

# TEST REPORT

**FCC ID: 2AXYP-OSW-833N****Product: Smart Watch****Model No.: OSW-833N****Trade Mark: oraimo****Report No.: WSCT-ANAB-R&E260100003A-BT****Issued Date: 12 January 2026****Issued for:**

**ORAIMO TECHNOLOGY LIMITED  
FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE 19-25  
SHAN MEI STREET FOTAN NT HONGKONG**

**Issued By:**

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Revised: None

## 1. Test Certification

|                              |                                                                                                                                |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| <b>Product:</b>              | Smart Watch                                                                                                                    |
| <b>Model No.:</b>            | OSW-833N                                                                                                                       |
| <b>Trade Mark:</b>           | oraimo                                                                                                                         |
| <b>Applicant:</b>            | <b>ORAIMO TECHNOLOGY LIMITED</b><br>FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE<br>19-25 SHAN MEI STREET FOTAN NT HONGKONG |
| <b>Manufacturer:</b>         | <b>ORAIMO TECHNOLOGY LIMITED</b><br>FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE<br>19-25 SHAN MEI STREET FOTAN NT HONGKONG |
| <b>Date of Test:</b>         | 03 December 2025 ~ 12 January 2026                                                                                             |
| <b>Applicable Standards:</b> | FCC CFR Title 47 Part 15 Subpart C Section 15.247<br>ANSI C63.10:2020                                                          |

The above equipment has been tested by World Standardization Certification & Testing Group(Shenzhen)Co., Ltd. and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Tested By: \_\_\_\_\_

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Chen Xu

(Chen Xu)

Approved By: \_\_\_\_\_

Qin Shuiquan

(Qin Shuiquan)

Date: \_\_\_\_\_

12 January 2026



## 2. Test Result Summary

| Requirement                      | CFR 47 Section                      | Result |
|----------------------------------|-------------------------------------|--------|
| Antenna Requirement              | §15.203/§15.247 (c)                 | PASS   |
| AC Power Line Conducted Emission | §15.207                             | NA     |
| Conducted Peak Output Power      | §15.247 (b)(1)<br>§2.1046           | PASS   |
| 20dB Occupied Bandwidth          | §15.247 (a)(1)<br>§2.1049           | PASS   |
| Carrier Frequencies Separation   | §15.247 (a)(1)                      | PASS   |
| Hopping Channel Number           | §15.247 (a)(1)                      | PASS   |
| Dwell Time                       | §15.247 (a)(1)                      | PASS   |
| Radiated Emission                | §15.205/§15.209<br>§2.1053, §2.1057 | PASS   |
| Band Edge                        | §15.247(d)<br>§2.1051, §2.1057      | PASS   |

### Note:

1. PASS: Test item meets the requirement.
2. Fail: Test item does not meet the requirement.
3. N/A: Test case does not apply to the test object.
4. The test result judgment is decided by the limit of test standard.

### 3. EUT Description

|                        |                                                                                                   |
|------------------------|---------------------------------------------------------------------------------------------------|
| Product Name:          | Smart Watch                                                                                       |
| Model :                | OSW-833N                                                                                          |
| Trade Mark:            | oraimo                                                                                            |
| Operation Frequency:   | 2402MHz~2480MHz                                                                                   |
| Channel Separation:    | 1MHz                                                                                              |
| Number of Channel:     | 79                                                                                                |
| Modulation Type:       | GFSK, $\pi/4$ -DQPSK, 8-DPSK                                                                      |
| Modulation Technology: | FHSS                                                                                              |
| Software Version       | V1.2.4                                                                                            |
| Hardware Version       | AB281_V02                                                                                         |
| Antenna Type:          | Integral Antenna                                                                                  |
| Antenna Gain:          | -3.74dBi                                                                                          |
| Operating Voltage      | Rechargeable Li-ion Polymer Battery: 451820<br>3.8V 190mAh 0.72Wh<br>Limited Charge Voltage:4.35V |
| Remark:                | N/A.                                                                                              |

### Operation Frequency each of channel for GFSK, $\pi/4$ -DQPSK, 8DPSK

| Channel | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
|---------|-----------|---------|-----------|---------|-----------|---------|-----------|
| 0       | 2402MHz   | 20      | 2422MHz   | 40      | 2442MHz   | 60      | 2462MHz   |
| 1       | 2403MHz   | 21      | 2423MHz   | 41      | 2443MHz   | 61      | 2463MHz   |
| ...     | ...       | ...     | ...       | ...     | ...       | ...     | ...       |
| 10      | 2412MHz   | 30      | 2432MHz   | 50      | 2452MHz   | 70      | 2472MHz   |
| 11      | 2413MHz   | 31      | 2433MHz   | 51      | 2453MHz   | 71      | 2473MHz   |
| ...     | ...       | ...     | ...       | ...     | ...       | ...     | ...       |
| 18      | 2420MHz   | 38      | 2440MHz   | 58      | 2460MHz   | 78      | 2480MHz   |
| 19      | 2421MHz   | 39      | 2441MHz   | 59      | 2461MHz   | -       | -         |

Remark: Channel 0, 39 & 78 have been tested for GFSK,  $\pi/4$ -DQPSK, 8DPSK modulation mode.

## 4. General Information

### 4.1. Test environment and mode

| Operating Environment:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| Temperature:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 25.0 °C                                                                                              |
| Humidity:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 56 % RH                                                                                              |
| Atmospheric Pressure:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1010 mbar                                                                                            |
| Test Mode:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                      |
| Engineering mode:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Keep the EUT in continuous transmitting by select channel and modulations with Fully-charged battery |
| The sample was placed 0.8m & 1.5m for the measurement below & above 1GHz above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages. |                                                                                                      |

### 4.2. Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| Equipment | Model No. | Serial No. | FCC ID | Trade Name |
|-----------|-----------|------------|--------|------------|
| Adapter   | XCU32     | /          | /      | /          |

**Note:**

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.
3. For conducted measurements (Output Power, 20dB Occupied Bandwidth, Carrier Frequencies Separation, Hopping Channel Number, Dwell Time, Spurious Emissions), the antenna of EUT is connected to the test equipment via temporary antenna connector, the antenna connector is soldered on the antenna port of EUT, and the temporary antenna connector is listed in the Test Instruments.

## 5. Facilities and Accreditations

### 5.1. Facilities

All measurement facilities used to collect the measurement data are located at **World Standardization Certification & Testing Group (Shenzhen) Co., Ltd. Building A-B, Baoli'an Industrial Park, No.58 and 60, Tangtou Avenue, Shiyan Street, Bao'an District, Shenzhen City, Guangdong Province, China**

The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

### 5.2. ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025:2017.

|        |                                    |
|--------|------------------------------------|
| USA    | ANAB - Certificate Number: AT-3951 |
| China  | CNAS (Registration Number: L3732)  |
| Canada | ISED (CAB identifier: CN0178)      |

Copies of granted accreditation certificates are available for downloading from our web site, <http://www.wsct-cert.com>

### 5.3. Measurement Uncertainty

The reported uncertainty of measurement  $y \pm U$ , where expanded uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately 95 %.

| No. | Item                           | MU                        |
|-----|--------------------------------|---------------------------|
| 1   | Conducted Emission Test        | $\pm 3.2\text{dB}$        |
| 2   | RF power, conducted            | $\pm 0.16\text{dB}$       |
| 3   | Spurious emissions, conducted  | $\pm 0.21\text{dB}$       |
| 4   | All emissions, radiated(<1GHz) | $\pm 4.7\text{dB}$        |
| 5   | All emissions, radiated(>1GHz) | $\pm 4.7\text{dB}$        |
| 6   | Temperature                    | $\pm 0.5^{\circ}\text{C}$ |
| 7   | Humidity                       | $\pm 2.0\%$               |

## 5.4. MEASUREMENT INSTRUMENTS

| NAME OF EQUIPMENT                    | MANUFACTURER           | MODEL        | SERIAL NUMBER | Calibration Date | Calibration Due. |
|--------------------------------------|------------------------|--------------|---------------|------------------|------------------|
| Test software                        | --                     | EZ-EMC       | CON-03A       | -                | -                |
| Test software                        | --                     | MTS8310      | --            | -                | -                |
| EMI Test Receiver                    | R&S                    | ESCI         | 100005        | 11/05/2025       | 11/04/2026       |
| LISN                                 | AFJ                    | LS16         | 16010222119   | 11/05/2025       | 11/04/2026       |
| LISN(EUT)                            | Mestec                 | AN3016       | 04/10040      | 11/05/2025       | 11/04/2026       |
| Universal Radio Communication Tester | R&S                    | CMU 200      | 1100.0008.02  | 11/05/2025       | 11/04/2026       |
| Coaxial cable                        | Megalon                | LMR400       | N/A           | 11/05/2025       | 11/04/2026       |
| GPIO cable                           | Megalon                | GPIO         | N/A           | 11/05/2025       | 11/04/2026       |
| Spectrum Analyzer                    | R&S                    | FSU          | 100114        | 11/05/2025       | 11/04/2026       |
| Pre Amplifier                        | H.P.                   | HP8447E      | 2945A02715    | 11/05/2025       | 11/04/2026       |
| Pre-Amplifier                        | CDSI                   | PAP-1G18-38  | --            | 11/05/2025       | 11/04/2026       |
| Bi-log Antenna                       | SCHWARZBECK            | VULB9168     | 01488         | 11/05/2025       | 11/04/2026       |
| 9*6*6 Anechoic                       | --                     | --           | --            | 11/05/2025       | 11/04/2026       |
| Horn Antenna                         | COMPLIANCE ENGINEERING | CE18000      | --            | 11/05/2025       | 11/04/2026       |
| Horn Antenna                         | SCHWARZBECK            | BBHA9120D    | 9120D-631     | 11/05/2025       | 11/04/2026       |
| Cable                                | TIME MICROWAVE         | LMR-400      | N-TYPE04      | 11/05/2025       | 11/04/2026       |
| System-Controller                    | CCS                    | N/A          | N/A           | N.C.R            | N.C.R            |
| Turn Table                           | CCS                    | N/A          | N/A           | N.C.R            | N.C.R            |
| Antenna Tower                        | CCS                    | N/A          | N/A           | N.C.R            | N.C.R            |
| RF cable                             | Murata                 | MXHQ87WA3000 | -             | 11/05/2025       | 11/04/2026       |
| Loop Antenna                         | EMCO                   | 6502         | 00042960      | 11/05/2025       | 11/04/2026       |
| Horn Antenna                         | SCHWARZBECK            | BBHA 9170    | 1123          | 11/05/2025       | 11/04/2026       |
| Power meter                          | Anritsu                | ML2487A      | 6K00003613    | 11/05/2025       | 11/04/2026       |
| Power sensor                         | Anritsu                | MX248XD      | --            | 11/05/2025       | 11/04/2026       |
| Spectrum Analyzer                    | Keysight               | N9010B       | MY60241089    | 11/05/2025       | 11/04/2026       |

## 6. Test Results and Measurement Data

### 6.1. Antenna requirement

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| <b>Standard requirement:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | FCC Part15 C Section 15.203 /247(c) |
| <p>15.203 requirement:<br/>An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.</p> <p>15.247(c) (1)(i) requirement:<br/>(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.</p> |                                     |
| <b>E.U.T Antenna:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                     |
| <p>The Bluetooth antenna is a Integral Antenna. it meets the standards, and the best case gain of the antenna is -3.74dBi.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                     |
| <p>Please refer to the attachment "OSW-833N" Internal Photo" for the antenna location</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                     |

## 6.2. Conducted Emission

### 6.2.1. Test Specification

| Test Requirement:     | FCC Part15 C Section 15.207                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                       |              |  |            |         |          |           |           |       |    |    |      |    |    |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------|--|------------|---------|----------|-----------|-----------|-------|----|----|------|----|----|
| Test Method:          | ANSI C63.10:2020                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                       |              |  |            |         |          |           |           |       |    |    |      |    |    |
| Frequency Range:      | 150 kHz to 30 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                       |              |  |            |         |          |           |           |       |    |    |      |    |    |
| Receiver setup:       | RBW=9 kHz, VBW=30 kHz, Sweep time=auto                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                       |              |  |            |         |          |           |           |       |    |    |      |    |    |
| Limits:               | <table><tr><th rowspan="2">Frequency range (MHz)</th><th colspan="2">Limit (dBuV)</th></tr><tr><th>Quasi-peak</th><th>Average</th></tr><tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr><tr><td>0.5-5</td><td>56</td><td>46</td></tr><tr><td>5-30</td><td>60</td><td>50</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                 | Frequency range (MHz) | Limit (dBuV) |  | Quasi-peak | Average | 0.15-0.5 | 66 to 56* | 56 to 46* | 0.5-5 | 56 | 46 | 5-30 | 60 | 50 |
| Frequency range (MHz) | Limit (dBuV)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                       |              |  |            |         |          |           |           |       |    |    |      |    |    |
|                       | Quasi-peak                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Average               |              |  |            |         |          |           |           |       |    |    |      |    |    |
| 0.15-0.5              | 66 to 56*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 56 to 46*             |              |  |            |         |          |           |           |       |    |    |      |    |    |
| 0.5-5                 | 56                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 46                    |              |  |            |         |          |           |           |       |    |    |      |    |    |
| 5-30                  | 60                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 50                    |              |  |            |         |          |           |           |       |    |    |      |    |    |
| Test Setup:           | <div><p>Reference Plane</p><p>40cm 80cm</p><p>E.U.T AC power LISN Filter AC power EMI Receiver</p><p>Test table/Insulation plane</p><p>Remark<br/>E.U.T: Equipment Under Test<br/>LISN: Line Impedance Stabilization Network<br/>Test table height=0.8m</p></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                       |              |  |            |         |          |           |           |       |    |    |      |    |    |
| Test Mode:            | Refer to item 4.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                       |              |  |            |         |          |           |           |       |    |    |      |    |    |
| Test Procedure:       | <ol style="list-style-type: none"><li>1. The E.U.T is connected to an adapter through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment.</li><li>2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).</li><li>3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10:2020 on conducted measurement.</li></ol> |                       |              |  |            |         |          |           |           |       |    |    |      |    |    |
| Test Result:          | NA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                       |              |  |            |         |          |           |           |       |    |    |      |    |    |

## 6.2.2. EUT OPERATING CONDITIONS

The EUT is working in the Normal link mode. All modes have been tested and normal link mode is worst.

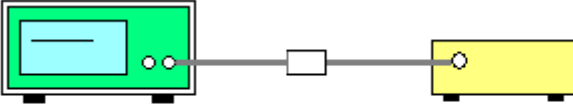
Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 60 Hz and 240 VAC, 50 Hz) for which the device is capable of operation. So, The configuration 120 VAC, 60 Hz and 240 VAC, 50 Hz were tested respectively, but only the worst configuration (120 VAC, 60 Hz) shown here.

### Test data:

Note: EUT is powered by batteries and cannot transmit normally while charging. This project does not require testing

### 6.3. Conducted Output Power

#### 6.3.1. Test Specification

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Test Requirement:</b> | FCC Part15 C Section 15.247 (b)(3)                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Test Method:</b>      | ANSI C63.10:2020                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Limit:</b>            | Section 15.247 (b) The maximum peak conducted output power of the intentional radiator shall not exceed the following: (1) For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band 0.125 watts.                           |
| <b>Test Setup:</b>       |  <p style="text-align: center;">Spectrum Analyzer                      EUT</p>                                                                                                                                                                                                                                                                       |
| <b>Test Mode:</b>        | Transmitting mode with modulation                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Test Procedure:</b>   | <p>Use the following spectrum analyzer settings:</p> <p>Span = approximately 5 times the 20 dB bandwidth, centered on a hopping channel</p> <p>RBW &gt; the 20 dB bandwidth of the emission being measured</p> <p>VBW ≥ RBW</p> <p>Sweep = auto</p> <p>Detector function = peak</p> <p>Trace = max hold</p> <p>Allow the trace to stabilize.</p> <p>Use the marker-to-peak function to set the marker to the peak of the emission.</p> |
| <b>Test Result:</b>      | PASS                                                                                                                                                                                                                                                                                                                                                                                                                                   |

**6.3.2. Test Data**

| GFSK mode    |                         |             |        |
|--------------|-------------------------|-------------|--------|
| Test channel | Peak Output Power (dBm) | Limit (dBm) | Result |
| Lowest       | 6.82                    | 20.97       | PASS   |
| Middle       | 7.14                    | 20.97       | PASS   |
| Highest      | 6.83                    | 20.97       | PASS   |

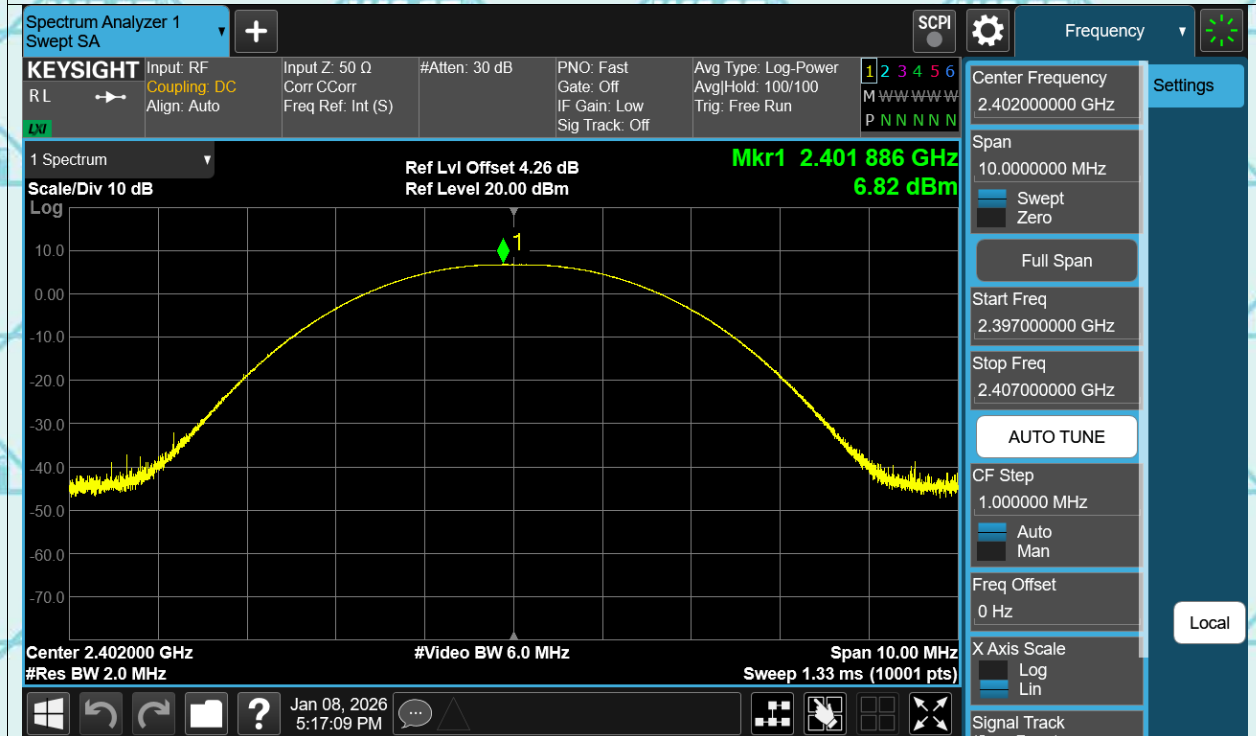
| Pi/4DQPSK mode |                         |             |        |
|----------------|-------------------------|-------------|--------|
| Test channel   | Peak Output Power (dBm) | Limit (dBm) | Result |
| Lowest         | 6.83                    | 20.97       | PASS   |
| Middle         | 7.17                    | 20.97       | PASS   |
| Highest        | 6.92                    | 20.97       | PASS   |

| 8DPSK mode   |                         |             |        |
|--------------|-------------------------|-------------|--------|
| Test channel | Peak Output Power (dBm) | Limit (dBm) | Result |
| Lowest       | 6.88                    | 20.97       | PASS   |
| Middle       | 7.27                    | 20.97       | PASS   |
| Highest      | 6.93                    | 20.97       | PASS   |

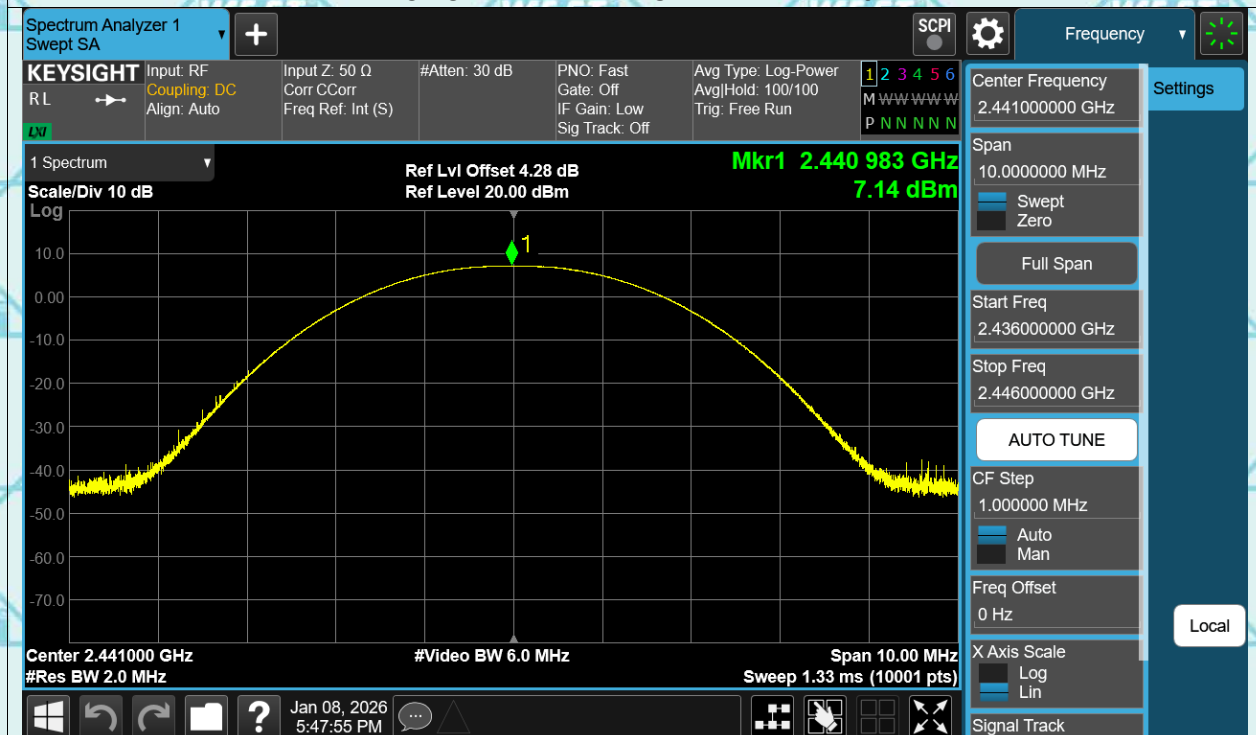
Test plots as follows:

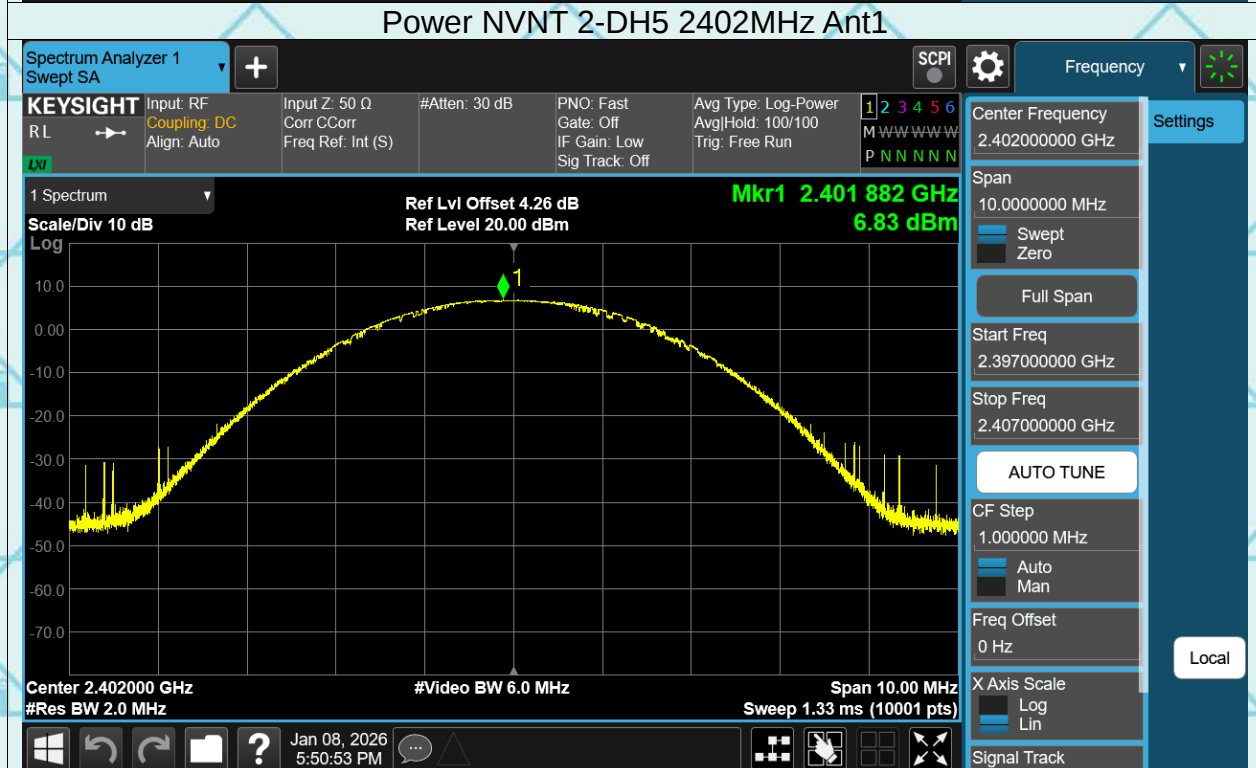
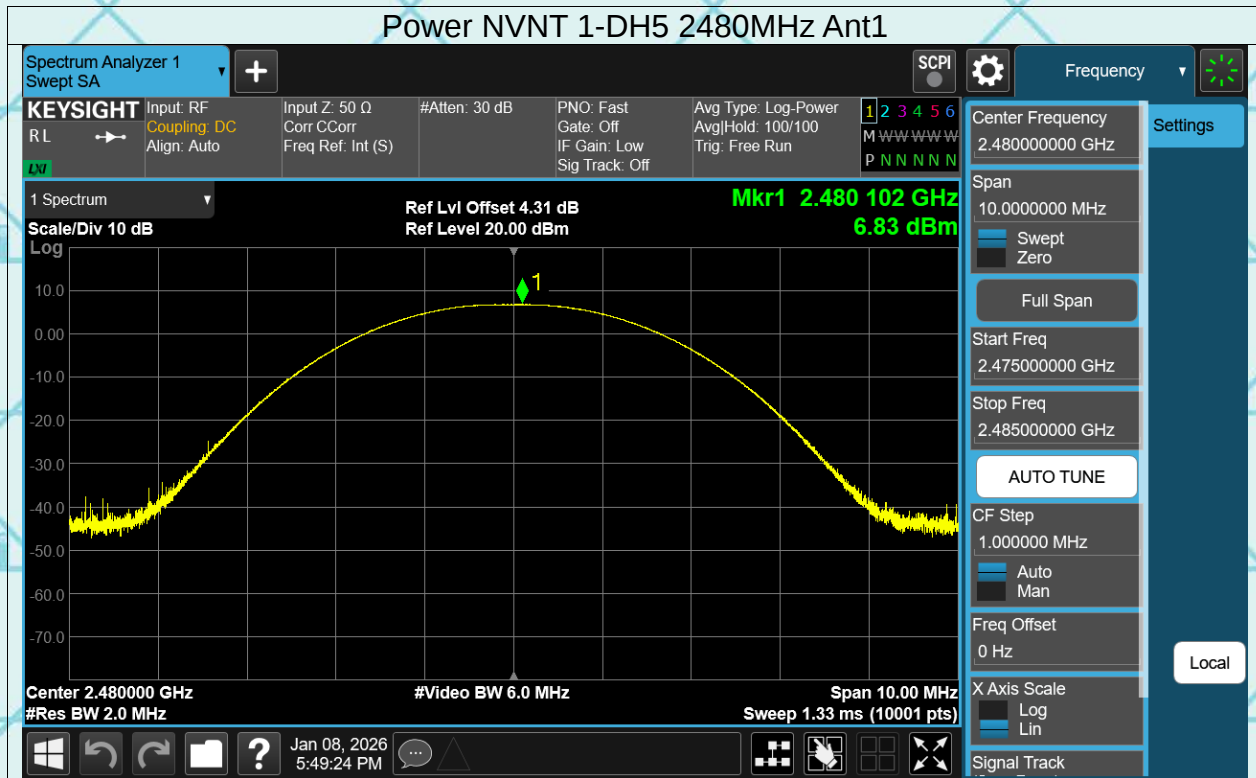
## Test Graphs

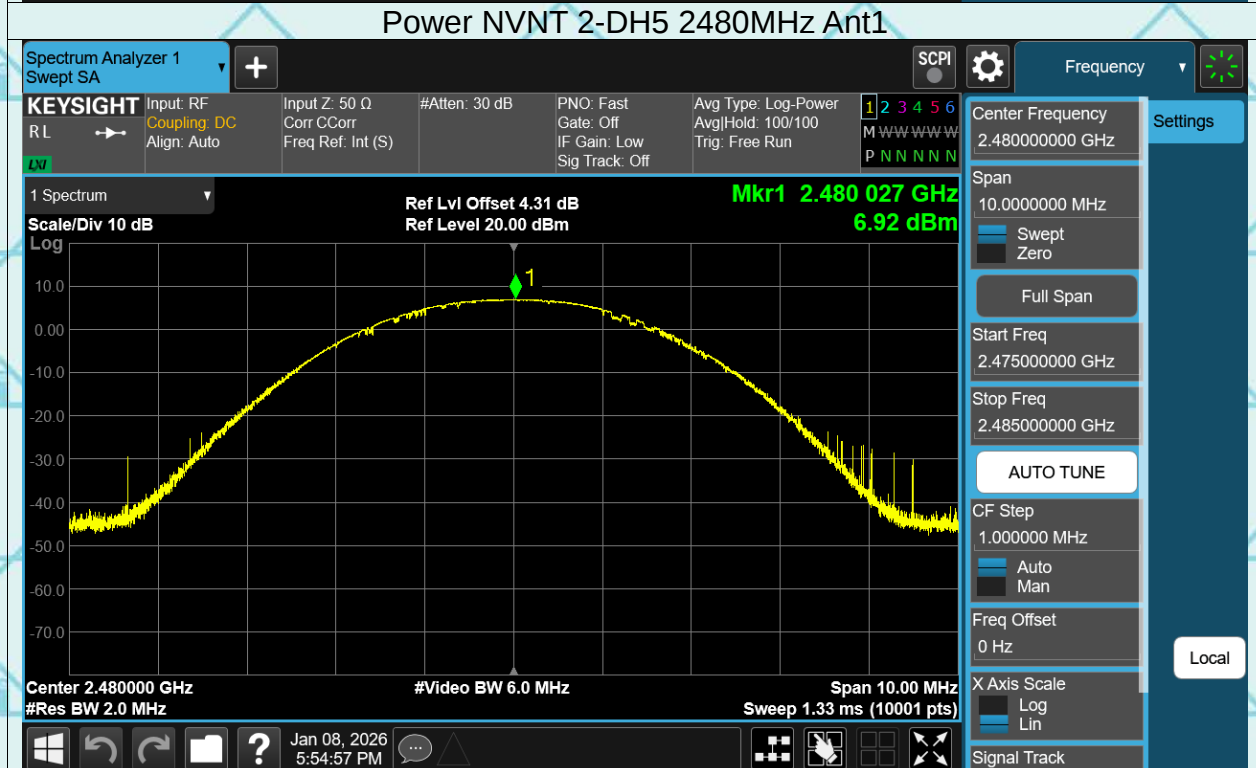
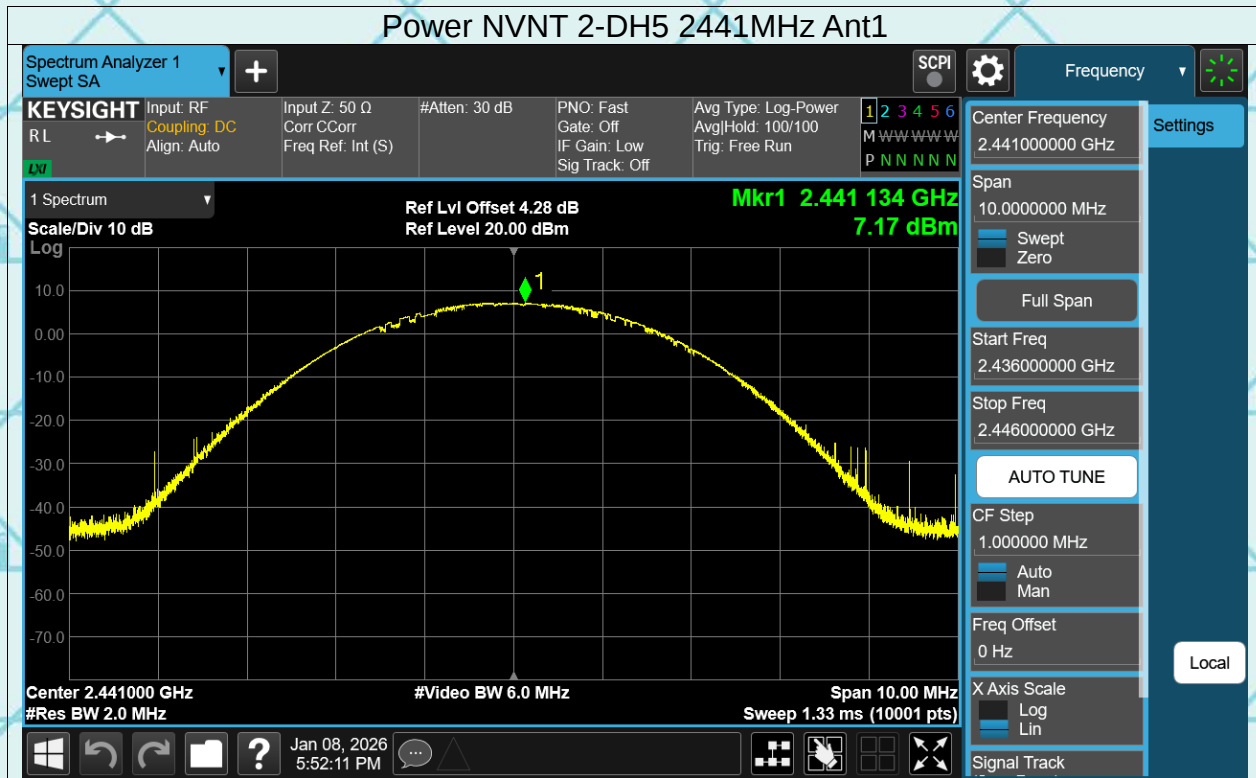
### Power NVNT 1-DH5 2402MHz Ant1

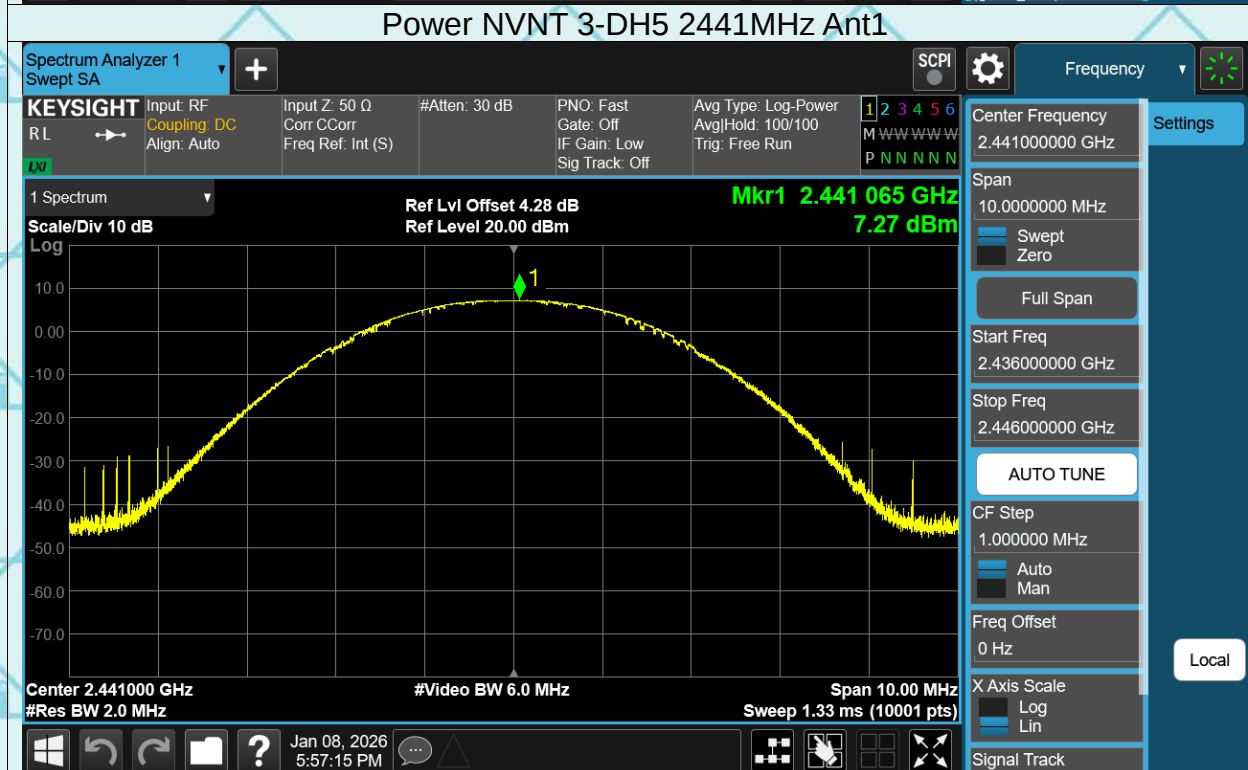
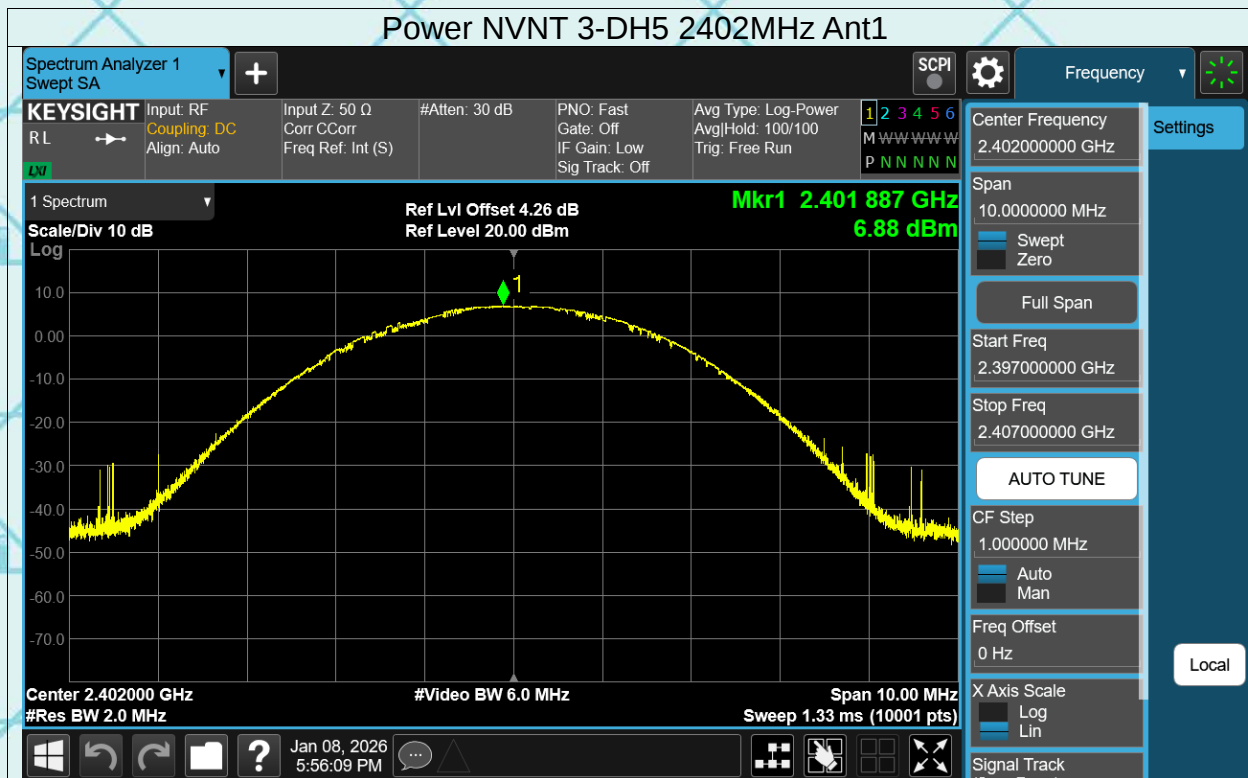


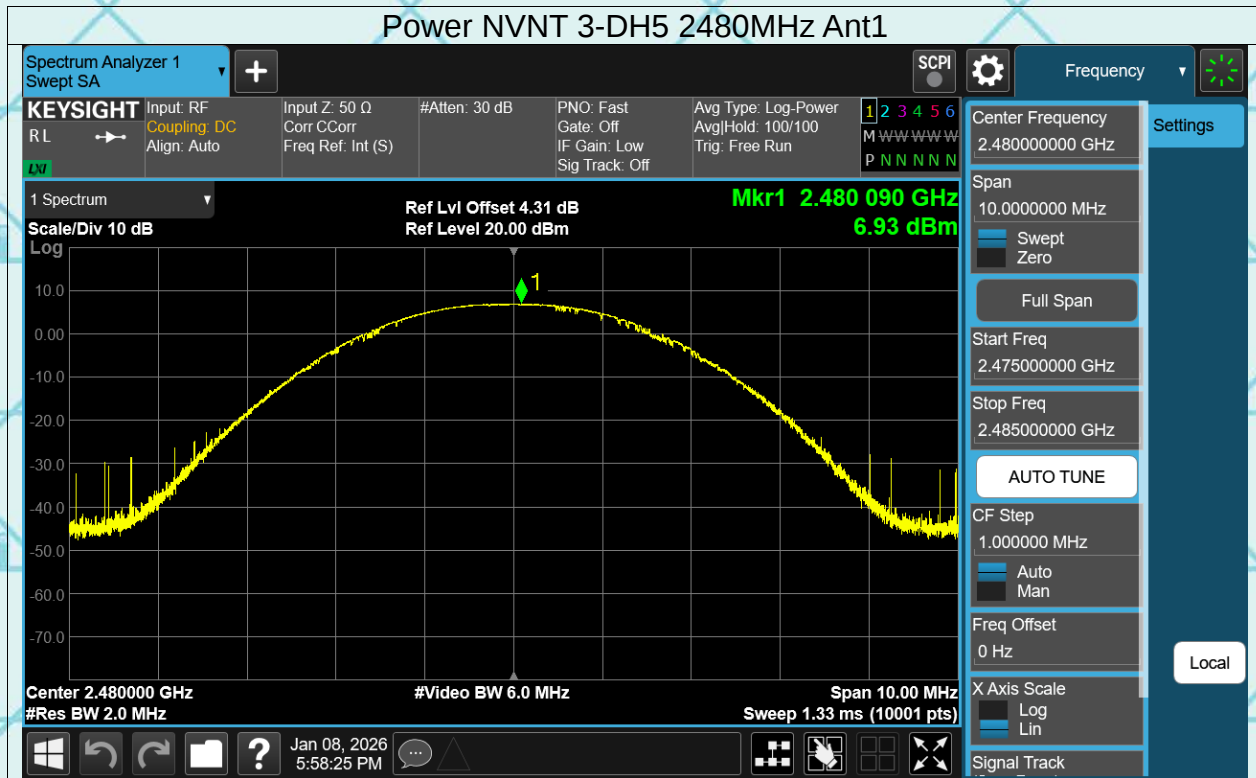
### Power NVNT 1-DH5 2441MHz Ant1











## 6.4. 20dB Occupy Bandwidth

### 6.4.1. Test Specification

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Test Requirement:</b> | FCC Part15 C Section 15.247 (a)(1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Test Method:</b>      | ANSI C63.10:2020                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Limit:</b>            | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Test Setup:</b>       |  <p style="text-align: center;">Spectrum Analyzer                      EUT</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Test Mode:</b>        | Transmitting mode with modulation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Test Procedure:</b>   | <ol style="list-style-type: none"> <li>1. The testing follows ANSI C63.10:2020 Measurement Guidelines.</li> <li>2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.</li> <li>3. Set to the maximum power setting and enable the EUT transmit continuously.</li> <li>4. Use the following spectrum analyzer settings for 20dB Bandwidth measurement.<br/>Span = approximately 2 to 5 times the 20 dB bandwidth, centered on a hopping channel; <math>1\% \leq RBW \leq 5\%</math> of the 20 dB bandwidth; <math>VBW \geq 3RBW</math>; Sweep = auto; Detector function = peak; Trace = max hold.</li> <li>5. Measure and record the results in the test report.</li> </ol> |
| <b>Test Result:</b>      | PASS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

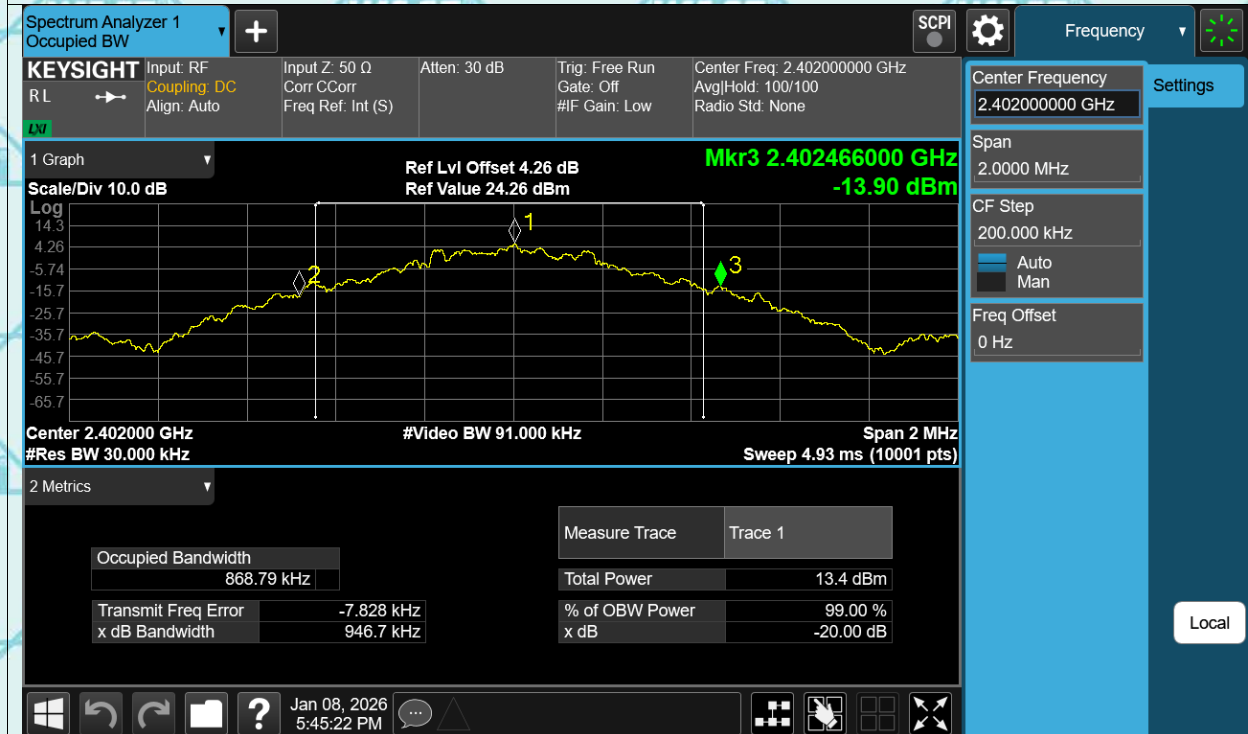
## 6.4.2. Test data

| Test channel | -20dB Occupy Bandwidth (MHz) |                |       |            |
|--------------|------------------------------|----------------|-------|------------|
|              | GFSK                         | $\pi/4$ -DQPSK | 8DPSK | Conclusion |
| Lowest       | 0.947                        | 1.215          | 1.24  | PASS       |
| Middle       | 0.943                        | 1.184          | 1.193 | PASS       |
| Highest      | 0.972                        | 1.221          | 1.178 | PASS       |

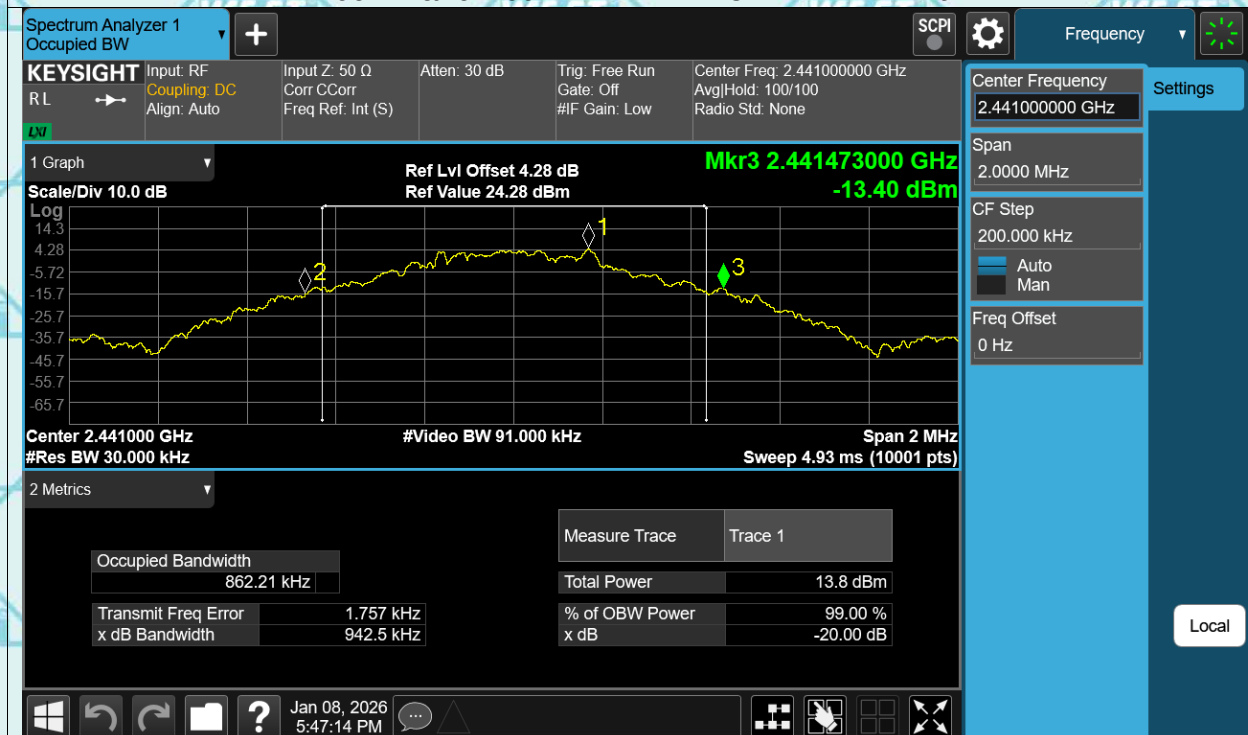
Test plots as follows:

## Test Graphs

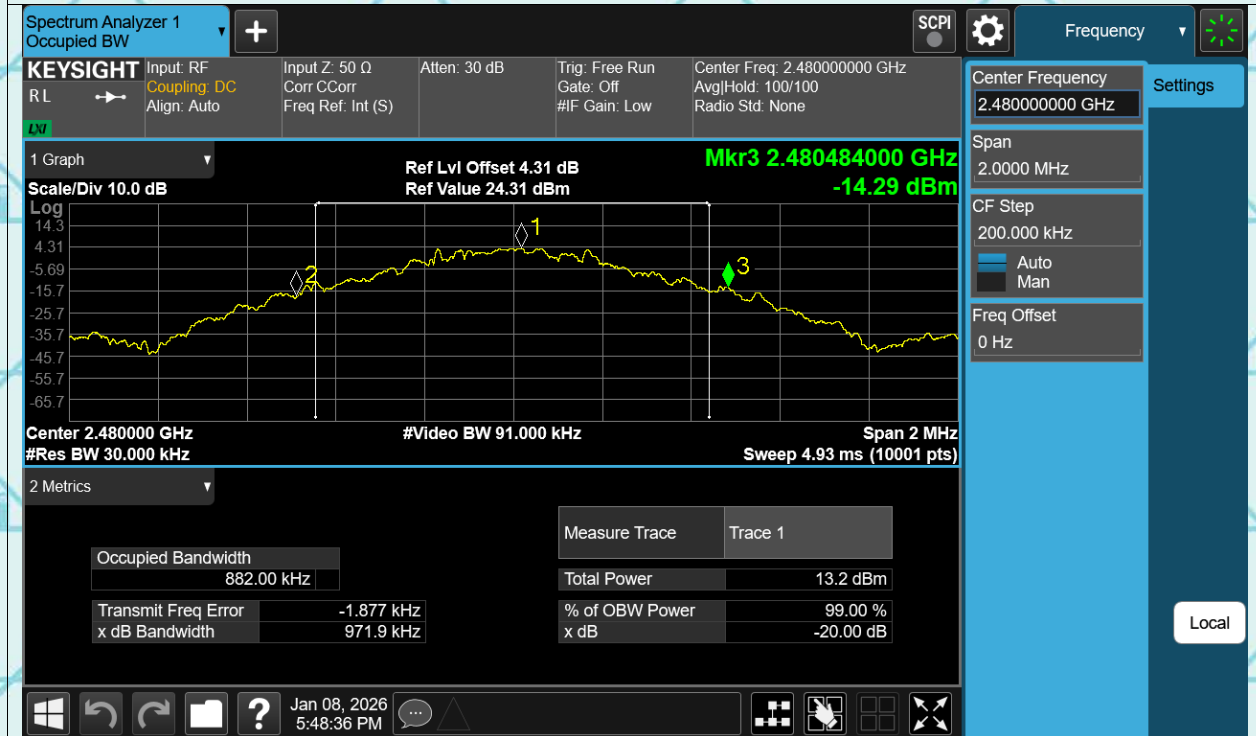
### -20dB Bandwidth NVNT 1-DH5 2402MHz Ant1



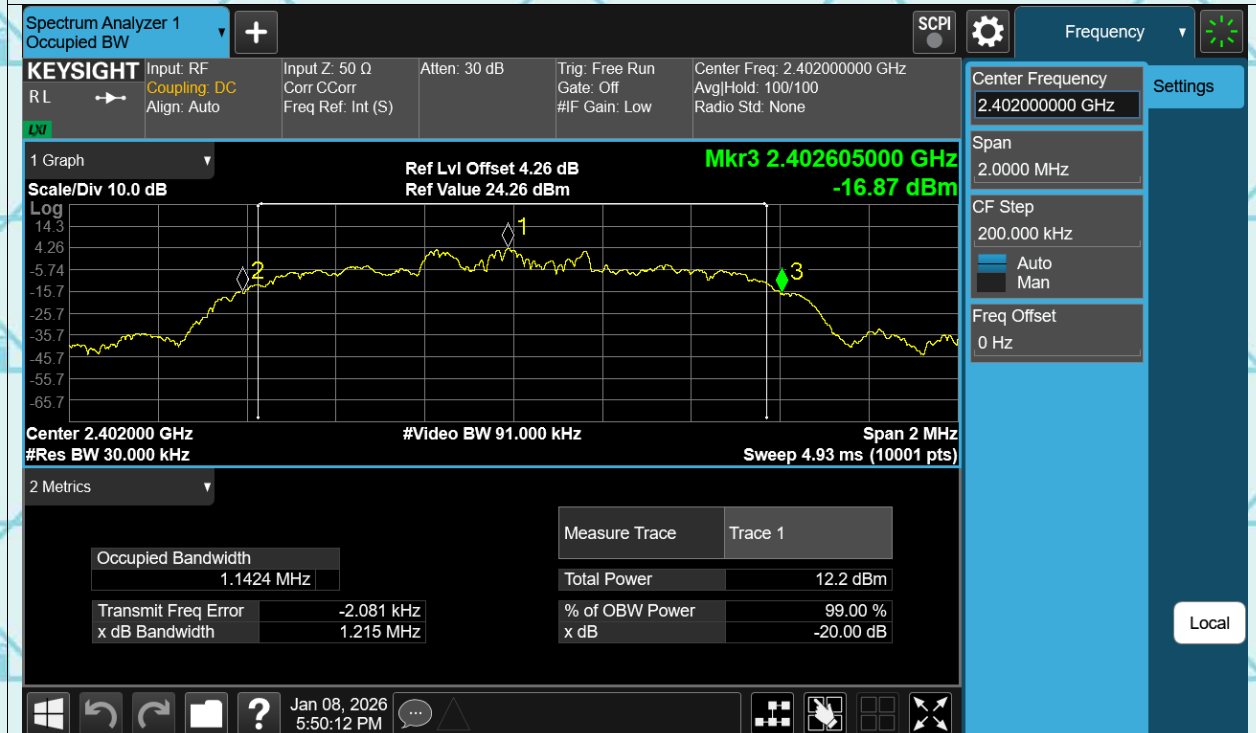
### -20dB Bandwidth NVNT 1-DH5 2441MHz Ant1



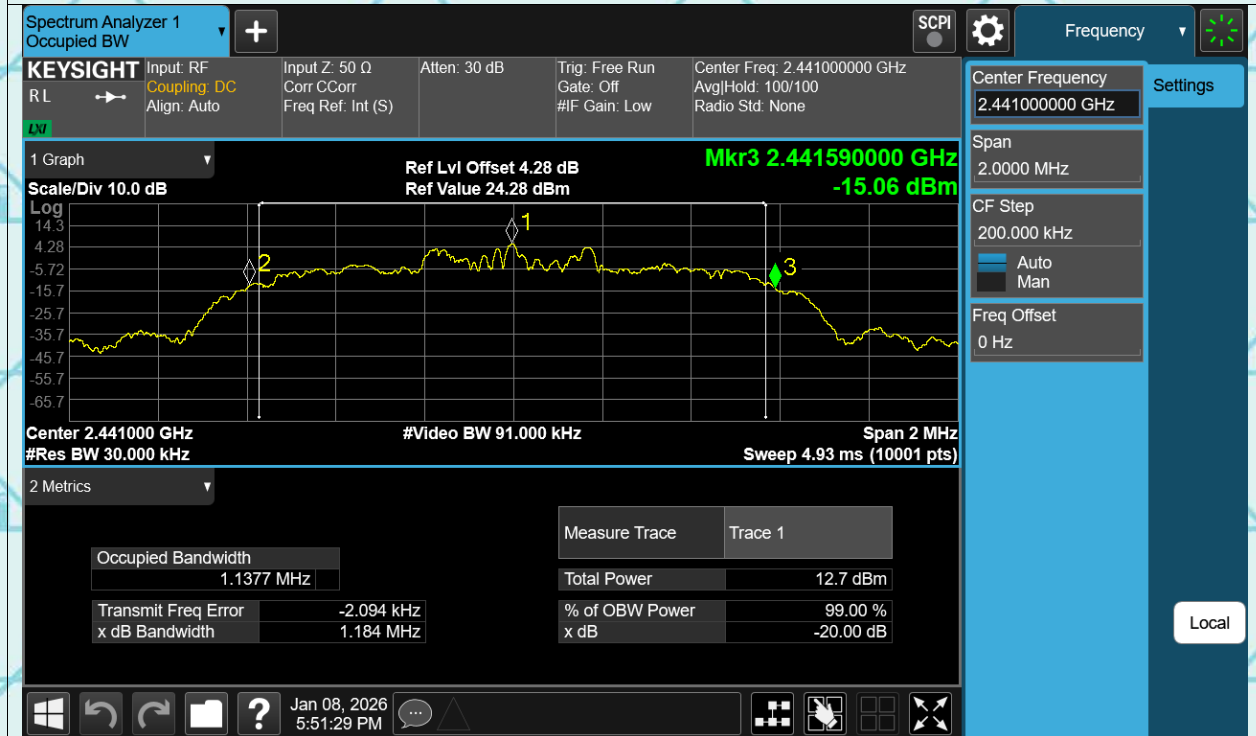
### -20dB Bandwidth NVNT 1-DH5 2480MHz Ant1



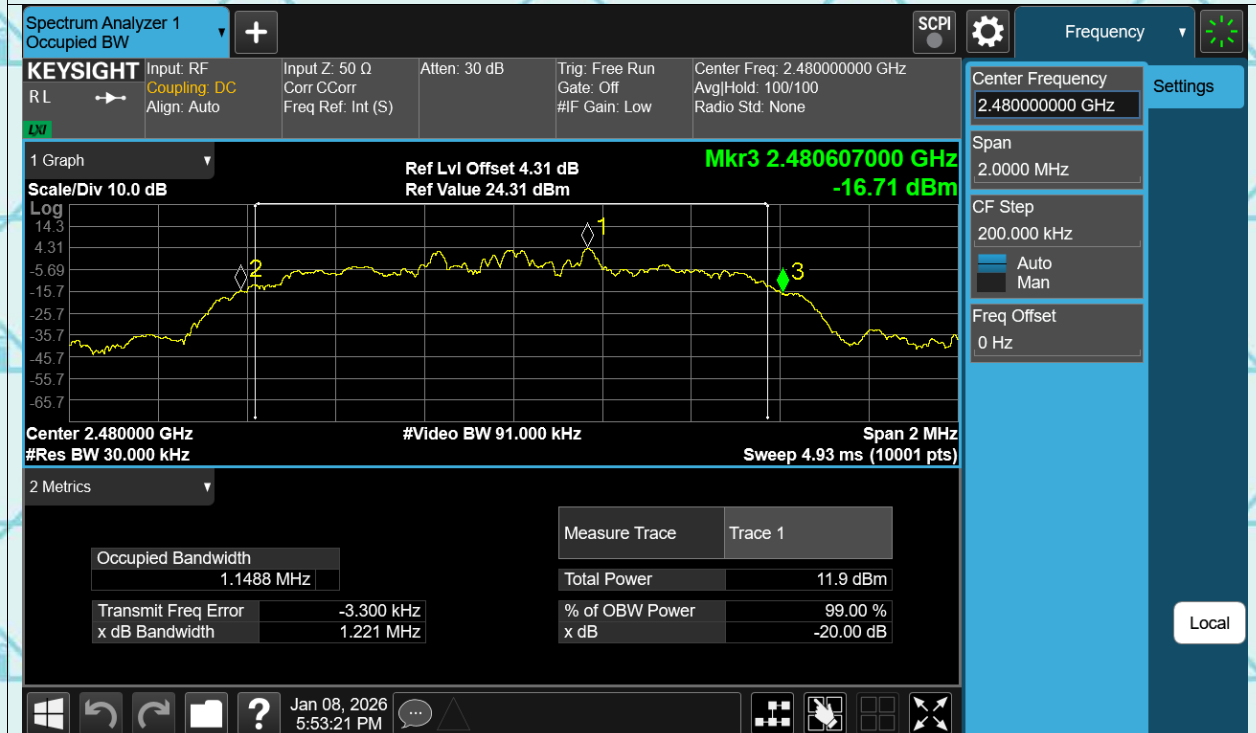
### -20dB Bandwidth NVNT 2-DH5 2402MHz Ant1



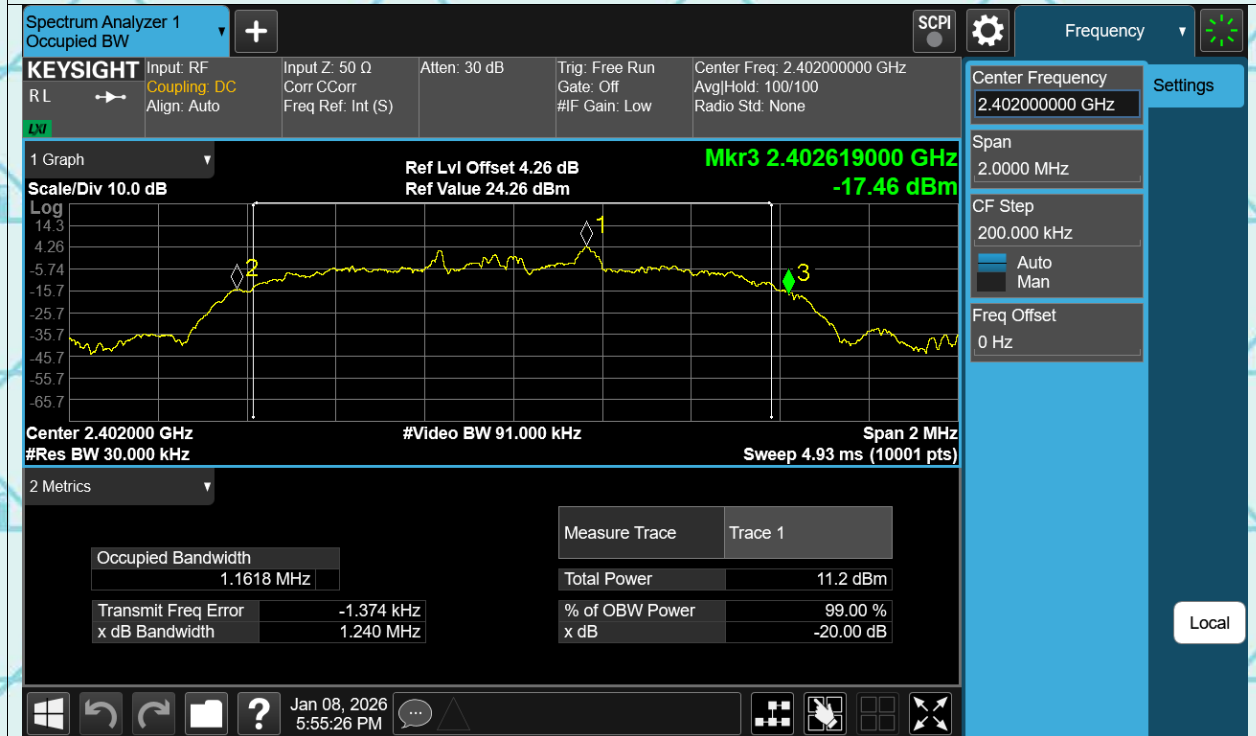
### -20dB Bandwidth NVNT 2-DH5 2441MHz Ant1



### -20dB Bandwidth NVNT 2-DH5 2480MHz Ant1

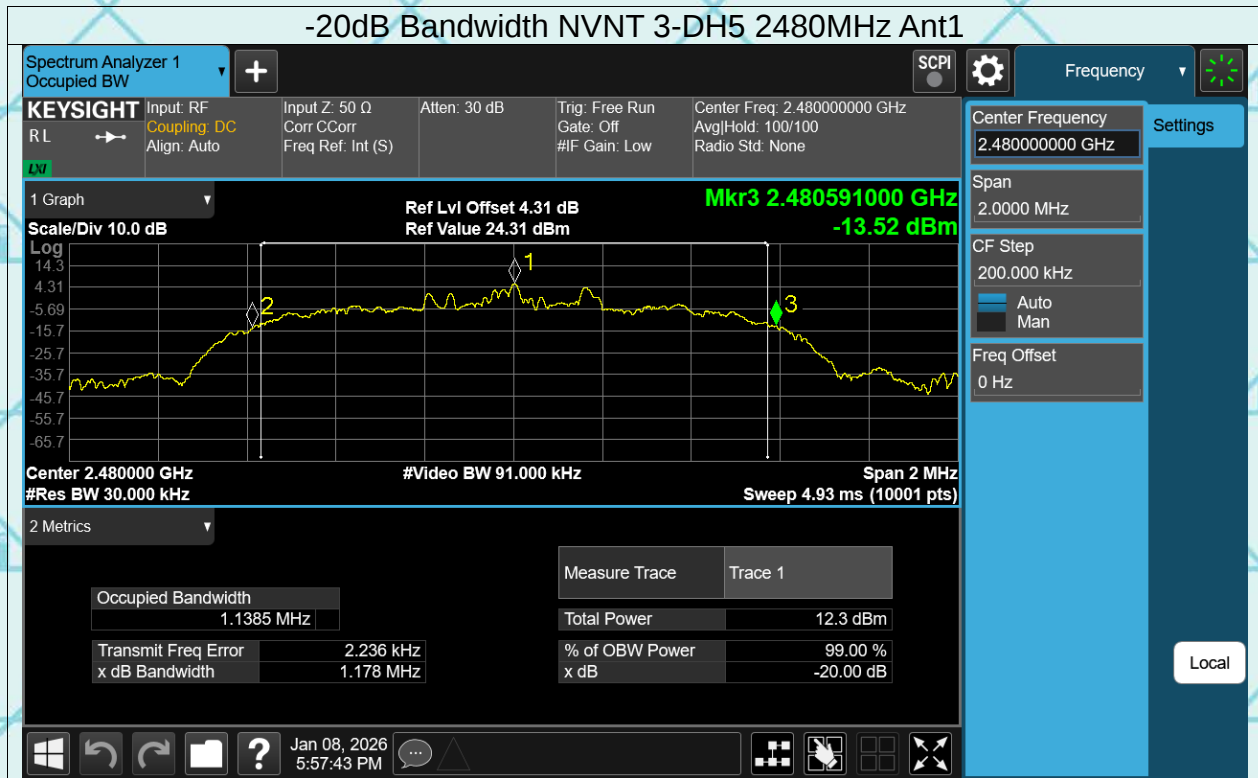


### -20dB Bandwidth NVNT 3-DH5 2402MHz Ant1



### -20dB Bandwidth NVNT 3-DH5 2441MHz Ant1





## 6.5. Carrier Frequencies Separation

### 6.5.1. Test Specification

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Test Requirement:</b> | FCC Part15 C Section 15.247 (a)(1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Test Method:</b>      | ANSI C63.10:2020                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Limit:</b>            | Frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Test Setup:</b>       |  <p>Spectrum Analyzer                      EUT</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Test Mode:</b>        | Hopping mode                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Test Procedure:</b>   | <ol style="list-style-type: none"> <li>1. The testing follows ANSI C63.10:2020 Measurement Guidelines.</li> <li>2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.</li> <li>3. Set to the maximum power setting and enable the EUT transmit continuously.</li> <li>4. Enable the EUT hopping function.</li> <li>5. Use the following spectrum analyzer settings:<br/>Span = wide enough to capture the peaks of two adjacent channels; RBW is set to approximately 30% of the channel spacing, adjust as necessary to best identify the center of each individual channel; VBW≥RBW; Sweep = auto; Detector function = peak; Trace = max hold.</li> <li>6. Use the marker-delta function to determine the separation between the peaks of the adjacent channels. Record the value in report.</li> </ol> |
| <b>Test Result:</b>      | PASS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

### 6.5.2. Test data

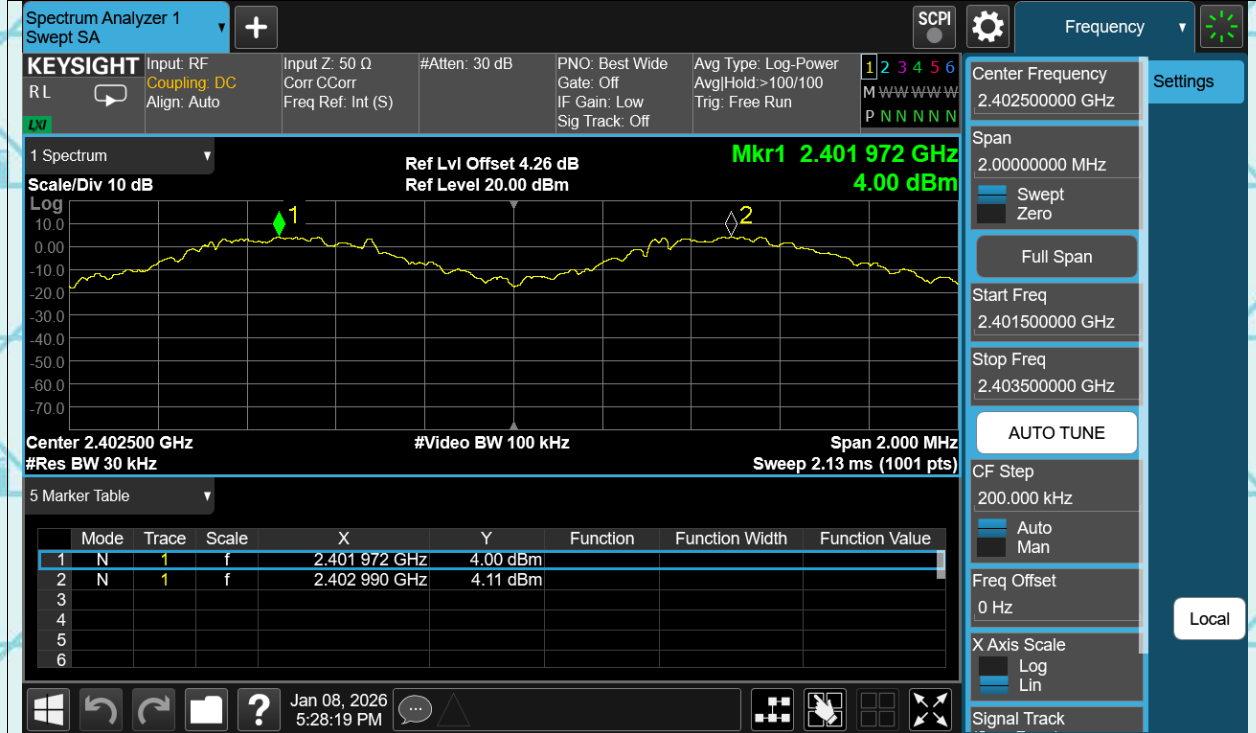
| GFSK mode    |                                      |             |        |
|--------------|--------------------------------------|-------------|--------|
| Test channel | Carrier Frequencies Separation (MHz) | Limit (MHz) | Result |
| Lowest       | 1.018                                | 0.631       | PASS   |
| Middle       | 0.982                                | 0.629       | PASS   |
| Highest      | 1.006                                | 0.648       | PASS   |

| Pi/4 DQPSK mode |                                      |             |        |
|-----------------|--------------------------------------|-------------|--------|
| Test channel    | Carrier Frequencies Separation (MHz) | Limit (MHz) | Result |
| Lowest          | 0.996                                | 0.810       | PASS   |
| Middle          | 1                                    | 0.789       | PASS   |
| Highest         | 0.99                                 | 0.814       | PASS   |

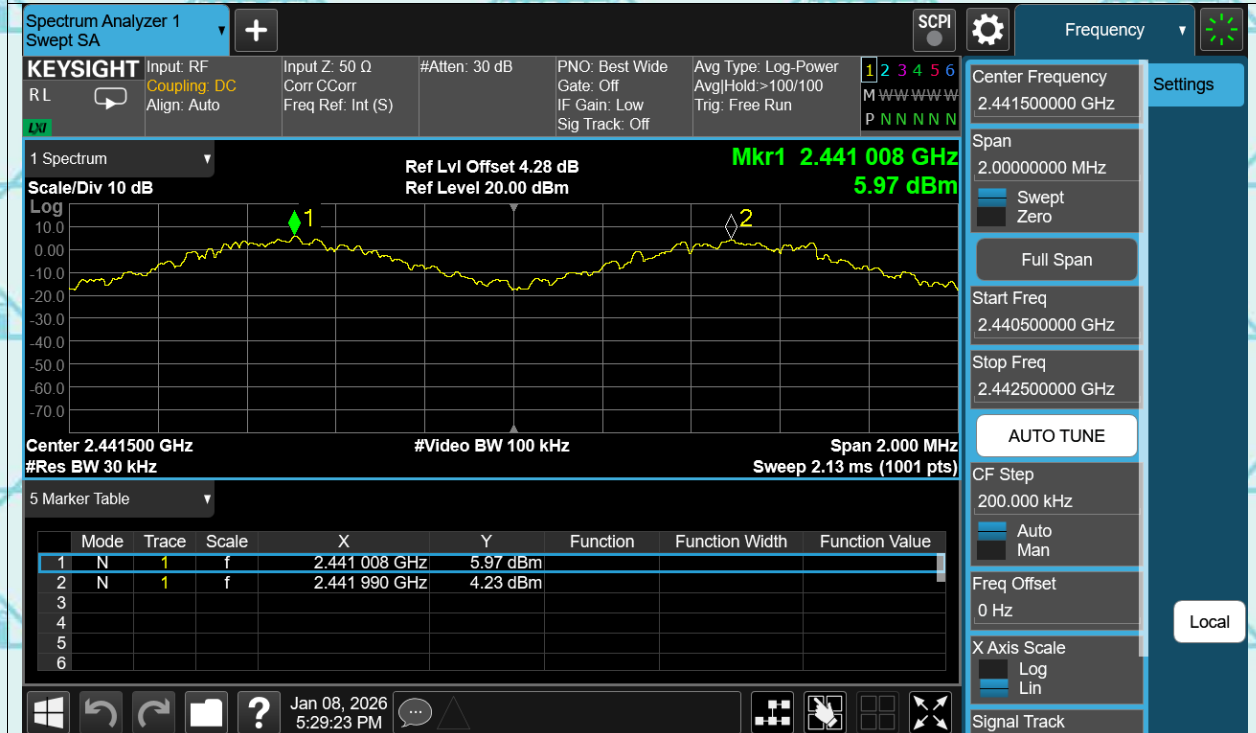
| 8DPSK mode   |                                      |             |        |
|--------------|--------------------------------------|-------------|--------|
| Test channel | Carrier Frequencies Separation (MHz) | Limit (MHz) | Result |
| Lowest       | 0.996                                | 0.827       | PASS   |
| Middle       | 1.01                                 | 0.795       | PASS   |
| Highest      | 1.014                                | 0.785       | PASS   |

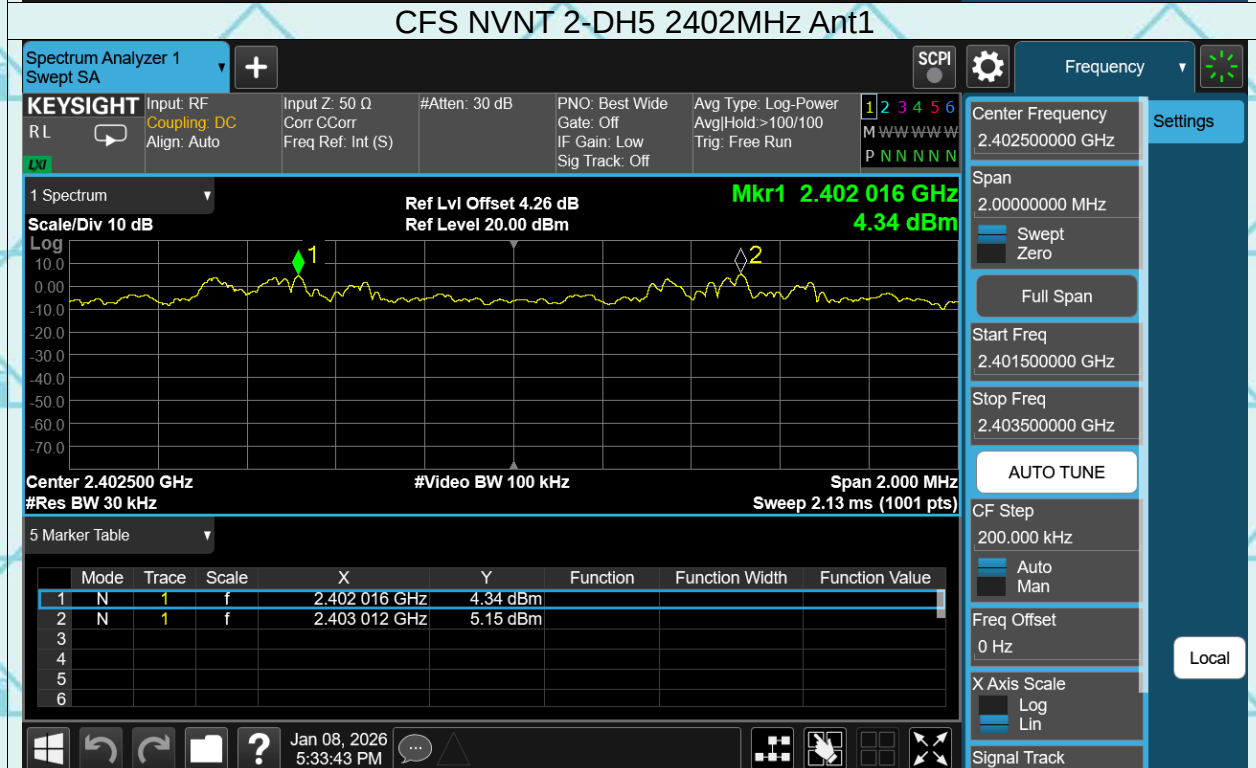
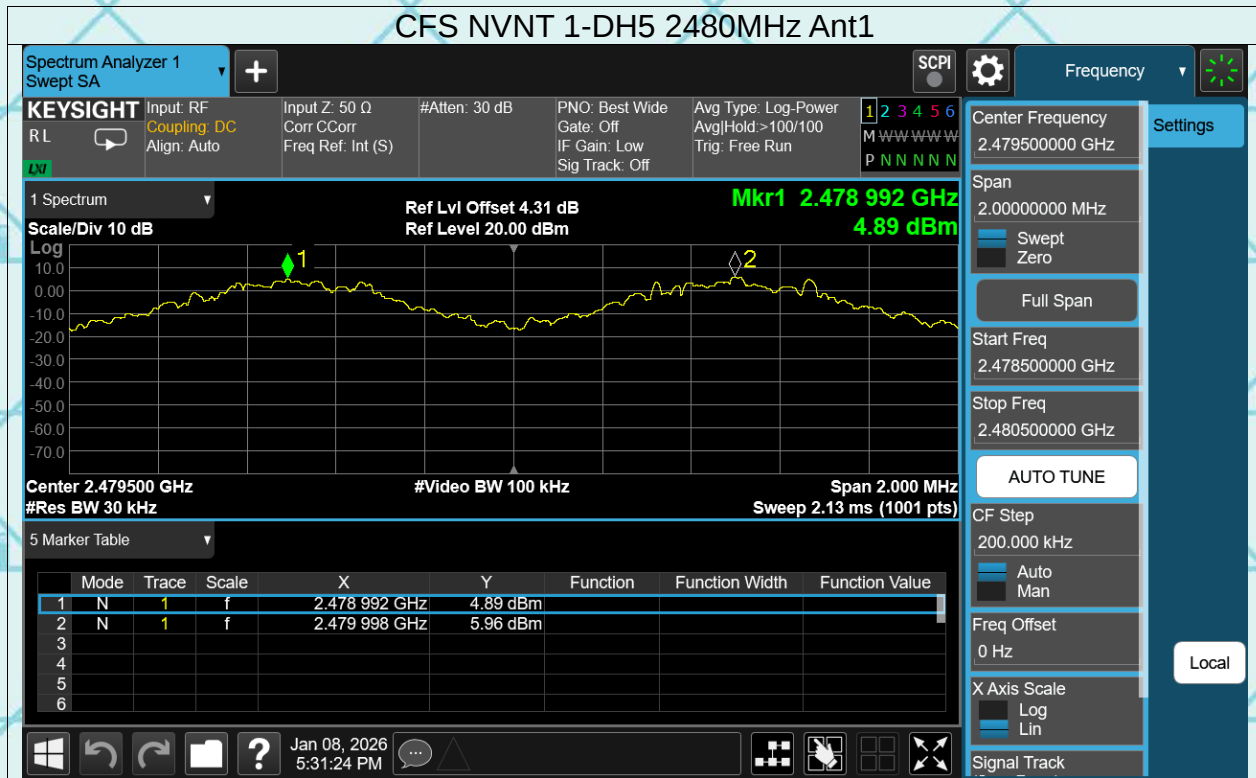
## Test Graphs

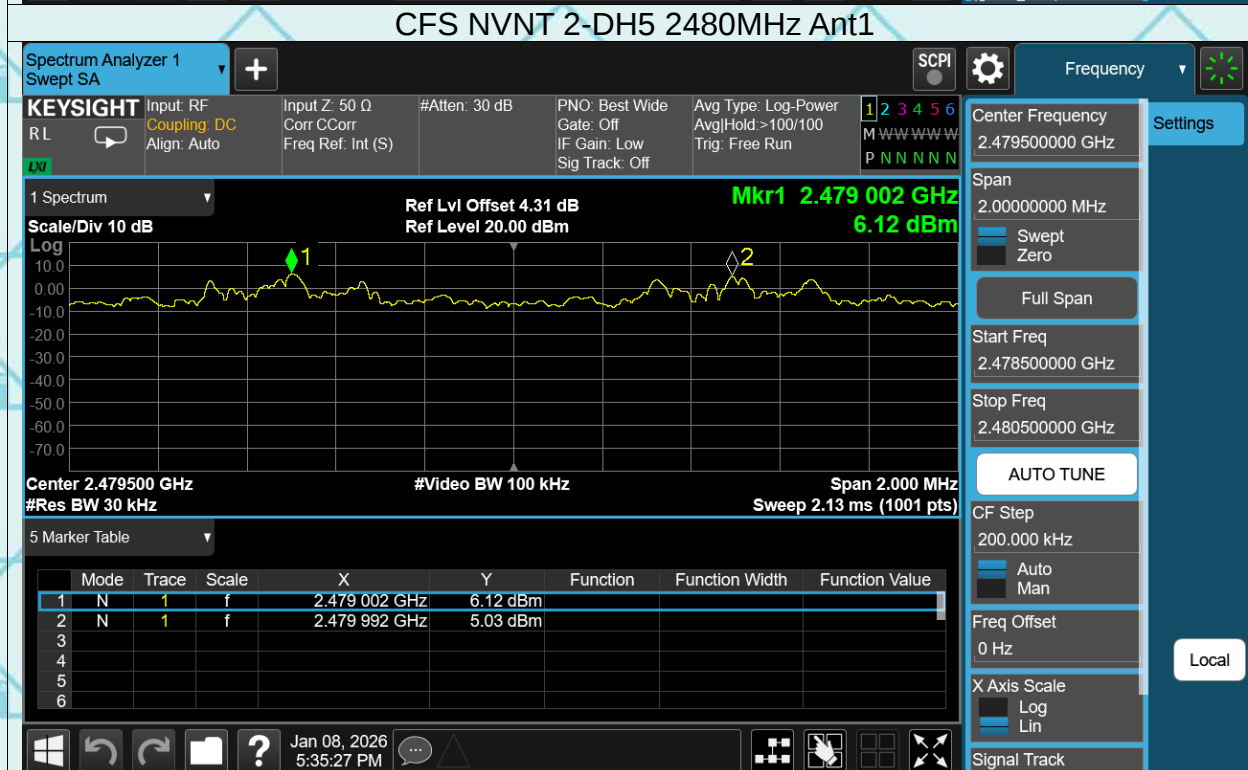
### CFS NVNT 1-DH5 2402MHz Ant1

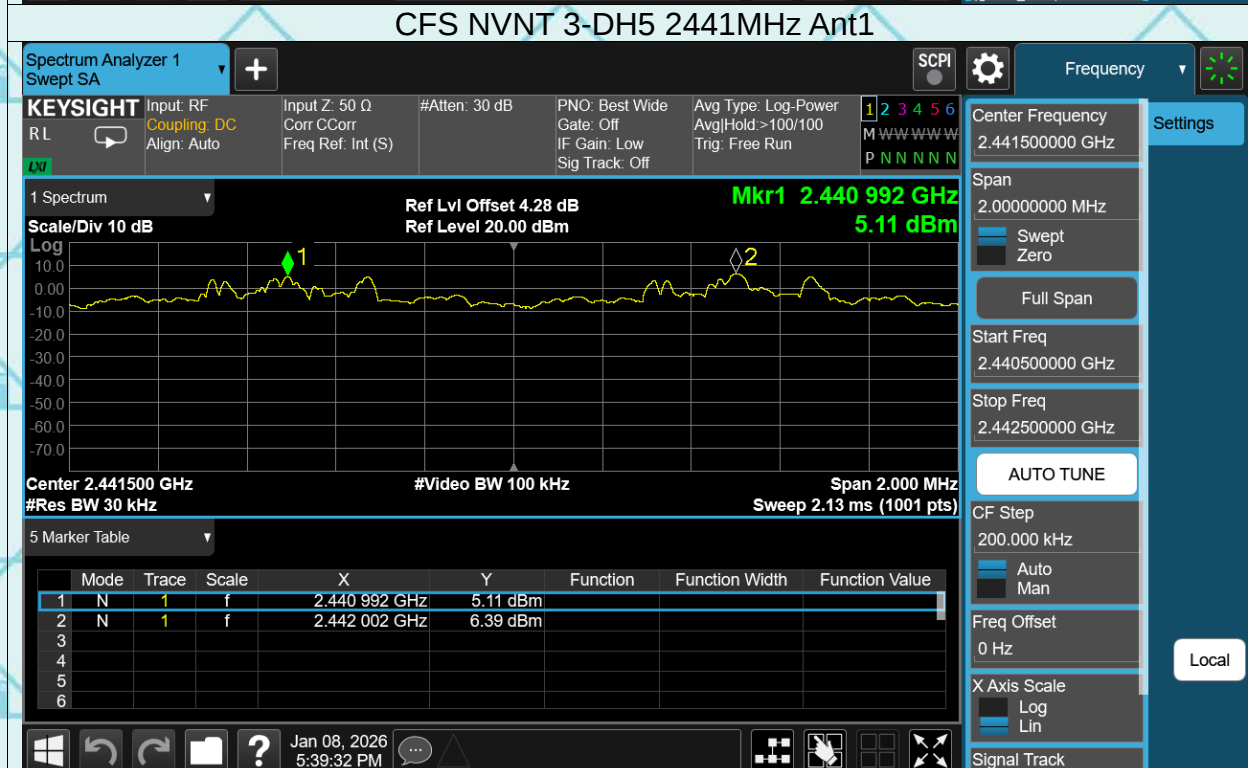
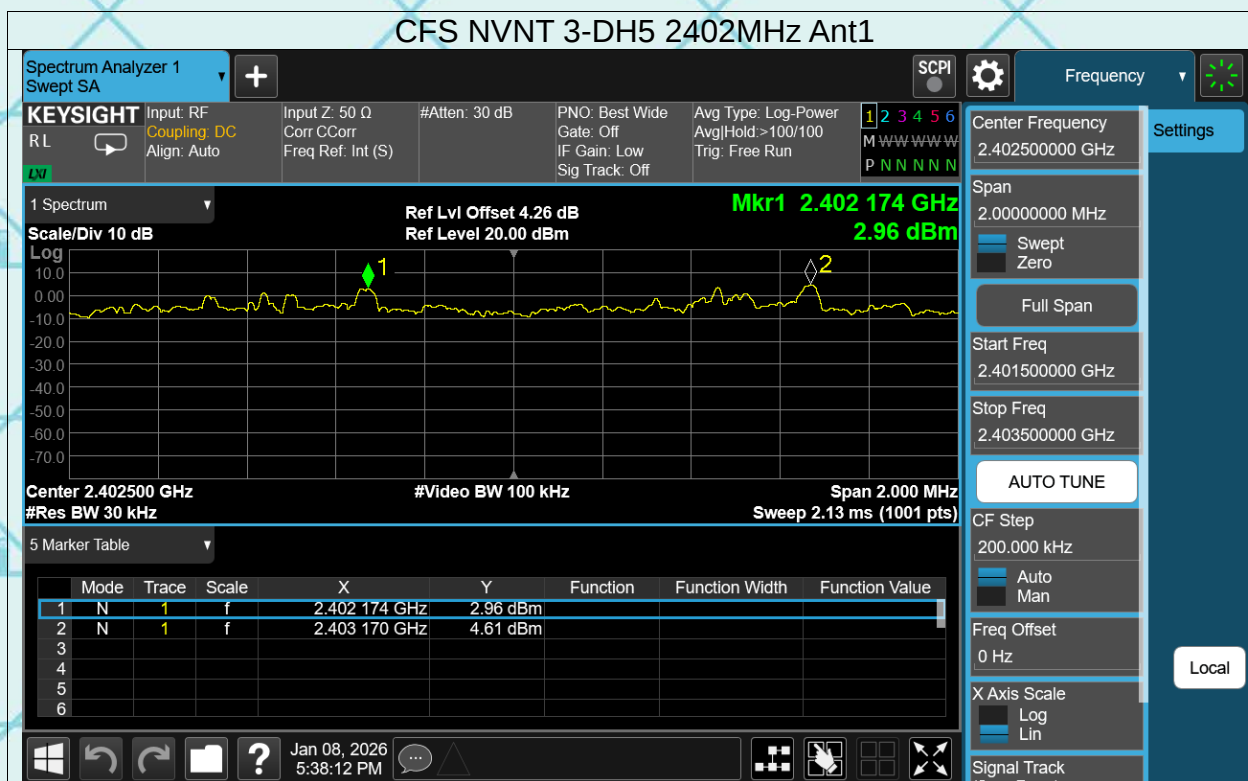


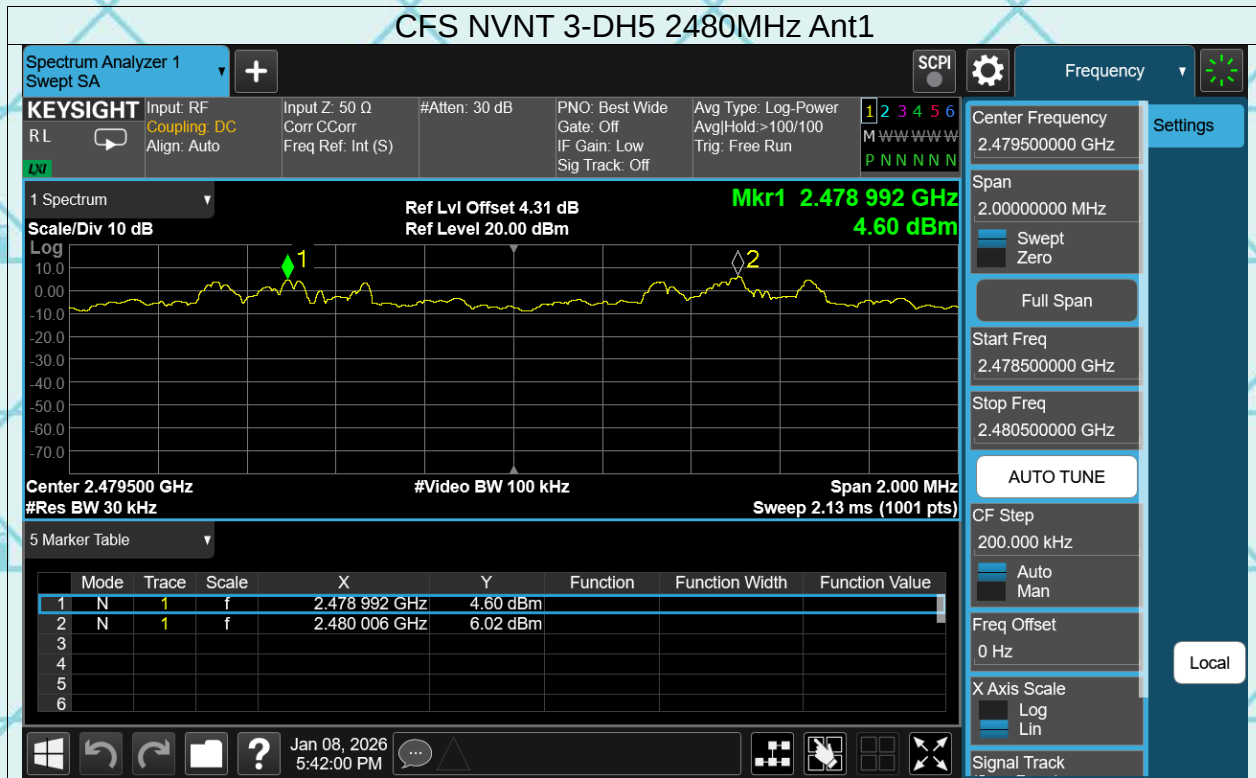
### CFS NVNT 1-DH5 2441MHz Ant1











## 6.6. Hopping Channel Number

### 6.6.1. Test Specification

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Test Requirement:</b> | FCC Part15 C Section 15.247 (a)(1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Test Method:</b>      | ANSI C63.10:2020                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Limit:</b>            | Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Test Setup:</b>       |  <p style="text-align: center;">Spectrum Analyzer                      EUT</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Test Mode:</b>        | Hopping mode                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Test Procedure:</b>   | <ol style="list-style-type: none"> <li>1. The testing follows ANSI C63.10:2020 Measurement Guidelines.</li> <li>2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.</li> <li>3. Set to the maximum power setting and enable the EUT transmit continuously.</li> <li>4. Enable the EUT hopping function.</li> <li>5. Use the following spectrum analyzer settings: Span = the frequency band of operation; set the RBW to less than 30% of the channel spacing or the 20 dB bandwidth, whichever is smaller; VBW≥RBW; Sweep = auto; Detector function = peak; Trace = max hold.</li> <li>6. The number of hopping frequency used is defined as the number of total channel.</li> <li>7. Record the measurement data in report.</li> </ol> |
| <b>Test Result:</b>      | PASS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

## 6.6.2. Test data

| Mode                   | Hopping channel numbers | Limit | Result |
|------------------------|-------------------------|-------|--------|
| GFSK, P/4-DQPSK, 8DPSK | 79                      | 15    | PASS   |

Test plots as follows: