

|                                                                                                                 |                                |
|-----------------------------------------------------------------------------------------------------------------|--------------------------------|
| Product Name: Tablet                                                                                            | Report No: ITEZA2-202400058RF2 |
| Product Model: T30 Max, T30 Max Cypher, T30 Max Flash, T30 Max Fire, T30 Max Storm, T30 Max Elite, T30 Max Nova | Security Classification: Open  |
| Version: V1.0                                                                                                   | Total Page: 83                 |

## TIRT Testing Report

| Prepared By:      | Checked By:       | Approved By:     |  |
|-------------------|-------------------|------------------|---------------------------------------------------------------------------------------|
| Aaron Long        | Stone Tang        | Joky Wang        |                                                                                       |
| <i>Aaron Long</i> | <i>Stone Tang</i> | <i>Joky Wang</i> |                                                                                       |

# RF TEST REPORT

**FCC ID: 2AX4YT30MAX**

According to

**47 CFR FCC Part 15, Subpart C(Section 15.247)**

**ANSI C63.10:2013**

|               |                                                                                                                  |
|---------------|------------------------------------------------------------------------------------------------------------------|
| Applicant:    | Shenzhen DOOGEE Hengtong Technology CO.,LTD                                                                      |
| Address:      | B, 2/F, Building A4, Silicon Valley Power Digital Industrial Park, No. 22, Longhua New District, Shenzhen, China |
| Manufacturer: | Shenzhen DOOGEE Hengtong Technology CO.,LTD                                                                      |
| Address:      | B, 2/F, Building A4, Silicon Valley Power Digital Industrial Park, No. 22, Longhua New District, Shenzhen, China |
| Sample No:    | 1000029923                                                                                                       |
| Product Name: | Tablet                                                                                                           |
| Brand Name:   | DOOGEE                                                                                                           |
| Model No.:    | T30 Max, T30 Max Cypher, T30 Max Flash, T30 Max Fire, T30 Max Storm, T30 Max Elite, T30 Max Nova                 |
| Test No.:     | T30 Max                                                                                                          |

|                  |                       |
|------------------|-----------------------|
| Date of Receipt: | 2024/03/20            |
| Date of Test:    | 2024/03/20~2024/04/12 |
| Issued Date:     | 2024/04/12            |
| Testing Lab:     | TIRT                  |

**Note:** This report shall not be reproduced except in full, without the written approval of Beijing TIRT Technology Service Co.,Ltd Shenzhen.Laboratory.

This document may be altered or revised by Beijing TIRT Technology Service Co.,Ltd Shenzhen.Laboratory.Personnel only, and shall be noted in the revision section of the document. The test results of this report relate only to the tested sample identified in this report.

## TABLE OF CONTENTS

| Description                                                 | Page      |
|-------------------------------------------------------------|-----------|
| <b>1. Summary of Standards And Results</b>                  | <b>5</b>  |
| 1.1. Description of Standards and Results                   | 5         |
| <b>2. General Information</b>                               | <b>6</b>  |
| 2.1. Description of Device (EUT)                            | 6         |
| 2.2. Accessories of Device (EUT)                            | 7         |
| 2.3. Tested Supporting System Details                       | 7         |
| 2.4. Block Diagram of connection between EUT and simulators | 7         |
| 2.5. Test Mode Description                                  | 7         |
| 2.6. Test Conditions                                        | 8         |
| 2.7. Test Facility                                          | 8         |
| 2.8. Measurement Uncertainty                                | 8         |
| 2.9. Test Equipment List                                    | 9         |
| <b>3. Maximum Peak Output power</b>                         | <b>11</b> |
| 3.1. Limit                                                  | 11        |
| 3.2. Test Procedure                                         | 11        |
| 3.3. Test Setup                                             | 11        |
| 3.4. Test Result                                            | 11        |
| <b>4. Bandwidth</b>                                         | <b>12</b> |
| 4.1. Limit                                                  | 12        |
| 4.2. Test Procedure                                         | 12        |
| 4.3. Test Result                                            | 12        |
| <b>5. Carrier Frequency Separation</b>                      | <b>23</b> |
| 5.1. Limit                                                  | 23        |
| 5.2. Test Procedure                                         | 23        |
| 5.3. Test Result                                            | 23        |
| <b>6. Number Of Hopping Channel</b>                         | <b>25</b> |
| 6.1. Limit                                                  | 25        |
| 6.2. Test Procedure                                         | 25        |
| 6.3. Test Result                                            | 25        |
| <b>7. Dwell Time</b>                                        | <b>27</b> |
| 7.1. Test limit                                             | 27        |
| 7.2. Test Procedure                                         | 27        |
| 7.3. Test Result                                            | 27        |
| <b>8. Radiated emissions</b>                                | <b>33</b> |
| 8.1. Limit                                                  | 33        |
| 8.2. Block Diagram of Test setup                            | 34        |
| 8.3. Test Procedure                                         | 35        |
| 8.4. Test Result                                            | 35        |
| <b>9. Band Edge Compliance</b>                              | <b>49</b> |
| 9.1. Block Diagram of Test Setup                            | 49        |
| 9.2. Limit                                                  | 49        |
| 9.3. Test Procedure                                         | 49        |
| 9.4. Test Result                                            | 49        |
| <b>10. Power Line Conducted Emissions</b>                   | <b>69</b> |
| 10.1. Block Diagram of Test Setup                           | 69        |
| 10.2. Limit                                                 | 69        |
| 10.3. Test Procedure                                        | 69        |
| 10.4. Test Result                                           | 70        |
| <b>11. Antenna Requirements</b>                             | <b>72</b> |
| 11.1. Limit                                                 | 72        |
| 11.2. Result                                                | 72        |
| <b>12. Test setup photo</b>                                 | <b>73</b> |
| 12.1. Photo of Radiated Emission test                       | 73        |
| 12.2. Photo of Conducted Emission test                      | 74        |

History of this test report

Original Report Issue Date: 2024.04.12

- No additional attachment
- Additional attachments were issued following record

| Attachment No. | Issue Date | Description |
|----------------|------------|-------------|
|                |            |             |
|                |            |             |
|                |            |             |
|                |            |             |
|                |            |             |
|                |            |             |
|                |            |             |
|                |            |             |
|                |            |             |
|                |            |             |
|                |            |             |
|                |            |             |

## 1. SUMMARY OF STANDARDS AND RESULTS

### 1.1. Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below:

| Test Item                                                                                                                                                                                                                                                   | Standards Paragraph                                                | Result |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|--------|
| Maximum Peak Output Power                                                                                                                                                                                                                                   | FCC Part 15: 15.247(b)(1)<br>ANSI C63.10 :2013                     | P      |
| Bandwidth                                                                                                                                                                                                                                                   | FCC Part 15: 15.215<br>ANSI C63.10 :2013                           | P      |
| Carrier Frequency Separation                                                                                                                                                                                                                                | FCC Part 15: 15.247(a)(1)<br>ANSI C63.10 :2013                     | P      |
| Number Of Hopping Channel                                                                                                                                                                                                                                   | FCC Part 15: 15.247(a)(1)(iii)<br>ANSI C63.10 :2013                | P      |
| Dwell Time                                                                                                                                                                                                                                                  | FCC Part 15: 15.247(a)(1)(iii)<br>ANSI C63.10 :2013                | P      |
| Radiated Emission                                                                                                                                                                                                                                           | FCC Part 15: 15.209<br>FCC Part 15: 15.247(d)<br>ANSI C63.10 :2013 | P      |
| Band Edge Compliance                                                                                                                                                                                                                                        | FCC Part 15: 15.247(d)<br>ANSI C63.10 :2013                        | P      |
| Power Line Conducted Emissions                                                                                                                                                                                                                              | FCC Part 15: 15.207<br>ANSI C63.10 :2013                           | P      |
| Antenna requirement                                                                                                                                                                                                                                         | FCC Part 15: 15.203                                                | P      |
| <p>Note: 1. P is an abbreviation for Pass.<br/>2. F is an abbreviation for Fail.<br/>3. N/A is an abbreviation for Not Applicable.<br/>4. The conclusion of this test report is judged by actual test data without considering measurement uncertainty.</p> |                                                                    |        |

## 2. GENERAL INFORMATION

### 2.1. Description of Device (EUT)

EUT Name : Tablet

Model No. : T30 Max, T30 Max Cypher, T30 Max Flash, T30 Max Fire, T30 Max Storm, T30 Max Elite, T30 Max Nova

DIFF. : There is no difference except the name of the model. All tests are made with the T30 Max model.

Power supply : DC 3.8V from battery or DC 11V from adapter

Radio Technology : Bluetooth V5.0 EDR

Operation frequency : 2402-2480MHz

Channel No. : 79 Channels

Channel spacing : 1MHz

Modulation type : GFSK,  $\pi/4$  DQPSK, 8DPSK

Antenna Type : Internal antenna, Maximum Gain is 2.1dBi.  
Antenna information is provided by applicant.

Software version : DOOGEE-T30 Max-EEA-Android14.0-20240318

Hardware version : P3T\_TV1.0\_20240120

Intend use : Residential, commercial and light industrial environment

environment

## 2.2. Accessories of Device (EUT)

Accessories : Adapter

Manufacturer : /

Model : TP303C-US

Input: AC100-240V~ 50/60Hz 0.7A Max

Ratings : Output: USB-C: 5.0V=3.0A, 15.0W, 9.0V=3.0A, 27.0W, 12.0V=2.5A, 30.0W,  
15.0V=2.0A, 30.0W, 20.0V=1.5A, 30.0W,  
PPS: 5.0V-11.0V=3.0A 33.0W  
Power: 33.0W

## 2.3. Tested Supporting System Details

| No. | Description | Manufacturer | Model | Serial Number | Certification or SDoC |
|-----|-------------|--------------|-------|---------------|-----------------------|
| 1.  | --          | --           | --    | --            | --                    |

## 2.4. Block Diagram of connection between EUT and simulators



## 2.5. Test Mode Description

| Tested mode, channel information |              |                 |
|----------------------------------|--------------|-----------------|
| Mode                             | Channel      | Frequency (MHz) |
| GFSK                             | Low :CH1     | 2402            |
|                                  | Middle: CH40 | 2441            |
|                                  | High: CH79   | 2480            |
| $\pi/4$ DQPSK                    | Low :CH1     | 2402            |
|                                  | Middle: CH40 | 2441            |
|                                  | High: CH79   | 2480            |
| 8DPSK                            | Low :CH1     | 2402            |
|                                  | Middle: CH40 | 2441            |
|                                  | High: CH79   | 2480            |

## 2.6. Test Conditions

| Items              | Required  | Actual |
|--------------------|-----------|--------|
| Temperature range: | 15-35℃    | 24℃    |
| Humidity range:    | 25-75%    | 56%    |
| Pressure range:    | 86-106kPa | 980kPa |

## 2.7. Test Facility

|                                        |                                                                                                                                                                           |
|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Company:                               | Beijing TIRT Technology Service Co.,Ltd Shenzhen                                                                                                                          |
| Address:                               | 104 Building C, Xinmingsheng Industrial Park No.132, Zhangge Old Village East Zone, Zhangge Community, Fucheng Street, Longhua District, Shenzhen, Guangdong, P. R. China |
| CNAS Registration Number:              | CNAS L14158                                                                                                                                                               |
| A2LA Registration Number:              | 6049.01                                                                                                                                                                   |
| FCC Accredited Lab.Designation Number: | CN1366                                                                                                                                                                    |
| FCC Test Firm Registration Number:     | 820690                                                                                                                                                                    |
| Telephone:                             | +86-0755-27087573                                                                                                                                                         |

## 2.8. Measurement Uncertainty

(95% confidence levels, k=2)

| Uncertainty                               |             |
|-------------------------------------------|-------------|
| Parameter                                 | Uncertainty |
| Occupied Channel Bandwidth                | ±142.12 KHz |
| RF power conducted                        | ±0.74 dB    |
| RF power radiated                         | ±3.25dB     |
| Spurious emissions, conducted             | ±1.78dB     |
| Spurious emissions, radiated (9KHz~30MHz) | ±2.56dB     |
| Spurious emissions, radiated (30MHz~1GHz) | ±4.6dB      |
| Spurious emissions, radiated (Above 1GHz) | ±4.9dB      |
| Conduction Emissions(150kHz~30MHz)        | ±3.1 dB     |
| Humidity                                  | ±4.6%       |
| Temperature                               | ±0.7℃       |
| Time                                      | ±1.25       |

## 2.9. Test Equipment List

| Name of Equipment       | Manufacturer    | Model Number         | Serial Number            | Last Calibration | Due Calibration |
|-------------------------|-----------------|----------------------|--------------------------|------------------|-----------------|
| EMI Receiver            | Rohde&Schwarz   | ESIB 40              | YH-TIRT-SAC-966-20220911 | 2024/01/05       | 2025/01/04      |
| Integral Antenna        | Schwarzbeck     | VULB 9163            | 01314                    | 2022.12.11       | 2024.12.10      |
| Integral Antenna        | Rohde&Schwarz   | HF907                | RSM2991424               | 2022.12.11       | 2024.12.10      |
| Preamplifier            | Emtrace         | RP01A                | '02017                   | 2024/01/05       | 2025/01/04      |
| Preamplifier            | Schwarzbeck     | BBV9744              | 00143                    | 2024/01/05       | 2025/01/04      |
| Loop Antenna            | ZHINAN          | ZN30900A             | 12024                    | 2024/01/05       | 2025/01/04      |
| Exposure Level Tester   | narda           | ELT-400              | N-0925                   | 2024/01/05       | 2025/01/04      |
| Horn Antenna            | Schwarzbeck     | BBHA9170             | 00956                    | 2024/01/05       | 2025/01/04      |
| RF Cable                | /               | LMR400UF-NMNM-7.0M   | /                        | 2024/01/05       | 2025/01/04      |
| RF Cable                | /               | SFT2050PUR-NMNM-7.0M | /                        | 2024/01/05       | 2025/01/04      |
| EMI Receiver            | Rohde&Schwarz   | ESR7                 | 1316.3003K07-102611-mk   | 2023/11/02       | 2024/11/01      |
| LISN                    | Rohde&Schwarz   | ENV216               | 3560.655.12-102915-Bp    | 2023/11/02       | 2024/11/01      |
| ISN                     | Schwarzbeck     | ENY81                | 1309.8510.03             | 2024/01/05       | 2025/01/04      |
| ISN                     | Schwarzbeck     | ENY81-CAT6           | 1309.8526.03-101976-kh   | 2024/01/05       | 2025/01/04      |
| RF Cable                | \               | SFT2050PUR-NMNM-2.0M | \                        | 2024/01/05       | 2025/01/04      |
| CMW500                  | ROHDE&SCHWARZ   | CMW500               | 120434                   | 2024/01/05       | 2025/01/04      |
| Spectrum analyzer       | ROHDE&SCHWARZ   | FSU26                | 200732                   | 2024/01/05       | 2025/01/04      |
| Spectrum analyzer       | ROHDE&SCHWARZ   | FSV40-N              | 101722                   | 2024/01/05       | 2025/01/04      |
| vector Signal Generator | KEYSIGHT        | N5182B               | MY56200458               | 2024/01/05       | 2025/01/04      |
| vector Signal Generator | HEWLETT PACKARD | 83752A               | 3610A02458               | 2024/01/05       | 2025/01/04      |



ITEZA2-202400058RF2

|                                  |                    |          |              |            |            |
|----------------------------------|--------------------|----------|--------------|------------|------------|
| Filter                           | HEWLETT<br>PACKARD | JS0806-F | 19K8060209   | 2024/01/05 | 2025/01/04 |
| Wireless<br>comprehensive tester | ANRISTU            | MT8821C  | SN6262170409 | 2024/01/05 | 2025/01/04 |
| Wireless<br>comprehensive tester | ANRISTU            | MT8000A  | SN6262166782 | 2024/01/05 | 2025/01/04 |

### 3. MAXIMUM PEAK OUTPUT POWER

#### 3.1. Limit

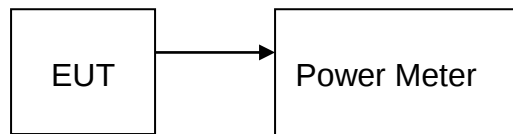
Please refer section 15.247.

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, the e.i.r.p shall not exceed 4W

#### 3.2. Test Procedure

The transmitter output is connected to the RF Power Meter. The RF Power Meter is set to the peak power detection.

#### 3.3. Test Setup



#### 3.4. Test Result

| Mode          | Freq(MHz) | PK Output Power(dBm) | Limit(dBm) | Result |
|---------------|-----------|----------------------|------------|--------|
| GFSK          | 2402      | 3.81                 | 30         | Pass   |
|               | 2441      | 6.01                 | 30         | Pass   |
|               | 2480      | 5.22                 | 30         | Pass   |
| $\pi/4$ DQPSK | 2402      | 3.83                 | 21         | Pass   |
|               | 2441      | 5.83                 | 21         | Pass   |
|               | 2480      | 5.58                 | 21         | Pass   |
| 8DPSK         | 2402      | 3.88                 | 21         | Pass   |
|               | 2441      | 5.83                 | 21         | Pass   |
|               | 2480      | 5.62                 | 21         | Pass   |

## 4. BANDWIDTH

### 4.1. Limit

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

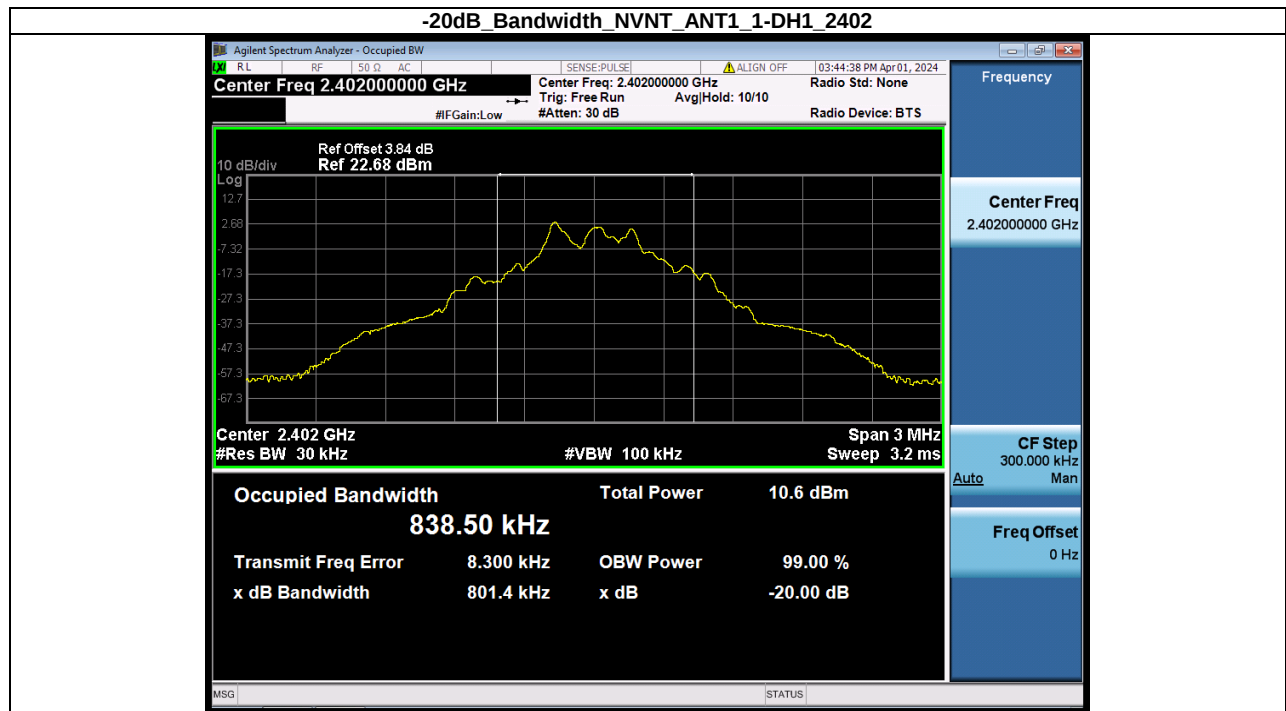
### 4.2. Test Procedure

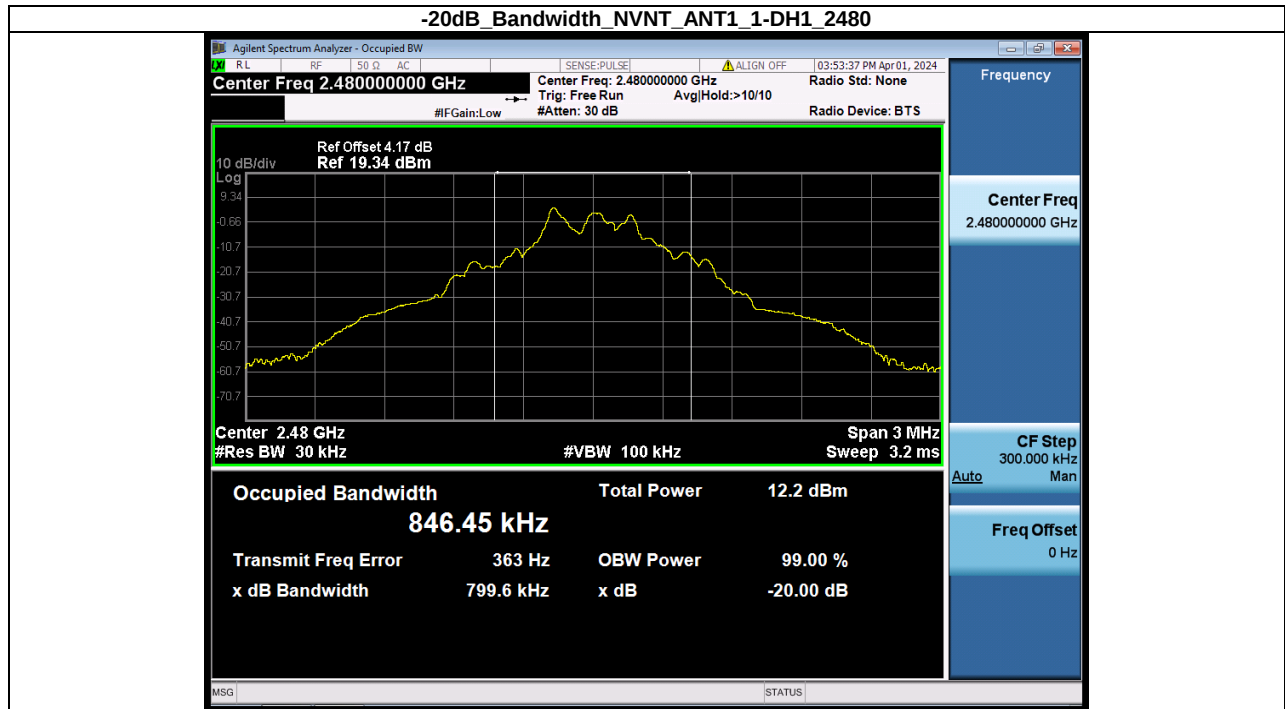
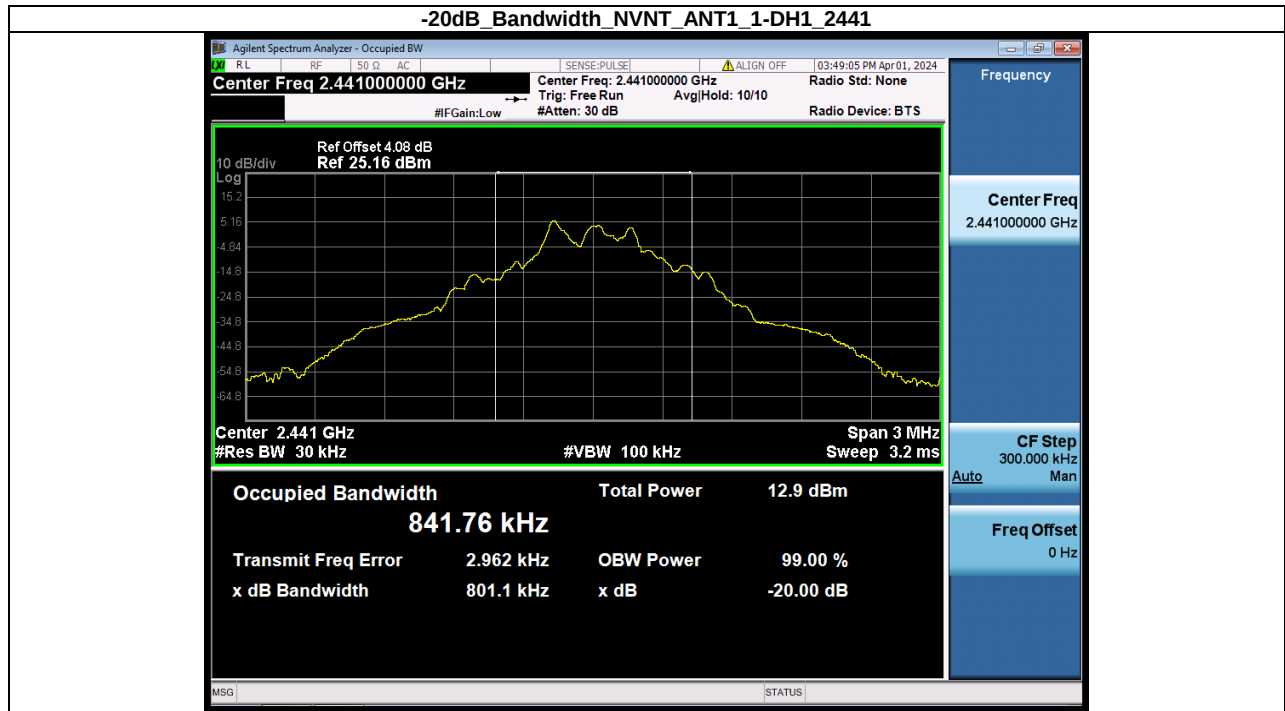
The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 30kHz RBW and 100kHz VBW. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

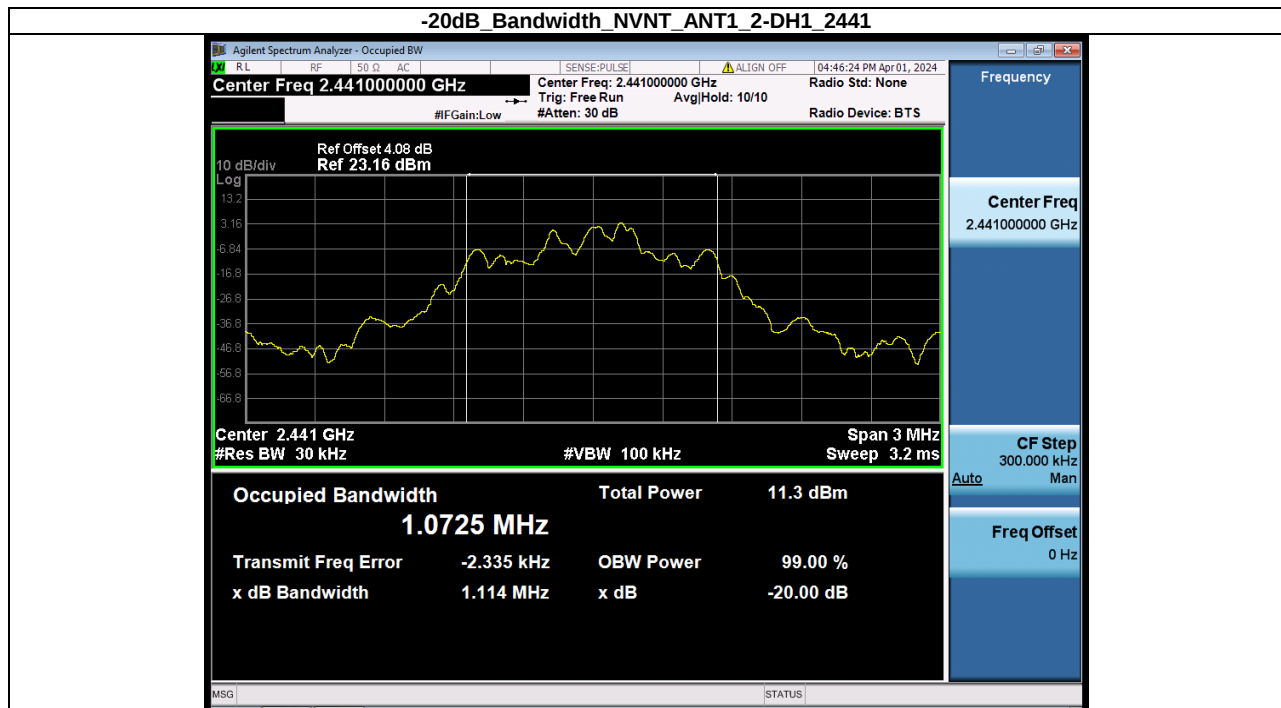
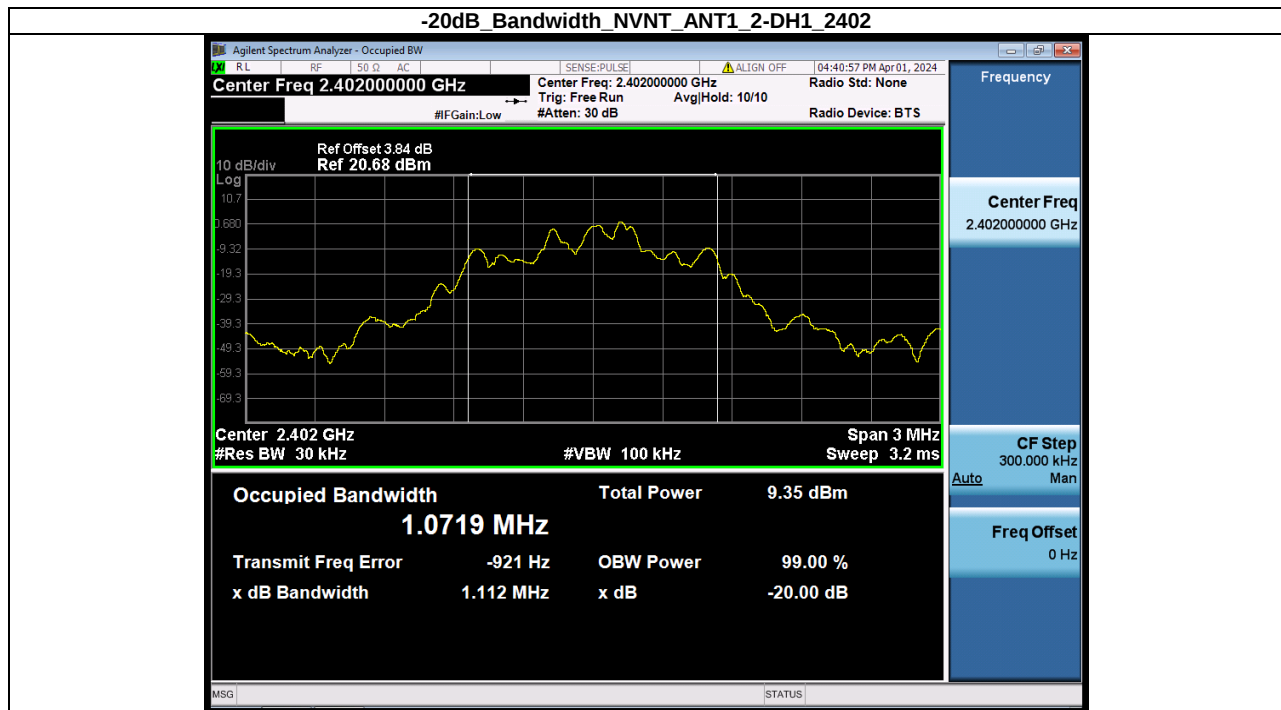
### 4.3. Test Result

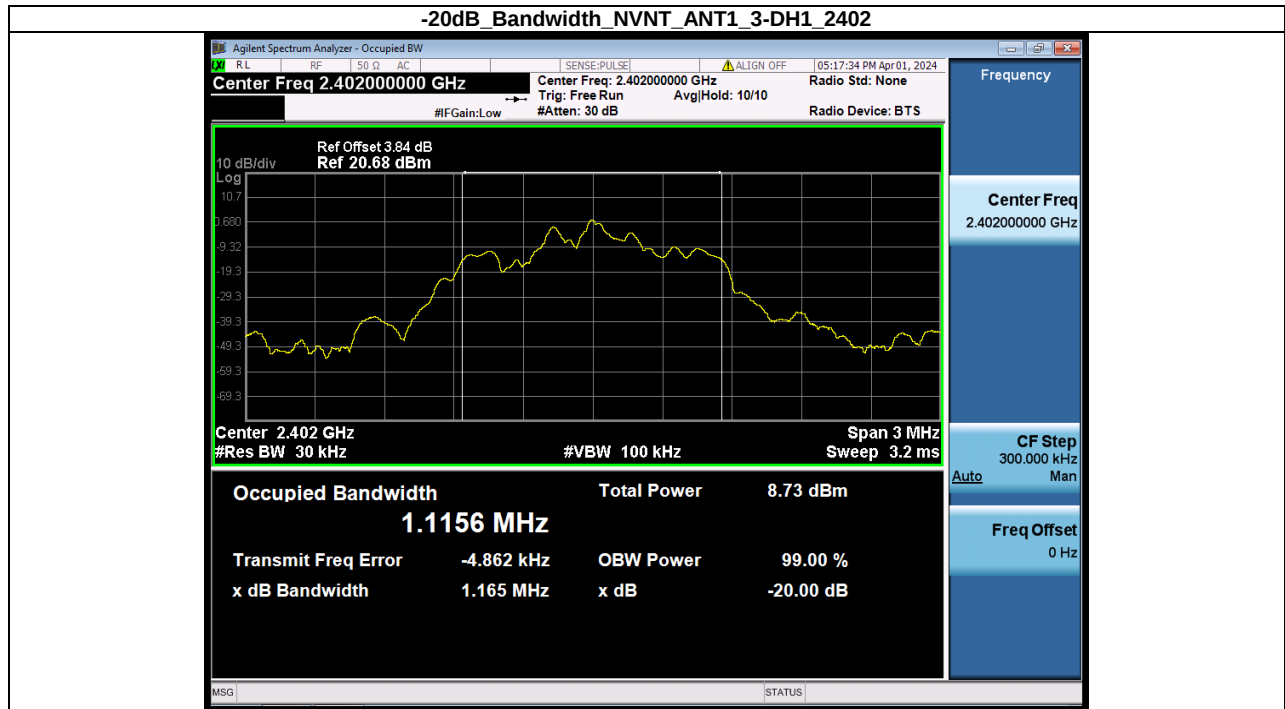
#### -20dB Bandwidth

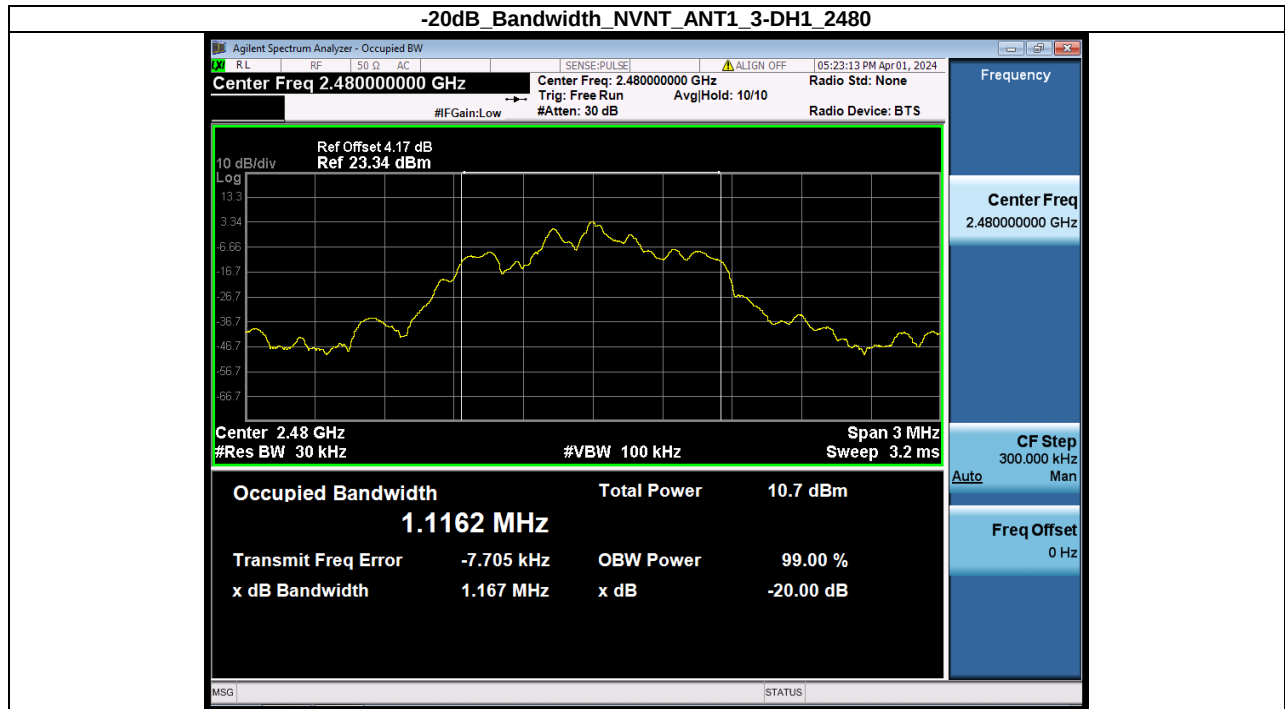
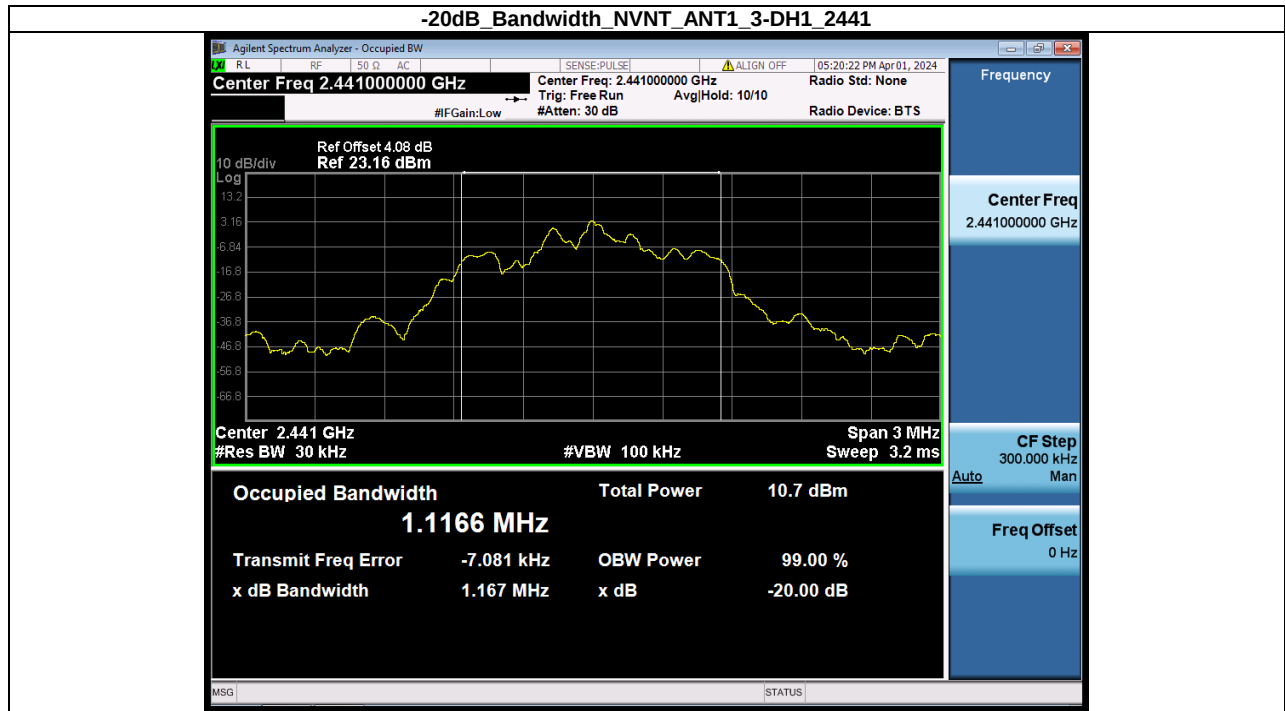
| Condition | Antenna | Modulation | Frequency (MHz) | -20dB BW(MHz) | if larger than CFS |
|-----------|---------|------------|-----------------|---------------|--------------------|
| NVNT      | ANT1    | 1-DH1      | 2402.00         | 0.801         | No                 |
| NVNT      | ANT1    | 1-DH1      | 2441.00         | 0.801         | No                 |
| NVNT      | ANT1    | 1-DH1      | 2480.00         | 0.800         | No                 |
| NVNT      | ANT1    | 2-DH1      | 2402.00         | 1.112         | Yes                |
| NVNT      | ANT1    | 2-DH1      | 2441.00         | 1.114         | Yes                |
| NVNT      | ANT1    | 2-DH1      | 2480.00         | 1.113         | Yes                |
| NVNT      | ANT1    | 3-DH1      | 2402.00         | 1.165         | Yes                |
| NVNT      | ANT1    | 3-DH1      | 2441.00         | 1.167         | Yes                |
| NVNT      | ANT1    | 3-DH1      | 2480.00         | 1.167         | Yes                |





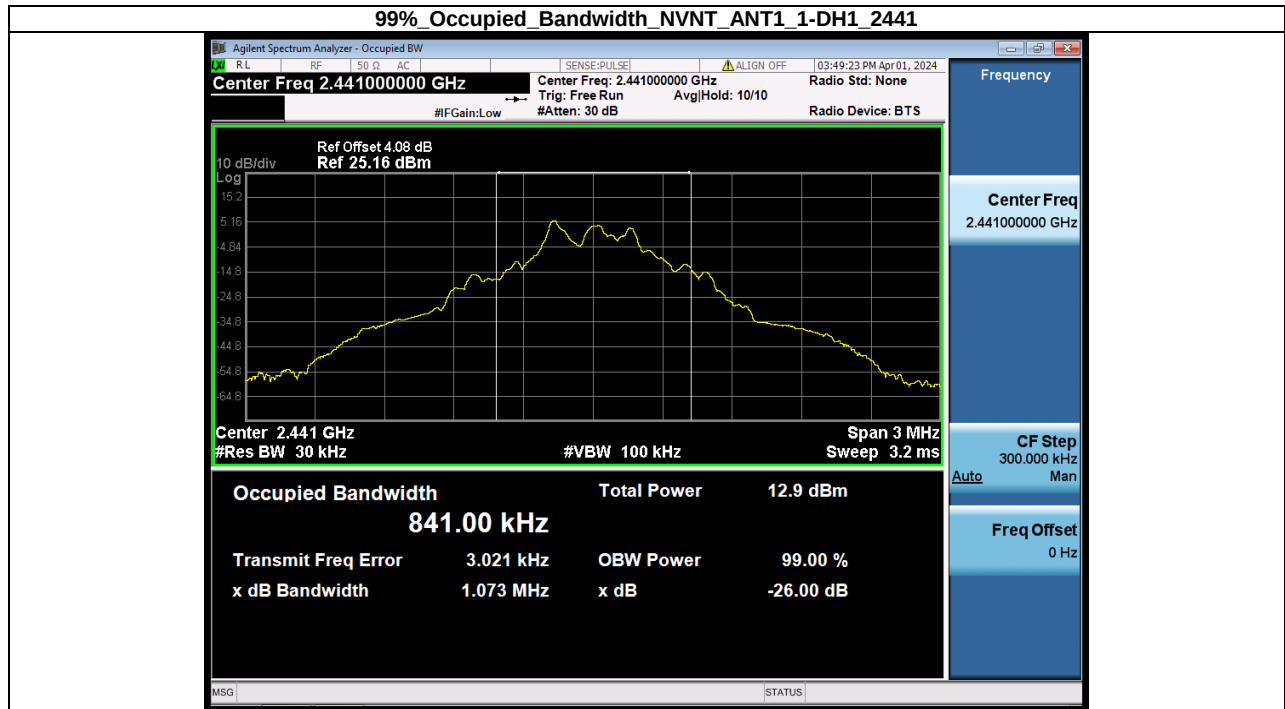
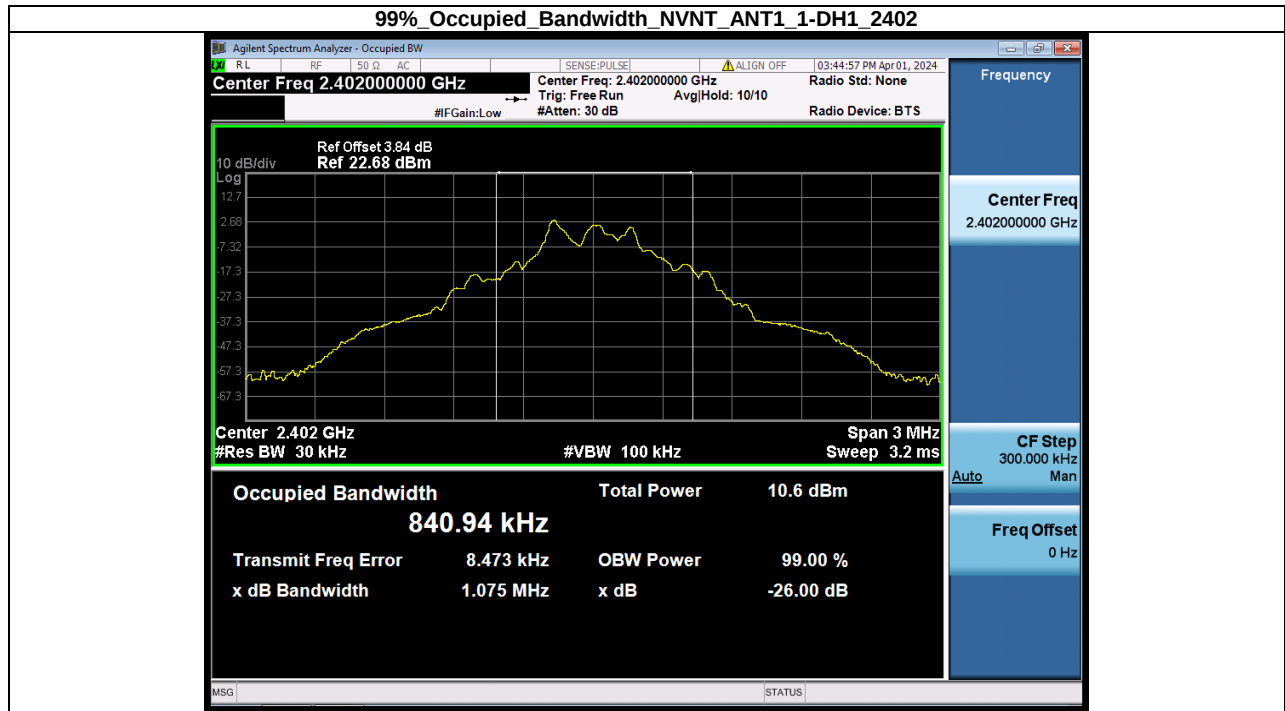


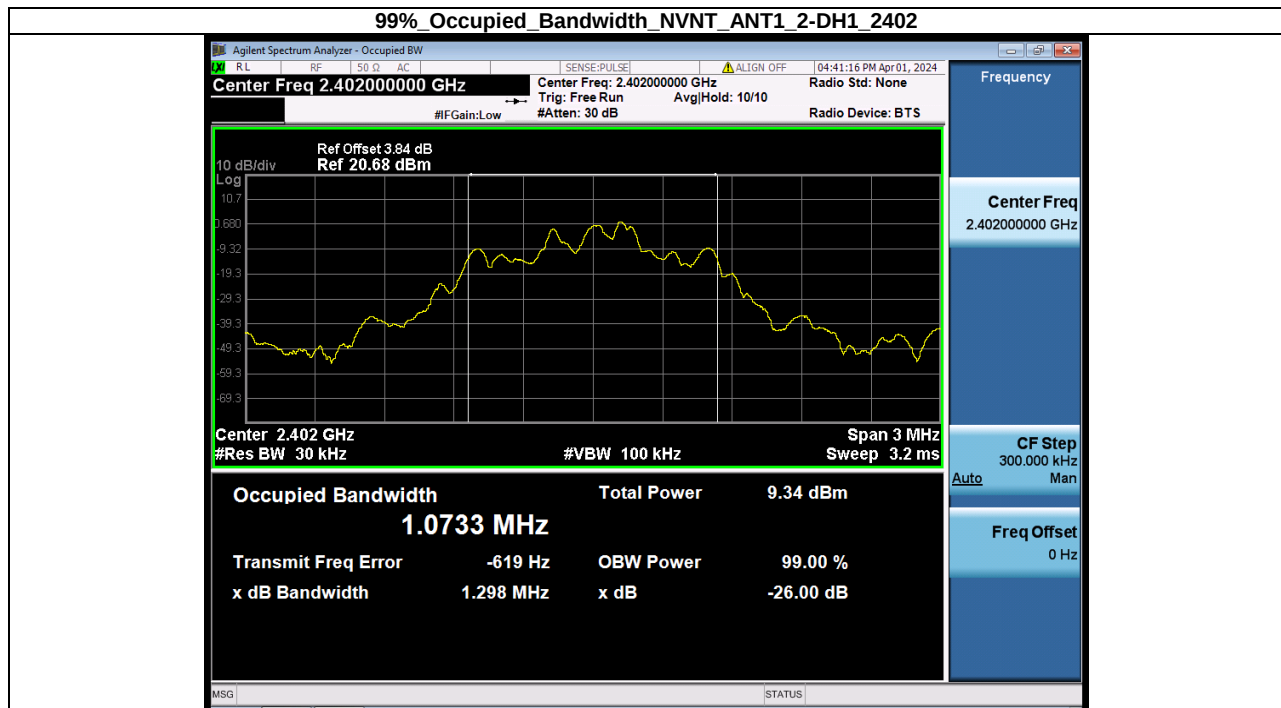
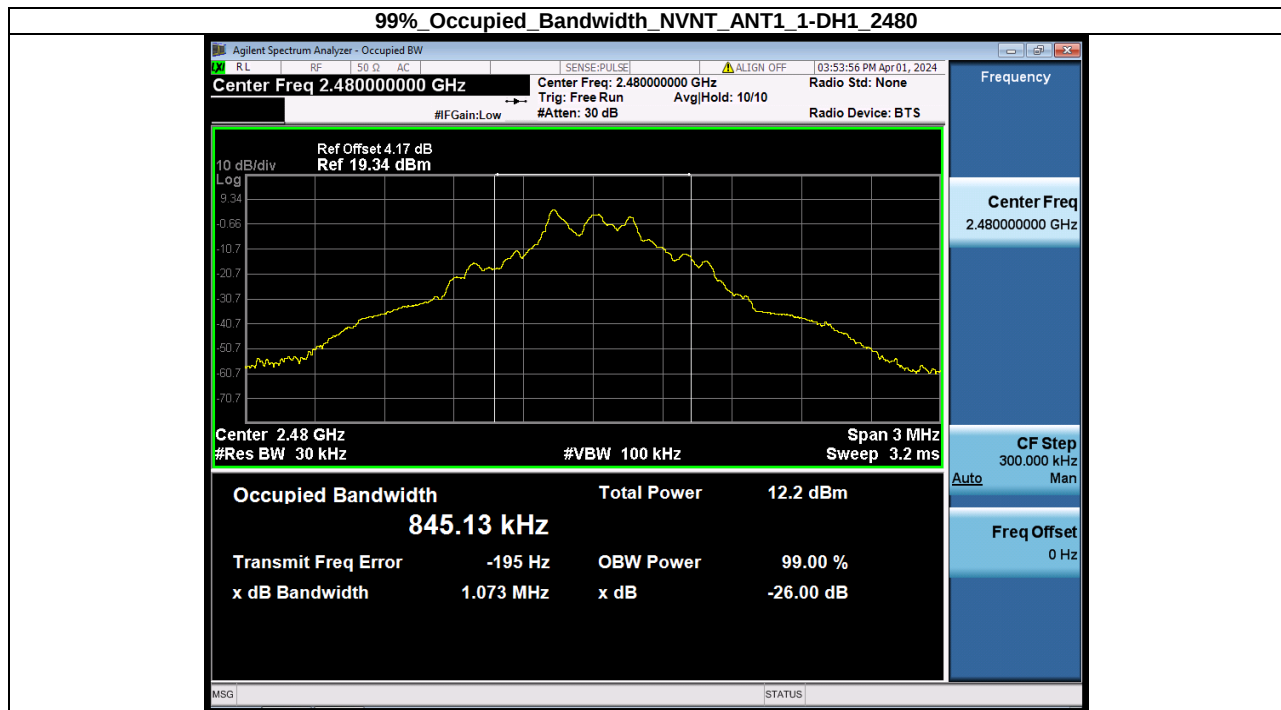




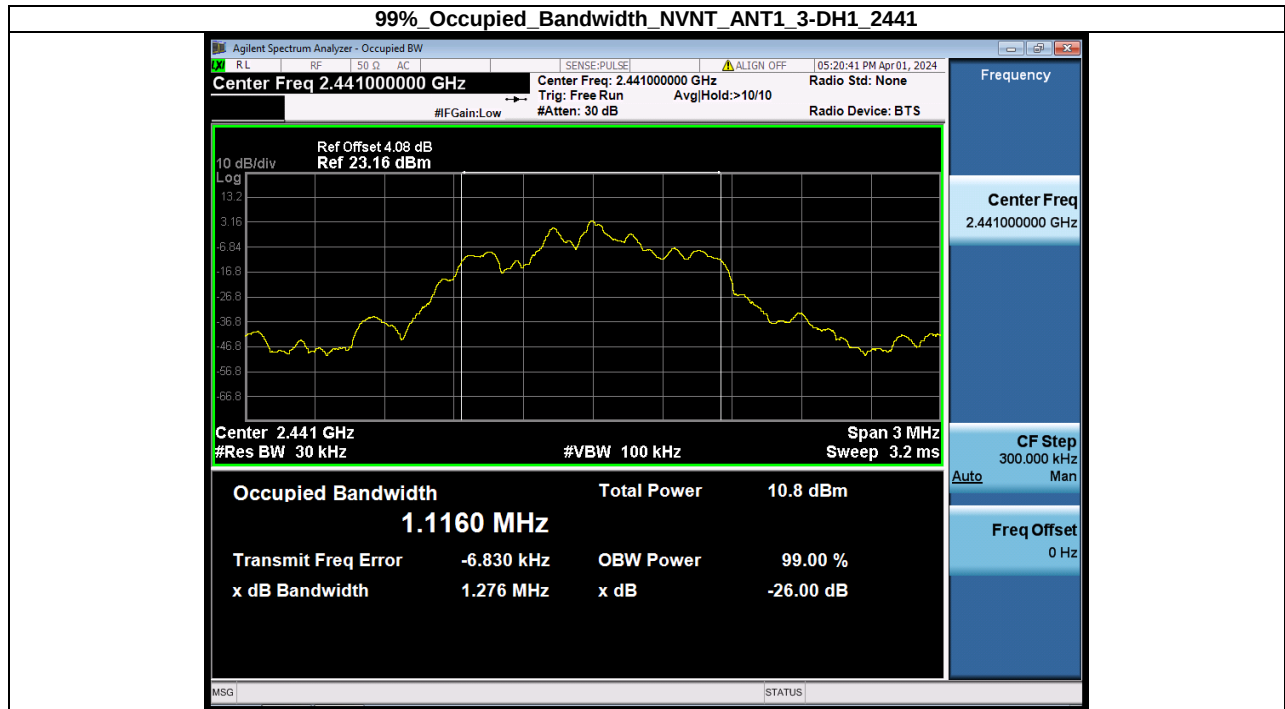
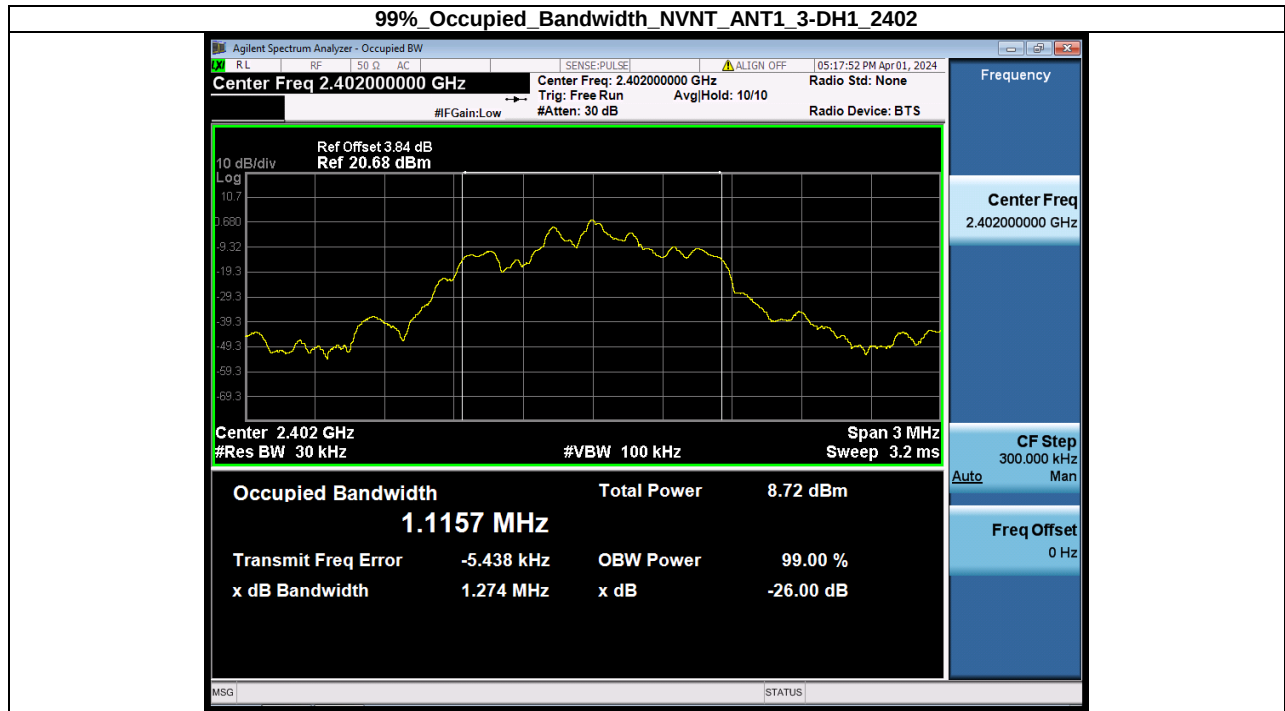
**99% Occupied Bandwidth**

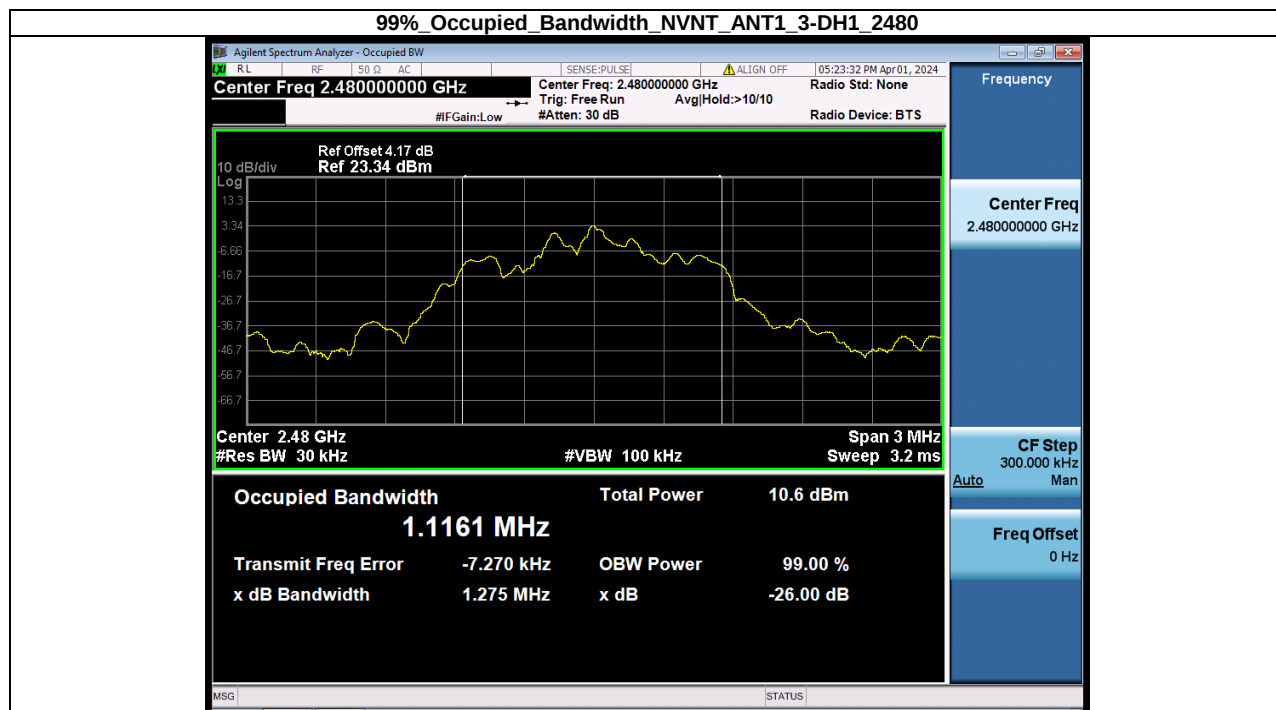
| Condition | Antenna | Modulation | Frequency (MHz) | 99% BW (MHz) |
|-----------|---------|------------|-----------------|--------------|
| NVNT      | ANT1    | 1-DH1      | 2402.00         | 0.841        |
| NVNT      | ANT1    | 1-DH1      | 2441.00         | 0.841        |
| NVNT      | ANT1    | 1-DH1      | 2480.00         | 0.845        |
| NVNT      | ANT1    | 2-DH1      | 2402.00         | 1.073        |
| NVNT      | ANT1    | 2-DH1      | 2441.00         | 1.073        |
| NVNT      | ANT1    | 2-DH1      | 2480.00         | 1.073        |
| NVNT      | ANT1    | 3-DH1      | 2402.00         | 1.116        |
| NVNT      | ANT1    | 3-DH1      | 2441.00         | 1.116        |
| NVNT      | ANT1    | 3-DH1      | 2480.00         | 1.116        |











## 5. CARRIER FREQUENCY SEPARATION

### 5.1. Limit

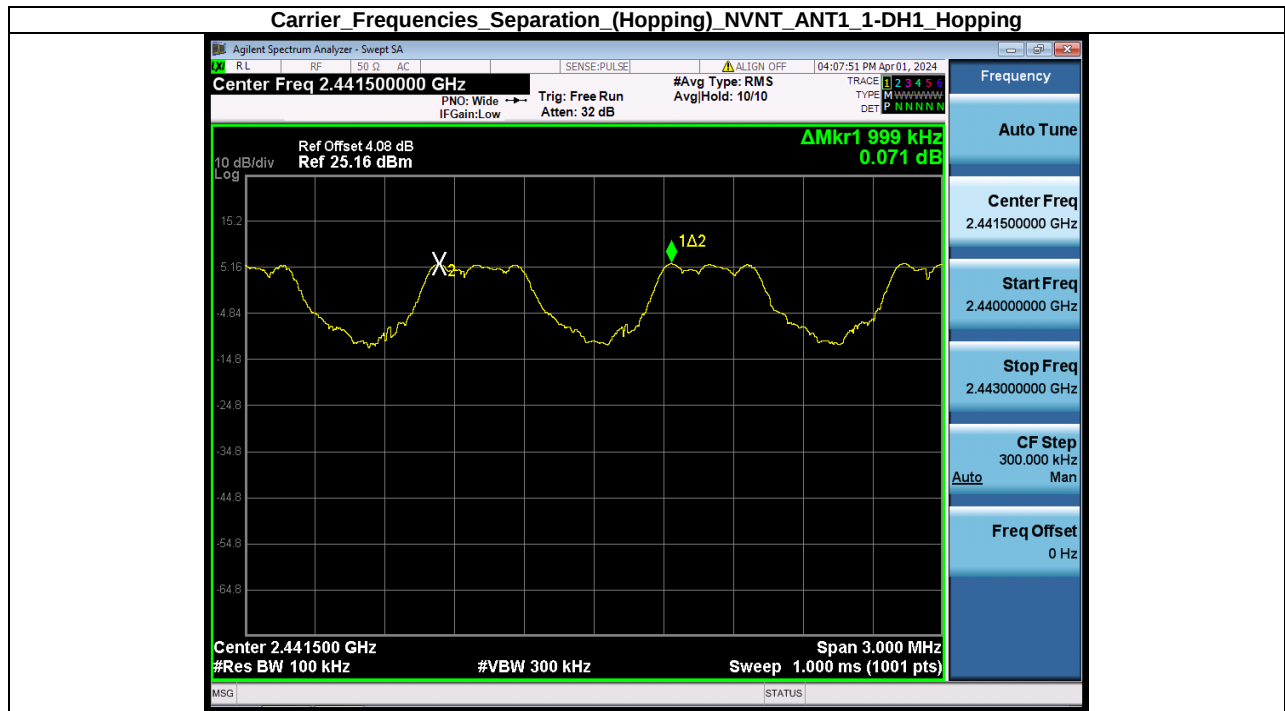
Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW

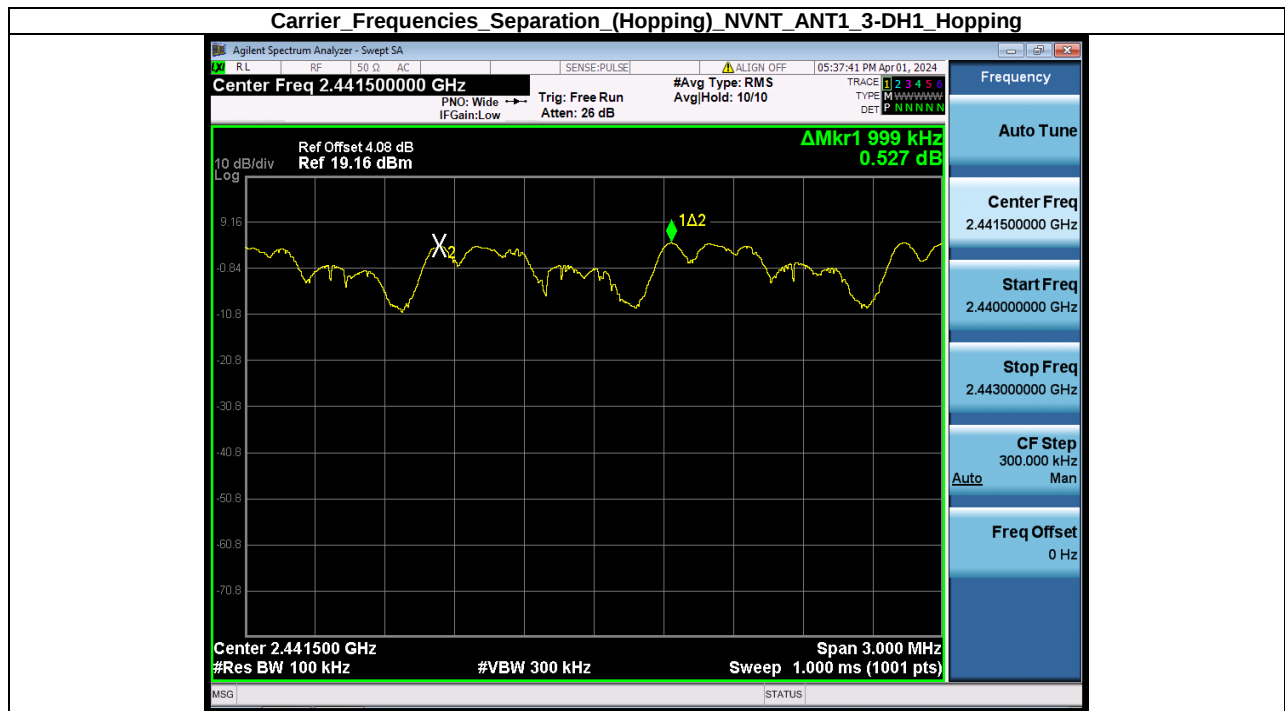
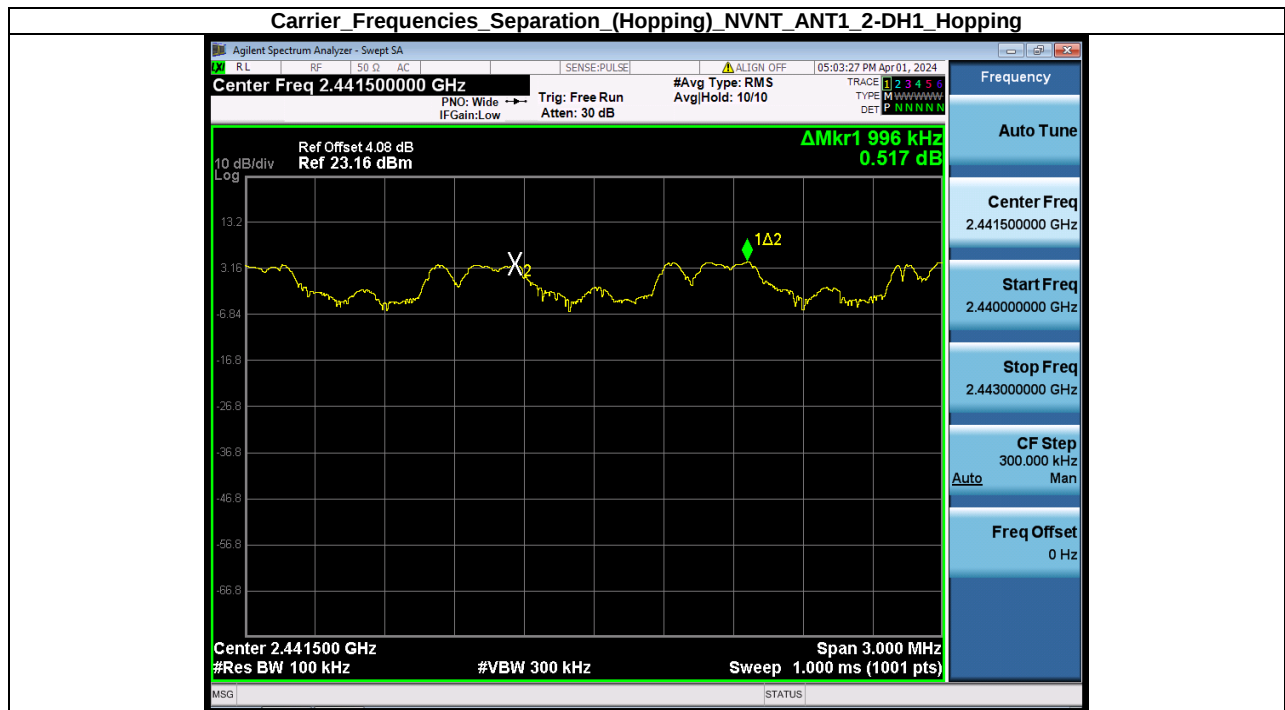
### 5.2. Test Procedure

The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The carrier frequency was measured by spectrum analyzer with 30kHz RBW and 100kHz VBW.

### 5.3. Test Result

| Condition | Antenna | Modulation | Frequency(MHz) | Hopping NO.0 (MHz) | Hopping NO.1 (MHz) | Carrier Frequencies Separation(MHz) | Limit(MHz) | Result |
|-----------|---------|------------|----------------|--------------------|--------------------|-------------------------------------|------------|--------|
| NVNT      | ANT1    | 1-DH1      | 2441.00        | 2440.834           | 2441.833           | 1.00                                | 0.801      | Pass   |
| NVNT      | ANT1    | 2-DH1      | 2441.00        | 2441.161           | 2442.157           | 1.00                                | 0.743      | Pass   |
| NVNT      | ANT1    | 3-DH1      | 2441.00        | 2440.834           | 2441.833           | 1.00                                | 0.778      | Pass   |





## 6. NUMBER OF HOPPING CHANNEL

### 6.1. Limit

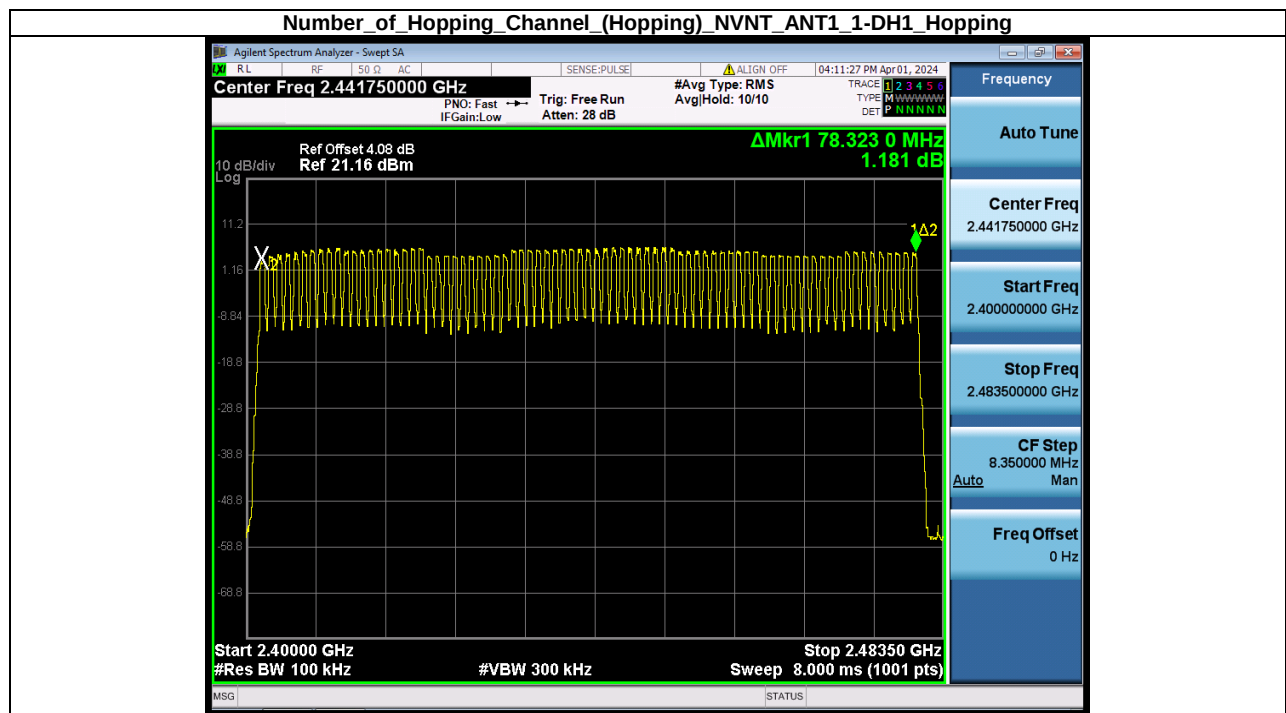
Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels

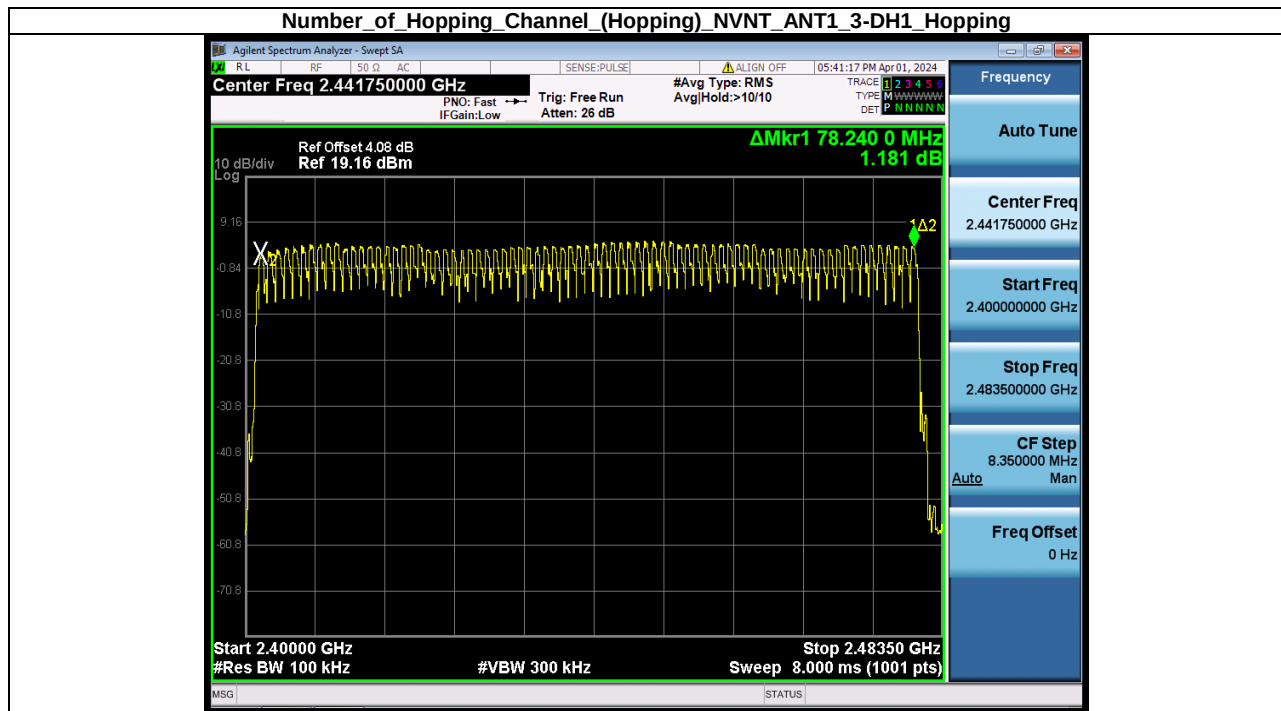
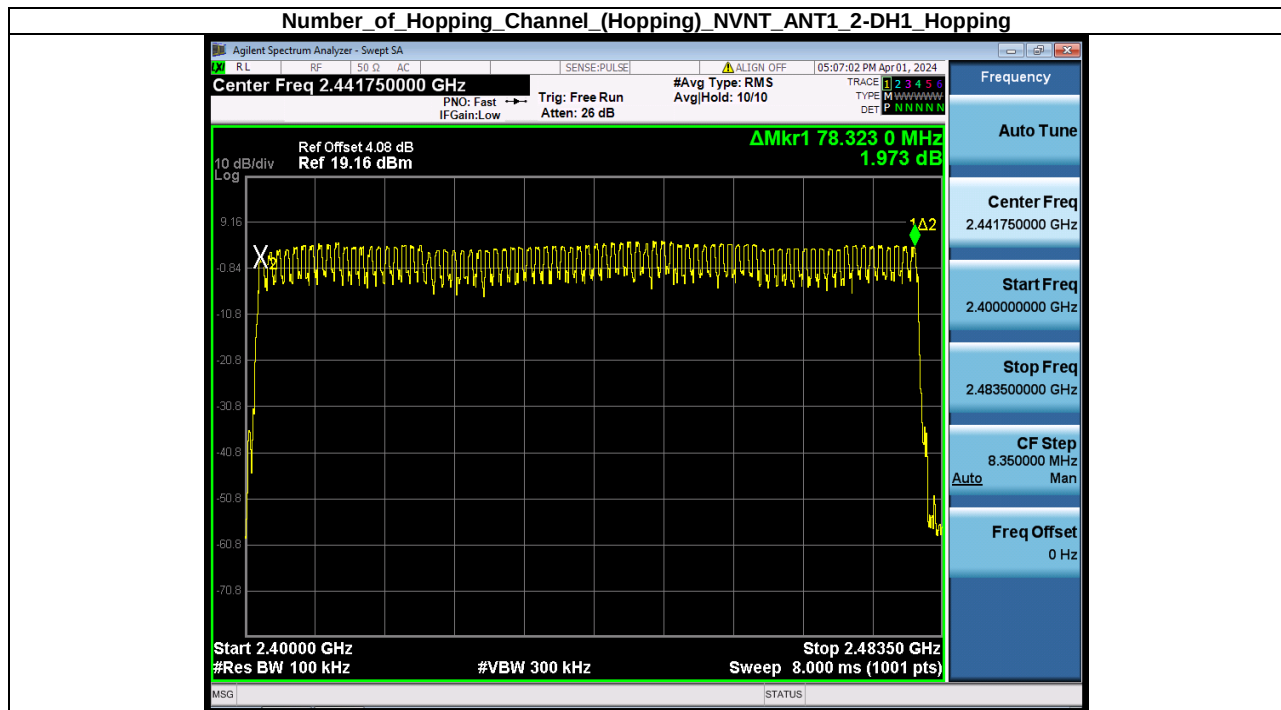
### 6.2. Test Procedure

The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The number of hopping channel was measured by spectrum analyzer with 100kHz RBW and 300KHz VBW.

### 6.3. Test Result

| Condition | Antenna | Modulation | Hopping Num | Limit | Result |
|-----------|---------|------------|-------------|-------|--------|
| NVNT      | ANT1    | 1-DH1      | 79          | 15    | Pass   |
| NVNT      | ANT1    | 2-DH1      | 79          | 15    | Pass   |
| NVNT      | ANT1    | 3-DH1      | 79          | 15    | Pass   |





## 7. DWELL TIME

### 7.1. Test limit

Please refer section 15.247

According to §15.247(a)(1)(iii), Frequency hopping systems operating in the 2400MHz-2483.5 MHz.

The average time of occupancy on any frequency shall not greater than 0.4 s within period of 0.4 sec- onds multiplied by the number of hopping channel employed.

### 7.2. Test Procedure

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

7.2.2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.

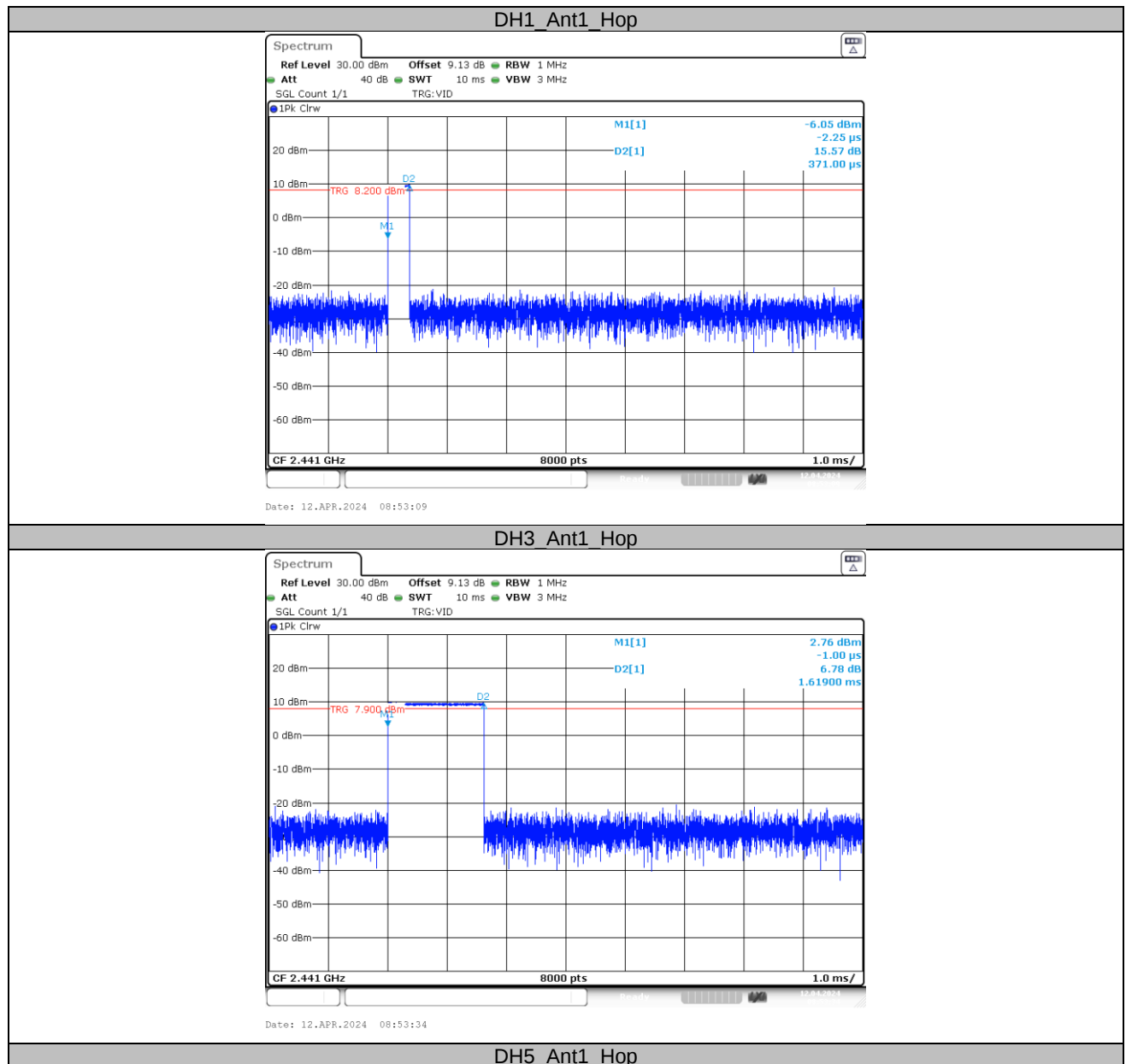
7.2.3. Set center frequency of spectrum analyzer = operating frequency.

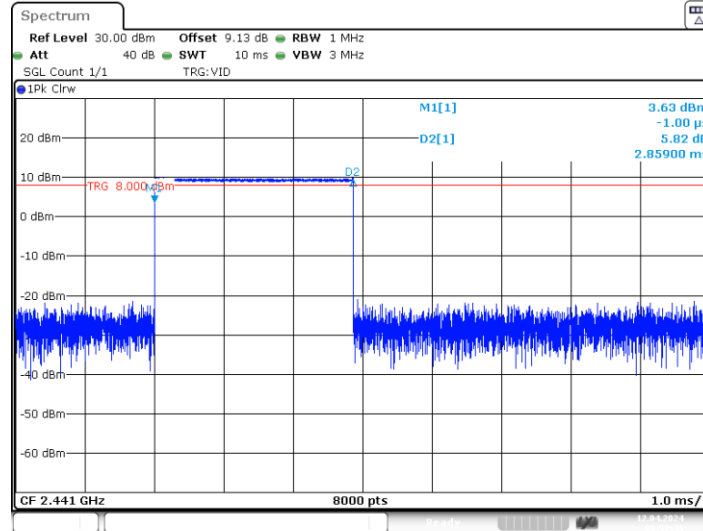
7.2.4. Set the spectrum analyzer as RBW=1MHz, VBW=1MHz, Span = 0Hz, Sweep = auto.

7.2.5. Repeat above procedures until all frequency measured were complete.

### 7.3. Test Result

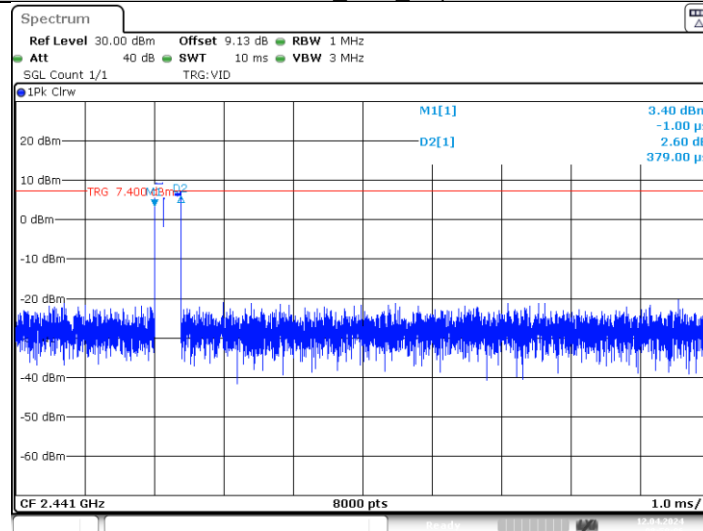
| TestMode | Antenna | Freq(MHz) | BurstWidth<br>[ms] | TotalHops<br>[Num] | Result[s] | Limit[s] | Verdict |
|----------|---------|-----------|--------------------|--------------------|-----------|----------|---------|
| DH1      | Ant1    | Hop       | 0.371              | 320                | 0.119     | ≤0.4     | PASS    |
| DH3      | Ant1    | Hop       | 1.619              | 160                | 0.259     | ≤0.4     | PASS    |
| DH5      | Ant1    | Hop       | 2.859              | 106.67             | 0.305     | ≤0.4     | PASS    |
| 2DH1     | Ant1    | Hop       | 0.379              | 320                | 0.121     | ≤0.4     | PASS    |
| 2DH3     | Ant1    | Hop       | 1.624              | 160                | 0.26      | ≤0.4     | PASS    |
| 2DH5     | Ant1    | Hop       | 2.865              | 106.67             | 0.306     | ≤0.4     | PASS    |
| 3DH1     | Ant1    | Hop       | 0.380              | 320                | 0.122     | ≤0.4     | PASS    |
| 3DH3     | Ant1    | Hop       | 1.623              | 160                | 0.26      | ≤0.4     | PASS    |
| 3DH5     | Ant1    | Hop       | 2.867              | 106.67             | 0.306     | ≤0.4     | PASS    |





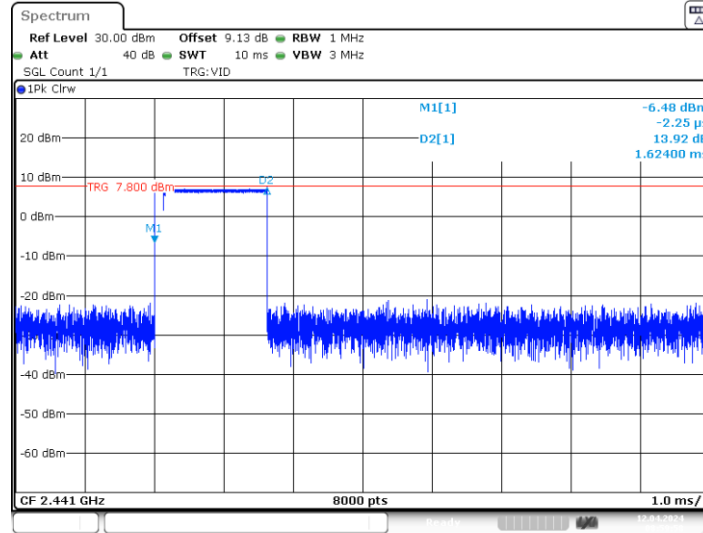
Date: 12.APR.2024 08:52:40

### 2DH1\_Ant1\_Hop



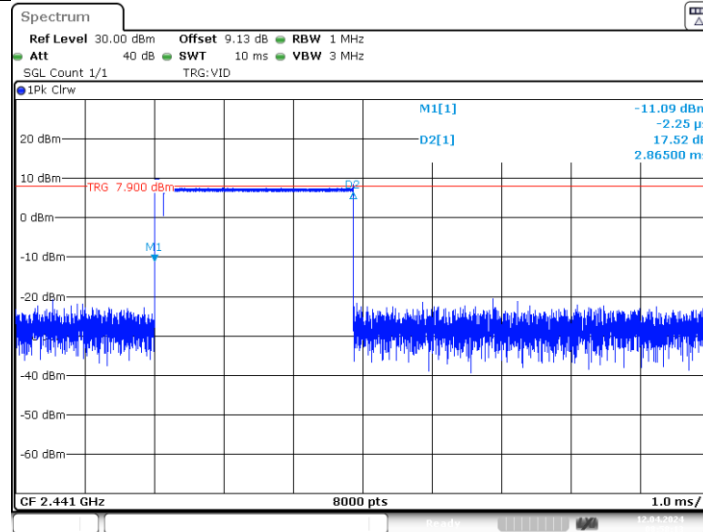
Date: 12.APR.2024 08:59:06

### 2DH3\_Ant1\_Hop



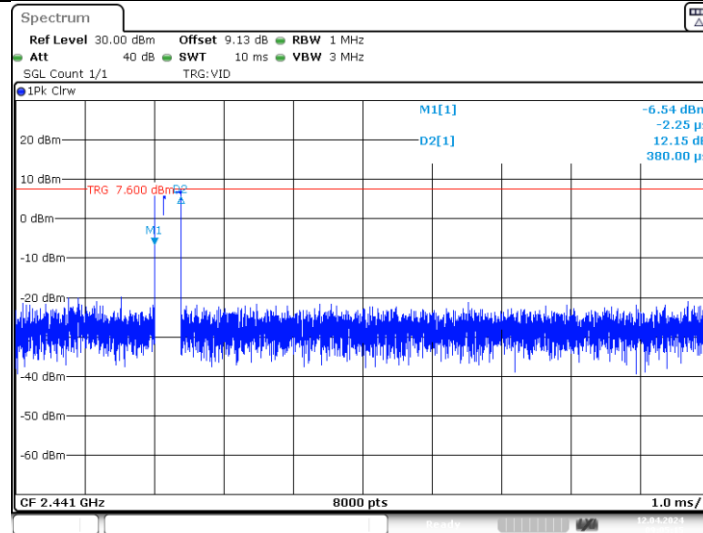
Date: 12.APR.2024 08:59:59

### 2DH5\_Ant1\_Hop



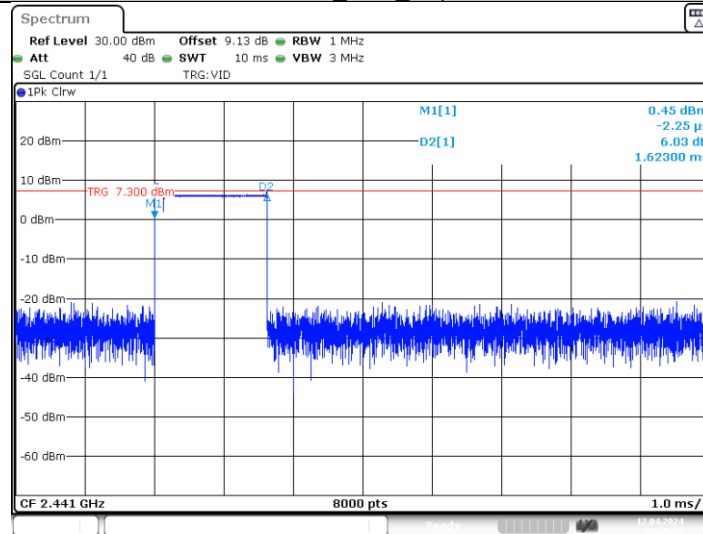
Date: 12.APR.2024 08:58:14

### 3DH1\_Ant1\_Hop



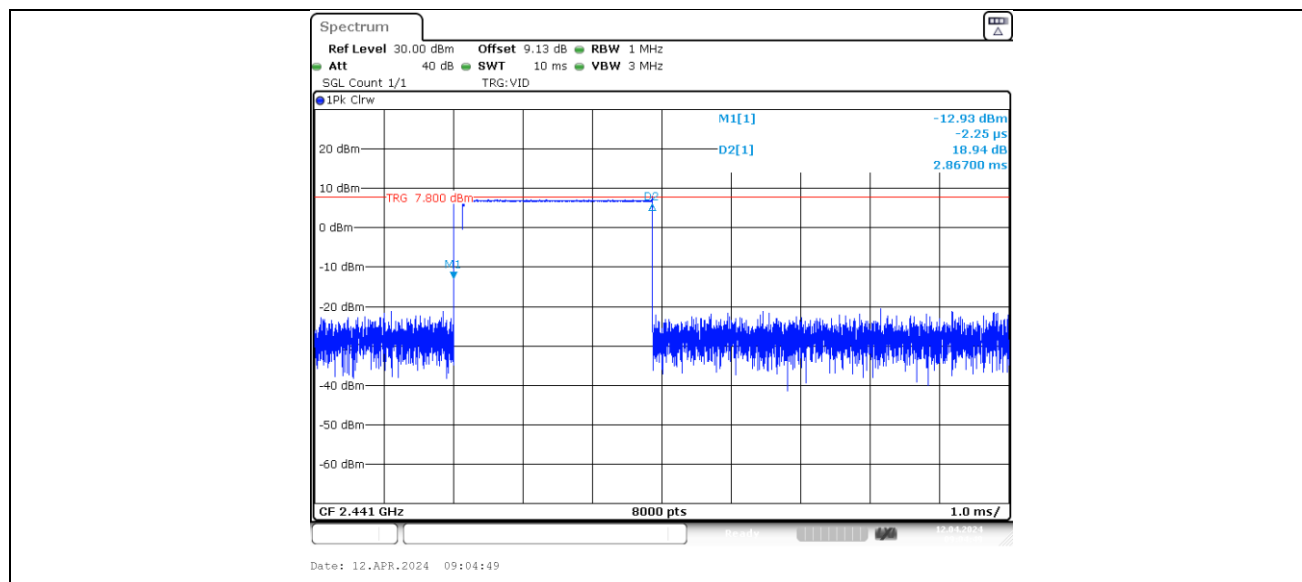
Date: 12.APR.2024 09:05:15

### 3DH3\_Ant1\_Hop



Date: 12.APR.2024 09:05:41

### 3DH5\_Ant1\_Hop



## 8. RADIATED EMISSIONS

### 8.1. Limit

All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

#### 15.205 Restricted frequency band

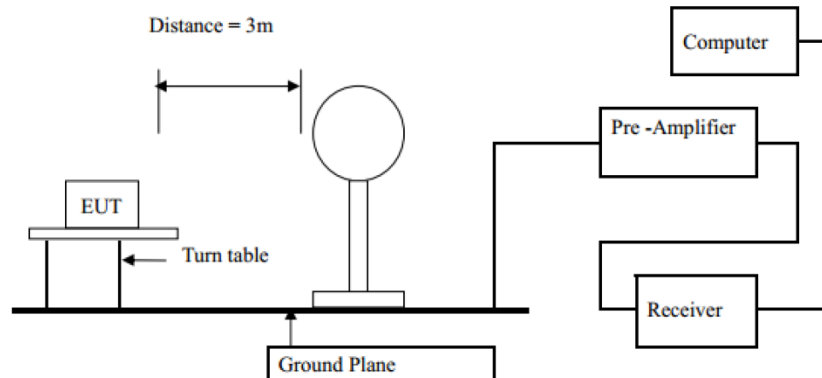
| MHz                        | MHz                   | MHz             | GHz              |
|----------------------------|-----------------------|-----------------|------------------|
| 0.090 - 0.110              | 16.42 - 16.423        | 399.9 - 410     | 4.5 - 5.15       |
| <sup>1</sup> 0.495 - 0.505 | 16.69475 - 16.69525   | 608 - 614       | 5.35 - 5.46      |
| 2.1735 - 2.1905            | 16.80425 - 16.80475   | 960 - 1240      | 7.25 - 7.75      |
| 4.125 - 4.128              | 25.5 - 25.67          | 1300 - 1427     | 8.025 - 8.5      |
| 4.17725 - 4.17775          | 37.5 - 38.25          | 1435 - 1626.5   | 9.0 - 9.2        |
| 4.20725 - 4.20775          | 73 - 74.6             | 1645.5 - 1646.5 | 9.3 - 9.5        |
| 6.215 - 6.218              | 74.8 - 75.2           | 1660 - 1710     | 10.6 - 12.7      |
| 6.26775 - 6.26825          | 108 - 121.94          | 1718.8 - 1722.2 | 13.25 - 13.4     |
| 6.31175 - 6.31225          | 123 - 138             | 2200 - 2300     | 14.47 - 14.5     |
| 8.291 - 8.294              | 149.9 - 150.05        | 2310 - 2390     | 15.35 - 16.2     |
| 8.362 - 8.366              | 156.52475 - 156.52525 | 2483.5 - 2500   | 17.7 - 21.4      |
| 8.37625 - 8.38675          | 156.7 - 156.9         | 2690 - 2900     | 22.01 - 23.12    |
| 8.41425 - 8.41475          | 162.0125 - 167.17     | 3260 - 3267     | 23.6 - 24.0      |
| 12.29 - 12.293             | 167.72 - 173.2        | 3332 - 3339     | 31.2 - 31.8      |
| 12.51975 - 12.52025        | 240 - 285             | 3345.8 - 3358   | 36.43 - 36.5     |
| 12.57675 - 12.57725        | 322 - 335.4           | 3600 - 4400     | ( <sup>2</sup> ) |

#### 15.209 Limit

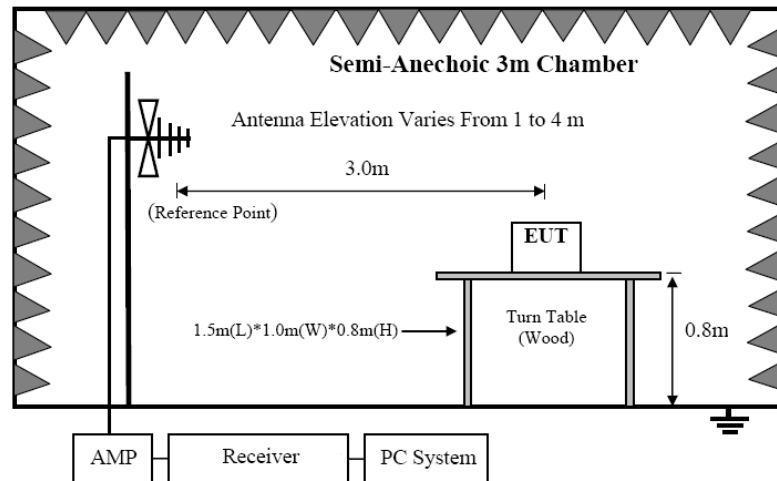
| FREQUENCY<br>MHz | DISTANCE<br>Meters | FIELD STRENGTHS LIMIT                           |          |
|------------------|--------------------|-------------------------------------------------|----------|
|                  |                    | μV/m                                            | dB(μV)/m |
| 0.009-0.490      | 300                | 2400/F(KHz)                                     | /        |
| 0.490-1.705      | 30                 | 24000/F(KHz)                                    | /        |
| 1.705-30         | 30                 | 30                                              | 29.5     |
| 30 88            | 3                  | 100                                             | 40.0     |
| 88 216           | 3                  | 150                                             | 43.5     |
| 216 960          | 3                  | 200                                             | 46.0     |
| 960 1000         | 3                  | 500                                             | 54.0     |
| Above 1000       | 3                  | 74.0 dB(μV)/m (Peak)<br>54.0 dB(μV)/m (Average) |          |

## 8.2. Block Diagram of Test setup

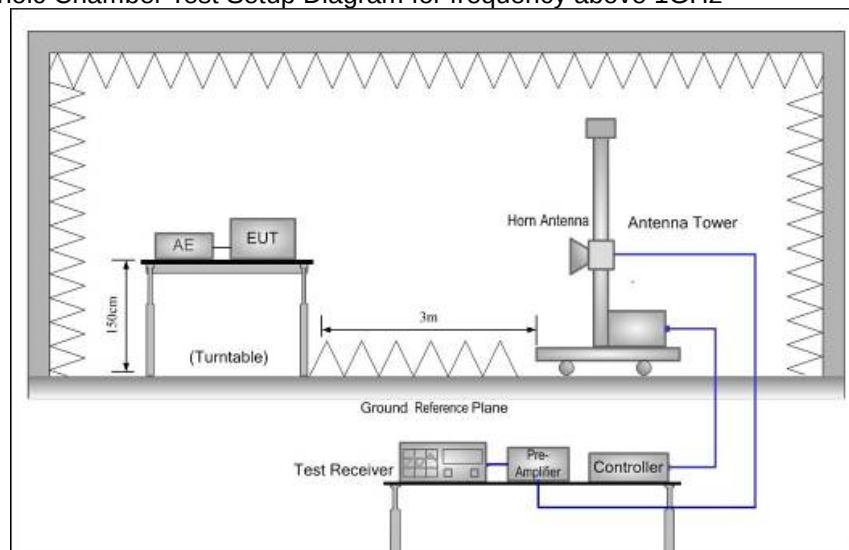
### 8.2.1 In 3m Anechoic Chamber Test Setup Diagram for below 30MHz



### 8.2.1 In 3m Anechoic Chamber Test Setup Diagram for below 1GHz



### 8.2.2 In 3m Anechoic Chamber Test Setup Diagram for frequency above 1GHz



Note: For harmonic emissions test a appropriate high pass filter was inserted in the input port of AMP.

### 8.3. Test Procedure

- (1) EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber.
- (2) Setup EUT and simulator as shown in section 1.4 and 6.1
- (3) Test antenna was located 3m from the EUT on an adjustable mast. Below pre-scan procedure was first performed in order to find prominent radiated emissions.
  - (a) Change work frequency or channel of device if practicable.
  - (b) Change modulation type of device if practicable.
  - (c) Rotated EUT though three orthogonal axes to determine the attitude of EUT arrangement produces highest emissions
- (4) Spectrum frequency from 9KHz to 25GHz (tenth harmonic of fundamental frequency) was investigated
- (5) For final emissions measurements at each frequency of interest, the EUT were rotated and the antenna height was varied between 1m and 4m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.10:2013on Radiated Emission test.
- (6) For emissions above 1GHz, both Peak and Average level were measured with Spectrum Analyzer, and the RBW is set at 1MHz, VBW is set at 3MHz for Peak measure; RBW is set at 1MHz, VBW is set at 10Hz for Average measure.

### 8.4. Test Result

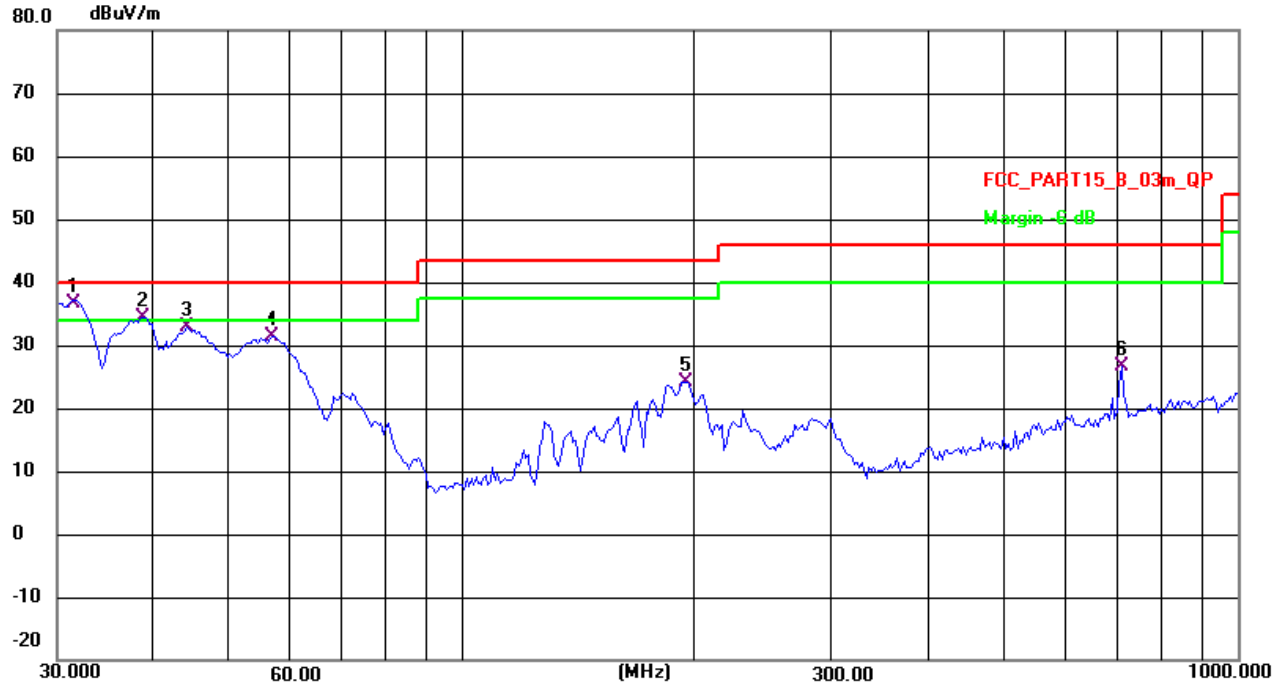
We have scanned the 10th harmonic from 9KHz to the EUT's highest frequency.  
Detailed information please see the following page.

From 9KHz to 30MHz: Conclusion: PASS

Note: The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

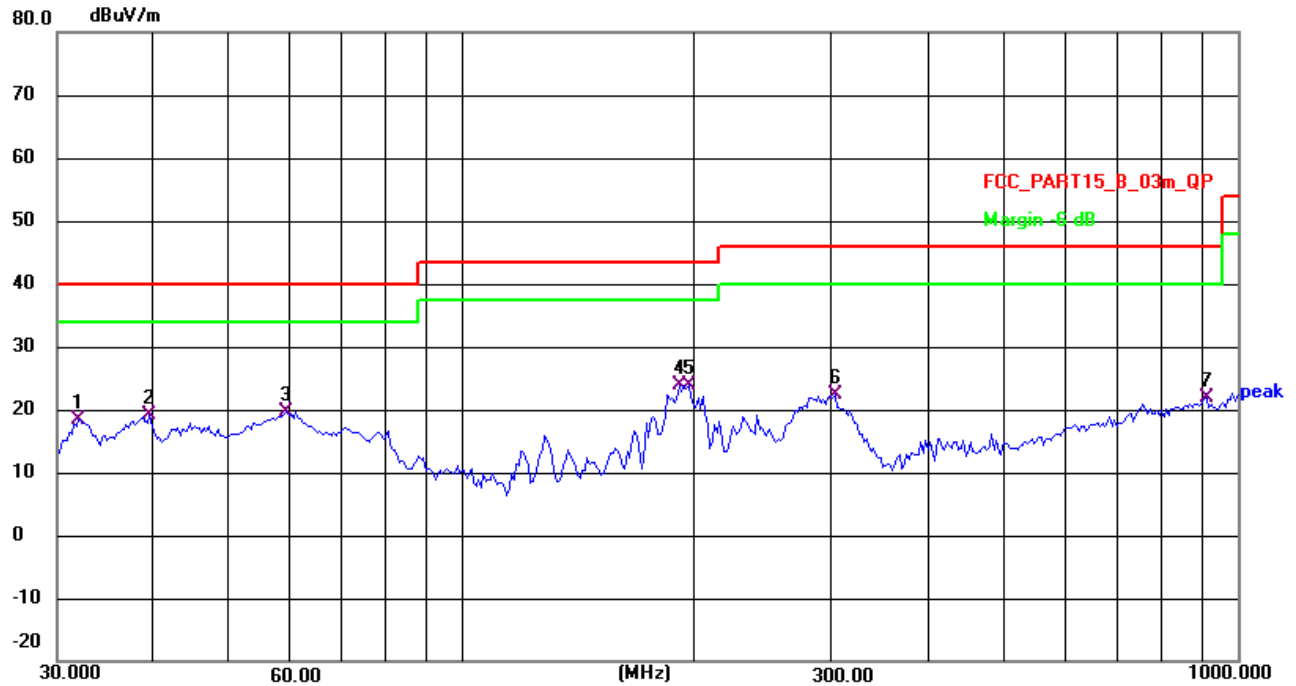
From 30MHz to 1000MHz: Conclusion: PASS

Vertical:



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|-------------|----------------|-----|--------|
| 1 * | 31.5126         | 56.68          | -20.10        | 36.58          | 40.00          | -3.42       | QP       | 100         | 360            | P   |        |
| 2 ! | 38.6357         | 53.85          | -19.38        | 34.47          | 40.00          | -5.53       | QP       | 100         | 360            | P   |        |
| 3   | 44.1544         | 52.24          | -19.46        | 32.78          | 40.00          | -7.22       | QP       | 100         | 360            | P   |        |
| 4   | 56.8644         | 51.61          | -20.11        | 31.50          | 40.00          | -8.50       | QP       | 100         | 360            | P   |        |
| 5   | 194.4985        | 48.62          | -24.48        | 24.14          | 43.50          | -19.36      | QP       | 100         | 360            | P   |        |
| 6   | 708.6941        | 38.96          | -12.34        | 26.62          | 46.00          | -19.38      | QP       | 100         | 360            | P   |        |

### Horizontal:



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg.) | P/F | Remark |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|-------------|----------------|-----|--------|
| 1   | 31.9586         | 38.41          | -20.07        | 18.34          | 40.00          | -21.66      | QP       | 200         | 0              | P   |        |
| 2   | 39.4588         | 38.42          | -19.26        | 19.16          | 40.00          | -20.84      | QP       | 200         | 0              | P   |        |
| 3   | 59.3133         | 39.80          | -20.25        | 19.55          | 40.00          | -20.45      | QP       | 200         | 0              | P   |        |
| 4 * | 190.4411        | 48.13          | -24.17        | 23.96          | 43.50          | -19.54      | QP       | 200         | 0              | P   |        |
| 5   | 195.8701        | 48.49          | -24.59        | 23.90          | 43.50          | -19.60      | QP       | 200         | 0              | P   |        |
| 6   | 302.8193        | 44.77          | -22.33        | 22.44          | 46.00          | -23.56      | QP       | 200         | 0              | P   |        |
| 7   | 912.6953        | 30.68          | -8.75         | 21.93          | 46.00          | -24.07      | QP       | 200         | 0              | P   |        |

Remark: All modes have been tested, and only worst data of GFSK mode, Channel 2402MHz was listed in this report.

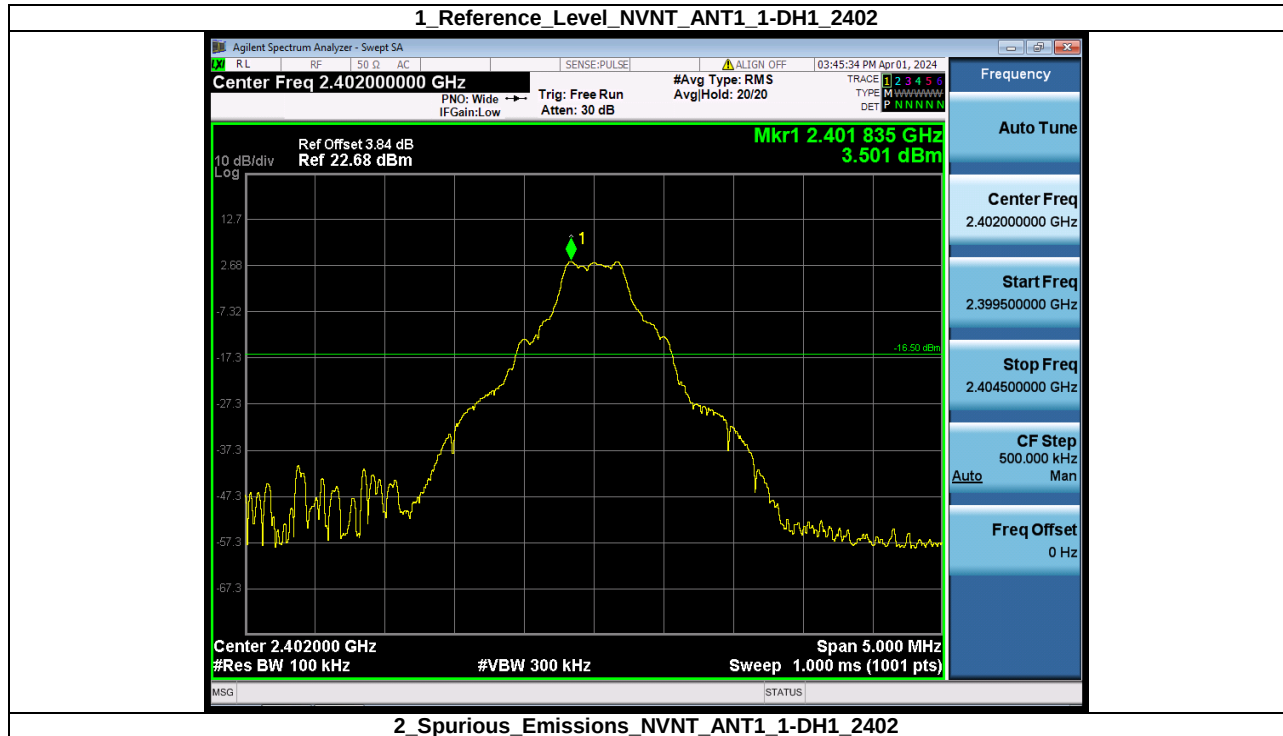
From 1G-25GHz

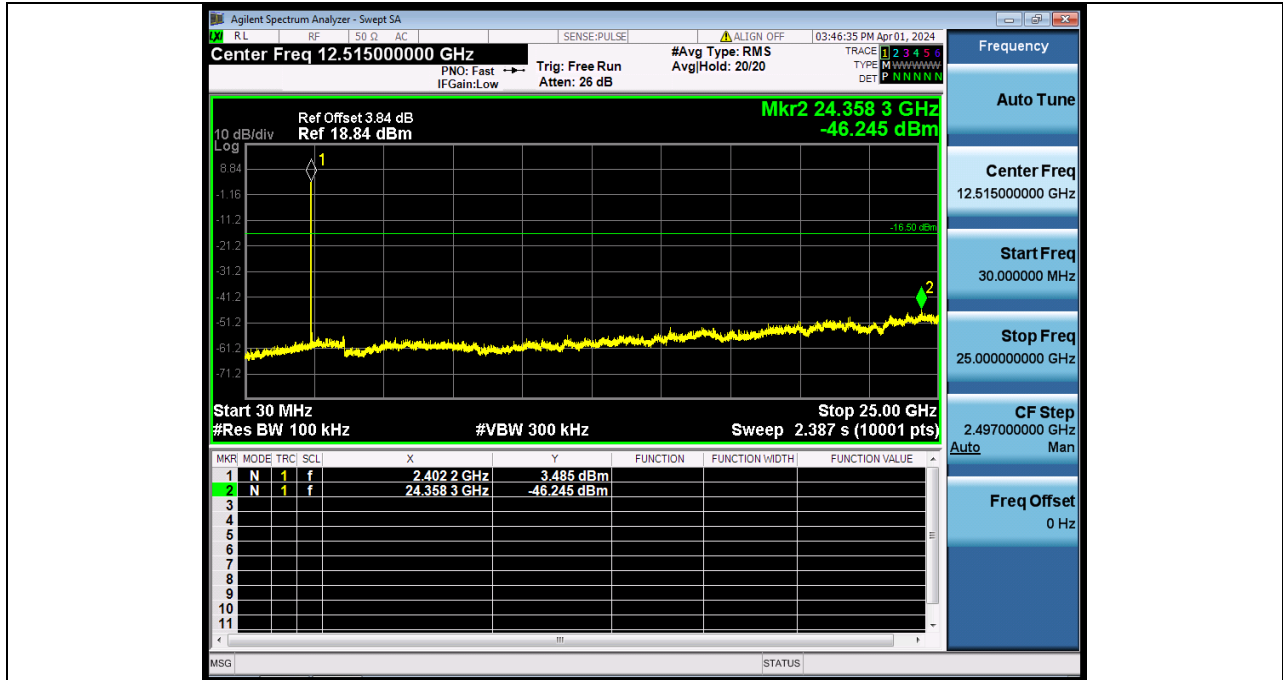
All modes had been tested, only show the worst mode GFSK

| Test Mode: GFSK TX Low                                                                            |                     |             |                       |                |                 |                 |                |             |        |
|---------------------------------------------------------------------------------------------------|---------------------|-------------|-----------------------|----------------|-----------------|-----------------|----------------|-------------|--------|
| Freq (MHz)                                                                                        | Read Level (dBuV/m) | Polar (H/V) | Antenna Factor (dB/m) | Cable loss(dB) | Amp Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
| 4804                                                                                              | 48.20               | V           | 33.93                 | 10.18          | 34.26           | 57.21           | 74             | -16.79      | PK     |
| 4804                                                                                              | 36.93               | V           | 33.93                 | 10.18          | 34.26           | 46.90           | 54             | -7.10       | AV     |
| 7206                                                                                              | /                   | /           | /                     | /              | /               | /               | /              | /           | /      |
| 9608                                                                                              | /                   | /           | /                     | /              | /               | /               | /              | /           | /      |
| 4804                                                                                              | 48.96               | H           | 33.93                 | 10.18          | 34.26           | 58.81           | 74             | -15.19      | PK     |
| 4804                                                                                              | 36.02               | H           | 33.93                 | 10.18          | 34.26           | 45.87           | 54             | -8.13       | AV     |
| 7206                                                                                              | /                   | /           | /                     | /              | /               | /               | /              | /           | /      |
| 9608                                                                                              | /                   | /           | /                     | /              | /               | /               | /              | /           | /      |
| Test Mode: GFSK TX Mid                                                                            |                     |             |                       |                |                 |                 |                |             |        |
| 4882                                                                                              | 50.23               | V           | 33.95                 | 10.20          | 34.26           | 60.12           | 74             | -13.88      | PK     |
| 4882                                                                                              | 37.02               | V           | 33.95                 | 10.20          | 34.26           | 46.91           | 54             | -7.09       | AV     |
| 7323                                                                                              | /                   | /           | /                     | /              | /               | /               | /              | /           | /      |
| 9764                                                                                              | /                   | /           | /                     | /              | /               | /               | /              | /           | /      |
| 4882                                                                                              | 50.12               | H           | 33.95                 | 10.20          | 34.26           | 60.01           | 74             | -13.99      | PK     |
| 4882                                                                                              | 34.52               | H           | 33.95                 | 10.20          | 34.26           | 47.75           | 54             | -6.25       | AV     |
| 7323                                                                                              | /                   | /           | /                     | /              | /               | /               | /              | /           | /      |
| 9764                                                                                              | /                   | /           | /                     | /              | /               | /               | /              | /           | /      |
| Test Mode: GFSK TX High                                                                           |                     |             |                       |                |                 |                 |                |             |        |
| 4960                                                                                              | 49.85               | V           | 33.98                 | 10.22          | 34.25           | 59.80           | 74             | -14.20      | PK     |
| 4960                                                                                              | 35.62               | V           | 33.98                 | 10.22          | 34.25           | 45.57           | 54             | -8.43       | AV     |
| 7440                                                                                              | /                   | /           | /                     | /              | /               | /               | /              | /           | /      |
| 9920                                                                                              | /                   | /           | /                     | /              | /               | /               | /              | /           | /      |
| 4960                                                                                              | 50.23               | H           | 33.98                 | 10.22          | 34.25           | 60.18           | 74             | -13.82      | PK     |
| 4960                                                                                              | 35.33               | H           | 33.98                 | 10.22          | 34.25           | 45.28           | 54             | -8.72       | AV     |
| 7440                                                                                              | /                   | /           | /                     | /              | /               | /               | /              | /           | /      |
| 9920                                                                                              | /                   | /           | /                     | /              | /               | /               | /              | /           | /      |
| Note:                                                                                             |                     |             |                       |                |                 |                 |                |             |        |
| 1, Result = Read level + Antenna factor + cable loss-Amp factor                                   |                     |             |                       |                |                 |                 |                |             |        |
| 2, All the other emissions not reported were too low to read and deemed to comply with FCC limit. |                     |             |                       |                |                 |                 |                |             |        |

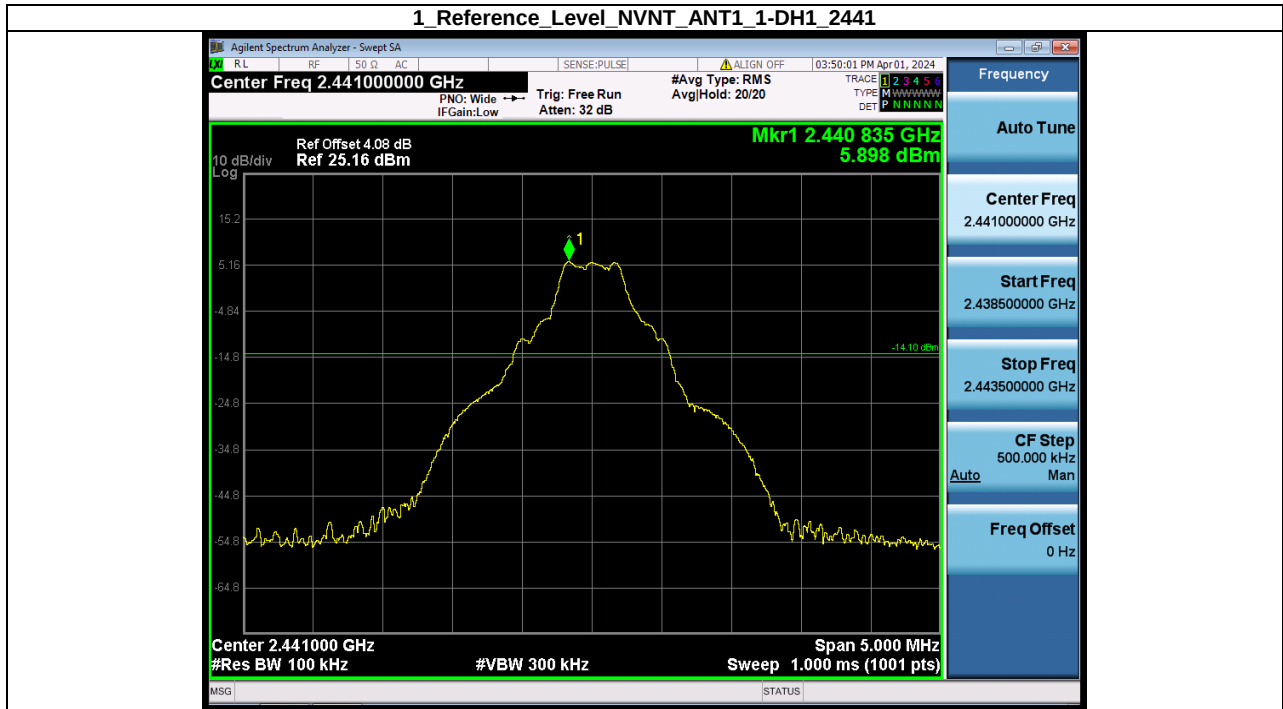
# Conducted RF Spurious Emission

| Condition | Antenna | Modulation | TX Mode | Spurious<br>MAX.Value(dBm) | Limit   | Result |
|-----------|---------|------------|---------|----------------------------|---------|--------|
| NVNT      | ANT1    | 1-DH1      | 2402.00 | -46.245                    | -16.499 | Pass   |
| NVNT      | ANT1    | 1-DH1      | 2441.00 | -44.969                    | -14.102 | Pass   |
| NVNT      | ANT1    | 1-DH1      | 2480.00 | -49.774                    | -14.866 | Pass   |
| NVNT      | ANT1    | 2-DH1      | 2402.00 | -53.824                    | -17.920 | Pass   |
| NVNT      | ANT1    | 2-DH1      | 2441.00 | -46.854                    | -16.035 | Pass   |
| NVNT      | ANT1    | 2-DH1      | 2480.00 | -46.321                    | -16.173 | Pass   |
| NVNT      | ANT1    | 3-DH1      | 2402.00 | -53.286                    | -17.930 | Pass   |
| NVNT      | ANT1    | 3-DH1      | 2441.00 | -51.018                    | -15.911 | Pass   |
| NVNT      | ANT1    | 3-DH1      | 2480.00 | -46.506                    | -15.999 | Pass   |

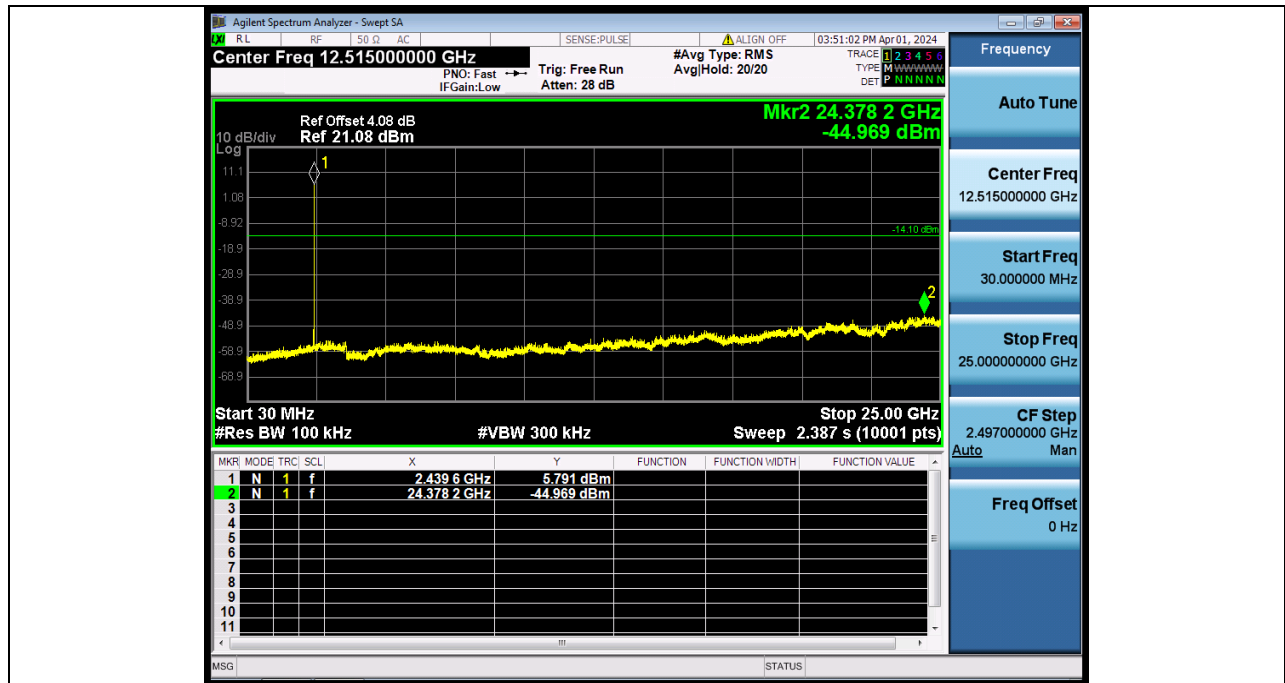




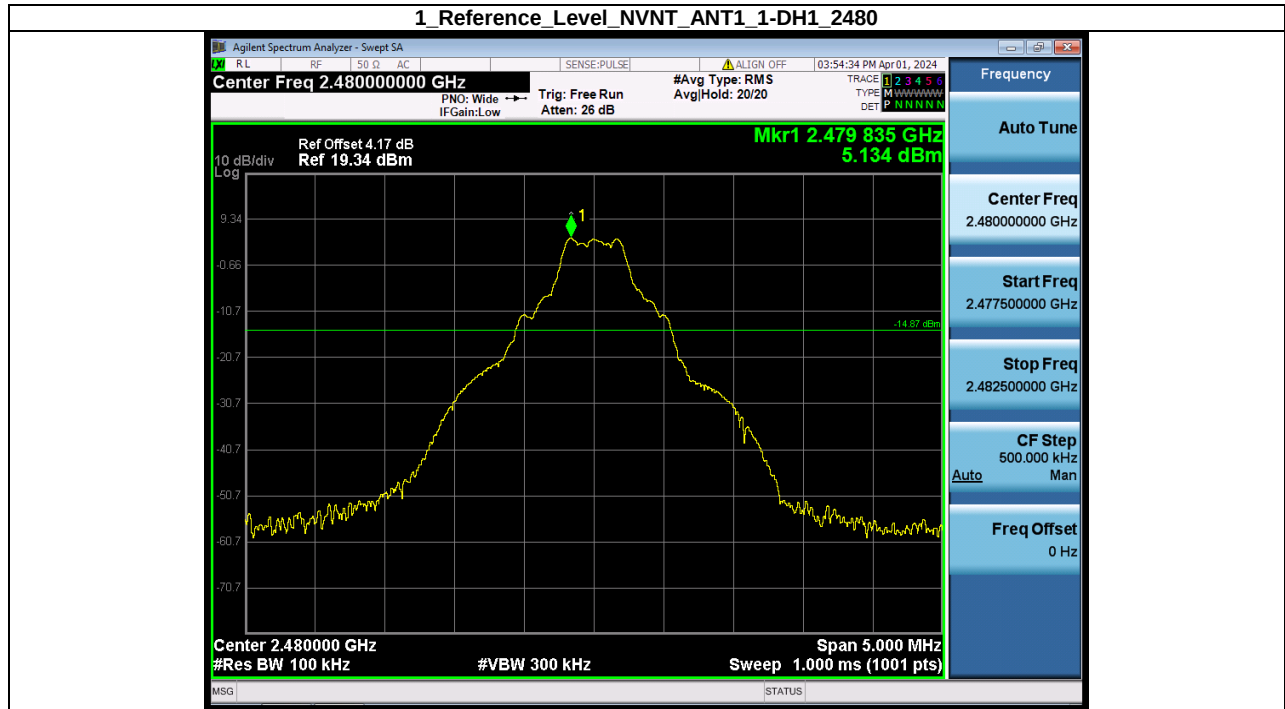
### 1 Reference\_Level\_NVNT\_ANT1\_1-DH1\_2441



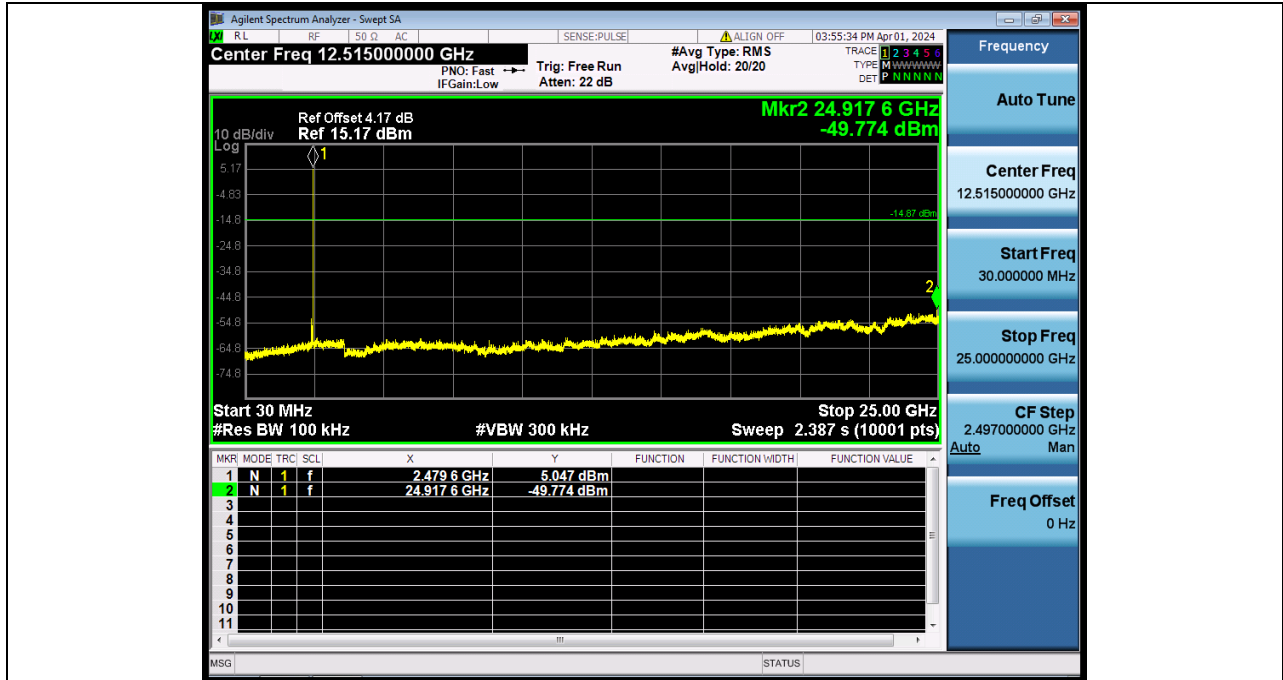
### 2 Spurious Emissions\_NVNT\_ANT1\_1-DH1\_2441



### 1 Reference\_Level\_NVNT\_ANT1\_1-DH1\_2480



### 2 Spurious\_Emissions\_NVNT\_ANT1\_1-DH1\_2480



1 Reference\_Level\_NVNT\_ANT1\_2-DH1\_2402



2 Spurious\_Emissions\_NVNT\_ANT1\_2-DH1\_2402