

# FCC RF Test Report

## (FHSS)

**Applicant:** Nebra Ltd

**Address of Applicant:** Unit 4 Bells Yew Green Business Court, Bells Yew Green,  
Tunbridge Wells, East Sussex, TN3 9BJ

**Equipment Under Test (EUT)**

Product Name: Nebra HNT 5G Gateway

Model No.: NEBHNT-5G-915-1, NEBHNT-5G-915-2

**FCC ID:** 2AZDM-HNT5G

**Applicable Standards:** FCC CFR Title 47 Part 15C (§15.247)

**Date of Sample Receipt:** 07 Feb., 2023

**Date of Test:** 08 Feb., to 23 Feb., 2023

**Date of Report Issued:** 24 Feb., 2023

**Test Result:** PASS

**Tested by:**  
**Test Engineer****Date:**

24 Feb., 2023

**Reviewed by:**  
**Project Engineer****Date:**

24 Feb., 2023

**Approved by:**  
**Manager****Date:**

24 Feb., 2023

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in above the application standard version. Test results reported herein relate only to the item(s) tested.

This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

## 1 Version

| Version No. | Date          | Description |
|-------------|---------------|-------------|
| 00          | 24 Feb., 2023 | Original    |
|             |               |             |
|             |               |             |
|             |               |             |
|             |               |             |
|             |               |             |

## 2 Contents

|                                                                  | Page      |
|------------------------------------------------------------------|-----------|
| <b>Cover Page .....</b>                                          | <b>1</b>  |
| <b>1 Version .....</b>                                           | <b>2</b>  |
| <b>2 Contents.....</b>                                           | <b>3</b>  |
| <b>3 General Information.....</b>                                | <b>4</b>  |
| 3.1 Client Information .....                                     | 4         |
| 3.2 General Description of E.U.T. ....                           | 4         |
| 3.3 Test Mode and Test Environment .....                         | 5         |
| 3.4 Description of Test Auxiliary Equipment .....                | 5         |
| 3.5 Measurement Uncertainty .....                                | 5         |
| 3.6 Additions to, Deviations, or Exclusions From the Method..... | 5         |
| 3.7 Laboratory Facility .....                                    | 5         |
| 3.8 Laboratory Location.....                                     | 5         |
| 3.9 Test Instruments List .....                                  | 6         |
| <b>4 Measurement Setup and Procedure .....</b>                   | <b>8</b>  |
| 4.1 Test Channel .....                                           | 8         |
| 4.2 Test Setup .....                                             | 8         |
| 4.3 Test Procedure .....                                         | 10        |
| <b>5 Test Results.....</b>                                       | <b>11</b> |
| 5.1 Summary .....                                                | 11        |
| 5.1.1 Clause and data summary .....                              | 11        |
| 5.1.2 Test Limit.....                                            | 12        |
| 5.2 Antenna Requirement .....                                    | 13        |
| 5.3 AC Power Line Conducted Emission .....                       | 14        |
| 5.4 Conducted Output Power .....                                 | 16        |
| 5.5 6dB Occupied Bandwidth .....                                 | 17        |
| 5.6 20dB Occupied Bandwidth .....                                | 18        |
| 5.7 Carrier Frequencies Separation .....                         | 19        |
| 5.8 Hopping Channel Number.....                                  | 20        |
| 5.9 Dwell Time.....                                              | 21        |
| 5.10 Power Spectral Density .....                                | 22        |
| 5.11 Spurious Emission.....                                      | 23        |
| 5.11.1 Band-edge Emission .....                                  | 23        |
| 5.11.2 Conducted Spurious Emission .....                         | 24        |
| 5.11.3 Emissions in Restricted Frequency Bands .....             | 25        |
| 5.11.4 Emissions in Non-restricted Frequency Bands .....         | 29        |

### 3 General Information

#### 3.1 Client Information

|               |                                                                                                                           |
|---------------|---------------------------------------------------------------------------------------------------------------------------|
| Applicant:    | Nebra Ltd                                                                                                                 |
| Address:      | Unit 4 Bells Yew Green Business Court, Bells Yew Green, Tunbridge Wells, East Sussex, TN3 9BJ                             |
| Manufacturer: | SUNSOAR TECH CO., LIMITED                                                                                                 |
| Address:      | 4/F, Block E, Fengze Building, Huafeng No.2 Industrial Park, Hangkong Road, XiXiang Town, BaoAn District, Shenzhen, China |
| Factory:      | EvrTech                                                                                                                   |
| Address:      | No.44, Ying Tai Industry Area, Dalang South RD, Shenzhen, China                                                           |

#### 3.2 General Description of E.U.T.

|                        |                                                                                                                                                                                                                                                                                     |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product Name:          | Nebra HNT 5G Gateway                                                                                                                                                                                                                                                                |
| Model No.:             | NEBHNT-5G-915-1, NEBHNT-5G-915-2                                                                                                                                                                                                                                                    |
| Operation Frequency:   | 903.9 MHz – 905.3 MHz                                                                                                                                                                                                                                                               |
| Number of Channel:     | 8                                                                                                                                                                                                                                                                                   |
| Modulation Type:       | LoRa                                                                                                                                                                                                                                                                                |
| Modulation Technology: | Hybrid spread-spectrum                                                                                                                                                                                                                                                              |
| Antenna Type:          | External Antenna                                                                                                                                                                                                                                                                    |
| Antenna Gain:          | 3dBi (declare by applicant)                                                                                                                                                                                                                                                         |
| AC Adapter:            | Model: RC0653-1205000CI<br>Input: AC100-240V, 50/60Hz, 1.5A<br>Output: DC 12.0V, 5.0A 60.0W                                                                                                                                                                                         |
| Remark:                | The difference between the models is that the LoRa Radio module used inside is different for each variant. Along with a respective antenna for each region / frequency. The -2 flag at the end of the model number relates to the specific chip part number for the main LoRa chip. |
| Test Sample Condition: | The test samples were provided in good working order with no visible defects.                                                                                                                                                                                                       |

### 3.3 Test Mode and Test Environment

| Test Modes:                                                          |                                               |
|----------------------------------------------------------------------|-----------------------------------------------|
| Non-hopping mode:                                                    | Keep the EUT in continuous transmitting mode. |
| Hopping mode:                                                        | Keep the EUT in hopping mode.                 |
| <b>Remark:</b> The report only reflects the test data of worst mode. |                                               |
| Operating Environment:                                               |                                               |
| Temperature:                                                         | 15°C ~ 35°C                                   |
| Humidity:                                                            | 20 % ~ 75 % RH                                |
| Atmospheric Pressure:                                                | 1008 mbar                                     |

### 3.4 Description of Test Auxiliary Equipment

|                                                 |
|-------------------------------------------------|
| The EUT has been tested as an independent unit. |
|-------------------------------------------------|

### 3.5 Measurement Uncertainty

| Parameter                                                                                                                                                                                                                                                                                                            | Expanded Uncertainty<br>(Confidence of 95%(U = 2Uc(y))) |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
| Conducted Emission for LISN (9kHz ~ 10MHz)                                                                                                                                                                                                                                                                           | 1.9 dB                                                  |
| Conducted Emission for LISN (10MHz ~ 30MHz)                                                                                                                                                                                                                                                                          | 2.6 dB                                                  |
| Radiated Emission (30MHz ~ 1GHz) (3m SAC)                                                                                                                                                                                                                                                                            | 3.8 dB                                                  |
| Radiated Emission (1GHz ~ 18GHz) (3m SAC)                                                                                                                                                                                                                                                                            | 3.6 dB                                                  |
| Radiated Emission (18GHz ~ 40GHz) (3m SAC)                                                                                                                                                                                                                                                                           | 5.34 dB                                                 |
| <b>Note:</b> All the measurement uncertainty value were shown with a coverage k=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance. |                                                         |

### 3.6 Additions to, Deviations, or Exclusions From the Method

|    |
|----|
| No |
|----|

### 3.7 Laboratory Facility

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>The test facility is recognized, certified, or accredited by the following organizations:</p> <ul style="list-style-type: none"> <li>● <b>FCC - Designation No.: CN1211</b><br/>JianYan Testing Group Shenzhen Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551.</li> <li>● <b>ISED – CAB identifier.: CN0021</b><br/>The 3m Semi-anechoic chamber and 10m Semi-anechoic chamber of JianYan Testing Group Shenzhen Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.</li> <li>● <b>CNAS - Registration No.: CNAS L15527</b><br/>JianYan Testing Group Shenzhen Co., Ltd. is accredited to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L15527.</li> <li>● <b>A2LA - Registration No.: 4346.01</b><br/>This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: <a href="https://portal.a2la.org/scopepdf/4346-01.pdf">https://portal.a2la.org/scopepdf/4346-01.pdf</a></li> </ul> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### 3.8 Laboratory Location

|                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>JianYan Testing Group Shenzhen Co., Ltd.<br/>Address: No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, People's Republic of China.<br/>Tel: +86-755-23118282, Fax: +86-755-23116366<br/>Email: info-JYTee@lets.com, Website: <a href="http://jyt.lets.com">http://jyt.lets.com</a></p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### 3.9 Test Instruments List

| Radiated Emission(3m SAC):    |                 |                 |                    |                      |                          |
|-------------------------------|-----------------|-----------------|--------------------|----------------------|--------------------------|
| Test Equipment                | Manufacturer    | Model No.       | Manage No.         | Cal. Date (mm-dd-yy) | Cal. Due date (mm-dd-yy) |
| 3m SAC                        | ETS             | 9m*6m*6m        | WXJ001-1           | 04-14-2021           | 04-13-2024               |
| Loop Antenna                  | Schwarzbeck     | FMZB 1519 B     | WXJ002-4           | 03-07-2022           | 03-06-2023               |
| BiConiLog Antenna             | Schwarzbeck     | VULB9163        | WXJ002             | 03-08-2022           | 03-07-2023               |
| Horn Antenna                  | Schwarzbeck     | BBHA9120D       | WXJ002-2           | 03-08-2022           | 03-07-2023               |
| Horn Antenna                  | Schwarzbeck     | BBHA9170        | WXJ002-5           | 04-07-2022           | 04-06-2023               |
| Pre-amplifier (30MHz ~ 1GHz)  | Schwarzbeck     | BBV9743B        | WXJ001-2           | 01-10-2023           | 01-09-2024               |
| Pre-amplifier (1GHz ~ 18GHz)  | SKET            | LNPA_0118G-50   | WXJ001-3           | 01-10-2023           | 01-09-2024               |
| Pre-amplifier (18GHz ~ 40GHz) | RF System       | TRLA-180400G45B | WXJ002-7           | 03-30-2022           | 03-29-2023               |
| EMI Test Receiver             | Rohde & Schwarz | ESRP7           | WXJ003-1           | 03-05-2022           | 03-04-2023               |
| Spectrum Analyzer             | Rohde & Schwarz | FSP 30          | WXJ004             | 01-10-2023           | 01-09-2024               |
| Spectrum Analyzer             | KEYSIGHT        | N9010B          | WXJ004-2           | 10-17-2022           | 10-16-2023               |
| Coaxial Cable (30MHz ~ 1GHz)  | JYTSZ           | JYT3M-1G-NN-8M  | WXG001-4           | 01-10-2023           | 01-09-2024               |
| Coaxial Cable (1GHz ~ 18GHz)  | JYTSZ           | JYT3M-18G-NN-8M | WXG001-5           | 01-10-2023           | 01-09-2024               |
| Coaxial Cable (18GHz ~ 40GHz) | JYTSZ           | JYT3M-40G-SS-8M | WXG001-7           | 01-10-2023           | 01-09-2024               |
| Band Reject Filter Group      | Tonscend        | JS0806-F        | WXJ089             | N/A                  |                          |
| Test Software                 | Tonscend        | TS+             | Version: 3.0.0.1   |                      |                          |
| EMI Test Software             | AUDIX           | E3              | Version: 6.110919b |                      |                          |

| Radiated Emission(10m SAC): |              |                  |                   |                      |                          |
|-----------------------------|--------------|------------------|-------------------|----------------------|--------------------------|
| Test Equipment              | Manufacturer | Model No.        | Manage No.        | Cal. Date (mm-dd-yy) | Cal. Due date (mm-dd-yy) |
| 10m SAC                     | ETS          | RFSD-100-F/A     | WXJ090            | 04-28-2021           | 04-27-2024               |
| BiConiLog Antenna           | SCHWARZBECK  | VULB 9168        | WXJ090-1          | 04-01-2022           | 03-31-2023               |
| BiConiLog Antenna           | SCHWARZBECK  | VULB 9168        | WXJ090-2          | 03-31-2022           | 03-30-2023               |
| EMI Test Receiver           | R&S          | ESR 3            | WXJ090-3          | 03-30-2022           | 03-29-2023               |
| EMI Test Receiver           | R&S          | ESR 3            | WXJ090-4          | 03-30-2022           | 03-29-2023               |
| Low Pre-amplifier           | Bost         | LNA 0920N        | WXJ090-6          | 01-10-2023           | 01-09-2024               |
| Low Pre-amplifier           | Bost         | LNA 0920N        | WXJ090-7          | 01-10-2023           | 01-09-2024               |
| Cable                       | Bost         | JYT10M-1G-NN-10M | WXG002-7          | 01-10-2023           | 01-09-2024               |
| Cable                       | Bost         | JYT10M-1G-NN-10M | WXG002-8          | 01-10-2023           | 01-09-2024               |
| Test Software               | R&S          | EMC32            | Version: 10.50.40 |                      |                          |

| Conducted Emission:               |                 |                |                    |                          |                          |
|-----------------------------------|-----------------|----------------|--------------------|--------------------------|--------------------------|
| Test Equipment                    | Manufacturer    | Model No.      | Manage No.         | Cal. Date (mm-dd-yy)     | Cal. Due date (mm-dd-yy) |
| EMI Test Receiver                 | Rohde & Schwarz | ESR3           | WXJ003-2           | 07-12-2022               | 07-11-2023               |
| LISN                              | Schwarzbeck     | NSLK 8127      | QCJ001-13          | 02-24-2022<br>02-24-2023 | 02-23-2023<br>02-23-2024 |
| LISN                              | Rohde & Schwarz | ESH3-Z5        | WXJ005-1           | 03-30-2022               | 03-29-2023               |
| LISN Coaxial Cable (9kHz ~ 30MHz) | JYTSZ           | JYTCE-1G-NN-2M | WXG003-1           | 02-24-2022<br>02-24-2023 | 02-23-2023<br>02-23-2024 |
| RF Switch                         | TOP PRECISION   | RSU0301        | WXG003             | N/A                      |                          |
| Test Software                     | AUDIX           | E3             | Version: 6.110919b |                          |                          |

| Conducted Method: |                 |           |            |                         |                             |
|-------------------|-----------------|-----------|------------|-------------------------|-----------------------------|
| Test Equipment    | Manufacturer    | Model No. | Manage No. | Cal. Date<br>(mm-dd-yy) | Cal. Due date<br>(mm-dd-yy) |
| Spectrum Analyzer | Rohde & Schwarz | FSP 30    | WXJ004     | 01-10-2023              | 01-09-2024                  |
| EMI Test Receiver | Rohde & Schwarz | ESCI3     | WXJ003     | 01-10-2023              | 01-09-2024                  |
| Spectrum Analyzer | Keysight        | N9010B    | WXJ004-3   | 10-17-2022              | 10-16-2023                  |
| DC Power Supply   | Keysight        | E3642A    | WXJ025-2   | 10-17-2022              | 10-16-2023                  |

## 4 Measurement Setup and Procedure

### 4.1 Test Channel

According to ANSI C63.10-2013 chapter 5.6.1 Table 4 requirement, select lowest channel, middle channel, and highest channel in the frequency range in which device operates for testing. The detailed frequency points are as follows:

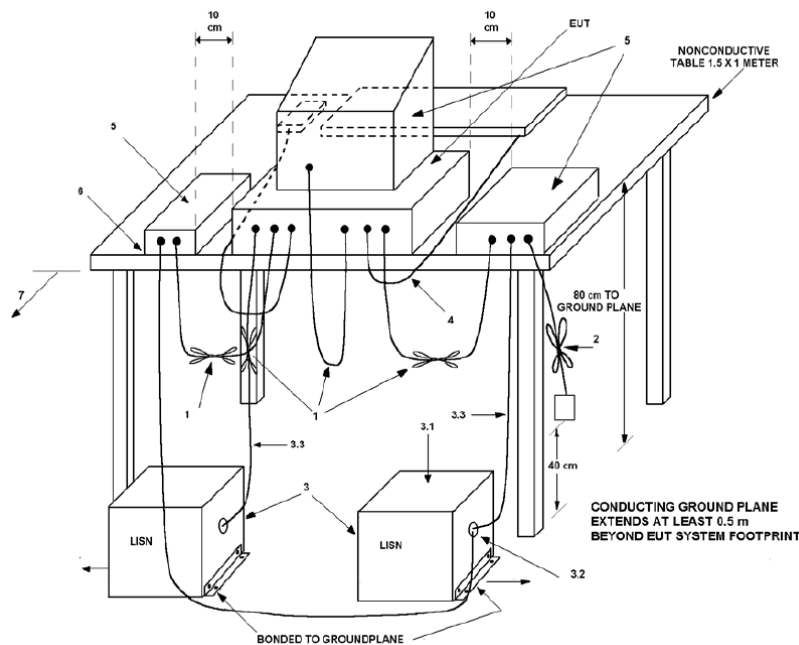
| Channel | Frequency | Channel | Frequency | Channel | Frequency |
|---------|-----------|---------|-----------|---------|-----------|
| 1       | 903.9MHz  | 4       | 904.5MHz  | 7       | 905.1MHz  |
| 2       | 904.1MHz  | 5       | 904.7MHz  | 8       | 905.3MHz  |
| 3       | 904.3MHz  | 6       | 904.9MHz  |         |           |

Note:

Channel No. 1, 5 & 8 were selected as Lowest, Middle and Highest channel.

### 4.2 Test Setup

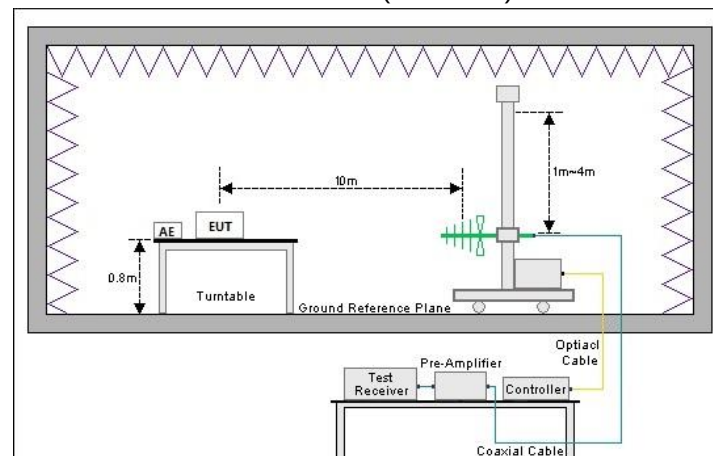
#### 1) Conducted emission measurement:

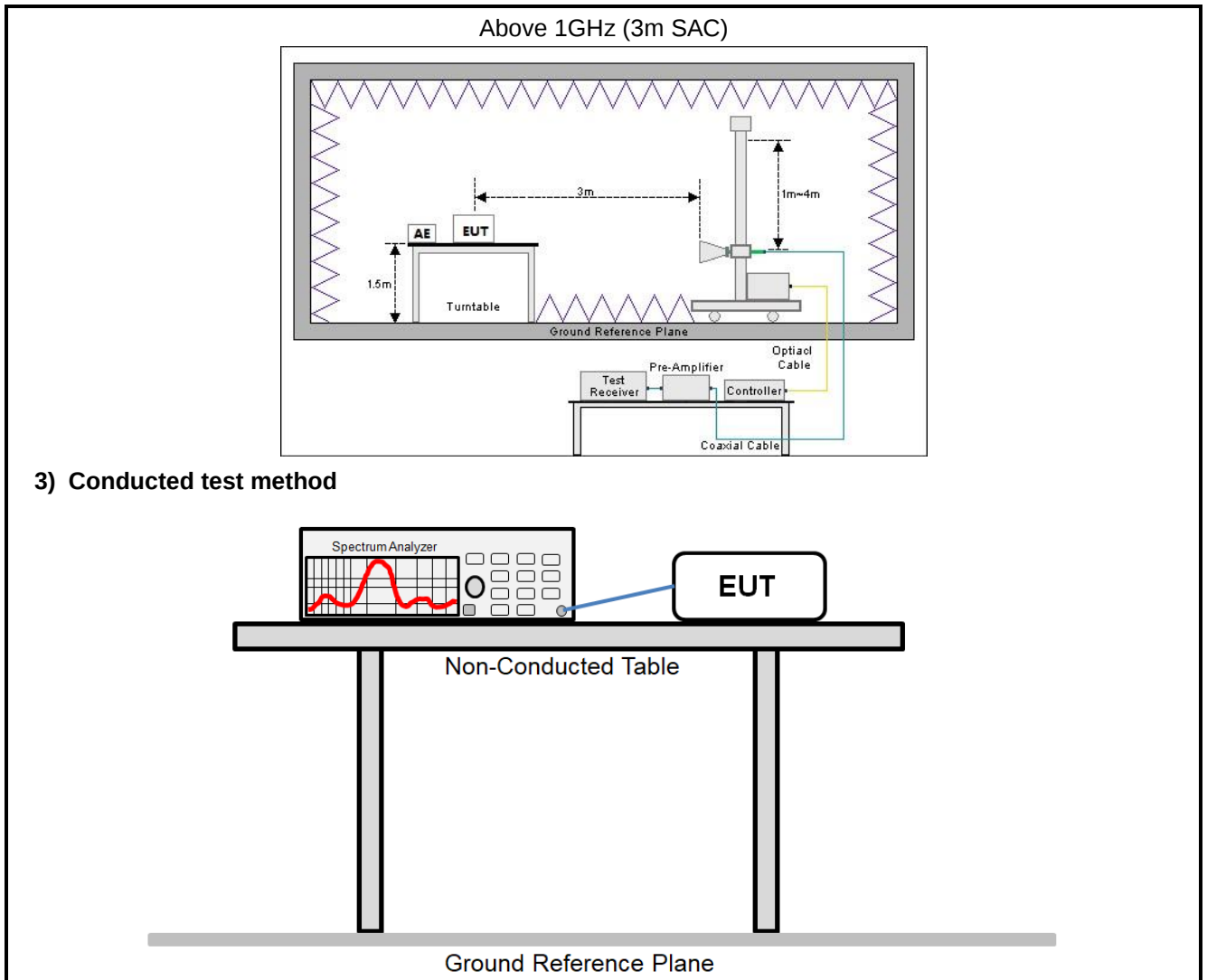


Note: The detailed descriptions please refer to Figure 8 of ANSI C63.4:2014.

#### 2) Radiated emission measurement:

Below 1GHz (10m SAC)





### 4.3 Test Procedure

| Test method           | Test step                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Conducted emission    | <ol style="list-style-type: none"> <li>1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment.</li> <li>2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).</li> <li>3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Radiated emission     | <p><b>For below 1GHz:</b></p> <ol style="list-style-type: none"> <li>1. The EUT was placed on the tabletop of a rotating table 0.8 m the ground at a 3 m semi anechoic chamber. The measurement distance from the EUT to the receiving antenna is 3 m.</li> <li>2. EUT works in each mode of operation that needs to be tested, and having the EUT continuously working, respectively on 3 axis (X, Y &amp; Z) and considered typical configuration to obtain worst position. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations.</li> <li>3. Open the test software to control the test antenna and test turntable. Perform the test, save the test results, and export the test data.</li> </ol> <p><b>For above 1GHz:</b></p> <ol style="list-style-type: none"> <li>1. The EUT was placed on the tabletop of a rotating table 1.5 m the ground at a 3 m fully anechoic room. The measurement distance from the EUT to the receiving antenna is 3 m.</li> <li>2. EUT works in each mode of operation that needs to be tested, and having the EUT continuously working, respectively on 3 axis (X, Y &amp; Z) and considered typical configuration to obtain worst position. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations.</li> <li>3. Open the test software to control the test antenna and test turntable. Perform the test, save the test results, and export the test data.</li> </ol> |
| Conducted test method | <ol style="list-style-type: none"> <li>1. The antenna port of EUT was connected to the test port of the test system through an RF cable.</li> <li>2. The EUT is keeping in continuous transmission mode and tested in all modulation modes.</li> <li>3. Open the test software, prepare a test plan, and control the system through the software. After the test is completed, the test report is exported through the test software.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

## 5 Test Results

### 5.1 Summary

#### 5.1.1 Clause and data summary

| Test items                                                                                                                                                                                                                                                   | Standard clause                                                | Test data        | Result |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|------------------|--------|
| Antenna Requirement                                                                                                                                                                                                                                          | 15.203<br>15.247 (b)(4)                                        | See Section 5.2  | Pass   |
| AC Power Line Conducted Emission                                                                                                                                                                                                                             | 15.207                                                         | See Section 5.3  | Pass   |
| Conducted Output Power                                                                                                                                                                                                                                       | 15.247 (b)(2)                                                  | See Section 5.4  | Pass   |
| 6dB Occupied Bandwidth                                                                                                                                                                                                                                       | 15.247 (a)(1)(i)                                               | See Section 5.5  | Pass   |
| 20dB Occupied Bandwidth                                                                                                                                                                                                                                      | 15.247 (a)(1)(i)                                               | See Section 5.5  | Pass   |
| Carrier Frequencies Separation                                                                                                                                                                                                                               | 15.247 (a)(1)                                                  | See Section 5.6  | Pass   |
| Hopping Channel Number                                                                                                                                                                                                                                       | 5.247 (a)(1)(i)                                                | See Section 5.7  | Pass   |
| Dwell Time                                                                                                                                                                                                                                                   | 15.247 (a)(1)(i)                                               | See Section 5.8  | Pass   |
| Power Spectral Density                                                                                                                                                                                                                                       | 15.247 (e)                                                     | See Section 5.9  | Pass   |
| Spurious Emission                                                                                                                                                                                                                                            | 15.205<br>15.209<br>15.247 (d)                                 | See Section 5.10 | Pass   |
| <b>Remark:</b><br>1. Pass: The EUT complies with the essential requirements in the standard.<br>2. N/A: Not Applicable.<br>3. The cable insertion loss used by "RF Output Power" and other conduction measurement items is 0.5dB (provided by the customer). |                                                                |                  |        |
| <b>Test Method:</b>                                                                                                                                                                                                                                          | ANSI C63.10-2013<br>KDB 558074 D01 15.247 Meas Guidance v05r02 |                  |        |

### 5.1.2 Test Limit

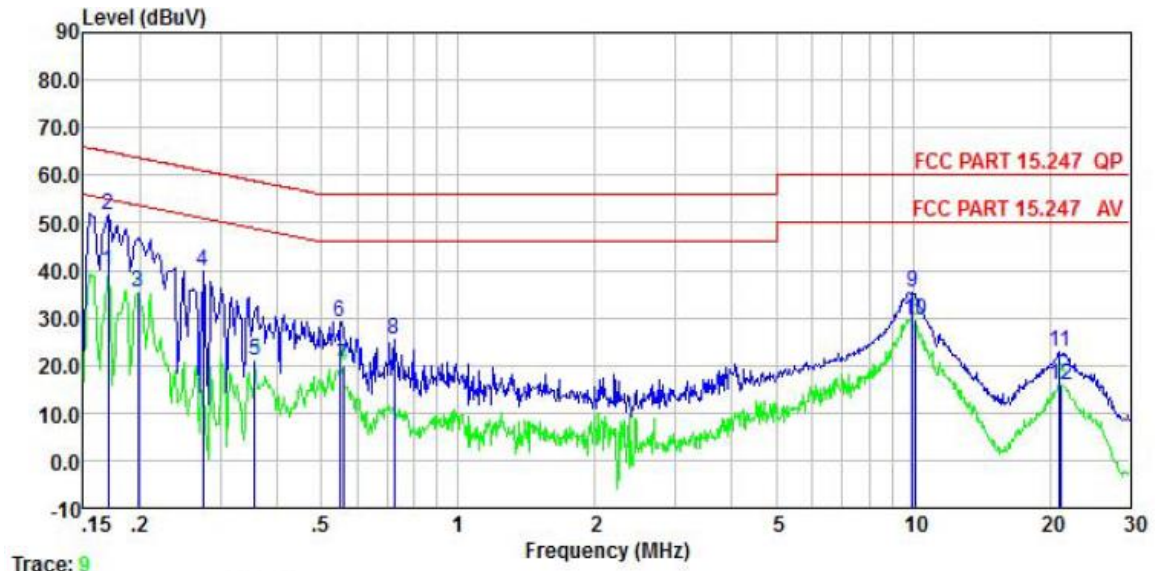
| Test items                       | Limit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                |                |  |            |         |            |                                |                                |         |            |          |        |      |            |           |      |      |            |            |      |      |            |           |                     |  |         |       |             |      |      |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|----------------|--|------------|---------|------------|--------------------------------|--------------------------------|---------|------------|----------|--------|------|------------|-----------|------|------|------------|------------|------|------|------------|-----------|---------------------|--|---------|-------|-------------|------|------|
| AC Power Line Conducted Emission | <table><tr><th rowspan="2">Frequency (MHz)</th><th colspan="2">Limit (dBµV)</th></tr><tr><th>Quasi-Peak</th><th>Average</th></tr><tr><td>0.15 – 0.5</td><td>66 to 56 <small>Note 1</small></td><td>56 to 46 <small>Note 1</small></td></tr><tr><td>0.5 – 5</td><td>56</td><td>46</td></tr><tr><td>5 – 30</td><td>60</td><td>50</td></tr></table> <p><b>Note 1:</b> The limit level in dBµV decreases linearly with the logarithm of frequency.<br/><b>Note 2:</b> The more stringent limit applies at transition frequencies.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Frequency (MHz)                | Limit (dBµV)   |  | Quasi-Peak | Average | 0.15 – 0.5 | 66 to 56 <small>Note 1</small> | 56 to 46 <small>Note 1</small> | 0.5 – 5 | 56         | 46       | 5 – 30 | 60   | 50         |           |      |      |            |            |      |      |            |           |                     |  |         |       |             |      |      |
| Frequency (MHz)                  | Limit (dBµV)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                |                |  |            |         |            |                                |                                |         |            |          |        |      |            |           |      |      |            |            |      |      |            |           |                     |  |         |       |             |      |      |
|                                  | Quasi-Peak                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Average                        |                |  |            |         |            |                                |                                |         |            |          |        |      |            |           |      |      |            |            |      |      |            |           |                     |  |         |       |             |      |      |
| 0.15 – 0.5                       | 66 to 56 <small>Note 1</small>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 56 to 46 <small>Note 1</small> |                |  |            |         |            |                                |                                |         |            |          |        |      |            |           |      |      |            |            |      |      |            |           |                     |  |         |       |             |      |      |
| 0.5 – 5                          | 56                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 46                             |                |  |            |         |            |                                |                                |         |            |          |        |      |            |           |      |      |            |            |      |      |            |           |                     |  |         |       |             |      |      |
| 5 – 30                           | 60                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 50                             |                |  |            |         |            |                                |                                |         |            |          |        |      |            |           |      |      |            |            |      |      |            |           |                     |  |         |       |             |      |      |
| Conducted Output Power           | For frequency hopping systems operating in the 902-928 MHz band: 1 watt for systems employing at least 50 hopping channels; and, 0.25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels, as permitted under paragraph (a)(1)(i) of this section.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                |                |  |            |         |            |                                |                                |         |            |          |        |      |            |           |      |      |            |            |      |      |            |           |                     |  |         |       |             |      |      |
| 6dB Occupied Bandwidth           | There is no requirement for this type of hybrid system to comply with the 500 kHz minimum bandwidth normally associated with a DTS device.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                |                |  |            |         |            |                                |                                |         |            |          |        |      |            |           |      |      |            |            |      |      |            |           |                     |  |         |       |             |      |      |
| 20dB Occupied Bandwidth          | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                |                |  |            |         |            |                                |                                |         |            |          |        |      |            |           |      |      |            |            |      |      |            |           |                     |  |         |       |             |      |      |
| Carrier Frequencies Separation   | Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dBbandwidth of the hopping channel, whichever is greater.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                |                |  |            |         |            |                                |                                |         |            |          |        |      |            |           |      |      |            |            |      |      |            |           |                     |  |         |       |             |      |      |
| Hopping Channel Number           | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                |                |  |            |         |            |                                |                                |         |            |          |        |      |            |           |      |      |            |            |      |      |            |           |                     |  |         |       |             |      |      |
| Dwell Time                       | The transmission must comply with a 0.4 second/channel maximum dwell time when the hopping function is turned on.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                |                |  |            |         |            |                                |                                |         |            |          |        |      |            |           |      |      |            |            |      |      |            |           |                     |  |         |       |             |      |      |
| Max Power Density                | As specified in Section 15.247(f), a hybrid system must comply with the power density standard of 8 dBm in any 3 kHz band when the frequency hopping function is turned off.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                |                |  |            |         |            |                                |                                |         |            |          |        |      |            |           |      |      |            |            |      |      |            |           |                     |  |         |       |             |      |      |
| Spurious Emission                | <p>In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)):</p> <table><tr><th rowspan="2">Frequency (MHz)</th><th colspan="2">Limit (dBµV/m)</th><th rowspan="2">Detector</th></tr><tr><th>@ 3m</th><th>@ 10m</th></tr><tr><td>30 – 88</td><td>40.0</td><td>30.0</td><td>Quasi-peak</td></tr><tr><td>88 – 216</td><td>43.5</td><td>33.5</td><td>Quasi-peak</td></tr><tr><td>216 – 960</td><td>46.0</td><td>36.0</td><td>Quasi-peak</td></tr><tr><td>960 – 1000</td><td>54.0</td><td>44.0</td><td>Quasi-peak</td></tr></table> <p><b>Note:</b> The more stringent limit applies at transition frequencies.</p> <table><tr><th rowspan="2">Frequency</th><th colspan="2">Limit (dBµV/m) @ 3m</th></tr><tr><th>Average</th><th>Peake</th></tr><tr><td>Above 1 GHz</td><td>54.0</td><td>74.0</td></tr></table> <p><b>Note:</b> The measurement bandwidth shall be 1 MHz or greater.</p> | Frequency (MHz)                | Limit (dBµV/m) |  | Detector   | @ 3m    | @ 10m      | 30 – 88                        | 40.0                           | 30.0    | Quasi-peak | 88 – 216 | 43.5   | 33.5 | Quasi-peak | 216 – 960 | 46.0 | 36.0 | Quasi-peak | 960 – 1000 | 54.0 | 44.0 | Quasi-peak | Frequency | Limit (dBµV/m) @ 3m |  | Average | Peake | Above 1 GHz | 54.0 | 74.0 |
| Frequency (MHz)                  | Limit (dBµV/m)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                | Detector       |  |            |         |            |                                |                                |         |            |          |        |      |            |           |      |      |            |            |      |      |            |           |                     |  |         |       |             |      |      |
|                                  | @ 3m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | @ 10m                          |                |  |            |         |            |                                |                                |         |            |          |        |      |            |           |      |      |            |            |      |      |            |           |                     |  |         |       |             |      |      |
| 30 – 88                          | 40.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 30.0                           | Quasi-peak     |  |            |         |            |                                |                                |         |            |          |        |      |            |           |      |      |            |            |      |      |            |           |                     |  |         |       |             |      |      |
| 88 – 216                         | 43.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 33.5                           | Quasi-peak     |  |            |         |            |                                |                                |         |            |          |        |      |            |           |      |      |            |            |      |      |            |           |                     |  |         |       |             |      |      |
| 216 – 960                        | 46.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 36.0                           | Quasi-peak     |  |            |         |            |                                |                                |         |            |          |        |      |            |           |      |      |            |            |      |      |            |           |                     |  |         |       |             |      |      |
| 960 – 1000                       | 54.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 44.0                           | Quasi-peak     |  |            |         |            |                                |                                |         |            |          |        |      |            |           |      |      |            |            |      |      |            |           |                     |  |         |       |             |      |      |
| Frequency                        | Limit (dBµV/m) @ 3m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                |                |  |            |         |            |                                |                                |         |            |          |        |      |            |           |      |      |            |            |      |      |            |           |                     |  |         |       |             |      |      |
|                                  | Average                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Peake                          |                |  |            |         |            |                                |                                |         |            |          |        |      |            |           |      |      |            |            |      |      |            |           |                     |  |         |       |             |      |      |
| Above 1 GHz                      | 54.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 74.0                           |                |  |            |         |            |                                |                                |         |            |          |        |      |            |           |      |      |            |            |      |      |            |           |                     |  |         |       |             |      |      |

## 5.2 Antenna Requirement

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| <b>Standard requirement:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | FCC Part 15 C Section 15.203 & 247(b) |
| <p>15.203 requirement:<br/>An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.</p> <p>15.247(b) (4) requirement:<br/>(4) The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.</p> |                                       |
| <b>E.U.T Antenna:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                       |
| <p>The LoRa antenna is an External antenna which permanently attached, and the best case gain of the antenna is 3 dBi. See product internal photos for details.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                       |

### 5.3 AC Power Line Conducted Emission

|                 |                      |                |                 |
|-----------------|----------------------|----------------|-----------------|
| Product name:   | Nebra HNT 5G Gateway | Product model: | NEBHNT-5G-915-1 |
| Test by:        | Mike                 | Test mode:     | Tx mode         |
| Test frequency: | 150 kHz ~ 30 MHz     | Phase:         | Line            |
| Test voltage:   | AC 120 V/60 Hz       |                |                 |

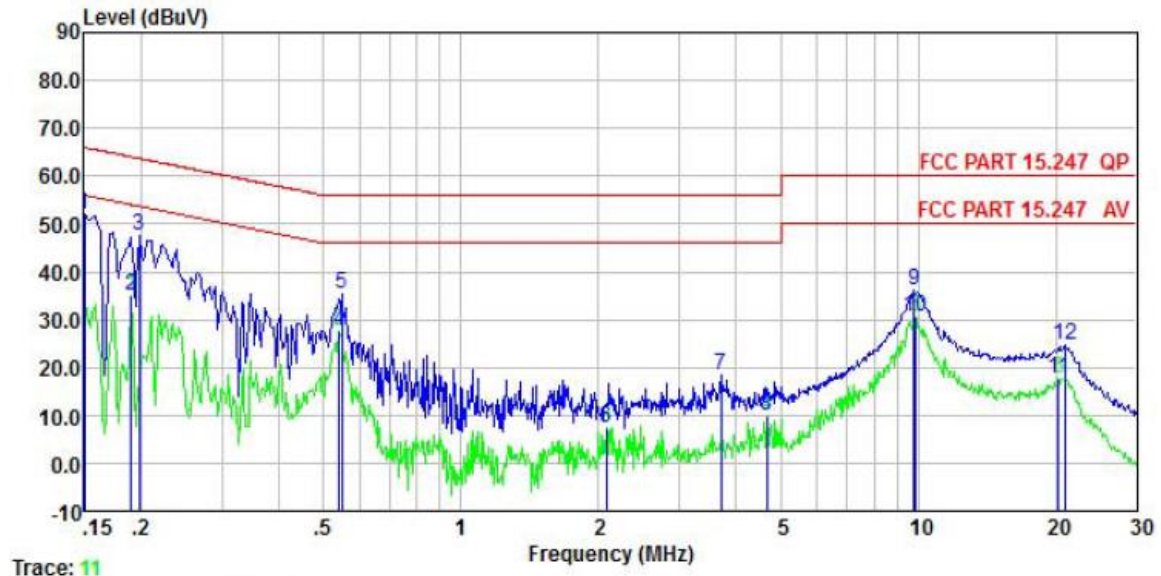


|    | Freq   | Read Level | LISN Factor | Aux2 Factor | Cable Loss | Level | Limit Line | Over Limit | Remark  |
|----|--------|------------|-------------|-------------|------------|-------|------------|------------|---------|
|    | MHz    | dBuV       | dB          | dB          | dB         | dBuV  | dBuV       | dB         |         |
| 1  | 0.170  | 29.38      | 0.04        | 10.50       | 0.01       | 39.93 | 54.94      | -15.01     | Average |
| 2  | 0.170  | 40.90      | 0.04        | 10.50       | 0.01       | 51.45 | 64.94      | -13.49     | QP      |
| 3  | 0.198  | 24.90      | 0.05        | 10.50       | 0.04       | 35.49 | 53.71      | -18.22     | Average |
| 4  | 0.274  | 29.20      | 0.06        | 10.50       | 0.02       | 39.78 | 60.98      | -21.20     | QP      |
| 5  | 0.358  | 10.47      | 0.06        | 10.50       | 0.02       | 21.05 | 48.78      | -27.73     | Average |
| 6  | 0.549  | 18.67      | 0.06        | 10.50       | 0.02       | 29.25 | 56.00      | -26.75     | QP      |
| 7  | 0.558  | 9.29       | 0.06        | 10.50       | 0.02       | 19.87 | 46.00      | -26.13     | Average |
| 8  | 0.724  | 14.97      | 0.07        | 10.50       | 0.03       | 25.57 | 56.00      | -30.43     | QP      |
| 9  | 9.966  | 24.54      | 0.22        | 10.50       | 0.13       | 35.39 | 60.00      | -24.61     | QP      |
| 10 | 10.125 | 18.73      | 0.22        | 10.50       | 0.13       | 29.58 | 50.00      | -20.42     | Average |
| 11 | 21.035 | 11.93      | 0.35        | 10.50       | 0.17       | 22.95 | 60.00      | -37.05     | QP      |
| 12 | 21.147 | 4.85       | 0.35        | 10.50       | 0.17       | 15.87 | 50.00      | -34.13     | Average |

#### Remark:

1. Level = Read level + LISN Factor + Cable Loss.

|                 |                      |                |                 |
|-----------------|----------------------|----------------|-----------------|
| Product name:   | Nebra HNT 5G Gateway | Product model: | NEBHNT-5G-915-1 |
| Test by:        | Mike                 | Test mode:     | Tx mode         |
| Test frequency: | 150 kHz ~ 30 MHz     | Phase:         | Neutral         |
| Test voltage:   | AC 120 V/60 Hz       |                |                 |



|    | Freq   | Read Level | LISN Factor | Aux2 Factor | Cable Loss | Level | Limit Line | Over Limit | Remark  |
|----|--------|------------|-------------|-------------|------------|-------|------------|------------|---------|
|    | MHz    | dBuV       | dB          | dB          | dB         | dBuV  | dBuV       | dB         |         |
| 1  | 0.150  | 41.36      | 0.06        | 10.50       | 0.01       | 51.93 | 66.00      | -14.07     | QP      |
| 2  | 0.190  | 24.42      | 0.05        | 10.50       | 0.03       | 35.00 | 54.02      | -19.02     | Average |
| 3  | 0.198  | 37.12      | 0.05        | 10.50       | 0.04       | 47.71 | 63.71      | -16.00     | QP      |
| 4  | 0.541  | 16.92      | 0.04        | 10.50       | 0.03       | 27.49 | 46.00      | -18.51     | Average |
| 5  | 0.549  | 24.64      | 0.05        | 10.50       | 0.02       | 35.21 | 56.00      | -20.79     | QP      |
| 6  | 2.077  | -3.36      | 0.07        | 10.50       | 0.20       | 7.41  | 46.00      | -38.59     | Average |
| 7  | 3.700  | 7.80       | 0.10        | 10.50       | 0.08       | 18.48 | 56.00      | -37.52     | QP      |
| 8  | 4.672  | -0.75      | 0.11        | 10.50       | 0.09       | 9.95  | 46.00      | -36.05     | Average |
| 9  | 9.809  | 25.32      | 0.21        | 10.50       | 0.13       | 36.16 | 60.00      | -23.84     | QP      |
| 10 | 9.861  | 19.65      | 0.21        | 10.50       | 0.13       | 30.49 | 50.00      | -19.51     | Average |
| 11 | 20.270 | 6.70       | 0.34        | 10.50       | 0.19       | 17.73 | 50.00      | -32.27     | Average |
| 12 | 21.035 | 13.50      | 0.35        | 10.50       | 0.17       | 24.52 | 60.00      | -35.48     | QP      |

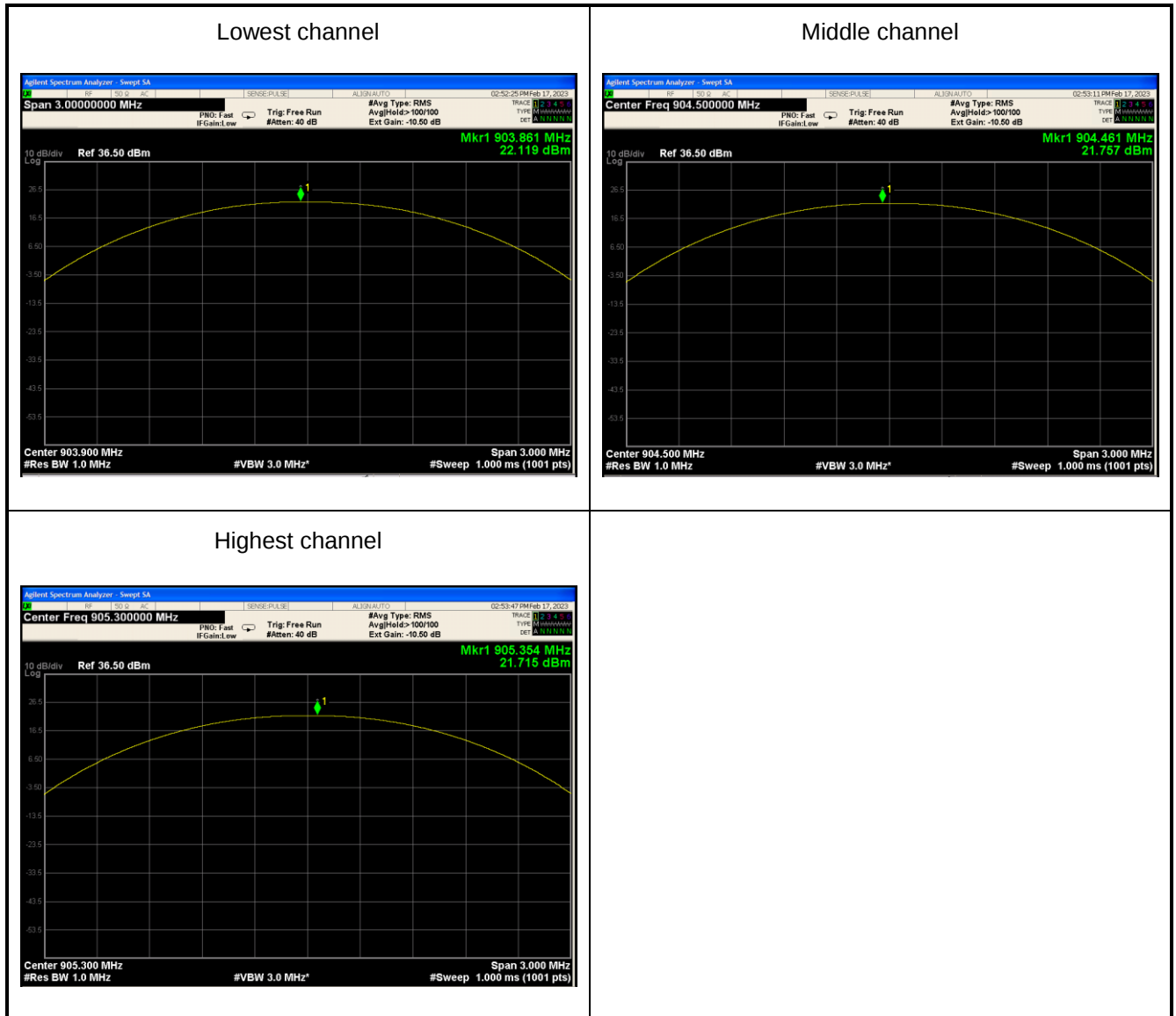
#### Remark:

1. Level = Read level + LISN Factor + Cable Loss.

## 5.4 Conducted Output Power

| Test channel    | Maximum Output Power (dBm) | Limit (dBm) | Result |
|-----------------|----------------------------|-------------|--------|
| Lowest channel  | 22.119                     | 24.00       | Pass   |
| Middle channel  | 21.757                     | 24.00       | Pass   |
| Highest channel | 21.715                     | 24.00       | Pass   |

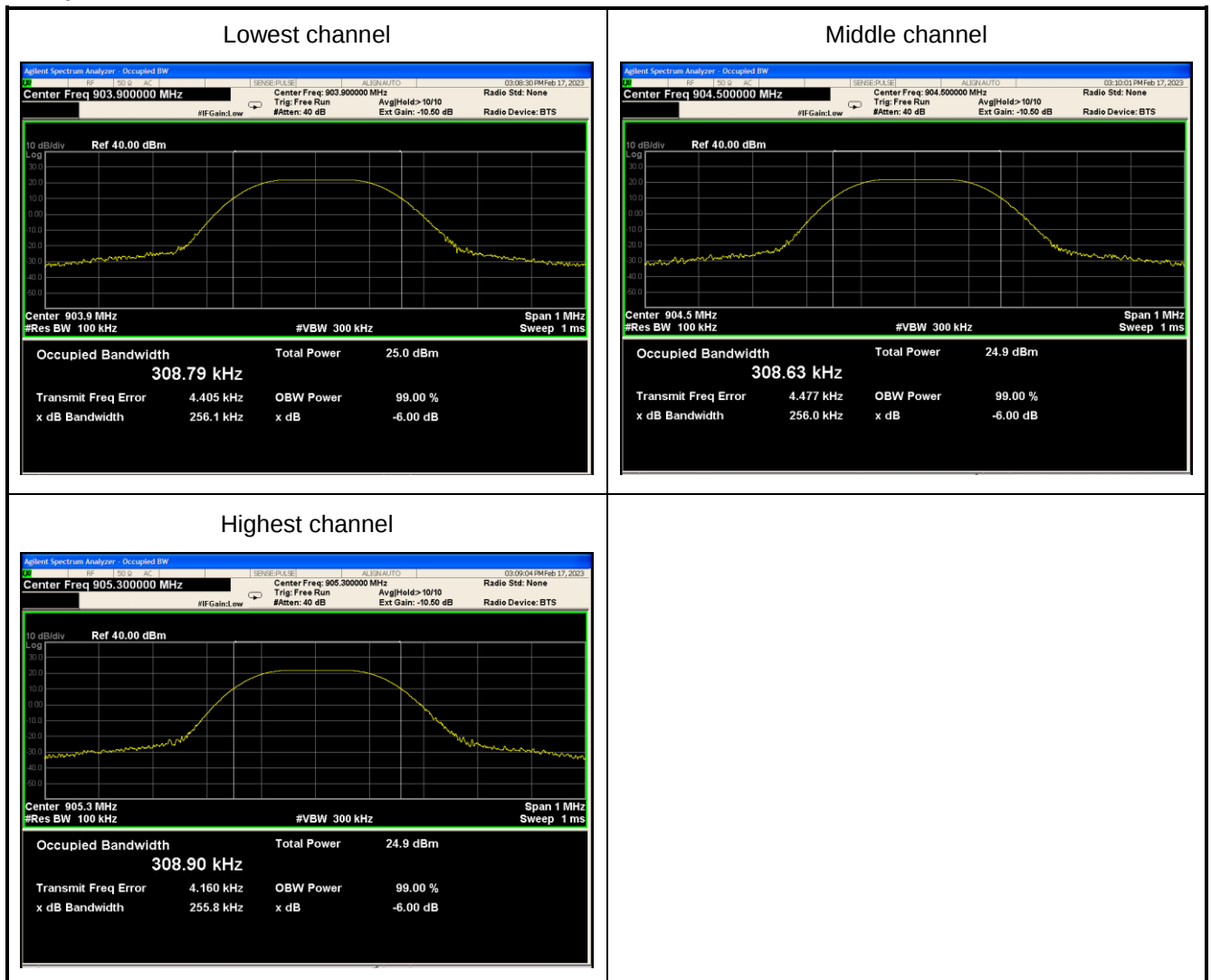
Test plot as follows:



## 5.5 6dB Occupied Bandwidth

| Test channel    | 6dB Occupy Bandwidth (kHz) | Limit (kHz) | Result |
|-----------------|----------------------------|-------------|--------|
| Lowest channel  | 256.1                      | N/A         | Pass   |
| Middle channel  | 256.0                      |             | Pass   |
| Highest channel | 255.8                      |             | Pass   |

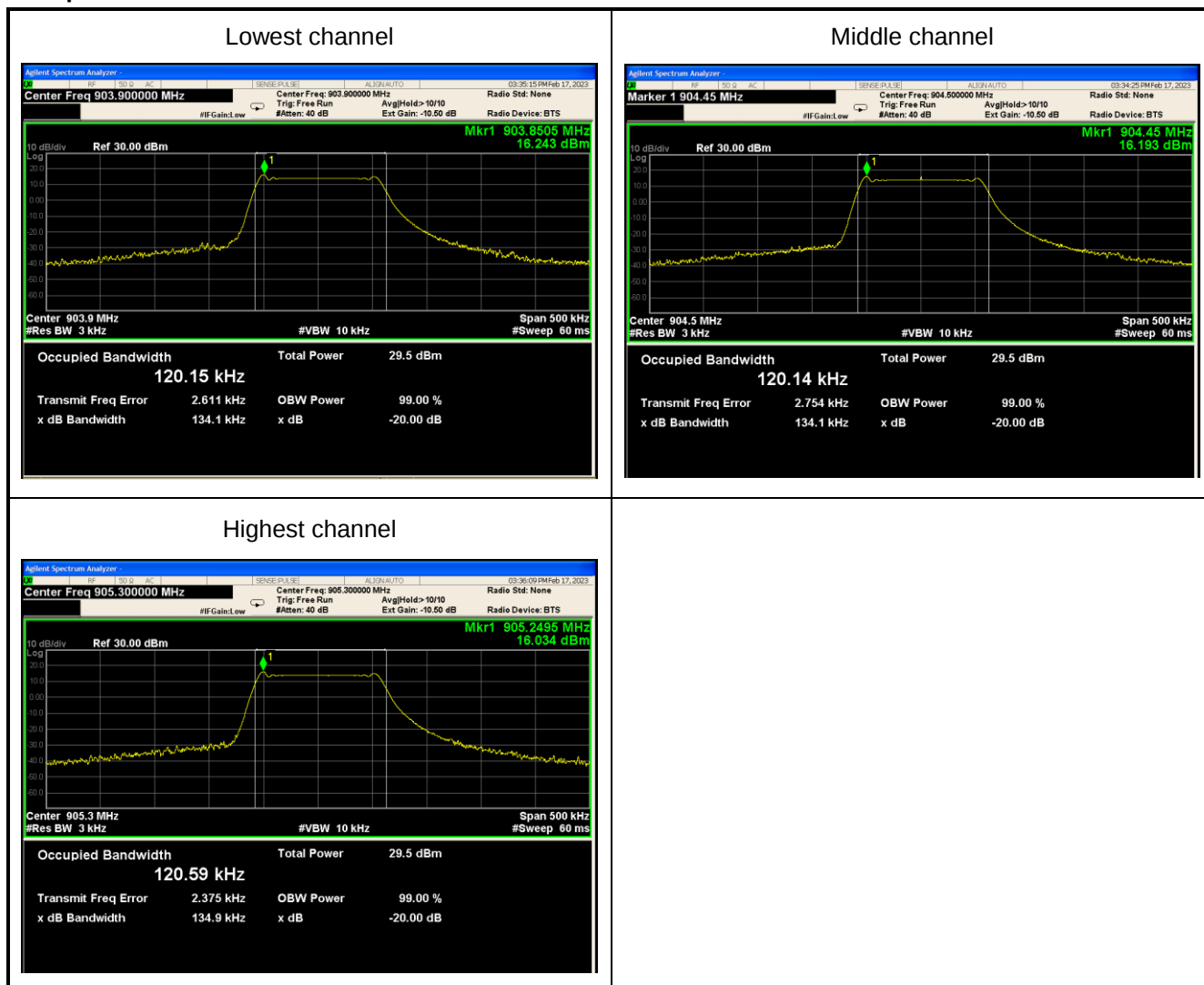
Test plot as follows:



## 5.6 20dB Occupied Bandwidth

| Test channel    | 20dB Occupy Bandwidth (kHz) | Limit (kHz) | Result |
|-----------------|-----------------------------|-------------|--------|
| Lowest channel  | 134.1                       | N/A         | Pass   |
| Middle channel  | 134.1                       |             | Pass   |
| Highest channel | 134.9                       |             | Pass   |

Test plot as follows:



## 5.7 Carrier Frequencies Separation

| Test channel    | Carrier Frequencies Separation (kHz) | Limit (kHz) | Result |
|-----------------|--------------------------------------|-------------|--------|
| Lowest channel  | 200                                  | 156.0       | Pass   |
| Middle channel  | 200                                  |             | Pass   |
| Highest channel | 200                                  |             | Pass   |

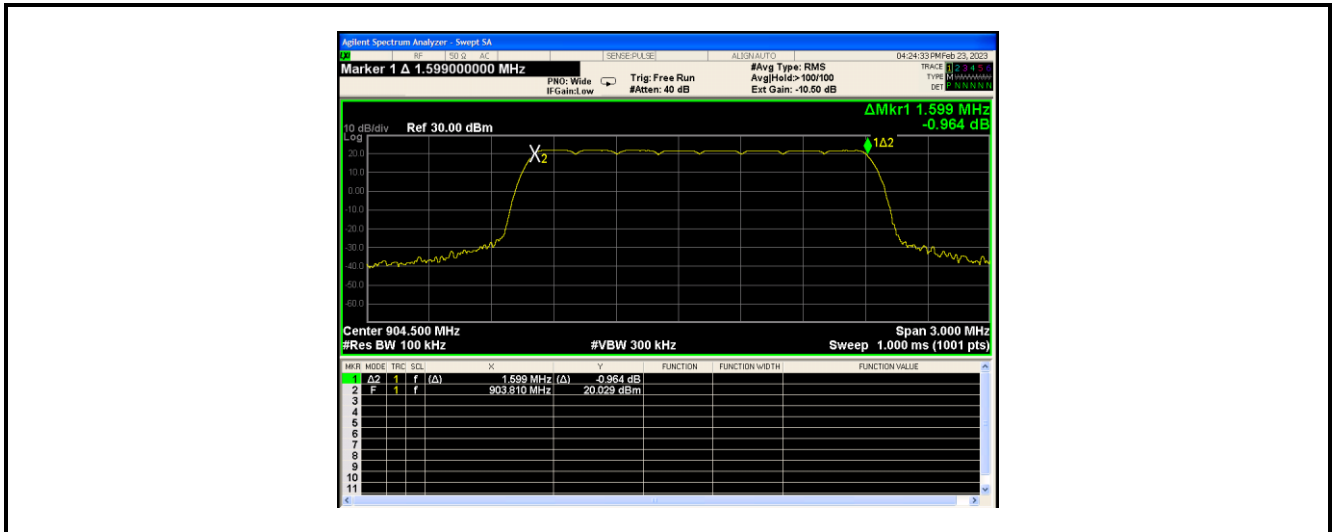
Test plot as follows:



## 5.8 Hopping Channel Number

| Hopping channel numbers | Limit | Result |
|-------------------------|-------|--------|
| 8                       | N/A   | Pass   |

Test plot as follows:



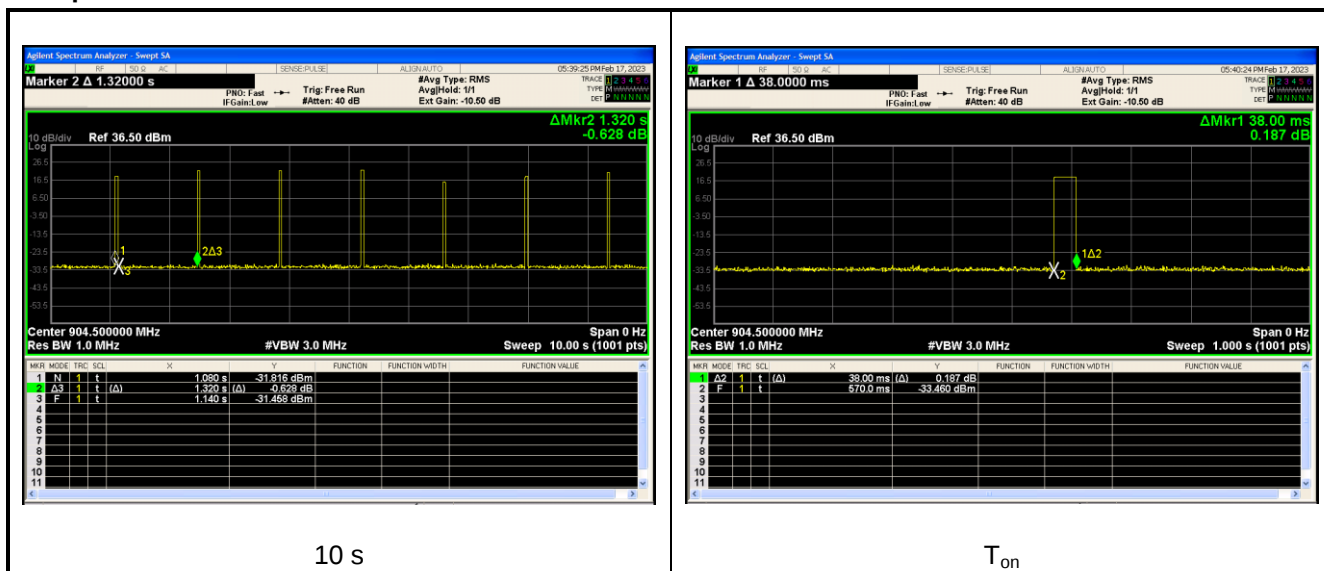
## 5.9 Dwell Time

| $T_{on}$<br>(s) | Hopping numbers<br>(10 s period) | Dwell time<br>(s) | Limit<br>(s) | Result |
|-----------------|----------------------------------|-------------------|--------------|--------|
| 0.038           | 7                                | 0.266             | 0.4          | Pass   |

**Note:**

- $T_{on}$  is time per hop.
- Dwell time =  $T_{on} * \text{Hopping numbers}$ .

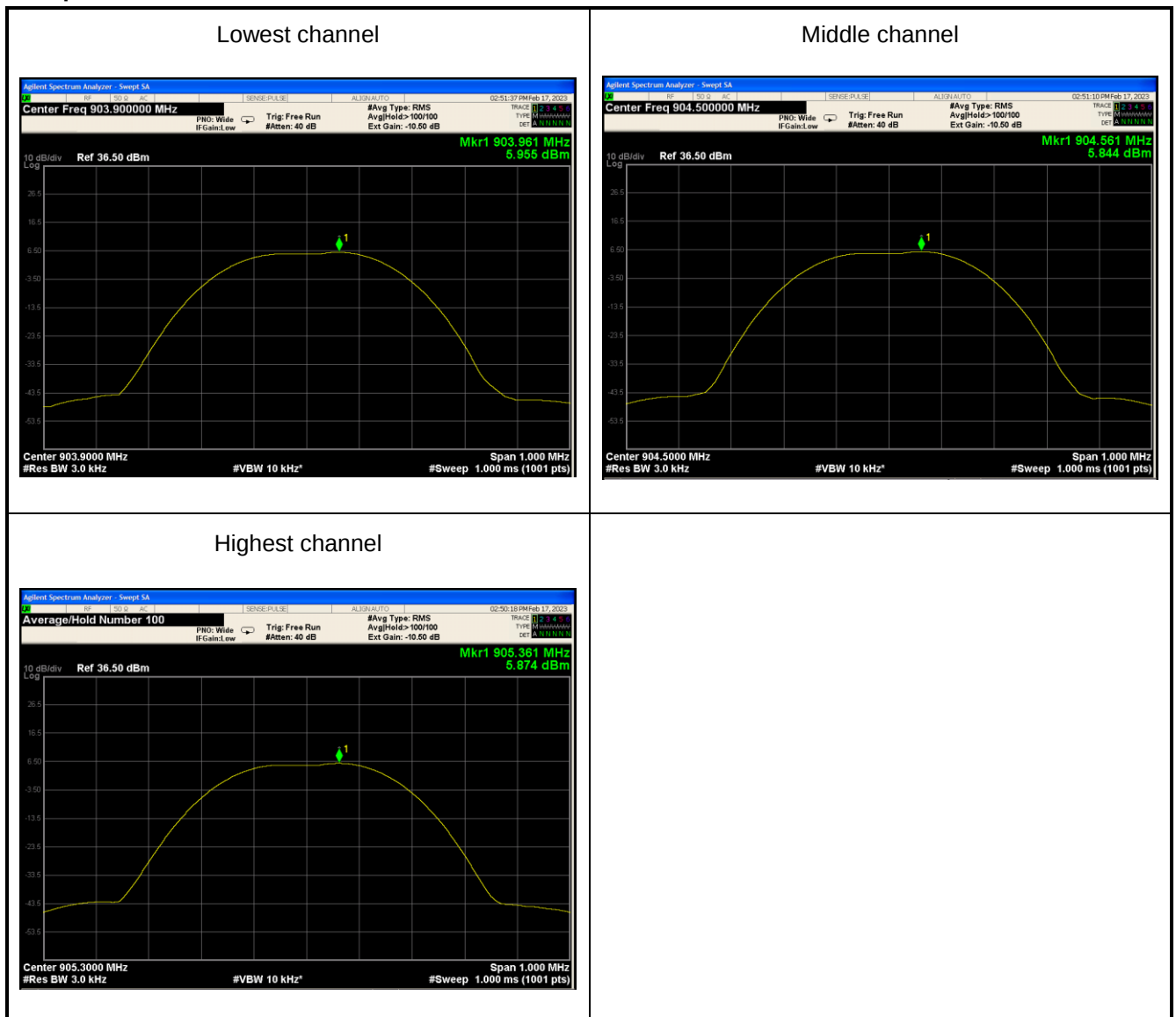
Test plot as follows:



## 5.10 Power Spectral Density

| Test Channel    | Power Spectral Density (dBm/3kHz) | Limit (dBm/3kHz) | Result |
|-----------------|-----------------------------------|------------------|--------|
| Lowest channel  | 5.995                             | 8.00             | Pass   |
| Middle channel  | 5.844                             |                  |        |
| Highest channel | 5.874                             |                  |        |

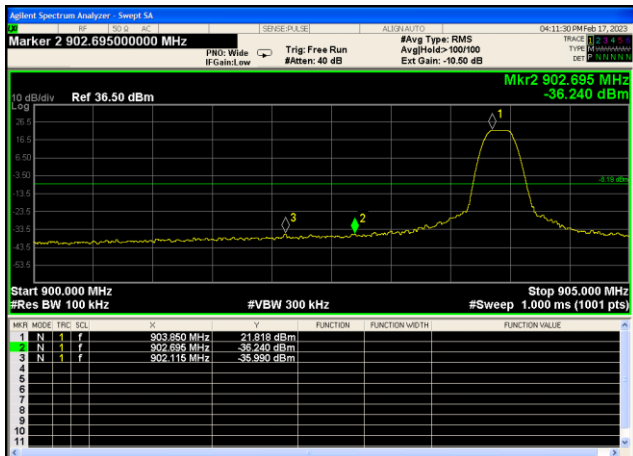
Test plot as follows:



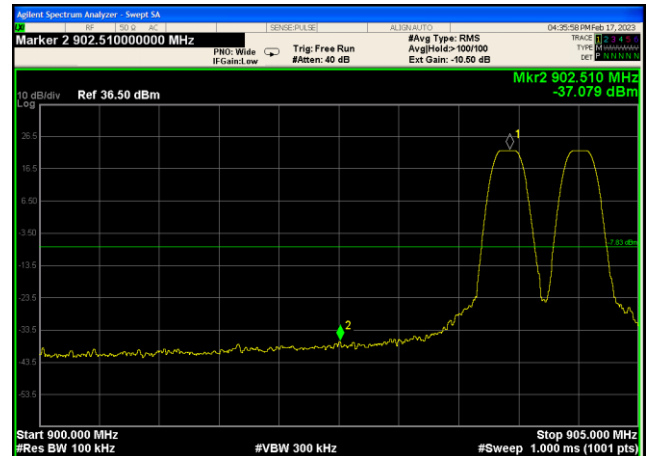
## 5.11 Spurious Emission

### 5.11.1 Band-edge Emission

Lowest Channel

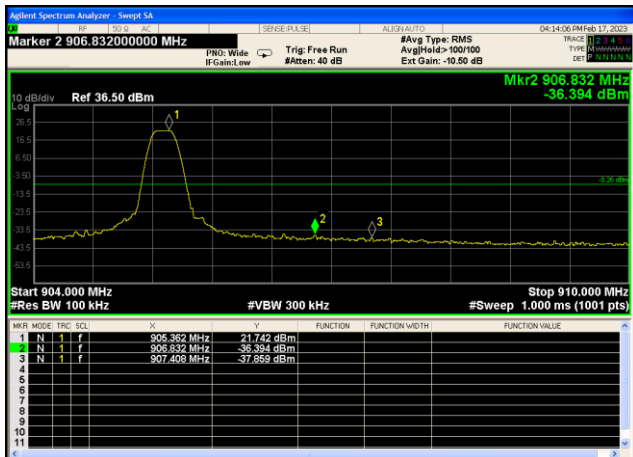


No-hopping mode

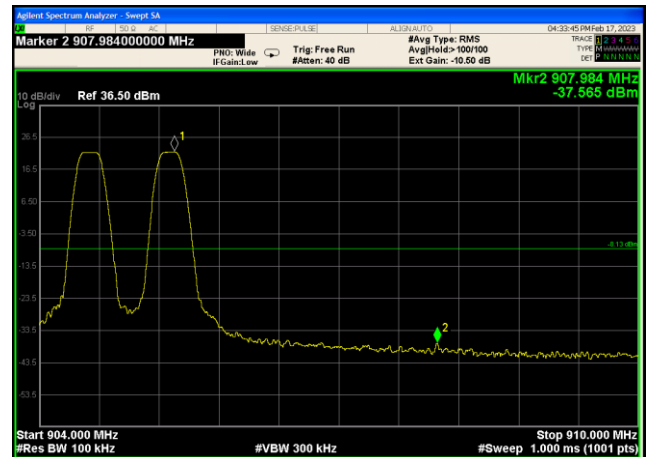


Hopping mode

Highest Channel



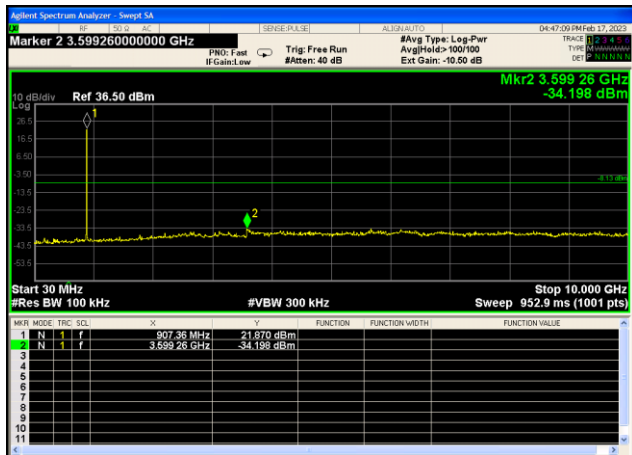
No-hopping mode



Hopping mode

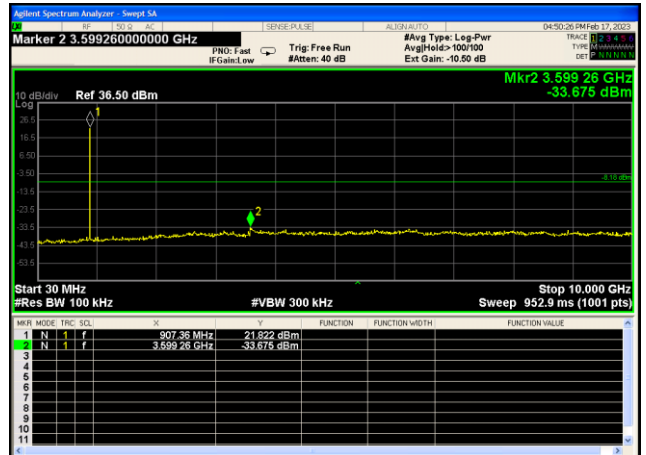
### 5.11.2 Conducted Spurious Emission

Lowest channel



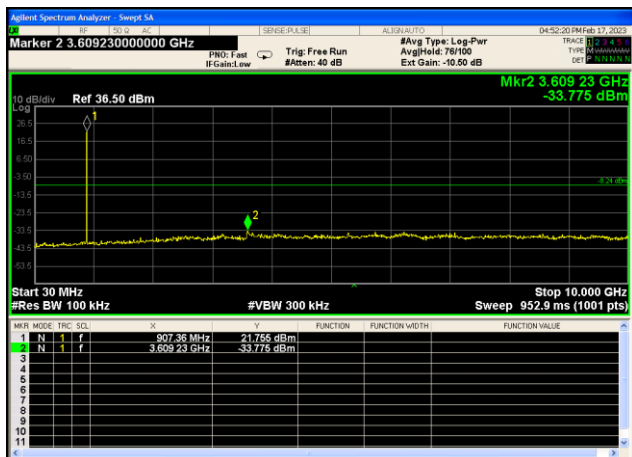
30MHz~10GHz

Middle channel



30MHz~10GHz

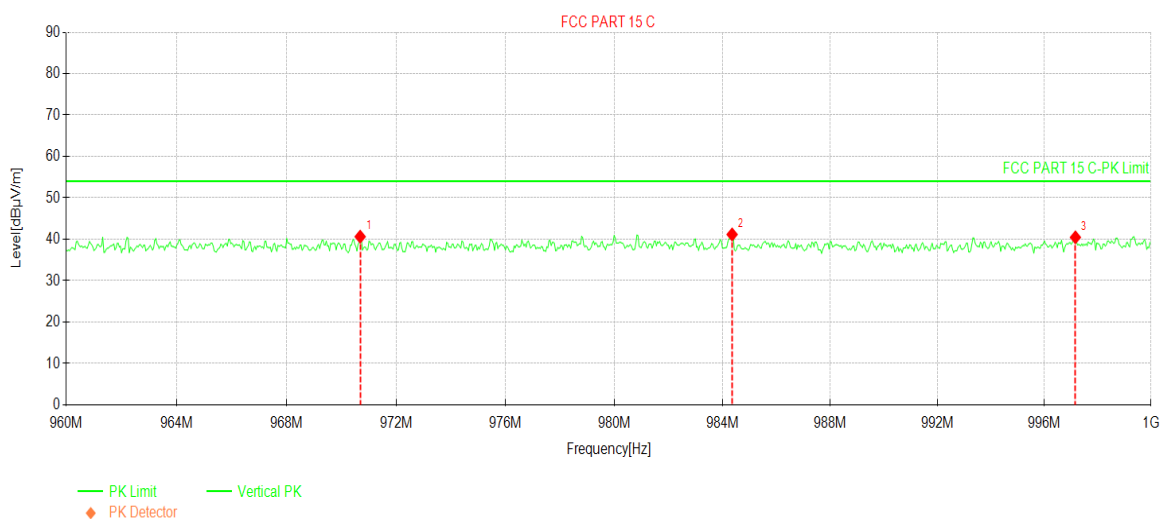
Highest channel



30MHz~10GHz

### 5.11.3 Emissions in Restricted Frequency Bands

|               |                      |                |                 |
|---------------|----------------------|----------------|-----------------|
| Product Name: | Nebra HNT 5G Gateway | Product Model: | NEBHNT-5G-915-1 |
| Test By:      | Mike                 | Test mode:     | Tx mode         |
| Test Channel: | 960 MHz ~ 1 GHz      | Polarization:  | Vertical        |
| Test Voltage: | AC 120/60Hz          |                |                 |



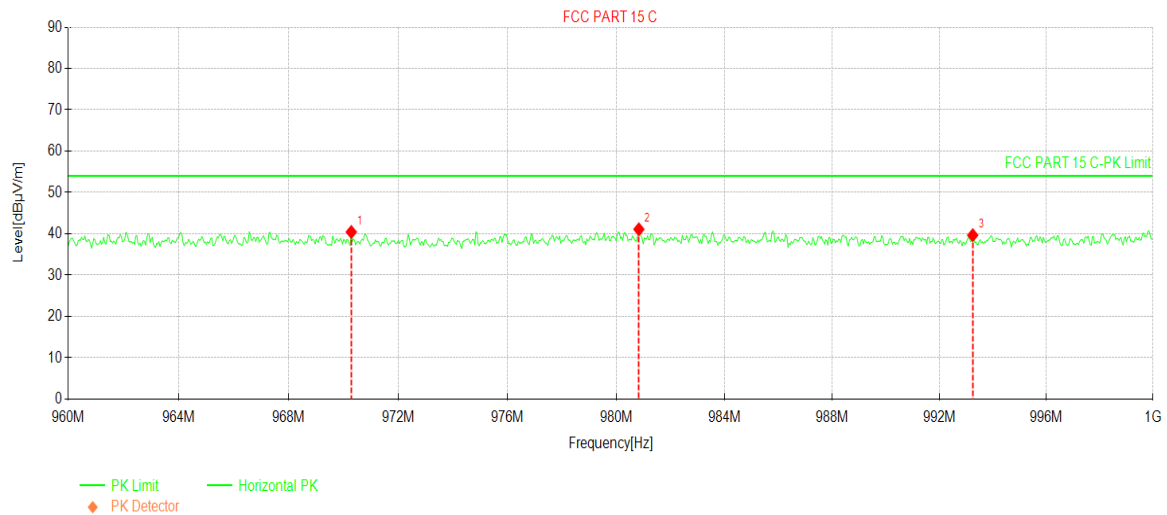
#### Suspected Data List

| NO. | Freq. [MHz] | Reading [dBμV/m] | Level [dBμV/m] | Factor [dB] | Limit [dBμV/m] | Margin [dB] | Trace | Polarity |
|-----|-------------|------------------|----------------|-------------|----------------|-------------|-------|----------|
| 1   | 970.680     | 15.19            | 40.63          | 25.44       | 54.00          | 13.37       | PK    | Vertical |
| 2   | 984.360     | 15.52            | 41.16          | 25.64       | 54.00          | 12.84       | PK    | Vertical |
| 3   | 997.160     | 14.75            | 40.47          | 25.72       | 54.00          | 13.53       | PK    | Vertical |

#### Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor) .

|               |                      |                |                 |
|---------------|----------------------|----------------|-----------------|
| Product Name: | Nebra HNT 5G Gateway | Product Model: | NEBHNT-5G-915-1 |
| Test By:      | Mike                 | Test mode:     | Tx mode         |
| Test Channel: | 960 MHz ~ 1 GHz      | Polarization:  | Horizontal      |
| Test Voltage: | AC 120/60Hz          |                |                 |

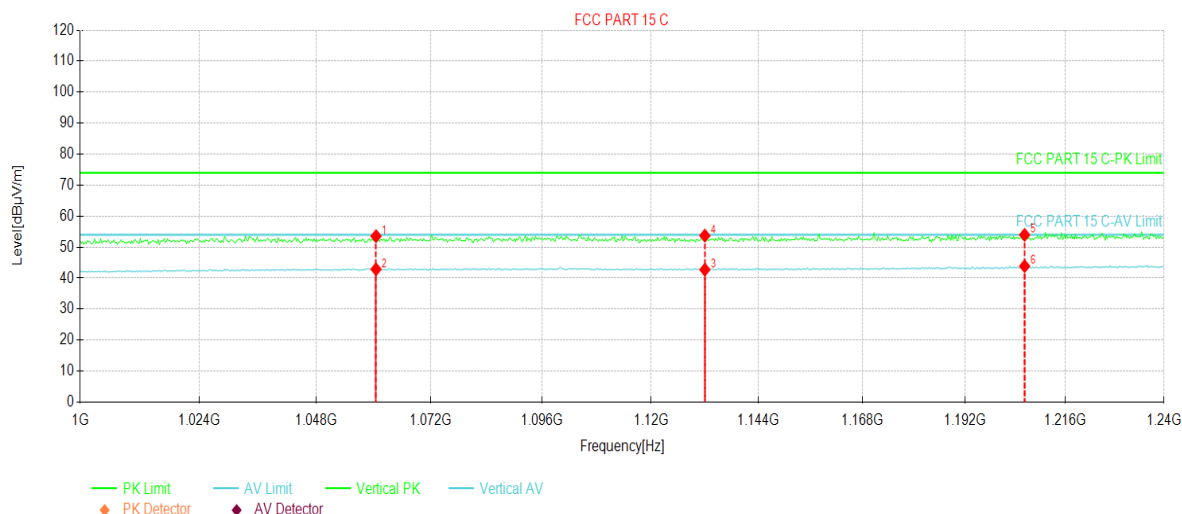


| Suspected Data List |             |                  |                |             |                |             |       |            |
|---------------------|-------------|------------------|----------------|-------------|----------------|-------------|-------|------------|
| NO.                 | Freq. [MHz] | Reading [dBμV/m] | Level [dBμV/m] | Factor [dB] | Limit [dBμV/m] | Margin [dB] | Trace | Polarity   |
| 1                   | 970.280     | 15.01            | 40.44          | 25.43       | 54.00          | 13.56       | PK    | Horizontal |
| 2                   | 980.840     | 15.53            | 41.09          | 25.56       | 54.00          | 12.91       | PK    | Horizontal |
| 3                   | 993.240     | 13.93            | 39.67          | 25.74       | 54.00          | 14.33       | PK    | Horizontal |

**Remark:**

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor) .

|               |                      |                |                 |
|---------------|----------------------|----------------|-----------------|
| Product Name: | Nebra HNT 5G Gateway | Product Model: | NEBHNT-5G-915-1 |
| Test By:      | Mike                 | Test mode:     | Tx mode         |
| Test Channel: | 1000 MHz ~ 1240 MHz  | Polarization:  | Vertical        |
| Test Voltage: | AC 120/60Hz          |                |                 |



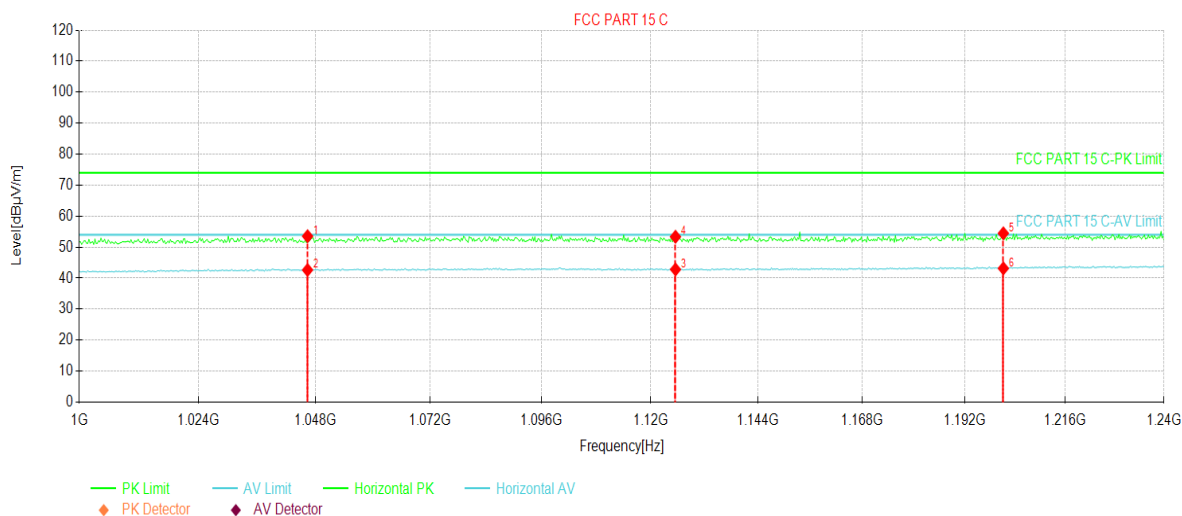
#### Suspected Data List

| NO. | Freq. [MHz] | Reading [dBμV/m] | Factor [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Trace | Polarity |
|-----|-------------|------------------|-------------|----------------|----------------|-------------|-------|----------|
| 1   | 1060.48     | 23.29            | 30.25       | 53.54          | 74.00          | 20.46       | PK    | Vertical |
| 2   | 1060.48     | 12.61            | 30.25       | 42.86          | 54.00          | 11.14       | AV    | Vertical |
| 3   | 1132.00     | 12.15            | 30.60       | 42.75          | 54.00          | 11.25       | AV    | Vertical |
| 4   | 1132.00     | 23.11            | 30.60       | 53.71          | 74.00          | 20.29       | PK    | Vertical |
| 5   | 1206.16     | 23.15            | 30.80       | 53.95          | 74.00          | 20.05       | PK    | Vertical |
| 6   | 1206.16     | 13.07            | 30.80       | 43.87          | 54.00          | 10.13       | AV    | Vertical |

#### Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor) .

|               |                      |                |                 |
|---------------|----------------------|----------------|-----------------|
| Product Name: | Nebra HNT 5G Gateway | Product Model: | NEBHNT-5G-915-1 |
| Test By:      | Mike                 | Test mode:     | Tx mode         |
| Test Channel: | 1000 MHz ~ 1240 MHz  | Polarization:  | Horizontal      |
| Test Voltage: | AC 120/60Hz          |                |                 |



#### Suspected Data List

| NO. | Freq. [MHz] | Reading [dBμV/m] | Factor [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Trace | Polarity   |
|-----|-------------|------------------|-------------|----------------|----------------|-------------|-------|------------|
| 1   | 1046.32     | 23.37            | 30.15       | 53.52          | 74.00          | 20.48       | PK    | Horizontal |
| 2   | 1046.32     | 12.48            | 30.15       | 42.63          | 54.00          | 11.37       | AV    | Horizontal |
| 3   | 1125.52     | 12.22            | 30.59       | 42.81          | 54.00          | 11.19       | AV    | Horizontal |
| 4   | 1125.52     | 22.76            | 30.59       | 53.35          | 74.00          | 20.65       | PK    | Horizontal |
| 5   | 1201.12     | 23.68            | 30.78       | 54.46          | 74.00          | 19.54       | PK    | Horizontal |
| 6   | 1201.12     | 12.37            | 30.78       | 43.15          | 54.00          | 10.85       | AV    | Horizontal |

#### Remark:

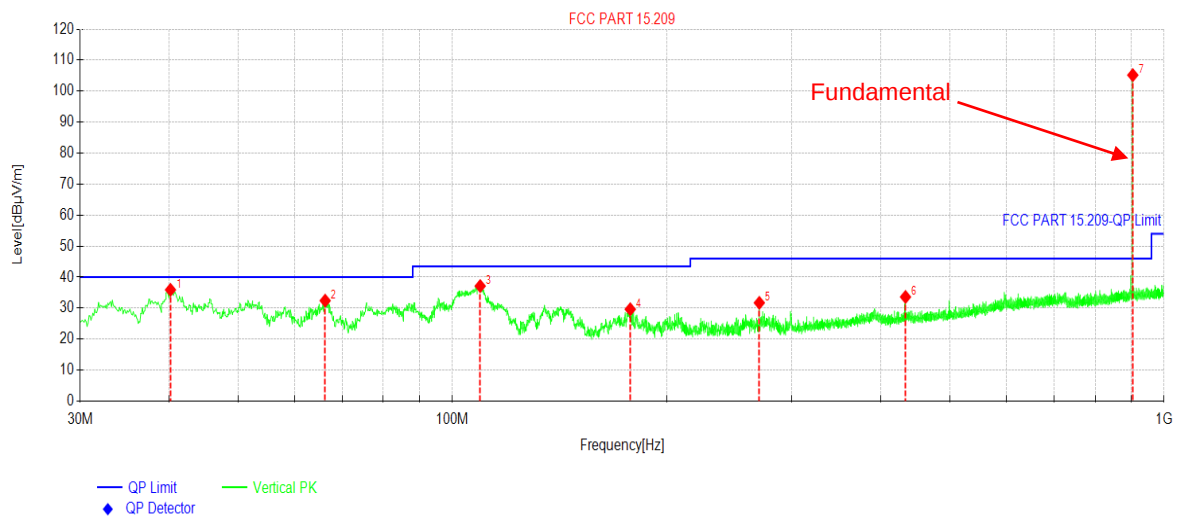
1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor) .

### 5.11.4 Emissions in Non-restricted Frequency Bands

Below 1GHz:

903.9MHz:

|                 |                      |                |                 |
|-----------------|----------------------|----------------|-----------------|
| Product Name:   | Nebra HNT 5G Gateway | Product Model: | NEBHNT-5G-915-1 |
| Test By:        | Mike                 | Test mode:     | Tx mode         |
| Test Frequency: | 30 MHz ~ 1 GHz       | Polarization:  | Vertical        |
| Test Voltage:   | AC 120/60Hz          |                |                 |



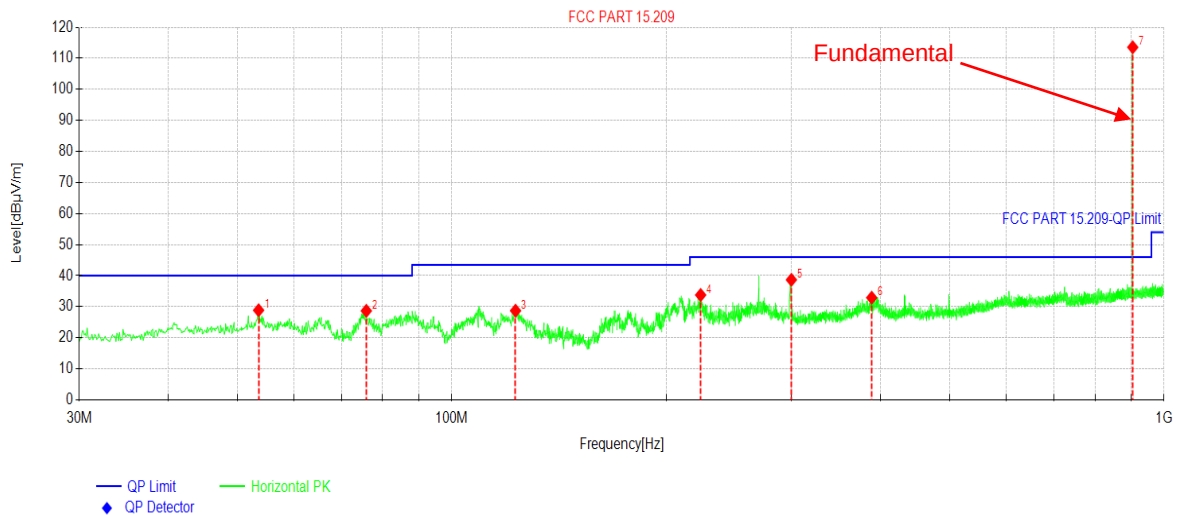
#### Suspected Data List

| NO. | Freq. [MHz] | Reading [dBμV/m] | Level [dBμV/m] | Factor [dB] | Limit [dBμV/m] | Margin [dB] | Trace | Polarity |
|-----|-------------|------------------|----------------|-------------|----------------|-------------|-------|----------|
| 1   | 40.1860     | 49.64            | 35.91          | -13.73      | 40.00          | 4.09        | PK    | Vertical |
| 2   | 66.2816     | 47.76            | 32.41          | -15.35      | 40.00          | 7.59        | PK    | Vertical |
| 3   | 109.450     | 51.96            | 37.12          | -14.84      | 43.50          | 6.38        | PK    | Vertical |
| 4   | 177.842     | 46.81            | 29.64          | -17.17      | 43.50          | 13.86       | PK    | Vertical |
| 5   | 270.002     | 45.47            | 31.72          | -13.75      | 46.00          | 14.28       | PK    | Vertical |
| 6   | 433.269     | 43.88            | 33.61          | -10.27      | 46.00          | 12.39       | PK    | Vertical |
| 7   | 903.960     | 107.83           | 105.19         | -2.64       | 46.00          | -59.19      | PK    | Vertical |

#### Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor) .

|                 |                      |                |                 |
|-----------------|----------------------|----------------|-----------------|
| Product Name:   | Nebra HNT 5G Gateway | Product Model: | NEBHNT-5G-915-1 |
| Test By:        | Mike                 | Test mode:     | Tx mode         |
| Test Frequency: | 30 MHz ~ 1 GHz       | Polarization:  | Horizontal      |
| Test Voltage:   | AC 120/60Hz          |                |                 |



#### Suspected Data List

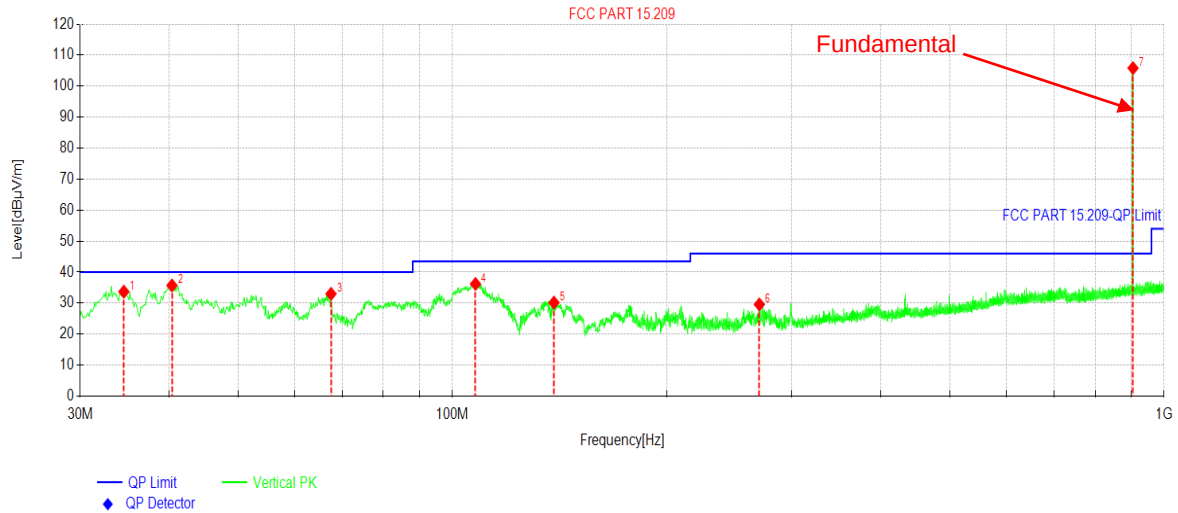
| NO. | Freq. [MHz] | Reading [dBμV/m] | Level [dBμV/m] | Factor [dB] | Limit [dBμV/m] | Margin [dB] | Trace | Polarity   |
|-----|-------------|------------------|----------------|-------------|----------------|-------------|-------|------------|
| 1   | 53.5734     | 41.93            | 28.86          | -13.07      | 40.00          | 11.14       | PK    | Horizontal |
| 2   | 75.8856     | 47.21            | 28.67          | -18.54      | 40.00          | 11.33       | PK    | Horizontal |
| 3   | 122.935     | 45.84            | 28.73          | -17.11      | 43.50          | 14.77       | PK    | Horizontal |
| 4   | 223.631     | 48.46            | 33.77          | -14.69      | 46.00          | 12.23       | PK    | Horizontal |
| 5   | 299.881     | 51.74            | 38.67          | -13.07      | 46.00          | 7.33        | PK    | Horizontal |
| 6   | 388.741     | 43.87            | 32.92          | -10.95      | 46.00          | 13.08       | PK    | Horizontal |
| 7   | 903.960     | 116.19           | 113.55         | -2.64       | 46.00          | -67.55      | PK    | Horizontal |

#### Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor) .

**904.5MHz:**

|                        |                      |                       |                 |
|------------------------|----------------------|-----------------------|-----------------|
| <b>Product Name:</b>   | Nebra HNT 5G Gateway | <b>Product Model:</b> | NEBHNT-5G-915-1 |
| <b>Test By:</b>        | Mike                 | <b>Test mode:</b>     | Tx mode         |
| <b>Test Frequency:</b> | 30 MHz ~ 1 GHz       | <b>Polarization:</b>  | Vertical        |
| <b>Test Voltage:</b>   | AC 120/60Hz          |                       |                 |

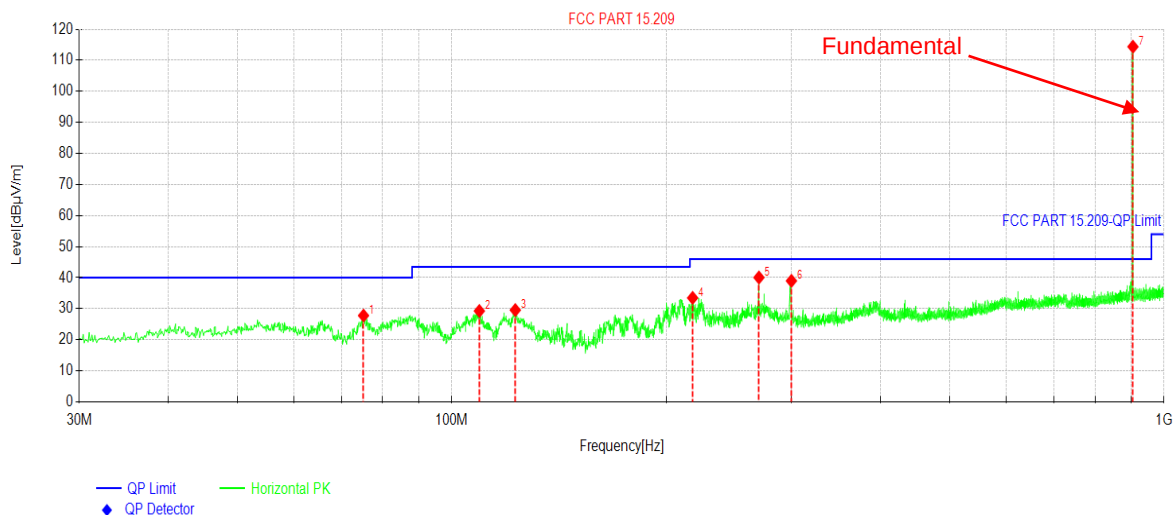

**Suspected Data List**

| NO. | Freq. [MHz] | Reading [dBμV/m] | Level [dBμV/m] | Factor [dB] | Limit [dBμV/m] | Margin [dB] | Trace | Polarity |
|-----|-------------|------------------|----------------|-------------|----------------|-------------|-------|----------|
| 1   | 34.5595     | 49.12            | 33.69          | -15.43      | 40.00          | 6.31        | PK    | Vertical |
| 2   | 40.3800     | 49.40            | 35.70          | -13.70      | 40.00          | 4.30        | PK    | Vertical |
| 3   | 67.5428     | 48.91            | 32.98          | -15.93      | 40.00          | 7.02        | PK    | Vertical |
| 4   | 107.801     | 50.91            | 36.20          | -14.71      | 43.50          | 7.30        | PK    | Vertical |
| 5   | 138.941     | 48.50            | 30.16          | -18.34      | 43.50          | 13.34       | PK    | Vertical |
| 6   | 270.002     | 43.33            | 29.58          | -13.75      | 46.00          | 16.42       | PK    | Vertical |
| 7   | 904.542     | 108.46           | 105.82         | -2.64       | 46.00          | -59.82      | PK    | Vertical |

**Remark:**

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor) .

|                 |                      |                |                 |
|-----------------|----------------------|----------------|-----------------|
| Product Name:   | Nebra HNT 5G Gateway | Product Model: | NEBHNT-5G-915-1 |
| Test By:        | Mike                 | Test mode:     | Tx mode         |
| Test Frequency: | 30 MHz ~ 1 GHz       | Polarization:  | Horizontal      |
| Test Voltage:   | AC 120/60Hz          |                |                 |



### Suspected Data List

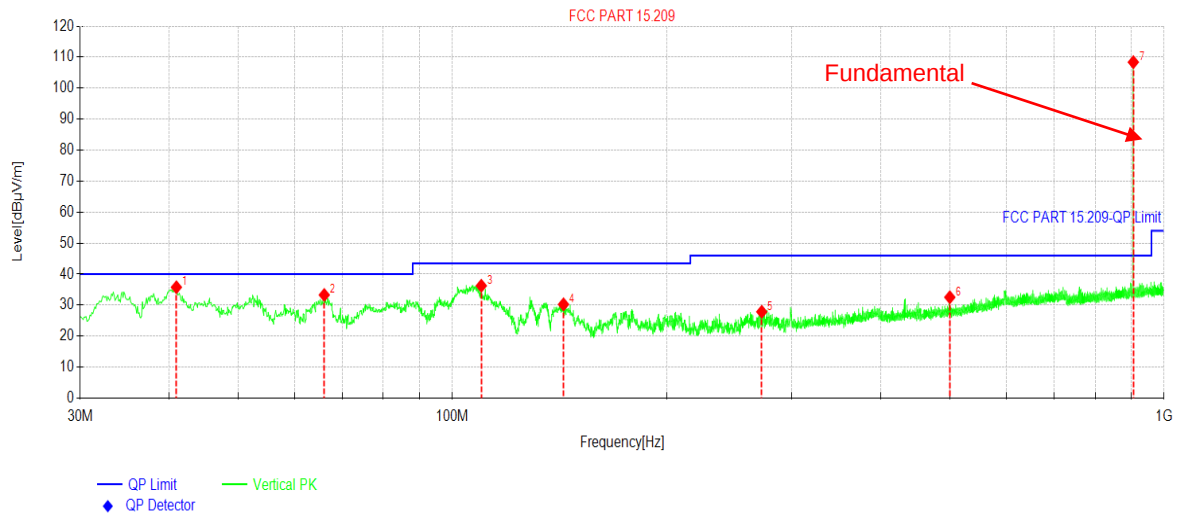
| NO. | Freq. [MHz] | Reading [dBμV/m] | Level [dBμV/m] | Factor [dB] | Limit [dBμV/m] | Margin [dB] | Trace | Polarity   |
|-----|-------------|------------------|----------------|-------------|----------------|-------------|-------|------------|
| 1   | 75.2065     | 46.29            | 27.80          | -18.49      | 40.00          | 12.20       | PK    | Horizontal |
| 2   | 109.353     | 44.11            | 29.27          | -14.84      | 43.50          | 14.23       | PK    | Horizontal |
| 3   | 122.838     | 46.65            | 29.56          | -17.09      | 43.50          | 13.94       | PK    | Horizontal |
| 4   | 217.907     | 48.29            | 33.49          | -14.80      | 46.00          | 12.51       | PK    | Horizontal |
| 5   | 270.002     | 53.81            | 40.06          | -13.75      | 46.00          | 5.94        | PK    | Horizontal |
| 6   | 299.881     | 52.05            | 38.98          | -13.07      | 46.00          | 7.02        | PK    | Horizontal |
| 7   | 904.542     | 117.02           | 114.38         | -2.64       | 46.00          | -68.38      | PK    | Horizontal |

### Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor) .

**905.3MHz:**

|                        |                      |                       |                 |
|------------------------|----------------------|-----------------------|-----------------|
| <b>Product Name:</b>   | Nebra HNT 5G Gateway | <b>Product Model:</b> | NEBHNT-5G-915-1 |
| <b>Test By:</b>        | Mike                 | <b>Test mode:</b>     | Tx mode         |
| <b>Test Frequency:</b> | 30 MHz ~ 1 GHz       | <b>Polarization:</b>  | Vertical        |
| <b>Test Voltage:</b>   | AC 120/60Hz          |                       |                 |

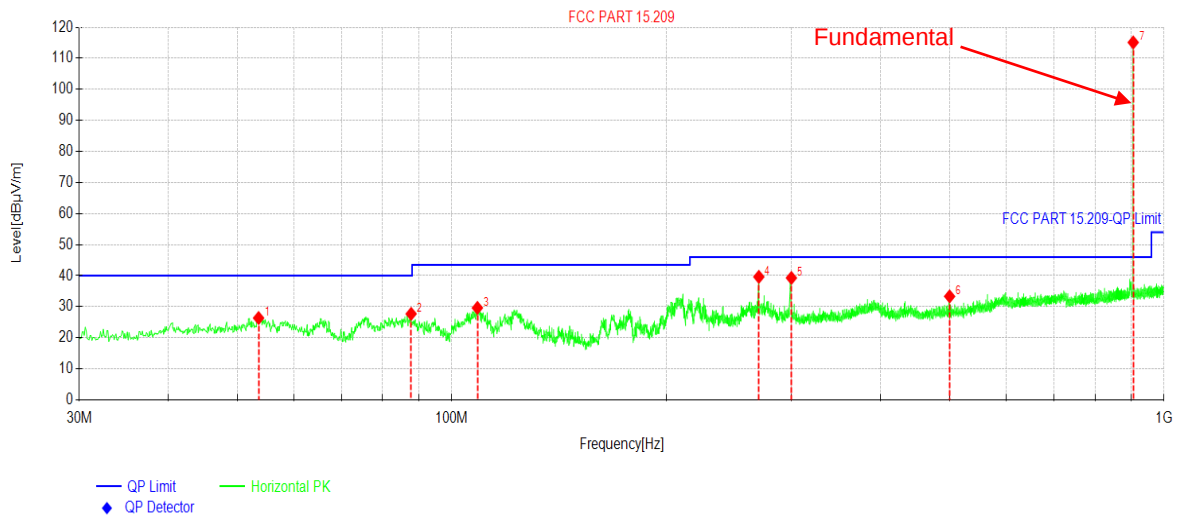

**Suspected Data List**

| NO. | Freq. [MHz] | Reading [dBμV/m] | Level [dBμV/m] | Factor [dB] | Limit [dBμV/m] | Margin [dB] | Trace | Polarity |
|-----|-------------|------------------|----------------|-------------|----------------|-------------|-------|----------|
| 1   | 40.9621     | 49.36            | 35.78          | -13.58      | 40.00          | 4.22        | PK    | Vertical |
| 2   | 66.0876     | 48.55            | 33.29          | -15.26      | 40.00          | 6.71        | PK    | Vertical |
| 3   | 109.839     | 51.13            | 36.25          | -14.88      | 43.50          | 7.25        | PK    | Vertical |
| 4   | 143.307     | 48.65            | 30.24          | -18.41      | 43.50          | 13.26       | PK    | Vertical |
| 5   | 272.136     | 41.56            | 27.85          | -13.71      | 46.00          | 18.15       | PK    | Vertical |
| 6   | 500.012     | 41.53            | 32.54          | -8.99       | 46.00          | 13.46       | PK    | Vertical |
| 7   | 905.415     | 111.03           | 108.39         | -2.64       | 46.00          | -62.39      | PK    | Vertical |

**Remark:**

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor) .

|                 |                      |                |                 |
|-----------------|----------------------|----------------|-----------------|
| Product Name:   | Nebra HNT 5G Gateway | Product Model: | NEBHNT-5G-915-1 |
| Test By:        | Mike                 | Test mode:     | Tx mode         |
| Test Frequency: | 30 MHz ~ 1 GHz       | Polarization:  | Horizontal      |
| Test Voltage:   | AC 120/60Hz          |                |                 |



#### Suspected Data List

| NO. | Freq. [MHz] | Reading [dBμV/m] | Level [dBμV/m] | Factor [dB] | Limit [dBμV/m] | Margin [dB] | Trace | Polarity   |
|-----|-------------|------------------|----------------|-------------|----------------|-------------|-------|------------|
| 1   | 53.5734     | 39.43            | 26.36          | -13.07      | 40.00          | 13.64       | PK    | Horizontal |
| 2   | 87.7208     | 44.63            | 27.70          | -16.93      | 40.00          | 12.30       | PK    | Horizontal |
| 3   | 108.674     | 44.41            | 29.63          | -14.78      | 43.50          | 13.87       | PK    | Horizontal |
| 4   | 269.905     | 53.36            | 39.61          | -13.75      | 46.00          | 6.39        | PK    | Horizontal |
| 5   | 299.881     | 52.34            | 39.27          | -13.07      | 46.00          | 6.73        | PK    | Horizontal |
| 6   | 500.109     | 42.32            | 33.33          | -8.99       | 46.00          | 12.67       | PK    | Horizontal |
| 7   | 905.318     | 117.76           | 115.12         | -2.64       | 46.00          | -69.12      | PK    | Horizontal |

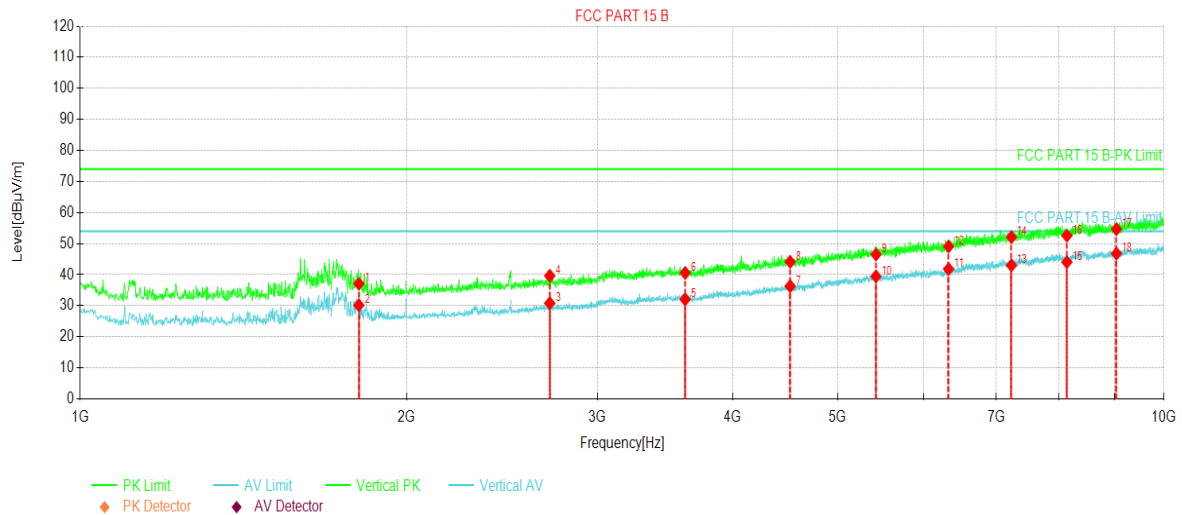
#### Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor) .

Above 1GHz:

903.9MHz:

|                 |                      |                |                 |
|-----------------|----------------------|----------------|-----------------|
| Product Name:   | Nebra HNT 5G Gateway | Product Model: | NEBHNT-5G-915-1 |
| Test By:        | Mike                 | Test mode:     | Tx mode         |
| Test Frequency: | 1 GHz ~ 10 GHz       | Polarization:  | Vertical        |
| Test Voltage:   | AC 120/60Hz          |                |                 |



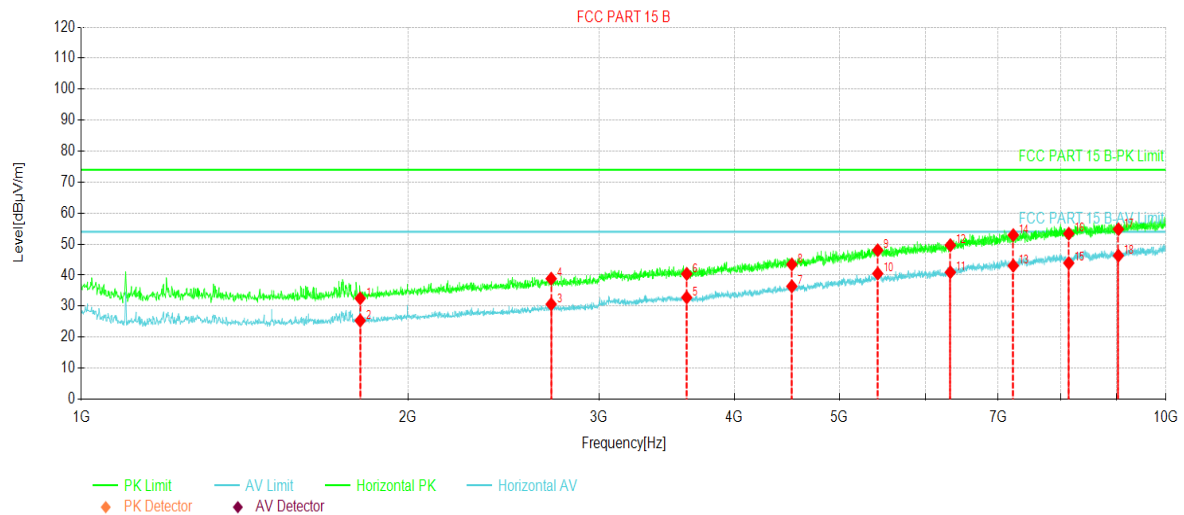
Suspected Data List

| NO. | Freq. [MHz] | Reading [dBμV/m] | Factor [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Trace | Polarity |
|-----|-------------|------------------|-------------|----------------|----------------|-------------|-------|----------|
| 1   | 1807.80     | 58.93            | -21.85      | 37.08          | 74.00          | 36.92       | PK    | Vertical |
| 2   | 1807.80     | 52.01            | -21.85      | 30.16          | 54.00          | 23.84       | AV    | Vertical |
| 3   | 2711.70     | 48.43            | -17.62      | 30.81          | 54.00          | 23.19       | AV    | Vertical |
| 4   | 2711.70     | 57.25            | -17.62      | 39.63          | 74.00          | 34.37       | PK    | Vertical |
| 5   | 3615.60     | 46.65            | -14.60      | 32.05          | 54.00          | 21.95       | AV    | Vertical |
| 6   | 3615.60     | 55.17            | -14.60      | 40.57          | 74.00          | 33.43       | PK    | Vertical |
| 7   | 4519.50     | 46.33            | -10.03      | 36.30          | 54.00          | 17.70       | AV    | Vertical |
| 8   | 4519.50     | 54.17            | -10.03      | 44.14          | 74.00          | 29.86       | PK    | Vertical |
| 9   | 5423.40     | 52.50            | -5.99       | 46.51          | 74.00          | 27.49       | PK    | Vertical |
| 10  | 5423.40     | 45.43            | -5.99       | 39.44          | 54.00          | 14.56       | AV    | Vertical |
| 11  | 6327.30     | 45.23            | -3.42       | 41.81          | 54.00          | 12.19       | AV    | Vertical |
| 12  | 6327.30     | 52.51            | -3.42       | 49.09          | 74.00          | 24.91       | PK    | Vertical |
| 13  | 7231.20     | 43.30            | -0.29       | 43.01          | 54.00          | 10.99       | AV    | Vertical |
| 14  | 7231.20     | 52.38            | -0.29       | 52.09          | 74.00          | 21.91       | PK    | Vertical |
| 15  | 8135.10     | 42.82            | 1.22        | 44.04          | 54.00          | 9.96        | AV    | Vertical |
| 16  | 8135.10     | 51.36            | 1.22        | 52.58          | 74.00          | 21.42       | PK    | Vertical |
| 17  | 9039.00     | 52.15            | 2.52        | 54.67          | 74.00          | 19.33       | PK    | Vertical |
| 18  | 9039.00     | 44.29            | 2.52        | 46.81          | 54.00          | 7.19        | AV    | Vertical |

Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor) .

|                 |                      |                |                 |
|-----------------|----------------------|----------------|-----------------|
| Product Name:   | Nebra HNT 5G Gateway | Product Model: | NEBHNT-5G-915-1 |
| Test By:        | Mike                 | Test mode:     | Tx mode         |
| Test Frequency: | 1 GHz ~ 10 GHz       | Polarization:  | Horizontal      |
| Test Voltage:   | AC 120/60Hz          |                |                 |



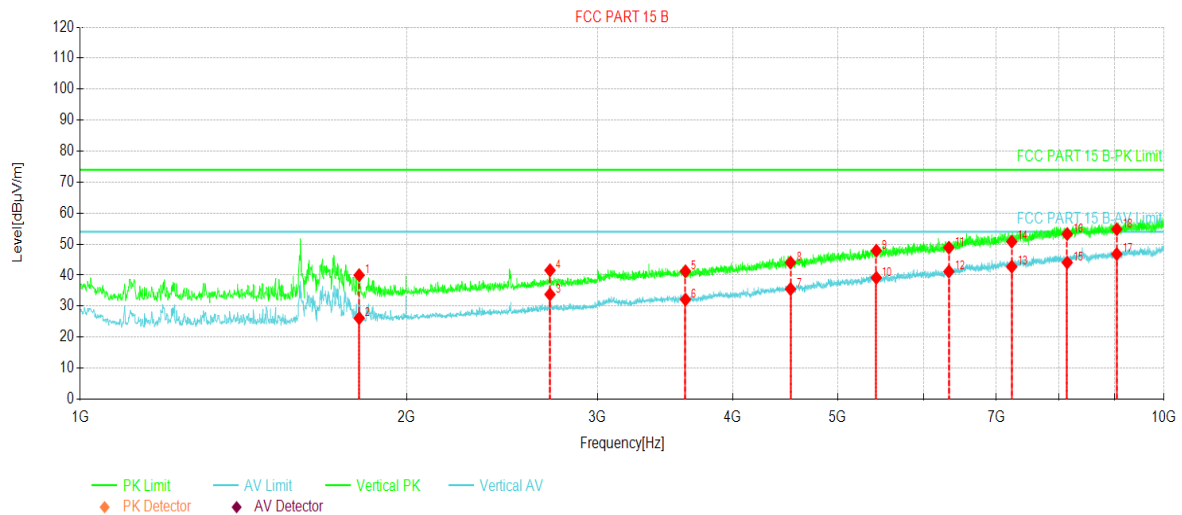
| Suspected Data List |             |                  |             |                |                |             |       |            |
|---------------------|-------------|------------------|-------------|----------------|----------------|-------------|-------|------------|
| NO.                 | Freq. [MHz] | Reading [dBμV/m] | Factor [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Trace | Polarity   |
| 1                   | 1807.80     | 54.36            | -21.85      | 32.51          | 74.00          | 41.49       | PK    | Horizontal |
| 2                   | 1807.80     | 47.17            | -21.85      | 25.32          | 54.00          | 28.68       | AV    | Horizontal |
| 3                   | 2711.70     | 48.25            | -17.62      | 30.63          | 54.00          | 23.37       | AV    | Horizontal |
| 4                   | 2711.70     | 56.47            | -17.62      | 38.85          | 74.00          | 35.15       | PK    | Horizontal |
| 5                   | 3615.60     | 47.38            | -14.60      | 32.78          | 54.00          | 21.22       | AV    | Horizontal |
| 6                   | 3615.60     | 55.00            | -14.60      | 40.40          | 74.00          | 33.60       | PK    | Horizontal |
| 7                   | 4519.50     | 46.43            | -10.03      | 36.40          | 54.00          | 17.60       | AV    | Horizontal |
| 8                   | 4519.50     | 53.50            | -10.03      | 43.47          | 74.00          | 30.53       | PK    | Horizontal |
| 9                   | 5423.40     | 54.02            | -5.99       | 48.03          | 74.00          | 25.97       | PK    | Horizontal |
| 10                  | 5423.40     | 46.49            | -5.99       | 40.50          | 54.00          | 13.50       | AV    | Horizontal |
| 11                  | 6327.30     | 44.36            | -3.42       | 40.94          | 54.00          | 13.06       | AV    | Horizontal |
| 12                  | 6327.30     | 53.09            | -3.42       | 49.67          | 74.00          | 24.33       | PK    | Horizontal |
| 13                  | 7231.20     | 43.35            | -0.29       | 43.06          | 54.00          | 10.94       | AV    | Horizontal |
| 14                  | 7231.20     | 53.20            | -0.29       | 52.91          | 74.00          | 21.09       | PK    | Horizontal |
| 15                  | 8135.10     | 42.69            | 1.22        | 43.91          | 54.00          | 10.09       | AV    | Horizontal |
| 16                  | 8135.10     | 52.16            | 1.22        | 53.38          | 74.00          | 20.62       | PK    | Horizontal |
| 17                  | 9039.00     | 52.29            | 2.52        | 54.81          | 74.00          | 19.19       | PK    | Horizontal |
| 18                  | 9039.00     | 43.78            | 2.52        | 46.30          | 54.00          | 7.70        | AV    | Horizontal |

#### Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor) .

## 904.5MHz:

|                 |                      |                |                 |
|-----------------|----------------------|----------------|-----------------|
| Product Name:   | Nebra HNT 5G Gateway | Product Model: | NEBHNT-5G-915-1 |
| Test By:        | Mike                 | Test mode:     | Tx mode         |
| Test Frequency: | 1 GHz ~ 10 GHz       | Polarization:  | Vertical        |
| Test Voltage:   | AC 120/60Hz          |                |                 |

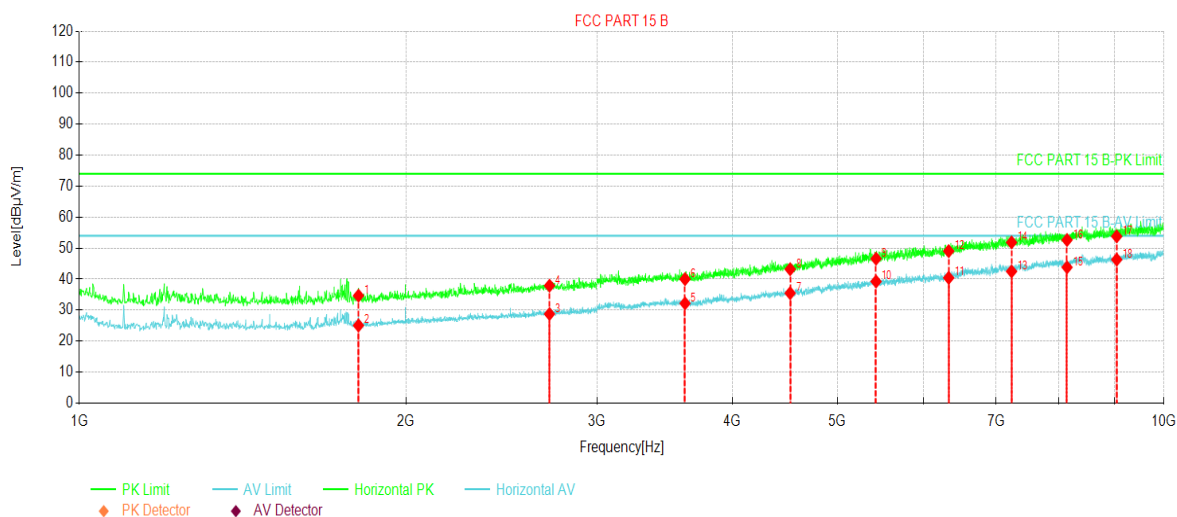


| Suspected Data List |             |                  |             |                |                |             |       |          |
|---------------------|-------------|------------------|-------------|----------------|----------------|-------------|-------|----------|
| NO.                 | Freq. [MHz] | Reading [dBμV/m] | Factor [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Trace | Polarity |
| 1                   | 1809.00     | 61.83            | -21.85      | 39.98          | 74.00          | 34.02       | PK    | Vertical |
| 2                   | 1809.00     | 47.97            | -21.85      | 26.12          | 54.00          | 27.88       | AV    | Vertical |
| 3                   | 2713.37     | 51.40            | -17.62      | 33.78          | 54.00          | 20.22       | AV    | Vertical |
| 4                   | 2713.37     | 59.18            | -17.62      | 41.56          | 74.00          | 32.44       | PK    | Vertical |
| 5                   | 3618.00     | 55.83            | -14.58      | 41.25          | 74.00          | 32.75       | PK    | Vertical |
| 6                   | 3618.00     | 46.70            | -14.58      | 32.12          | 54.00          | 21.88       | AV    | Vertical |
| 7                   | 4522.50     | 45.54            | -10.02      | 35.52          | 54.00          | 18.48       | AV    | Vertical |
| 8                   | 4522.50     | 54.08            | -10.02      | 44.06          | 74.00          | 29.94       | PK    | Vertical |
| 9                   | 5427.00     | 53.88            | -6.00       | 47.88          | 74.00          | 26.12       | PK    | Vertical |
| 10                  | 5427.00     | 45.14            | -6.00       | 39.14          | 54.00          | 14.86       | AV    | Vertical |
| 11                  | 6331.50     | 52.24            | -3.37       | 48.87          | 74.00          | 25.13       | PK    | Vertical |
| 12                  | 6331.50     | 44.55            | -3.37       | 41.18          | 54.00          | 12.82       | AV    | Vertical |
| 13                  | 7236.00     | 43.02            | -0.29       | 42.73          | 54.00          | 11.27       | AV    | Vertical |
| 14                  | 7236.00     | 51.09            | -0.29       | 50.80          | 74.00          | 23.20       | PK    | Vertical |
| 15                  | 8140.50     | 42.85            | 1.22        | 44.07          | 54.00          | 9.93        | AV    | Vertical |
| 16                  | 8140.50     | 52.03            | 1.22        | 53.25          | 74.00          | 20.75       | PK    | Vertical |
| 17                  | 9045.00     | 44.26            | 2.54        | 46.80          | 54.00          | 7.20        | AV    | Vertical |
| 18                  | 9045.00     | 52.27            | 2.54        | 54.81          | 74.00          | 19.19       | PK    | Vertical |

## Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Pre-amplifier Factor) .

|                 |                      |                |                 |
|-----------------|----------------------|----------------|-----------------|
| Product Name:   | Nebra HNT 5G Gateway | Product Model: | NEBHNT-5G-915-1 |
| Test By:        | Mike                 | Test mode:     | Tx mode         |
| Test Frequency: | 1 GHz ~ 10 GHz       | Polarization:  | Horizontal      |
| Test Voltage:   | AC 120/60Hz          |                |                 |



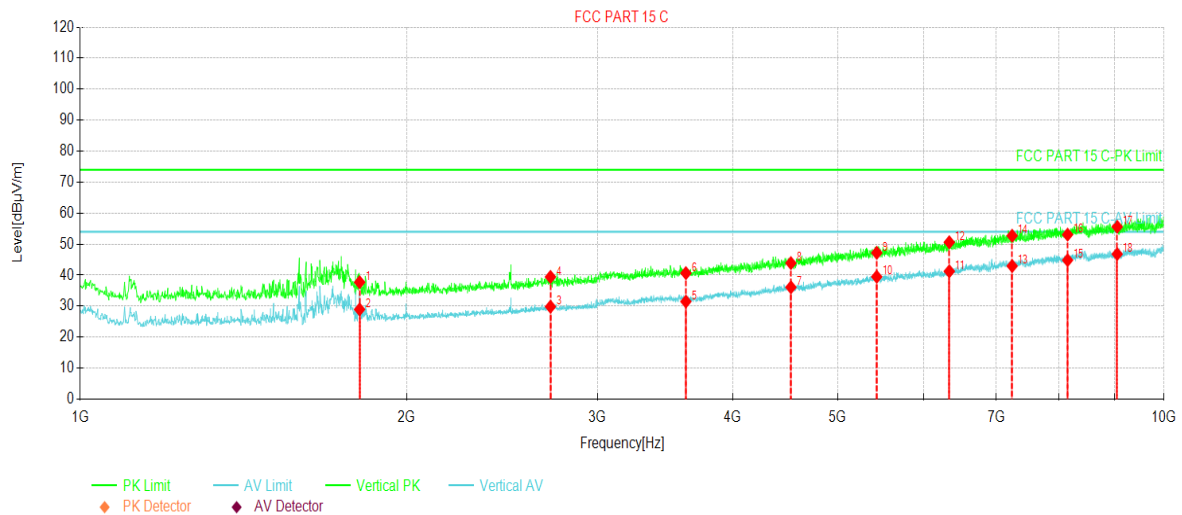
| Suspected Data List |             |                  |             |                |                |             |       |            |
|---------------------|-------------|------------------|-------------|----------------|----------------|-------------|-------|------------|
| NO.                 | Freq. [MHz] | Reading [dBuV/m] | Factor [dB] | Level [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Trace | Polarity   |
| 1                   | 1809.00     | 56.51            | -21.85      | 34.66          | 74.00          | 39.34       | PK    | Horizontal |
| 2                   | 1809.00     | 46.91            | -21.85      | 25.06          | 54.00          | 28.94       | AV    | Horizontal |
| 3                   | 2713.50     | 46.38            | -17.62      | 28.76          | 54.00          | 25.24       | AV    | Horizontal |
| 4                   | 2713.50     | 55.51            | -17.62      | 37.89          | 74.00          | 36.11       | PK    | Horizontal |
| 5                   | 3618.00     | 46.76            | -14.58      | 32.18          | 54.00          | 21.82       | AV    | Horizontal |
| 6                   | 3618.00     | 54.60            | -14.58      | 40.02          | 74.00          | 33.98       | PK    | Horizontal |
| 7                   | 4522.50     | 45.50            | -10.02      | 35.48          | 54.00          | 18.52       | AV    | Horizontal |
| 8                   | 4522.50     | 53.22            | -10.02      | 43.20          | 74.00          | 30.80       | PK    | Horizontal |
| 9                   | 5427.00     | 52.59            | -6.00       | 46.59          | 74.00          | 27.41       | PK    | Horizontal |
| 10                  | 5427.00     | 45.24            | -6.00       | 39.24          | 54.00          | 14.76       | AV    | Horizontal |
| 11                  | 6331.50     | 43.79            | -3.37       | 40.42          | 54.00          | 13.58       | AV    | Horizontal |
| 12                  | 6331.50     | 52.42            | -3.37       | 49.05          | 74.00          | 24.95       | PK    | Horizontal |
| 13                  | 7236.00     | 42.79            | -0.29       | 42.50          | 54.00          | 11.50       | AV    | Horizontal |
| 14                  | 7236.00     | 52.14            | -0.29       | 51.85          | 74.00          | 22.15       | PK    | Horizontal |
| 15                  | 8140.50     | 42.60            | 1.22        | 43.82          | 54.00          | 10.18       | AV    | Horizontal |
| 16                  | 8140.50     | 51.42            | 1.22        | 52.64          | 74.00          | 21.36       | PK    | Horizontal |
| 17                  | 9045.00     | 51.25            | 2.54        | 53.79          | 74.00          | 20.21       | PK    | Horizontal |
| 18                  | 9045.00     | 43.77            | 2.54        | 46.31          | 54.00          | 7.69        | AV    | Horizontal |

#### Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor) .

## 905.5MHz:

|                 |                      |                |                 |
|-----------------|----------------------|----------------|-----------------|
| Product Name:   | Nebra HNT 5G Gateway | Product Model: | NEBHNT-5G-915-1 |
| Test By:        | Mike                 | Test mode:     | Tx mode         |
| Test Frequency: | 1 GHz ~ 10 GHz       | Polarization:  | Vertical        |
| Test Voltage:   | AC 120/60Hz          |                |                 |

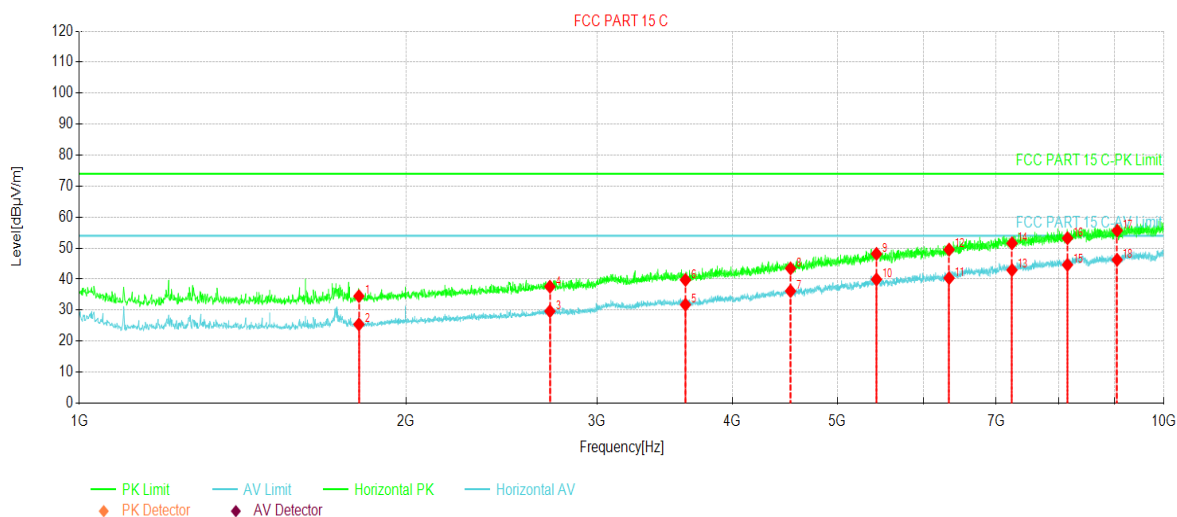


| Suspected Data List |             |                  |             |                |                |             |       |          |
|---------------------|-------------|------------------|-------------|----------------|----------------|-------------|-------|----------|
| NO.                 | Freq. [MHz] | Reading [dBμV/m] | Factor [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Trace | Polarity |
| 1                   | 1810.60     | 59.55            | -21.84      | 37.71          | 74.00          | 36.29       | PK    | Vertical |
| 2                   | 1810.60     | 50.79            | -21.84      | 28.95          | 54.00          | 25.05       | AV    | Vertical |
| 3                   | 2715.90     | 47.44            | -17.62      | 29.82          | 54.00          | 24.18       | AV    | Vertical |
| 4                   | 2715.90     | 57.05            | -17.62      | 39.43          | 74.00          | 34.57       | PK    | Vertical |
| 5                   | 3621.20     | 46.06            | -14.57      | 31.49          | 54.00          | 22.51       | AV    | Vertical |
| 6                   | 3621.20     | 55.22            | -14.57      | 40.65          | 74.00          | 33.35       | PK    | Vertical |
| 7                   | 4526.50     | 46.09            | -10.01      | 36.08          | 54.00          | 17.92       | AV    | Vertical |
| 8                   | 4526.50     | 53.89            | -10.01      | 43.88          | 74.00          | 30.12       | PK    | Vertical |
| 9                   | 5431.80     | 53.21            | -6.01       | 47.20          | 74.00          | 26.80       | PK    | Vertical |
| 10                  | 5431.80     | 45.48            | -6.01       | 39.47          | 54.00          | 14.53       | AV    | Vertical |
| 11                  | 6337.10     | 44.55            | -3.30       | 41.25          | 54.00          | 12.75       | AV    | Vertical |
| 12                  | 6337.10     | 53.91            | -3.30       | 50.61          | 74.00          | 23.39       | PK    | Vertical |
| 13                  | 7242.40     | 43.25            | -0.30       | 42.95          | 54.00          | 11.05       | AV    | Vertical |
| 14                  | 7242.40     | 53.01            | -0.30       | 52.71          | 74.00          | 21.29       | PK    | Vertical |
| 15                  | 8147.70     | 43.62            | 1.22        | 44.84          | 54.00          | 9.16        | AV    | Vertical |
| 16                  | 8147.70     | 51.85            | 1.22        | 53.07          | 74.00          | 20.93       | PK    | Vertical |
| 17                  | 9053.00     | 53.06            | 2.55        | 55.61          | 74.00          | 18.39       | PK    | Vertical |
| 18                  | 9053.00     | 44.24            | 2.55        | 46.79          | 54.00          | 7.21        | AV    | Vertical |

## Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor) .

|                 |                      |                |                 |
|-----------------|----------------------|----------------|-----------------|
| Product Name:   | Nebra HNT 5G Gateway | Product Model: | NEBHNT-5G-915-1 |
| Test By:        | Mike                 | Test mode:     | Tx mode         |
| Test Frequency: | 1 GHz ~ 10 GHz       | Polarization:  | Horizontal      |
| Test Voltage:   | AC 120/60Hz          |                |                 |



| Suspected Data List |             |                  |             |                |                |             |       |            |
|---------------------|-------------|------------------|-------------|----------------|----------------|-------------|-------|------------|
| NO.                 | Freq. [MHz] | Reading [dBuV/m] | Factor [dB] | Level [dBuV/m] | Limit [dBuV/m] | Margin [dB] | Trace | Polarity   |
| 1                   | 1810.60     | 56.36            | -21.84      | 34.52          | 74.00          | 39.48       | PK    | Horizontal |
| 2                   | 1810.60     | 47.23            | -21.84      | 25.39          | 54.00          | 28.61       | AV    | Horizontal |
| 3                   | 2715.90     | 47.27            | -17.62      | 29.65          | 54.00          | 24.35       | AV    | Horizontal |
| 4                   | 2715.90     | 55.19            | -17.62      | 37.57          | 74.00          | 36.43       | PK    | Horizontal |
| 5                   | 3621.20     | 46.33            | -14.57      | 31.76          | 54.00          | 22.24       | AV    | Horizontal |
| 6                   | 3621.20     | 54.31            | -14.57      | 39.74          | 74.00          | 34.26       | PK    | Horizontal |
| 7                   | 4526.50     | 46.16            | -10.01      | 36.15          | 54.00          | 17.85       | AV    | Horizontal |
| 8                   | 4526.50     | 53.46            | -10.01      | 43.45          | 74.00          | 30.55       | PK    | Horizontal |
| 9                   | 5431.80     | 54.16            | -6.01       | 48.15          | 74.00          | 25.85       | PK    | Horizontal |
| 10                  | 5431.80     | 45.92            | -6.01       | 39.91          | 54.00          | 14.09       | AV    | Horizontal |
| 11                  | 6337.10     | 43.63            | -3.30       | 40.33          | 54.00          | 13.67       | AV    | Horizontal |
| 12                  | 6337.10     | 52.82            | -3.30       | 49.52          | 74.00          | 24.48       | PK    | Horizontal |
| 13                  | 7242.40     | 43.22            | -0.30       | 42.92          | 54.00          | 11.08       | AV    | Horizontal |
| 14                  | 7242.40     | 51.85            | -0.30       | 51.55          | 74.00          | 22.45       | PK    | Horizontal |
| 15                  | 8147.70     | 43.40            | 1.22        | 44.62          | 54.00          | 9.38        | AV    | Horizontal |
| 16                  | 8147.70     | 52.00            | 1.22        | 53.22          | 74.00          | 20.78       | PK    | Horizontal |
| 17                  | 9053.00     | 53.14            | 2.55        | 55.69          | 74.00          | 18.31       | PK    | Horizontal |
| 18                  | 9053.00     | 43.69            | 2.55        | 46.24          | 54.00          | 7.76        | AV    | Horizontal |

#### Remark:

1. Level = Reading + Factor(Antenna Factor + Cable Loss – Preamplifier Factor) .

-----End of report-----