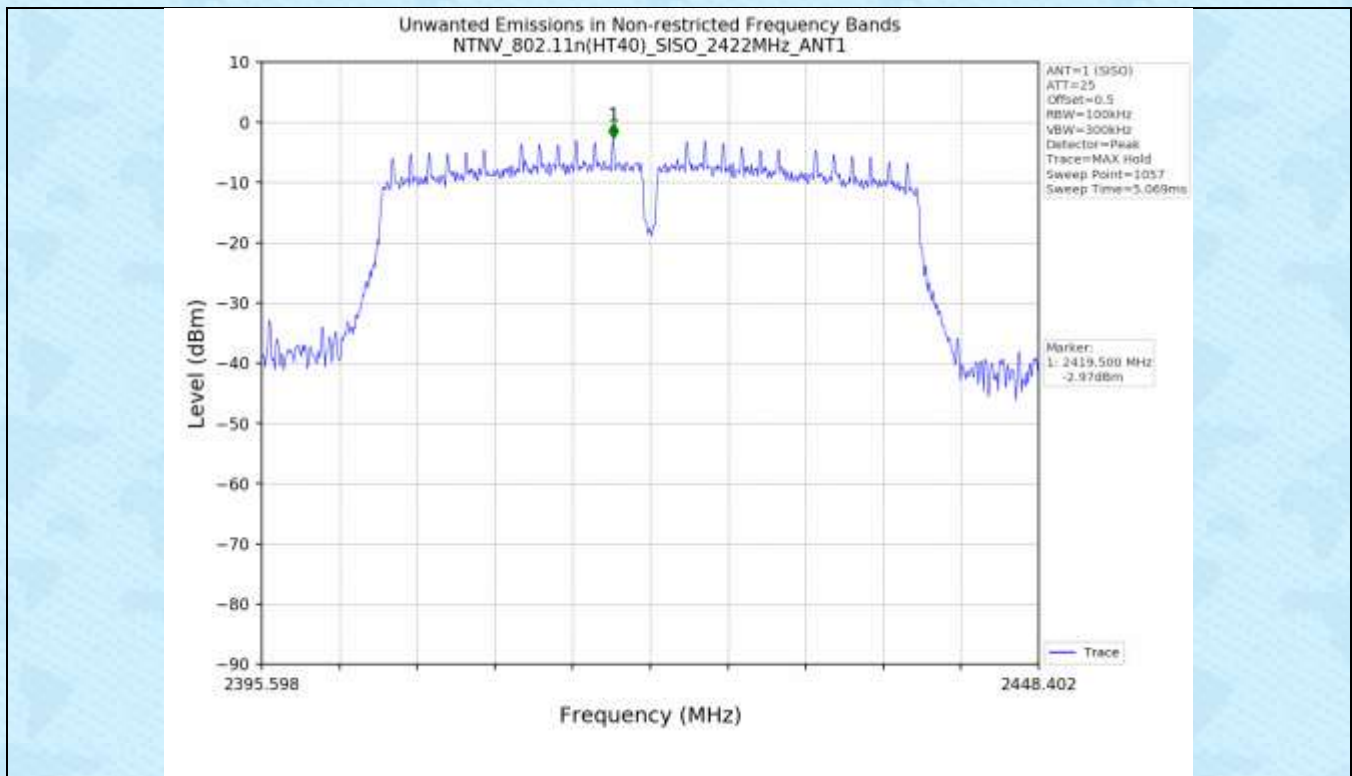


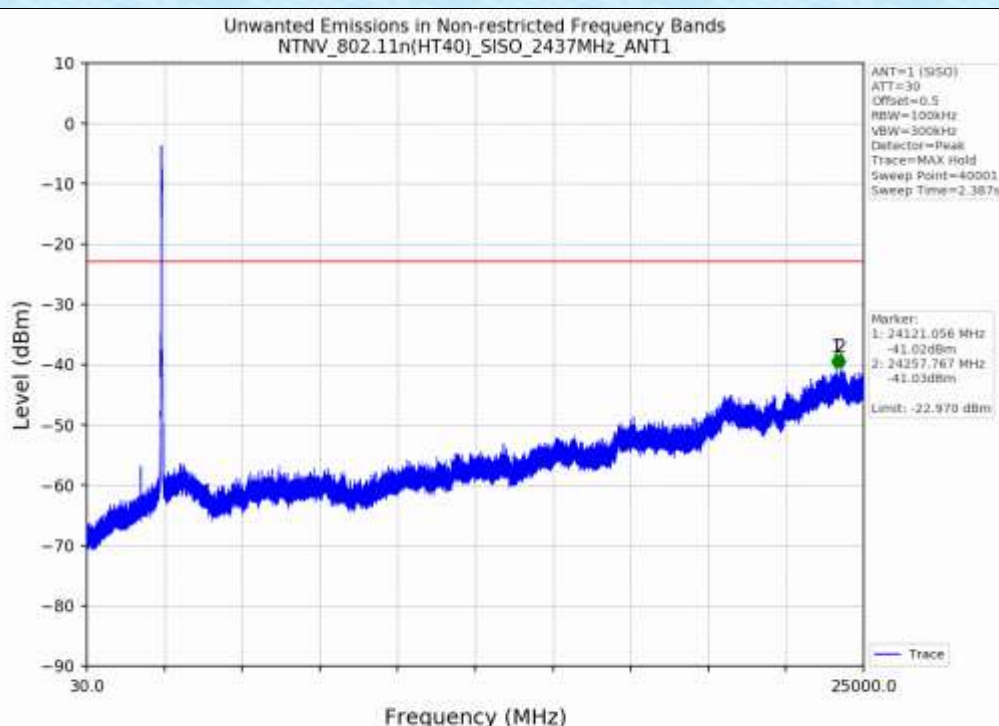
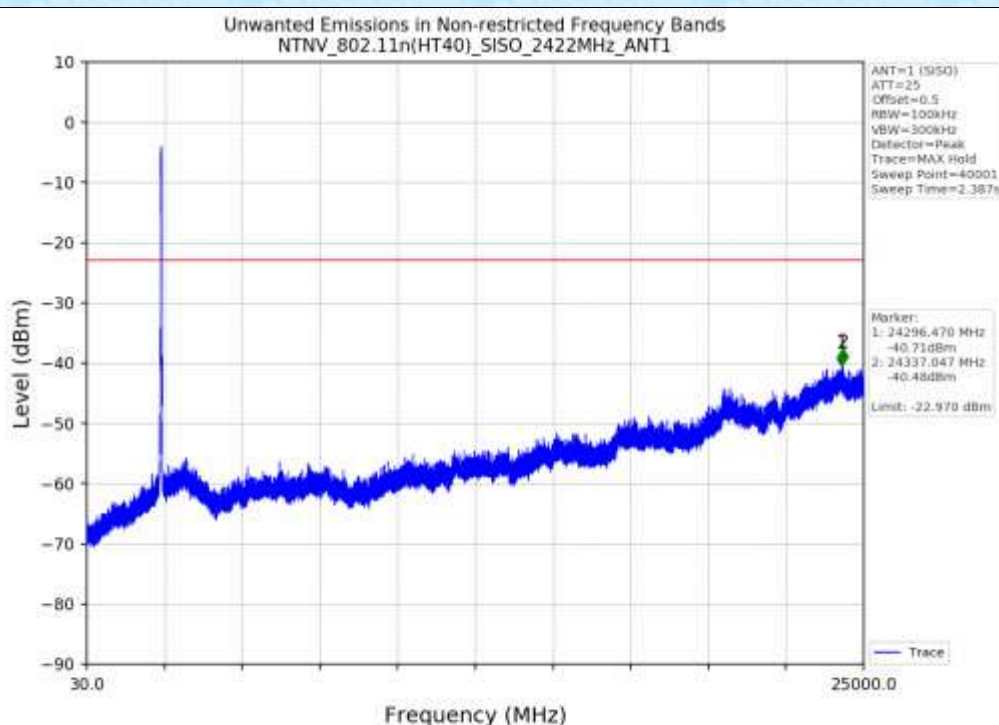


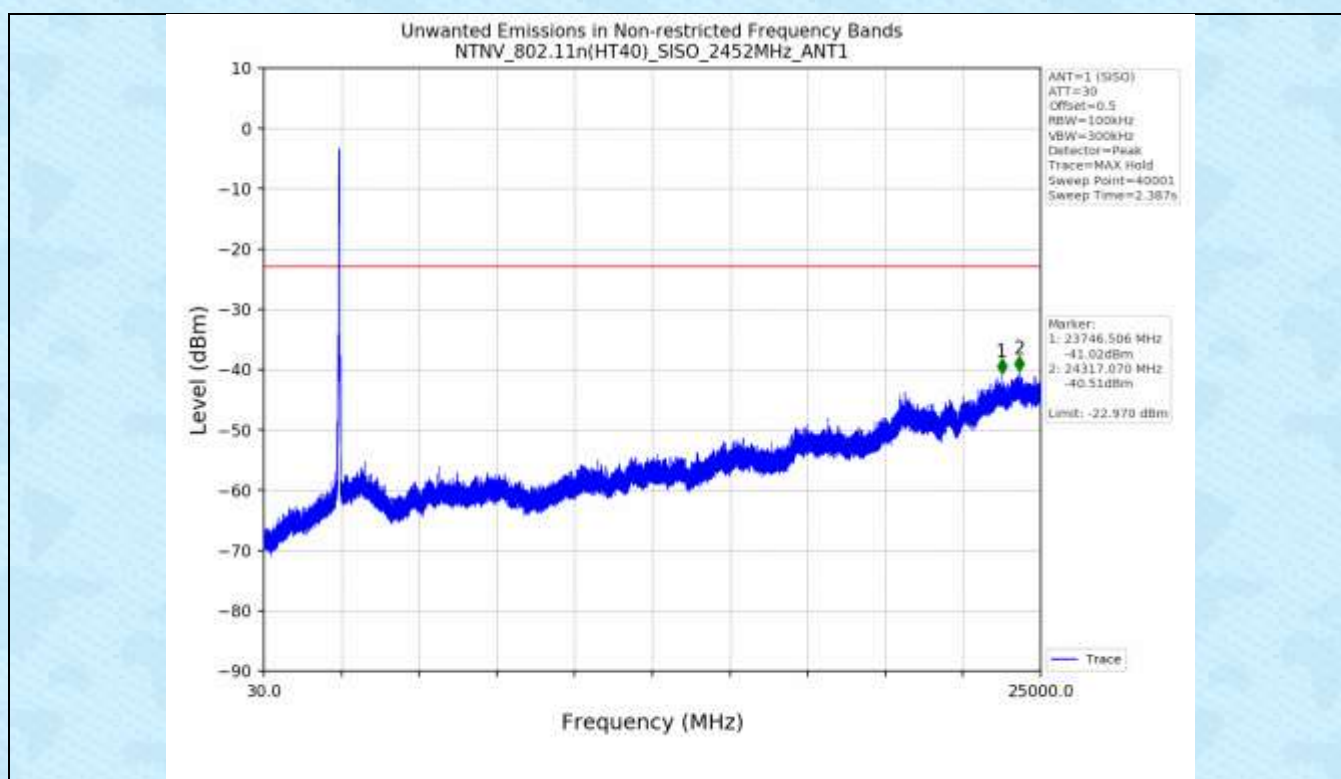
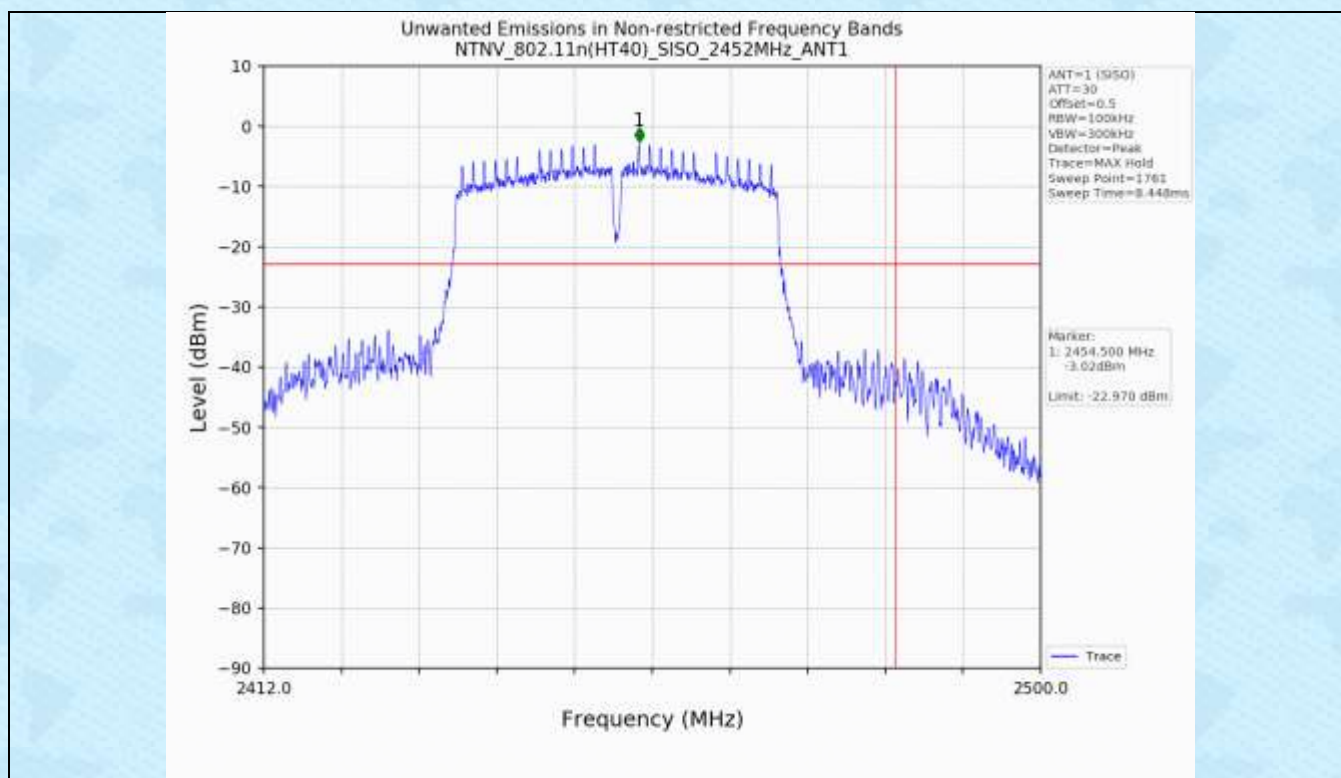












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