

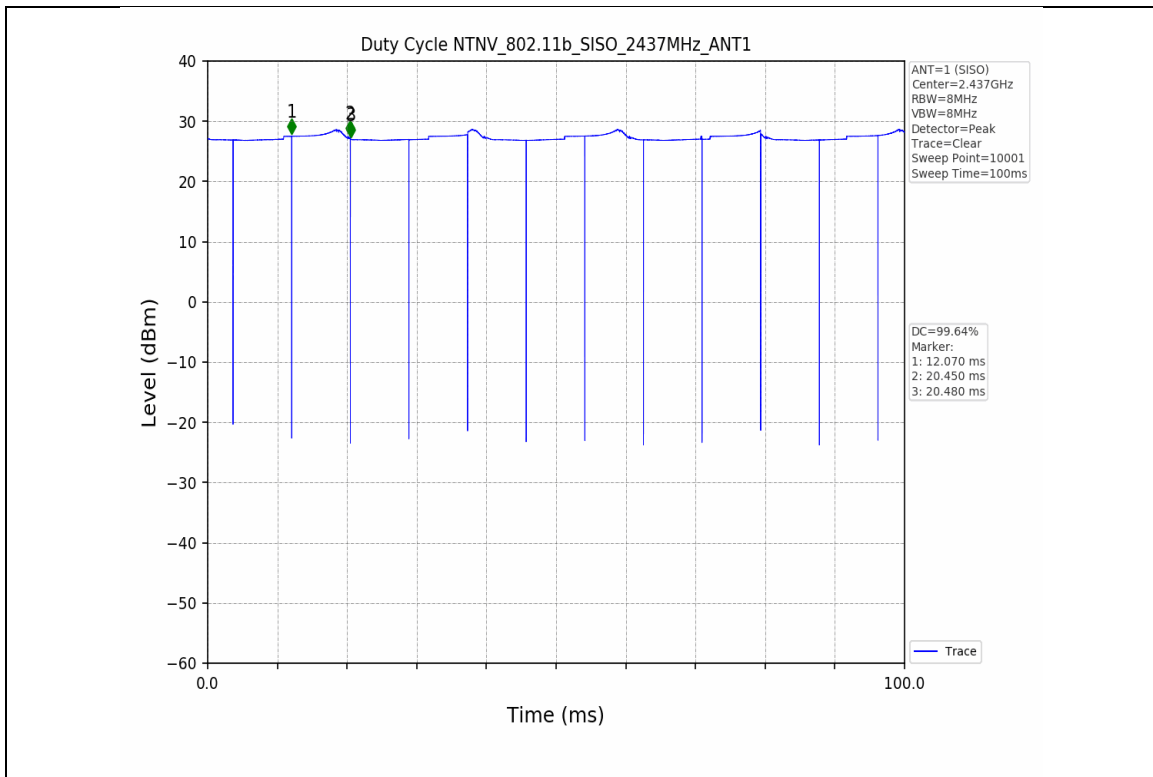
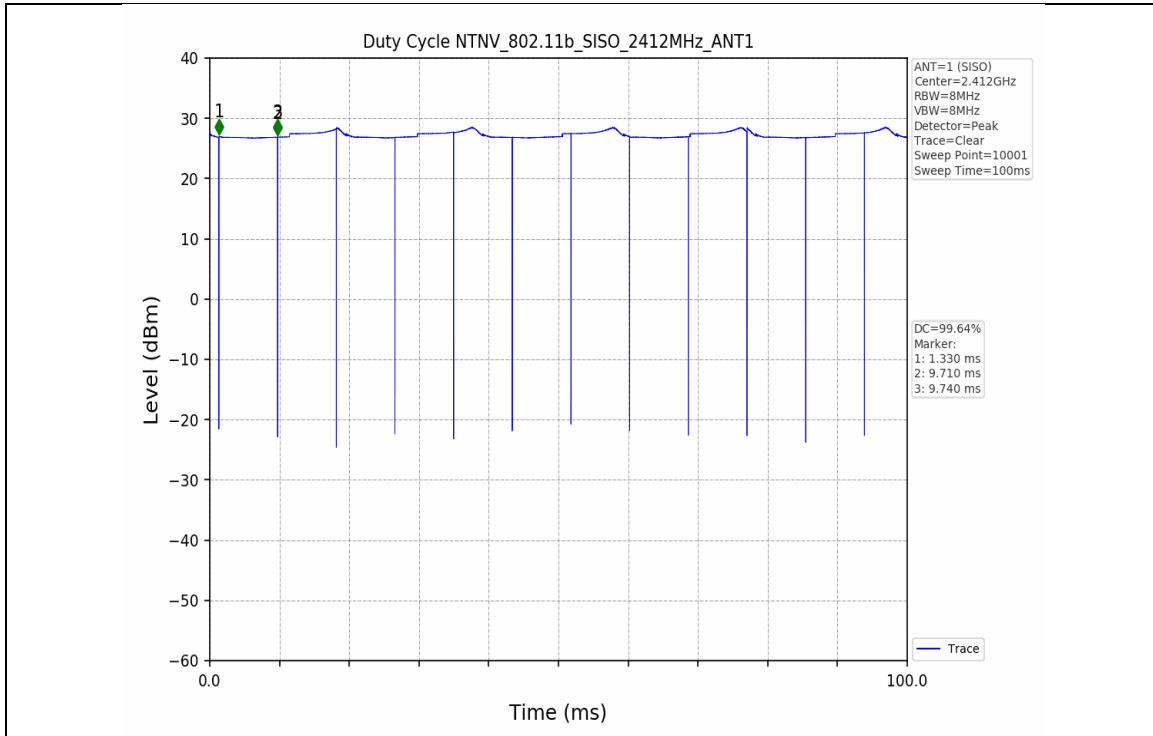
Appendix for 15.247

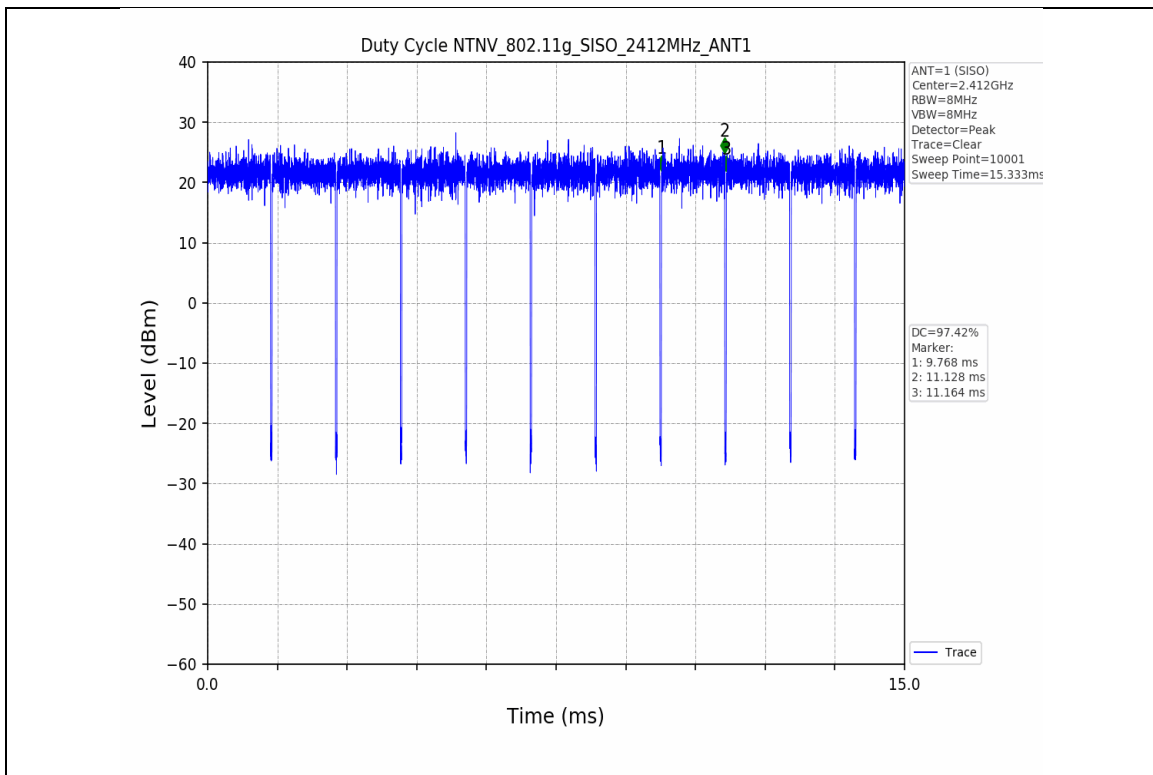
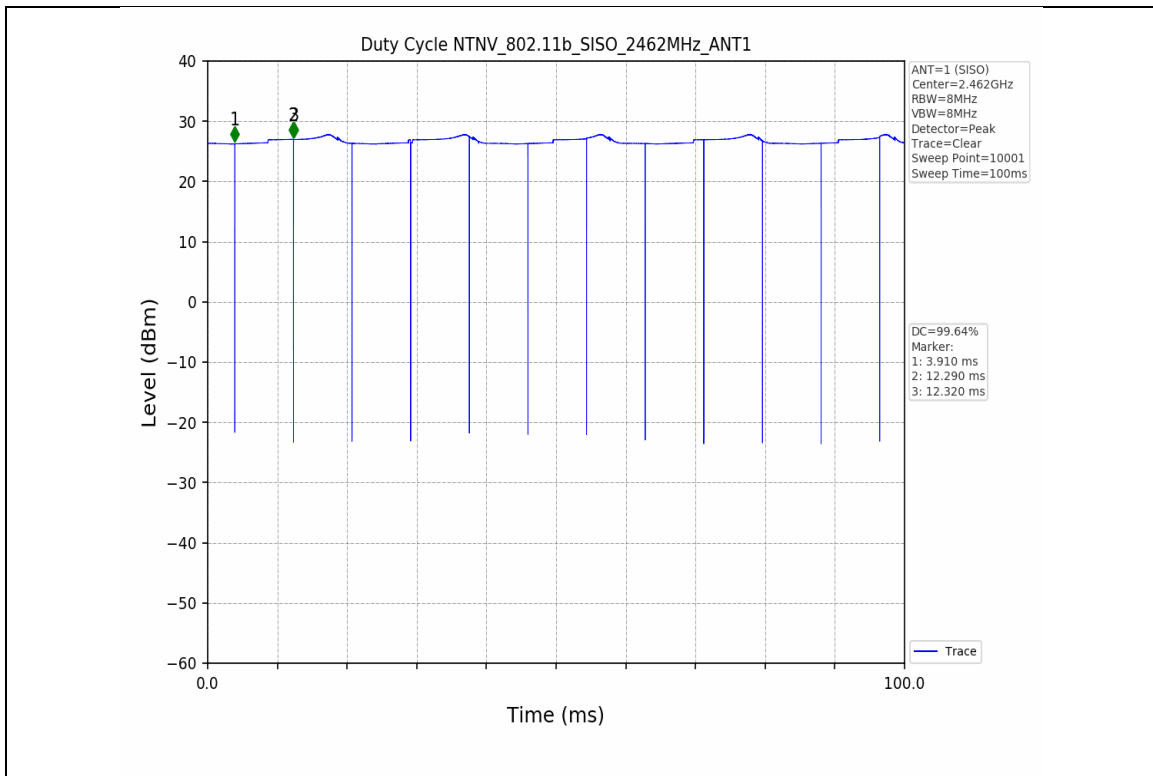
1. Duty Cycle

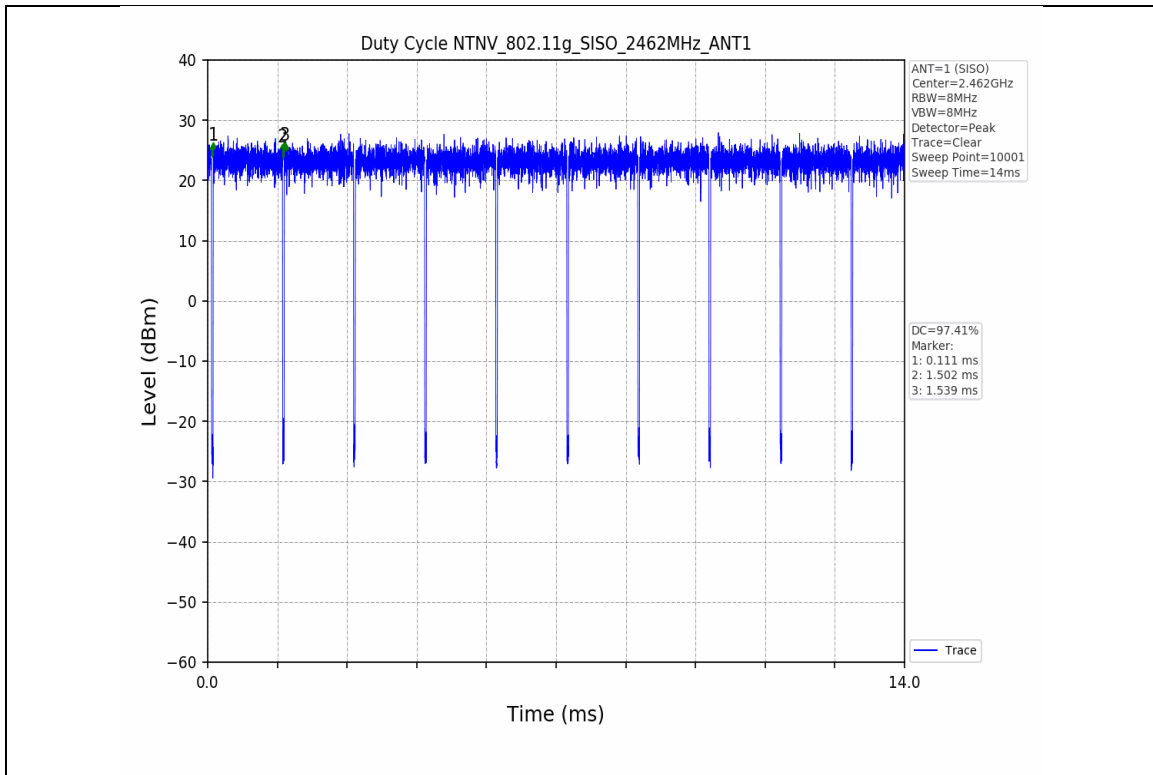
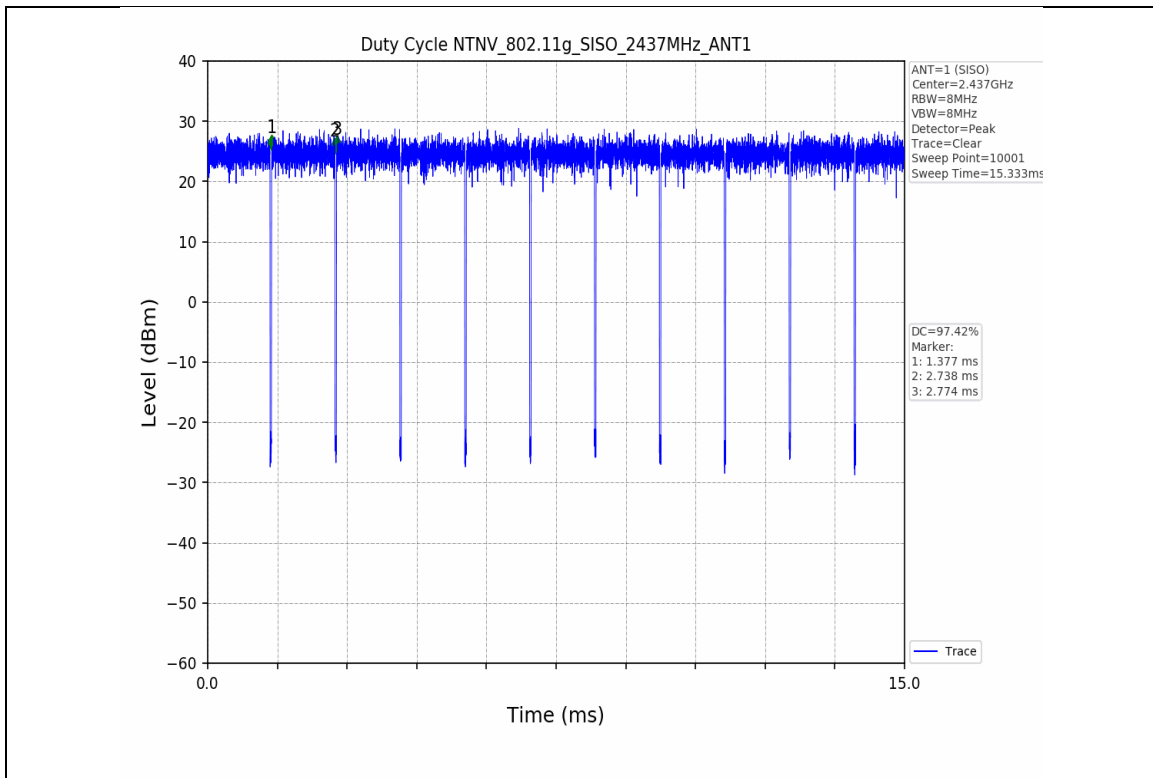
1.1 Test Result

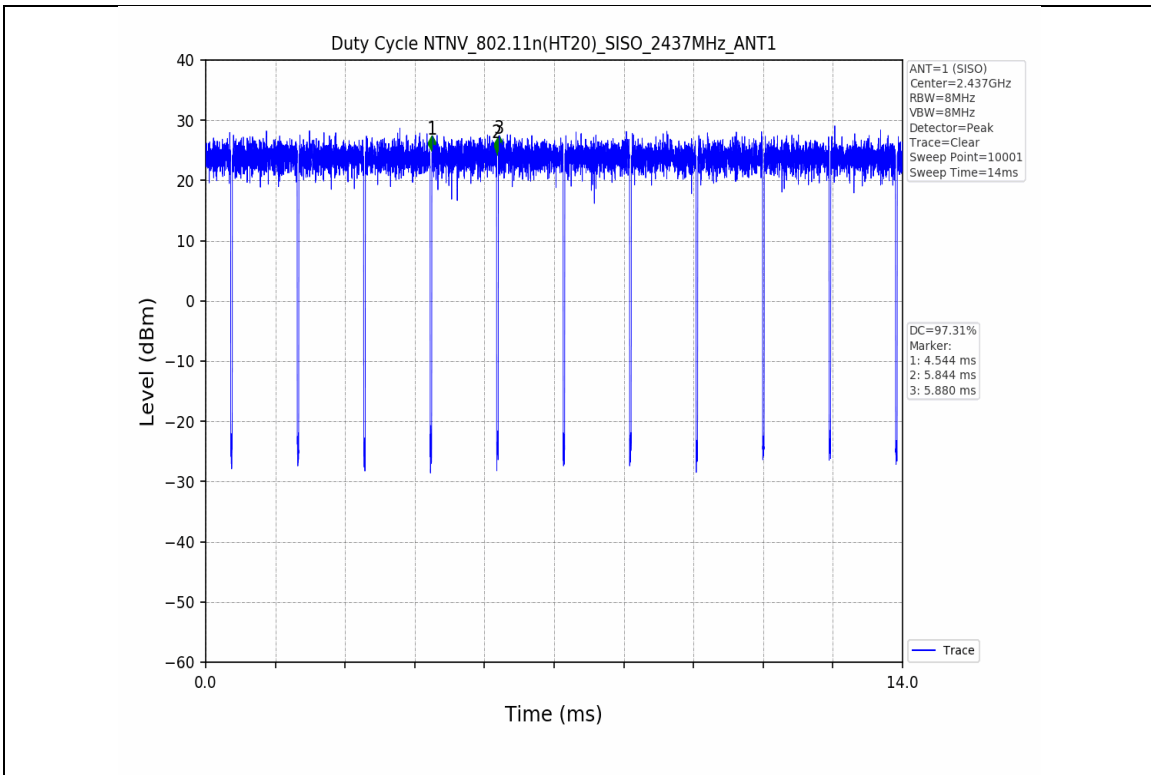
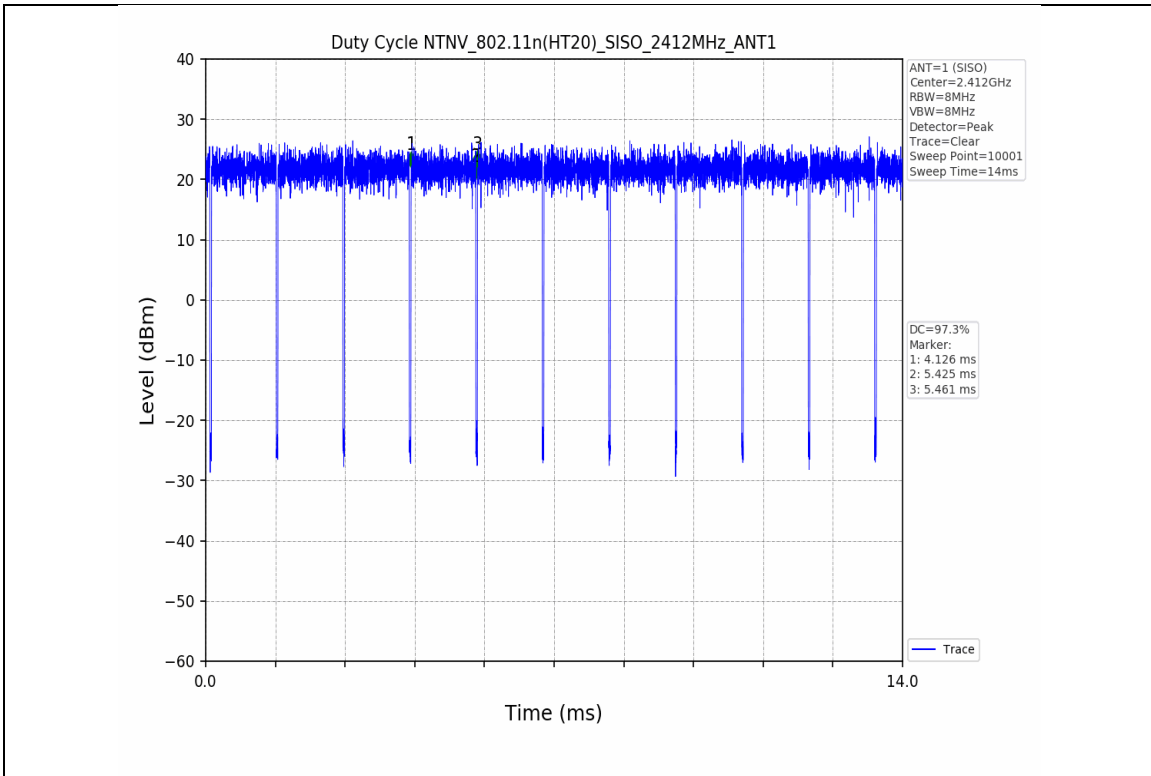
| Test Mode | Channel Frequency(MHz) | TX Type | ANT No. | T_on (ms) | Period (ms) | Duty Cycle (%) | Duty Cycle Correction Factor (dB) |
|---------------|------------------------|---------|---------|-----------|-------------|----------------|-----------------------------------|
| 802.11b | 2412 | SISO | 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 | 1.361 | 1.397 | 97.42 | 0.11 |
| | 2462 | SISO | 1 | 1.391 | 1.428 | 97.41 | 0.11 |
| 802.11n(HT20) | 2412 | SISO | 1 | 1.299 | 1.335 | 97.30 | 0.12 |
| | 2437 | SISO | 1 | 1.300 | 1.336 | 97.31 | 0.12 |
| | 2462 | SISO | 1 | 1.299 | 1.335 | 97.30 | 0.12 |
| 802.11n(HT40) | 2422 | SISO | 1 | 0.618 | 0.652 | 94.79 | 0.23 |
| | 2437 | SISO | 1 | 0.618 | 0.652 | 94.79 | 0.23 |
| | 2452 | SISO | 1 | 0.619 | 0.652 | 94.94 | 0.23 |

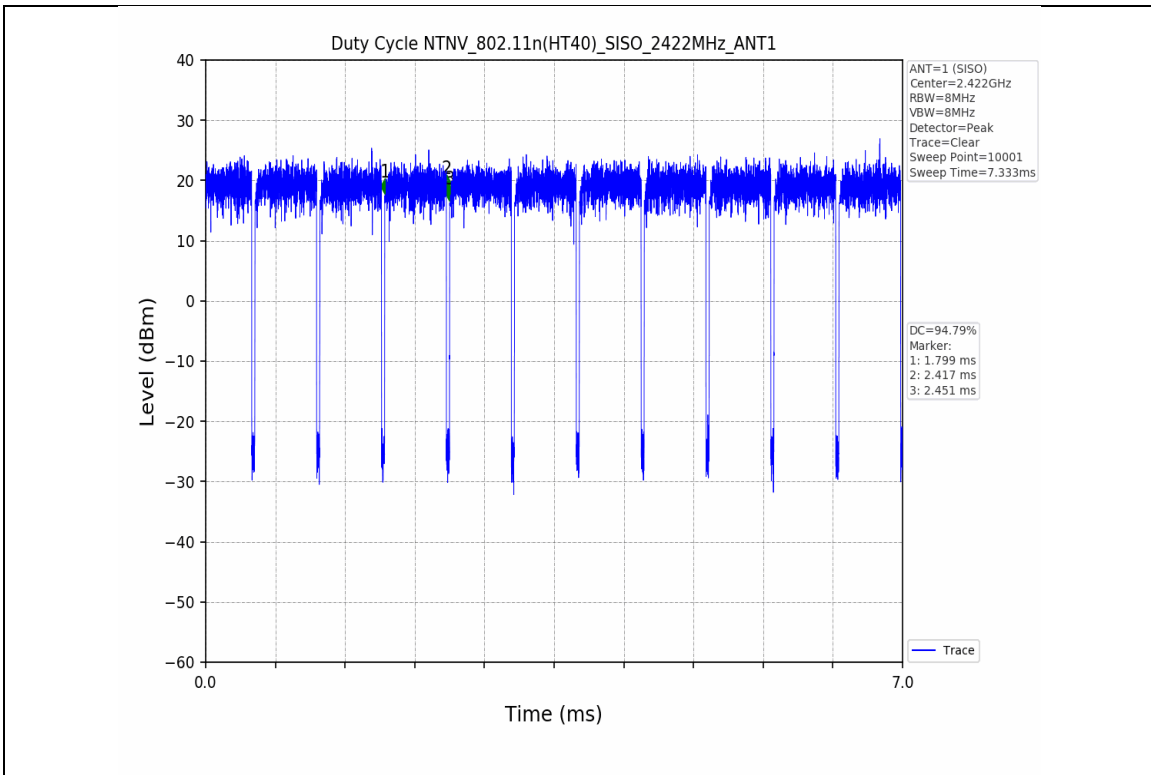
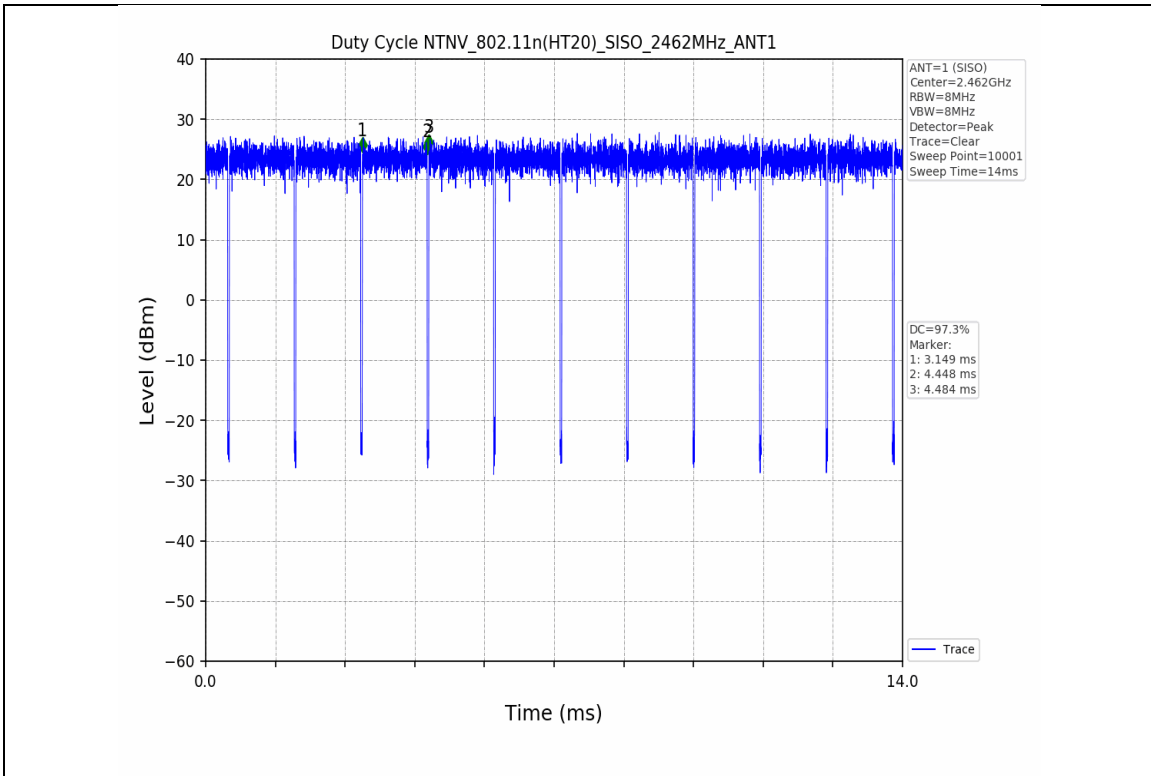
1.2 Test Graph

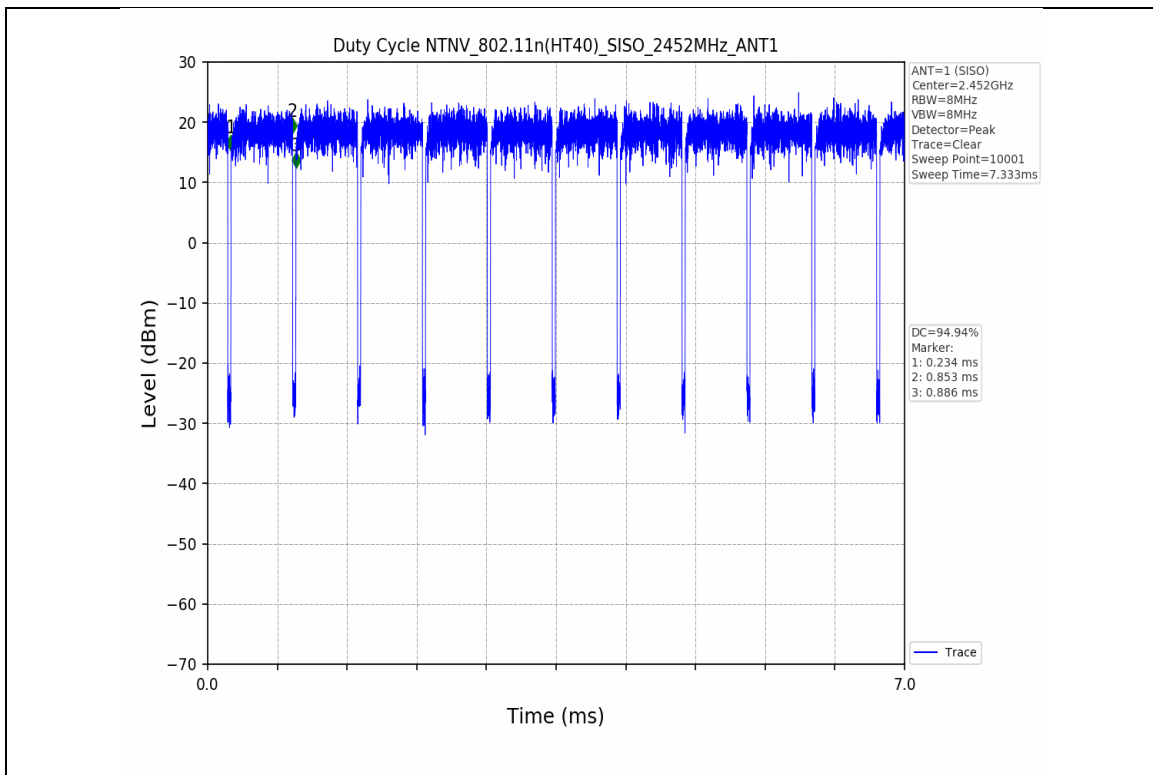
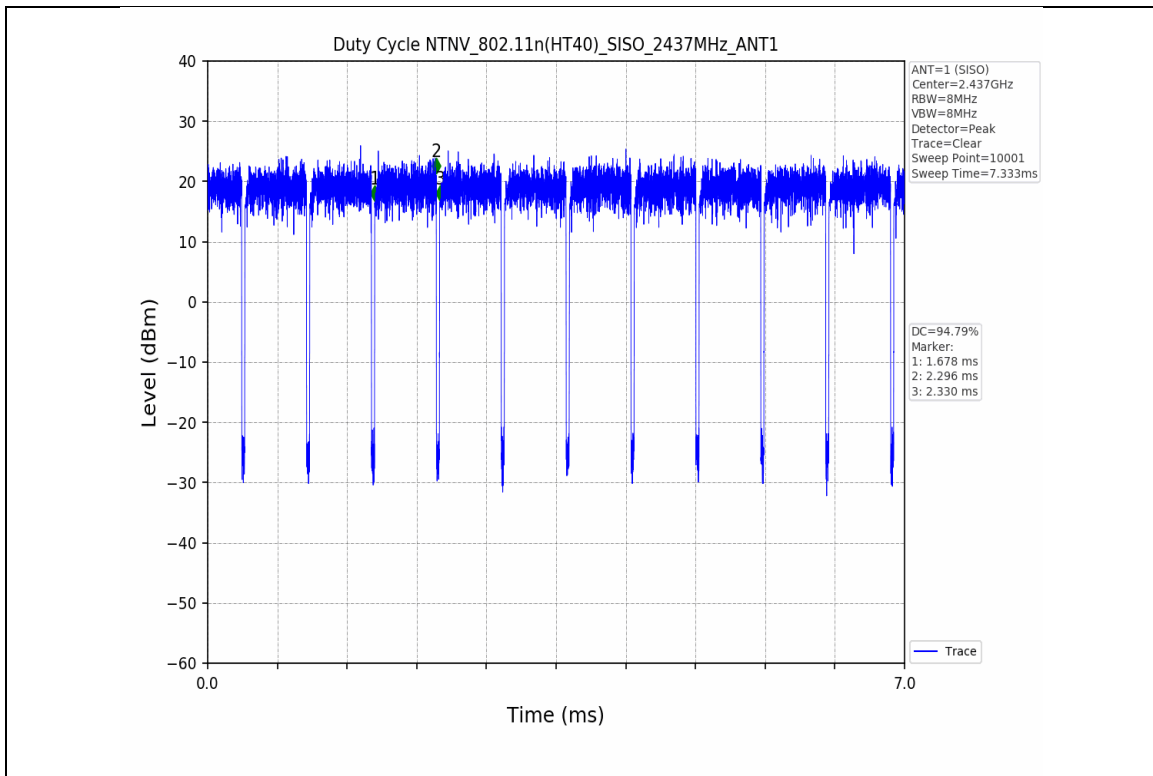












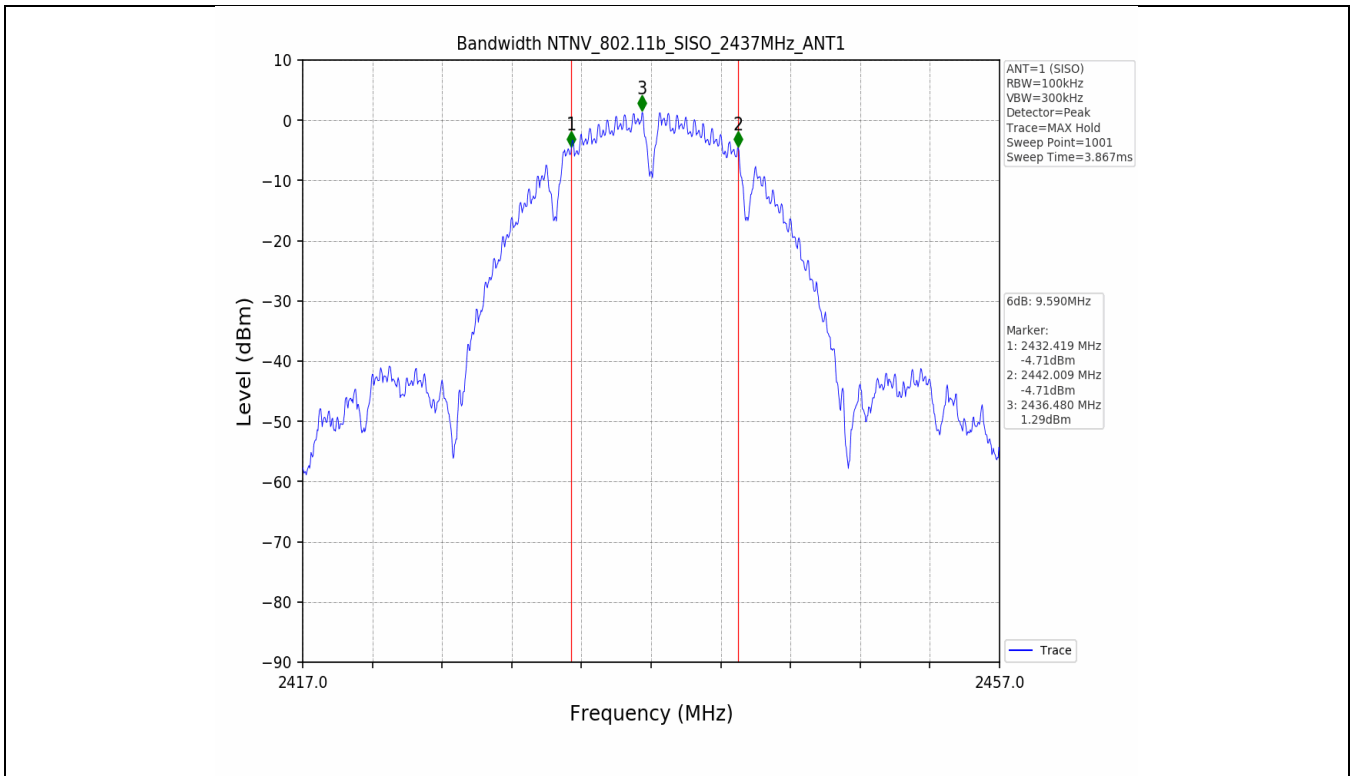
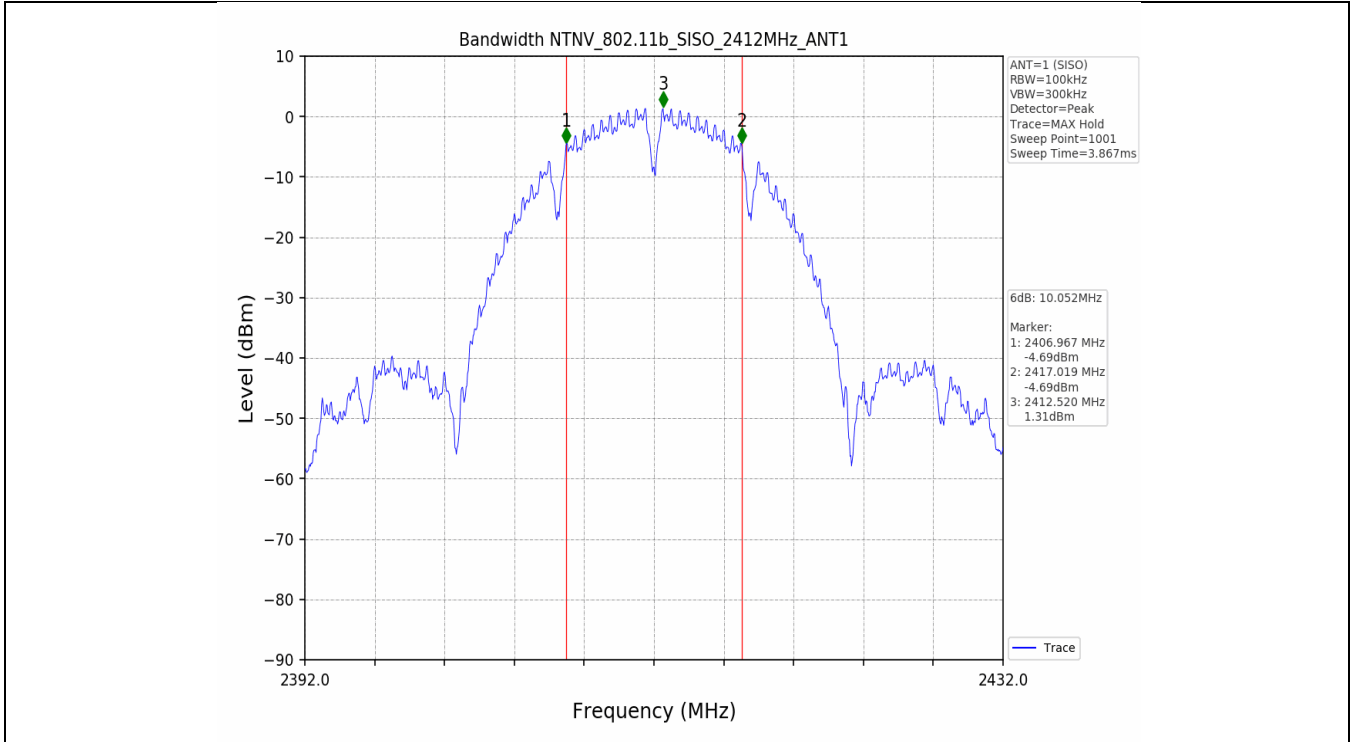
2. Bandwidth

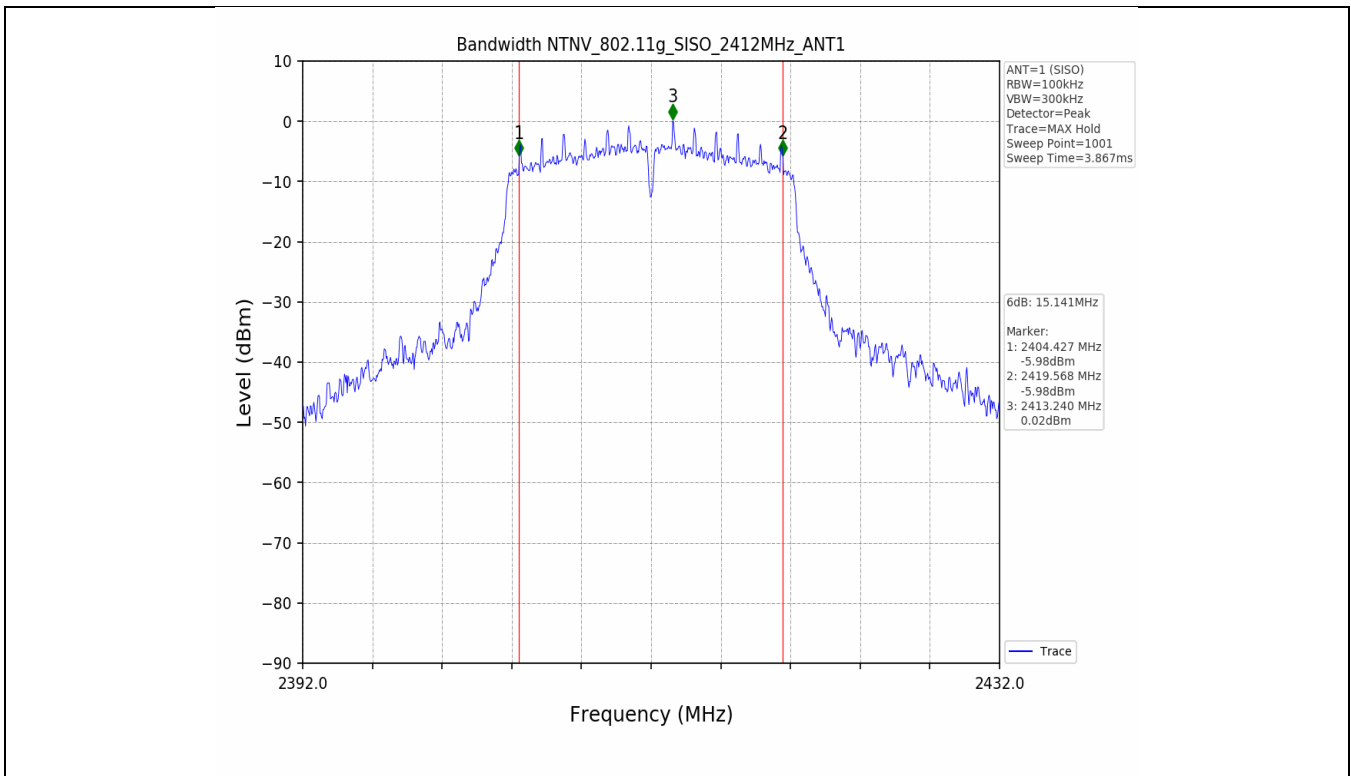
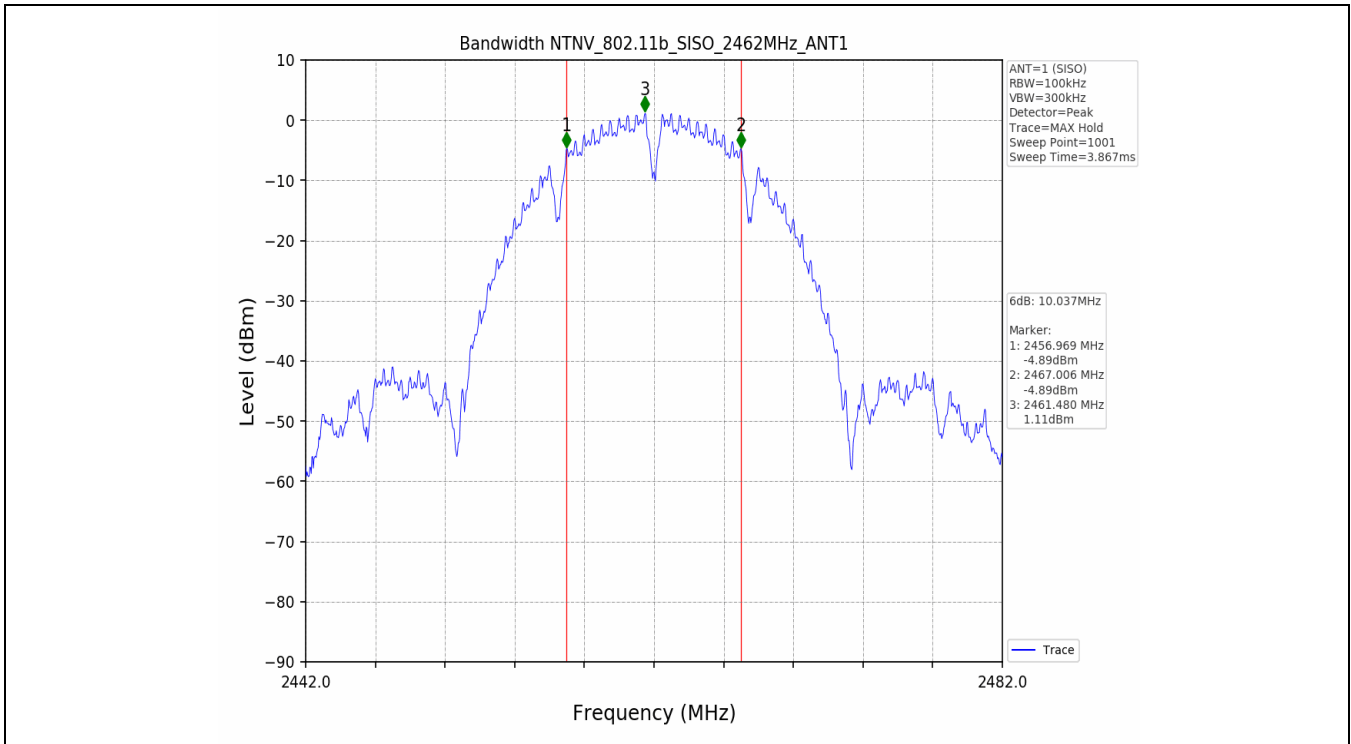
2.1 Test Result

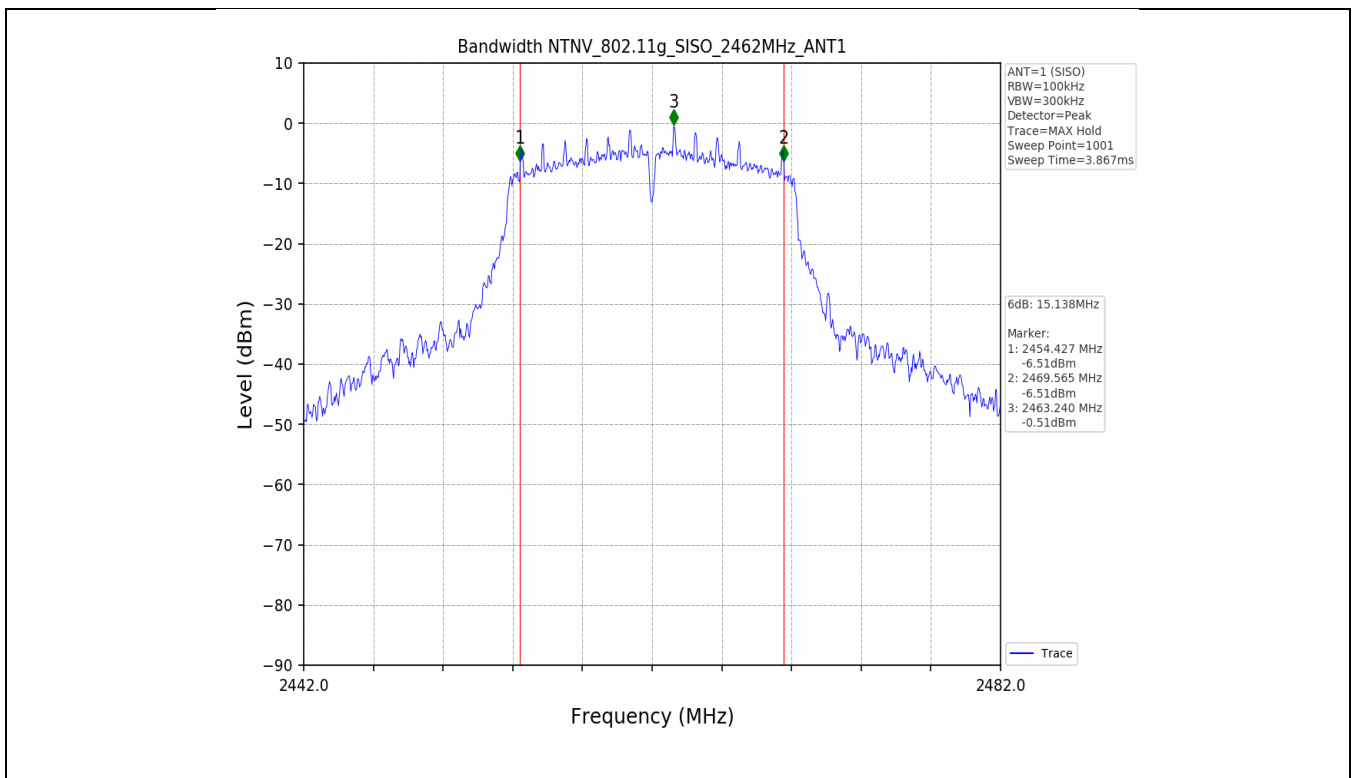
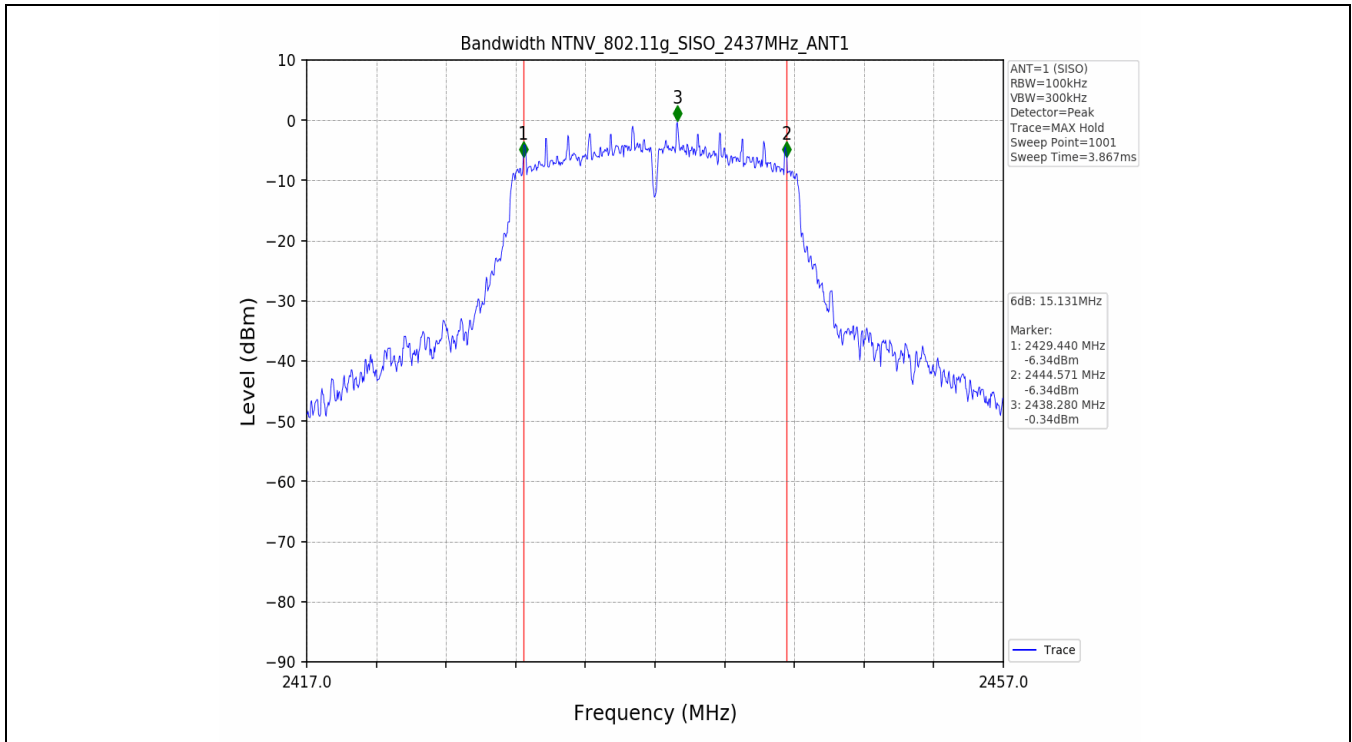
| Test Mode | Frequency (MHz) | TX Type | ANT No. | 6dB Bandwidth | | Verdict |
|---------------|-----------------|---------|---------|-------------------|--------------|---------|
| | | | | Test Result (MHz) | Limits (MHz) | |
| 802.11b | 2412 | SISO | 1 | 10.052 | ≥0.5 | PASS |
| | 2437 | SISO | 1 | 9.590 | ≥0.5 | PASS |
| | 2462 | SISO | 1 | 10.037 | ≥0.5 | PASS |
| 802.11g | 2412 | SISO | 1 | 15.141 | ≥0.5 | PASS |
| | 2437 | SISO | 1 | 15.131 | ≥0.5 | PASS |
| | 2462 | SISO | 1 | 15.138 | ≥0.5 | PASS |
| 802.11n(HT20) | 2412 | SISO | 1 | 15.119 | ≥0.5 | PASS |
| | 2437 | SISO | 1 | 15.123 | ≥0.5 | PASS |
| | 2462 | SISO | 1 | 15.096 | ≥0.5 | PASS |
| 802.11n(HT40) | 2422 | SISO | 1 | 35.129 | ≥0.5 | PASS |
| | 2437 | SISO | 1 | 35.132 | ≥0.5 | PASS |
| | 2452 | SISO | 1 | 35.155 | ≥0.5 | PASS |

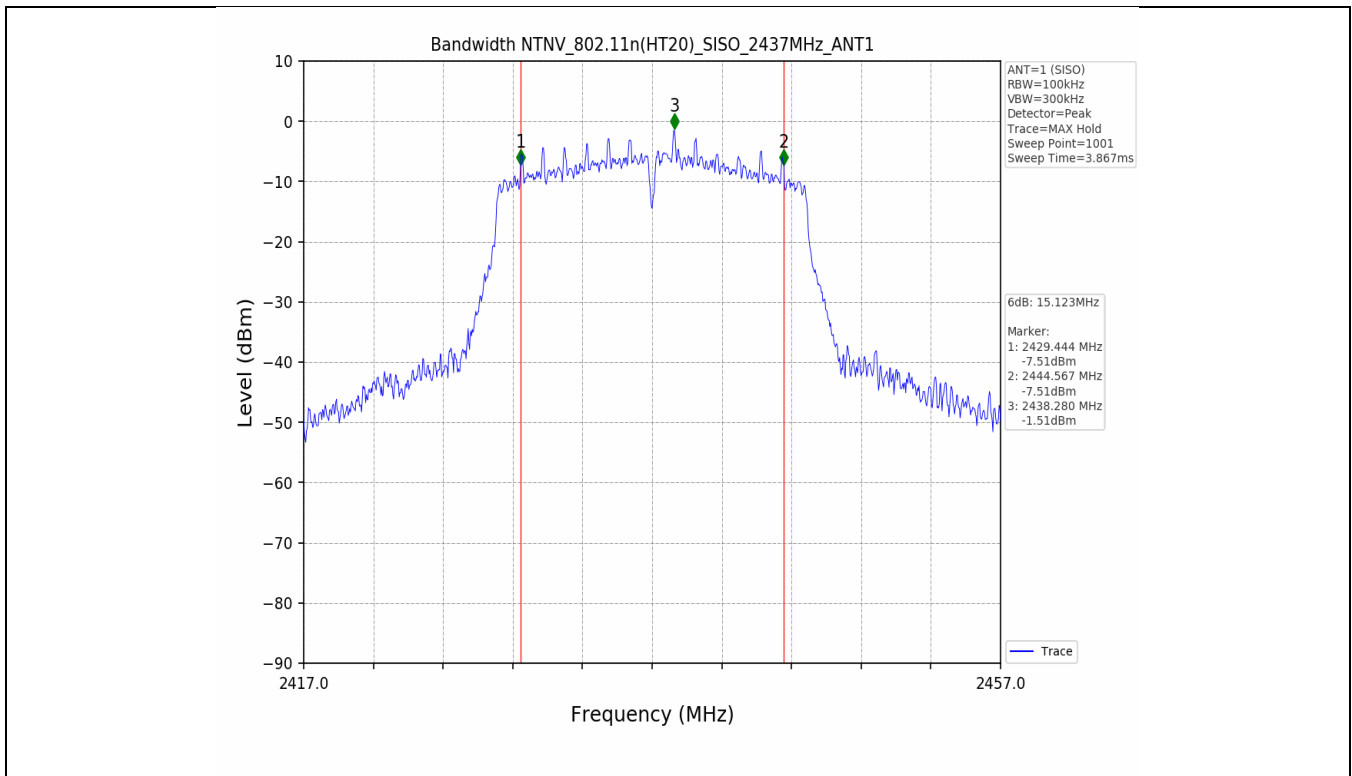
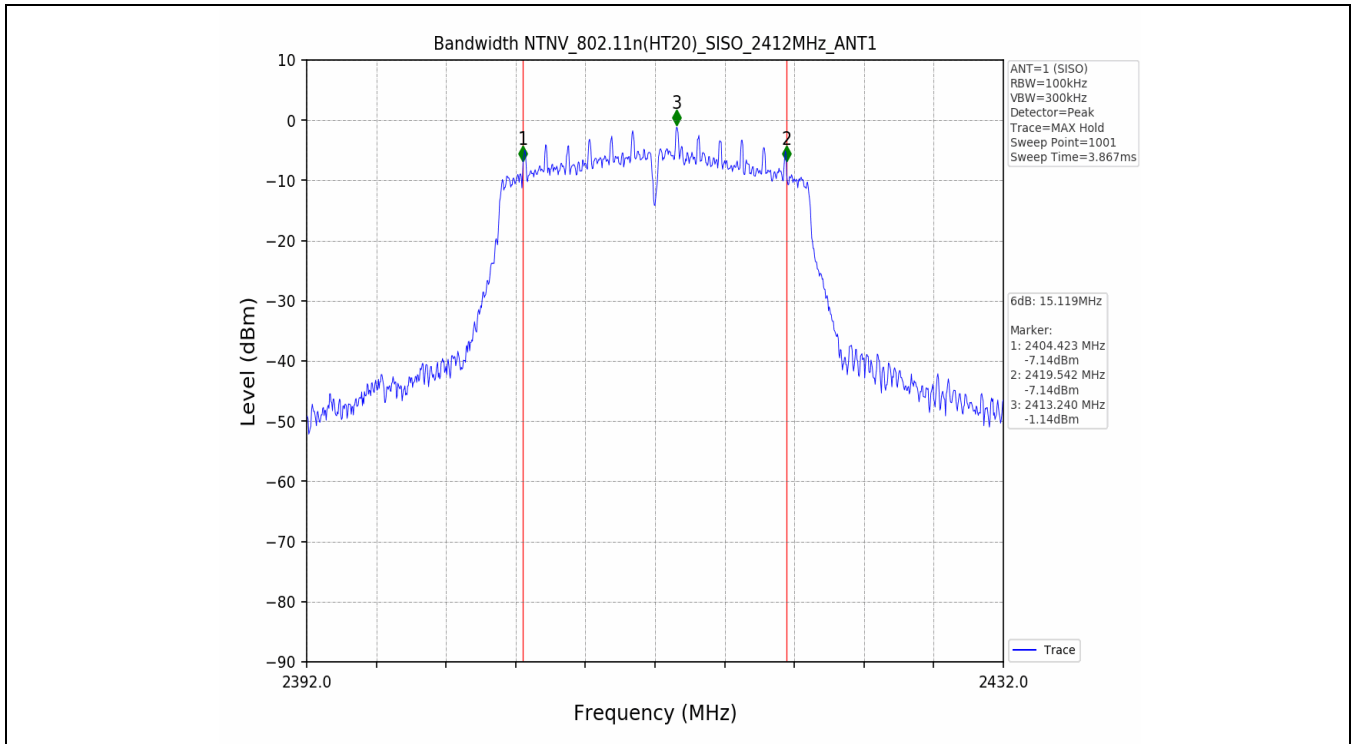
| Test Mode | Frequency (MHz) | TX Type | ANT No. | 99% Occupied Bandwidth | |
|---------------|-----------------|---------|---------|------------------------|---------------------|
| | | | | Test Result (MHz) | |
| 802.11b | 2412 | SISO | 1 | 14.343 | Only for Report Use |
| | 2437 | SISO | 1 | 14.316 | Only for Report Use |
| | 2462 | SISO | 1 | 14.322 | Only for Report Use |
| 802.11g | 2412 | SISO | 1 | 16.759 | Only for Report Use |
| | 2437 | SISO | 1 | 16.766 | Only for Report Use |
| | 2462 | SISO | 1 | 16.744 | Only for Report Use |
| 802.11n(HT20) | 2412 | SISO | 1 | 17.625 | Only for Report Use |
| | 2437 | SISO | 1 | 17.667 | Only for Report Use |
| | 2462 | SISO | 1 | 17.634 | Only for Report Use |
| 802.11n(HT40) | 2422 | SISO | 1 | 36.095 | Only for Report Use |
| | 2437 | SISO | 1 | 36.253 | Only for Report Use |
| | 2452 | SISO | 1 | 36.180 | Only for Report Use |

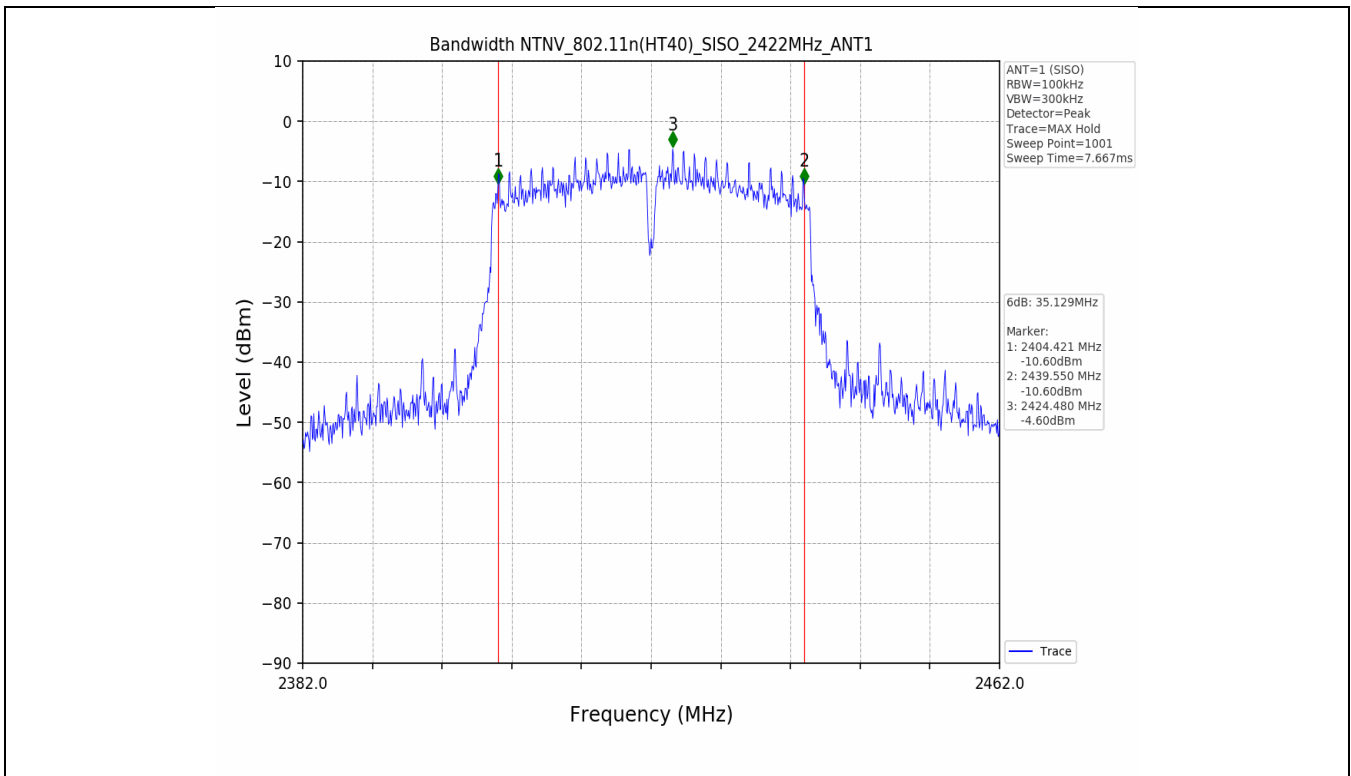
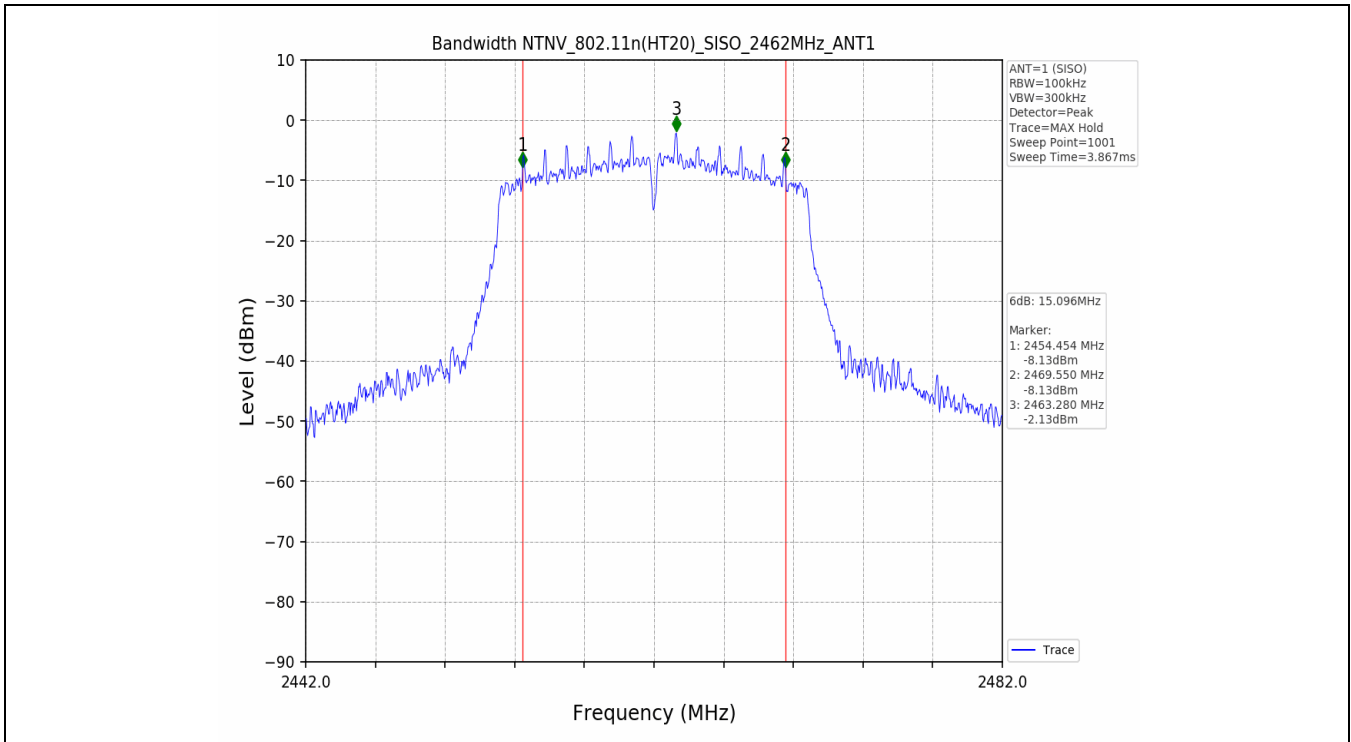
2.2 Test Graph - 6dB Bandwidth

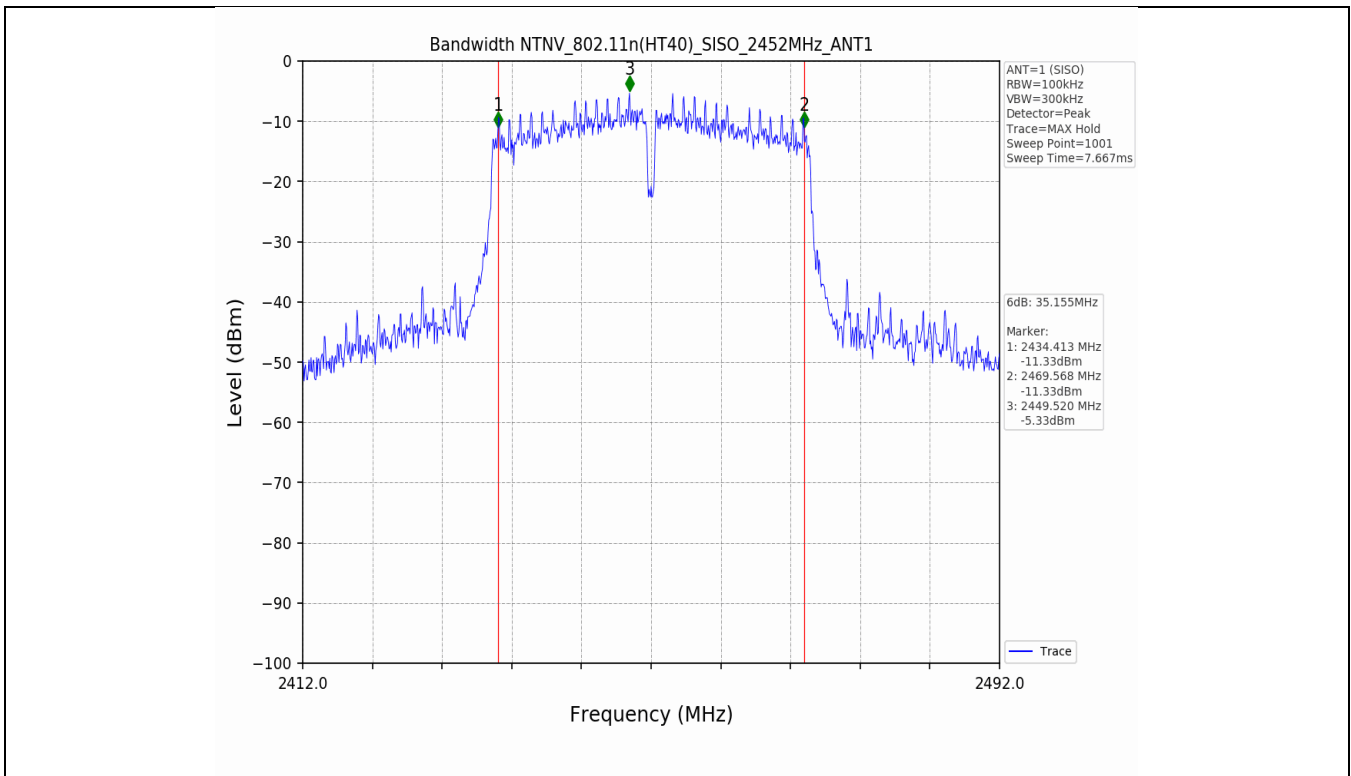
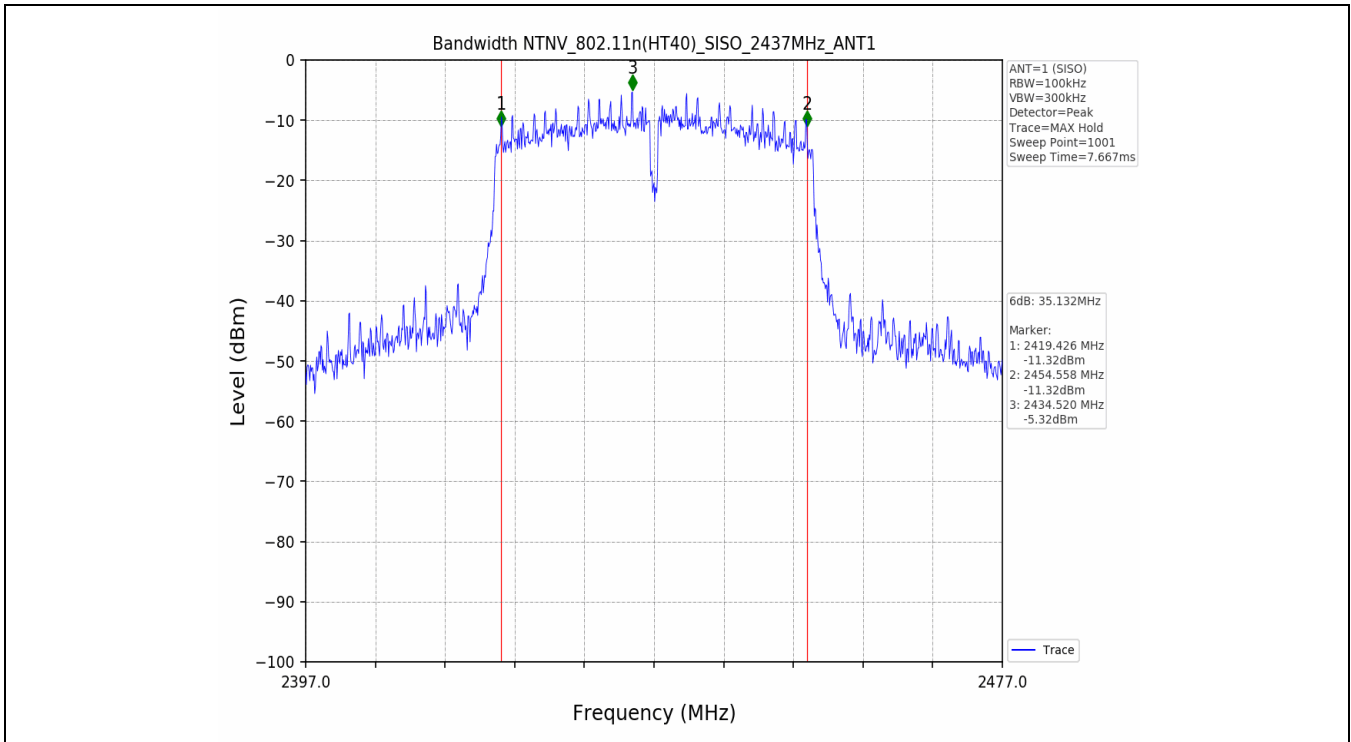




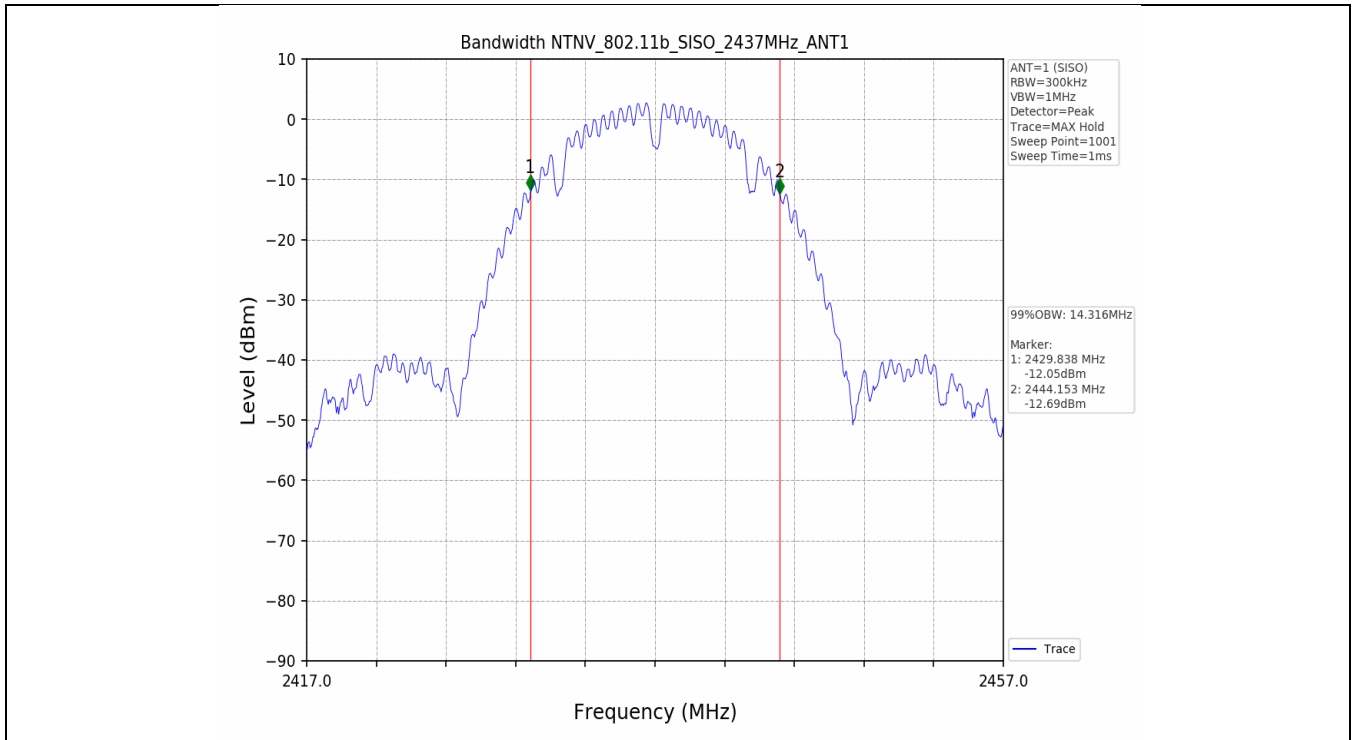
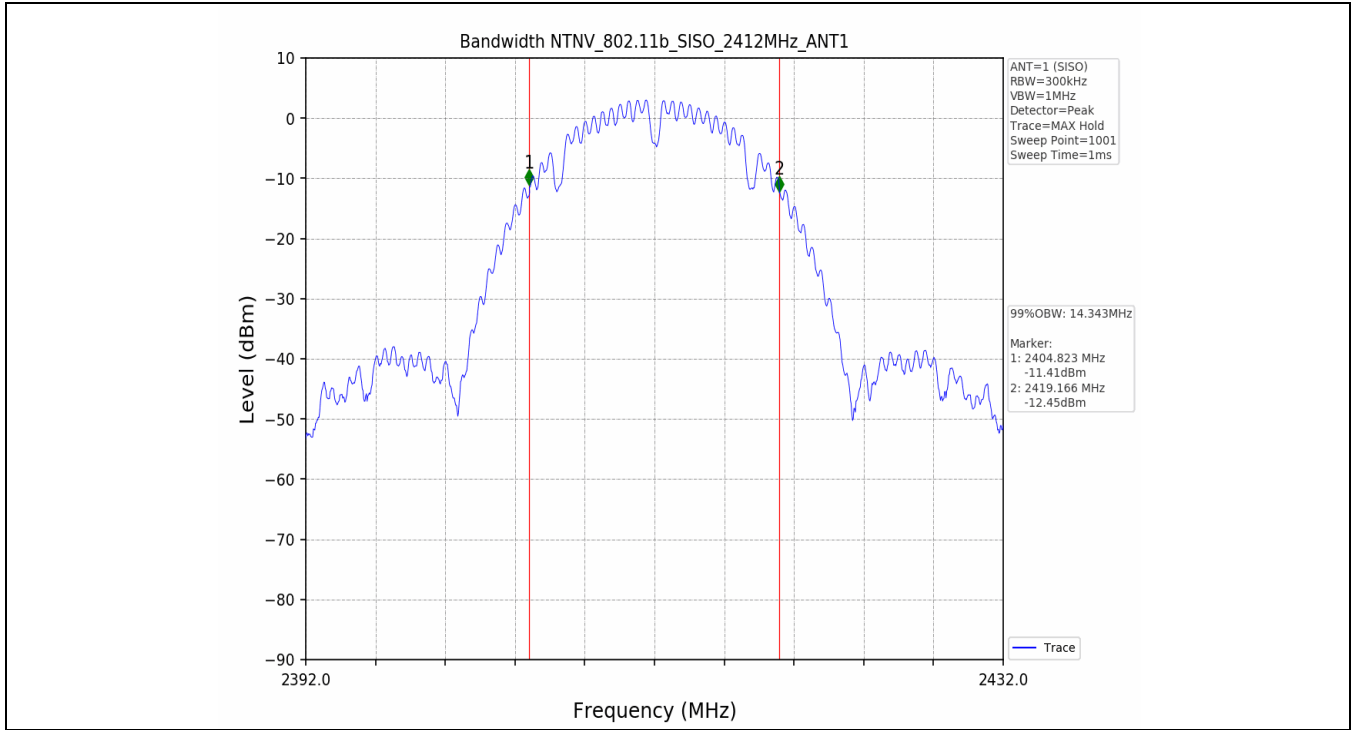


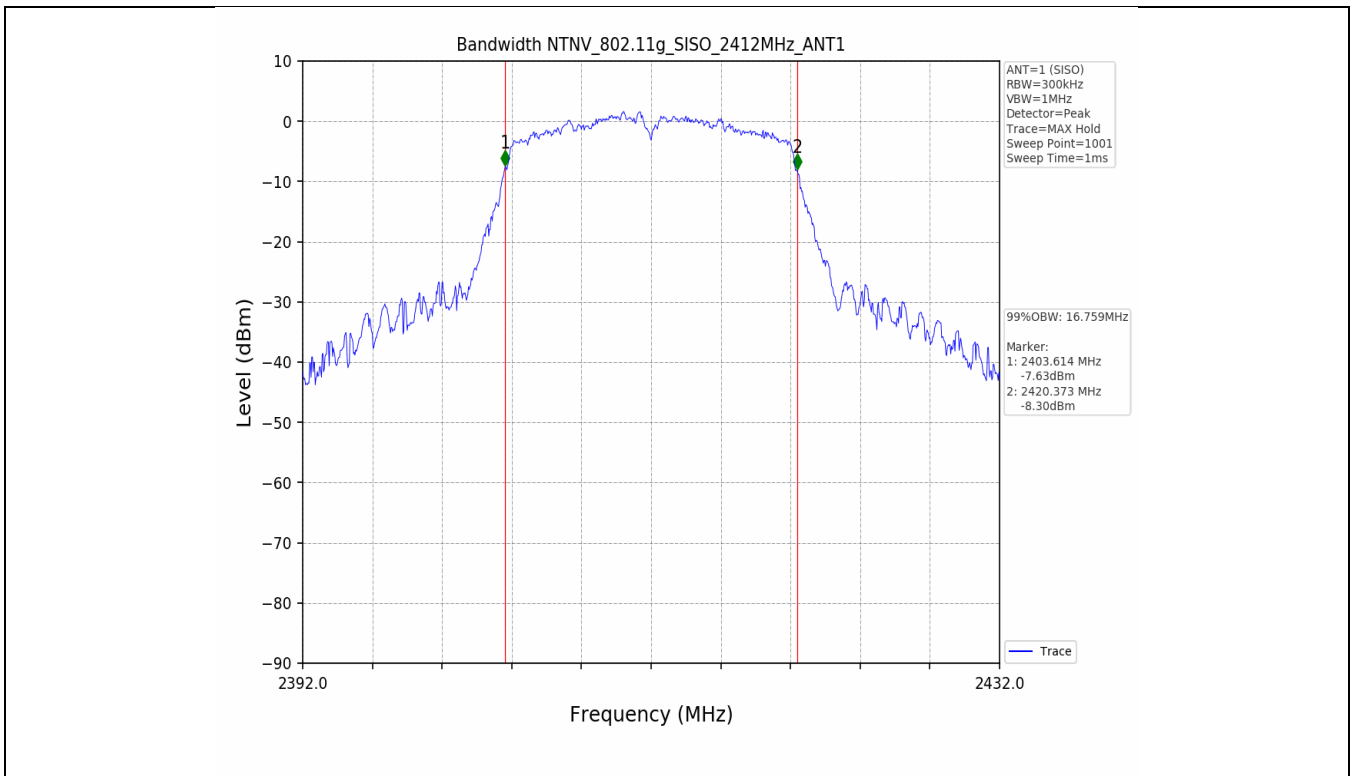
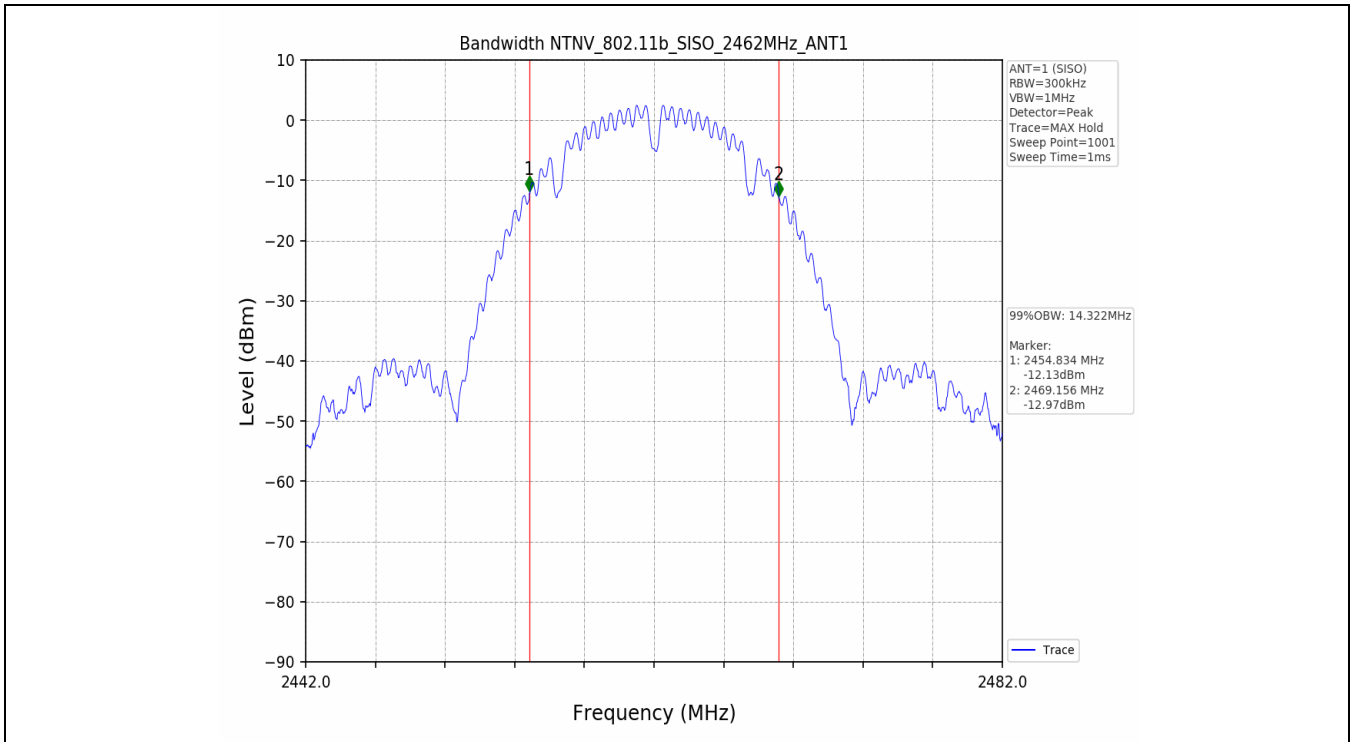


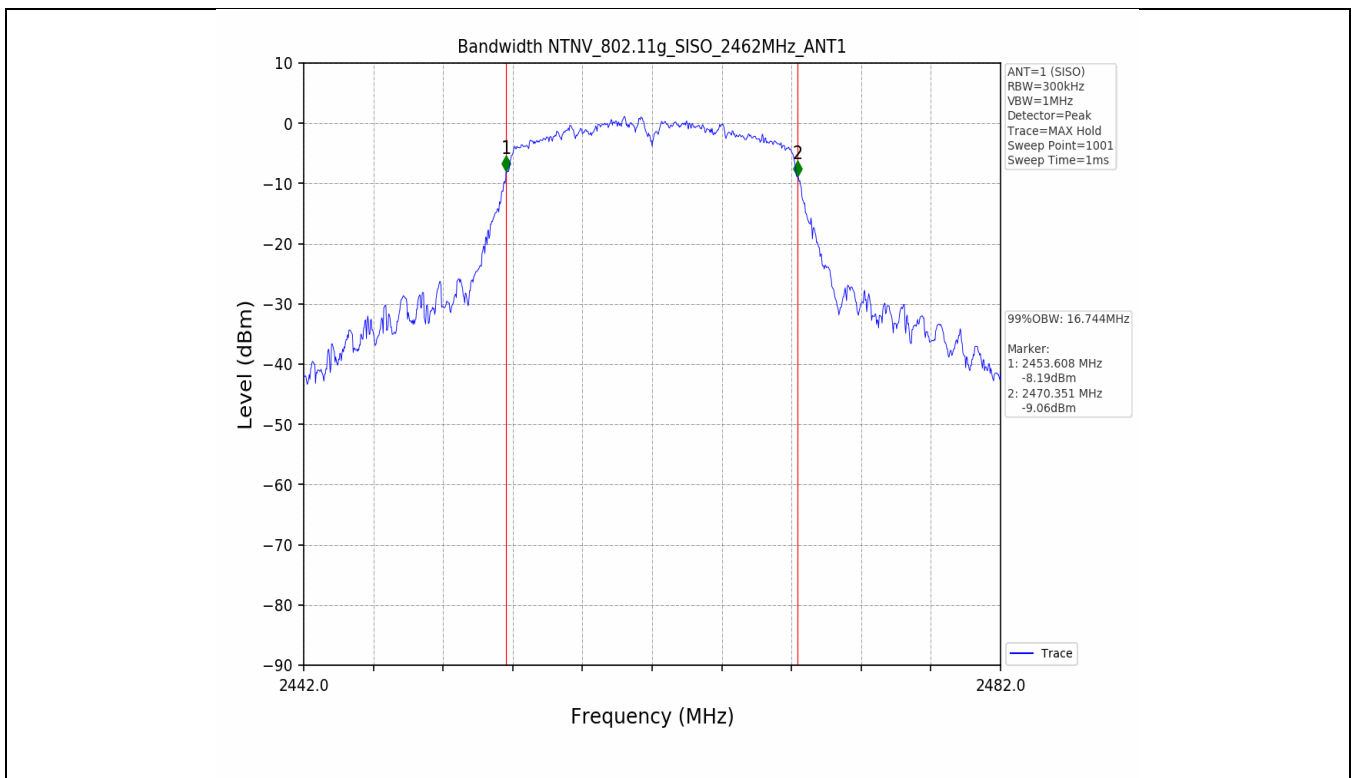
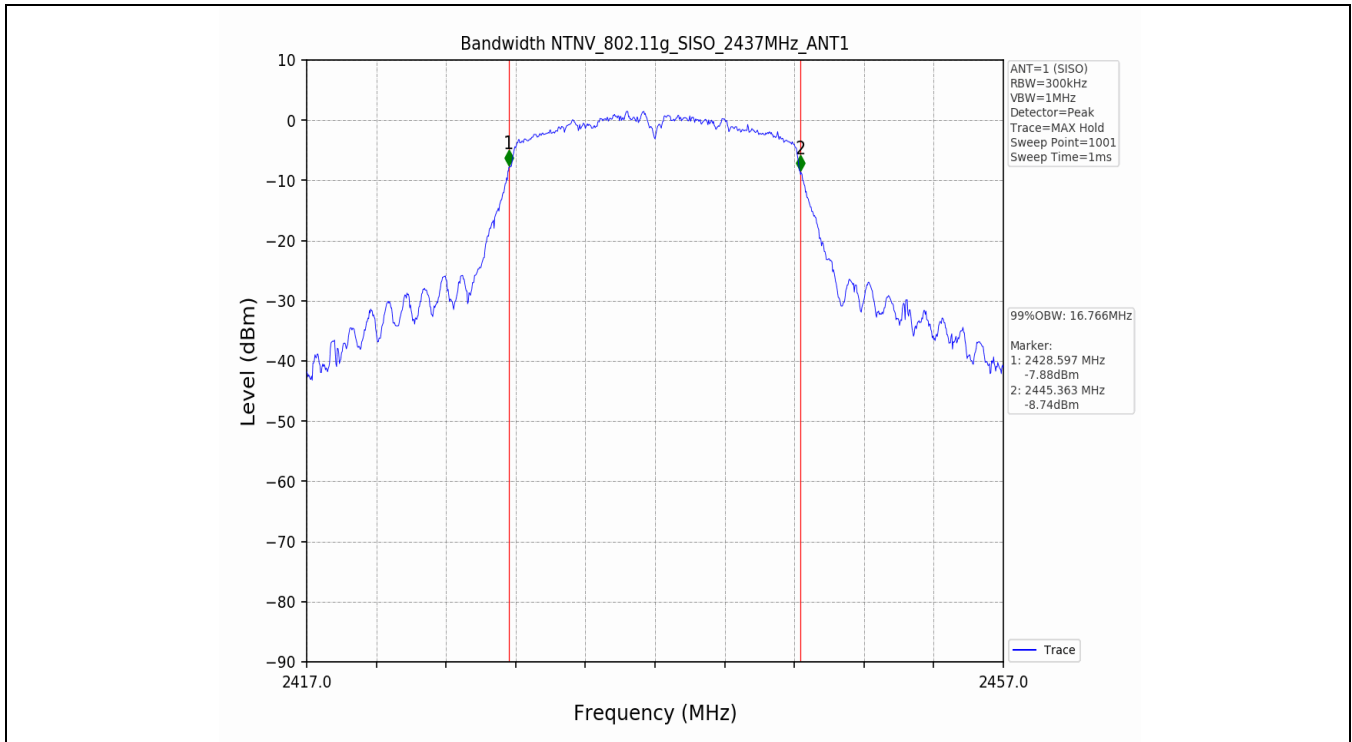


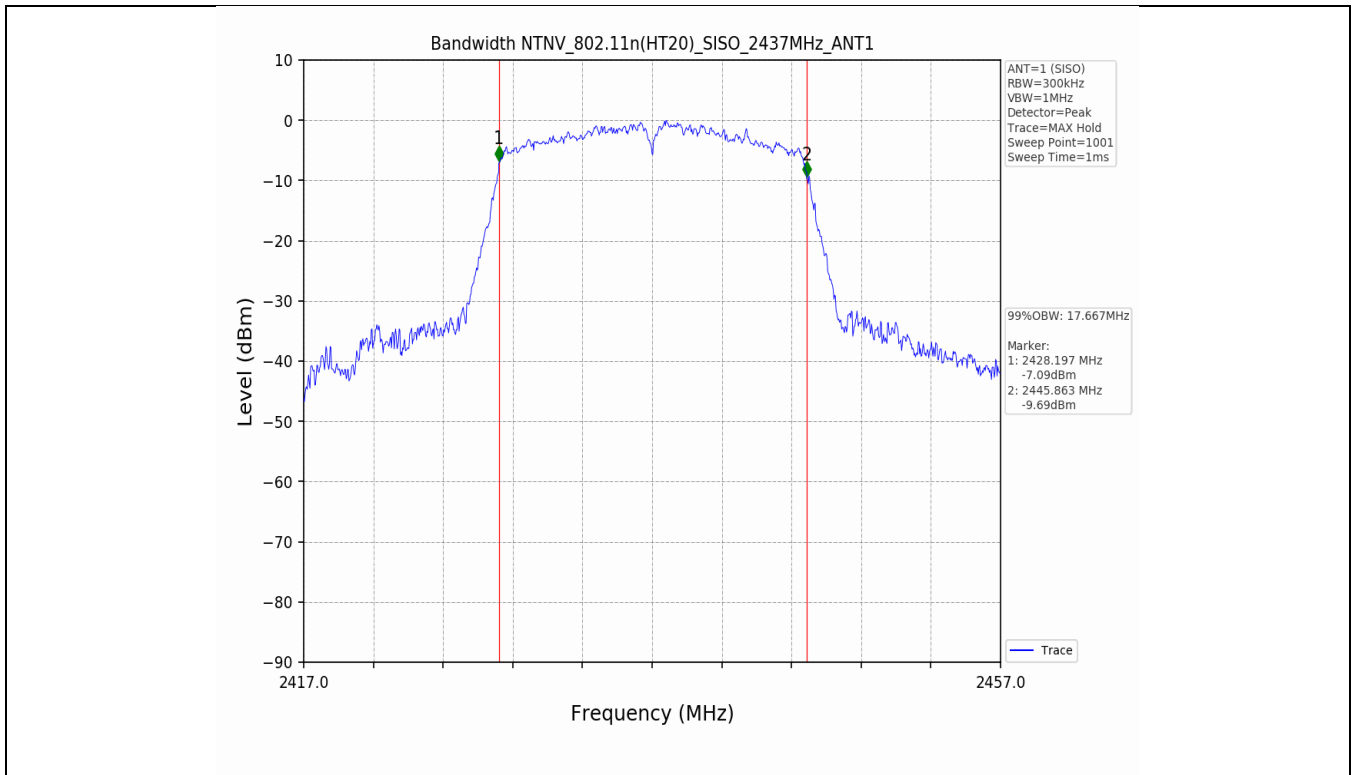
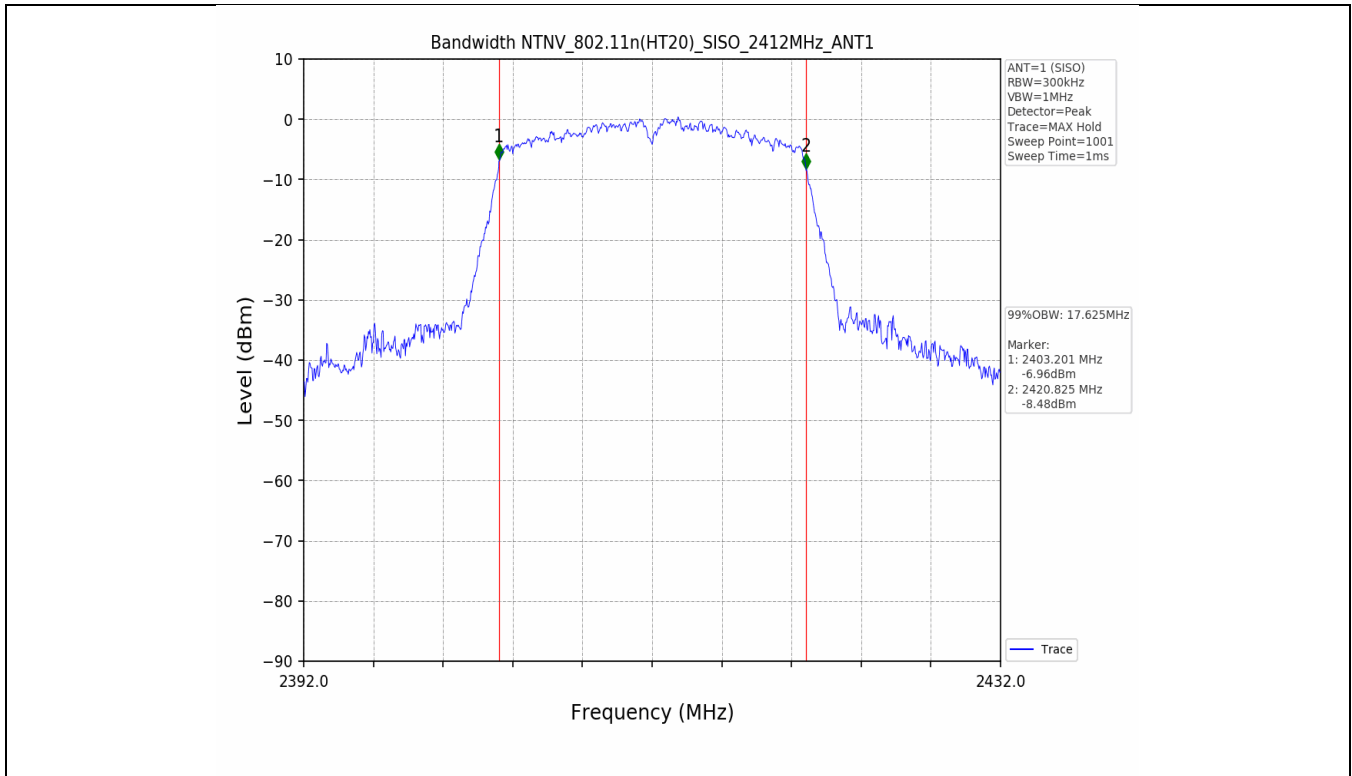


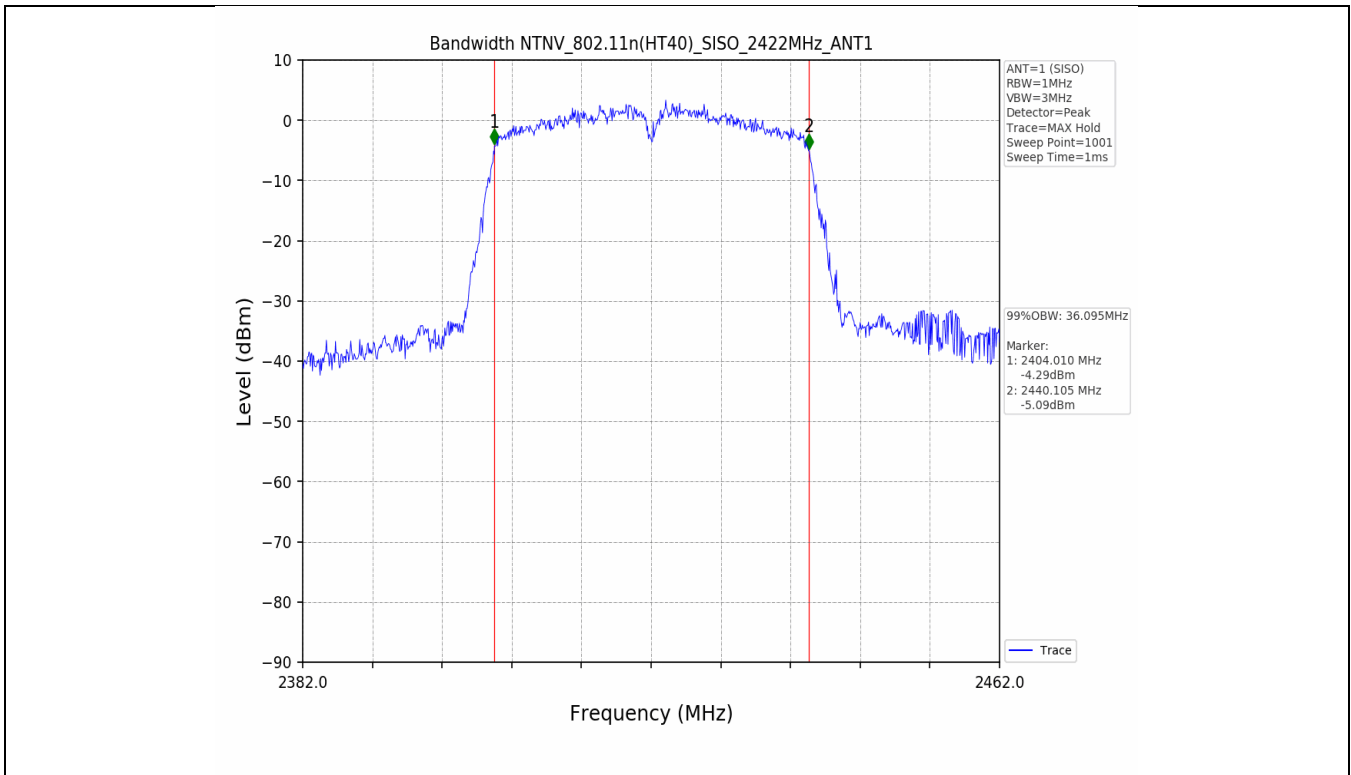
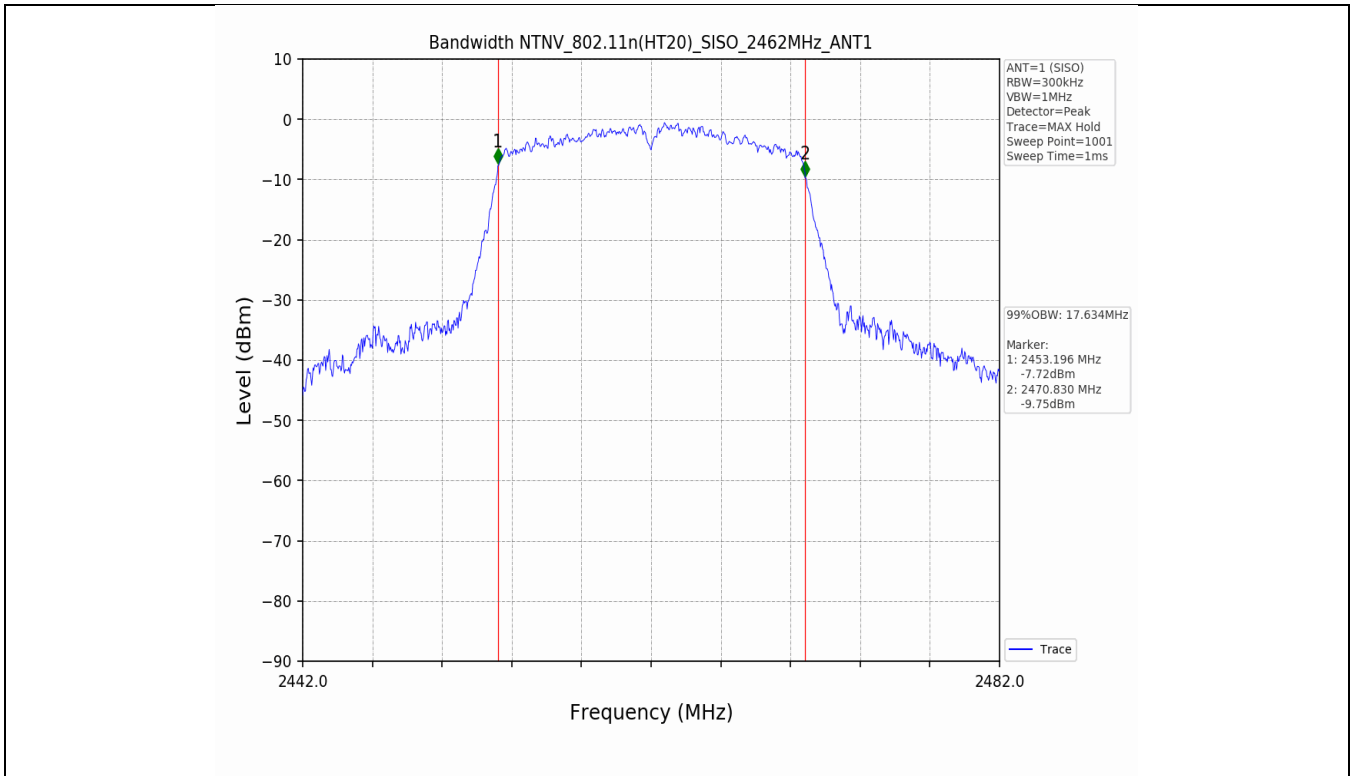
2.3 Test Graph - 99% Occupied Bandwidth

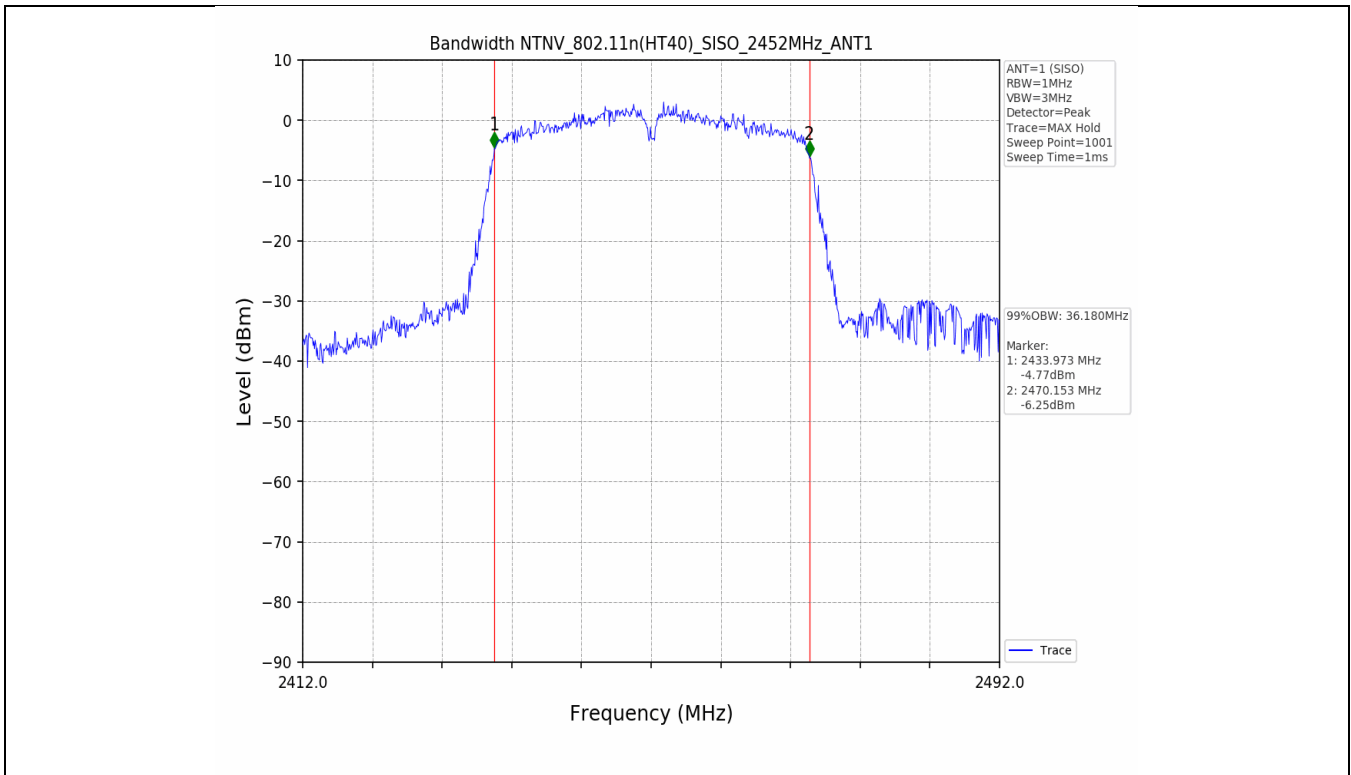
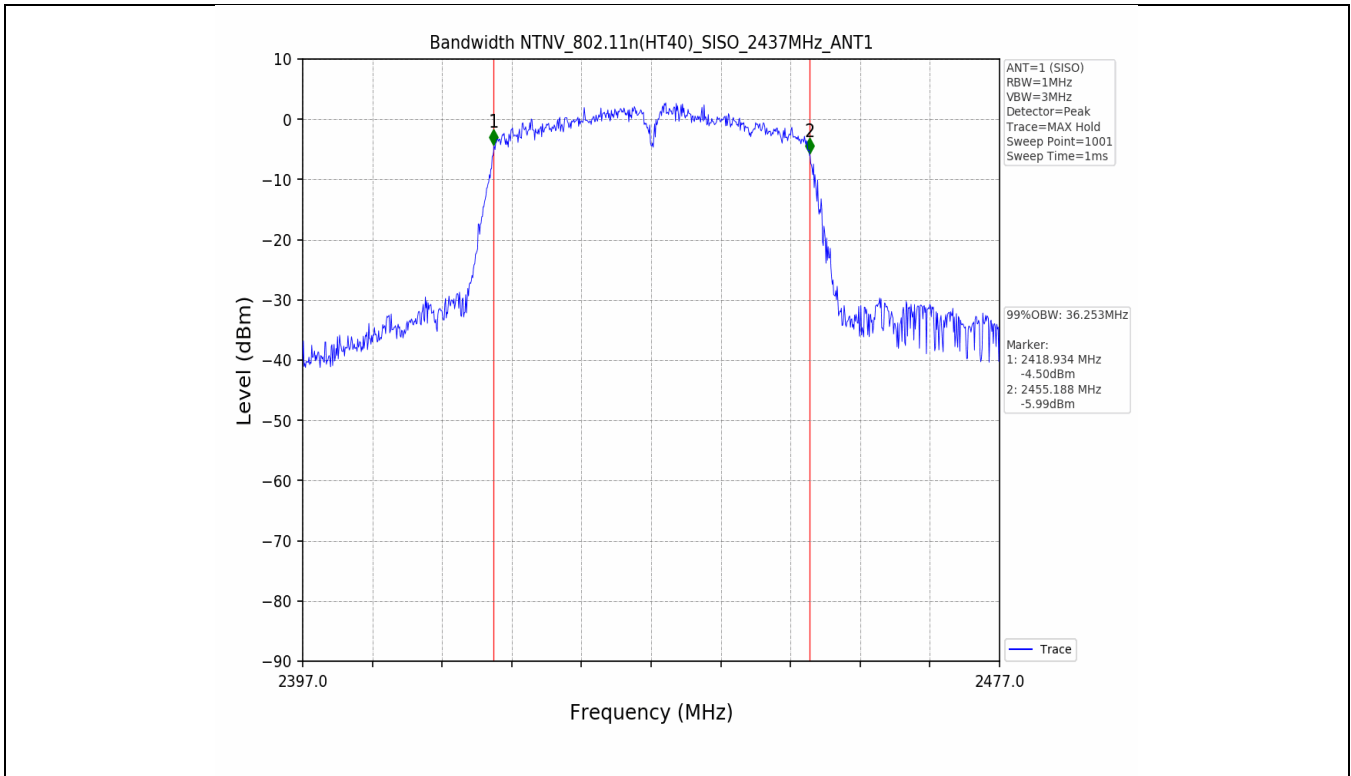












3. Maximum Conducted Output Power

3.1 Test Result

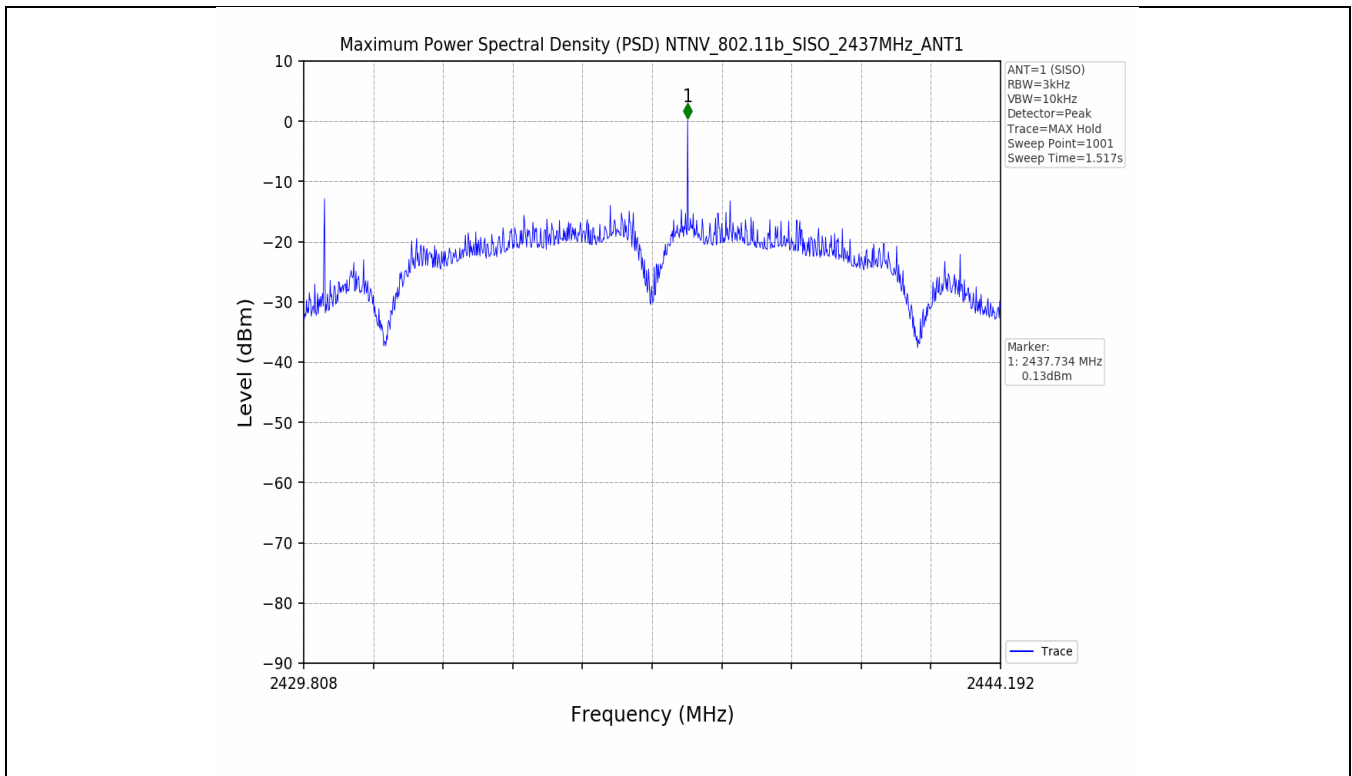
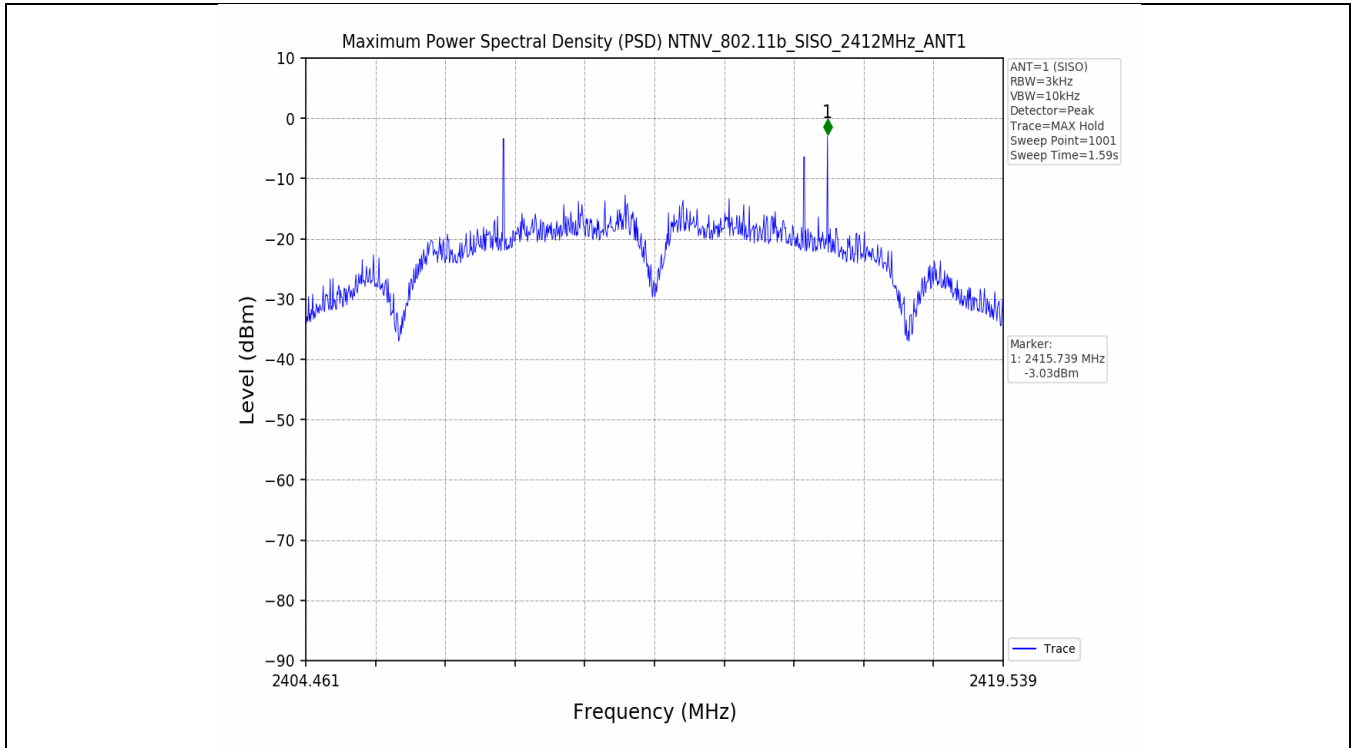
| Test Mode | Frequency (MHz) | Tx Type | Measured Peak Output Power (dBm) | Limits (dBm) | Verdict |
|---------------|-----------------|---------|----------------------------------|--------------|---------|
| | | | Ant 1 | | |
| 802.11b | 2412 | SISO | 13.83 | 30 | PASS |
| | 2437 | SISO | 13.60 | 30 | PASS |
| | 2462 | SISO | 13.54 | 30 | PASS |
| 802.11g | 2412 | SISO | 17.13 | 30 | PASS |
| | 2437 | SISO | 17.02 | 30 | PASS |
| | 2462 | SISO | 16.57 | 30 | PASS |
| 802.11n(HT20) | 2412 | SISO | 15.76 | 30 | PASS |
| | 2437 | SISO | 15.40 | 30 | PASS |
| | 2462 | SISO | 14.84 | 30 | PASS |
| 802.11n(HT40) | 2422 | SISO | 14.63 | 30 | PASS |
| | 2437 | SISO | 14.00 | 30 | PASS |
| | 2452 | SISO | 14.11 | 30 | PASS |

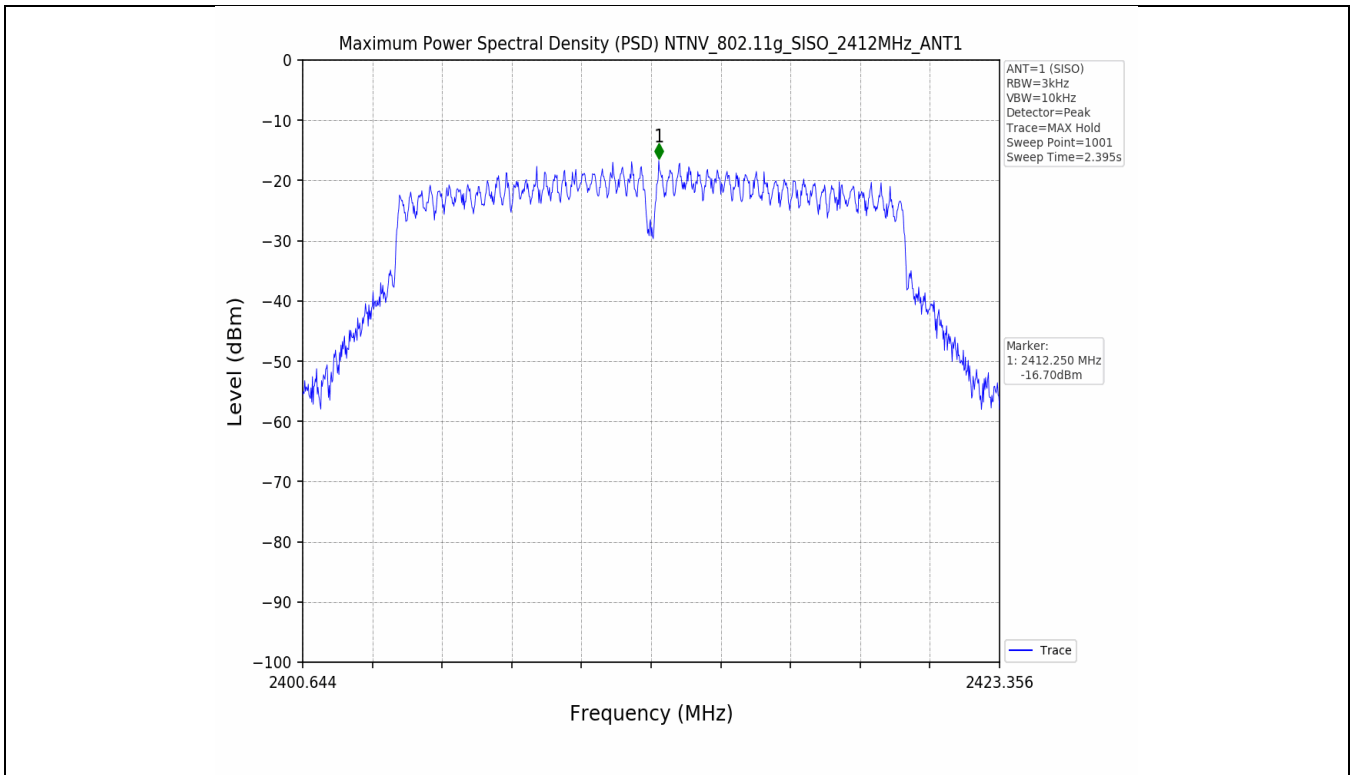
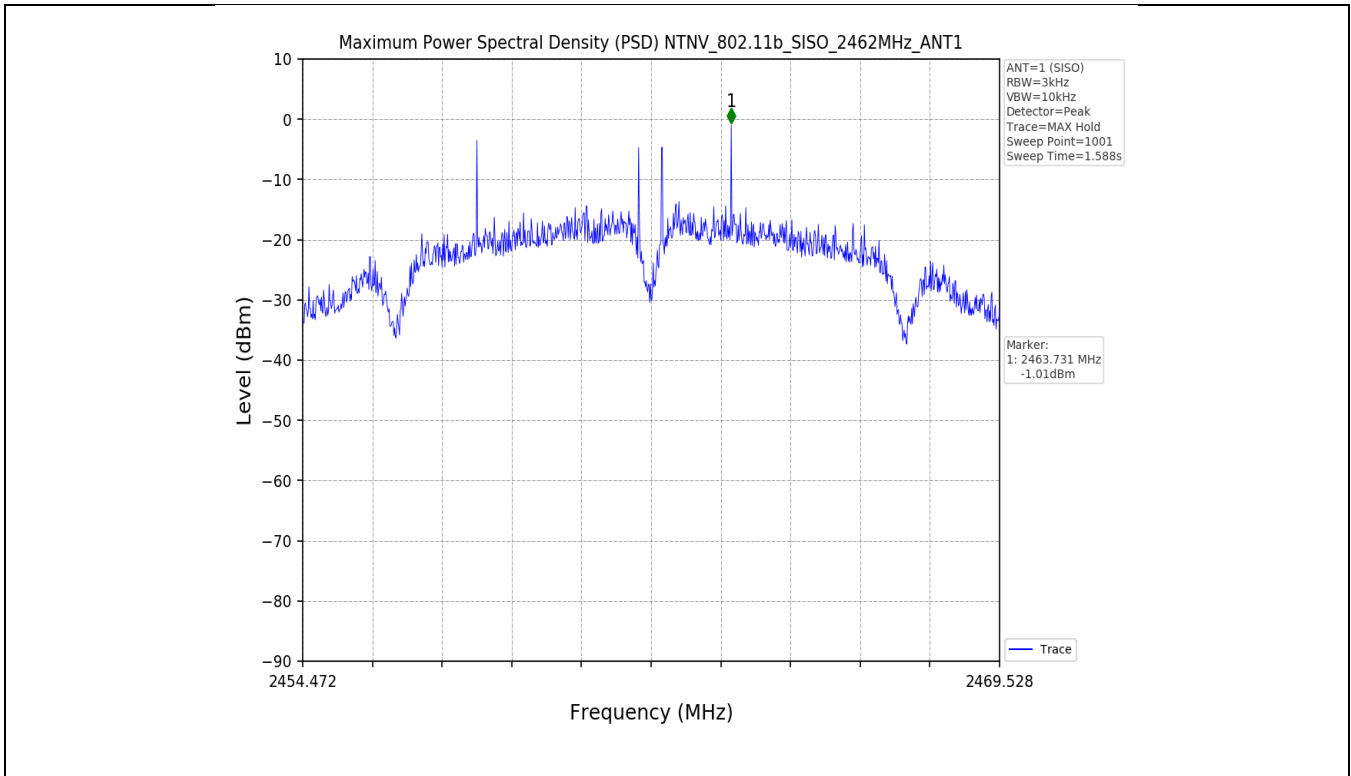
4. Maximum Power Spectral Density (PSD)

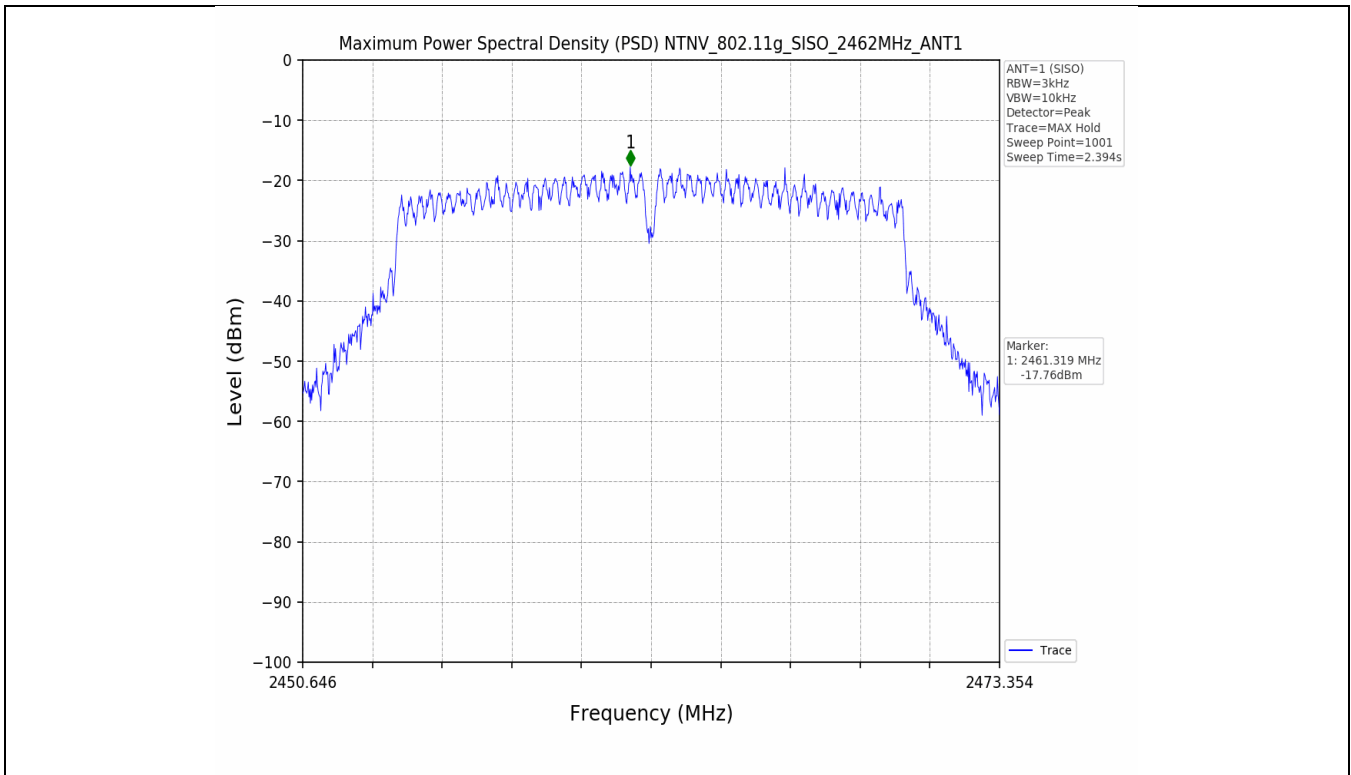
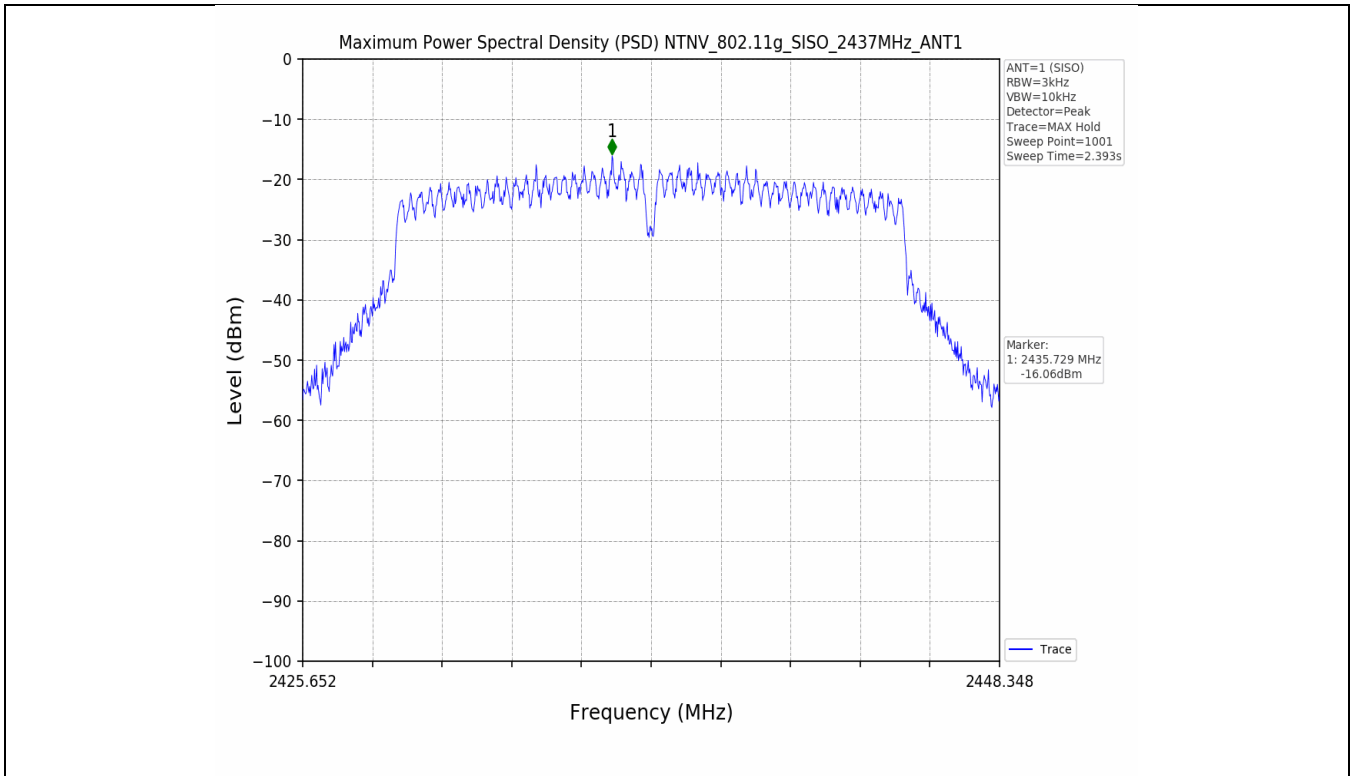
4.1 Test Result

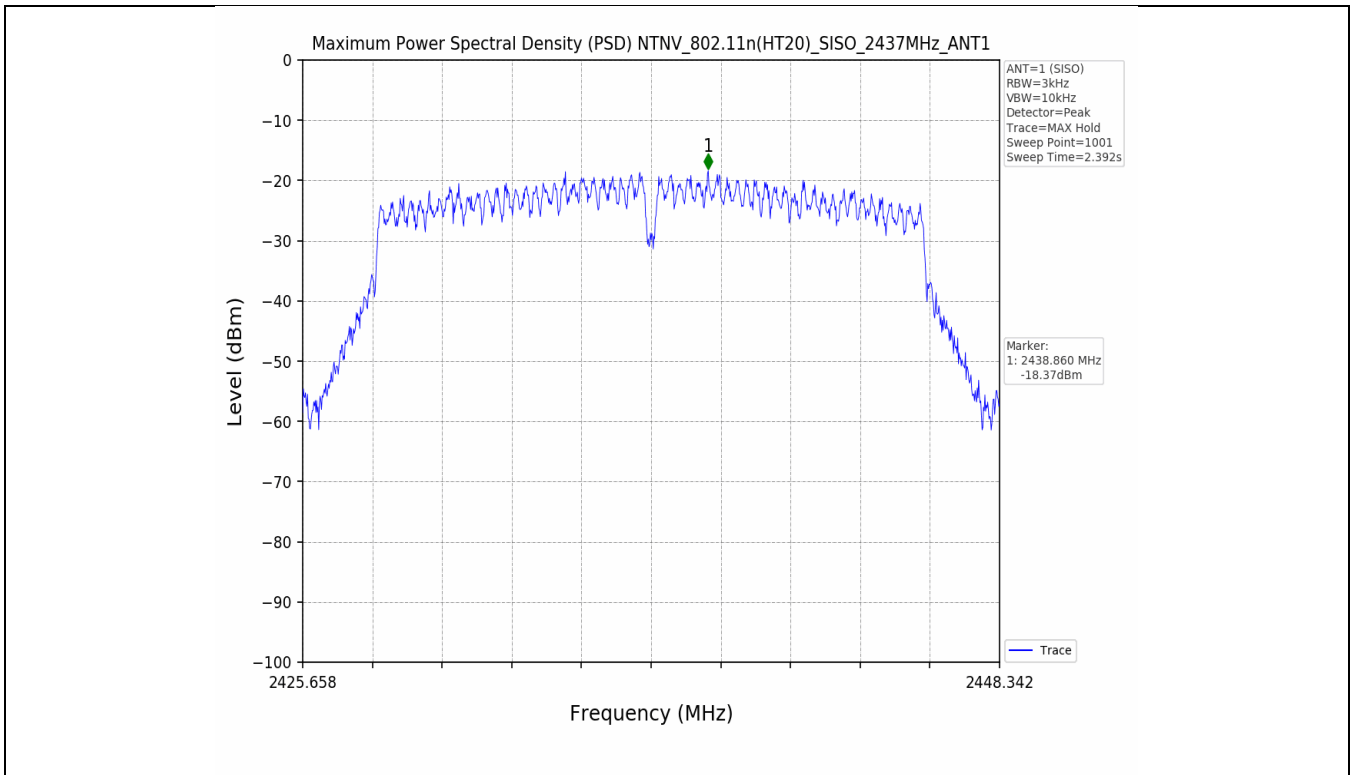
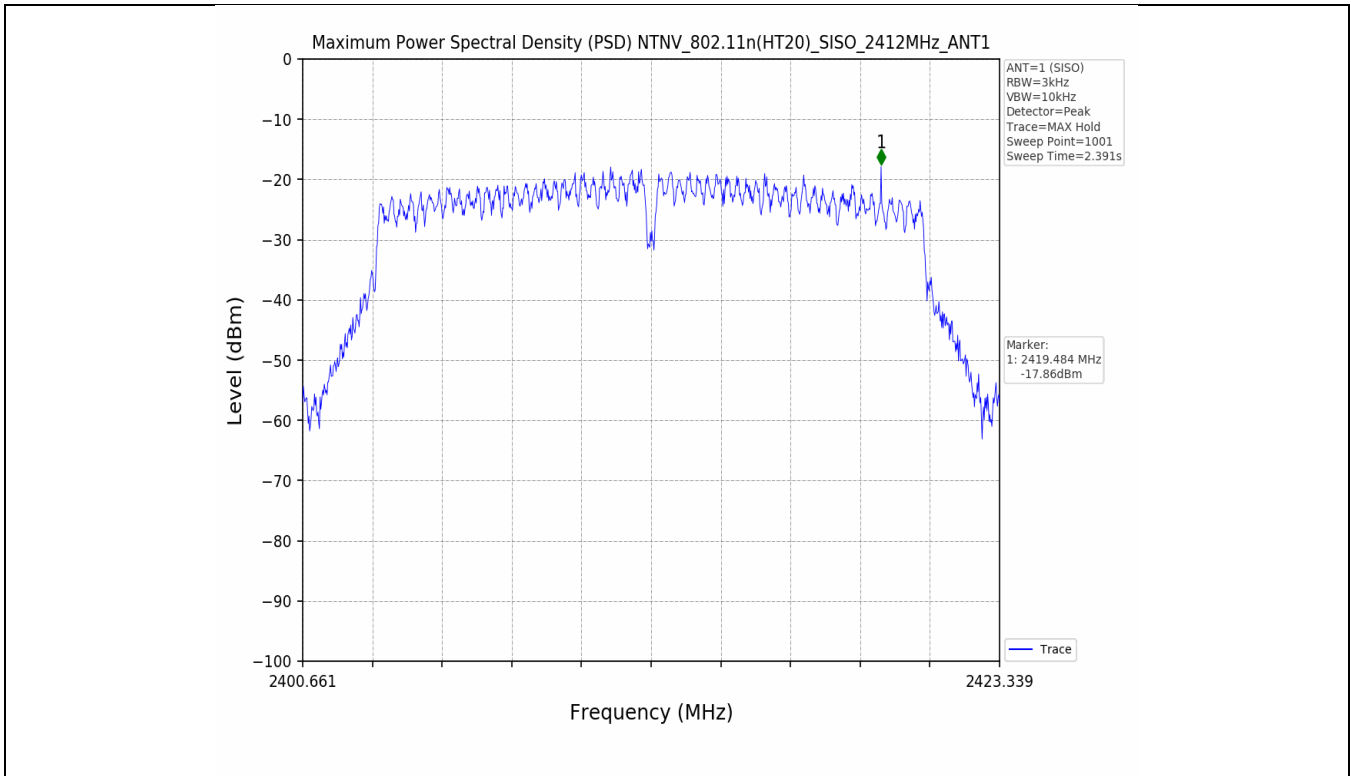
| Test Mode | Frequency (MHz) | Tx Type | Maximum Power Spectral Density (dBm/3KHz) | Limits (dBm/3kHz) | Verdict |
|---------------|-----------------|---------|---|-------------------|---------|
| | | | Ant 1 | | |
| 802.11b | 2412 | SISO | -3.03 | ≤8 | PASS |
| | 2437 | SISO | 0.13 | ≤8 | PASS |
| | 2462 | SISO | -1.01 | ≤8 | PASS |
| 802.11g | 2412 | SISO | -16.70 | ≤8 | PASS |
| | 2437 | SISO | -16.06 | ≤8 | PASS |
| | 2462 | SISO | -17.76 | ≤8 | PASS |
| 802.11n(HT20) | 2412 | SISO | -17.86 | ≤8 | PASS |
| | 2437 | SISO | -18.37 | ≤8 | PASS |
| | 2462 | SISO | -18.13 | ≤8 | PASS |
| 802.11n(HT40) | 2422 | SISO | -21.18 | ≤8 | PASS |
| | 2437 | SISO | -21.33 | ≤8 | PASS |
| | 2452 | SISO | -22.95 | ≤8 | PASS |

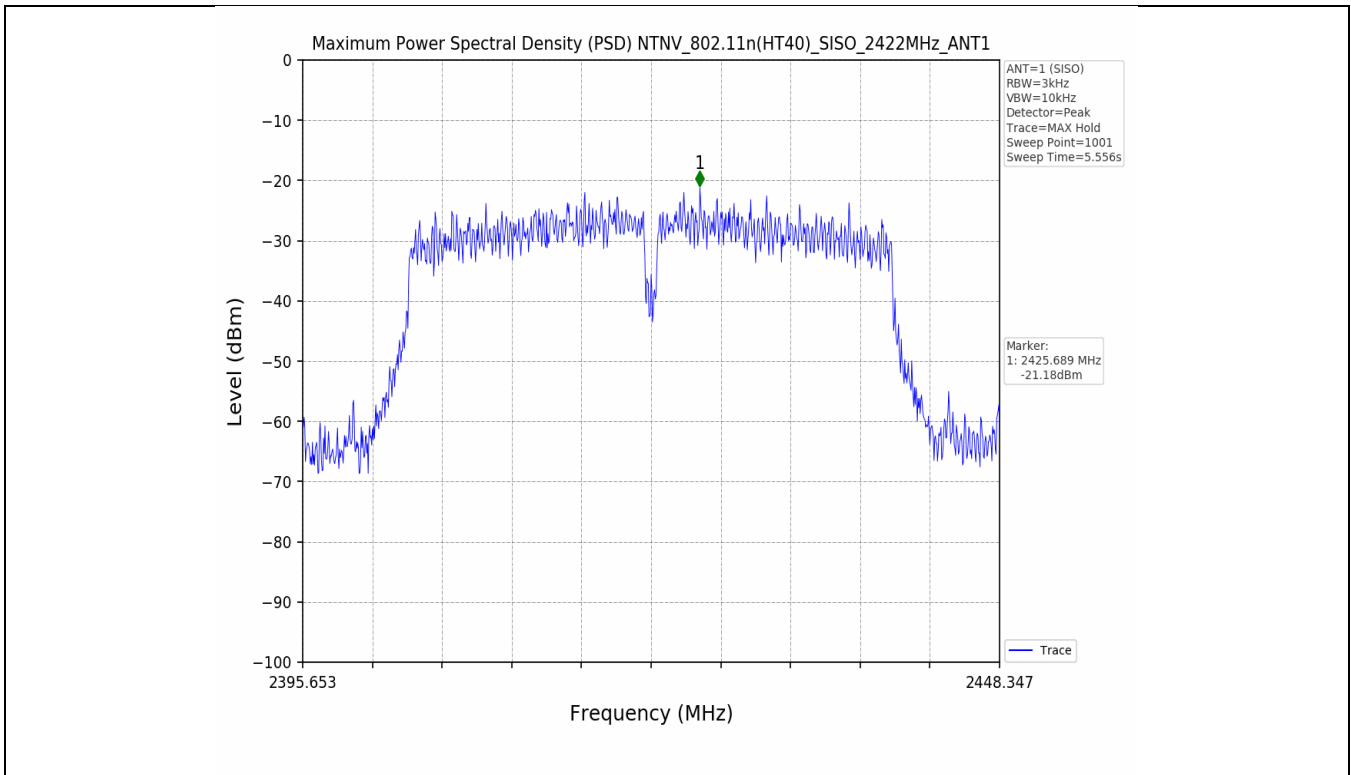
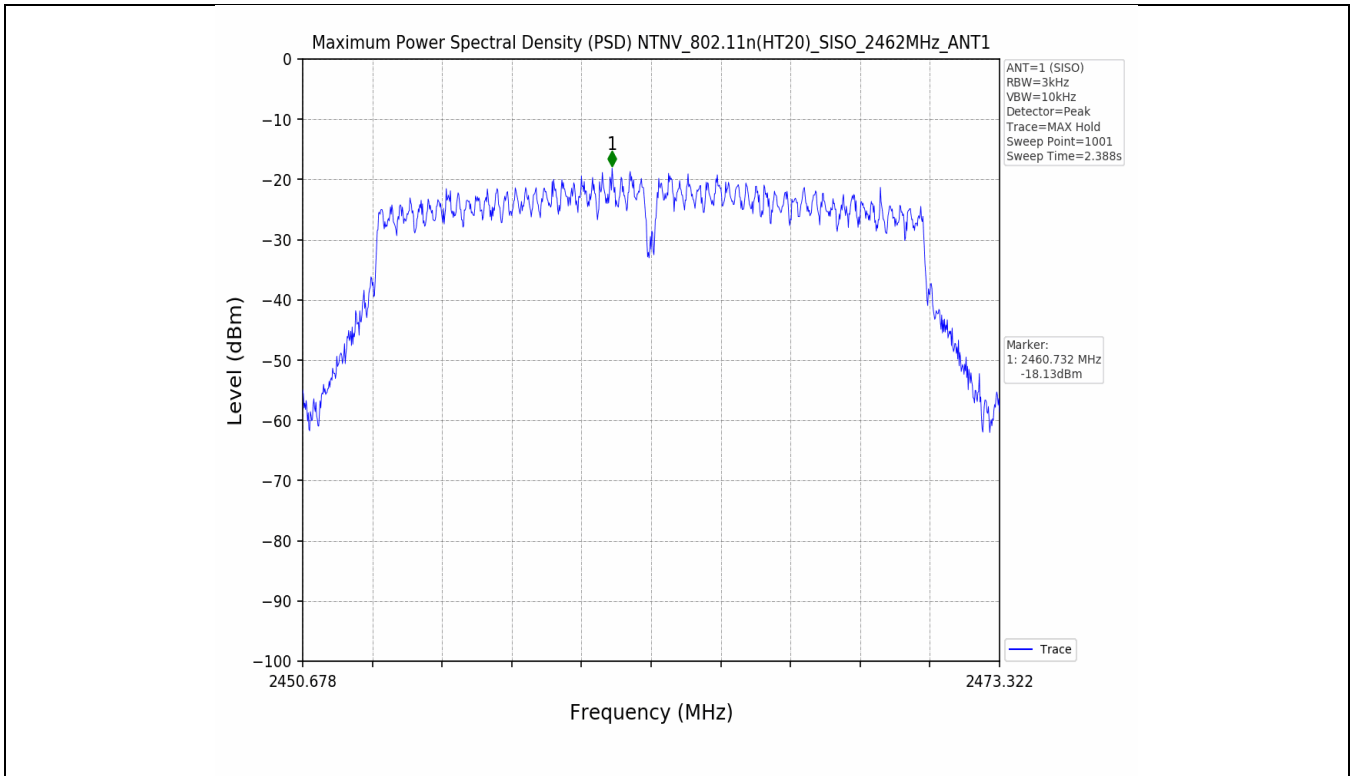
4.2 Test Graph

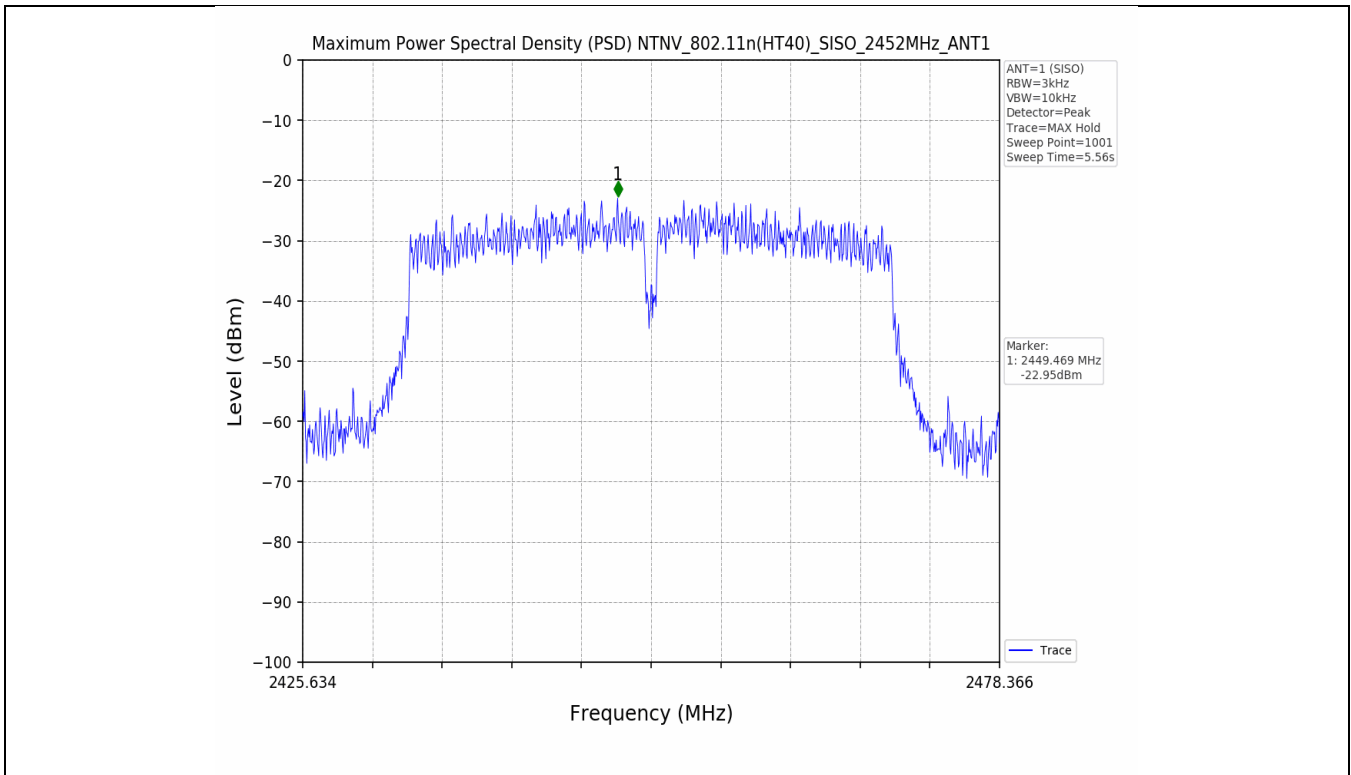
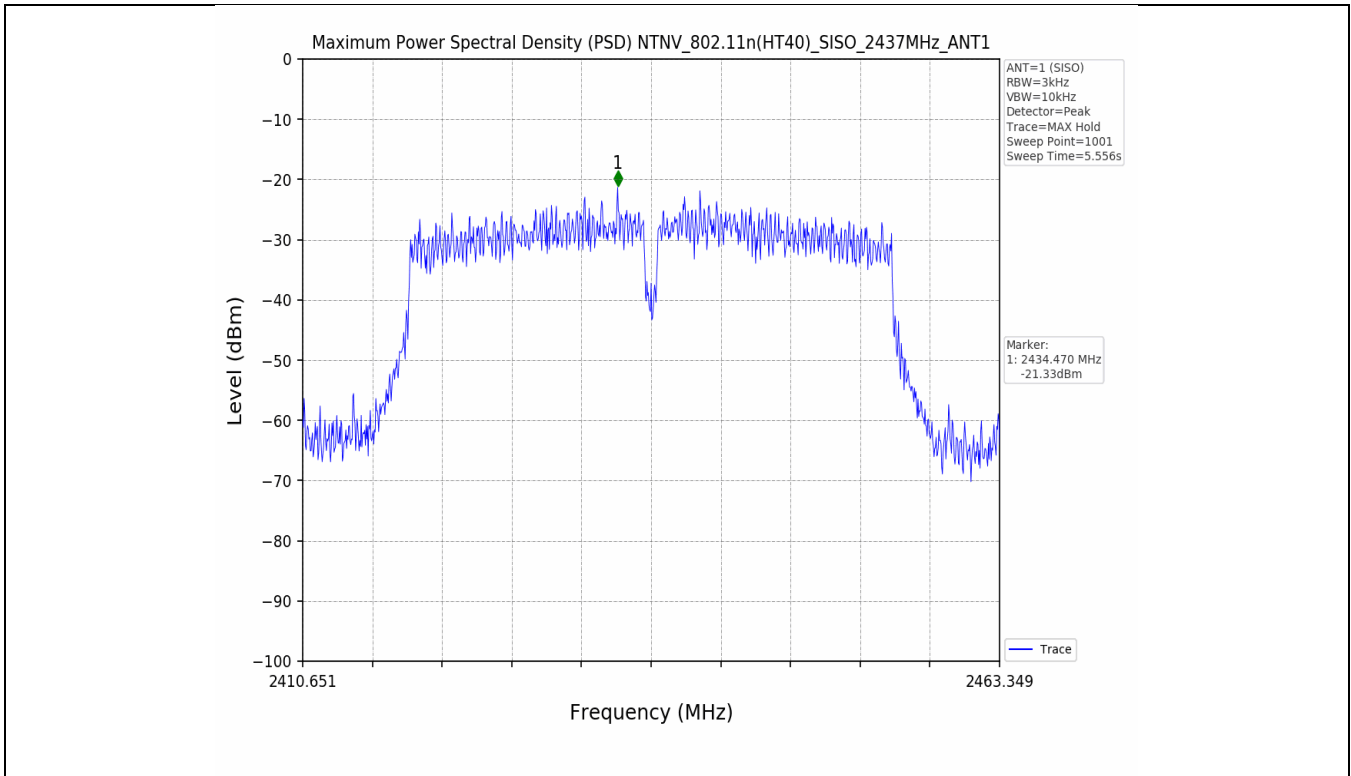










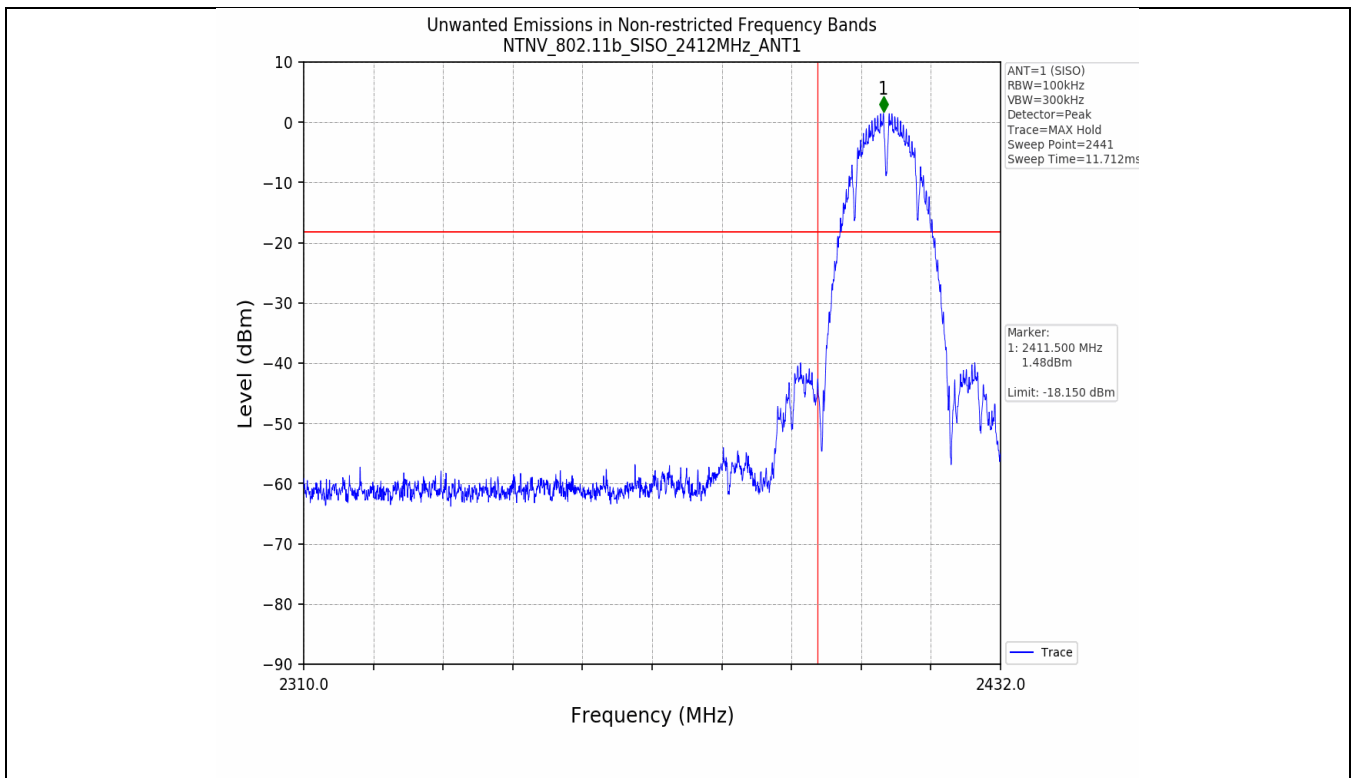
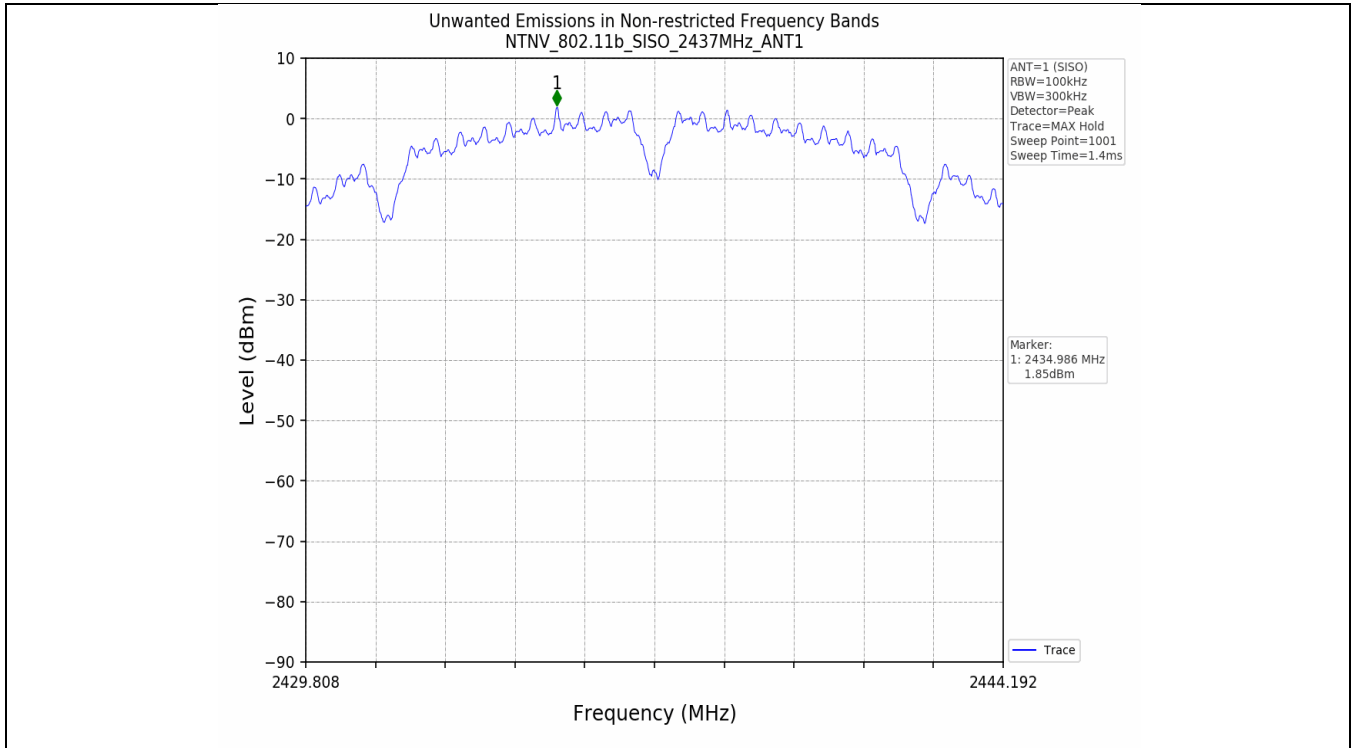


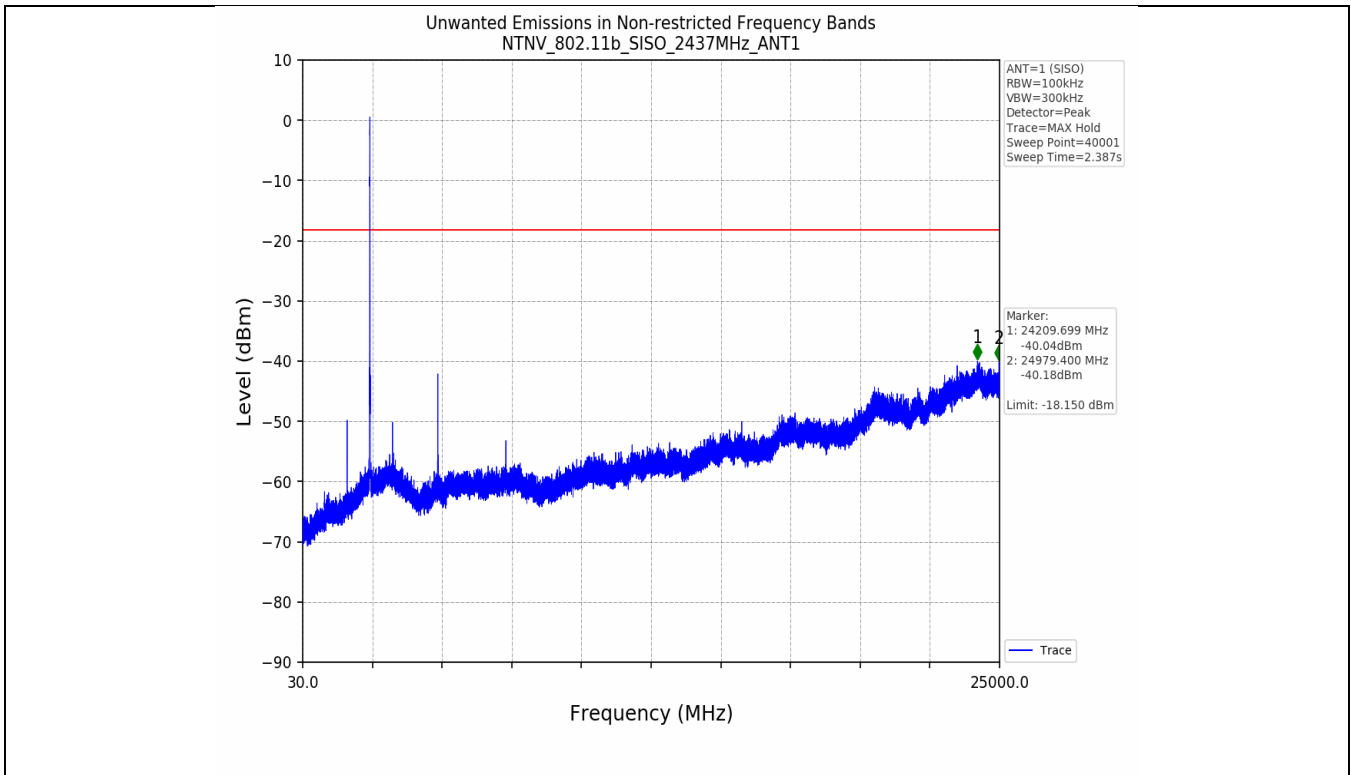
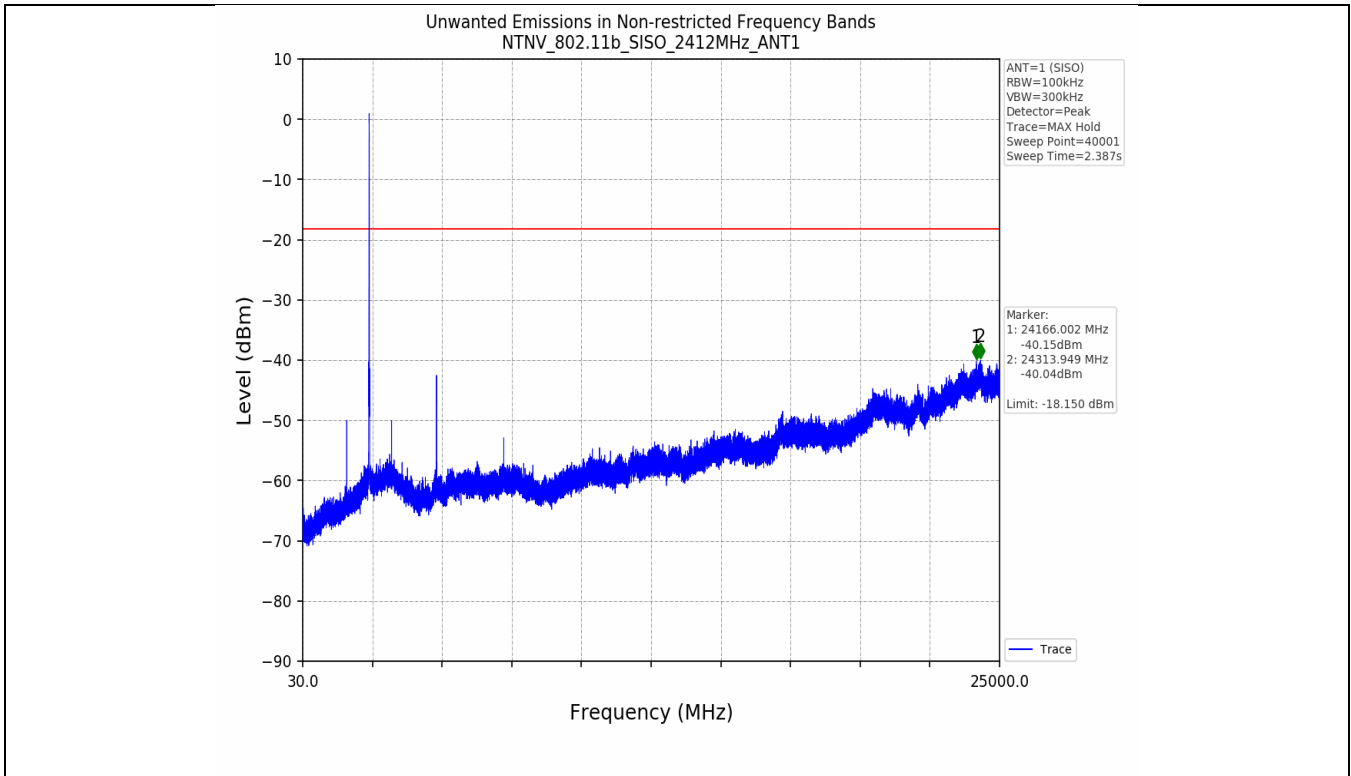
5. Unwanted Emissions in Non-restricted Frequency Bands

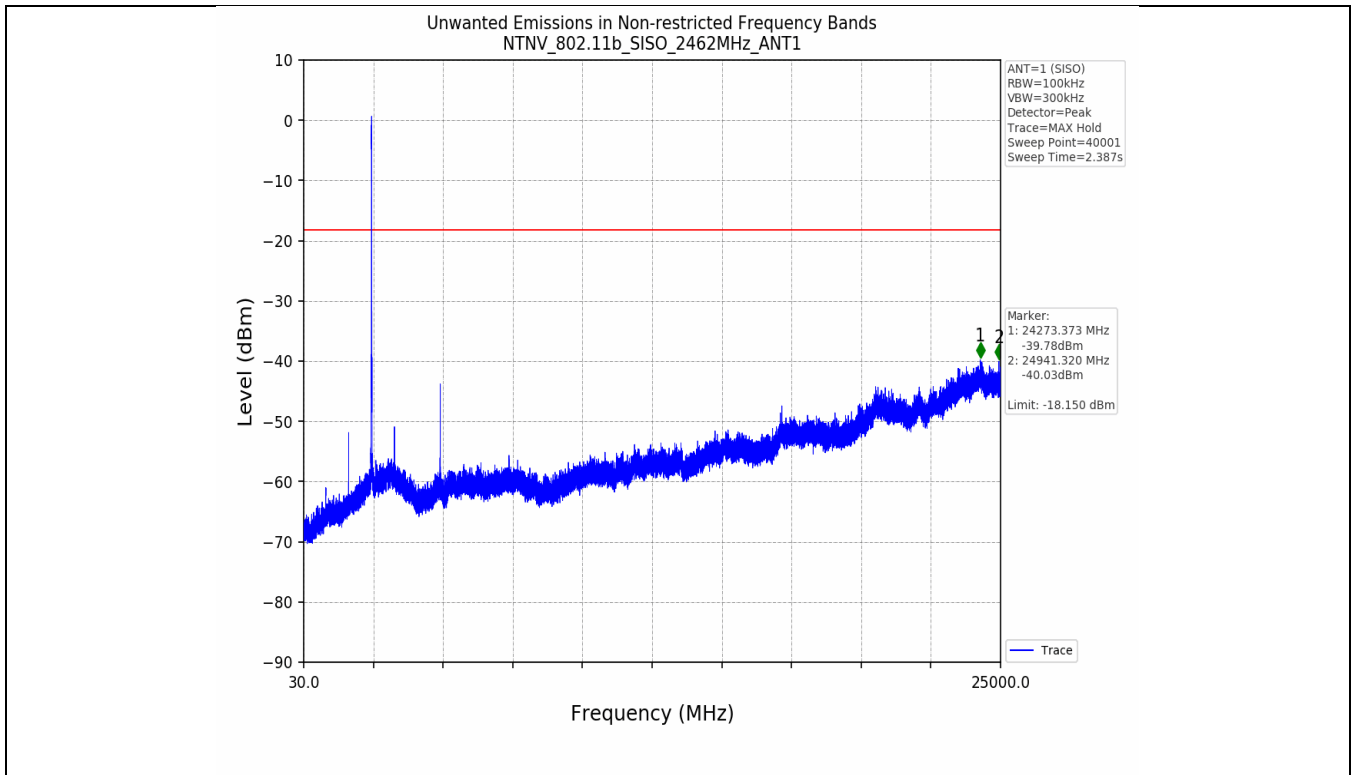
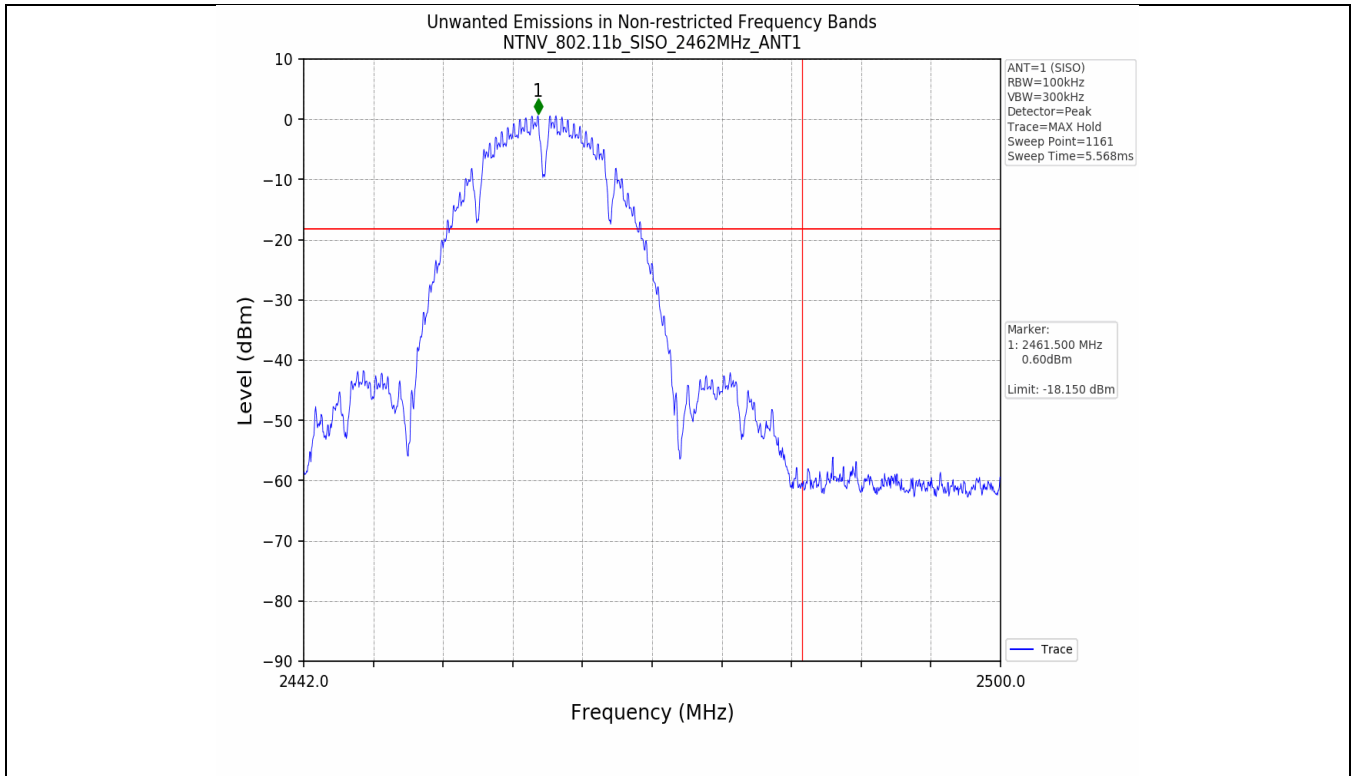
5.1 Test Result

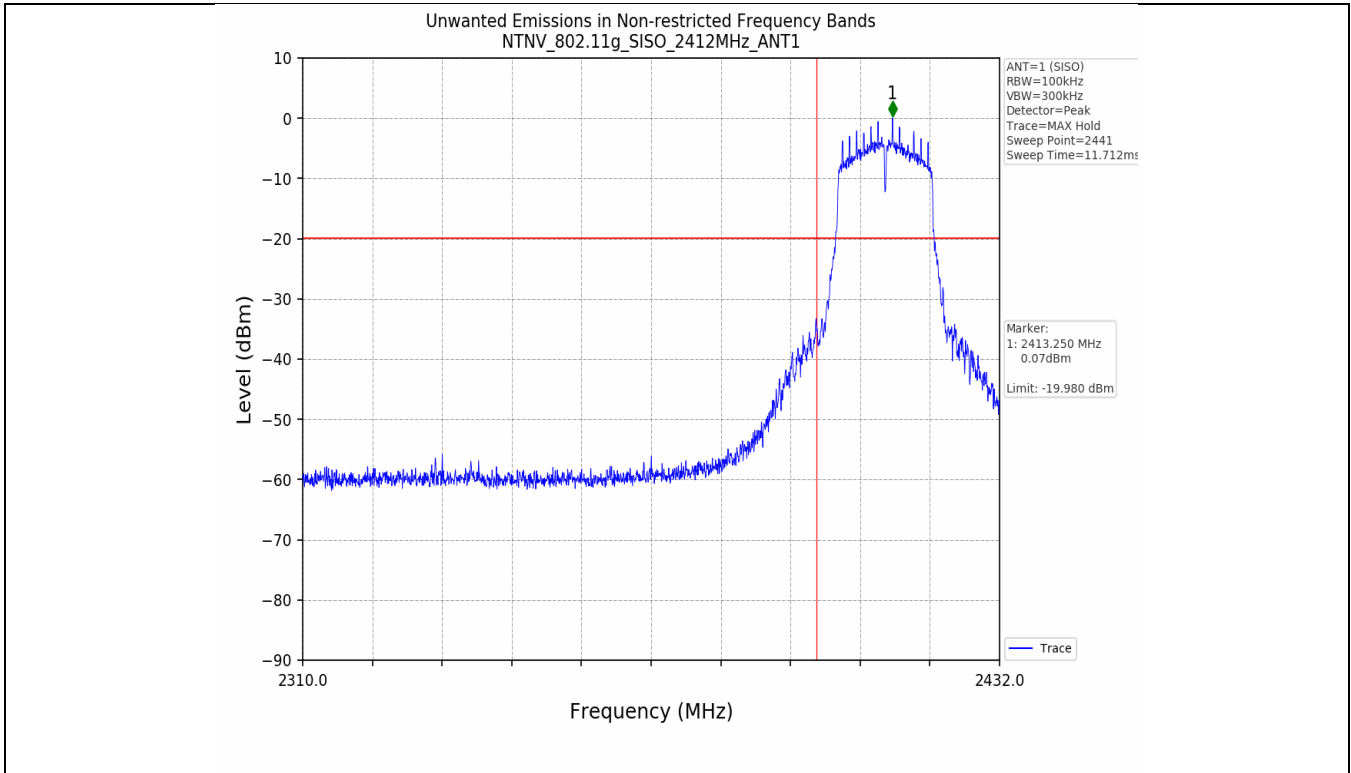
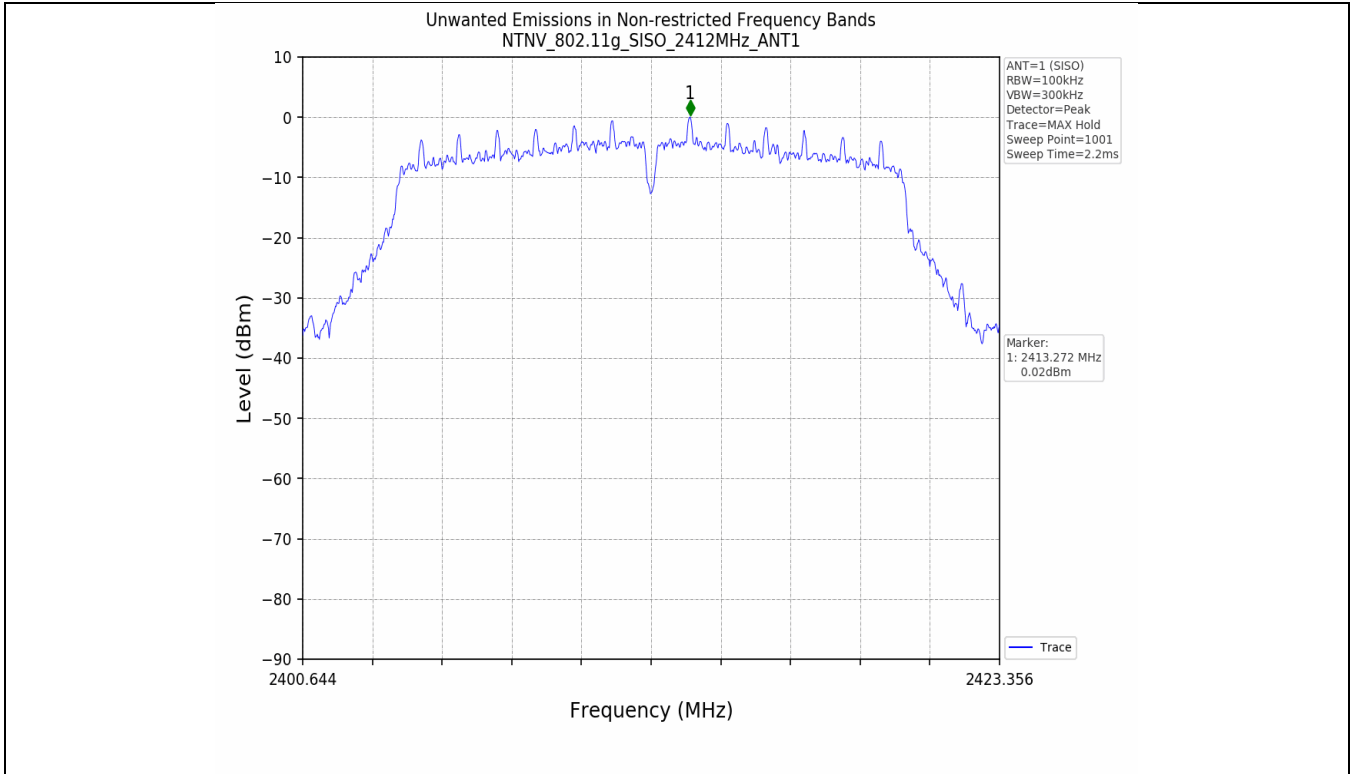
| Test Mode | Frequency (MHz) | TX Type | ANT No. | Spurious Conducted Emission (dBm) | Limits (dBm) | Verdict |
|---------------|-----------------|---------|---------|-----------------------------------|--------------|---------|
| 802.11b | 2412 | SISO | 1 | Refer to test graph | -18.15 | PASS |
| | 2437 | SISO | 1 | Refer to test graph | -18.15 | PASS |
| | 2462 | SISO | 1 | Refer to test graph | -18.15 | PASS |
| 802.11g | 2412 | SISO | 1 | Refer to test graph | -19.98 | PASS |
| | 2437 | SISO | 1 | Refer to test graph | -19.98 | PASS |
| | 2462 | SISO | 1 | Refer to test graph | -19.98 | PASS |
| 802.11n(HT20) | 2412 | SISO | 1 | Refer to test graph | -21.52 | PASS |
| | 2437 | SISO | 1 | Refer to test graph | -21.52 | PASS |
| | 2462 | SISO | 1 | Refer to test graph | -21.52 | PASS |
| 802.11n(HT40) | 2422 | SISO | 1 | Refer to test graph | -25.20 | PASS |
| | 2437 | SISO | 1 | Refer to test graph | -25.20 | PASS |
| | 2452 | SISO | 1 | Refer to test graph | -25.20 | PASS |

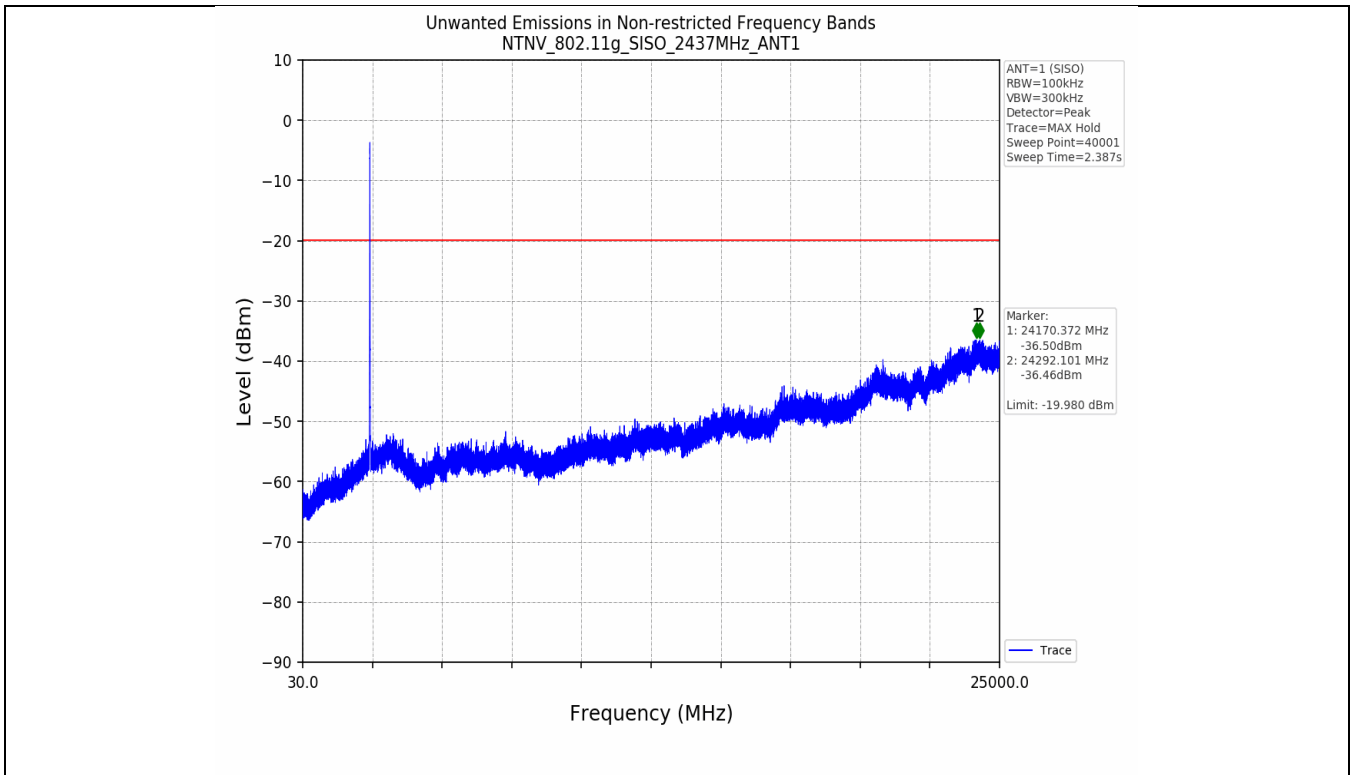
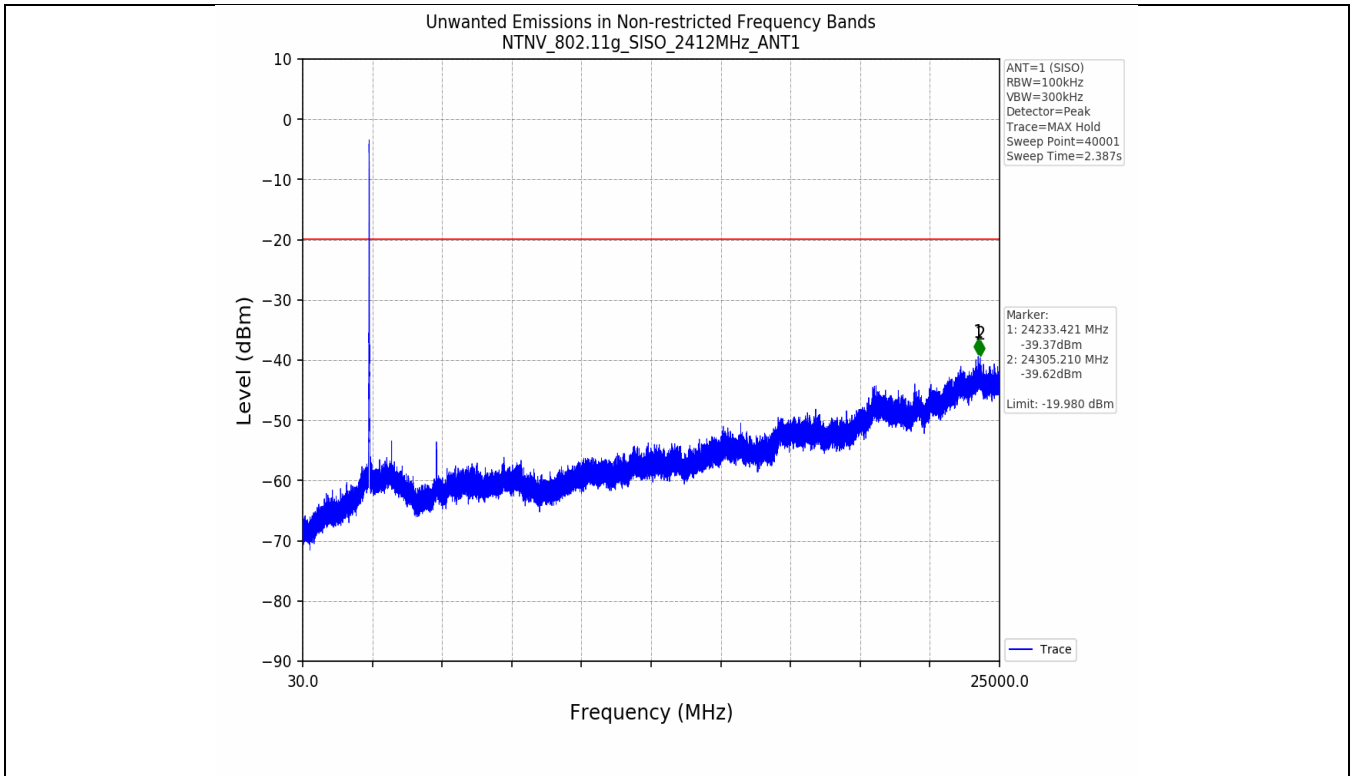
5.2 Test Graph

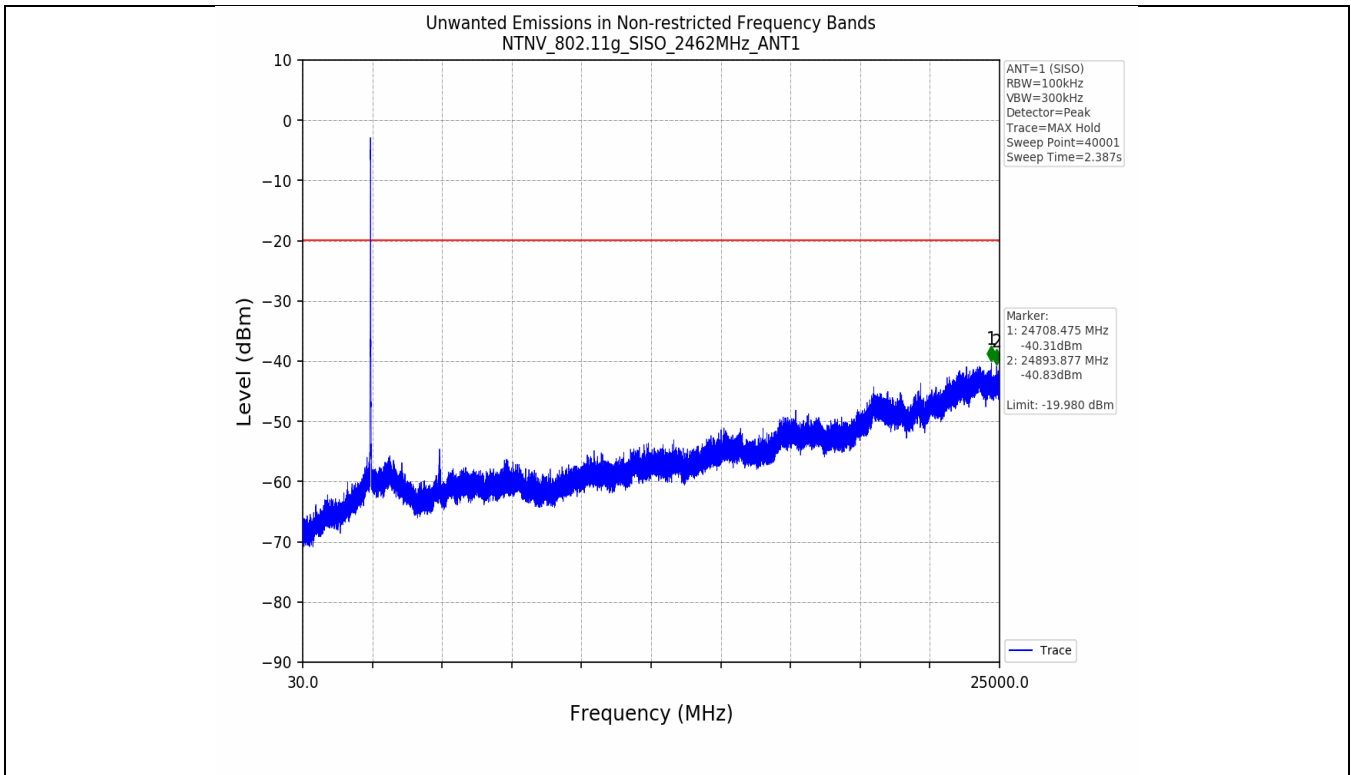
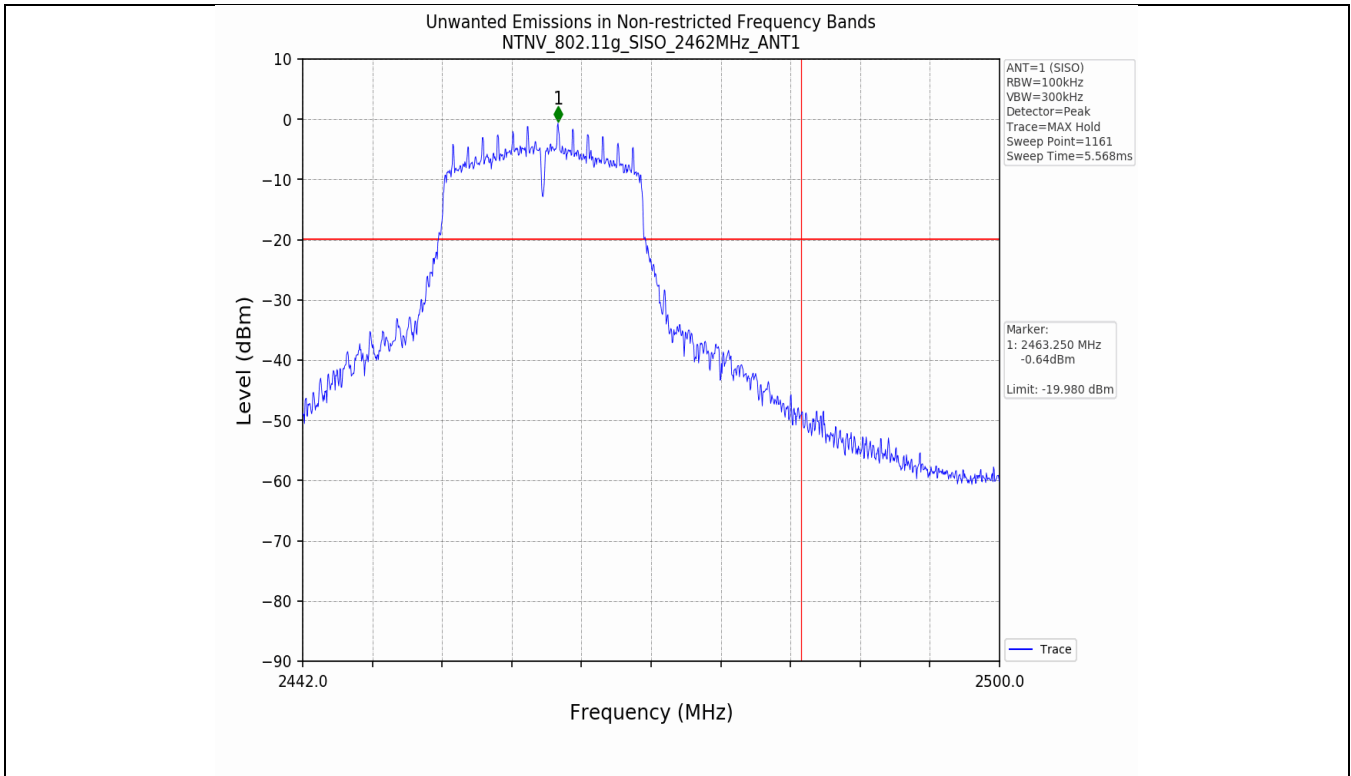


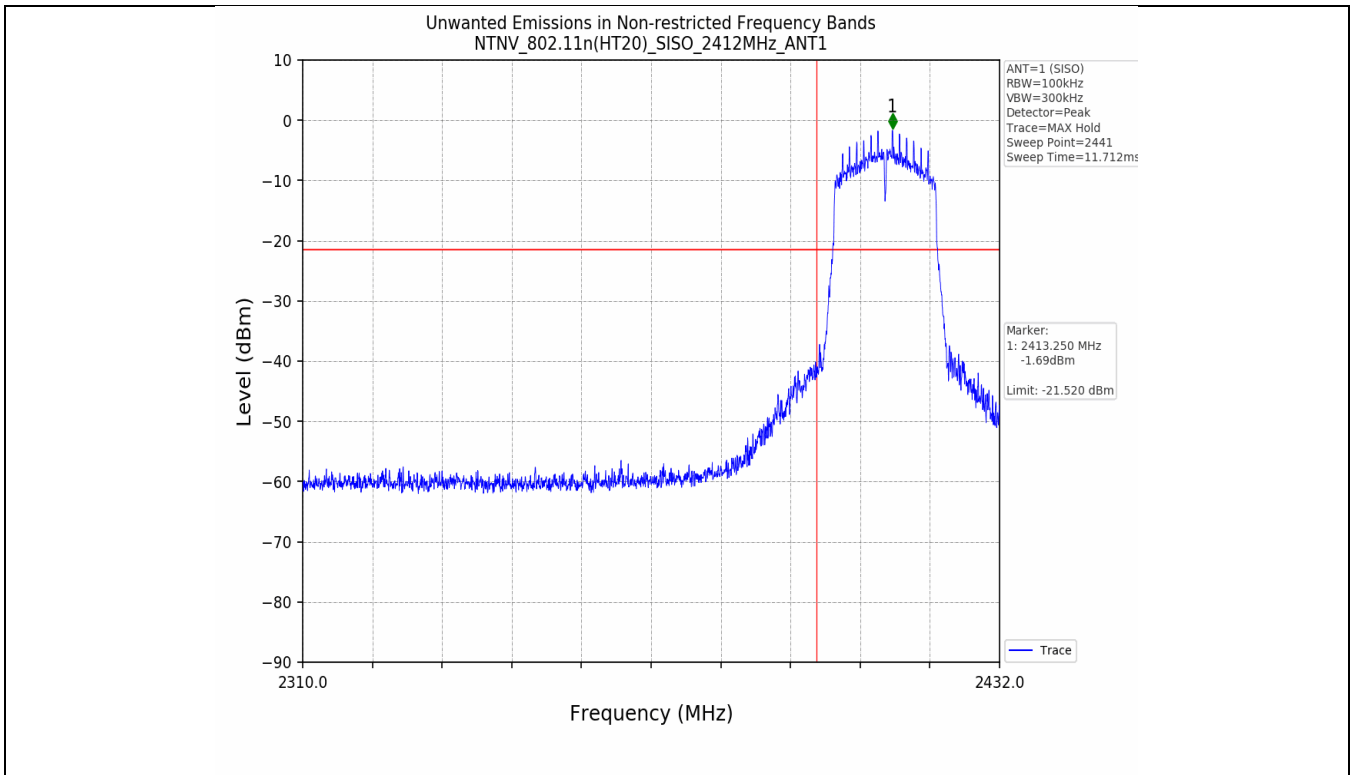
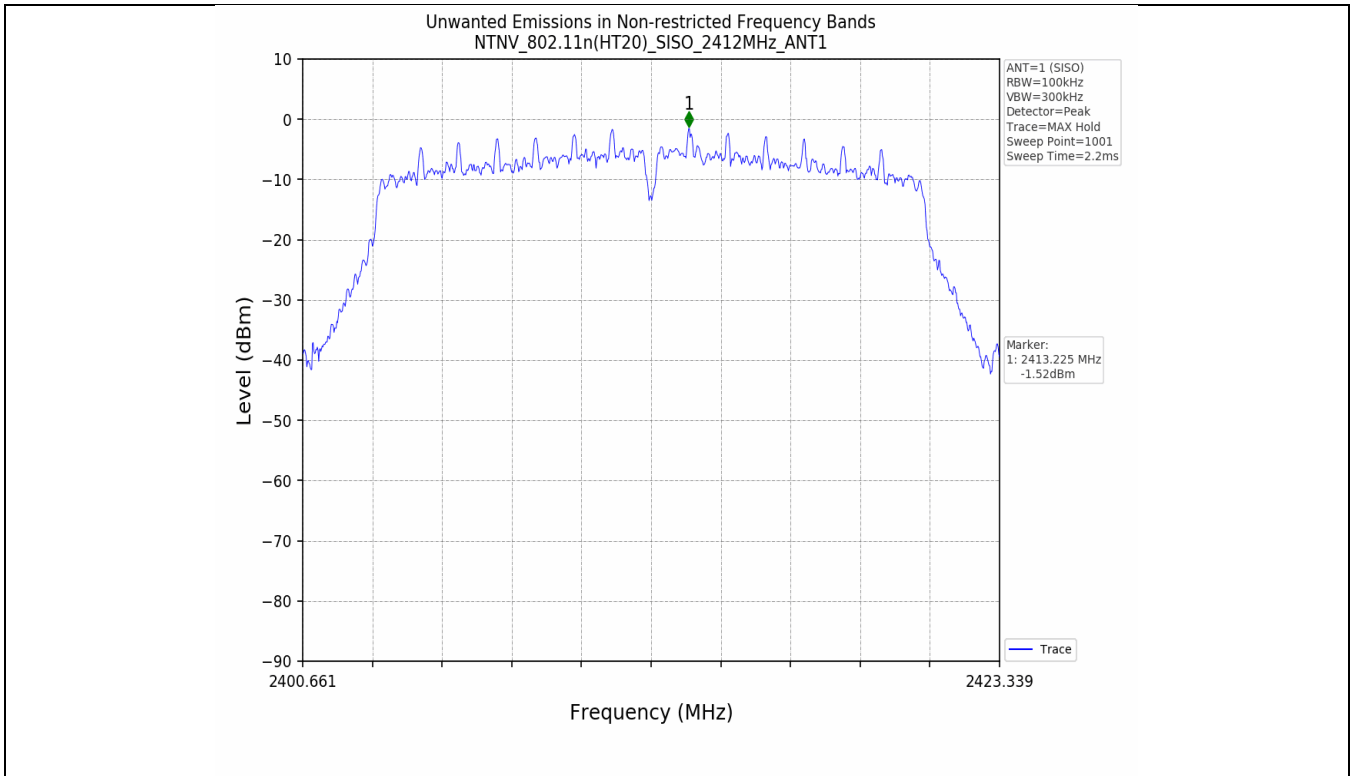


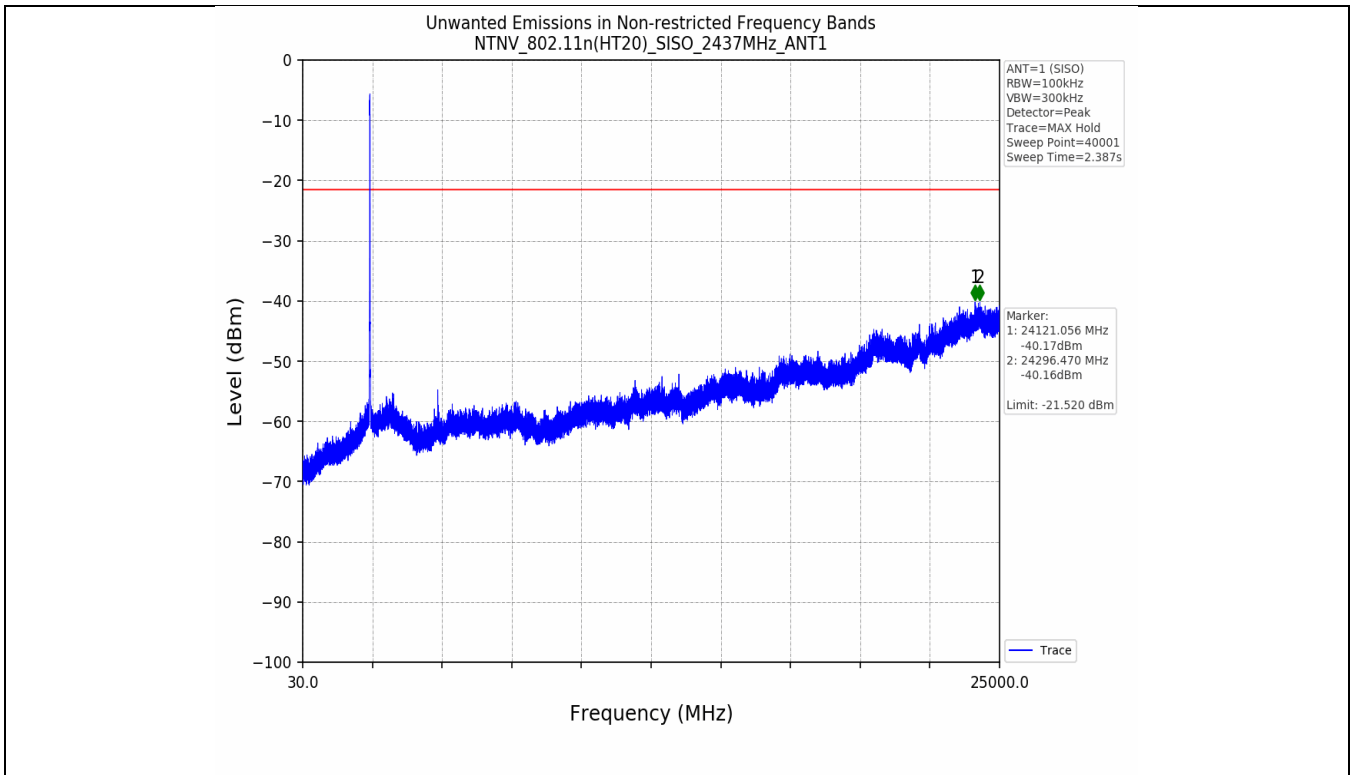
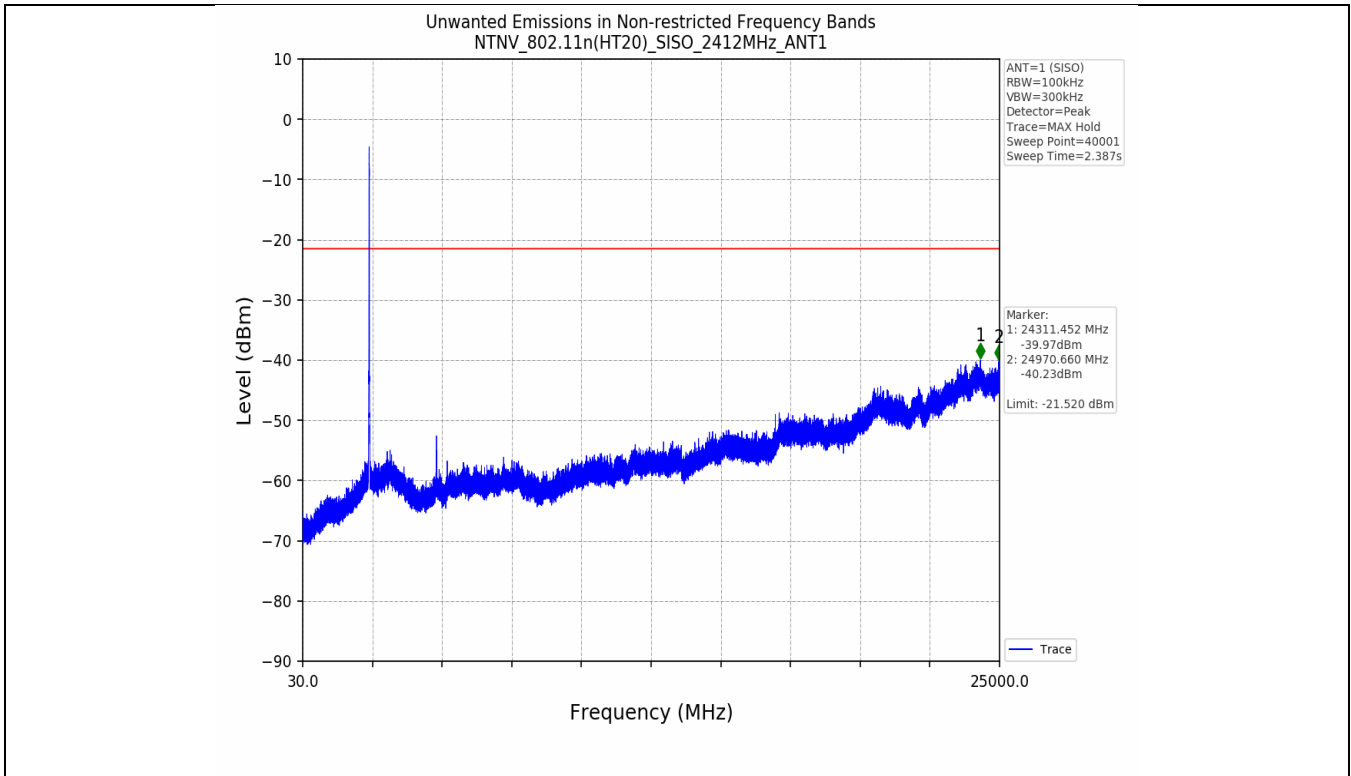


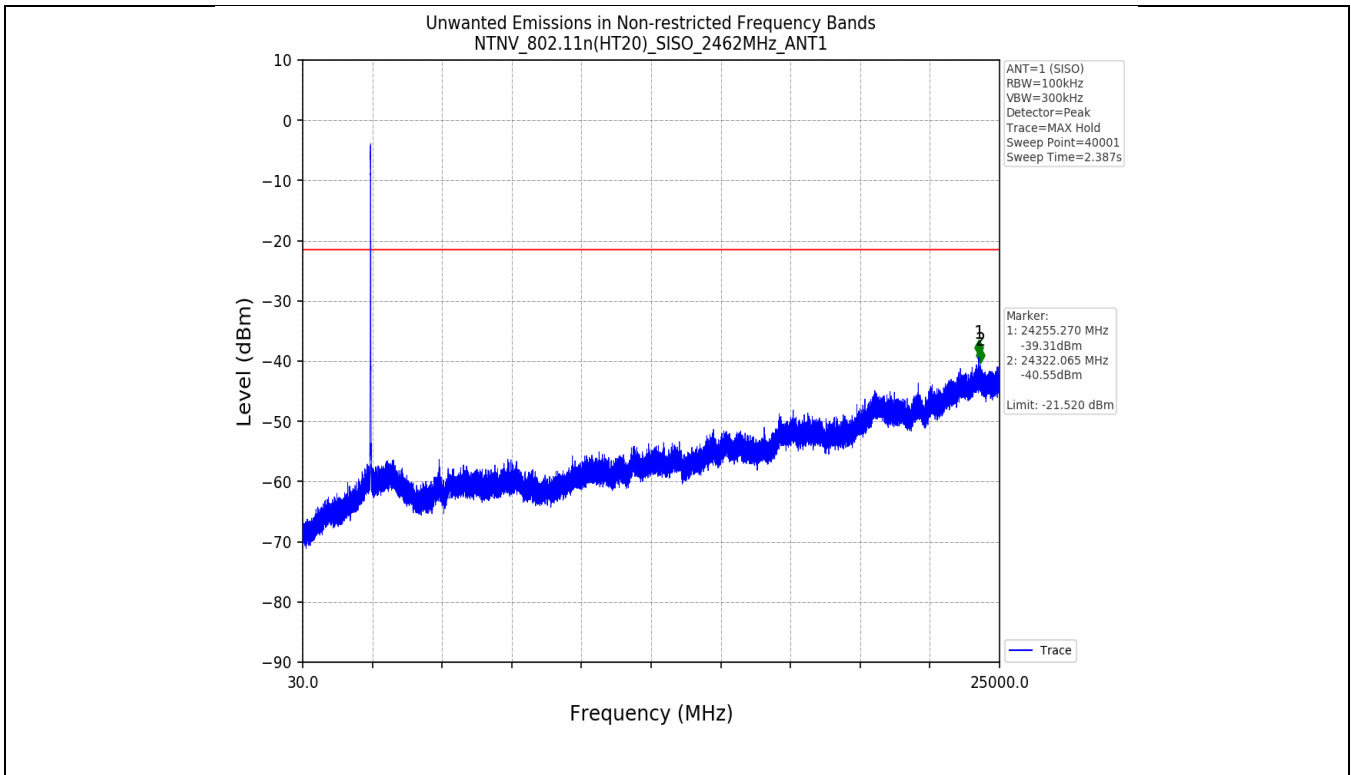
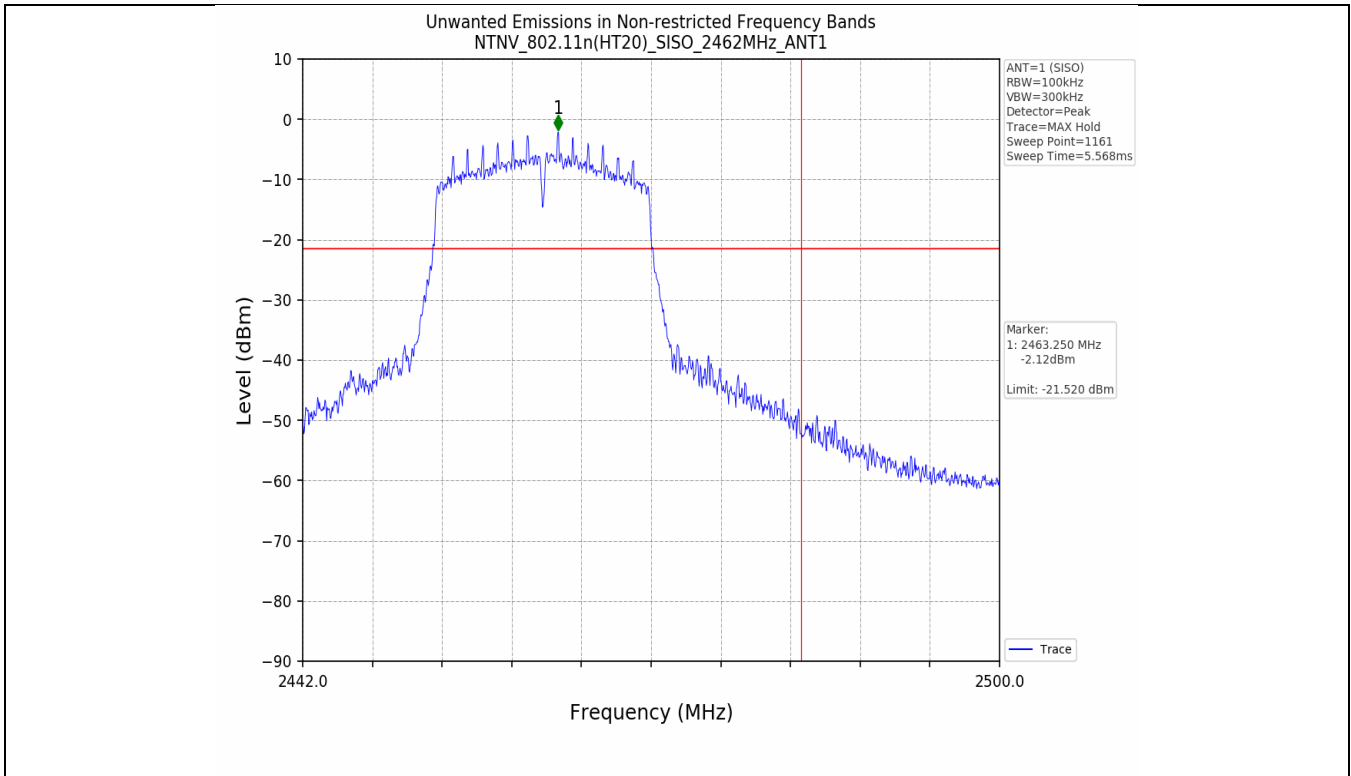


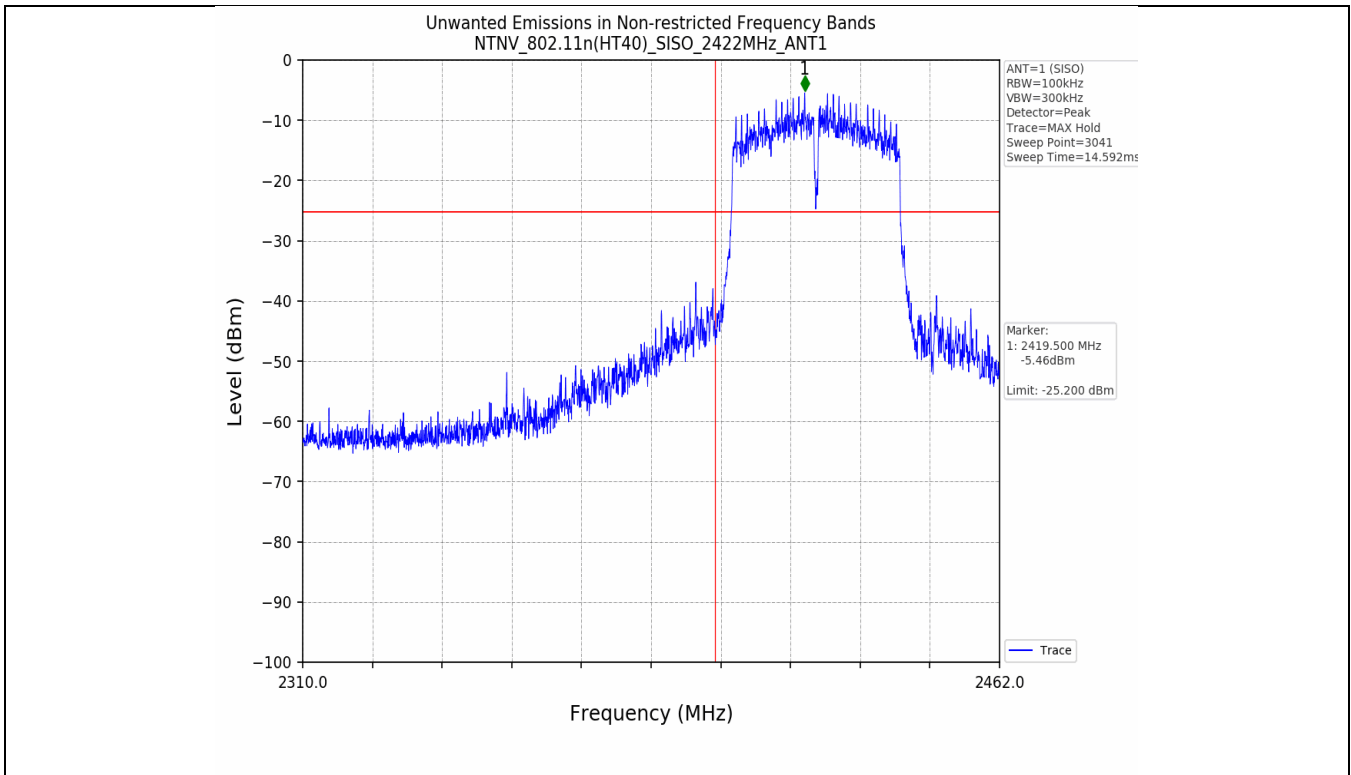
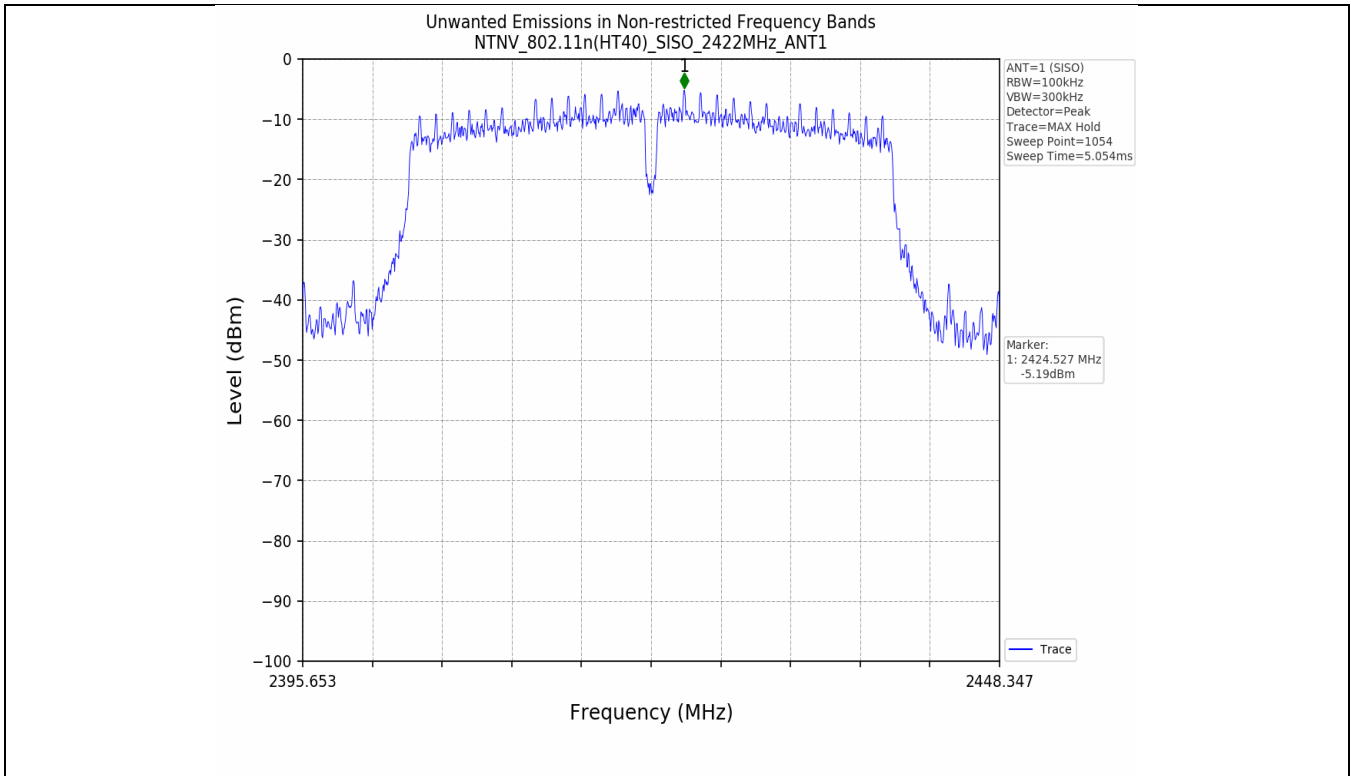


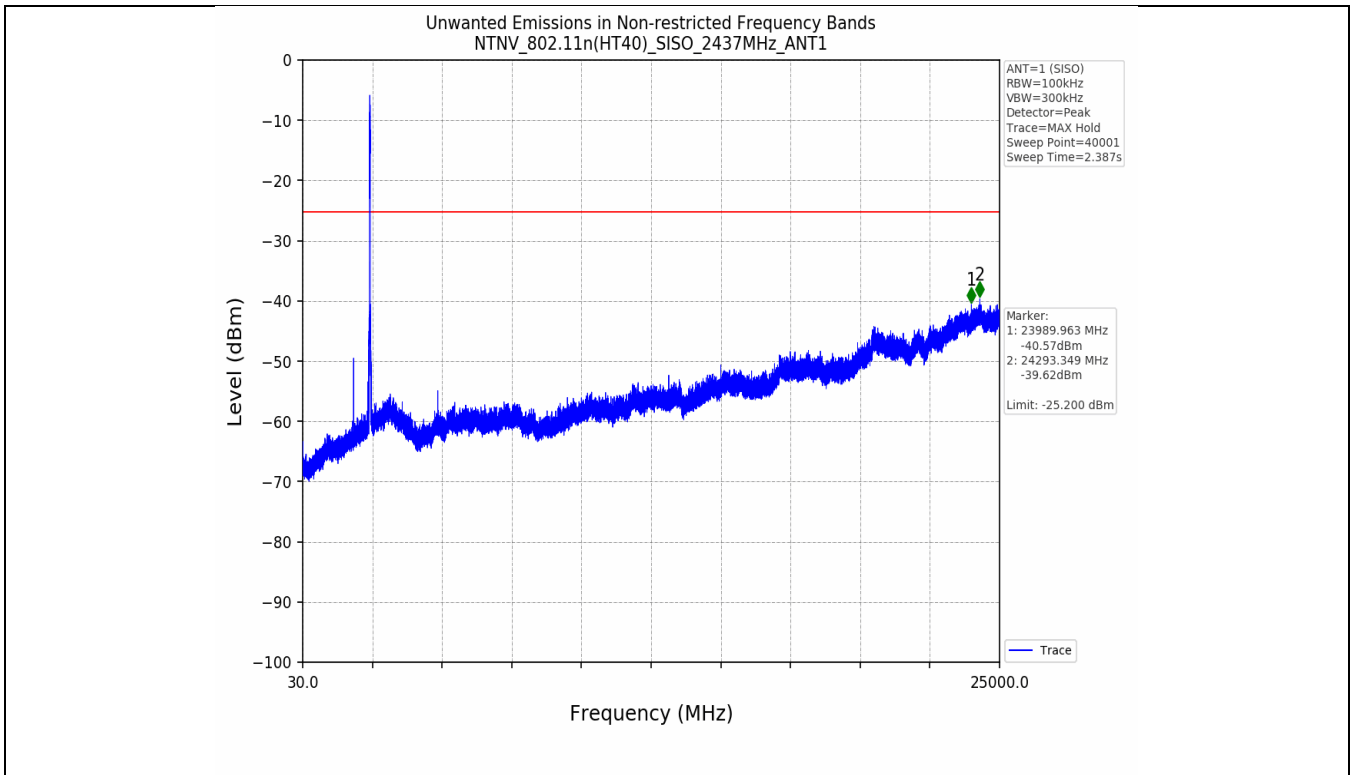
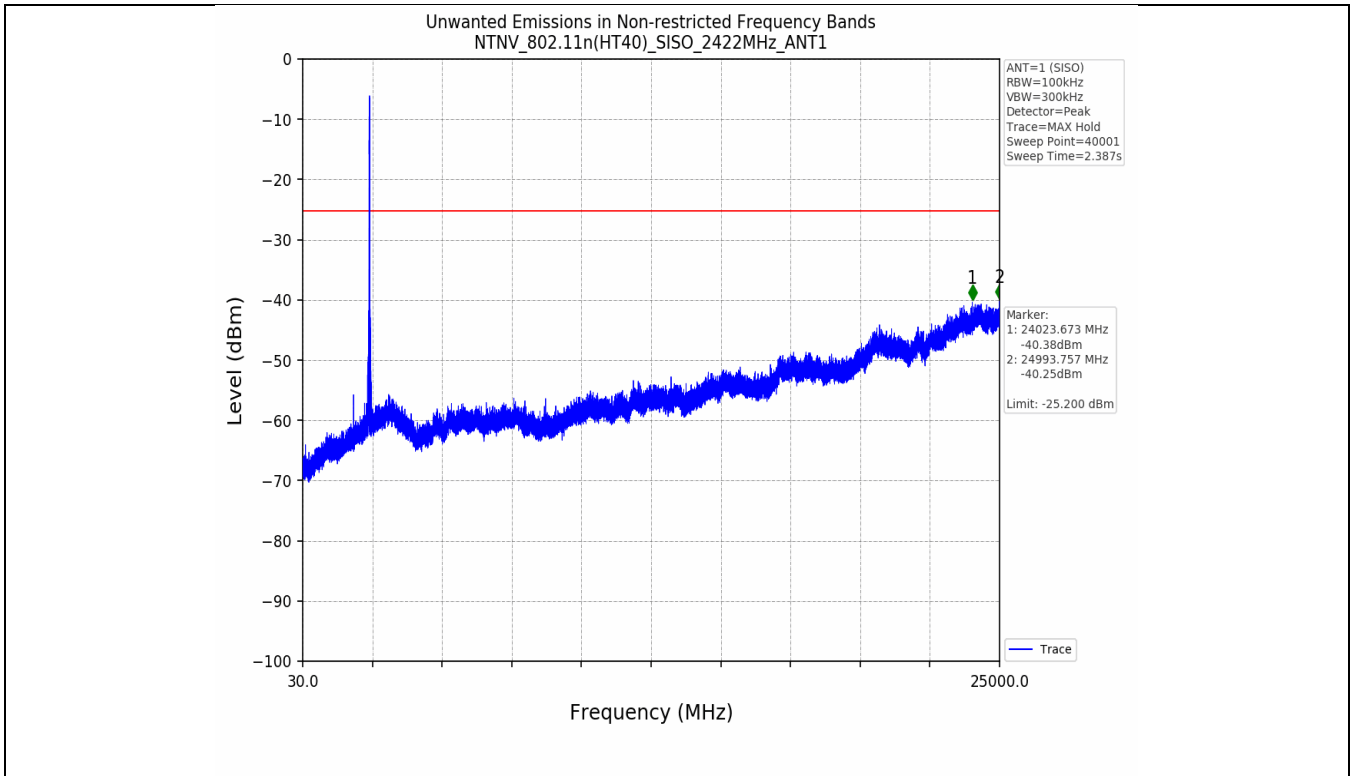


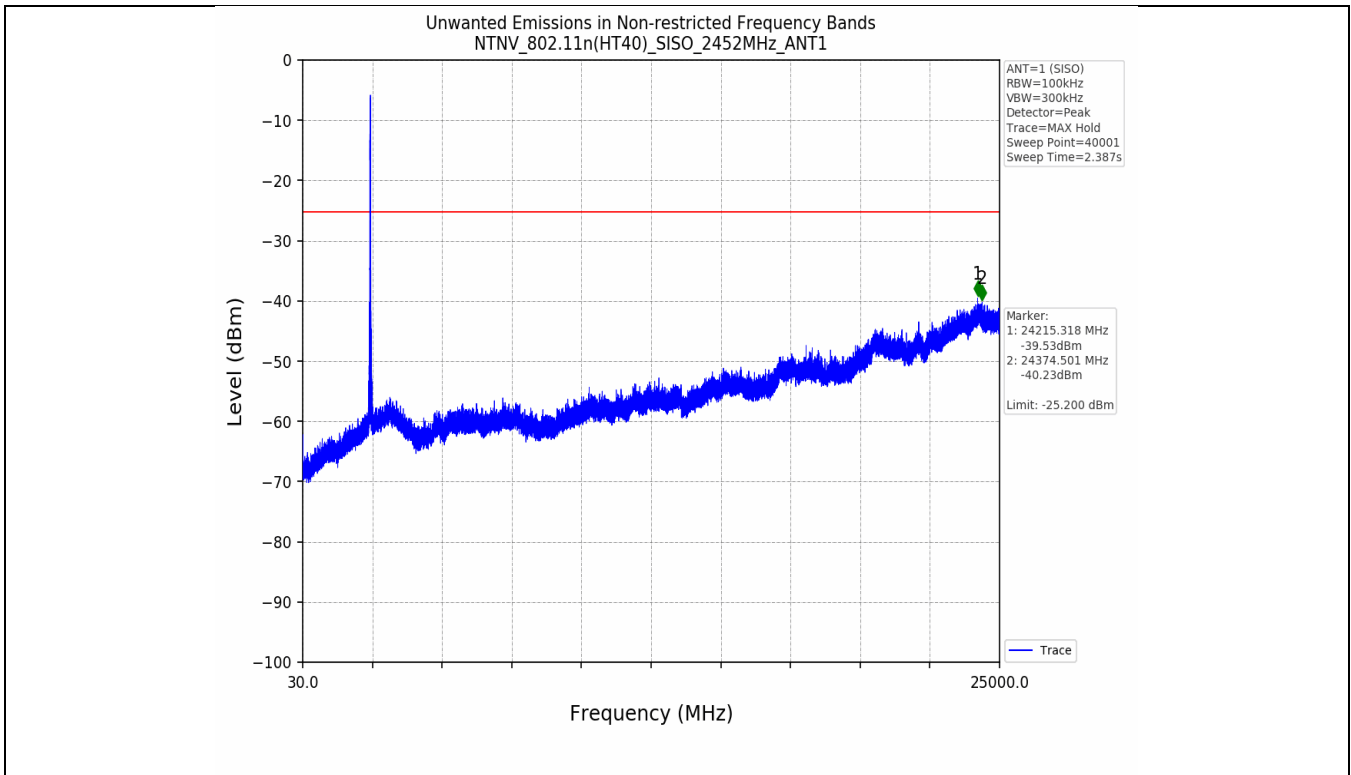
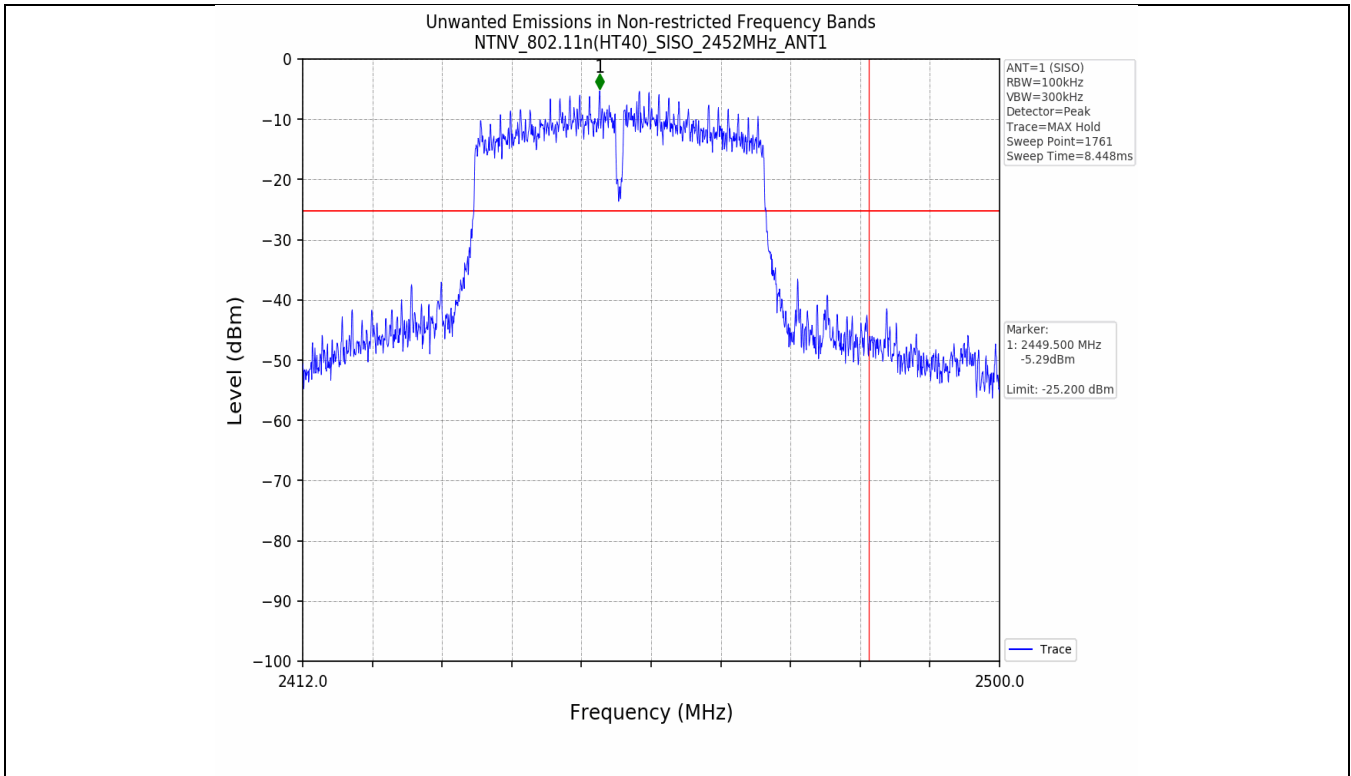












6. FrequencyError

6.1 Test Result

| Frequency stability versus Temp. | | | | | | |
|----------------------------------|---------------------------|--------------------|--------------------|--------------------|--------------------|------------|
| Power Supply: DC 3.3V | | | | | | |
| Temp. (°C) | Operating Frequency (MHz) | 0 minute | 2 minute | 5 minute | 10 minute | Pass /Fail |
| | | Measured Frequency | Measured Frequency | Measured Frequency | Measured Frequency | |
| -30 | 2412 | 2412.27 | 2412.71 | 2412.15 | 2412.27 | Pass |
| | 2422 | 2422.48 | 2422.59 | 2422.80 | 2422.00 | Pass |
| | 2437 | 2437.26 | 2437.07 | 2437.55 | 2437.24 | Pass |
| | 2452 | 2452.87 | 2452.24 | 2452.02 | 2452.46 | Pass |
| | 2462 | 2462.23 | 2462.31 | 2462.43 | 2462.96 | Pass |
| -20 | 2412 | 2413.00 | 2412.31 | 2412.56 | 2412.10 | Pass |
| | 2422 | 2422.19 | 2422.77 | 2422.43 | 2422.39 | Pass |
| | 2437 | 2437.93 | 2437.07 | 2437.45 | 2437.28 | Pass |
| | 2452 | 2452.01 | 2452.92 | 2452.31 | 2452.93 | Pass |
| | 2462 | 2462.14 | 2462.67 | 2462.32 | 2462.87 | Pass |
| -10 | 2412 | 2412.19 | 2412.42 | 2412.85 | 2412.90 | Pass |
| | 2422 | 2422.51 | 2422.63 | 2422.99 | 2422.45 | Pass |
| | 2437 | 2437.61 | 2437.34 | 2437.60 | 2437.22 | Pass |
| | 2452 | 2452.85 | 2452.99 | 2452.53 | 2452.73 | Pass |
| | 2462 | 2462.32 | 2462.70 | 2462.47 | 2462.91 | Pass |
| 0 | 2412 | 2412.11 | 2412.14 | 2412.63 | 2412.00 | Pass |
| | 2422 | 2422.48 | 2422.93 | 2422.23 | 2423.00 | Pass |
| | 2437 | 2437.78 | 2437.97 | 2437.51 | 2437.17 | Pass |
| | 2452 | 2452.55 | 2452.12 | 2452.25 | 2452.02 | Pass |
| | 2462 | 2462.83 | 2462.64 | 2462.57 | 2462.21 | Pass |
| 10 | 2412 | 2412.15 | 2412.02 | 2412.19 | 2412.94 | Pass |
| | 2422 | 2422.44 | 2422.44 | 2422.49 | 2422.09 | Pass |
| | 2437 | 2437.95 | 2437.43 | 2437.58 | 2437.57 | Pass |
| | 2452 | 2452.61 | 2452.77 | 2452.08 | 2452.74 | Pass |
| | 2462 | 2462.94 | 2462.59 | 2462.96 | 2462.76 | Pass |
| 20 | 2412 | 2412.40 | 2412.81 | 2412.96 | 2412.71 | Pass |
| | 2422 | 2422.71 | 2422.58 | 2422.32 | 2422.95 | Pass |
| | 2437 | 2437.78 | 2437.64 | 2437.50 | 2437.72 | Pass |
| | 2452 | 2452.01 | 2452.14 | 2452.75 | 2452.52 | Pass |
| | 2462 | 2462.86 | 2462.99 | 2462.64 | 2462.95 | Pass |
| 30 | 2412 | 2412.86 | 2412.98 | 2412.07 | 2412.23 | Pass |
| | 2422 | 2422.23 | 2422.48 | 2422.29 | 2422.80 | Pass |
| | 2437 | 2437.26 | 2437.80 | 2437.68 | 2437.35 | Pass |
| | 2452 | 2452.80 | 2452.97 | 2452.32 | 2452.10 | Pass |
| | 2462 | 2462.26 | 2462.78 | 2462.16 | 2462.07 | Pass |
| 40 | 2412 | 2412.35 | 2412.42 | 2412.83 | 2412.13 | Pass |
| | 2422 | 2422.76 | 2422.60 | 2422.38 | 2422.29 | Pass |
| | 2437 | 2437.86 | 2437.99 | 2437.85 | 2437.63 | Pass |
| | 2452 | 2452.67 | 2452.79 | 2452.67 | 2452.03 | Pass |
| | 2462 | 2462.14 | 2462.98 | 2462.21 | 2462.94 | Pass |
| 50 | 2412 | 2412.40 | 2412.81 | 2412.96 | 2412.71 | Pass |
| | 2422 | 2422.71 | 2422.58 | 2422.32 | 2422.95 | Pass |
| | 2437 | 2437.78 | 2437.64 | 2437.50 | 2437.72 | Pass |
| | 2452 | 2452.01 | 2452.14 | 2452.75 | 2452.52 | Pass |
| | 2462 | 2462.86 | 2462.99 | 2462.64 | 2462.95 | Pass |

| Frequency stability versus Voltage | | | | | | |
|------------------------------------|---------------------------|--------------------|--------------------|--------------------|--------------------|------------|
| Temperature: 25°C | | | | | | |
| Power Supply (VDC) | Operating Frequency (MHz) | 0 minute | 2 minute | 5 minute | 10 minute | Pass /Fail |
| | | Measured Frequency | Measured Frequency | Measured Frequency | Measured Frequency | |
| 2.7 | 2412 | 2412.55 | 2412.64 | 2412.90 | 2412.15 | Pass |
| | 2422 | 2422.64 | 2422.66 | 2422.13 | 2422.36 | Pass |
| | 2437 | 2437.80 | 2437.11 | 2437.12 | 2437.99 | Pass |
| | 2452 | 2452.82 | 2452.43 | 2452.48 | 2452.82 | Pass |
| | 2462 | 2462.42 | 2462.14 | 2462.80 | 2462.50 | Pass |

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