








## FCC CERTIFICATION TEST REPORT

|                             |   |  |
|-----------------------------|---|--|
| <b>Applicant:</b>           | Guangzhou Shikun Electronics Co., Ltd   |  |
| <b>Address:</b>             | NO.6 Liankun Road, Huangpu District, Guangzhou, China   |  |
| <b>Manufacturer:</b>        | Guangzhou Shikun Electronics Co., Ltd   |  |
| <b>Address:</b>             | NO.6 Liankun Road, Huangpu District, Guangzhou, China   |  |
| <b>Product Description:</b> | IEEE 802.11b/g/n/ax 1T1R USB Wi-Fi Module Integrated BT 5.2   |  |
| <b>Brand Name:</b>          | N/A   |  |
| <b>Tested Model:</b>        | SKI.WB800DU1.9  |  |
| <b>FCC ID:</b>              | 2AR82-WB800DU19   |  |
| <b>Report No.:</b>          | JCF230821201-003  |  |
| <b>Received Date:</b>       | Aug. 22, 2023   |  |
| <b>Tested Date:</b>         | Aug. 22, 2023 - Oct. 30, 2023   |  |
| <b>Issued Date:</b>         | Nov. 16, 2023   |  |
| <b>Test Standards:</b>      | FCC Rules and Regulations Part 15 Subpart C   |  |
| <b>Test Procedure:</b>      | ANSI C63.10: 2013   |  |
| <b>Test Result:</b>         | Pass  |  |
| <b>Prepared By:</b>         | <br><u>Kennys Zhang/Engineer</u> |  |
|                             | <br><b>Date:</b> Nov. 16, 2023  |  |
| <b>Reviewed By:</b>         | <br><u>Roger Li/Engineer</u>     |  |
|                             | <br><b>Date:</b> Nov. 16, 2023  |  |
| <b>Approved By:</b>         | <br><u>Talent Zhang/Engineer</u> |  |
|                             | <b>Date:</b> Nov. 16, 2023  |  |

Note: The test results in this report apply exclusively to the tested model / sample. Without written approval of Guangzhou Jingce Testing Technology Co., Ltd. the test report shall not be reproduced except in full.

**Report Revise Record**

| Report Version | Revise Time | Issued Date   | Valid Version   | Notes |
|----------------|-------------|---------------|-----------------|-------|
| V1.0           | /           | Nov. 16, 2023 | Original Report | /     |

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## 1. Test Report Declare

|                                |   |
|--------------------------------|---|
| <b>Applicant:</b>              | Guangzhou Shikun Electronics Co., Ltd                       |
| <b>Address:</b>                | NO.6 Liankun Road, Huangpu District, Guangzhou, China       |
| <b>Manufacturer:</b>           | Guangzhou Shikun Electronics Co., Ltd                       |
| <b>Address:</b>                | NO.6 Liankun Road, Huangpu District, Guangzhou, China       |
| <b>Product Name:</b>           | IEEE 802.11b/g/n/ax 1T1R USB Wi-Fi Module Integrated BT 5.2 |
| <b>Brand Name:</b>             | N/A   |
| <b>Model Name:</b>             | SKI.WB800DU1.9  |
| <b>Difference Description:</b> | N/A   |

### We Declare:

The equipment described above is tested by Guangzhou Jingce Testing Technology Co., Ltd. and in the configuration tested the equipment complied with the standards specified above. The test results are contained in this test report and Guangzhou Jingce Testing Technology Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

## 2. Summary of Test Results

| Summary of Test Results |   |   |              |
|-------------------------|---|---|--------------|
| Clause                  | Test Items                                | FCC/ISED Rules  | Test Results |
| 1                       | 6dB Bandwidth                             | FCC Part 15.247 (a) (2)                                   | Pass         |
| 2                       | Peak Conducted Output Power               | FCC Part 15.247 (b) (3)                                   | Pass         |
| 3                       | Power Spectral Density                    | FCC Part 15.247 (e)                                       | Pass         |
| 4                       | Conducted Bandedge and Spurious Emission  | FCC Part 15.247 (d)                                       | Pass         |
| 5                       | Radiated Bandedge and Spurious Emission   | FCC Part 15.247 (d)<br>FCC Part 15.209<br>FCC Part 15.205 | Pass         |
| 6                       | Conducted Emission Test For AC Power Port | FCC Part 15.207   | N/A          |
| 7                       | Antenna Requirement                       | FCC Part 15.203   | Pass         |

## 3. Test Laboratory

Guangzhou Jingce Testing Technology Co., Ltd.

Add.: No.192, Kezhu Road, Huangpu District, Guangzhou, Guangdong, China

Association for Laboratory Accreditation(A2LA). Certificate Number: 6594.01

FCC Designation Number: CN1331. Test Firm Registration Number: 360543

IC Test Firm Registration Number: 28796

Conformity Assessment Body identifier: CN0138

## 4. Equipment Under Test

### 4.1. Description of EUT

|                                  |  |
|----------------------------------|--|
| <b>EUT Name:</b>                 | IEEE 802.11b/g/n/ax 1T1R USB Wi-Fi Module Integrated BT 5.2  |
| <b>Model Number:</b>             | SKI.WB800DU1.9   |
| <b>EUT Function Description:</b> | Refer to user manual.  |
| <b>Power Supply:</b>             | DC 3.3V+/-0.3  |
| <b>Hardware Version:</b>         | N/A  |
| <b>Software Version:</b>         | N/A  |
| <b>Radio Specification:</b>      | IEEE802.11b/g/n/ax   |
| <b>Operation Frequency:</b>      | IEEE 802.11b: 2412MHz—2462MHz<br>IEEE 802.11g: 2412MHz—2462MHz<br>IEEE 802.11n HT20, HT40: 2412MHz—2462MHz<br>IEEE 802.11ax HE20, HE40: 2412MHz—2462MHz  |
| <b>Modulation:</b>               | IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK)<br>IEEE 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK)<br>IEEE 802.11n (HT20/40): OFDM (64QAM, 16QAM, QPSK, BPSK)<br>IEEE 802.11ax (HT20/40): OFDMA (256QAM, 64QAM, 16QAM, QPSK, BPSK)  |
| <b>Data Rate:</b>                | IEEE 802.11b: 1, 2, 5.5, 11 Mbps<br>IEEE 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps<br>IEEE 802.11n HT20: 6.5, 13, 19.5, 26, 39, 52, 58.5, 65.5 Mbps<br>IEEE 802.11n HT40: 13.5, 27, 40.5, 54, 81, 108, 121.5, 135 Mbps<br>IEEE 802.11ax HT20: 8.6, 17.2, 25.8, 34.4, 51.6, 68.8, 77.4, 86, 103.2, 114.7Mbps<br>IEEE 802.11ax HT40: 17.2, 34.4, 51.6, 68.8, 103.2, 137.6, 154.9, 172.1, 206.5, 229.4Mbps |
| <b>Antenna Type:</b>             | SMD Antenna, MAX. Gain: 1.97 dBi   |

Note 1: EUT is the ab. of equipment under test.

Note 2: The antenna gain is declared by the customer and the laboratory is not responsible for the accuracy of the antenna gain.

### 4.2. Channel List

| Channel List for 802.11b/g/n/ax (20 MHz) |                 |         |                 |         |                 |         |                 |
|--|-----------------|---------|-----------------|---------|-----------------|---------|-----------------|
| Channel                                  | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
| 1  | 2412            | 5       | 2432            | 9       | 2452            | 13      | 2472            |
| 2  | 2417            | 6       | 2437            | 10      | 2457            | /       | /               |
| 3  | 2422            | 7       | 2442            | 11      | 2462            | /       | /               |
| 4  | 2427            | 8       | 2447            | 12      | 2467            | /       | /               |

| Channel List for 802.11n/ax (40 MHz) |                 |         |                |         |                 |
|--------------------------------------|-----------------|---------|----------------|---------|-----------------|
| Channel                              | Frequency (MHz) | Channel | Frequency(MHz) | Channel | Frequency (MHz) |
| 3                                    | 2422            | 7       | 2442           | 11      | 2462            |
| 4                                    | 2427            | 8       | 2447           | /       | /               |
| 5                                    | 2432            | 9       | 2452           | /       | /               |
| 6                                    | 2437            | 10      | 2457           | /       | /               |

### 4.3. Test Channel Configuration

| Tested mode, channel and rand data rate information |                                |             |                    |
|---|--------------------------------|-------------|--------------------|
| Mode  | Data rate (Mbps)<br>(see Note) | Channel     | Frequency<br>(MHz) |
| IEEE 802.11b  | 1MHz                           | Low: CH1    | 2412               |
|   | 1MHz                           | Middle: CH7 | 2442               |
|   | 1MHz                           | High: CH13  | 2472               |
| IEEE 802.11g  | 6 MHz                          | Low: CH1    | 2412               |
|   | 6 MHz                          | Middle: CH7 | 2442               |
|   | 6 MHz                          | High: CH13  | 2472               |
| IEEE 802.11n HT20                                   | MCS0                           | Low: CH1    | 2412               |
|   | MCS0                           | Middle: CH7 | 2442               |
|   | MCS0                           | High: CH13  | 2472               |
| IEEE 802.11n HT40                                   | MCS0                           | Low: CH3    | 2422               |
|   | MCS0                           | Middle: CH7 | 2442               |
|   | MCS0                           | High: CH11  | 2462               |
| IEEE 802.11ax HT20                                  | MCS0                           | Low: CH1    | 2412               |
|   | MCS0                           | Middle: CH7 | 2442               |
|   | MCS0                           | High: CH13  | 2472               |
| IEEE 802.11ax HT40                                  | MCS0                           | Low: CH3    | 2422               |
|   | MCS0                           | Middle: CH7 | 2442               |
|   | MCS0                           | High: CH11  | 2462               |

Note: According exploratory test, EUT will have maximum output power in those data rate, so those data rate were used for all test.

### 4.4. Test environment conditions

During the measurement the environmental conditions were within the listed ranges:

|                    |            |
|--------------------|------------|
| Temperature range: | 21-25 °C   |
| Humidity range:    | 40-75%     |
| Pressure range:    | 86-106 kPa |

### 4.5. Description of Available Antennas

| The Worse Case Power Setting Parameter under 2400 ~ 2483.5MHz Band |                         |                             |         |
|--|-------------------------|-----------------------------|---------|
| Test Software  |                         | secureCRT                   |         |
| Modulation Mode  | Transmit Antenna Number | Test Software Setting Value |         |
|  |                         | ANT1                        | Channel |
| 802.11b  | 1                       | 1 4 8                       | CH1     |
|  |                         | 1 4 8                       | CH7     |
|  |                         | 1 4 8                       | CH13    |
| 802.11g  | 1                       | 1 0 8                       | CH1     |
|  |                         | 1 0 9                       | CH7     |
|  |                         | 1 0 8                       | CH13    |
| 802.11HT20   | 1                       | 1 1 9                       | CH1     |



|               |   |       |      |
|---------------|---|-------|------|
|               |   | 1 1 9 | CH7  |
|               |   | 1 1 9 | CH13 |
| 802.11n HT40  | 1 | 1 1 9 | CH3  |
|               |   | 1 1 9 | CH7  |
|               |   | 1 1 9 | CH11 |
| 802.11ax HT20 | 1 | 1 2 8 | CH1  |
|               |   | 1 2 8 | CH7  |
|               |   | 1 2 8 | CH13 |
| 802.11ax HT40 | 1 | 1 2 8 | CH3  |
|               |   | 1 2 8 | CH7  |
|               |   | 1 2 8 | CH11 |

#### 4.6. Description of Available Antennas

| Test Mode          | Transmit and Receive Mode                    | Description  |
|--------------------|--|--|
| IEEE 802.11b       | <input checked="" type="checkbox"/> 1TX, 1RX | ANT 1 can be used as transmitting/receiving antenna. |
| IEEE 802.11g       | <input checked="" type="checkbox"/> 1TX, 1RX | ANT 1 can be used as transmitting/receiving antenna. |
| IEEE 802.11n HT20  | <input checked="" type="checkbox"/> 1TX, 1RX | ANT 1 can be used as transmitting/receiving antenna. |
| IEEE 802.11n HT40  | <input checked="" type="checkbox"/> 1TX, 1RX | ANT 1 can be used as transmitting/receiving antenna. |
| IEEE 802.11ax HT20 | <input checked="" type="checkbox"/> 1TX, 1RX | ANT 1 can be used as transmitting/receiving antenna. |
| IEEE 802.11ax HT40 | <input checked="" type="checkbox"/> 1TX, 1RX | ANT 1 can be used as transmitting/receiving antenna. |

### 5. Description of Test Setup

#### 5.1. Accessory

| Description of Accessories | Manufacturer | Model Number | Description | Remark |
|----------------------------|--------------|--------------|-------------|--------|
| /                          | /            | /            | /           | /      |

#### 5.2. Support Equipment

| Equipment | Brand Name | Model Name | P/N |
|-----------|------------|------------|-----|
| PC        | Lenovo     | T480       | /   |

### 5.3. Test Setup

The EUT can work in engineering mode.

### 5.4. Setup Diagram for Tests



## 6. Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

| Test Item                    | Uncertainty |
|------------------------------|-------------|
| AC Power Conduction emission | 1.37 dB     |
| All Radiated emissions       | 5.4dB       |
| Conducted emissions          | 3.09 dB     |
| Occupied Channel Bandwidth   | 1.1%        |
| Conducted Output power       | 0.82dB      |
| Power Spectral Density       | 0.82dB      |

Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95 % confidence level using a coverage factor of  $k = 2$ .

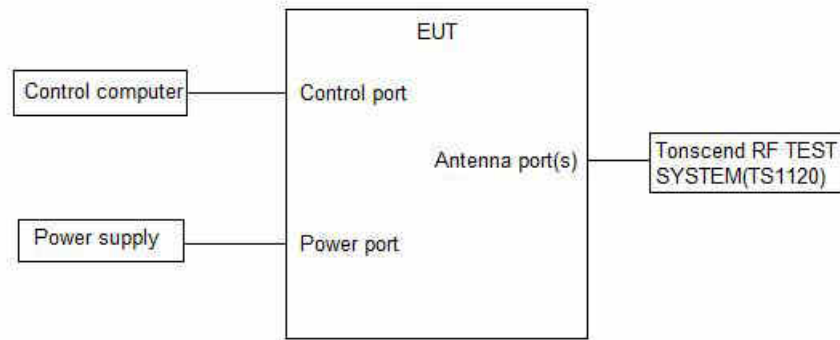
## 7. Measuring Instrument and Software Used

| TS Test System                      |                                     |              |           |            |               |               |
|-------------------------------------|-------------------------------------|--------------|-----------|------------|---------------|---------------|
| Used                                | Equipment                           | Manufacturer | Model No. | Serial No. | Last Cal.     | Due. Date     |
| <input checked="" type="checkbox"/> | Spectrum Analyzer                   | Keysight     | N9030B    | MY56320512 | Sep. 12, 2023 | Sep. 11, 2024 |
| <input checked="" type="checkbox"/> | Vector Signal Generator             | Keysight     | N5182B    | MY57300334 | Sep. 12, 2023 | Sep. 11, 2024 |
| <input checked="" type="checkbox"/> | Signal Generator                    | Keysight     | N5171B    | MY57280639 | Sep. 12, 2023 | Sep. 11, 2024 |
| <input checked="" type="checkbox"/> | DC POWER                            | Keysight     | E342A     | MY59020356 | Jul. 14, 2023 | Jul. 13, 2024 |
| <input checked="" type="checkbox"/> | Incubator thermometer               | GWS          | EL-02JA   | 21107288   | Sep. 12, 2023 | Sep. 11, 2024 |
| <input checked="" type="checkbox"/> | Control unit(Power sensor)          | Tonscend     | JS0806-2  | /          | Sep. 12, 2023 | Sep. 11, 2024 |
| <input type="checkbox"/>            | Wideband radio communication tester | R&S          | CMW500    | 163478     | Jul. 11, 2023 | Jul. 10, 2024 |
| <input checked="" type="checkbox"/> | Spectrum Analyzer                   | Keysight     | N9020B    | MY60112206 | Sep. 12, 2023 | Sep. 12, 2024 |
| <input checked="" type="checkbox"/> | Control unit(Power sensor)          | Tonscend     | JS0806-2  | 21H8060465 | Sep. 12, 2023 | Sep. 12, 2024 |
| Software                            |                                     |              |           |            |               |               |
| Used                                | Description                         | Manufacturer | Name      |            | Version       |               |
| <input checked="" type="checkbox"/> | Test software                       | TS+          | JS1120-3  |            | V3.3.10       |               |
| RSE Test System                     |                                     |              |           |            |               |               |
| Used                                | Equipment                           | Manufacturer | Model No. | Serial No. | Last Cal.     | Due. Date     |

|   |                           |              |              |             |               |               |
|---|---------------------------|--------------|--------------|-------------|---------------|---------------|
| <input checked="" type="checkbox"/>       | EMI Receiver              | R&S          | ESW          | 101685      | Jul. 12, 2023 | Jul. 11, 2024 |
| <input checked="" type="checkbox"/>       | Bilog Antenna             | Schwarzbeck  | VULB 9163    | 01416       | Mar. 21, 2023 | Mar. 20, 2024 |
| <input checked="" type="checkbox"/>       | Horn Antenna 1            | Schwarzbeck  | BBHA 9120 D  | 02411       | May. 25, 2023 | May. 24, 2024 |
| <input checked="" type="checkbox"/>       | Horn Antenna 2            | ETS          | BBHA 9170    | 1090        | Sep. 04, 2023 | Sep. 03, 2024 |
| <input checked="" type="checkbox"/>       | loop-antenna              | Schwarzbeck  | FMZB 1513-60 | 00030       | Jan.14,2023   | Jan.13,2024   |
| <input checked="" type="checkbox"/>       | Signal Pre-Amplifier      | Tonscend     | TAP01018050  | AP21C806122 | Jul. 10, 2023 | Jul. 09, 2024 |
| <input checked="" type="checkbox"/>       | Signal Pre-Amplifier      | Tonscend     | TAP9K3G32    | AP20K806104 | Jul. 10, 2023 | Jul. 09, 2024 |
| <input checked="" type="checkbox"/>       | Signal Pre-Amplifier      | ETS          | 3116C-PA     | 00217677    | Aug. 24, 2023 | Aug. 23, 2024 |
| <input checked="" type="checkbox"/>       | 3m Fully-anechoic Chamber | ETS          | RFD-100      | /           | Apr. 24, 2021 | Apr. 23, 2024 |
| Software                                  |                           |              |              |             |               |               |
| Used                                      | Description               | Manufacturer | Name         |             | Version       |               |
| <input checked="" type="checkbox"/>       | Test software             | TS+          | TS+          |             | V3.0.0.4      |               |
| Conducted Emission Test For AC Power Port |                           |              |              |             |               |               |
| Used                                      | Equipment                 | Manufacturer | Model No.    | Serial No.  | Last Cal.     | Due. Date     |
| <input type="checkbox"/>                  | LISN                      | R&S          | ENV216       | 102154      | Jul. 10, 2023 | Jul. 09, 2024 |
| <input type="checkbox"/>                  | EMI Receiver              | R&S          | ESR3         | 102509      | Jul. 12, 2023 | Jul. 11, 2024 |
| Software                                  |                           |              |              |             |               |               |
| Used                                      | Description               | Manufacturer | Name         |             | Version       |               |
| <input type="checkbox"/>                  | Test software             | EZ           | EZ-EMC       |             | EMEC-3A1      |               |
| Other Instrument                          |                           |              |              |             |               |               |
| Used                                      | Equipment                 | Manufacturer | Model No.    | Serial No.  | Last Cal.     | Due. Date     |
| <input checked="" type="checkbox"/>       | Temperature & Humidity    | Temperature  | HTC-1        | /           | Nov. 25, 2022 | Nov. 24, 2023 |

## 8. On Time and Duty Cycle

### 8.1. Block diagram of test setup



### 8.2. Limits

None; for reporting purposes only

### 8.3. Procedure

KDB 558074 Zero-Span Spectrum Analyzer Method

### 8.4. Results

| Test Mode  | Ant. | Freq. (MHz) | Transmission Duration (ms) | Transmission Period (ms) | Duty Cycle (%) |
|------------|------|-------------|----------------------------|--------------------------|----------------|
| 11B        | Ant1 | 2412        | 8.10                       | 8.14                     | 99.51          |
|            |      | 2437        | 8.23                       | 8.26                     | 99.64          |
|            |      | 2462        | 8.22                       | 8.25                     | 99.64          |
| 11G        | Ant1 | 2412        | 1.36                       | 1.39                     | 97.84          |
|            |      | 2437        | 1.36                       | 1.39                     | 97.84          |
|            |      | 2462        | 1.36                       | 1.40                     | 97.14          |
| 11N20SISO  | Ant1 | 2412        | 1.27                       | 1.31                     | 96.95          |
|            |      | 2437        | 1.27                       | 1.31                     | 96.95          |
|            |      | 2462        | 1.28                       | 1.31                     | 97.71          |
| 11N40SISO  | Ant1 | 2422        | 0.63                       | 0.67                     | 94.03          |
|            |      | 2437        | 0.63                       | 0.67                     | 94.03          |
|            |      | 2452        | 0.63                       | 0.67                     | 94.03          |
| 11AX20SISO | Ant1 | 2412        | 0.99                       | 1.03                     | 96.12          |
|            |      | 2437        | 1.00                       | 1.03                     | 97.09          |
|            |      | 2462        | 0.99                       | 1.03                     | 96.12          |
| 11AX40SISO | Ant1 | 2422        | 0.52                       | 0.55                     | 94.55          |
|            |      | 2437        | 0.52                       | 0.55                     | 94.55          |
|            |      | 2452        | 0.52                       | 0.55                     | 94.55          |

Note: Duty Cycle Correction Factor =  $10\log(1/x)$ .

Where: x is Duty Cycle (Linear)

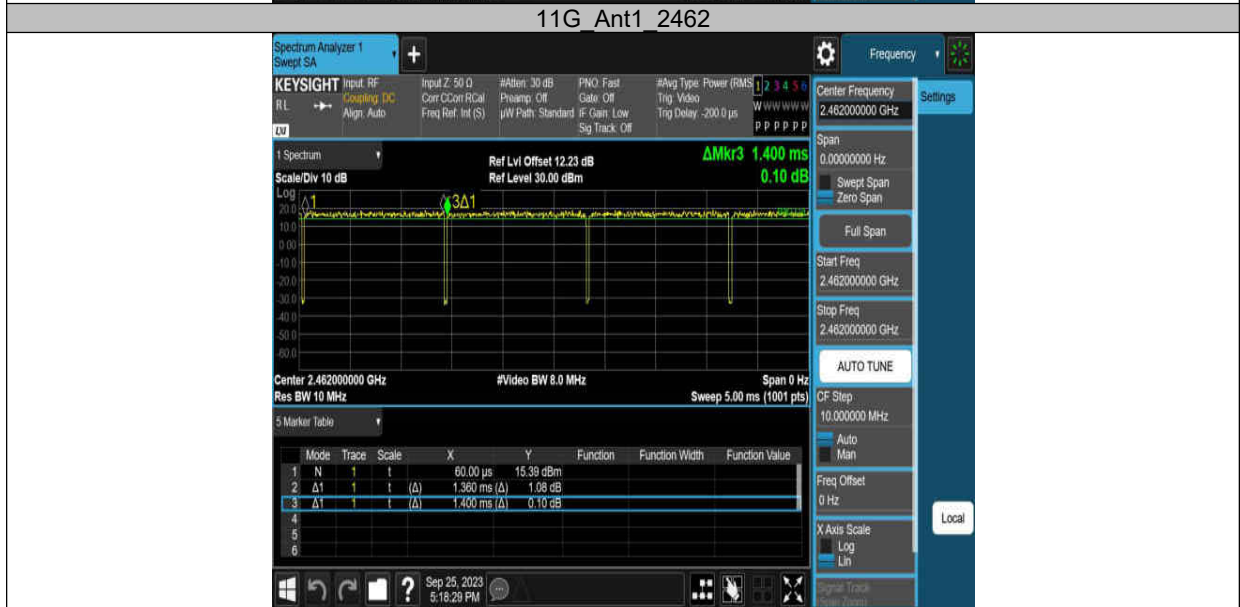
Where: T is On Time

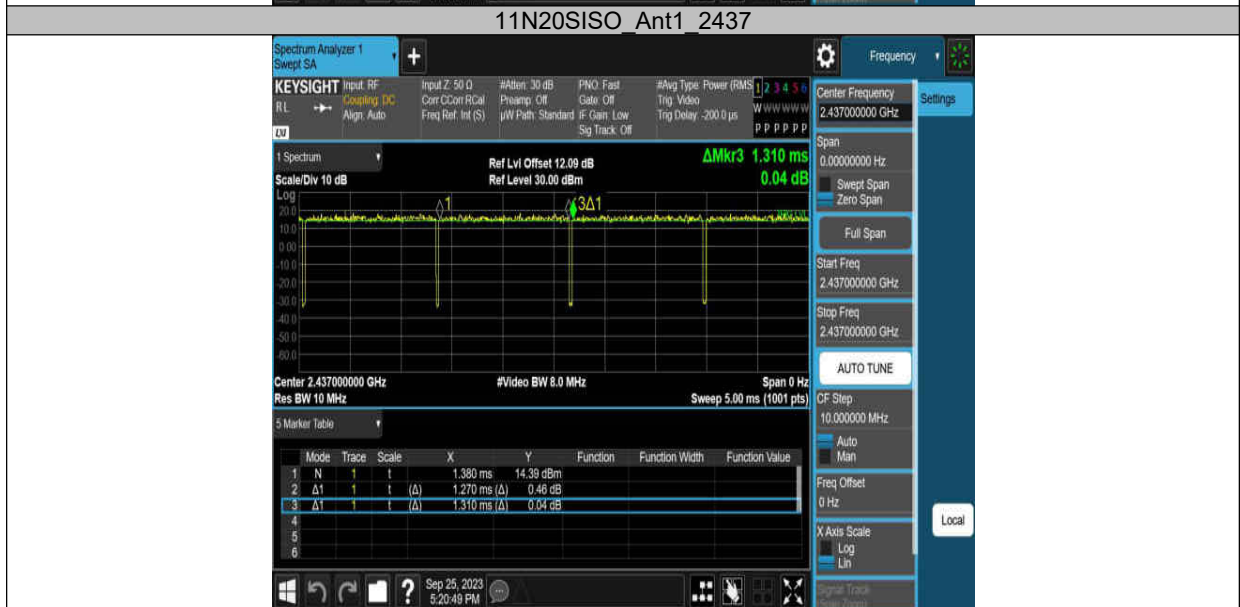
If that calculated VBW is not available on the analyzer, then the next higher value should be used.

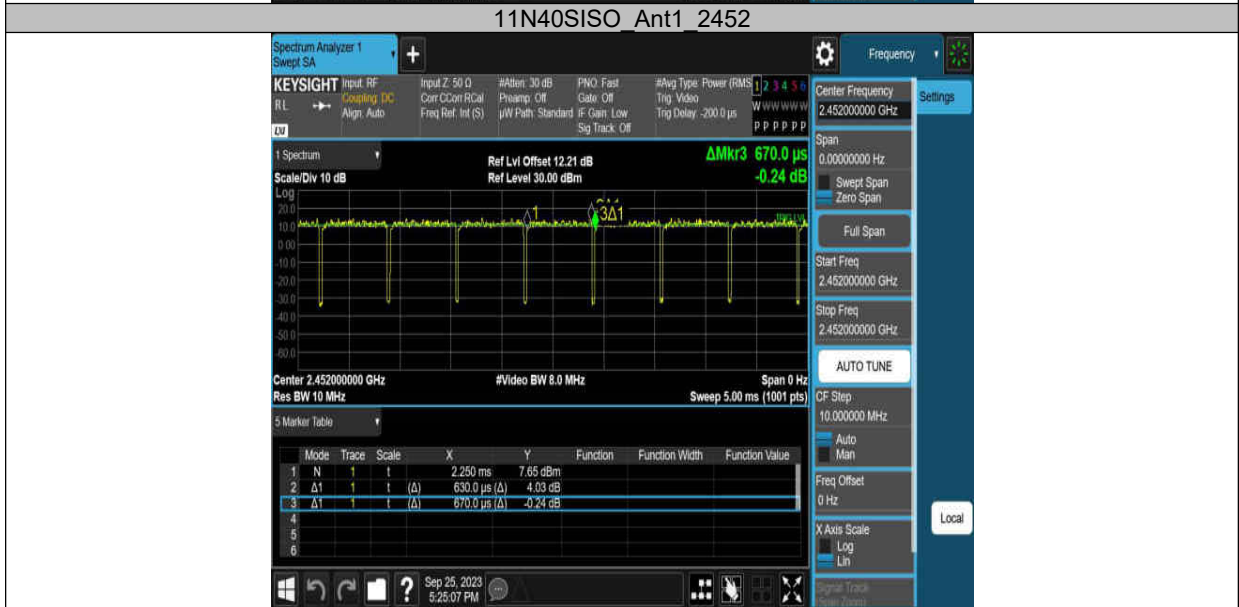
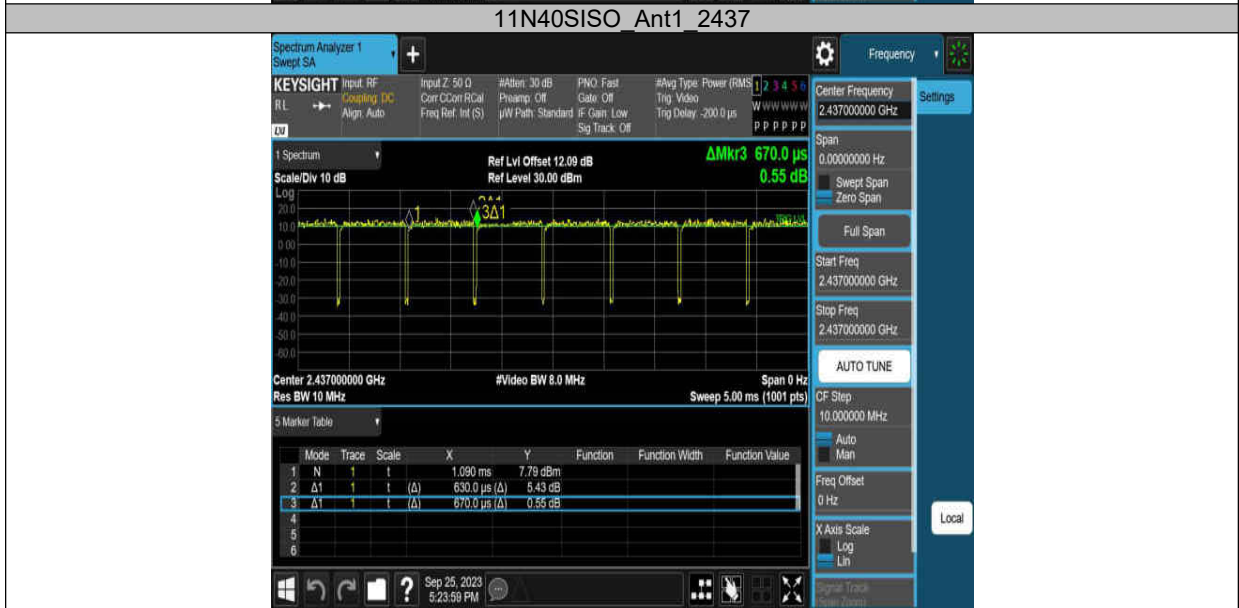
For mode 11b, the duty cycle is greater than 98 %, so it can set VBW to 10 Hz.

### 8.5. Original test data













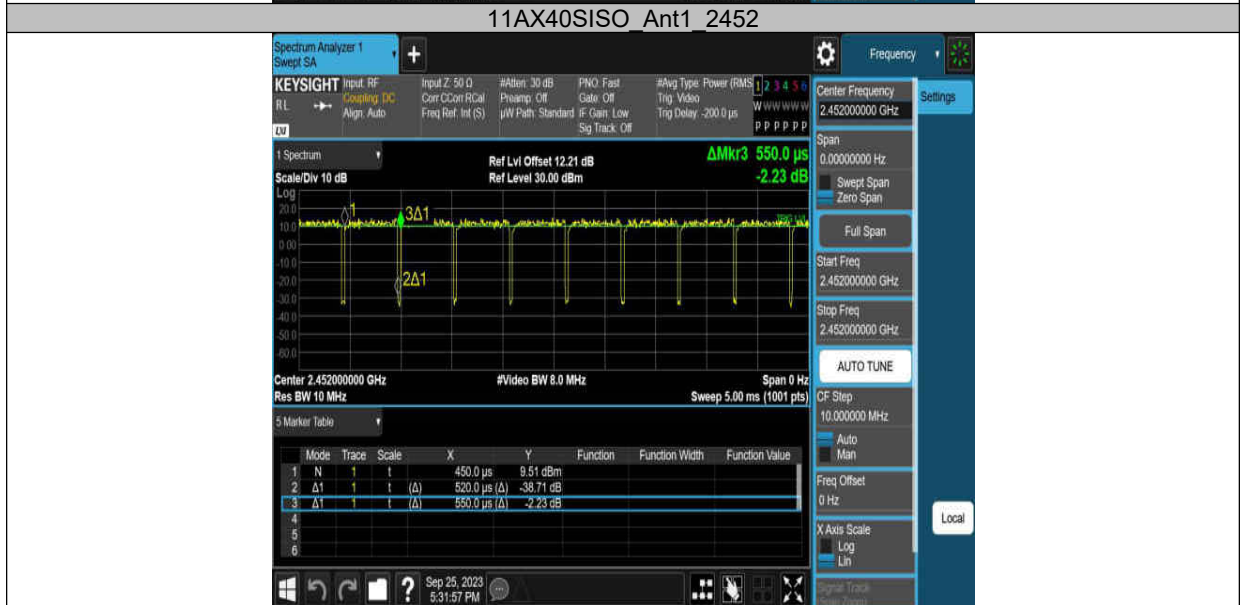
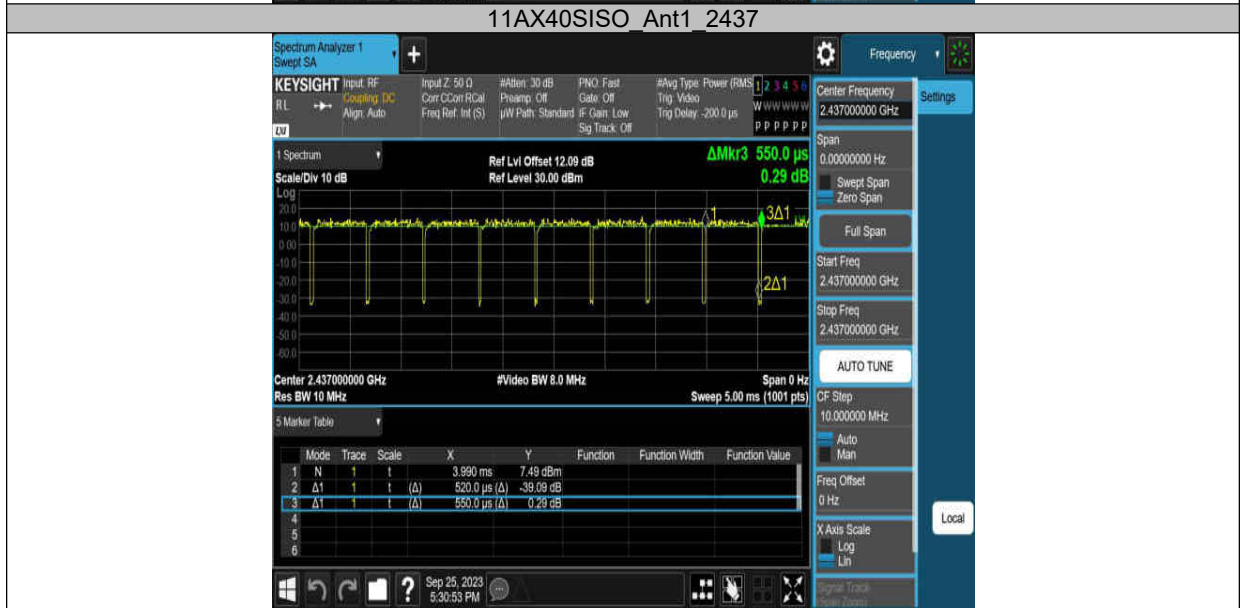
11AX20SISO Ant1 2437



11AX20SISO Ant1 2462



11AX40SISO Ant1 2422



## 9. 6 dB DTS Bandwidth

### 9.1. Block diagram of test setup

Same as section 8.1

### 9.2. Limits

| CFR 47 FCC Part15 (15.247) Subpart C |                |                |                       |
|--------------------------------------|----------------|----------------|-----------------------|
| Section                              | Test Item      | Limit          | Frequency Range (MHz) |
| CFR 47 FCC 15.247(a)(2)              | 6 dB Bandwidth | $\geq 500$ kHz | 2400-2483.5           |

### 9.3. Test Procedure

Connect the UUT to the spectrum analyzer and use the following settings:

|                  |  |
|------------------|--|
| Center Frequency | The center frequency of the channel under test |
| Detector         | Peak   |
| RBW              | For 6 dB Bandwidth :100 kHz                    |
| VBW              | For 6 dB Bandwidth: $\geq 3 \times$ RBW        |
| Trace            | Max hold                                       |
| Sweep            | Auto couple                                    |

Allow the trace to stabilize and measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB.

**9.4. Results**

| Test Mode  | Ant. | Freq.<br>(MHz) | DTS BW<br>(MHz) | FL<br>(MHz) | FH<br>(MHz) | Limit<br>(MHz) | Verdict |
|------------|------|----------------|-----------------|-------------|-------------|----------------|---------|
| 11B        | Ant1 | 2412           | 7.680           | 2407.960    | 2415.640    | 0.5            | PASS    |
|            |      | 2437           | 6.920           | 2433.760    | 2440.680    | 0.5            | PASS    |
|            |      | 2462           | 7.120           | 2458.360    | 2465.480    | 0.5            | PASS    |
| 11G        | Ant1 | 2412           | 16.360          | 2403.800    | 2420.160    | 0.5            | PASS    |
|            |      | 2437           | 13.760          | 2429.520    | 2443.280    | 0.5            | PASS    |
|            |      | 2462           | 16.200          | 2453.800    | 2470.000    | 0.5            | PASS    |
| 11N20SISO  | Ant1 | 2412           | 17.040          | 2403.480    | 2420.520    | 0.5            | PASS    |
|            |      | 2437           | 15.640          | 2428.880    | 2444.520    | 0.5            | PASS    |
|            |      | 2462           | 14.360          | 2454.560    | 2468.920    | 0.5            | PASS    |
| 11N40SISO  | Ant1 | 2422           | 35.200          | 2404.400    | 2439.600    | 0.5            | PASS    |
|            |      | 2437           | 34.880          | 2419.480    | 2454.360    | 0.5            | PASS    |
|            |      | 2452           | 35.040          | 2434.480    | 2469.520    | 0.5            | PASS    |
| 11AX20SISO | Ant1 | 2412           | 17.800          | 2403.440    | 2421.240    | 0.5            | PASS    |
|            |      | 2437           | 17.960          | 2428.040    | 2446.000    | 0.5            | PASS    |
|            |      | 2462           | 16.640          | 2454.280    | 2470.920    | 0.5            | PASS    |
| 11AX40SISO | Ant1 | 2422           | 32.560          | 2404.480    | 2437.040    | 0.5            | PASS    |
|            |      | 2437           | 33.520          | 2418.920    | 2452.440    | 0.5            | PASS    |
|            |      | 2452           | 36.320          | 2433.520    | 2469.840    | 0.5            | PASS    |

### 9.5. Original test data

6dB bandwidth:









11N40SISO Ant1 2437



11N40SISO Ant1 2452



11AX20SISO Ant1 2412







11AX40SISO Ant1 2437



11AX40SISO Ant1 2452



## 10. Conducted Output Power

### 10.1. Block diagram of test setup

Same as section 8.1

### 10.2. Limits

| CFR 47 FCC Part15 (15.247) Subpart C |                   |                  |                       |
|--------------------------------------|-------------------|------------------|-----------------------|
| Section                              | Test Item         | Limit            | Frequency Range (MHz) |
| CFR 47 FCC 15.247(b)(3)              | Peak Output Power | 1 watt or 30 dBm | 2400-2483.5           |

### 10.3. Test Procedure

Place the EUT on the table and set it in the transmitting mode.

Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the Power sensor.

Measure peak power each channel.

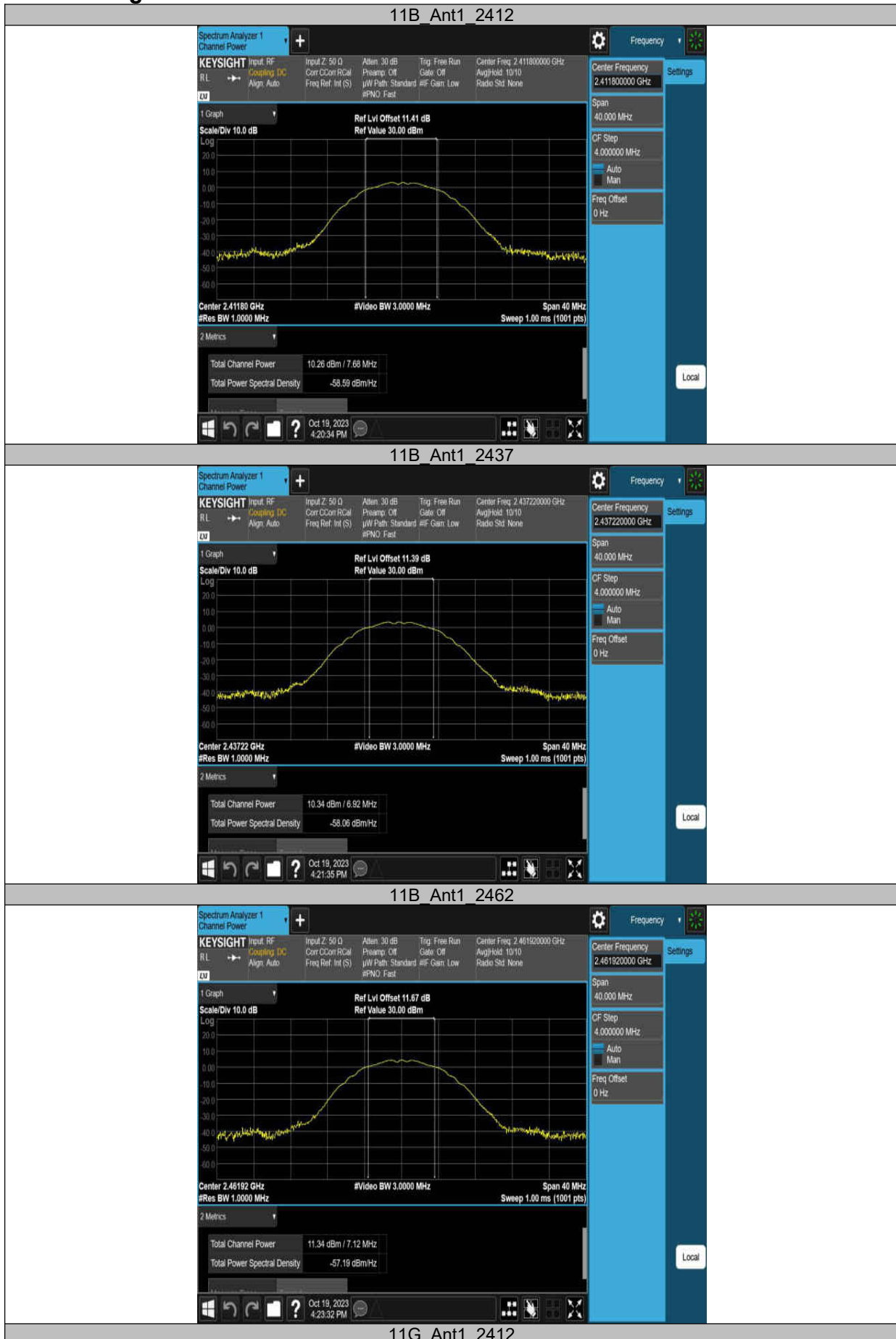
Peak Detector use for Peak result.

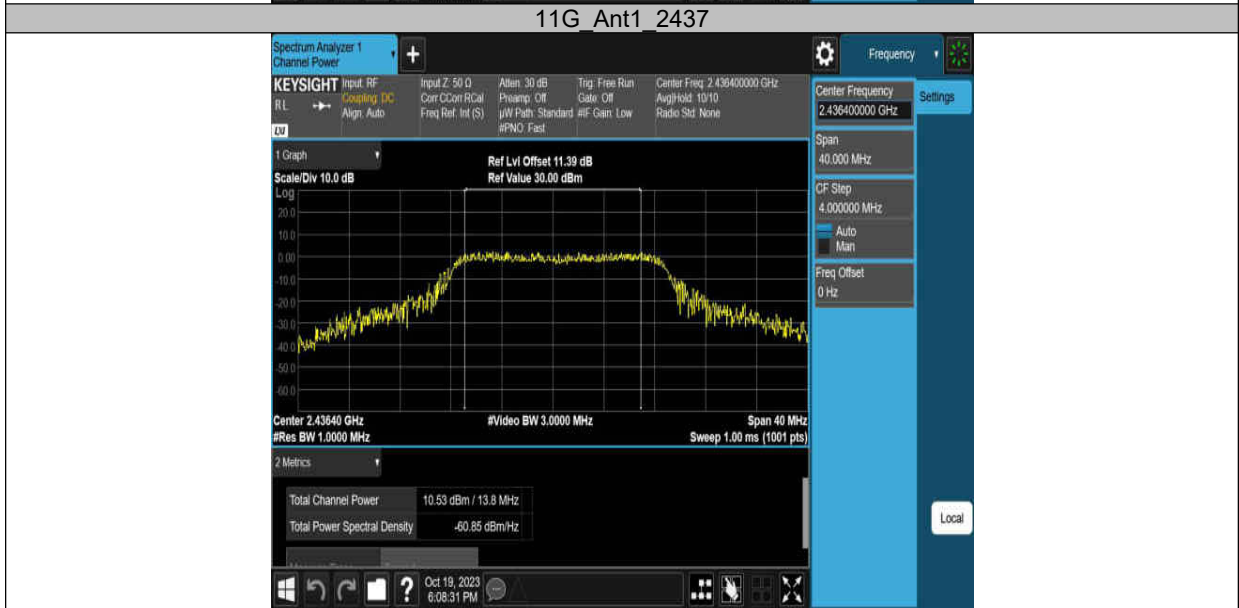
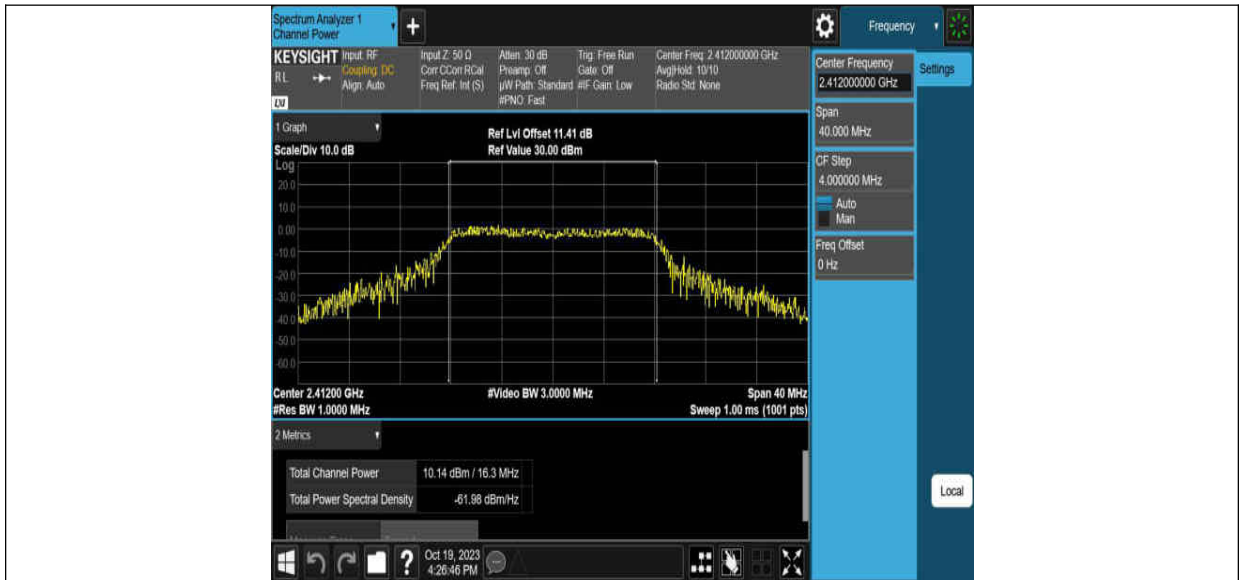
AVG Detector use for AVG result.

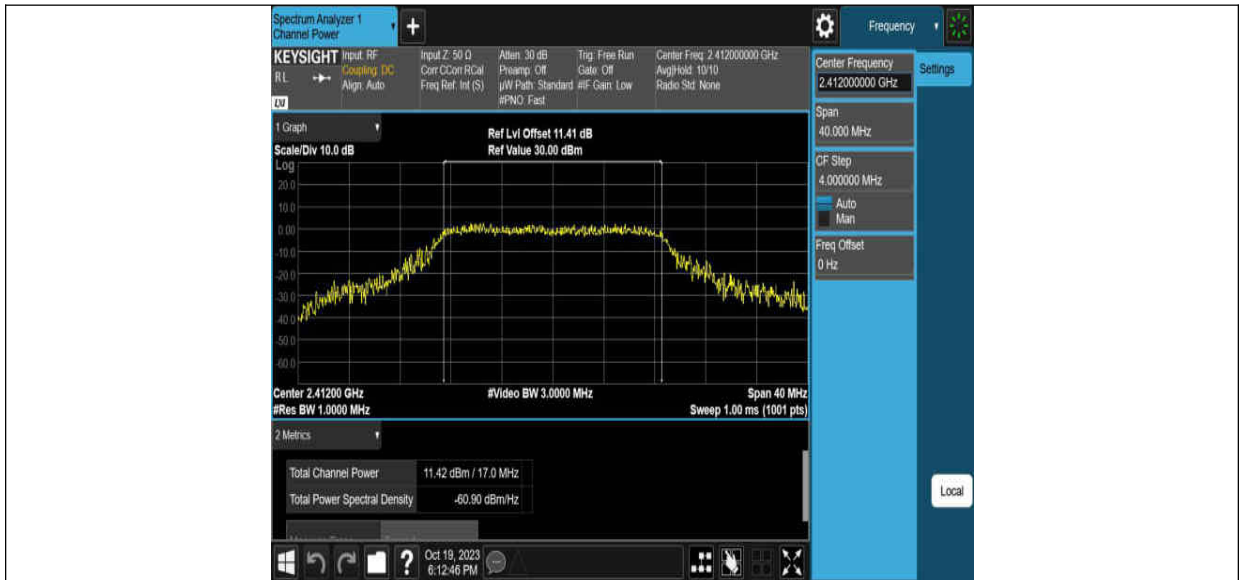
### 10.4. Results

| Test Mode  | Ant. | Freq. (MHz) | Peak Power (dBm) | Conducted Limit (dBm) | Verdict |
|------------|------|-------------|------------------|-----------------------|---------|
| 11B        | Ant1 | 2412        | 10.26            | ≤30.00                | PASS    |
|            |      | 2437        | 10.34            | ≤30.00                | PASS    |
|            |      | 2462        | 11.34            | ≤30.00                | PASS    |
| 11G        | Ant1 | 2412        | 10.14            | ≤30.00                | PASS    |
|            |      | 2437        | 10.53            | ≤30.00                | PASS    |
|            |      | 2462        | 10.42            | ≤30.00                | PASS    |
| 11N20SISO  | Ant1 | 2412        | 11.42            | ≤30.00                | PASS    |
|            |      | 2437        | 10.97            | ≤30.00                | PASS    |
|            |      | 2462        | 11.40            | ≤30.00                | PASS    |
| 11N40SISO  | Ant1 | 2422        | 10.92            | ≤30.00                | PASS    |
|            |      | 2437        | 11.33            | ≤30.00                | PASS    |
|            |      | 2452        | 11.70            | ≤30.00                | PASS    |
| 11AX20SISO | Ant1 | 2412        | 11.70            | ≤30.00                | PASS    |
|            |      | 2437        | 11.73            | ≤30.00                | PASS    |
|            |      | 2462        | 10.46            | ≤30.00                | PASS    |
| 11AX40SISO | Ant1 | 2422        | 10.93            | ≤30.00                | PASS    |
|            |      | 2437        | 11.45            | ≤30.00                | PASS    |
|            |      | 2452        | 10.18            | ≤30.00                | PASS    |

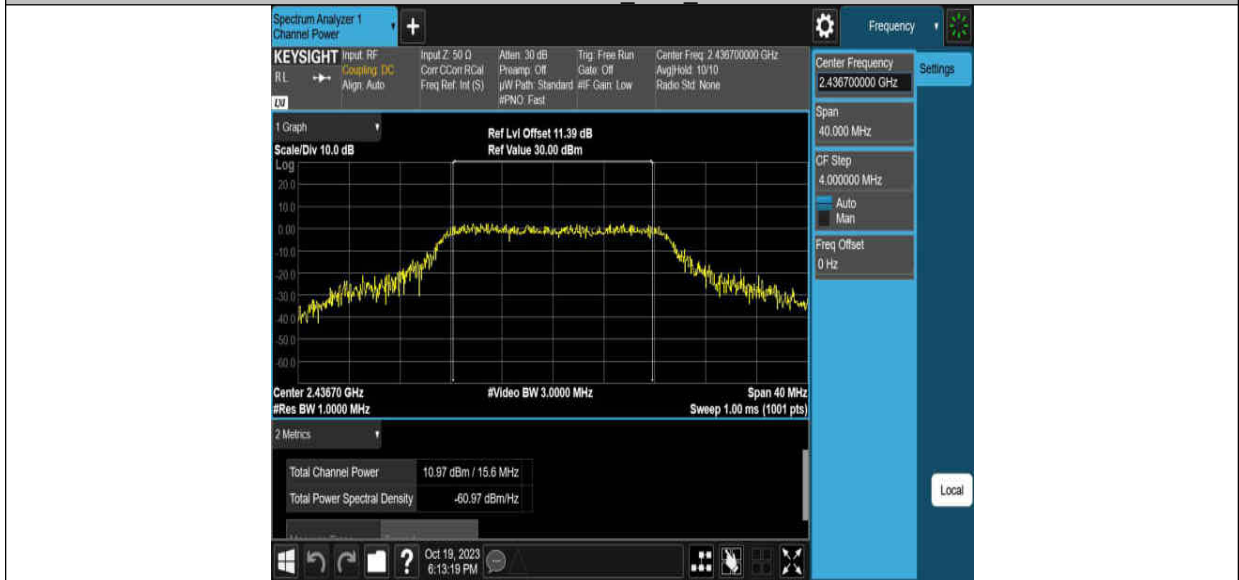
### 10.5. Original test data



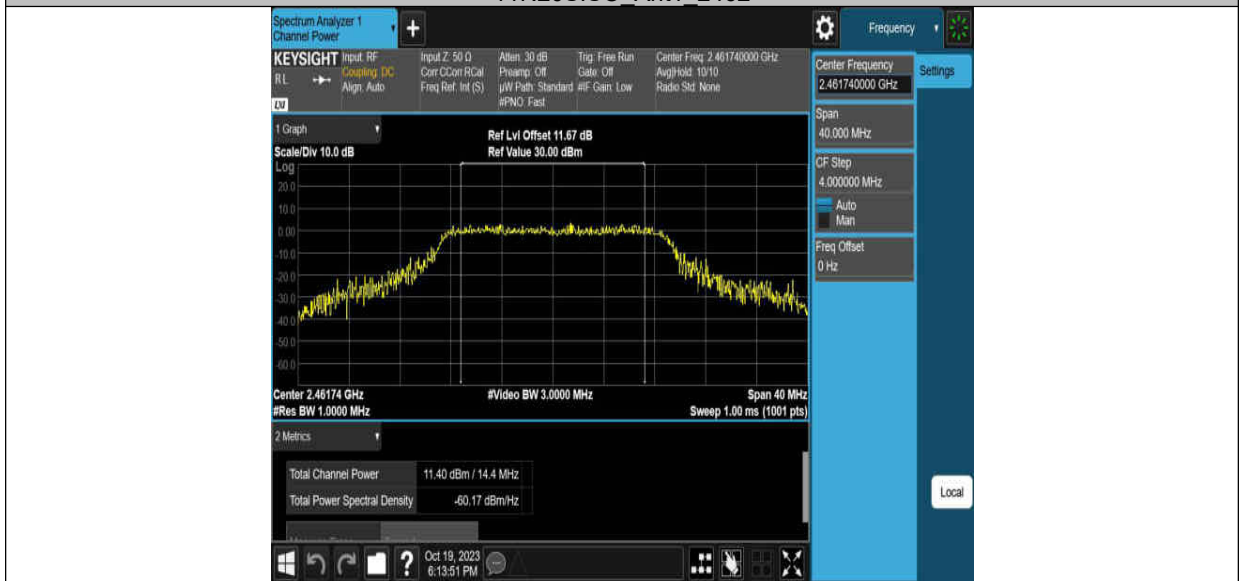




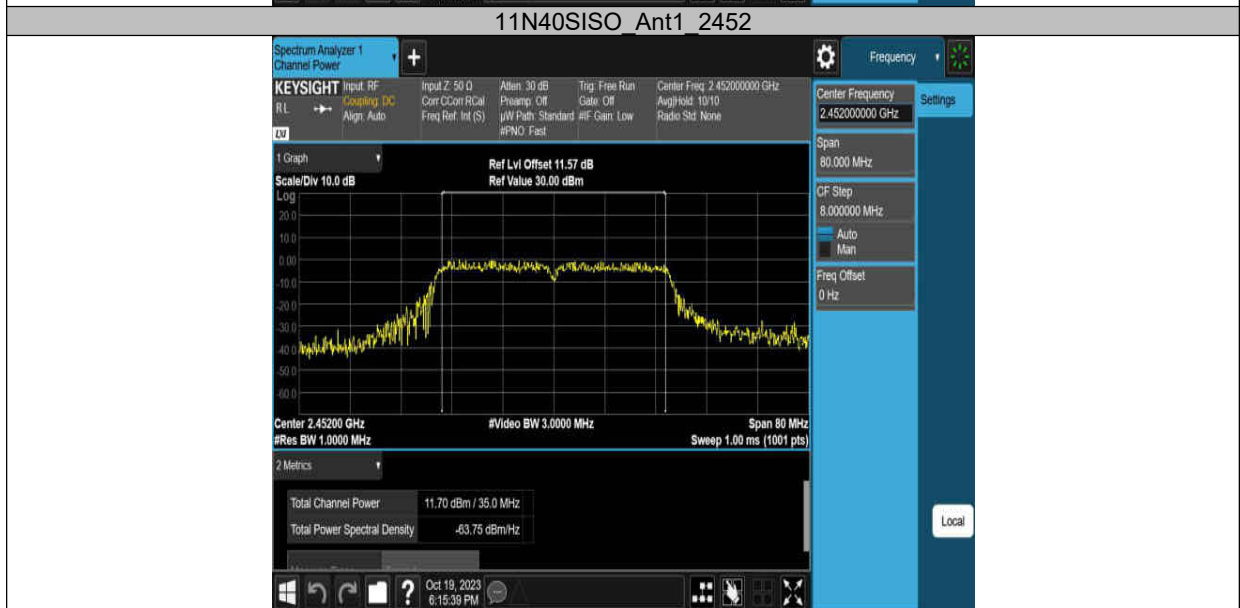
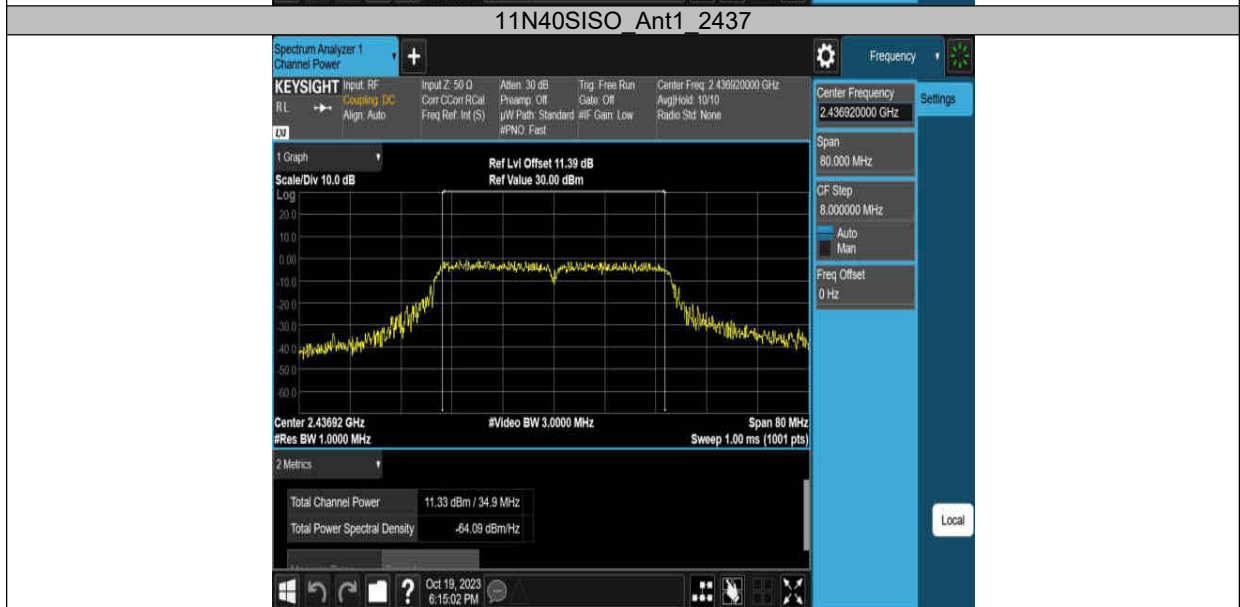
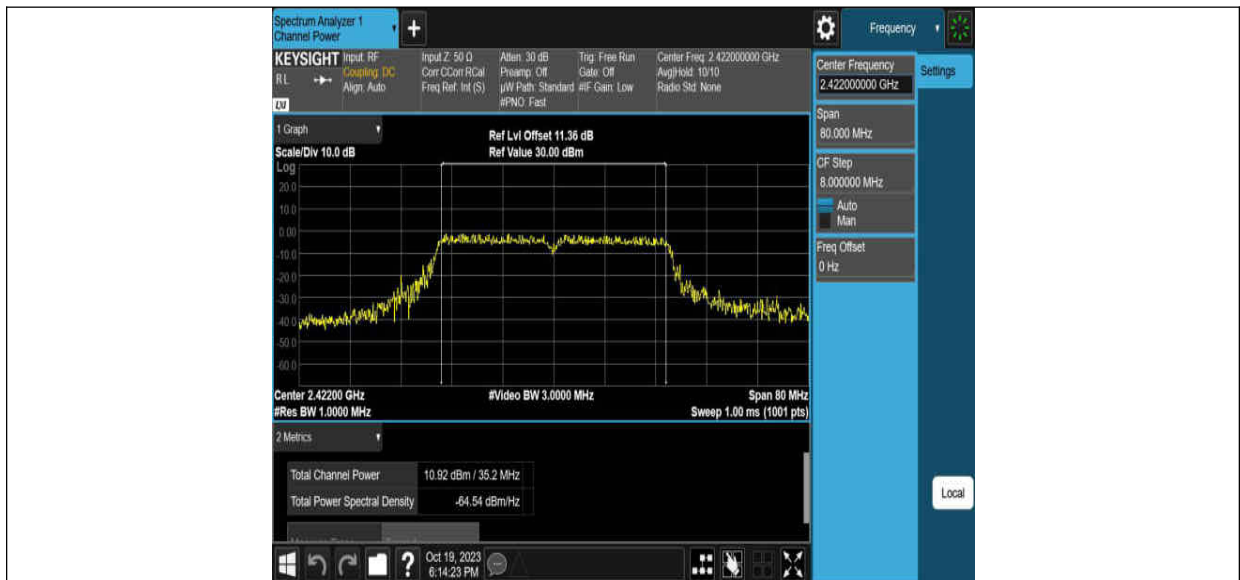
11N20SISO Ant1 2437

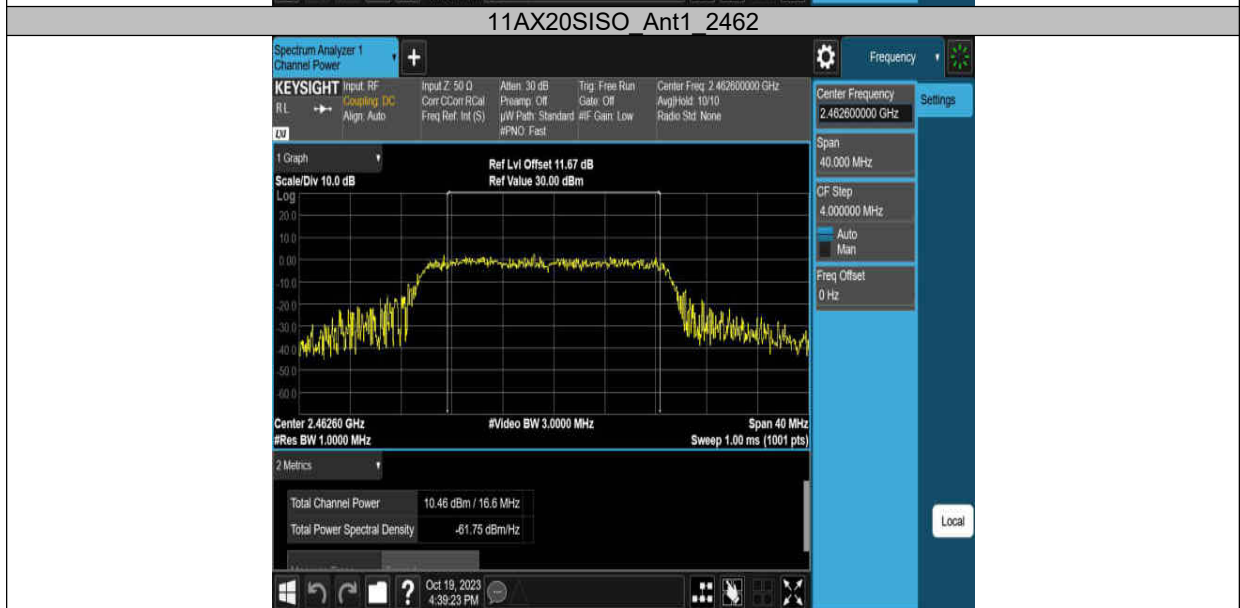
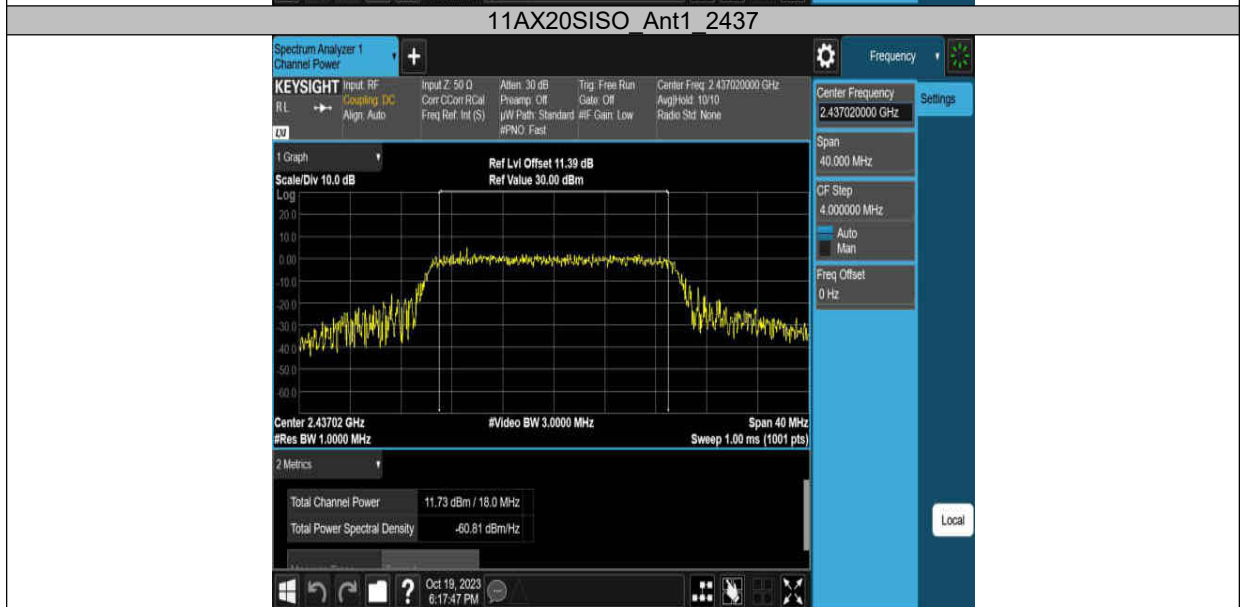


11N20SISO Ant1 2462



11N40SISO Ant1 2422

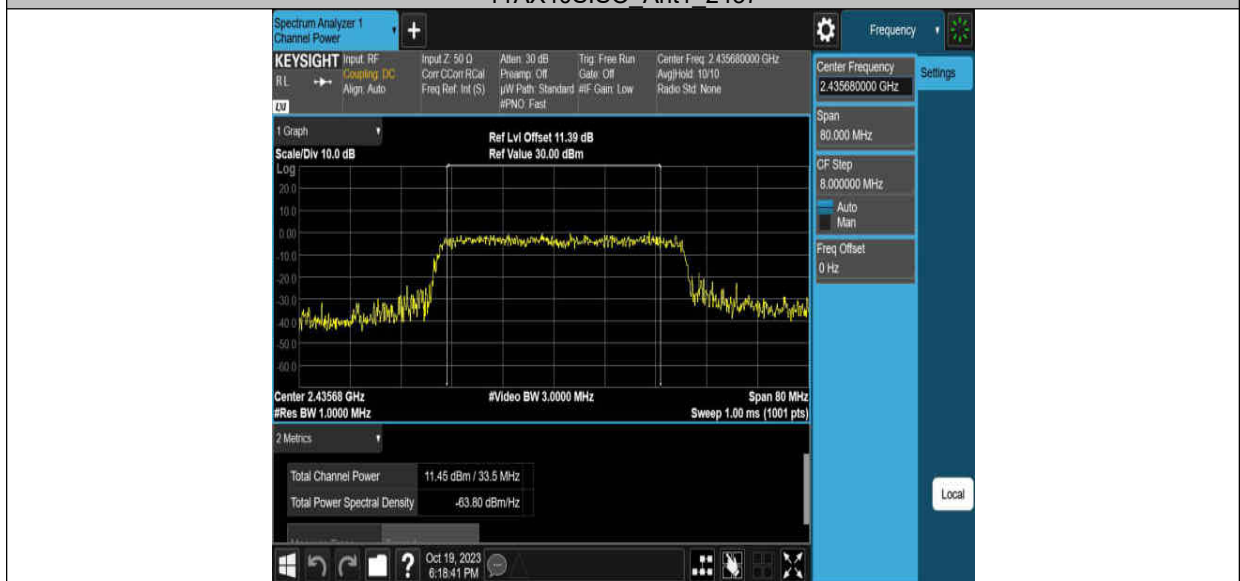








11AX40SISO Ant1\_2437



11AX40SISO Ant1\_2452



## 11. Power Spectral Density

### 11.1. Block diagram of test setup

Same as section 8.1

### 11.2. Limits

| CFR 47 FCC Part15 (15.247) Subpart C |                        |             |                       |
|--------------------------------------|------------------------|-------------|-----------------------|
| Section                              | Test Item              | Limit       | Frequency Range (MHz) |
| CFR 47 FCC §15.247 (e)               | Power Spectral Density | 8 dBm/3 kHz | 2400-2483.5           |

### 11.3. Test Procedure

Connect the UUT to the spectrum analyzer and use the following settings:

|                  |  |
|------------------|--|
| Center Frequency | The centre frequency of the channel under test       |
| Detector         | Peak   |
| RBW              | $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$ |
| VBW              | $\geq 3 \times \text{RBW}$                           |
| Span             | 1.5 x DTS bandwidth                                  |
| Trace            | Max hold   |
| Sweep time       | Auto couple.   |

Allow trace to fully stabilize and use the peak marker function to determine the maximum amplitude level within the RBW.

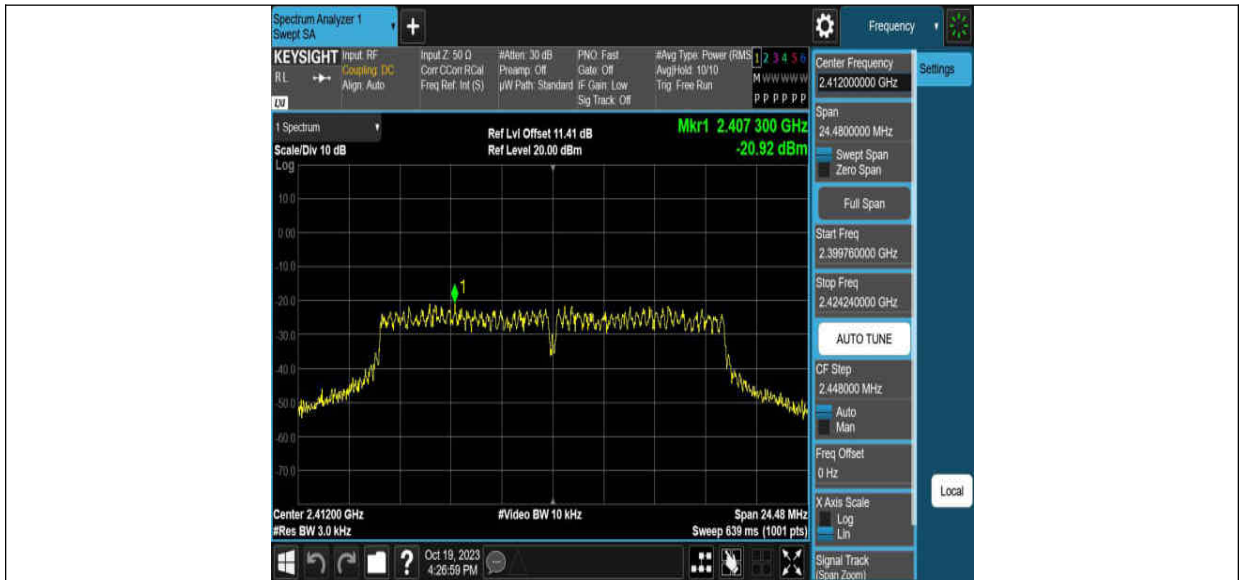
If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

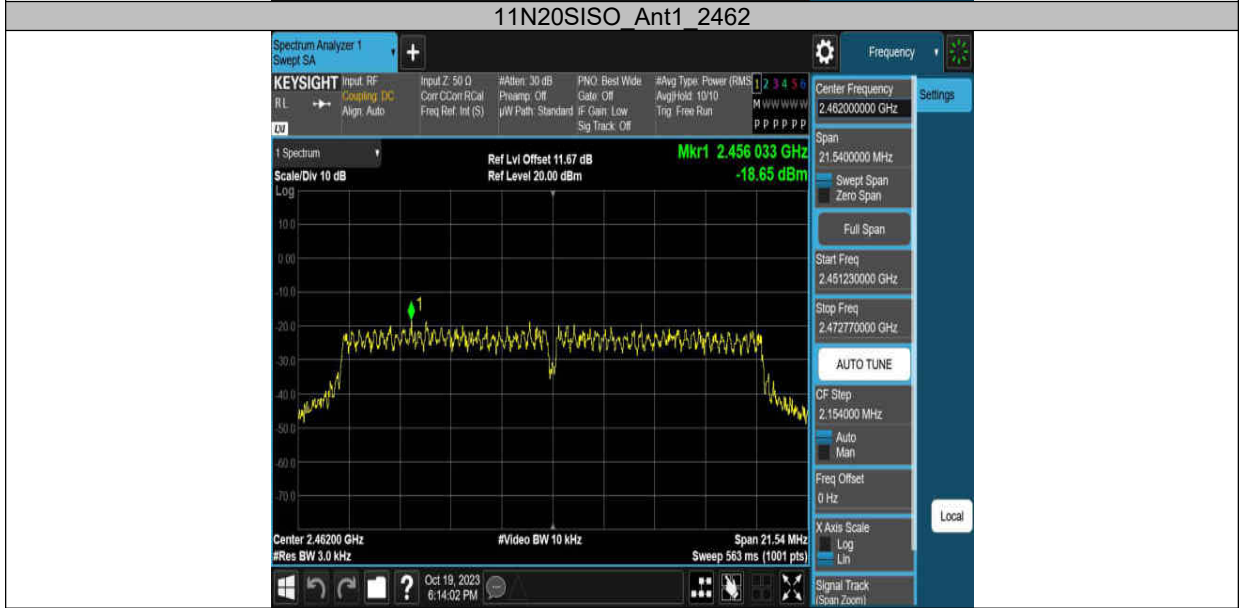
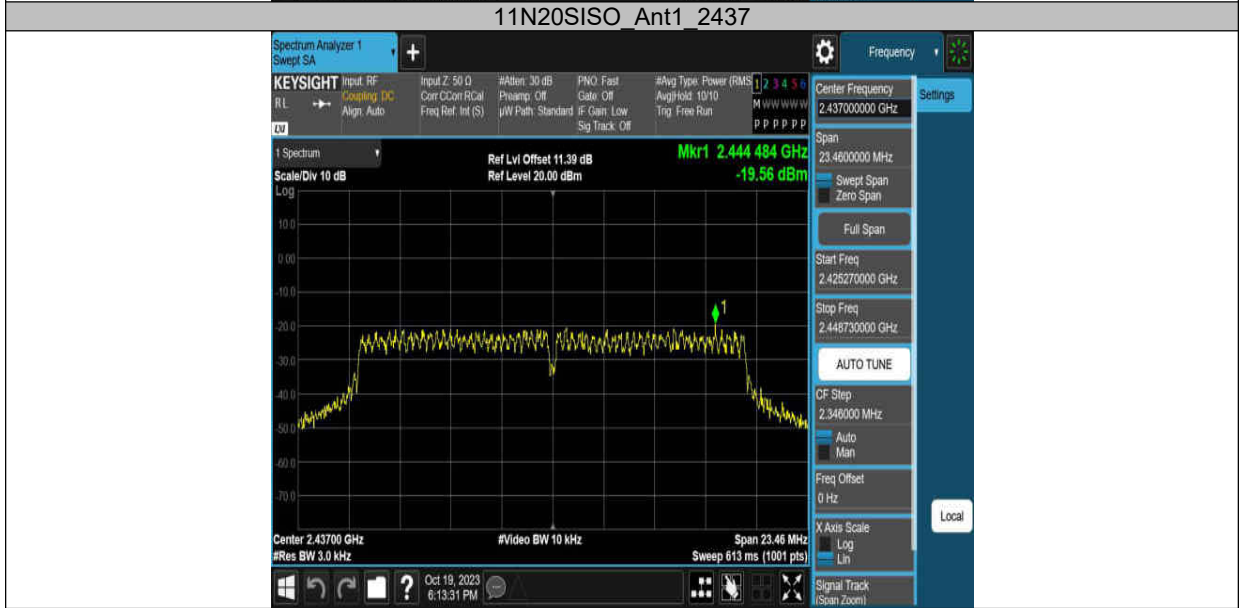
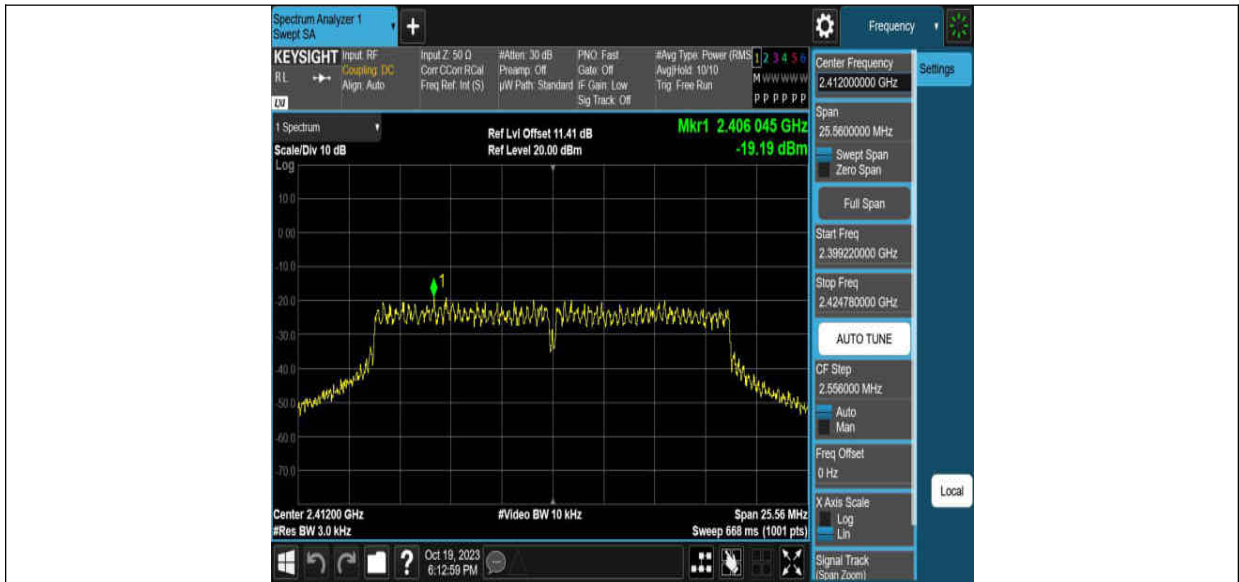
### 11.4. Results

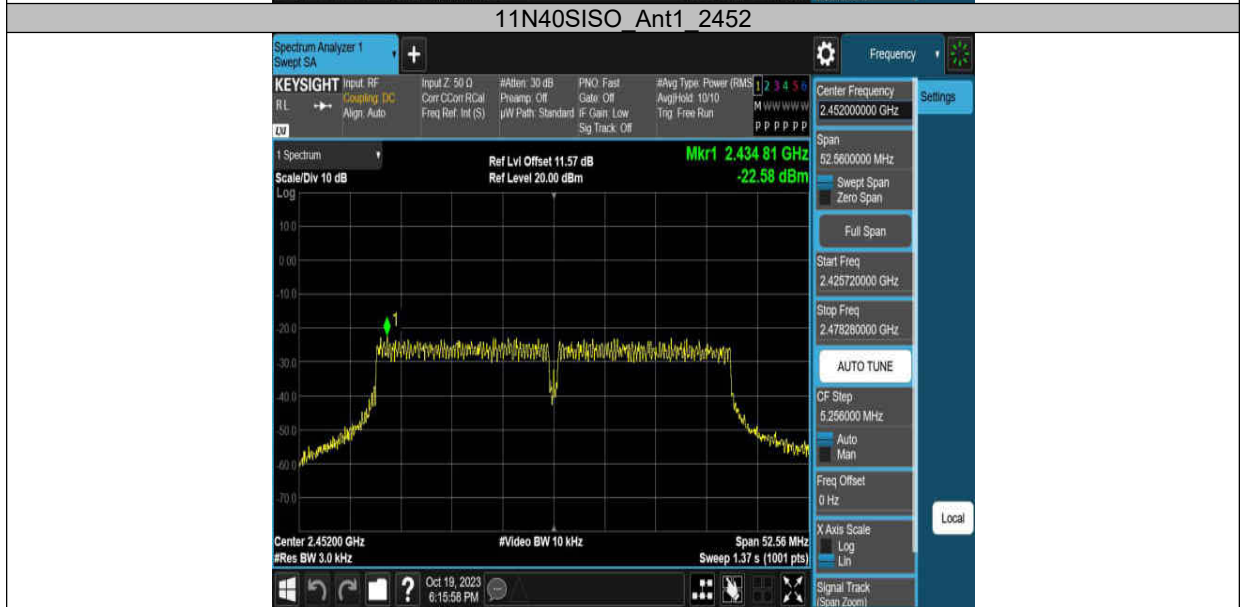
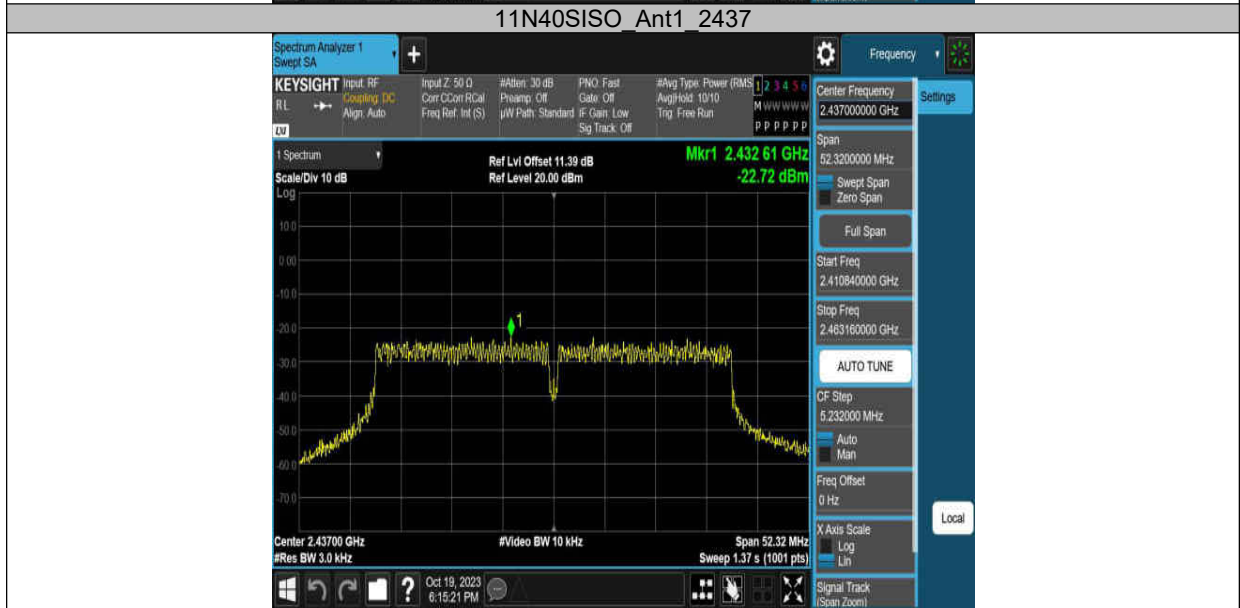
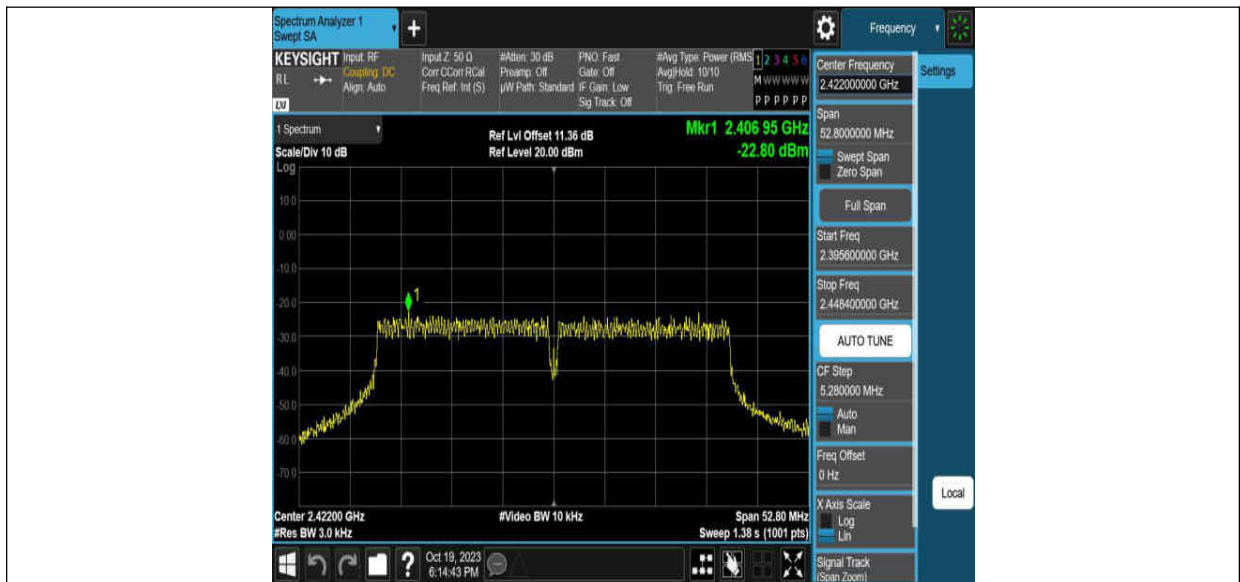
| Test Mode  | Ant. | Freq. (MHz) | Result (dBm/3-100kHz) | Limit (dBm/3kHz) | Verdict |
|------------|------|-------------|-----------------------|------------------|---------|
| 11B        | Ant1 | 2412        | -14.15                | $\leq 8.00$      | PASS    |
|            |      | 2437        | -14.4                 | $\leq 8.00$      | PASS    |
|            |      | 2462        | -13.41                | $\leq 8.00$      | PASS    |
| 11G        | Ant1 | 2412        | -20.92                | $\leq 8.00$      | PASS    |
|            |      | 2437        | -18.96                | $\leq 8.00$      | PASS    |
|            |      | 2462        | -20.17                | $\leq 8.00$      | PASS    |
| 11N20SISO  | Ant1 | 2412        | -19.19                | $\leq 8.00$      | PASS    |
|            |      | 2437        | -19.56                | $\leq 8.00$      | PASS    |
|            |      | 2462        | -18.65                | $\leq 8.00$      | PASS    |
| 11N40SISO  | Ant1 | 2422        | -22.81                | $\leq 8.00$      | PASS    |
|            |      | 2437        | -22.72                | $\leq 8.00$      | PASS    |
|            |      | 2452        | -22.58                | $\leq 8.00$      | PASS    |
| 11AX20SISO | Ant1 | 2412        | -23.3                 | $\leq 8.00$      | PASS    |
|            |      | 2437        | -22.46                | $\leq 8.00$      | PASS    |
|            |      | 2462        | -21.16                | $\leq 8.00$      | PASS    |
| 11AX40SISO | Ant1 | 2422        | -25.37                | $\leq 8.00$      | PASS    |
|            |      | 2437        | -24.89                | $\leq 8.00$      | PASS    |
|            |      | 2452        | -25.52                | $\leq 8.00$      | PASS    |

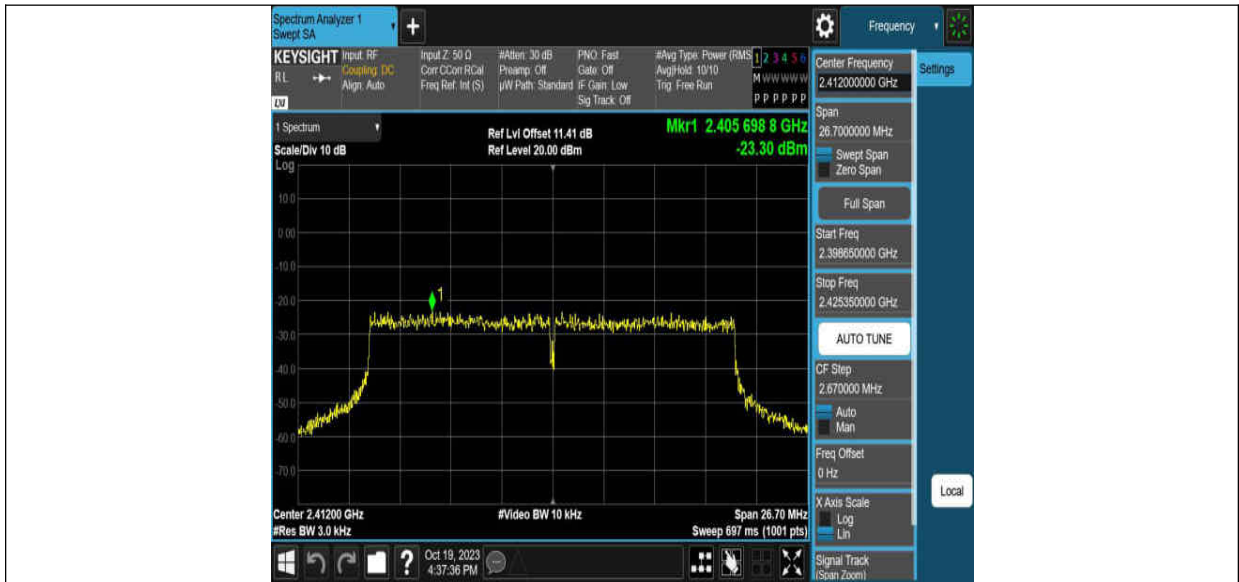
### 11.5. Original test data

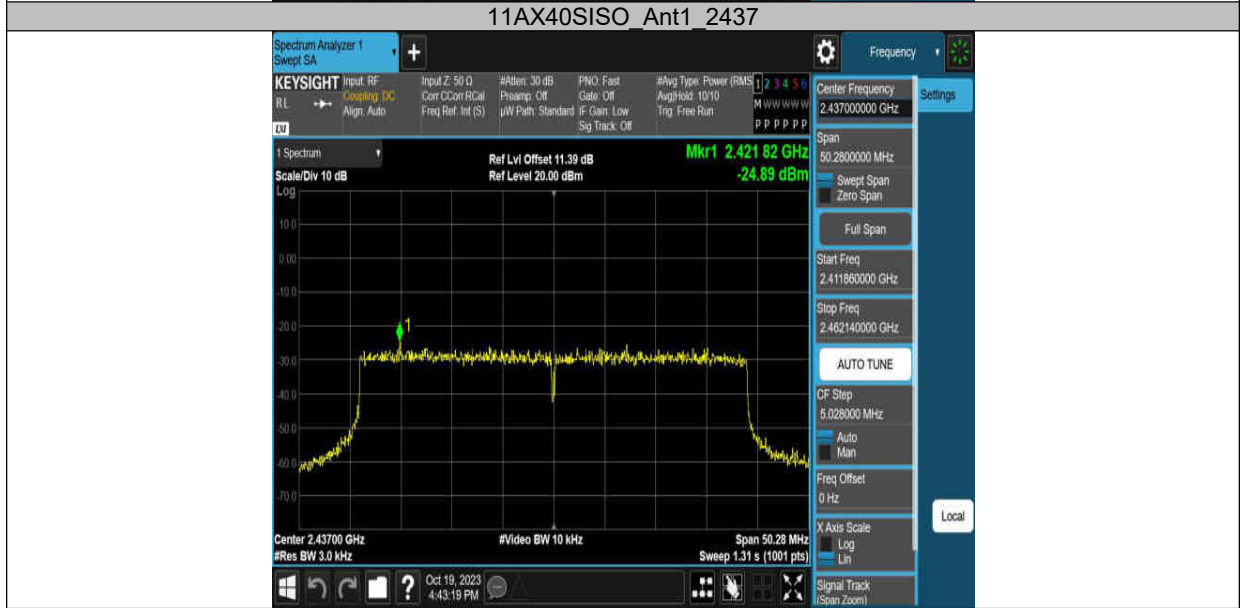
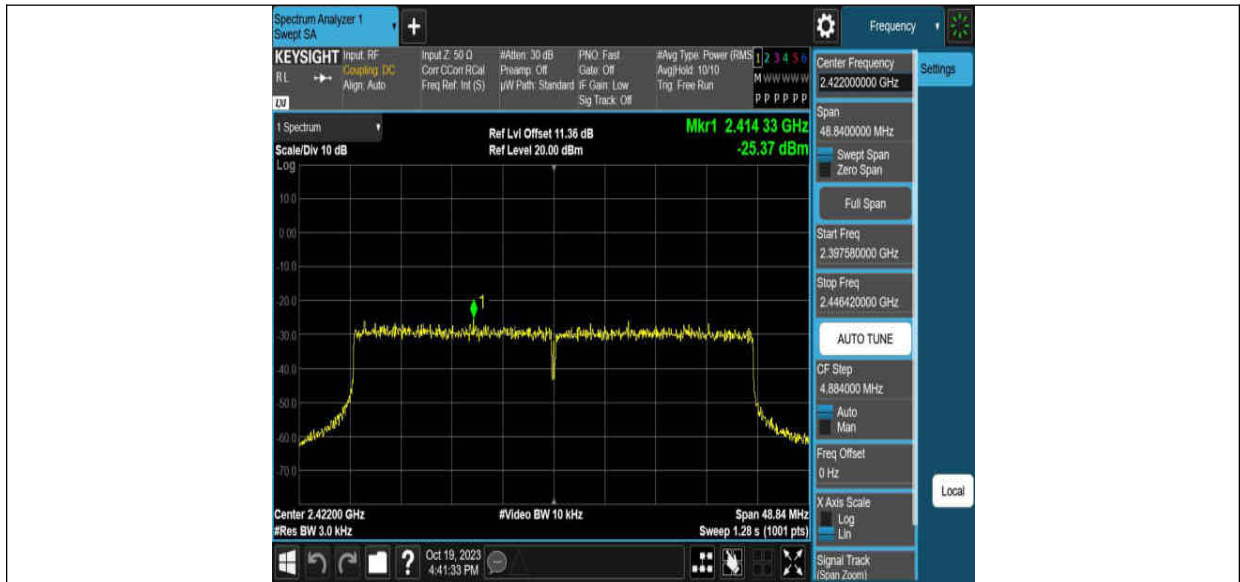














## 12. Conducted Band edge and Spurious Emissions

### 12.1. Block diagram of test setup

Same as section 8.1

### 12.2. Limits

| CFR 47 FCC Part15 (15.247) Subpart C |  |   |
|--------------------------------------|--|---|
| Section                              | Test Item                                  | Limit   |
| CFR 47 FCC §15.247 (d)               | Conducted Band edge and Spurious Emissions | at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power |

### 12.3. Test Procedure

|                  |  |
|------------------|--|
| Center Frequency | The centre frequency of the channel under test |
| Detector         | Peak   |
| RBW              | 100 kHz  |
| VBW              | $\geq 3 \times \text{RBW}$                     |
| Span             | 1.5 x DTS bandwidth                            |
| Trace            | Max hold                                       |
| Sweep time       | Auto couple.                                   |

Connect the UUT to the spectrum analyzer and use the following settings:

Use the peak marker function to determine the maximum PSD level.

|                    |   |
|--------------------|---|
| Span               | Set the center frequency and span to encompass frequency range to be measured |
| Detector           | Peak  |
| RBW                | 100 kHz   |
| VBW                | $\geq 3 \times \text{RBW}$  |
| measurement points | $\geq \text{span}/\text{RBW}$   |
| Trace              | Max hold  |
| Sweep time         | Auto couple.  |

Use the peak marker function to determine the maximum amplitude level.

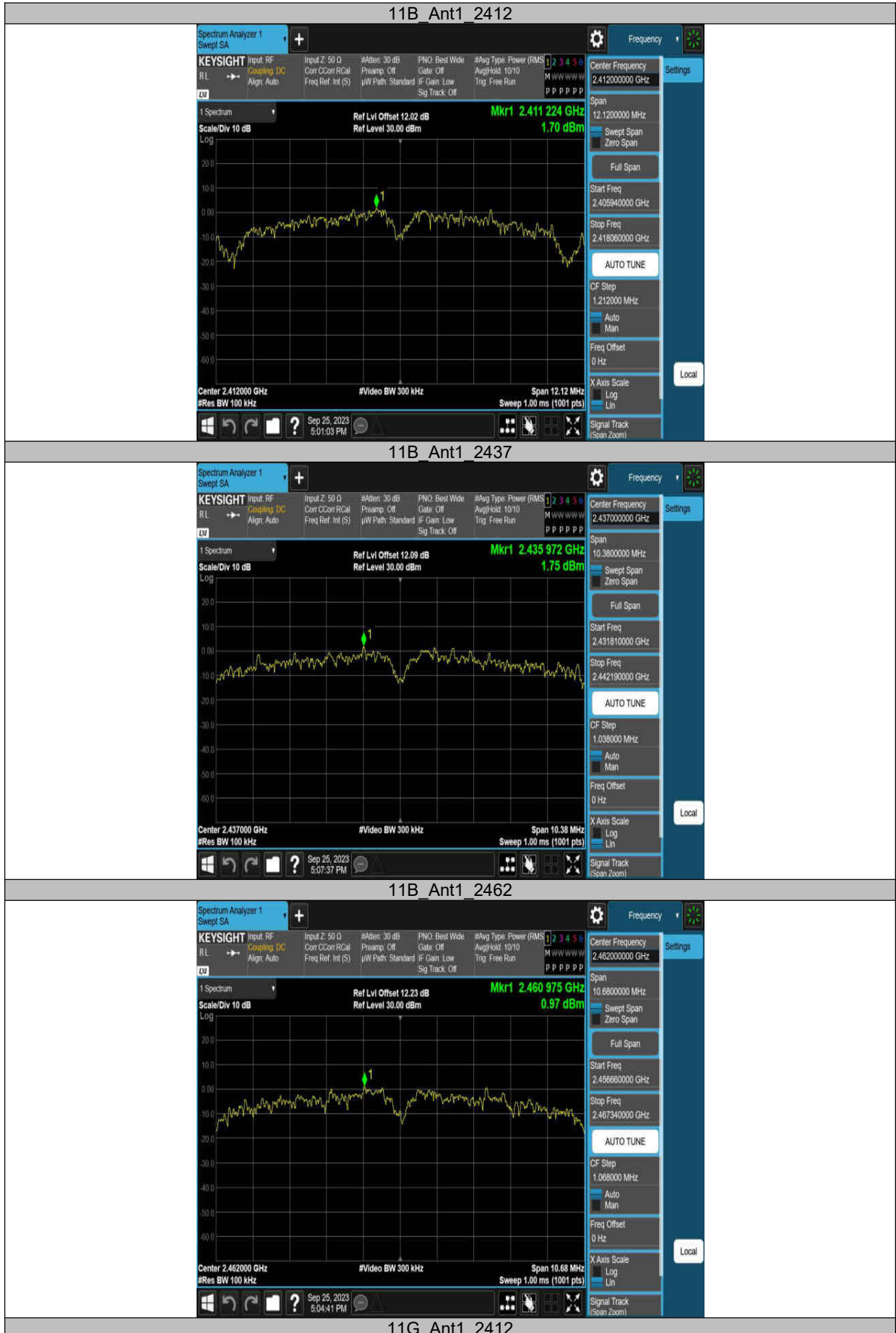
**12.4. Test result**

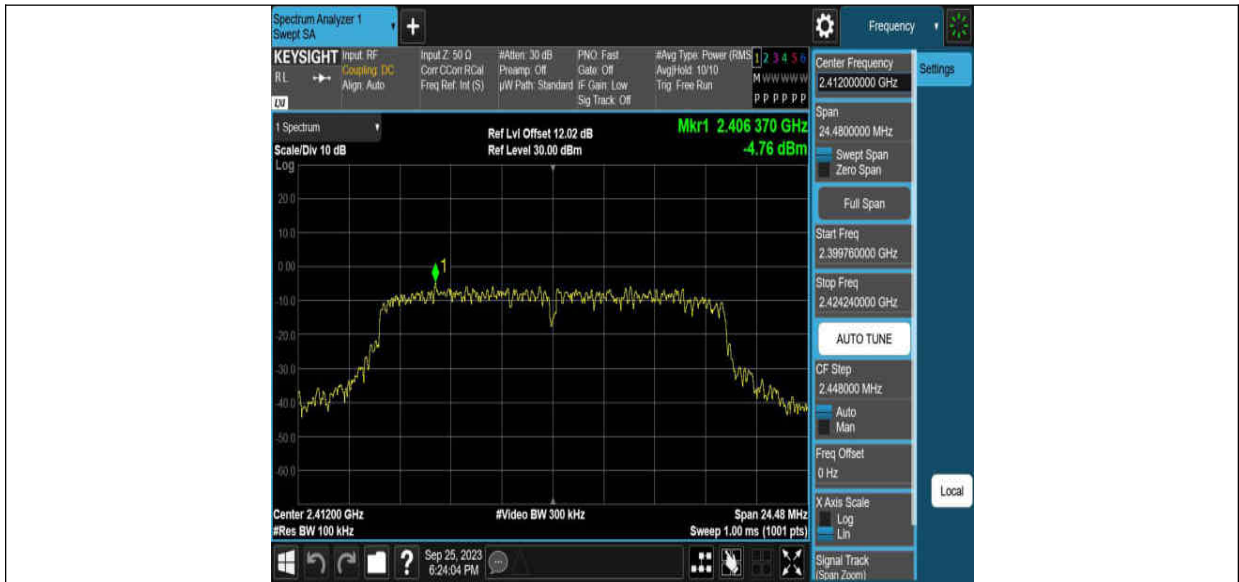
| Test Mode  | Ant. | Ch Name | Freq. (MHz) | Ref Level (dBm) | Result (dBm) | Limit (dBm) | Verdict |
|------------|------|---------|-------------|-----------------|--------------|-------------|---------|
| 11B        | Ant1 | Low     | 2412        | 1.70            | -43          | ≤-18.3      | PASS    |
|            |      | High    | 2462        | 0.97            | -48.71       | ≤-19.03     | PASS    |
| 11G        | Ant1 | Low     | 2412        | -4.76           | -44.15       | ≤-24.76     | PASS    |
|            |      | High    | 2462        | -0.72           | -47.46       | ≤-20.72     | PASS    |
| 11N20SISO  | Ant1 | Low     | 2412        | -2.33           | -37.29       | ≤-22.33     | PASS    |
|            |      | High    | 2462        | -4.56           | -48.86       | ≤-24.56     | PASS    |
| 11N40SISO  | Ant1 | Low     | 2422        | -4.52           | -39.89       | ≤-24.52     | PASS    |
|            |      | High    | 2452        | -6.15           | -43.73       | ≤-26.15     | PASS    |
| 11AX20SISO | Ant1 | Low     | 2412        | -3.06           | -38.65       | ≤-23.06     | PASS    |
|            |      | High    | 2462        | -2.77           | -49.17       | ≤-22.77     | PASS    |
| 11AX40SISO | Ant1 | Low     | 2422        | -4.53           | -41.35       | ≤-24.53     | PASS    |
|            |      | High    | 2452        | -4.92           | -45.64       | ≤-24.92     | PASS    |

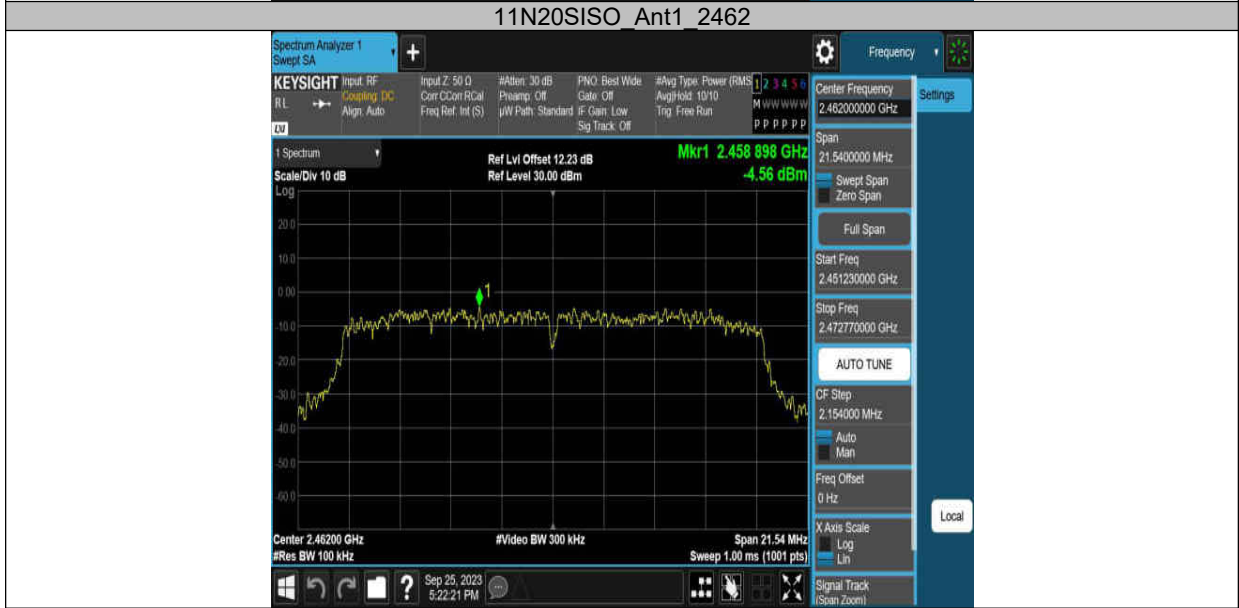
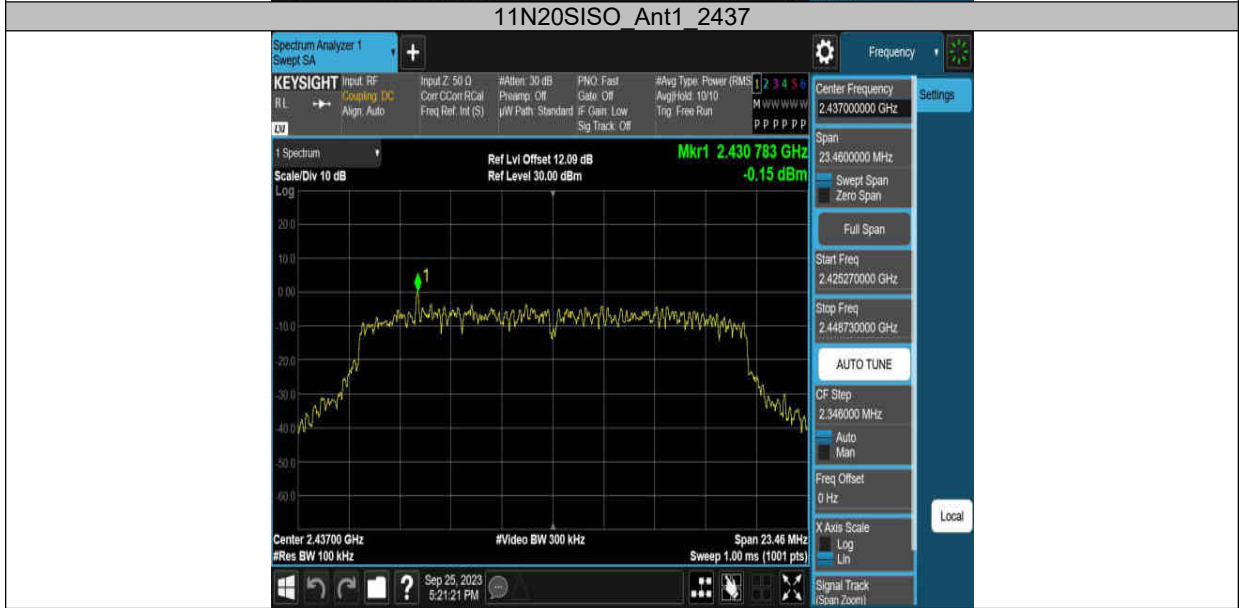
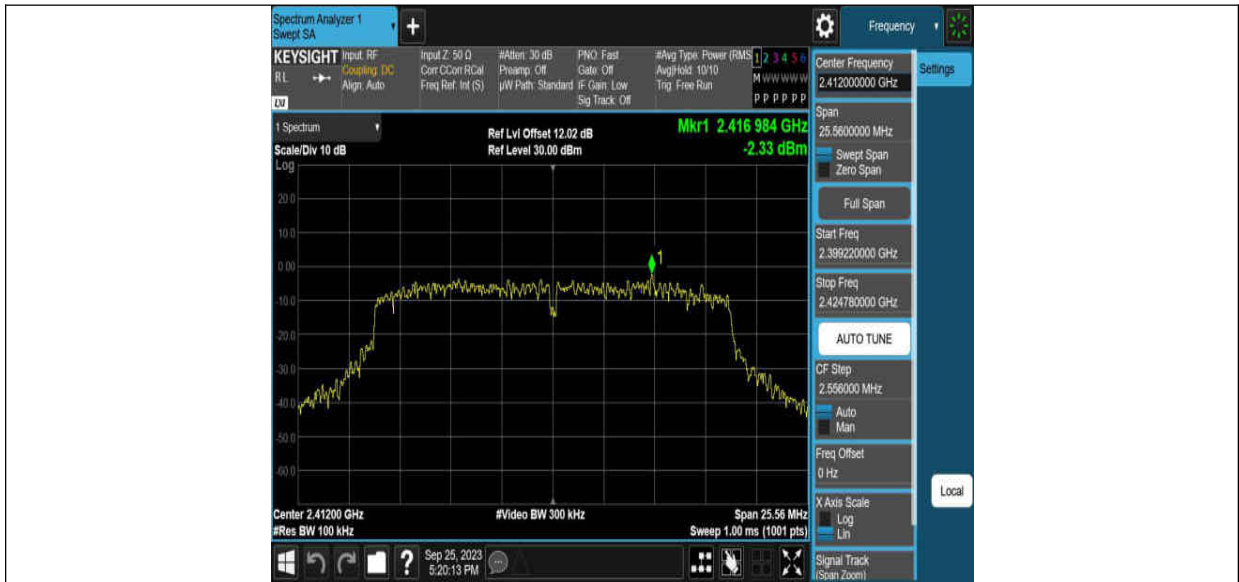
| Test Mode  | Ant. | Freq. (MHz) | Freq Range (Mhz) | Ref Level (dBm) | Result (dBm) | Limit (dBm) | Verdict |
|------------|------|-------------|------------------|-----------------|--------------|-------------|---------|
| 11B        | Ant1 | 2412        | 30~1000          | 5.43            | -60.65       | ≤-14.57     | PASS    |
|            |      |             | 1000~26500       | 5.43            | -48          | ≤-14.57     | PASS    |
|            |      | 2437        | 30~1000          | 1.75            | -60.94       | ≤-18.25     | PASS    |
|            |      |             | 1000~26500       | 1.75            | -50.75       | ≤-18.25     | PASS    |
| 11G        | Ant1 | 2462        | 30~1000          | 0.97            | -59.82       | ≤-19.03     | PASS    |
|            |      |             | 1000~26500       | 0.97            | -50.66       | ≤-19.03     | PASS    |
|            |      | 2412        | 30~1000          | -3.29           | -60.24       | ≤-23.29     | PASS    |
|            |      |             | 1000~26500       | -3.29           | -48.87       | ≤-23.29     | PASS    |
| 11N20SISO  | Ant1 | 2437        | 30~1000          | -0.44           | -59.94       | ≤-20.44     | PASS    |
|            |      |             | 1000~26500       | -0.44           | -48.68       | ≤-20.44     | PASS    |
|            |      | 2462        | 30~1000          | -0.72           | -60.24       | ≤-20.72     | PASS    |
|            |      |             | 1000~26500       | -0.72           | -48.41       | ≤-20.72     | PASS    |
| 11N40SISO  | Ant1 | 2412        | 30~1000          | -2.33           | -60.64       | ≤-22.33     | PASS    |
|            |      |             | 1000~26500       | -2.33           | -48.6        | ≤-22.33     | PASS    |
|            |      | 2437        | 30~1000          | -0.15           | -60.35       | ≤-20.15     | PASS    |
|            |      |             | 1000~26500       | -0.15           | -48.6        | ≤-20.15     | PASS    |
| 11AX20SISO | Ant1 | 2462        | 30~1000          | -4.56           | -60.4        | ≤-24.56     | PASS    |
|            |      |             | 1000~26500       | -4.56           | -48.2        | ≤-24.56     | PASS    |
|            |      | 2422        | 30~1000          | -4.52           | -59.96       | ≤-24.52     | PASS    |
|            |      |             | 1000~26500       | -4.52           | -49.58       | ≤-24.52     | PASS    |
| 11AX40SISO | Ant1 | 2437        | 30~1000          | -4.34           | -61.15       | ≤-24.34     | PASS    |
|            |      |             | 1000~26500       | -4.34           | -49.9        | ≤-24.34     | PASS    |
|            |      | 2452        | 30~1000          | -6.15           | -60.05       | ≤-26.15     | PASS    |
|            |      |             | 1000~26500       | -6.15           | -49.19       | ≤-26.15     | PASS    |
| 11AX20SISO | Ant1 | 2412        | 30~1000          | -3.06           | -58.9        | ≤-23.06     | PASS    |
|            |      |             | 1000~26500       | -3.06           | -48.23       | ≤-23.06     | PASS    |
|            |      | 2437        | 30~1000          | -0.05           | -59.87       | ≤-20.05     | PASS    |
|            |      |             | 1000~26500       | -0.05           | -49.51       | ≤-20.05     | PASS    |
| 11AX40SISO | Ant1 | 2462        | 30~1000          | -2.77           | -60.9        | ≤-22.77     | PASS    |
|            |      |             | 1000~26500       | -2.77           | -48.98       | ≤-22.77     | PASS    |
|            |      | 2422        | 30~1000          | -4.53           | -59.5        | ≤-24.53     | PASS    |
|            |      |             | 1000~26500       | -4.53           | -48.88       | ≤-24.53     | PASS    |
| 11AX20SISO | Ant1 | 2437        | 30~1000          | -5.64           | -61.54       | ≤-25.64     | PASS    |
|            |      |             | 1000~26500       | -5.64           | -49.64       | ≤-25.64     | PASS    |
|            |      | 2452        | 30~1000          | -4.92           | -60.01       | ≤-24.92     | PASS    |
|            |      |             | 1000~26500       | -4.92           | -49.73       | ≤-24.92     | PASS    |

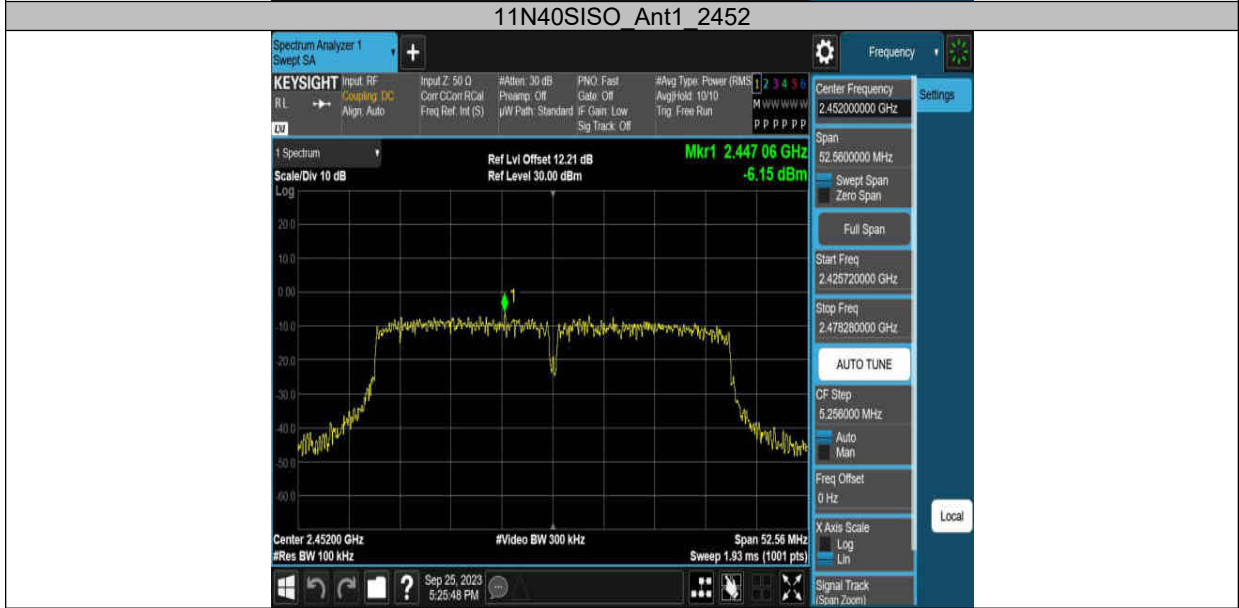
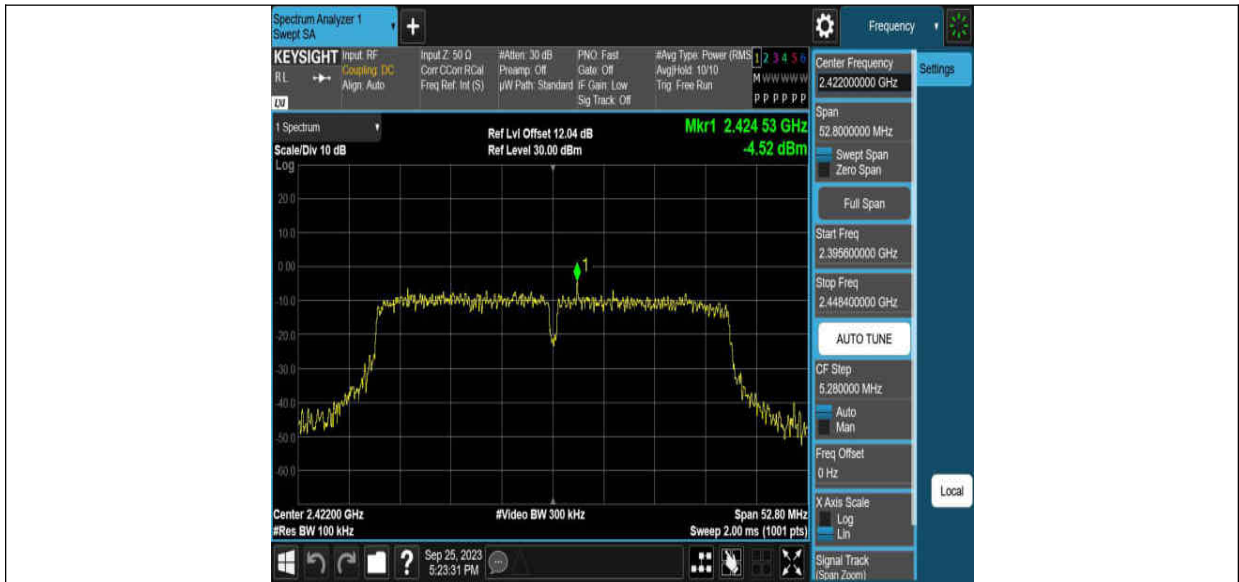
## 12.5. Original test data

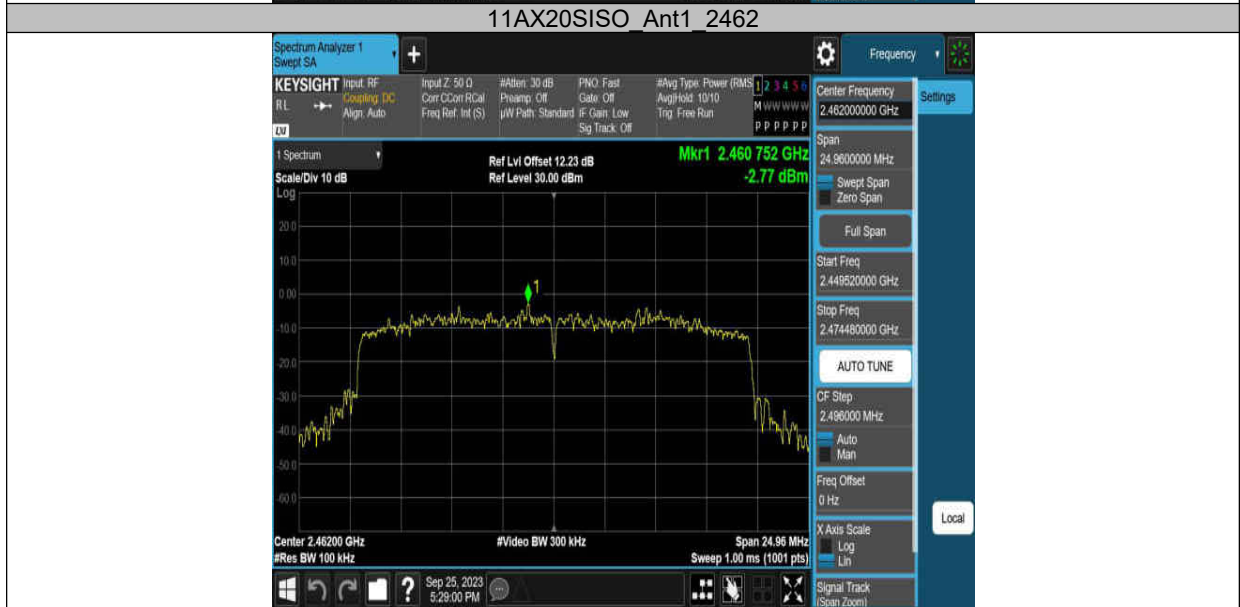
Reference level







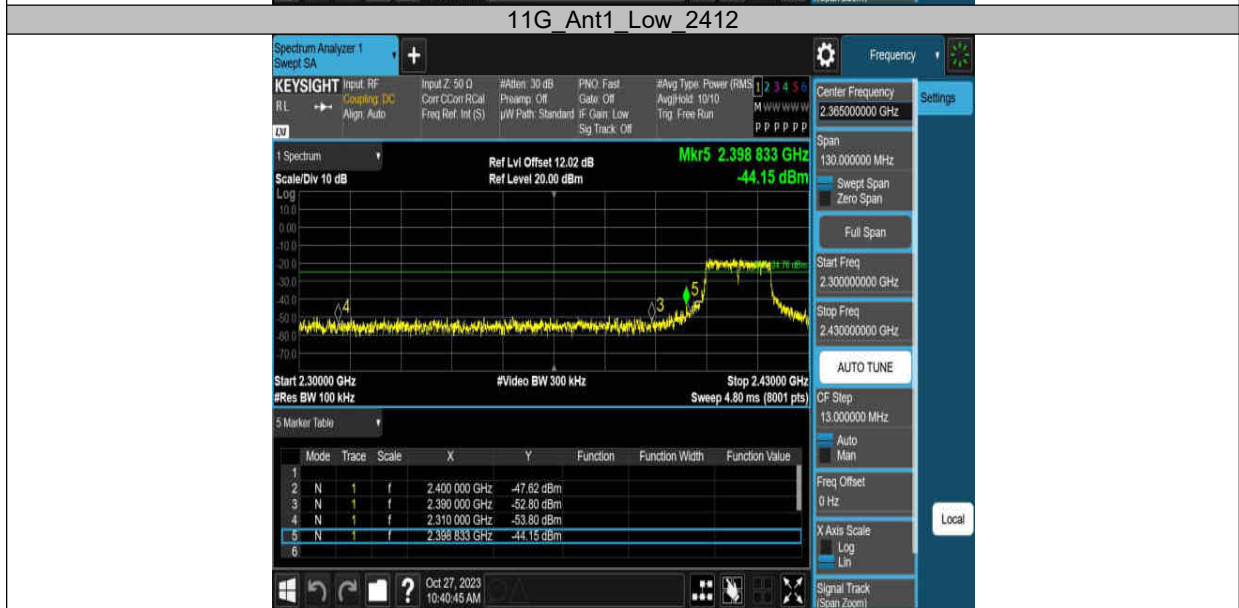
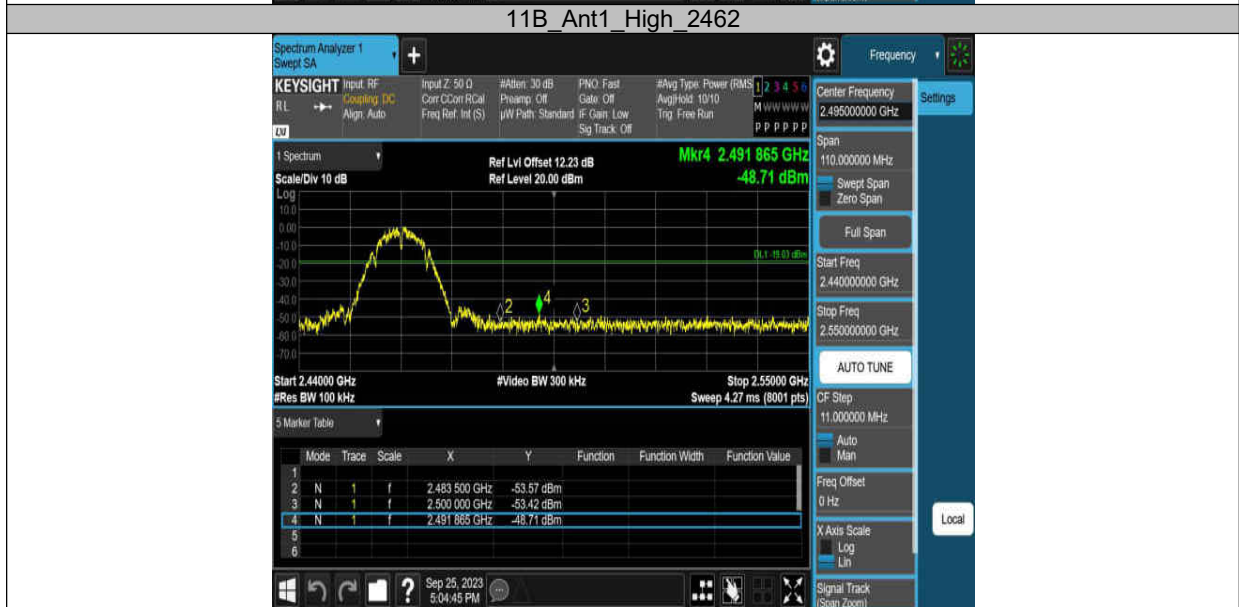
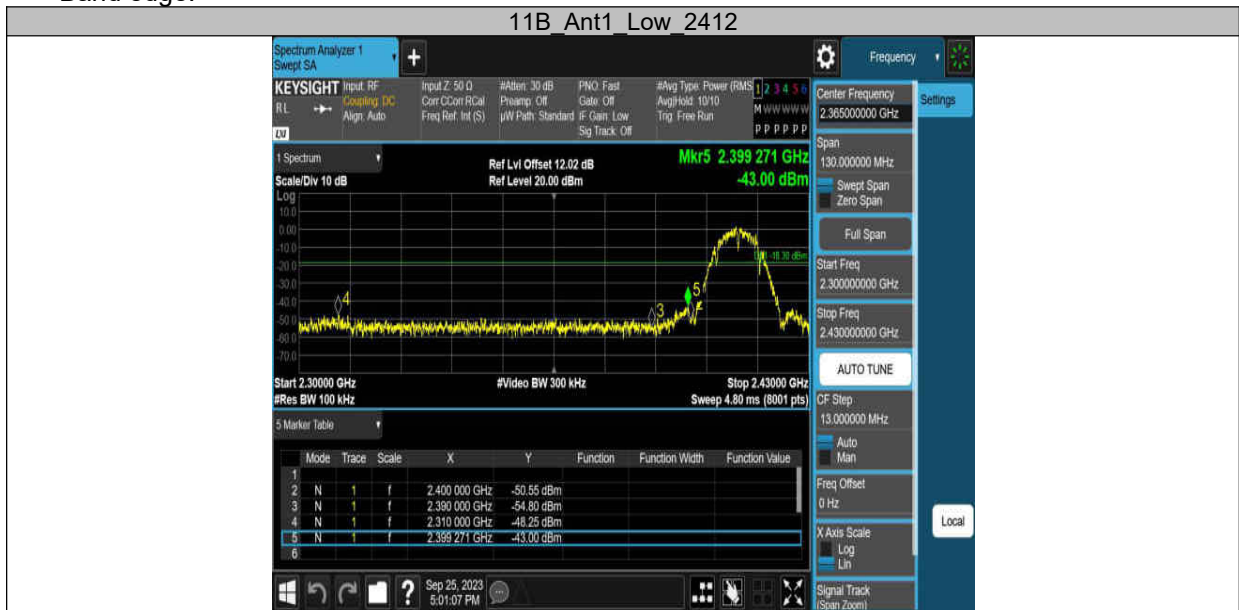




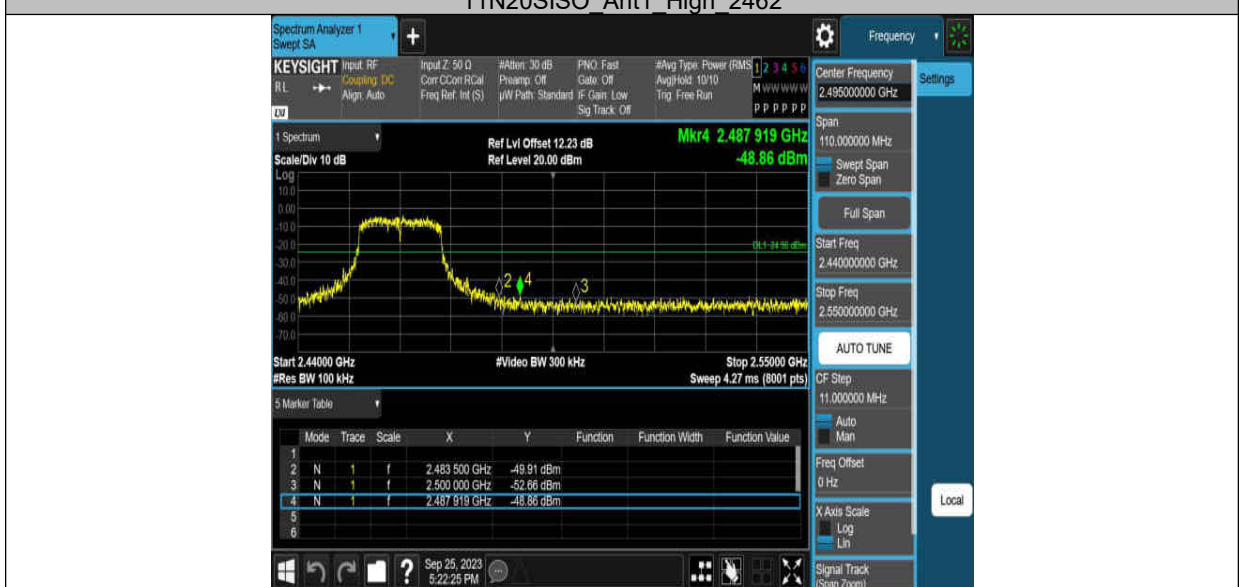


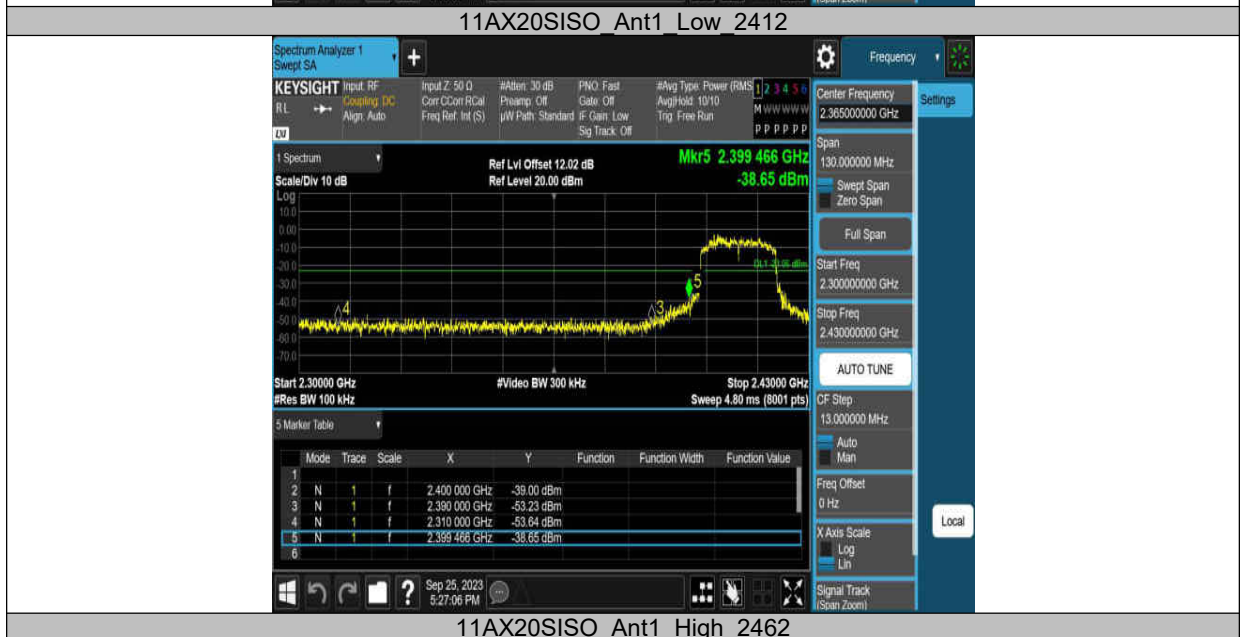
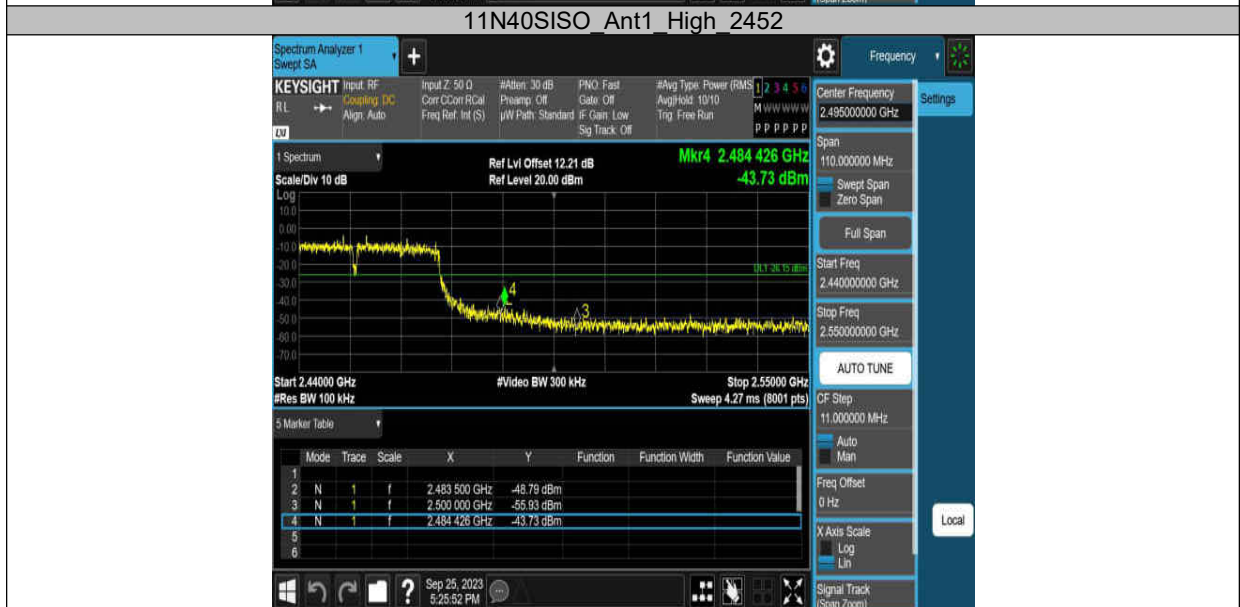


Band edge:



11G\_Ant1\_High\_2462







Spurious Emission:

