

# TEST REPORT

FCC ID: 2ADYY-CM5

Product: Mobile Phone

Model No.: CM5

Trade Mark: TECNO

Report No.: WSCT-ANAB-R&amp;E241100063A-Wi-Fi1

Issued Date: 05 December 2024

Issued for:

TECNO MOBILE LIMITED

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

Issued By:

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## TABLE OF CONTENTS

|                                                                  |           |
|------------------------------------------------------------------|-----------|
| <b>1. Test Certification .....</b>                               | <b>3</b>  |
| <b>2. Test Result Summary .....</b>                              | <b>4</b>  |
| <b>3. EUT Description .....</b>                                  | <b>5</b>  |
| <b>4. General Information .....</b>                              | <b>7</b>  |
| 4.1. TEST ENVIRONMENT AND MODE .....                             | 7         |
| 4.2. DESCRIPTION OF SUPPORT UNITS .....                          | 8         |
| <b>5. Facilities and Accreditations .....</b>                    | <b>9</b>  |
| 5.1. FACILITIES .....                                            | 9         |
| 5.2. ACCREDITATIONS .....                                        | 9         |
| 5.3. MEASUREMENT UNCERTAINTY .....                               | 10        |
| 5.4. MEASUREMENT INSTRUMENTS .....                               | 11        |
| <b>6. Test Results and Measurement Data .....</b>                | <b>12</b> |
| 6.1. ANTENNA REQUIREMENT .....                                   | 12        |
| 6.2. CONDUCTED EMISSION .....                                    | 13        |
| 6.3. MAXIMUM CONDUCTED OUTPUT POWER .....                        | 17        |
| 6.4. EMISSION BANDWIDTH .....                                    | 19        |
| 6.5. POWER SPECTRAL DENSITY .....                                | 27        |
| 6.6. CONDUCTED BAND EDGE AND SPURIOUS EMISSION MEASUREMENT ..... | 41        |
| 6.7. RADIATED SPURIOUS EMISSION MEASUREMENT .....                | 62        |
| <b>7. Test Setup Photographs .....</b>                           | <b>74</b> |



Report No.: WSCT-ANAB-R&amp;E241100063A-Wi-Fi1

## 1. Test Certification

|                       |                                                                                                                    |
|-----------------------|--------------------------------------------------------------------------------------------------------------------|
| Product:              | Mobile Phone                                                                                                       |
| Model No.:            | CM5                                                                                                                |
| Additional Model:     | TECNO                                                                                                              |
| Applicant:            | TECNO MOBILE LIMITED<br>FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE 19-25 SHAN<br>MEI STREET FOTAN NT HONGKONG |
| Manufacturer:         | TECNO MOBILE LIMITED<br>FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE 19-25 SHAN<br>MEI STREET FOTAN NT HONGKONG |
| Date of receipt:      | 29 September 2024                                                                                                  |
| Date of Test:         | 29 September 2024 to 04 December 2024                                                                              |
| Applicable Standards: | FCC CFR Title 47 Part 15 Subpart C Section 15.247                                                                  |

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: Wang Xiang

(Wang Xiang)

Checked By: Qin Shuiquan

(Qin Shuiquan)

Approved By: Li Huaibi

(Li Huaibi)

Date: 05 December 2024



## 2. Test Result Summary

| Requirement                      | CFR 47 Section                      | Result |
|----------------------------------|-------------------------------------|--------|
| Antenna requirement              | §15.203/§15.247 (c)                 | PASS   |
| AC Power Line Conducted Emission | §15.207                             | PASS   |
| Maximum Conducted Output Power   | §15.247 (b)(3)<br>§2.1046           | PASS   |
| 6dB Emission Bandwidth           | §15.247 (a)(2)<br>§2.1049           | PASS   |
| Power Spectral Density           | §15.247 (e)                         | PASS   |
| Band Edge                        | §15.247(d)<br>§2.1051, §2.1057      | PASS   |
| Spurious Emission                | §15.205/§15.209<br>§2.1053, §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:             | Mobile Phone                                                                                                                                                                                                                                                                                                               |
| Model No.:           | CM5                                                                                                                                                                                                                                                                                                                        |
| Trade Mark:          | TECNO                                                                                                                                                                                                                                                                                                                      |
| Software version:    | CM5-H8918                                                                                                                                                                                                                                                                                                                  |
| Hardware version:    | V1.2                                                                                                                                                                                                                                                                                                                       |
| Operation Frequency: | 2412MHz~2462MHz (802.11b/g/n(HT20)<br>2422MHz~2452MHz (802.11n(HT40)                                                                                                                                                                                                                                                       |
| Channel Separation:  | 5MHz                                                                                                                                                                                                                                                                                                                       |
| Modulation type:     | DSSS (DBPSK, DQPSK, CCK) for IEEE 802.11b<br>OFDM/OFDMA(BPSK,QPSK,16QAM,64QAM,256QAM,) for IEEE 802.11g/n                                                                                                                                                                                                                  |
| Antenna Type:        | PIFA Antenna                                                                                                                                                                                                                                                                                                               |
| Antenna Gain         | MAIN: -3.37dBi ,AUX:-4.12dBi                                                                                                                                                                                                                                                                                               |
| Operating Voltage:   | Adapter: U450TSB<br>Input: 100-240V~50/60Hz 1.8A<br>Output: 5.0V~3.0A 15.0W or 5.0V-10.0V~4.5A<br>or 11.0V~4.1A 45.0W MAX<br>Rechargeable Li-ion Polymer Battery Model: BL-54AT<br>Rated Voltage: 3.91V<br>Rated Capacity: 5100mAh<br>Nominal Energy:19.95Wh<br>Typical Capacity: 5200mAh<br>Limited Charge Voltage: 4.50V |
| Remark:              | N/A.                                                                                                                                                                                                                                                                                                                       |

- Note:
1. N/A stands for no applicable.
  2. The antenna gain is provided by the customer. For any reported data issues caused by the antenna gain, World Standardization Certification&Testing Group (Shenzhen) Co., Ltd assumes no responsibility.
  3. The laboratory shall be responsible for all information in the report, except for the information provided by the client. The data provided by the client should be clearly identified. In addition, when the information provided by the client may affect the validity of the results, a disclaimer should be included in the report. When the laboratory is not responsible for sampling (such as when the sample is provided by the customer), the results should be declared in the report as applicable to the received sample.



### Operation Frequency each of channel For 802.11b/g/n(HT20)

| Channel | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
|---------|-----------|---------|-----------|---------|-----------|---------|-----------|
| 1       | 2412MHz   | 4       | 2427MHz   | 7       | 2442MHz   | 10      | 2457MHz   |
| 2       | 2417MHz   | 5       | 2432MHz   | 8       | 2447MHz   | 11      | 2462MHz   |
| 3       | 2422MHz   | 6       | 2437MHz   | 9       | 2452MHz   |         |           |

### Operation Frequency each of channel For 802.11n(HT40)

| Channel | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
|---------|-----------|---------|-----------|---------|-----------|---------|-----------|
| --      | --        | 4       | 2427MHz   | 7       | 2442MHz   | --      | --        |
| --      | --        | 5       | 2432MHz   | 8       | 2447MHz   | --      | --        |
| 3       | 2422MHz   | 6       | 2437MHz   | 9       | 2452MHz   |         |           |

#### Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

#### 802.11b/g/n(HT20)

| Channel             | Frequency |
|---------------------|-----------|
| The lowest channel  | 2412MHz   |
| The middle channel  | 2437MHz   |
| The Highest channel | 2462MHz   |

#### 802.11n(HT40)

| Channel             | Frequency |
|---------------------|-----------|
| The lowest channel  | 2422MHz   |
| The middle channel  | 2437MHz   |
| The Highest channel | 2452MHz   |



## 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(The value of duty cycle is 98.46%) |
|-------------------|--------------------------------------------------------------------------------------------------------------|

The sample was placed (0.8m below 1GHz, 1.5m 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. For the full battery state and The output power to the maximum state.

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

**Per-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.**

| Mode         |
|--------------|
| 802.11b      |
| 802.11g      |
| 802.11n(H20) |
| 802.11n(H40) |

#### Final Test Mode:

|                 |                                                         |
|-----------------|---------------------------------------------------------|
| Operation mode: | Keep the EUT in continuous transmitting with modulation |
|-----------------|---------------------------------------------------------|

1.For WIFI function, the engineering test program was provided and enabled to make EUT continuous transmit/receive.2.According to ANSI C63.10 standards, the test results are both the "worst case" and "worst setup" 1Mbps for 802.11b, 6Mbps for 802.11g, 6.5Mbps for 802.11n(H20).Duty cycle setting during the transmission is 98.5% with maximum power setting for all modulations.



## 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.

| Item | Equipment | Mfr/Brand | Model/Type No. | Series No. | Note |
|------|-----------|-----------|----------------|------------|------|
| 1    | Adapter   | /         | U450TSB        | /          | /    |
| 2    | Earphone  | /         | N/A            | /          | /    |

**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, 6dB Emission Bandwidth, Power Spectral Density, 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 **Building A-B, Baoli'an Industrial Park, No.58 and 60, Tangtou Avenue, Shiyao Street, Bao'an District, Shenzhen City, Guangdong Province, China of the World Standardization Certification & Testing Group (Shenzhen) Co., Ltd.**

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

#### ANAB - Certificate Number: AT-3951

The EMC Laboratory has been accredited by the American Association for Laboratory Accreditation (ANAB). Certification Number: AT-3951



### 5.3.Measurement Uncertainty

| No. | Item                                                  | MU                        |
|-----|-------------------------------------------------------|---------------------------|
| 1   | Conducted Emission Test                               | $\pm 3.2\text{dB}$        |
| 2   | RF power, conducted                                   | $\pm 2.4\%$               |
| 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                                              | $\pm 2.0\%$               |
| 8   | Receiver Spurious Emissions                           | $\pm 2.5\%$               |
| 9   | Transmitter Unwanted Emissions in the Spurious Domain | $\pm 2.5\%$               |
| 10  | Transmitter Unwanted Emission in the out-of Band      | $\pm 1.3\%$               |
| 11  | Occupied Channel Bandwidth                            | $\pm 2.4\%$               |

- Note:
- 1.The reported uncertainty of measurement  $y \pm U$ , where expended uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately 95 %.
  2. The  $U_{lab}$  is less than  $U_{cisp}$ , compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.
  3. For conducted emission test of laboratory have a measurement uncertainty greater than that specified in harmonized standard, this equipment can still be used provided that an adjustment is made follows : any additionan uncertainty in the test system over and above that specified in harmonized standard should be used to tighter the test requirements-making the test harder to pass. This procedure will ensure that a test system not comliant with harmonized standard does not increase the probability of passing a EUT that would otherwise have failed a test if a test system comliant with harmonized standard had been used.



## 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        | 11/04/2024       | 11/03/2025       |
| LISN                                 | AFJ                    | LS16         | 16010222119   | 11/04/2024       | 11/03/2025       |
| LISN(EUT)                            | Mestec                 | AN3016       | 04/10040      | 11/04/2024       | 11/03/2025       |
| Universal Radio Communication Tester | R&S                    | CMU 200      | 1100.0008.02  | 11/04/2024       | 11/03/2025       |
| Coaxial cable                        | Megalon                | LMR400       | N/A           | 11/04/2024       | 11/03/2025       |
| GPIO cable                           | Megalon                | GPIO         | N/A           | 11/04/2024       | 11/03/2025       |
| Spectrum Analyzer                    | R&S                    | FSU          | 100114        | 11/04/2024       | 11/03/2025       |
| Pre Amplifier                        | H.P.                   | HP8447E      | 2945A02715    | 11/04/2024       | 11/03/2025       |
| Pre-Amplifier                        | CDSI                   | PAP-1G18-38  | --            | 11/04/2024       | 11/03/2025       |
| Bi-log Antenna                       | SCHWARZBECK            | VULB9168     | 01488         | 7/29/2024        | 7/28/2025        |
| 9*6*6 Anechoic                       | --                     | --           | --            | 11/04/2024       | 11/03/2025       |
| Horn Antenna                         | COMPLIANCE ENGINEERING | CE18000      | --            | 11/04/2024       | 11/03/2025       |
| Horn Antenna                         | SCHWARZBECK            | BBHA9120D    | 9120D-631     | 11/04/2024       | 11/03/2025       |
| Cable                                | TIME MICROWAVE         | LMR-400      | N-TYPE04      | 11/04/2024       | 11/03/2025       |
| 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 | -             | 11/04/2024       | 11/03/2025       |
| Loop Antenna                         | EMCO                   | 6502         | 00042960      | 11/04/2024       | 11/03/2025       |
| Horn Antenna                         | SCHWARZBECK            | BBHA 9170    | 1123          | 11/04/2024       | 11/03/2025       |
| Power meter                          | Anritsu                | ML2487A      | 6K00003613    | 11/04/2024       | 11/03/2025       |
| Power sensor                         | Anritsu                | MX248XD      | --            | 11/04/2024       | 11/03/2025       |
| Spectrum Analyzer                    | Keysight               | N9010B       | MY60241089    | 11/04/2024       | 11/03/2025       |



## 6. Test Results and Measurement Data

### 6.1. Antenna requirement

#### Standard requirement:

FCC Part15 C Section 15.203 /247(c)

#### 15.203 requirement:

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.

#### 15.247(c) (1)(i) requirement:

(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.

#### E.U.T Antenna:

The Wi-Fi antenna is a Integral Antenna. it meets the standards, and the best case gain of the antenna is "MAIN: -3.37dBi ,AUX:-4.12dBi"

#### <CDD Modes>

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

Directional gain = GANT + Array Gain, where Array Gain is as follows.

For power spectral density (PSD) measurements on all devices,

Array Gain = 10 log(NANT/NSS=1) dB.

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for NANT ≤ 4.

Directional gain may be calculated by using the formulas applicable to equal gain antennas with

GANT set equal to the gain of the antenna having the highest gain;

The EUT supports CDD mode.

For power, the directional gain GANT is set equal to the antenna having the highest gain, i.e.,

F)2)f)i).

For PSD, the directional gain calculation is following F)2)f)ii) of KDB 662911 D01 v02r01.

The directional gain "DG" is calculated as following table.

| <CDD Modes>  | Ant1<br>(dBi) | Ant2<br>(dBi) | DG for power<br>(dBi) | DG for PSD<br>(dBi) |
|--------------|---------------|---------------|-----------------------|---------------------|
| 2412~2462MHz | -3.37         | -4.12         | -3.37                 | -0.73               |

Power limit reduction = Composite gain – 6dBi, ( min = 0 )

PSD limit reduction = Composite gain + PSD Array gain – 6dBi, ( min = 0 )







Report No.: WSCT-ANAB-R&amp;E241100063A-Wi-Fi1

## 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.

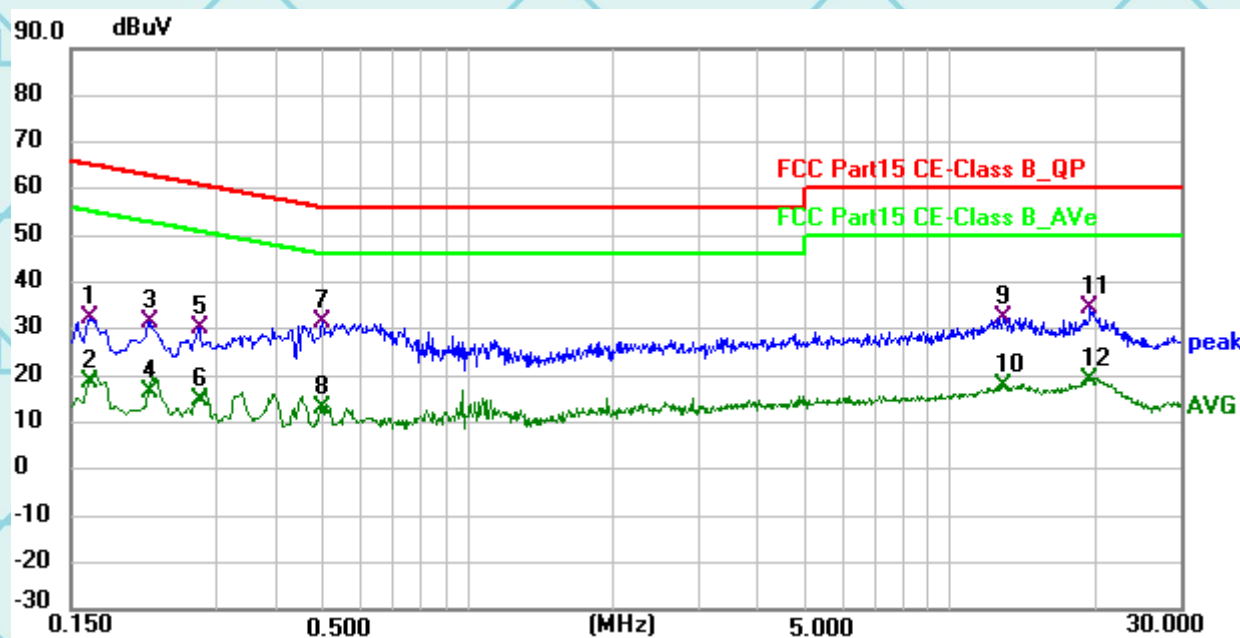


Report No.: WSCT-ANAB-R&E241100063A-Wi-Fi1

## Test data

Please refer to following diagram for individual

### Conducted Emission on Line Terminal of the power line (150 kHz to 30MHz)

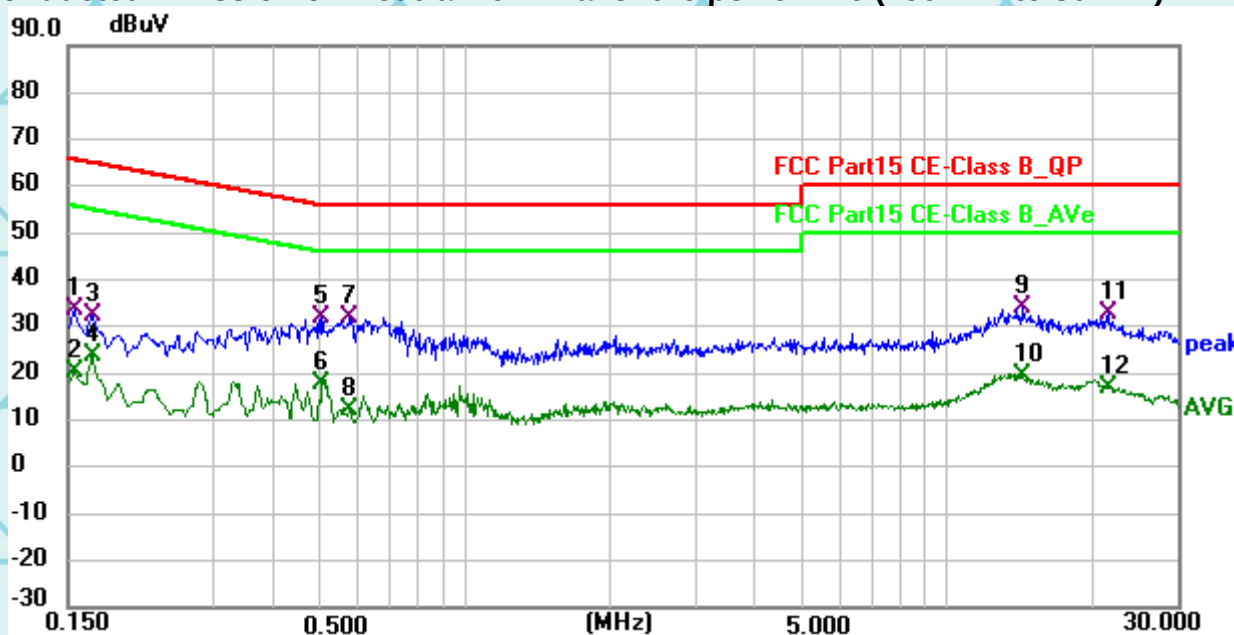


| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Detector |
|-----|-----------------|----------------|-------------|--------------|--------------|-------------|----------|
| 1   | 0.1635          | 11.70          | 20.72       | 32.42        | 65.28        | -32.86      | QP       |
| 2   | 0.1635          | -2.26          | 20.72       | 18.46        | 55.28        | -36.82      | AVG      |
| 3   | 0.2175          | 10.96          | 20.68       | 31.64        | 62.91        | -31.27      | QP       |
| 4   | 0.2175          | -4.12          | 20.68       | 16.56        | 52.91        | -36.35      | AVG      |
| 5   | 0.2760          | 9.70           | 20.64       | 30.34        | 60.94        | -30.60      | QP       |
| 6   | 0.2760          | -5.85          | 20.64       | 14.79        | 50.94        | -36.15      | AVG      |
| 7 * | 0.4965          | 10.90          | 20.51       | 31.41        | 56.06        | -24.65      | QP       |
| 8   | 0.4965          | -7.33          | 20.51       | 13.18        | 46.06        | -32.88      | AVG      |
| 9   | 12.8805         | 12.26          | 20.29       | 32.55        | 60.00        | -27.45      | QP       |
| 10  | 12.8805         | -2.59          | 20.29       | 17.70        | 50.00        | -32.30      | AVG      |
| 11  | 19.4415         | 14.06          | 20.25       | 34.31        | 60.00        | -25.69      | QP       |
| 12  | 19.4415         | -1.20          | 20.25       | 19.05        | 50.00        | -30.95      | AVG      |



Report No.: WSCT-ANAB-R&E241100063A-Wi-Fi1

# Conducted Emission on Neutral Terminal of the power line (150 kHz to 30MHz)



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Detector |
|-----|-----------------|----------------|-------------|--------------|--------------|-------------|----------|
| 1   | 0.1545          | 12.74          | 20.73       | 33.47        | 65.75        | -32.28      | QP       |
| 2   | 0.1545          | -0.54          | 20.73       | 20.19        | 55.75        | -35.56      | AVG      |
| 3   | 0.1680          | 11.77          | 20.72       | 32.49        | 65.06        | -32.57      | QP       |
| 4   | 0.1680          | 2.92           | 20.72       | 23.64        | 55.06        | -31.42      | AVG      |
| 5   | 0.5055          | 11.55          | 20.51       | 32.06        | 56.00        | -23.94      | QP       |
| 6   | 0.5055          | -2.92          | 20.51       | 17.59        | 46.00        | -28.41      | AVG      |
| 7 * | 0.5775          | 11.60          | 20.52       | 32.12        | 56.00        | -23.88      | QP       |
| 8   | 0.5775          | -8.41          | 20.52       | 12.11        | 46.00        | -33.89      | AVG      |
| 9   | 14.3655         | 13.70          | 20.21       | 33.91        | 60.00        | -26.09      | QP       |
| 10  | 14.3655         | -0.77          | 20.21       | 19.44        | 50.00        | -30.56      | AVG      |
| 11  | 21.5925         | 12.45          | 20.37       | 32.82        | 60.00        | -27.18      | QP       |
| 12  | 21.5925         | -3.36          | 20.37       | 17.01        | 50.00        | -32.99      | AVG      |

## Note1:

Freq. = Emission frequency in MHz

Reading level (dBuV) = Receiver reading

Corr. Factor (dB) = Antenna factor + Cable loss

Measurement (dBuV) = Reading level (dBuV) + Corr. Factor (dB)

Limit (dBuV) = Limit stated in standard

Margin (dB) = Measurement (dBuV) – Limits (dBuV)

Q.P. =Quasi-Peak AVG =average

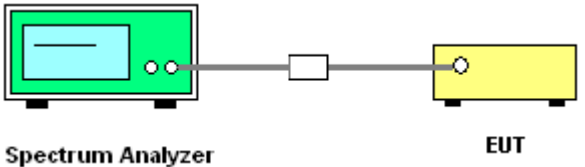
\* is meaning the worst frequency has been tested in the frequency range 150 kHz to 30MHz.



Report No.: WSCT-ANAB-R&E241100063A-Wi-Fi1

## 6.3. Maximum Conducted Output Power

### 6.3.1. Test Specification

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Test Requirement:</b> | FCC Part15 C Section 15.247 (b)(3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Test Method:</b>      | KDB 558074                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Limit:</b>            | 30dBm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Test Setup:</b>       |  <p>The diagram illustrates the test setup. On the left is a green box labeled 'Spectrum Analyzer'. A cable connects it to a small white box labeled 'Attenuator'. Another cable connects the attenuator to a yellow box labeled 'EUT' (Equipment Under Test).</p>                                                                                                                                                         |
| <b>Test Mode:</b>        | Transmitting mode with modulation                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Test Procedure:</b>   | <ol style="list-style-type: none"> <li>1. The testing follows the Measurement Procedure of FCC KDB No. 558074 DTS D01 Meas. Guidance v04.</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. Measure the conducted output power and record the results in the test report.</li> </ol> |
| <b>Test Result:</b>      | PASS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |



Report No.: WSCT-ANAB-R&amp;E241100063A-Wi-Fi1

### 6.3.2. Test Data

ANT1

| Mode | Frequency (MHz) | Maximum Conducted Output Power (dBm) | Limit (dBm) | Verdict |
|------|-----------------|--------------------------------------|-------------|---------|
| b    | 2412            | 15.33                                | 30          | Pass    |
| b    | 2437            | 13.86                                | 30          | Pass    |
| b    | 2462            | 14.71                                | 30          | Pass    |
| g    | 2412            | 17.32                                | 30          | Pass    |
| g    | 2437            | 16.90                                | 30          | Pass    |
| g    | 2462            | 16.36                                | 30          | Pass    |
| n20  | 2412            | 17.65                                | 30          | Pass    |
| n20  | 2437            | 17.40                                | 30          | Pass    |
| n20  | 2462            | 16.57                                | 30          | Pass    |
| n40  | 2422            | <b>17.72</b>                         | 30          | Pass    |
| n40  | 2437            | 16.51                                | 30          | Pass    |
| n40  | 2452            | 17.13                                | 30          | Pass    |

ANT2

| Mode | Frequency (MHz) | Maximum Conducted Output Power (dBm) | Limit (dBm) | Verdict |
|------|-----------------|--------------------------------------|-------------|---------|
| b    | 2412            | <b>18.77</b>                         | 30          | Pass    |
| b    | 2437            | 15.13                                | 30          | Pass    |
| b    | 2462            | 15.82                                | 30          | Pass    |
| g    | 2412            | 16.95                                | 30          | Pass    |
| g    | 2437            | 16.62                                | 30          | Pass    |
| g    | 2462            | 17.20                                | 30          | Pass    |
| n20  | 2412            | 17.93                                | 30          | Pass    |
| n20  | 2437            | 17.91                                | 30          | Pass    |
| n20  | 2462            | 17.84                                | 30          | Pass    |
| n40  | 2422            | 18.00                                | 30          | Pass    |
| n40  | 2437            | 17.93                                | 30          | Pass    |
| n40  | 2452            | 17.93                                | 30          | Pass    |

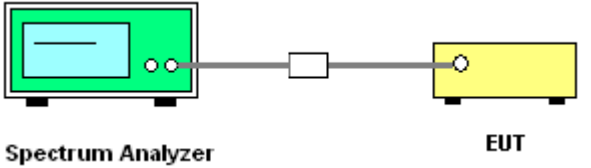
MIMO

| Mode | Frequency (MHz) | Maximum Conducted Output Power (dBm) | Limit (dBm) | Verdict |
|------|-----------------|--------------------------------------|-------------|---------|
| n20  | 2412            | 20.80                                | 30          | Pass    |
| n20  | 2437            | 20.67                                | 30          | Pass    |
| n20  | 2462            | 20.26                                | 30          | Pass    |
| n40  | 2422            | <b>20.87</b>                         | 30          | Pass    |
| n40  | 2437            | 20.29                                | 30          | Pass    |
| n40  | 2452            | 20.56                                | 30          | Pass    |



## 6.4. Emission Bandwidth

### 6.4.1. Test Specification

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Test Requirement:</b> | FCC Part15 C Section 15.247 (a)(2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Test Method:</b>      | KDB 558074                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Limit:</b>            | >500kHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Test Setup:</b>       |  <p>The diagram shows a Spectrum Analyzer (represented by a green box with a screen and two knobs) connected via a cable to a small white box, which is then connected to a yellow box labeled 'EUT' (Equipment Under Test).</p>                                                                                                                                                                                                               |
| <b>Test Mode:</b>        | Transmitting mode with modulation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Test Procedure:</b>   | <ol style="list-style-type: none"> <li>1. The testing follows FCC KDB Publication No. 558074 DTS D01 Meas. Guidance v04.</li> <li>2. Set to the maximum power setting and enable the EUT transmit continuously.</li> <li>3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement, The 6dB bandwidth must be greater than 500 kHz.</li> <li>4. Measure and record the results in the test report.</li> </ol> |
| <b>Test Result:</b>      | PASS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |



Report No.: WSCT-ANAB-R&amp;E241100063A-Wi-Fi1

## 6.4.2. Test data(worst)

| Mode | Frequency (MHz) | -6 dB Bandwidth (MHz) | Limit -6 dB Bandwidth (MHz) | Verdict |
|------|-----------------|-----------------------|-----------------------------|---------|
| b    | 2412            | 8.076                 | 0.5                         | Pass    |
| b    | 2437            | 7.600                 | 0.5                         | Pass    |
| b    | 2462            | 8.069                 | 0.5                         | Pass    |
| g    | 2412            | 9.461                 | 0.5                         | Pass    |
| g    | 2437            | 14.47                 | 0.5                         | Pass    |
| g    | 2462            | 11.99                 | 0.5                         | Pass    |
| n20  | 2412            | 11.31                 | 0.5                         | Pass    |
| n20  | 2437            | 13.91                 | 0.5                         | Pass    |
| n20  | 2462            | 12.67                 | 0.5                         | Pass    |
| n40  | 2422            | 35.98                 | 0.5                         | Pass    |
| n40  | 2437            | 32.55                 | 0.5                         | Pass    |
| n40  | 2452            | 31.36                 | 0.5                         | Pass    |

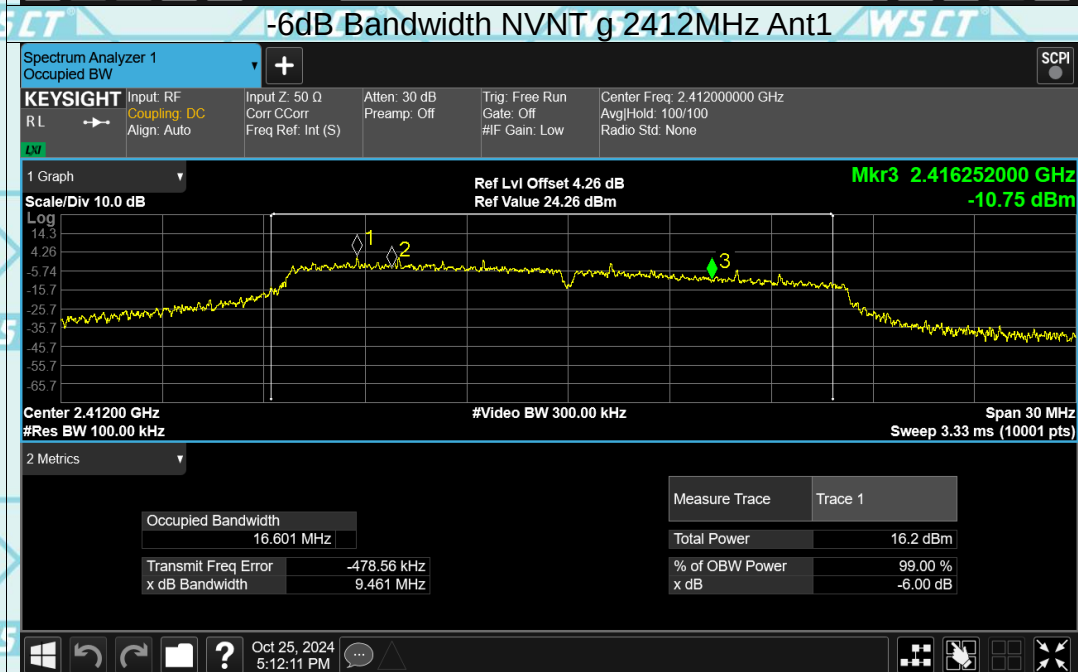
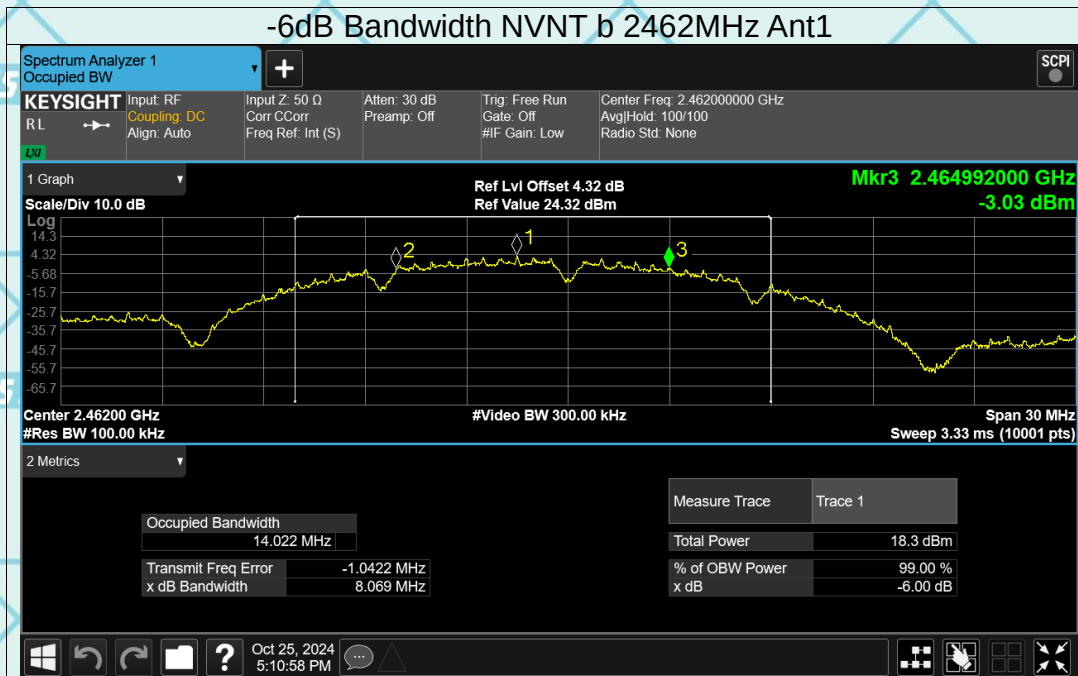


Report No.: WSCT-ANAB-R&E241100063A-Wi-Fi1



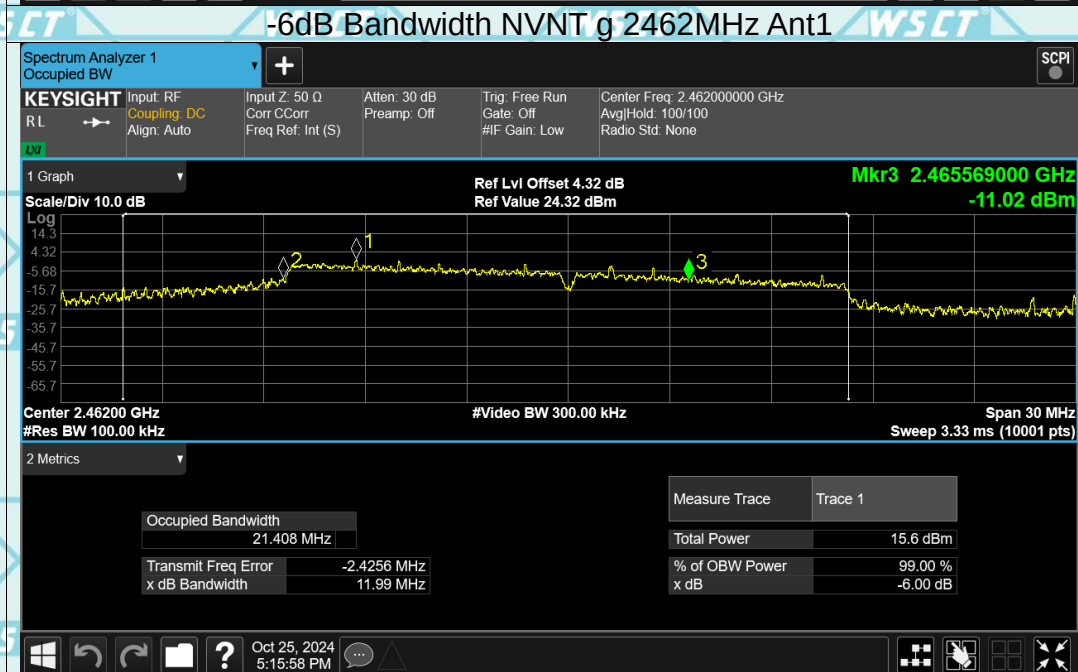
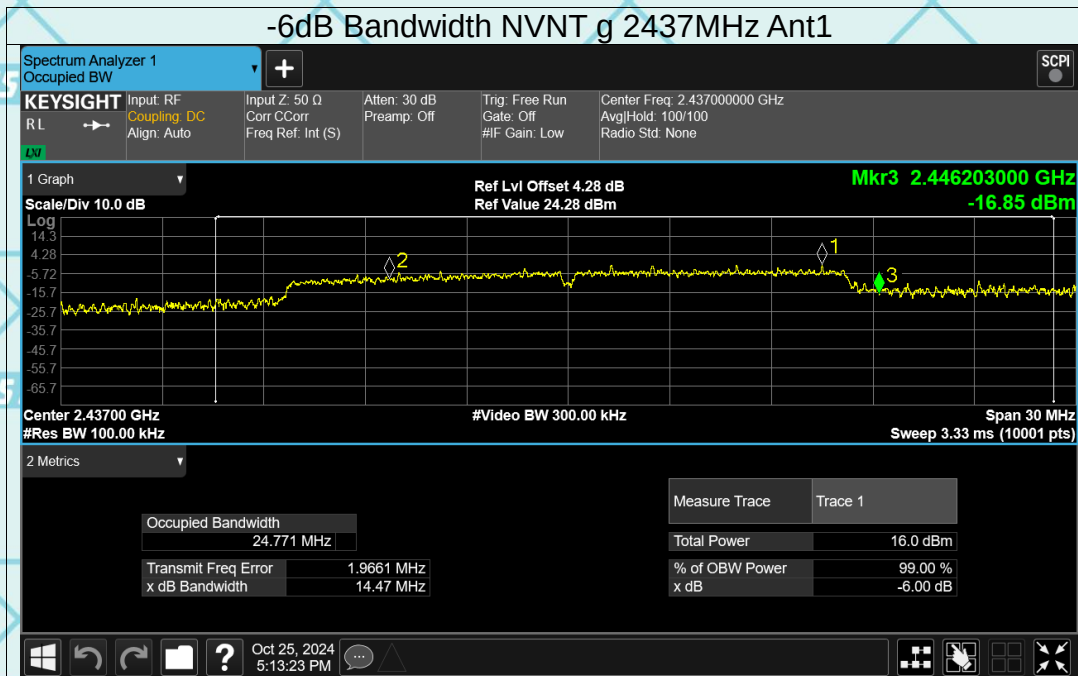


Report No.: WSCT-ANAB-R&E241100063A-Wi-Fi1



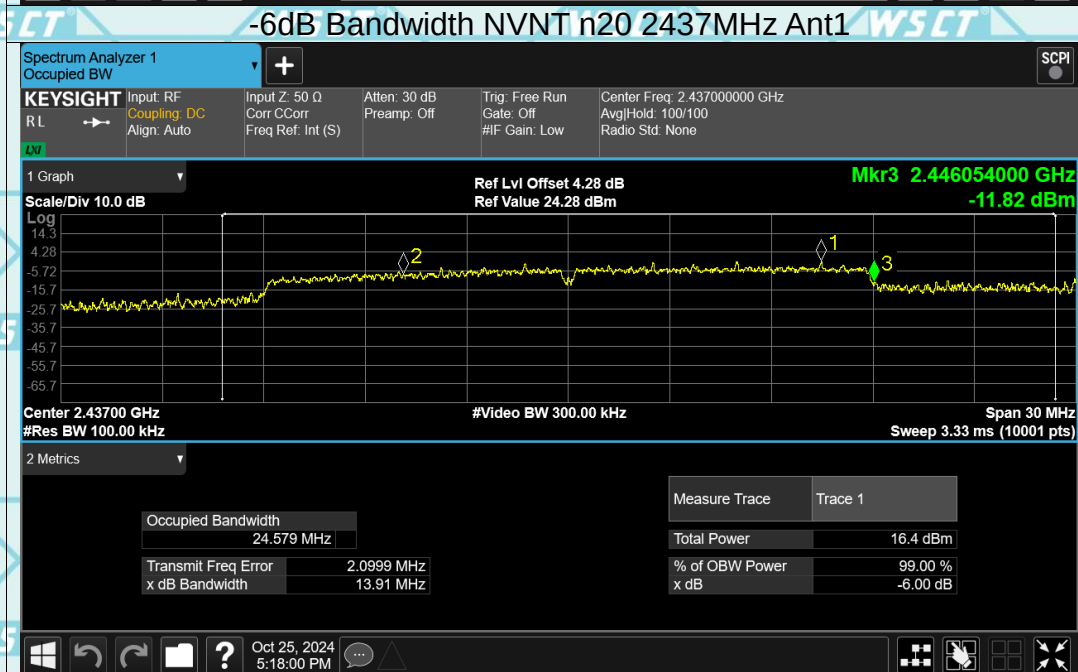
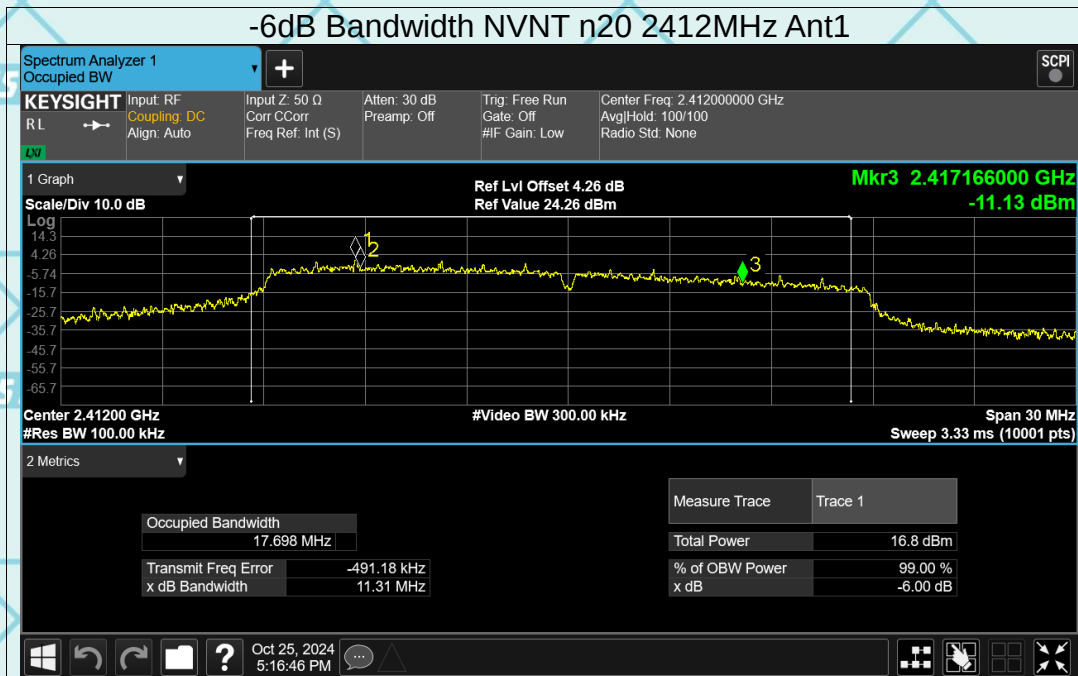


Report No.: WSCT-ANAB-R&E241100063A-Wi-Fi1



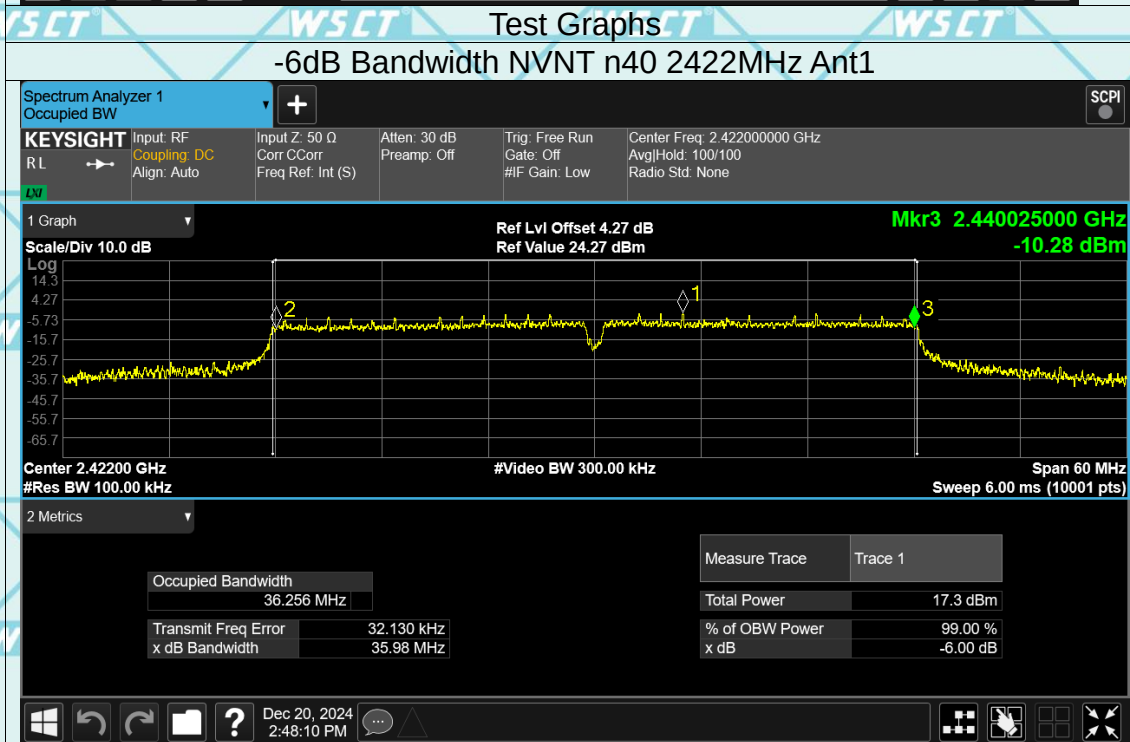
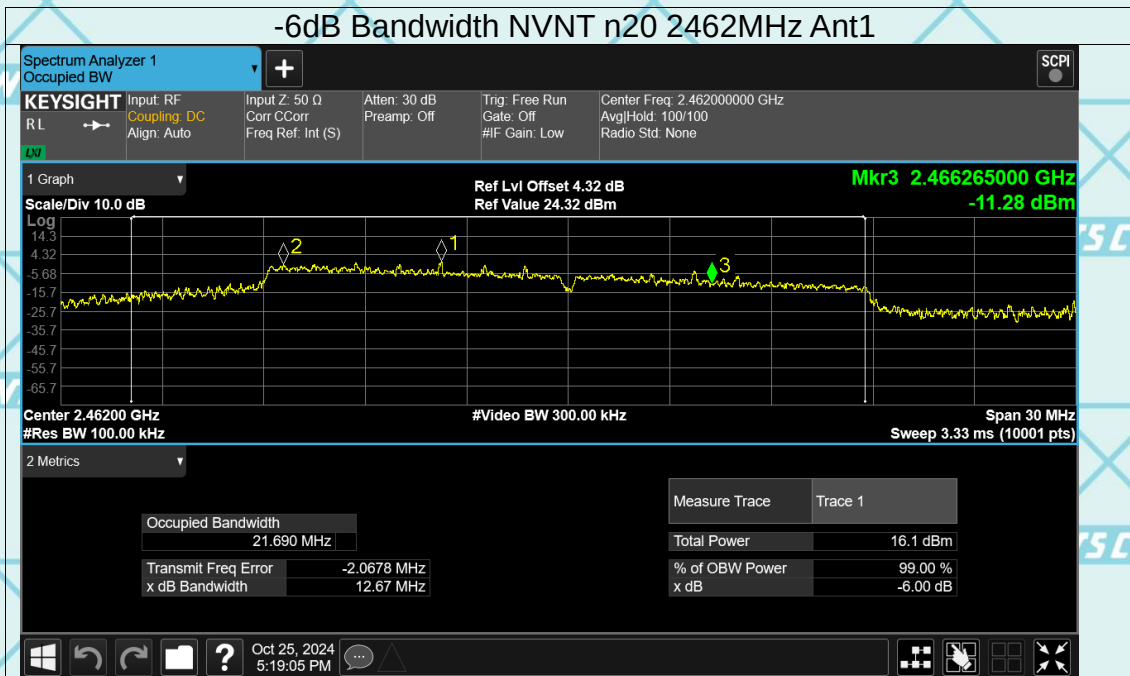


Report No.: WSCT-ANAB-R&E241100063A-Wi-Fi1



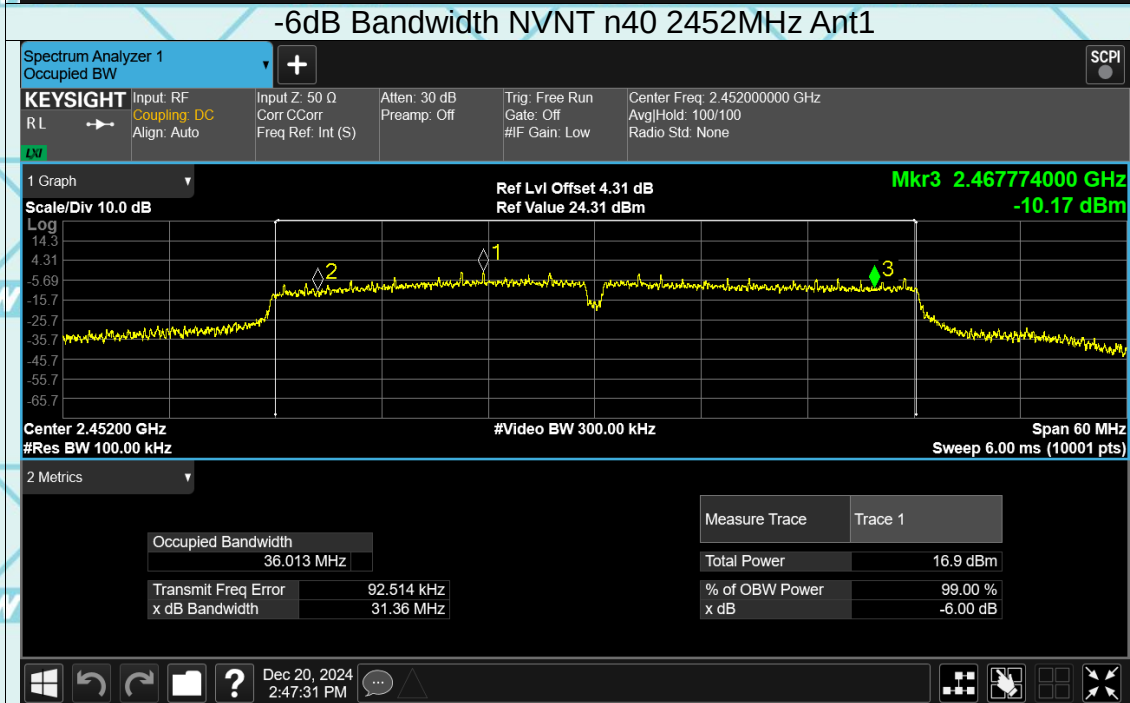
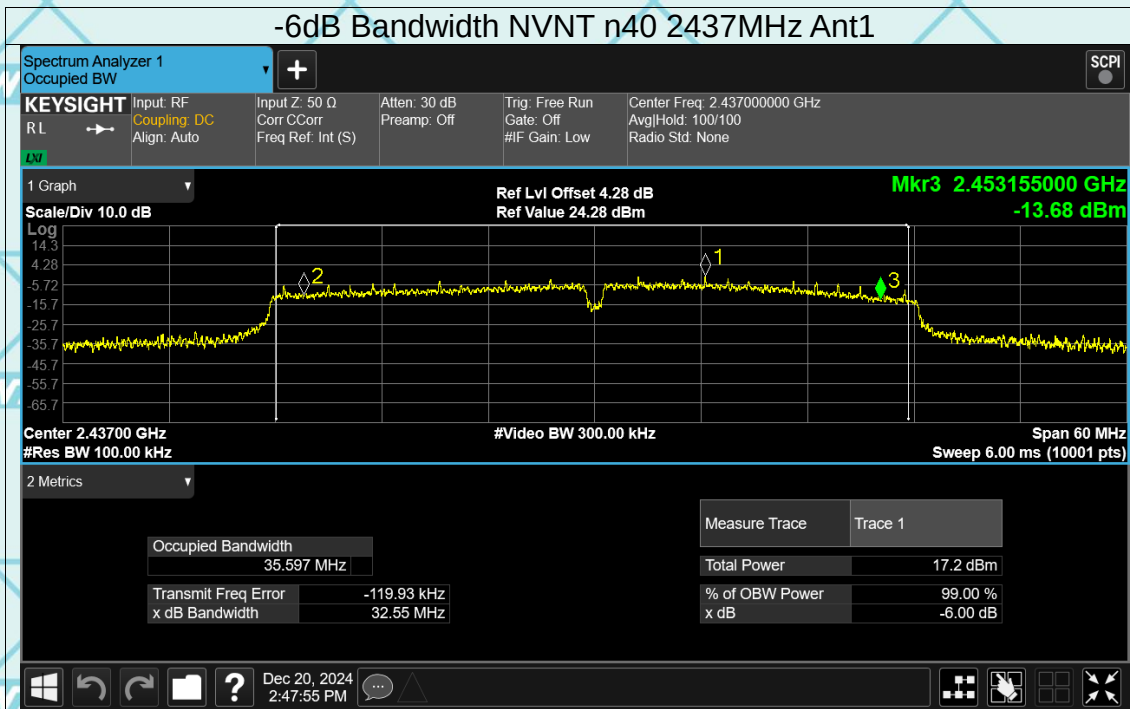


Report No.: WSCT-ANAB-R&E241100063A-Wi-Fi1





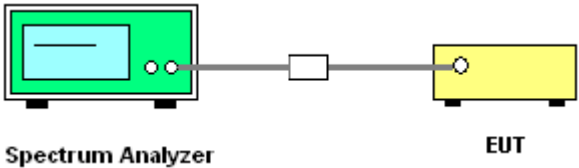
Report No.: WSCT-ANAB-R&E241100063A-Wi-Fi1





## 6.5. Power Spectral Density

### 6.5.1 Test Specification

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Test Requirement:</b> | FCC Part15 C Section 15.247 (e)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Test Method:</b>      | KDB 558074                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Limit:</b>            | The average power spectral density shall not be greater than 8dBm in any 3kHz band at any time interval of continuous transmission.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Test Setup:</b>       |  <p>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 Measurement Procedure 10.3 Method AVGPS of FCC KDB Publication No.558074 D01 DTS Meas. Guidance v04</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. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW): <math>3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}</math>. Video bandwidth VBW <math>\geq 3 \times \text{RBW}</math>. Set the span to at least 1.5 times the OBW.</li> <li>5. Detector = RMS, Sweep time = auto couple.</li> <li>6. Employ trace averaging (RMS) mode over a minimum of 100 traces. Use the peak marker function to determine the maximum power level.</li> <li>6. Measure and record the results in the test report.</li> </ol> |
| <b>Test Result:</b>      | PASS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |



Report No.: WSCT-ANAB-R&amp;E241100063A-Wi-Fi1

## 6.5.2. Test data(worst)

ANT1:

| Mode | Frequency (MHz) | Total PSD (dBm/3kHz) | Limit (dBm/3kHz) | Verdict |
|------|-----------------|----------------------|------------------|---------|
| b    | 2412            | -15.03               | 8                | Pass    |
| b    | 2437            | -15.53               | 8                | Pass    |
| b    | 2462            | -15.62               | 8                | Pass    |
| g    | 2412            | -19.32               | 8                | Pass    |
| g    | 2437            | -19.93               | 8                | Pass    |
| g    | 2462            | -18.82               | 8                | Pass    |
| n20  | 2412            | -19.34               | 8                | Pass    |
| n20  | 2437            | -20.17               | 8                | Pass    |
| n20  | 2462            | -18.35               | 8                | Pass    |
| n40  | 2422            | -23.24               | 8                | Pass    |
| n40  | 2437            | -23.13               | 8                | Pass    |
| n40  | 2452            | -19.35               | 8                | Pass    |

ANT2:

| Mode | Frequency (MHz) | Total PSD (dBm/3kHz) | Limit (dBm/3kHz) | Verdict |
|------|-----------------|----------------------|------------------|---------|
| b    | 2412            | -14.35               | 8                | Pass    |
| b    | 2437            | -15.31               | 8                | Pass    |
| b    | 2462            | -15.59               | 8                | Pass    |
| g    | 2412            | -18.52               | 8                | Pass    |
| g    | 2437            | -21.15               | 8                | Pass    |
| g    | 2462            | -19.59               | 8                | Pass    |
| n20  | 2412            | -18.38               | 8                | Pass    |
| n20  | 2437            | -20.1                | 8                | Pass    |
| n20  | 2462            | -19.21               | 8                | Pass    |
| n40  | 2422            | -22.63               | 8                | Pass    |
| n40  | 2437            | -22.47               | 8                | Pass    |
| n40  | 2452            | -19.14               | 8                | Pass    |

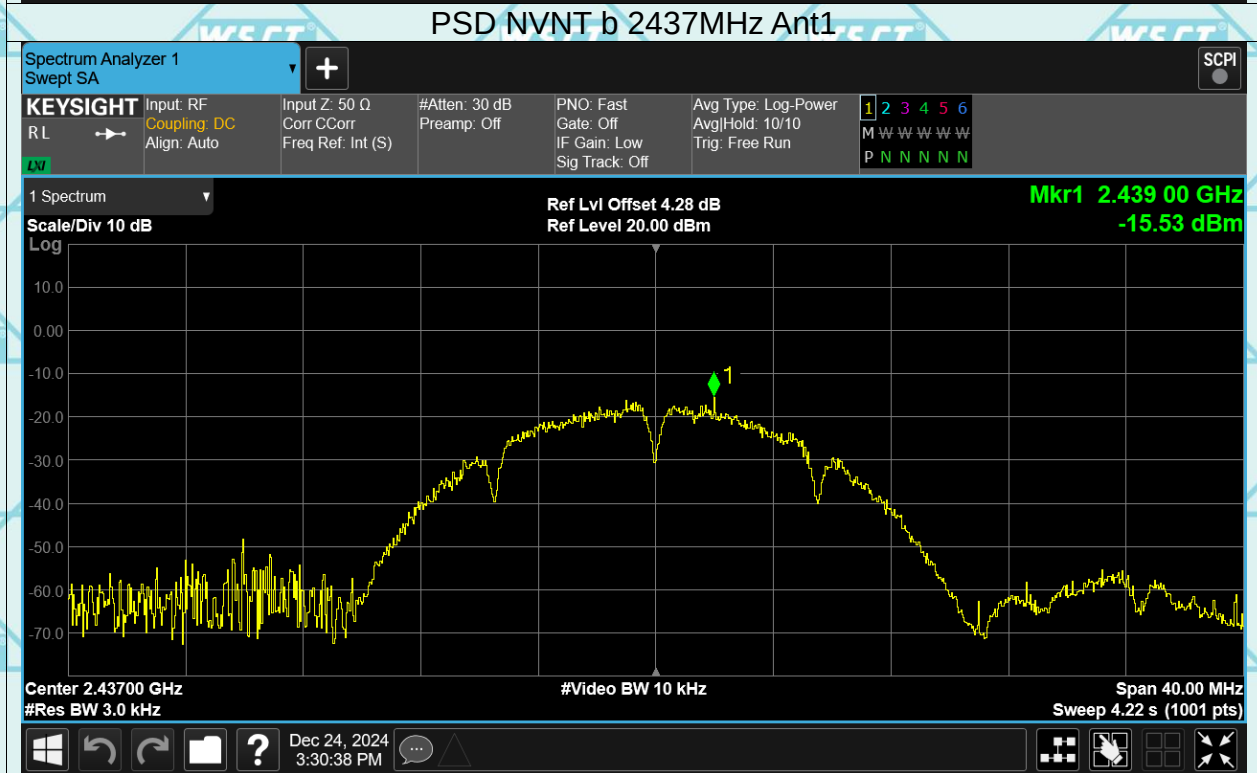
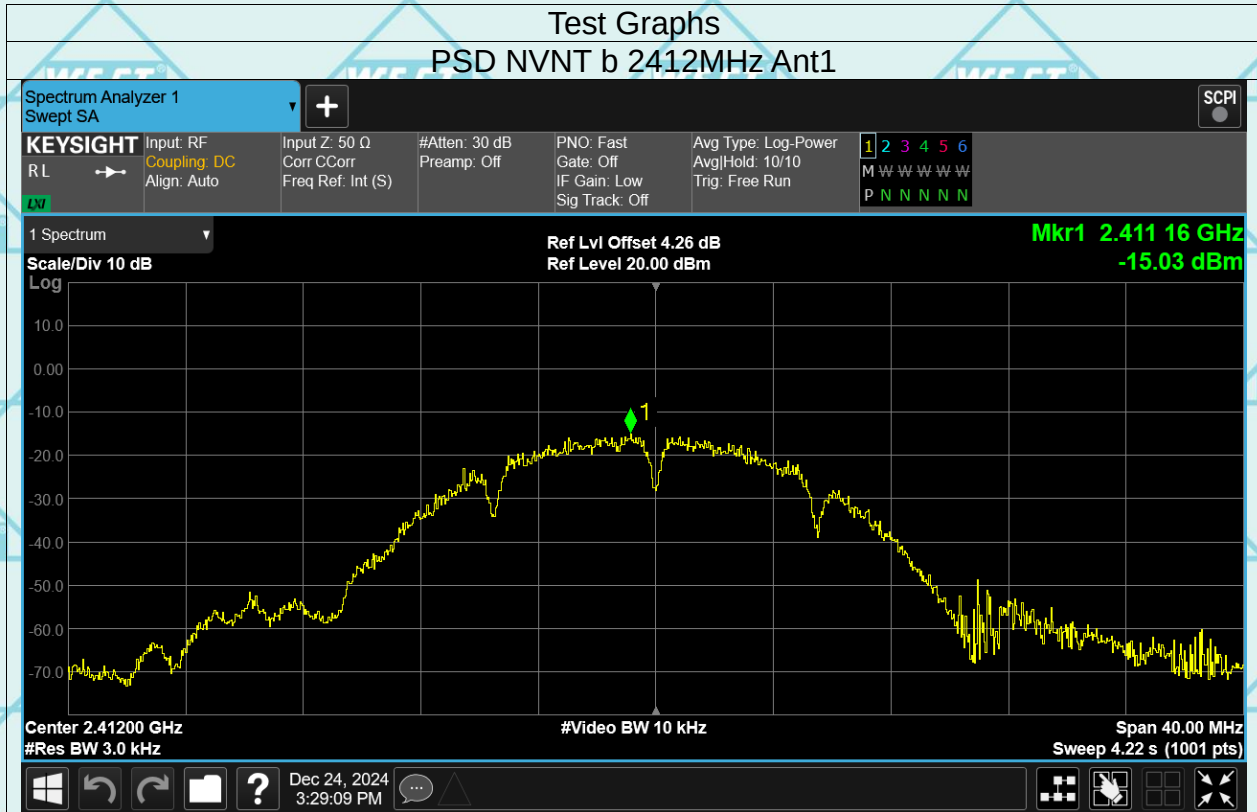
MIMO:

| Mode | Frequency (MHz) | Total PSD (dBm/3kHz) | Limit (dBm/3kHz) | Verdict |
|------|-----------------|----------------------|------------------|---------|
| n20  | 2412            | -15.82               | 8                | Pass    |
| n20  | 2437            | -17.12               | 8                | Pass    |
| n20  | 2462            | -15.75               | 8                | Pass    |
| n40  | 2422            | -19.91               | 8                | Pass    |
| n40  | 2437            | -19.78               | 8                | Pass    |
| n40  | 2452            | -16.23               | 8                | Pass    |



Report No.: WSCT-ANAB-R&E241100063A-Wi-Fi1

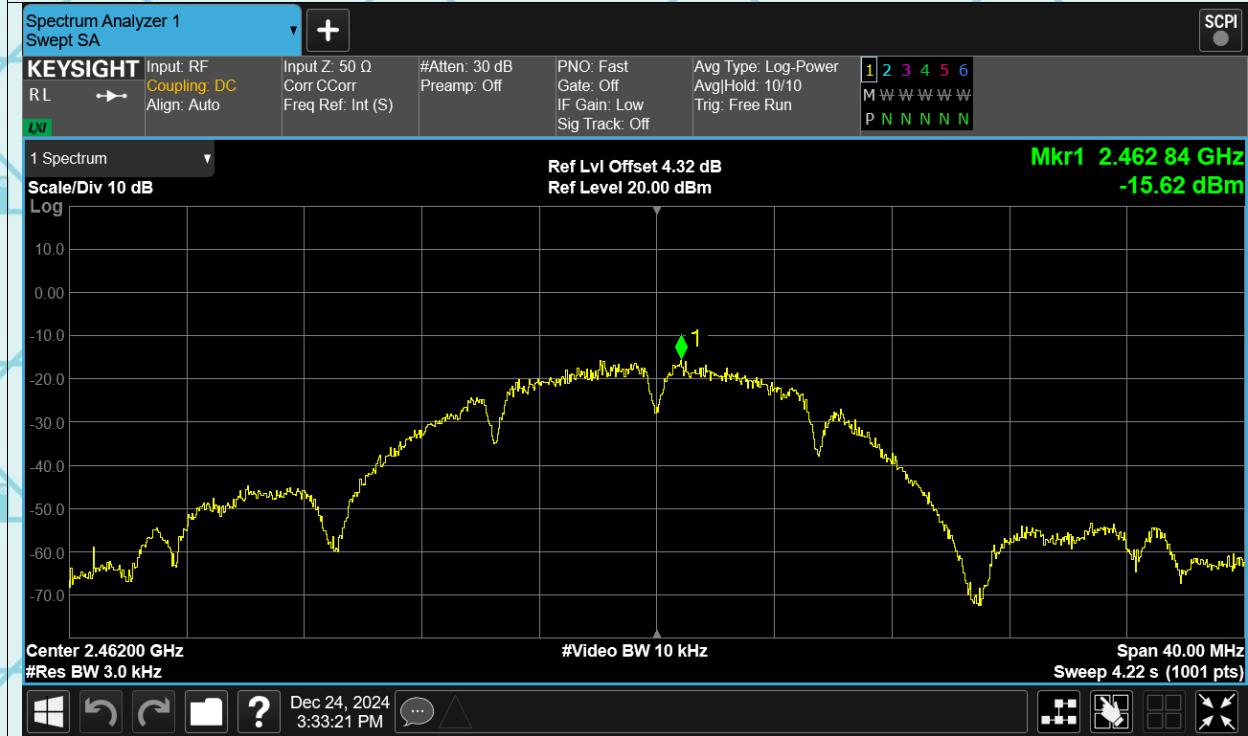
**ANT1:**



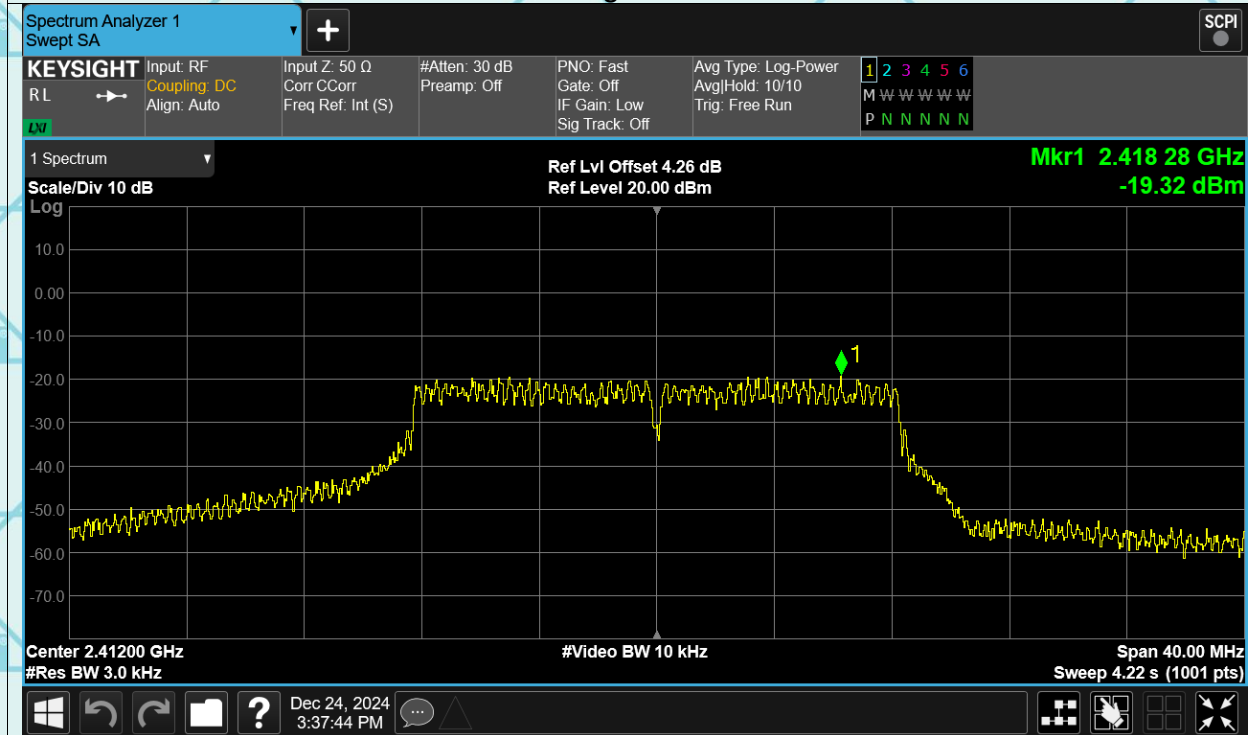


Report No.: WSCT-ANAB-R&E241100063A-Wi-Fi1

### PSD NVNT b 2462MHz Ant1



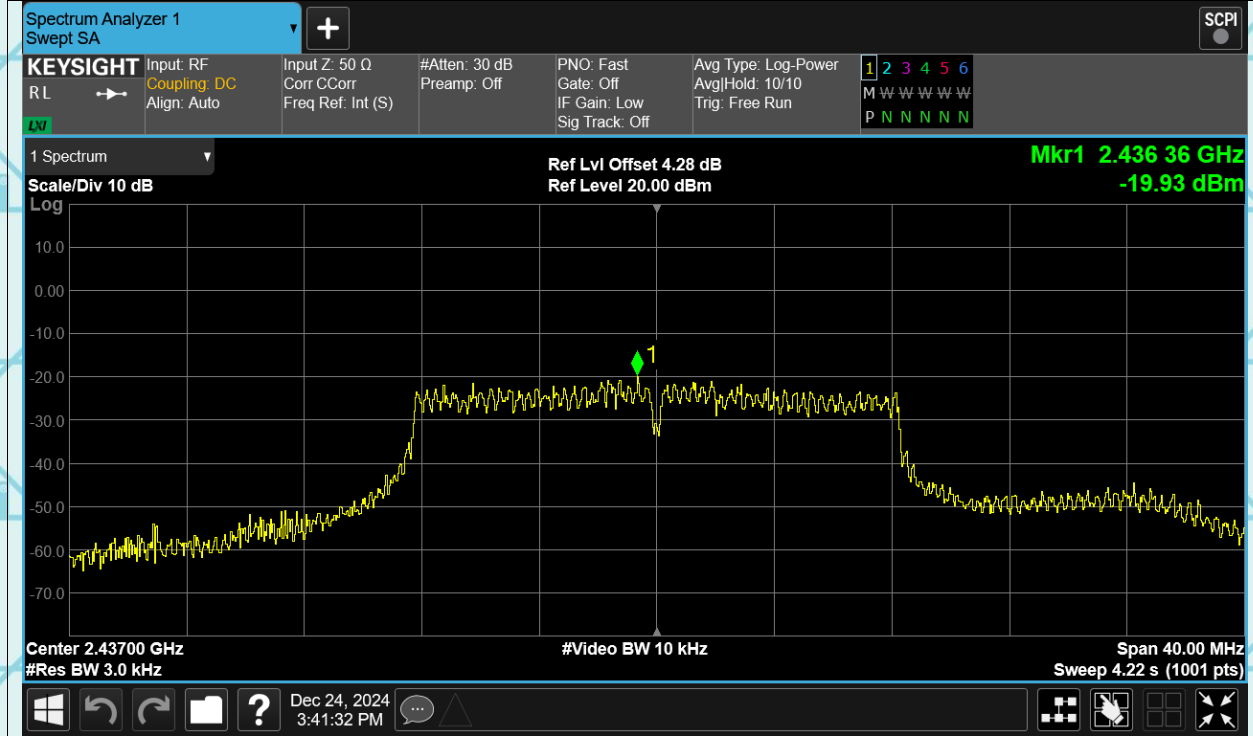
### PSD NVNT g 2412MHz Ant1



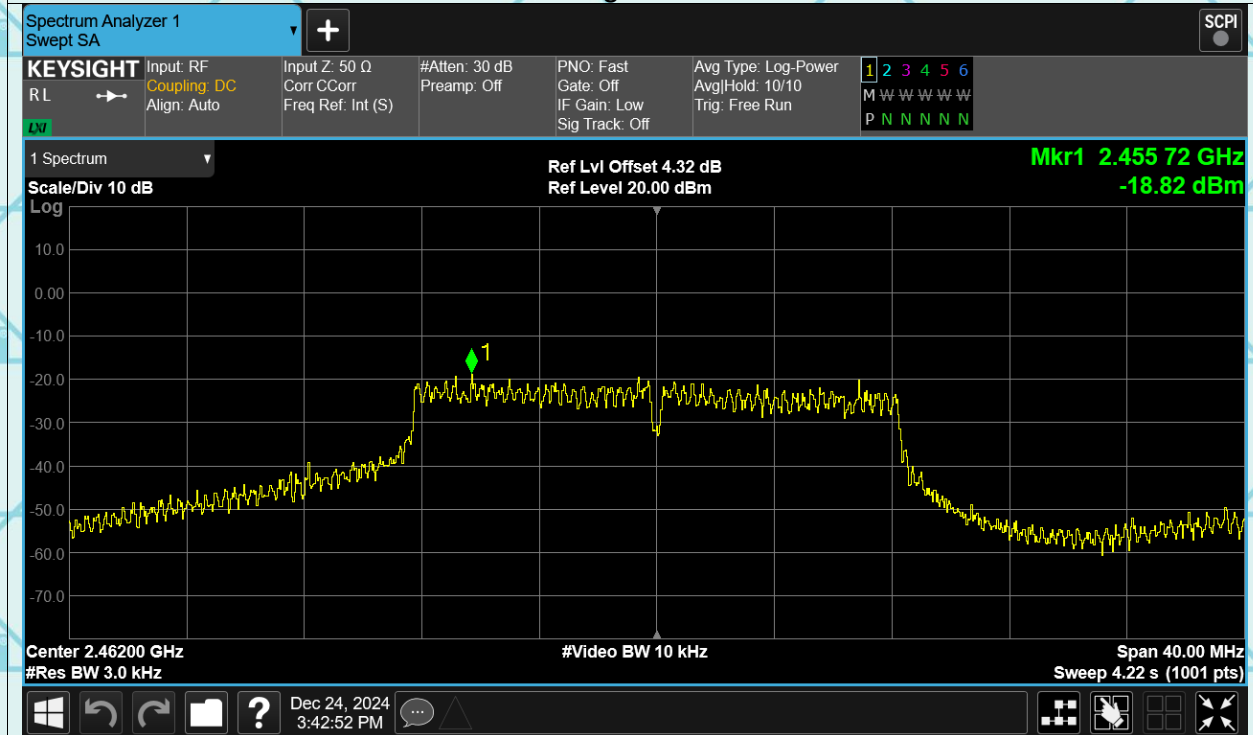


Report No.: WSCT-ANAB-R&E241100063A-Wi-Fi1

### PSD NVNT g 2437MHz Ant1



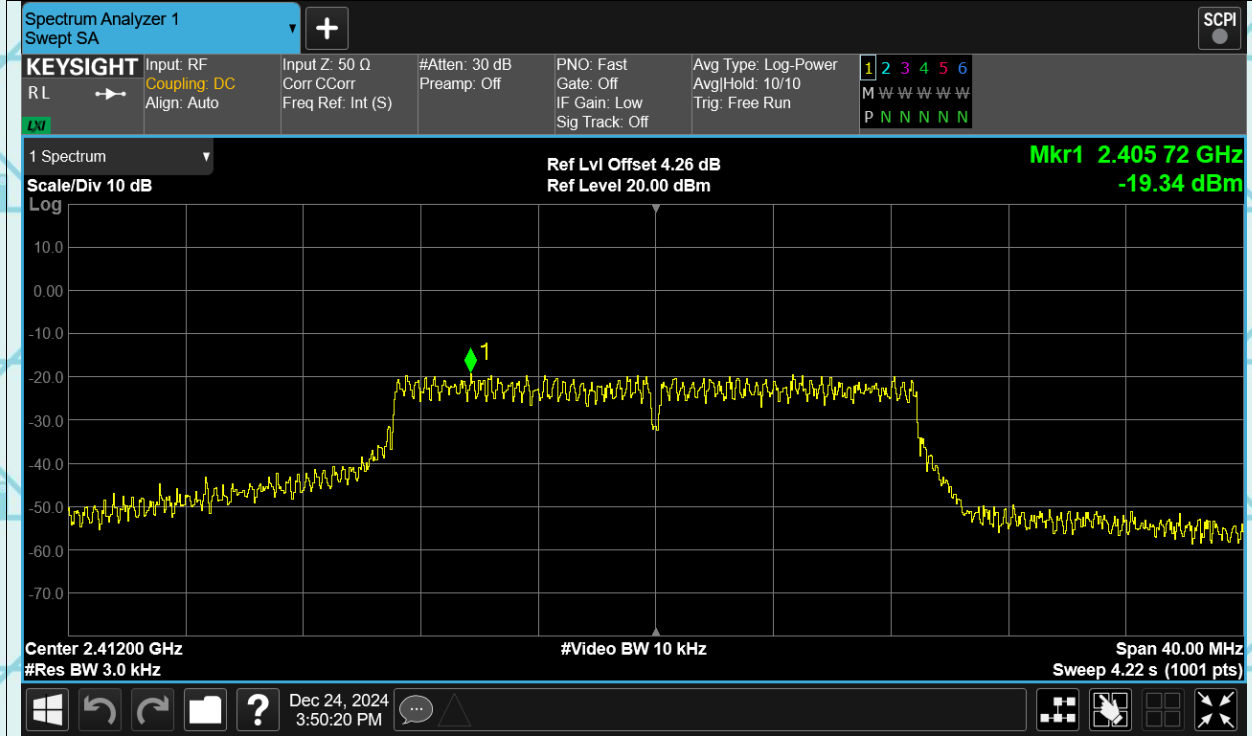
### PSD NVNT g 2462MHz Ant1



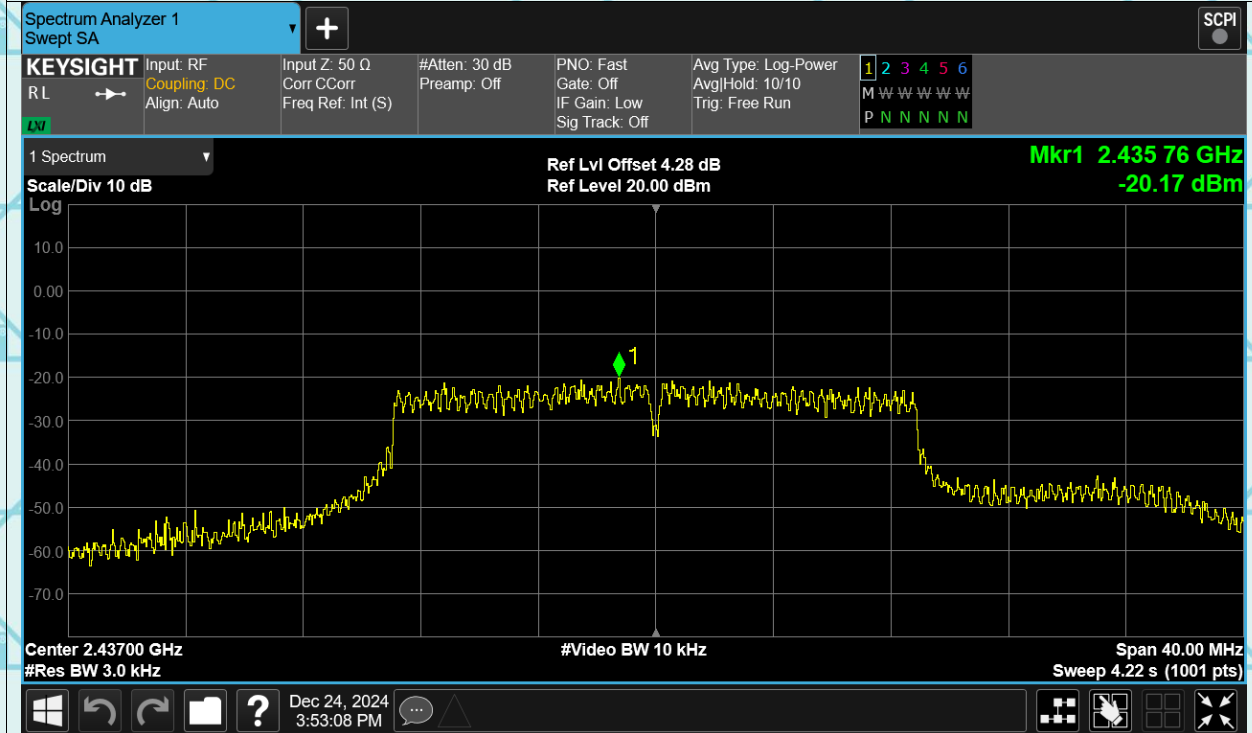


Report No.: WSCT-ANAB-R&E241100063A-Wi-Fi1

### PSD NVNT n20 2412MHz Ant1



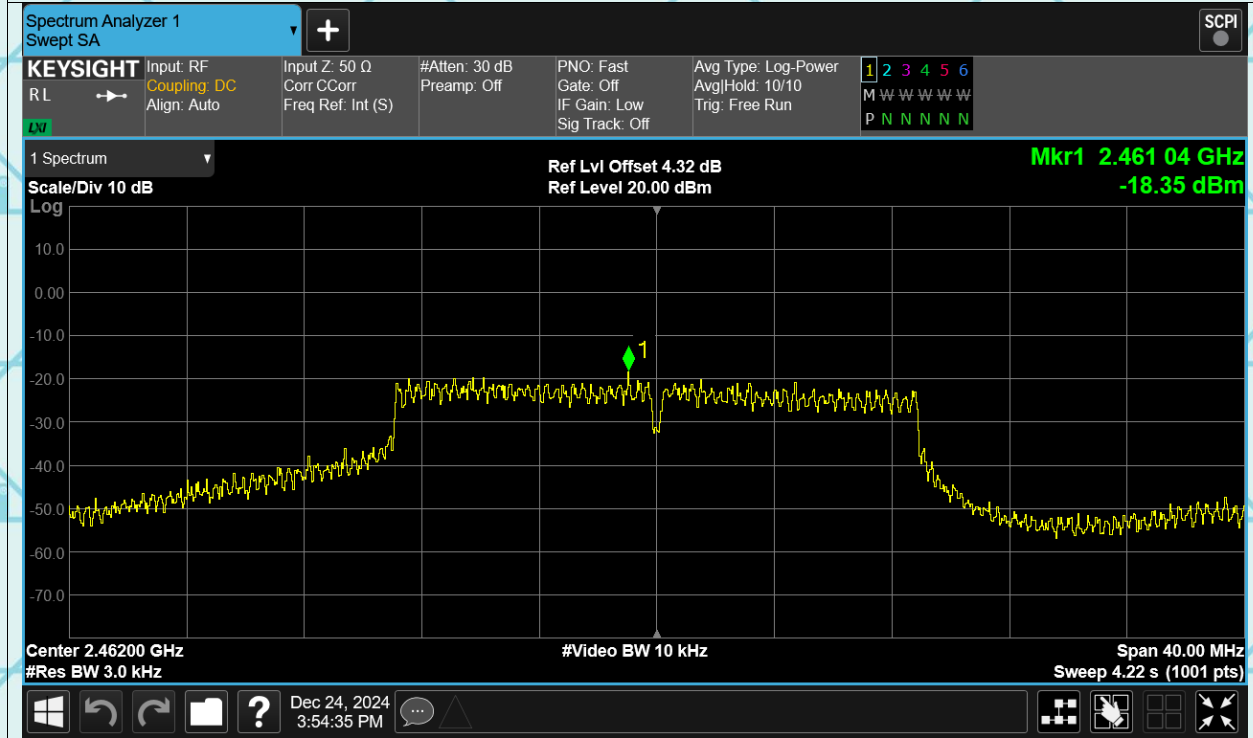
### PSD NVNT n20 2437MHz Ant1



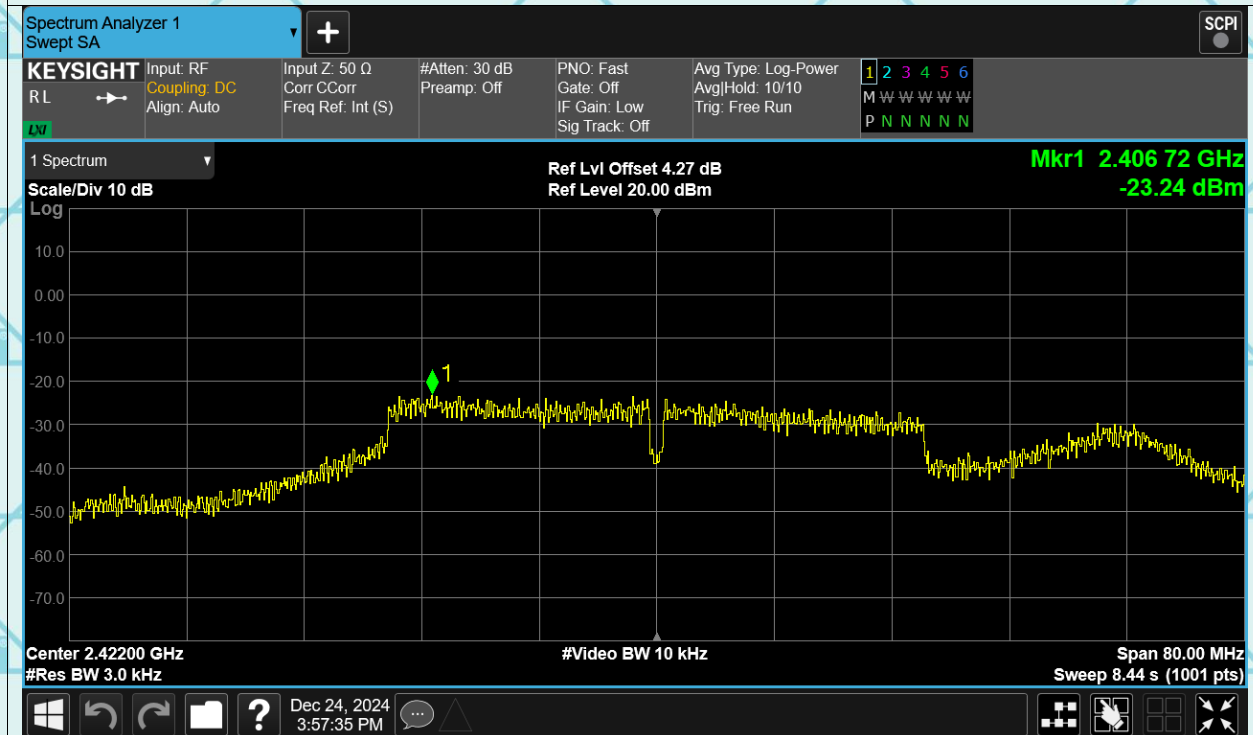


Report No.: WSCT-ANAB-R&E241100063A-Wi-Fi1

### PSD NVNT n20 2462MHz Ant1



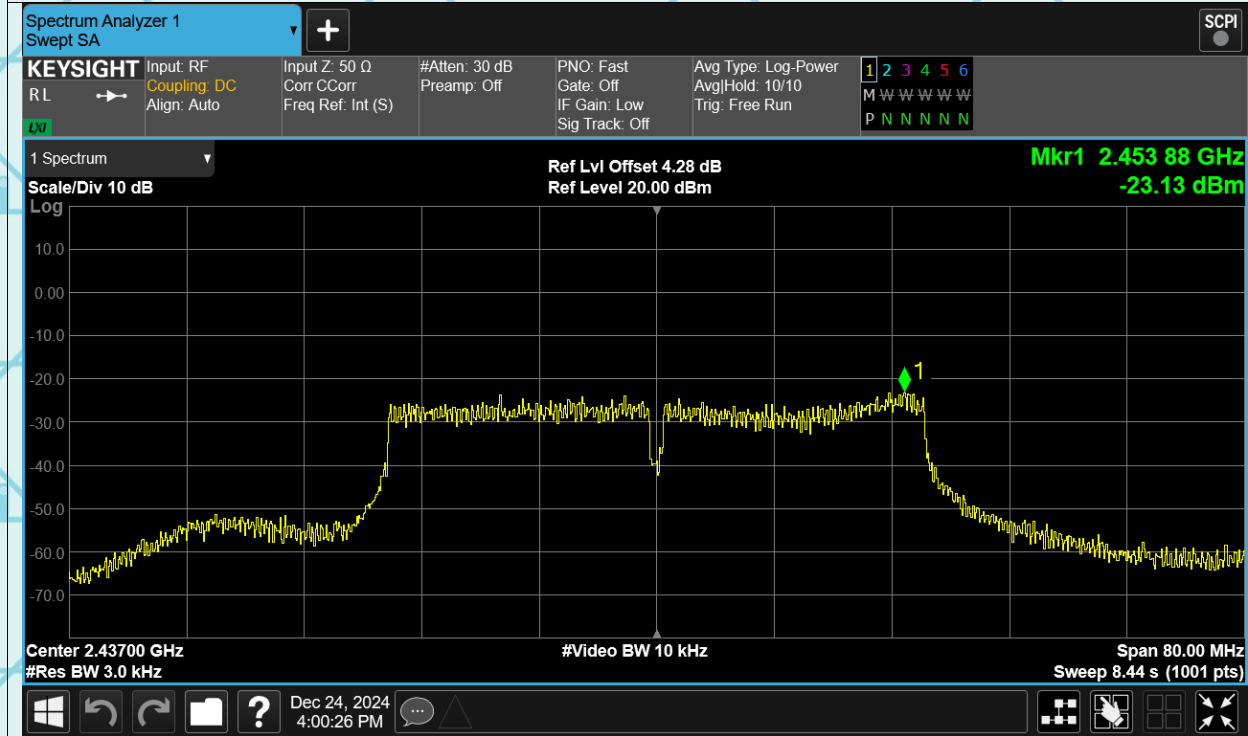
### PSD NVNT n40 2422MHz Ant1



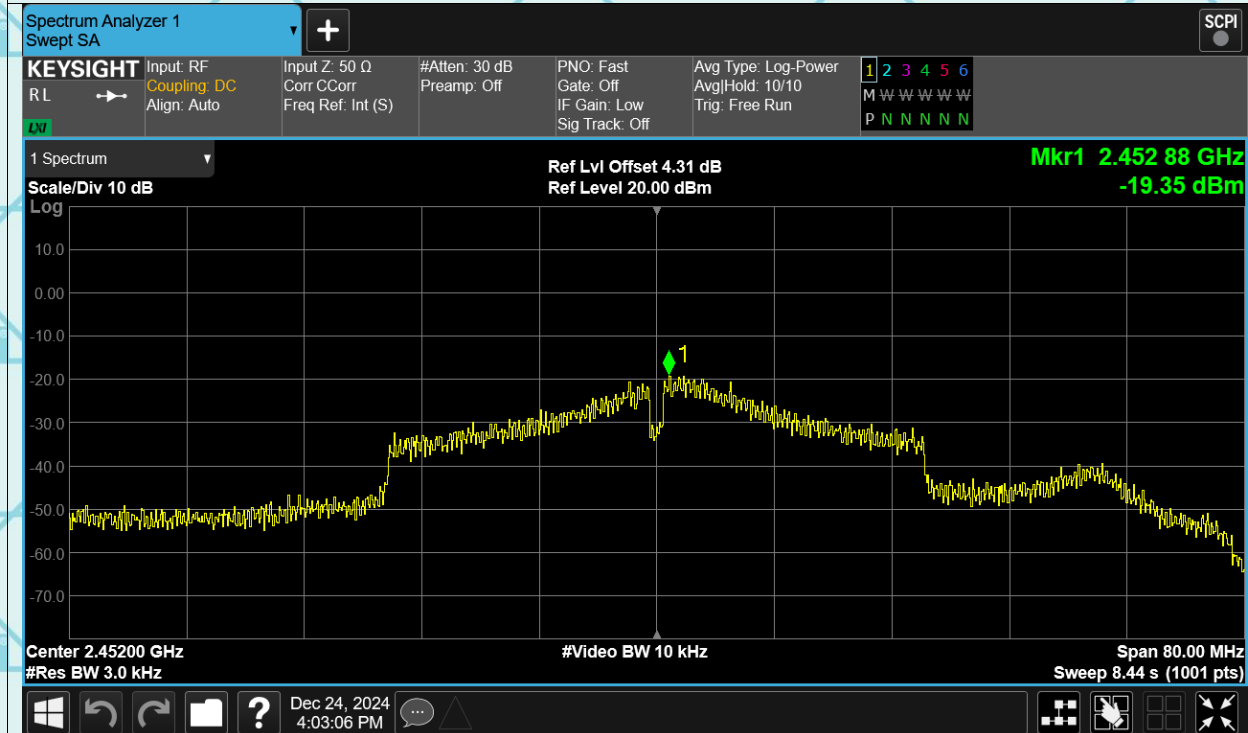


Report No.: WSCT-ANAB-R&E241100063A-Wi-Fi1

### PSD NVNT n40 2437MHz Ant1



### PSD NVNT n40 2452MHz Ant1



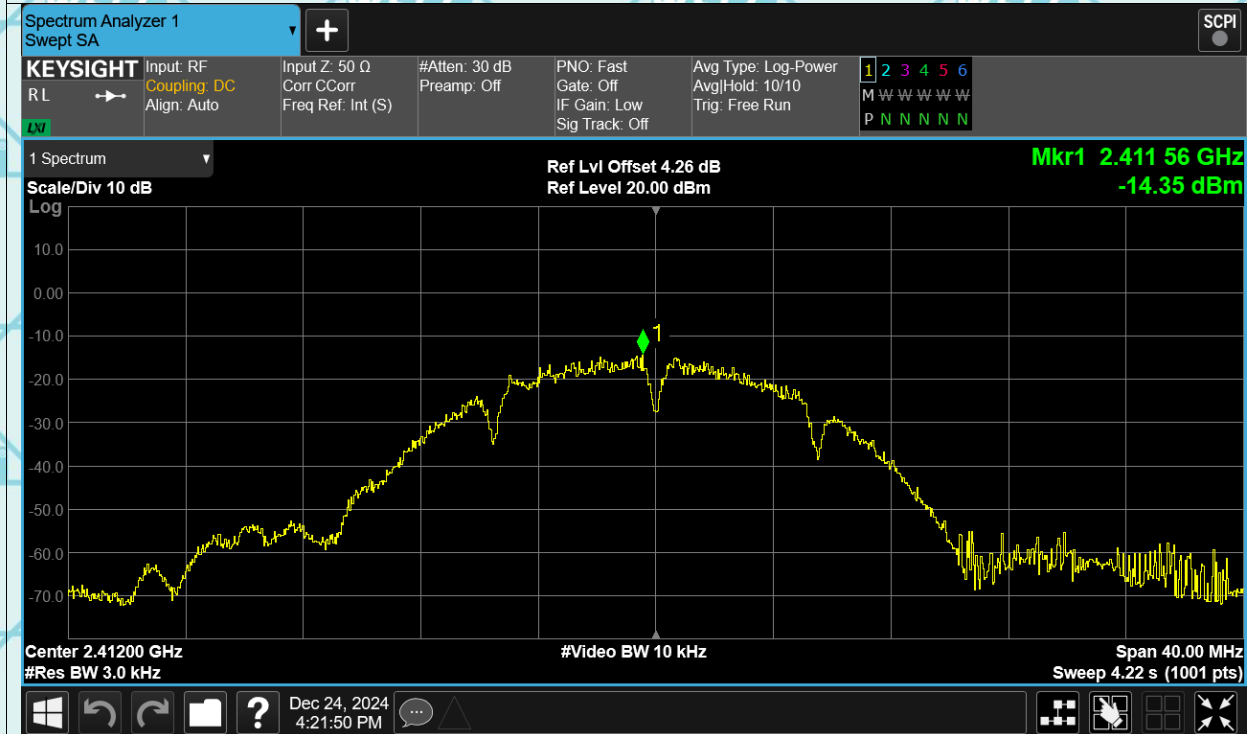


Report No.: WSCT-ANAB-R&E241100063A-Wi-Fi1

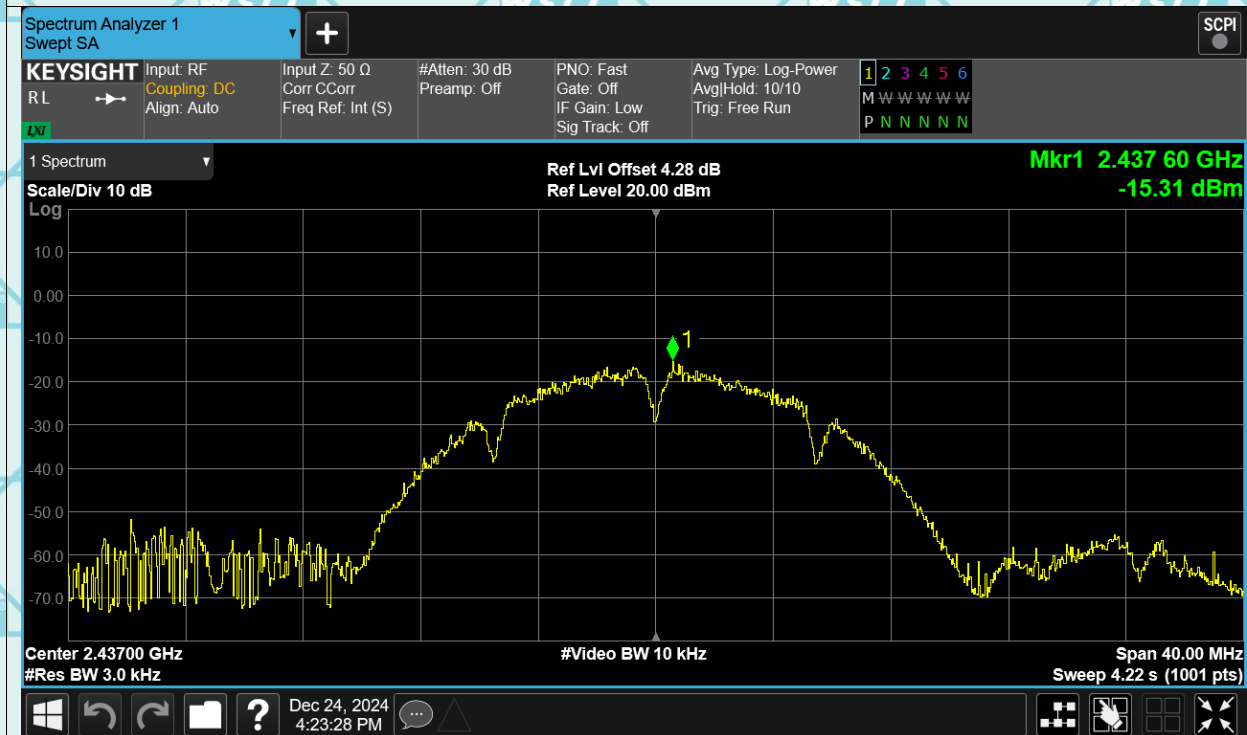
**ANT2:**

**Test Graphs**

**PSD NVNT b 2412MHz Ant2**



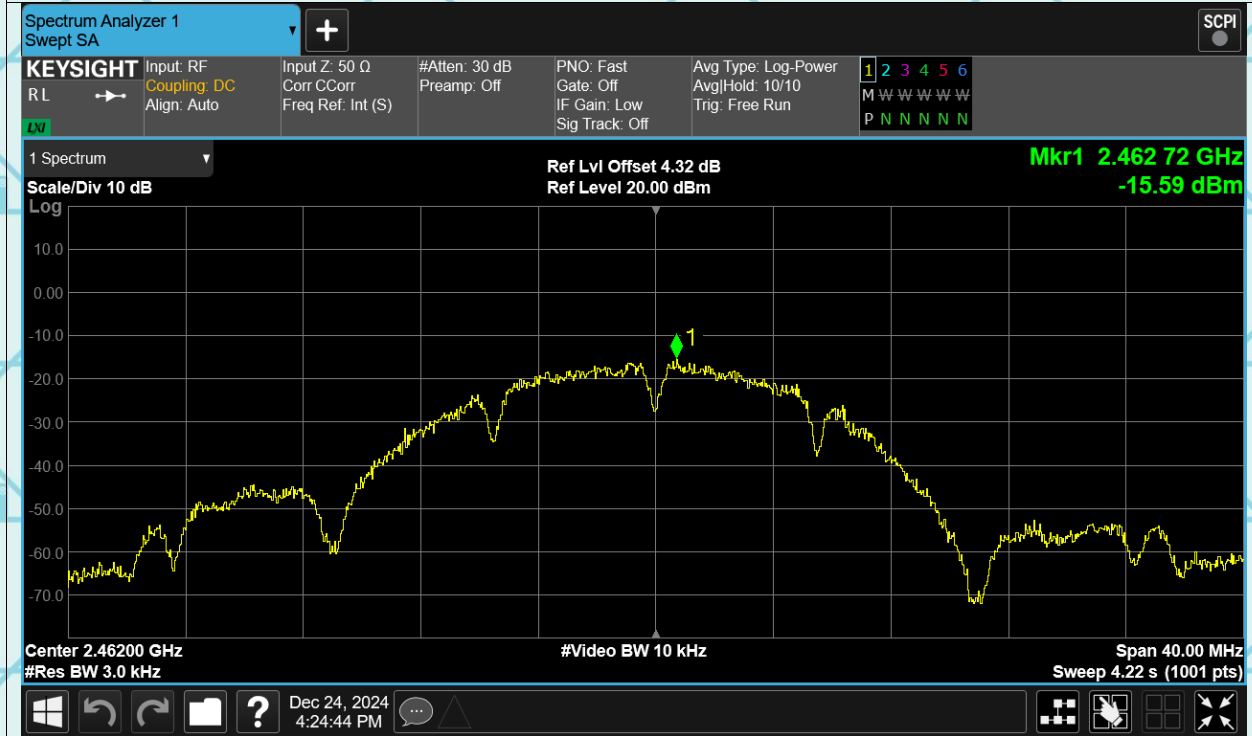
**PSD NVNT b 2437MHz Ant2**



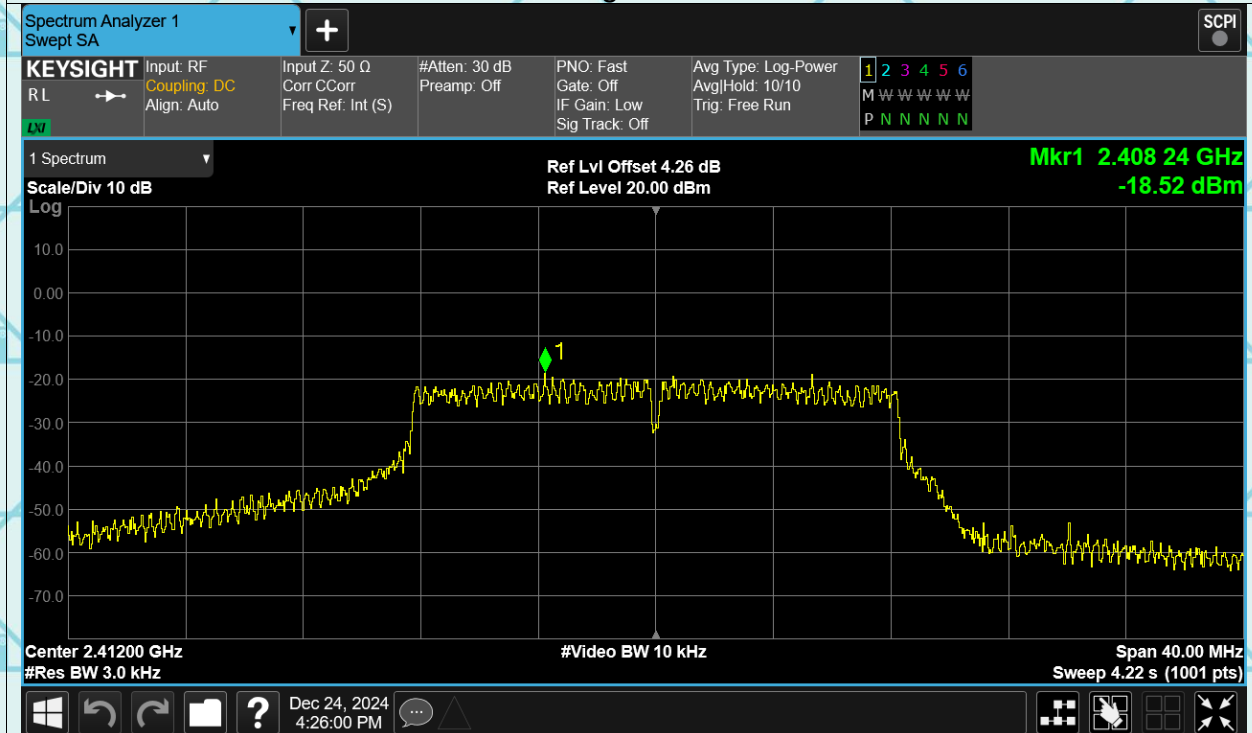


Report No.: WSCT-ANAB-R&E241100063A-Wi-Fi1

### PSD NVNT b 2462MHz Ant2



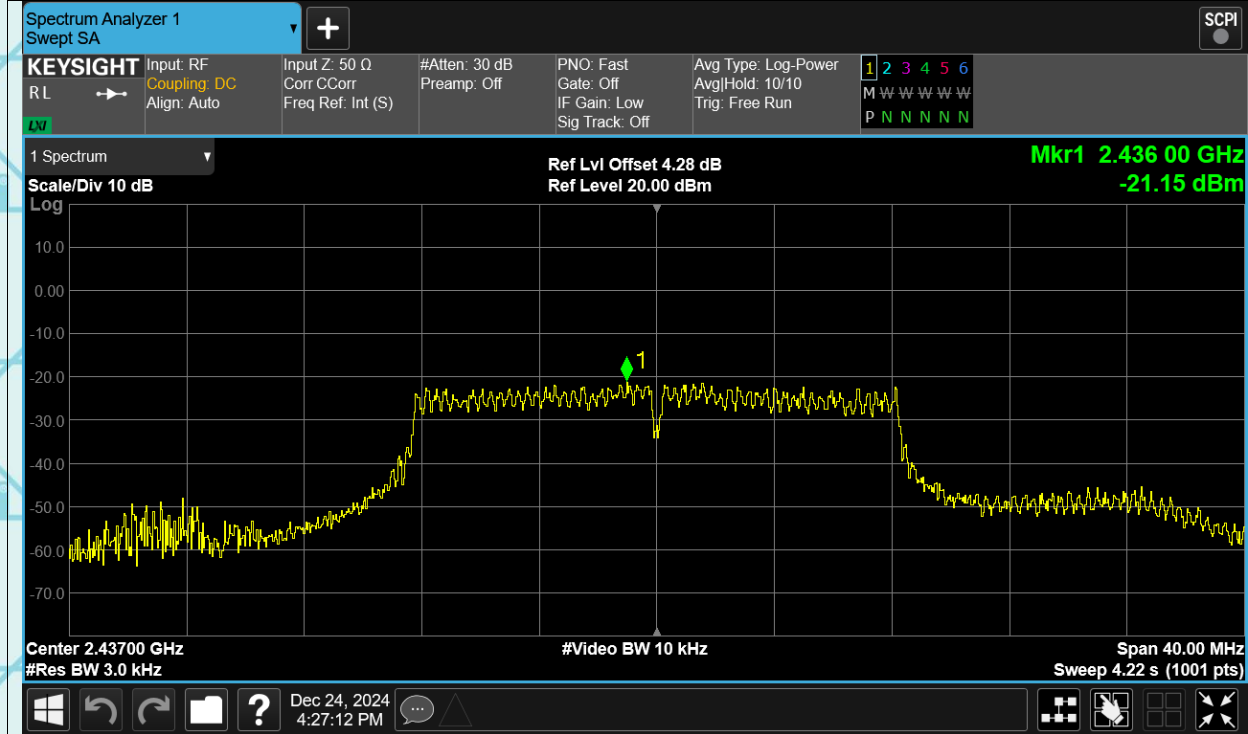
### PSD NVNT g 2412MHz Ant2



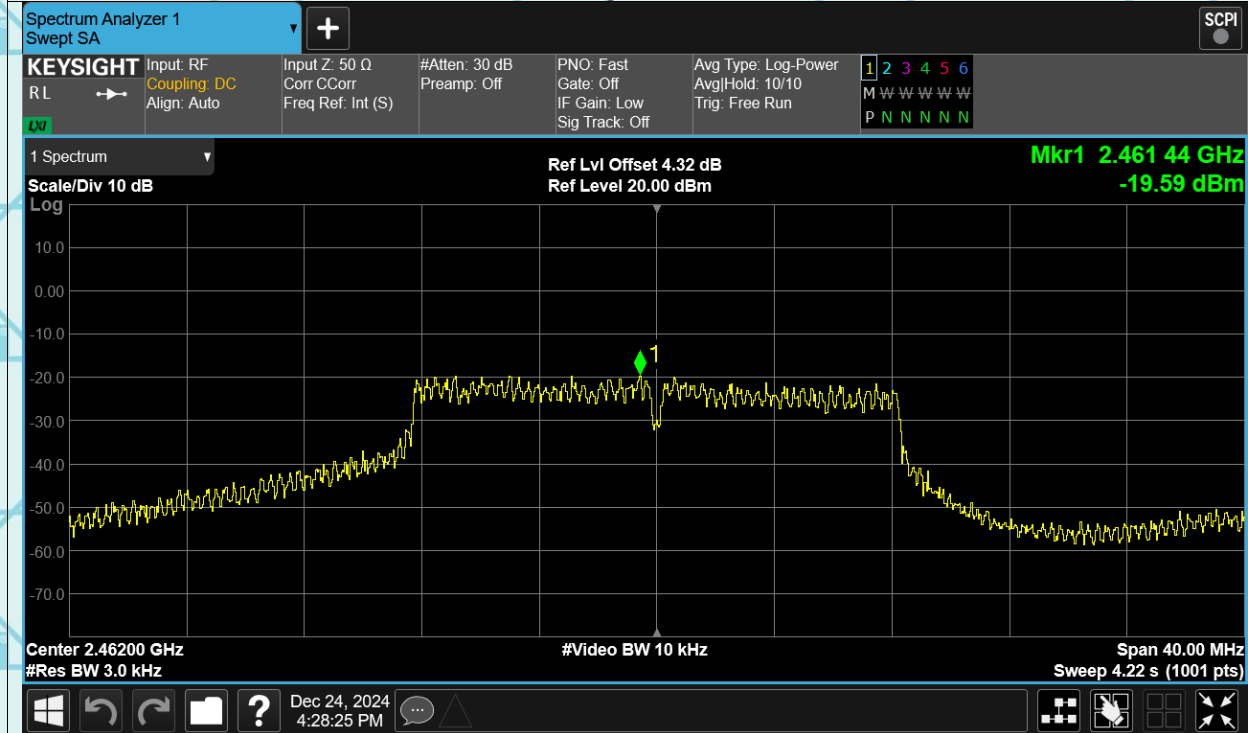


Report No.: WSCT-ANAB-R&E241100063A-Wi-Fi1

### PSD NVNT g 2437MHz Ant2



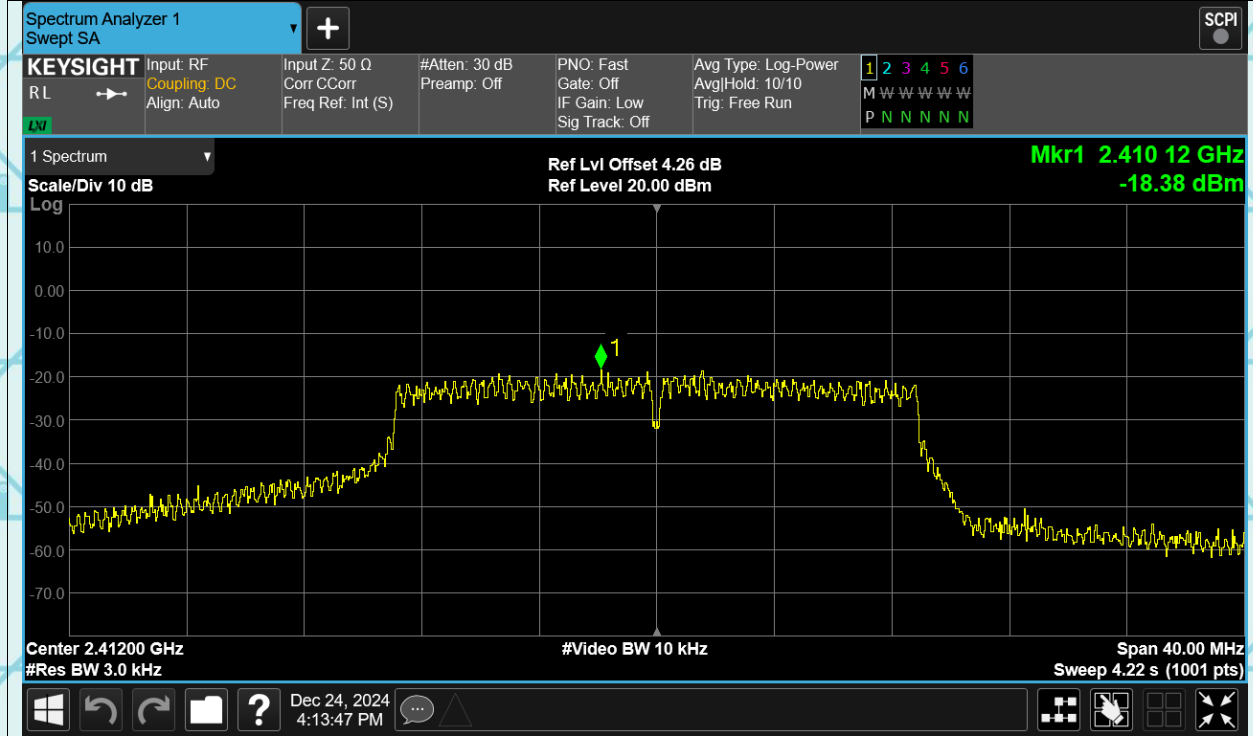
### PSD NVNT g 2462MHz Ant2



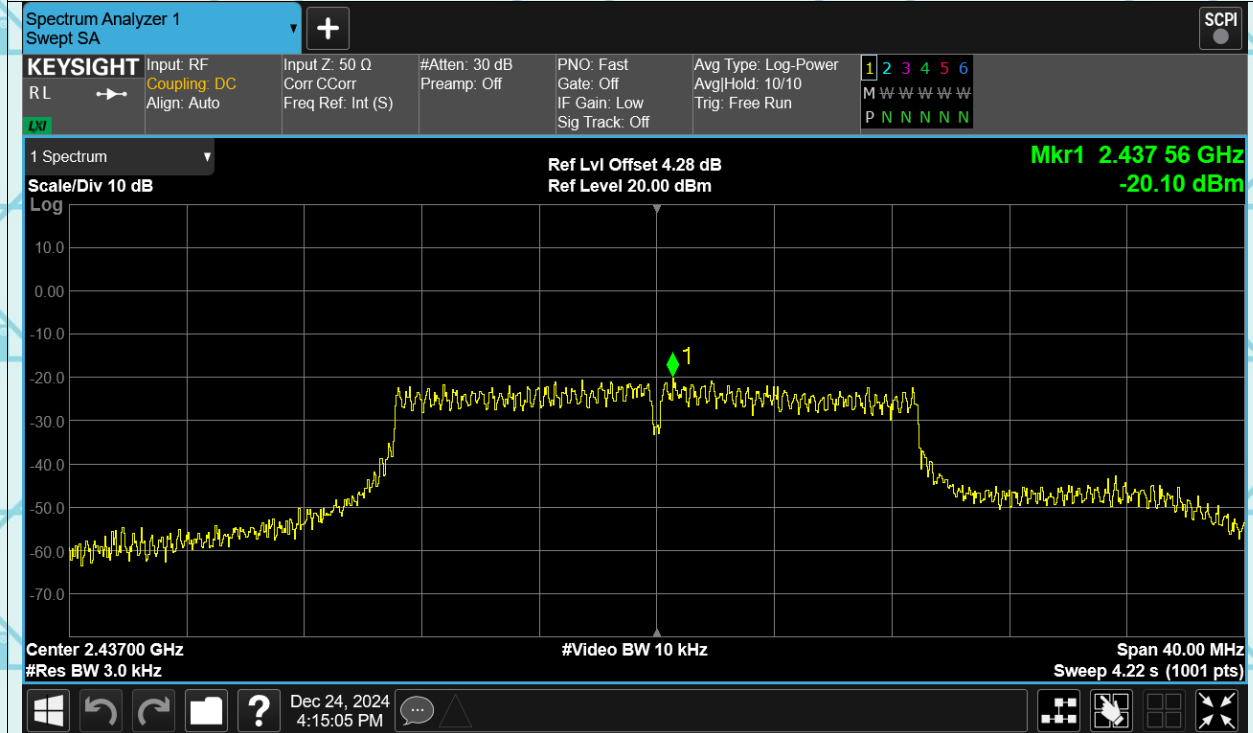


Report No.: WSCT-ANAB-R&E241100063A-Wi-Fi1

### PSD NVNT n20 2412MHz Ant2



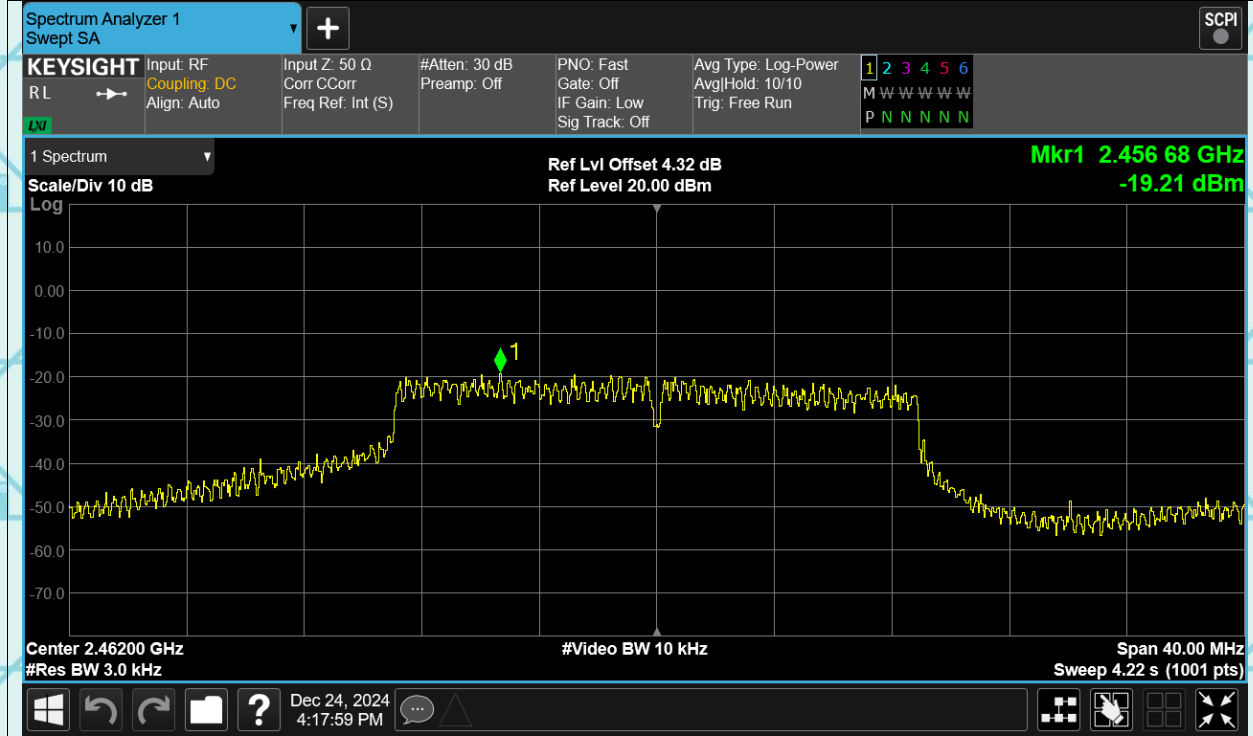
### PSD NVNT n20 2437MHz Ant2



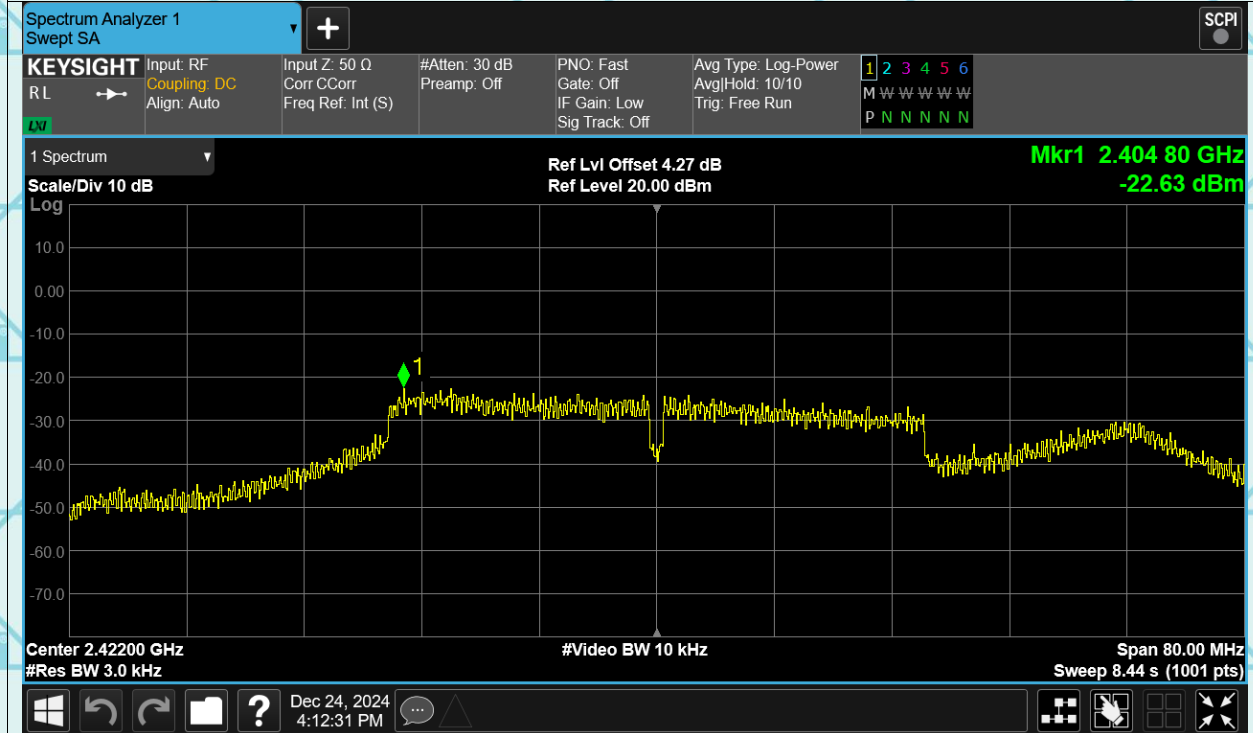


Report No.: WSCT-ANAB-R&E241100063A-Wi-Fi1

### PSD NVNT n20 2462MHz Ant2

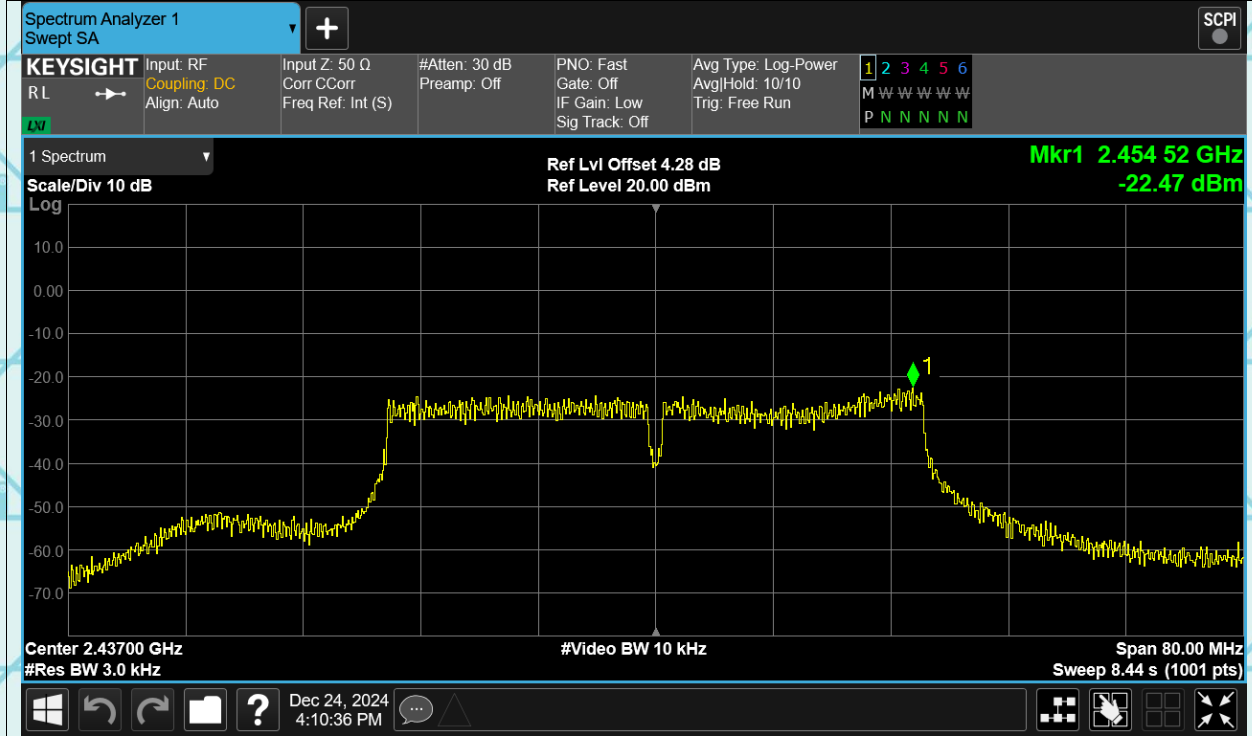


### PSD NVNT n40 2422MHz Ant2

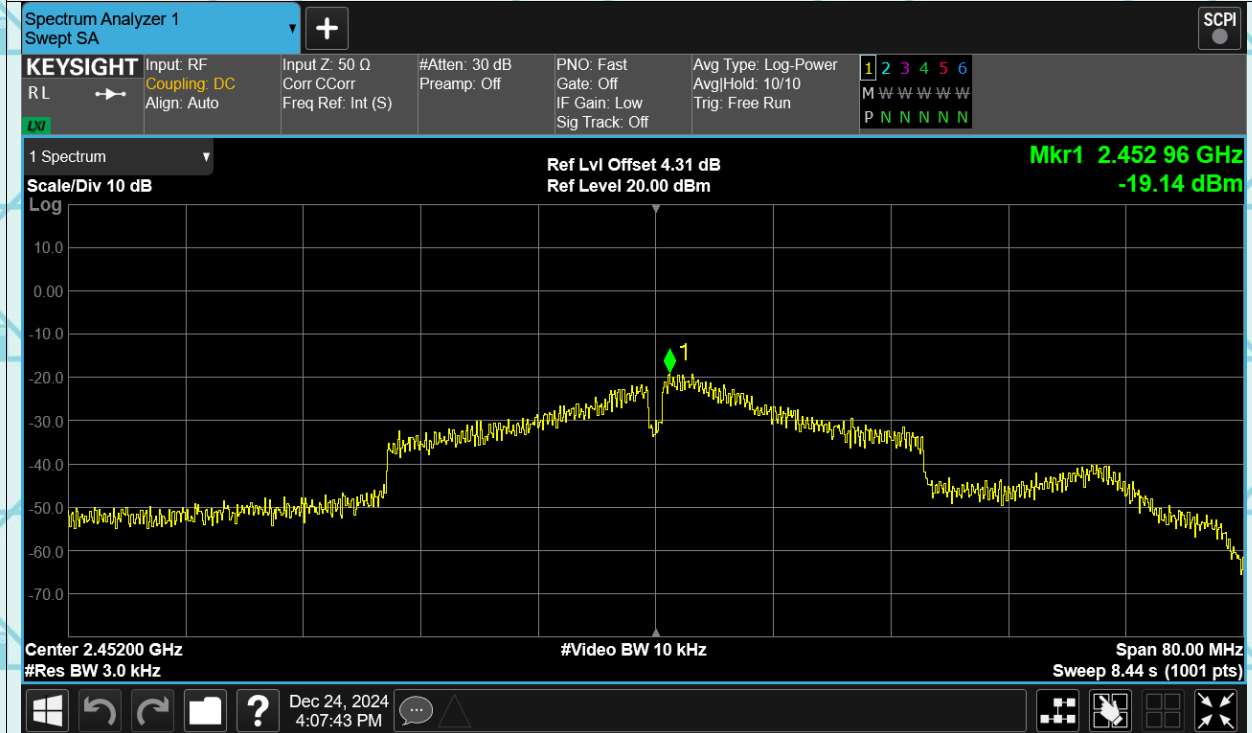


Report No.: WSCT-ANAB-R&E241100063A-Wi-Fi1

### PSD NVNT n40 2437MHz Ant2



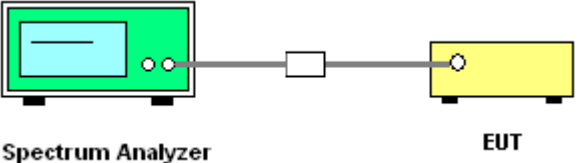
### PSD NVNT n40 2452MHz Ant2





## 6.6. Conducted Band Edge and Spurious Emission Measurement

### 6.6.1. Test Specification

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Test Requirement:</b> | FCC Part15 C Section 15.247 (d)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Test Method:</b>      | KDB558074                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Limit:</b>            | In any 100 kHz bandwidth outside of the authorized frequency band, the emissions which fall in the non-restricted bands shall be attenuated at least 20 dB / 30dB relative to the maximum PSD level in 100 kHz by RF conducted measurement and radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Test Setup:</b>       |  <p>The diagram illustrates the test setup. On the left is a green box representing the Spectrum Analyzer. It is connected via a cable to a small white box representing an attenuator. This attenuator is then connected to a yellow box on the right representing the EUT (Equipment Under Test).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Test Mode:</b>        | Transmitting mode with modulation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Test Procedure:</b>   | <ol style="list-style-type: none"> <li>1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v04.</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. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d).</li> <li>5. Measure and record the results in the test report.</li> <li>6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.</li> </ol> |
| <b>Test Result:</b>      | PASS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |



Report No.: WSCT-ANAB-R&E241100063A-Wi-Fi1

## Test Data

### Band Edge

