



# FCC Part 96.47 TEST REPORT

**FCC ID** : 2AVO2-HHRA501A  
**Equipment** : Nokia Industrial 5G handheld HHRA501x  
**Brand Name** : Nokia  
**Model Name** : HHRA501a  
**Marketing Name** : Nokia Industrial 5G handheld HHRA501a  
**Applicant** : Nokia of America Corp  
3201, Olympus Blvd, Dallas, TX 75019, USA  
**Manufacturer** : Power Idea Technology (Shenzhen) Co., Ltd.  
4th Floor, A Section, Languang Science&technology  
Building, No.7 Xinxi RD, Hi Tech Industrial Park North,  
Nanshan District, Shenzhen, P.R.C.  
**Standard** : FCC Part 96.47  
**RF Interface** : NR n48

The product was received on Dec. 15, 2022, and testing was performed from Dec. 20, 2022 to Dec. 20, 2022. We, Sporton International Inc. Wensan Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. Wensan Laboratory, the test report shall not be reproduced except in full.



Approved by: Jones Tsai

**Sporton International Inc. Wensan Laboratory**

No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C)



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## History of this test report

| Report No.   | Version | Description             | Issue Date    |
|--------------|---------|-------------------------|---------------|
| FG2D0841-02B | 01      | Initial issue of report | Mar. 15, 2023 |
|              |         |                         |               |
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## Summary of Test Result

| Report Clause | Ref Std. Clause | Test Items                             | Result (PASS/FAIL) | Remark |
|---------------|-----------------|----------------------------------------|--------------------|--------|
| 3             | 96.47           | End User Device additional requirement | Pass               | -      |

**Note:** The FG2D0841-02B report reuses test data from the FG2D0841B report.

**Conformity Assessment Condition:**

The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacture who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.

**Disclaimer:**

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

**Reviewed by: Thomas Chen**

**Report Producer: Rachel Hsieh**

# 1 General Description

## 1.1 Product Feature of Equipment Under Test

| Product Feature |                                                                                                                                  |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------|
| General Specs   | GSM/WCDMA/LTE/5G NR, Bluetooth, Wi-Fi 2.4GHz 802.11b/g/n/ac/ax, Wi-Fi 5GHz 802.11a/n/ac/ax, NFC, and GNSS.                       |
| Antenna Type    | WWAN: PIFA Antenna<br>WLAN: PIFA Antenna<br>Bluetooth: PIFA Antenna<br>GPS/Glonass/BDS/Galileo: PIFA Antenna<br>NFC: FPC Antenna |

**Remark:** The above EUT's information was declared by manufacturer. Please refer to Disclaimer in report summary.

## 1.2 Modification of EUT

No modifications are made to the EUT during all test items.

## 1.3 Testing Laboratory

|                    |                                                                                                                                                  |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Site          | Sporton International Inc. Wensan Laboratory                                                                                                     |
| Test Site Location | No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist.,<br>Taoyuan City 333010, Taiwan (R.O.C.)<br>TEL: +886-3-327-0868<br>FAX: +886-3-327-0855 |
| Test Site No.      | <b>Sporton Site No.</b><br>TH05-HY                                                                                                               |
| Test Engineer      | Thomas Chen                                                                                                                                      |
| Temperature        | 22 ~ 25 °C                                                                                                                                       |
| Relative Humidity  | 41 ~ 45 %                                                                                                                                        |

FCC designation No.: TW3786

## 1.4 Applicable Standards

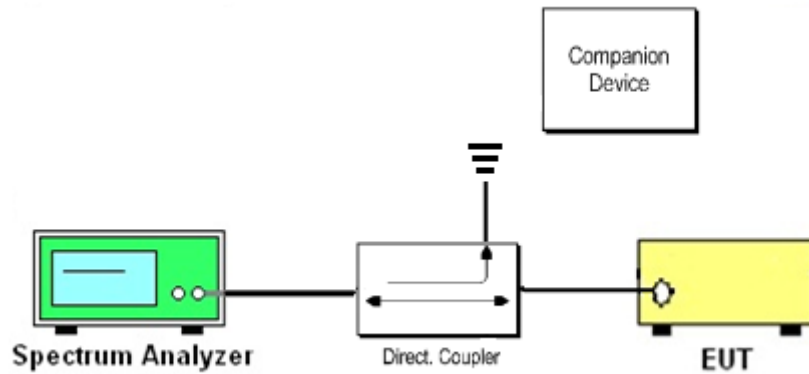
- ♦ FCC Part 96.47
- ♦ FCC KDB 940660 D01 Part 96 CBRS Eqpt v03
- ♦ WINNF-TS-0122-V1.0.2 CBRS CBSD Test Specification

### Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. The TAF code is not including all the FCC KDB listed without accreditation.

## 2 Test Configuration of Equipment Under Test

### 2.1 Connection Diagram of Test System



The companion device is certified NR CBSD (FCC ID: PIDAS2900)



### **3 End User Device additional requirement**

#### **3.1 Test Requirement**

FCC Part 96.47

(a) End User Devices may operate only if they can positively receive and decode an authorization signal transmitted by a CBSD, including the frequencies and power limits for their operation.

(1) An End User Device must discontinue operations, change frequencies, or change its operational power level within 10 seconds of receiving instructions from its associated CBSD.

#### **3.2 Test Procedure**

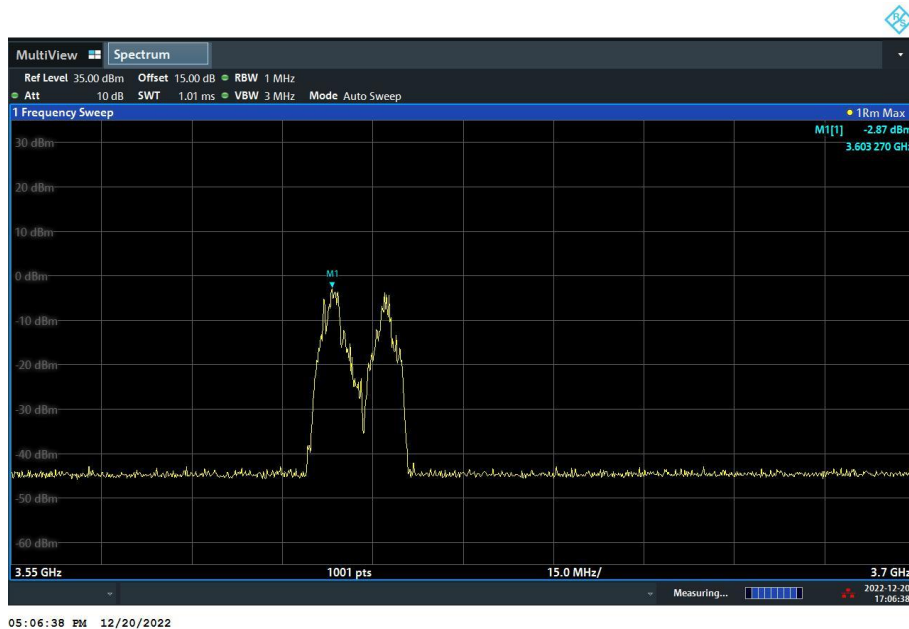
Following procedure can be done by applying WINNF-TS-0122-V1.0.2 CBRS CBSD Test Specification, use the certified Airspan NR CBSD (FCC ID: PIDAS2900) as companion device to show compliance with Part 96.47 requirement for End User Device (EUD):

1. Configure SAS granted CBSD to operate at frequency 3600-3620 MHz and power level 10 dBm/MHz
2. Enable CBSD service from Airspan ACP management
3. Check EUD Tx Frequency and power
4. Disable CBSD service from Airspan ACP management
  - a. Check EUD stops transmission within 10 seconds.
5. Configure SAS granted CBSD to operate at frequency 3670-3690 MHz and power level 20 dBm/MHz
6. Enable CBSD service from Airspan ACP management
7. Check EUD Tx Frequency and power
8. Disable CBSD service from Airspan ACP management
  - a. Check EUD stops transmission within 10 seconds.

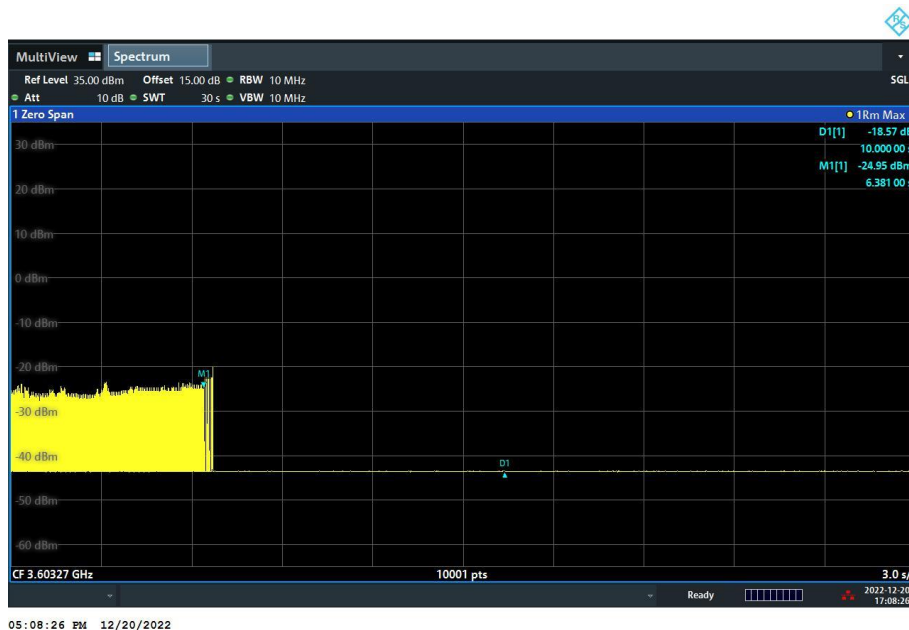
### 3.3 Test Result

**[Step 1] Configure SAS granted CBSD to operate at  
frequency 3600-3620 MHz and power level 10 dBm/MHz**

**[Step 3] Check EUD Tx Frequency and power**

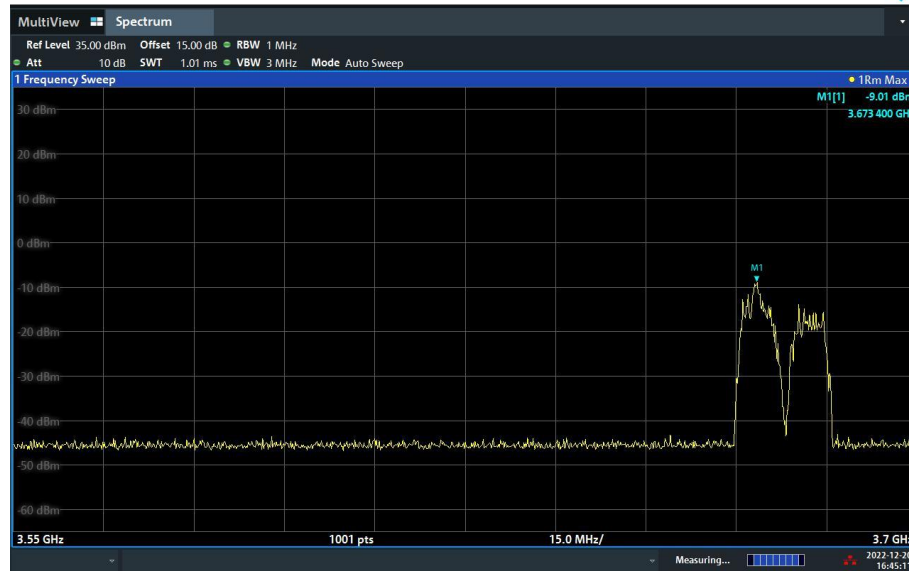


**[Step 4.a.] EUD stops transmission within 10 seconds of receiving instructions from its associated CBSD.**



**[Step 5] Configure SAS granted CBSD to operate at  
frequency 3670-3690 MHz & power level 20 dBm/MHz**

**[Step 7] Check EUD Tx Frequency and power**



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**[Step 8.a.] After changing the frequency and power level,**

The module (EUT) discontinues operations, change frequencies, or change its operational power level within 10 seconds of receiving instructions from its associated CBSD. Test result is PASS.



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## 4 List of Measuring Equipment

| Instrument        | Brand Name | Model No. | Serial No. | Characteristics | Calibration Date | Test Date     | Due Date      | Remark              |
|-------------------|------------|-----------|------------|-----------------|------------------|---------------|---------------|---------------------|
| Spectrum Analyzer | R&S        | FSV3044   | 101434     | 10Hz~44GHz      | Oct. 28, 2022    | Dec. 20, 2022 | Oct. 27, 2023 | Conducted (TH05-HY) |

————THE END————