

## MPE REPORT

Report No.: SRTC2024-9004(F)-24041502(I)

Product Name: Cellular Router

Product ID: CR202-NAC6

Series Model: CR212-NAC6, CR252-NAC6, CR292-NAC6

Brand Name: inhand

Applicant: Beijing InHand Networks Technology Co., Ltd.

Manufacturer: Beijing InHand Networks Technology Co., Ltd.

FCC ID: 2AANY-CR202NAC6

|                         |
|-------------------------|
| Reference Specification |
| FCC Part §1.1310        |

The State Radio\_monitoring\_center Testing Center (SRTC)

15th Building, No.30, Shixing Street, Shijingshan District,

Beijing, P.R.China

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## **1 GENERAL INFORMATION**

### **1.1 Notes of the test report**

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### **1.2 Information about the testing laboratory**

|                      |                                                           |
|----------------------|-----------------------------------------------------------|
| Company:             | The State Radio_monitoring_center Testing Center (SRTC)   |
| Test Site 1:         | 15th Building, No.30 Shixing Street, Shijingshan District |
| Test Site 2:         | No.80, Zhaojiachang, Beizang, Daxing District             |
| City:                | Beijing                                                   |
| Country or Region:   | P.R.China                                                 |
| Contacted person:    | Liu Jia                                                   |
| Tel:                 | +86 10 57996183                                           |
| Fax:                 | +86 10 57996388                                           |
| Email:               | liujiaf@srtc.org.cn                                       |
| Designation Number:  | CN1267                                                    |
| Registration number: | 239125                                                    |

### **1.3 Applicant's details**

|                    |                                                                                |
|--------------------|--------------------------------------------------------------------------------|
| Company:           | Beijing InHand Networks Technology Co., Ltd.                                   |
| Address:           | Room 501, floor 5, building 3, yard 18, ziyue road, chaoyang district, Beijing |
| City:              | Beijing                                                                        |
| Country or Region: | China                                                                          |
| Contacted person:  | GuJichi                                                                        |
| Tel:               | 15281366255                                                                    |
| Email:             | gujc@inhand.com.cn                                                             |

## 1.4 Manufacturer's details

|                    |                                                                                |
|--------------------|--------------------------------------------------------------------------------|
| Company:           | Beijing InHand Networks Technology Co., Ltd.                                   |
| Address:           | Room 501, floor 5, building 3, yard 18, ziyue road, chaoyang district, Beijing |
| City:              | Beijing                                                                        |
| Country or Region: | China                                                                          |
| Contacted person:  | GuJichi                                                                        |
| Tel:               | 15281366255                                                                    |
| Email:             | gujc@inhand.com.cn                                                             |

## 1.5 Test Environment

|                                         |           |
|-----------------------------------------|-----------|
| Date of Receipt of test sample at SRTC: | 2024/4/18 |
| Testing Start Date:                     | 2024/4/19 |
| Testing End Date:                       | 2024/6/19 |

| Environmental Data: | Temperature (°C) | Humidity (%) |
|---------------------|------------------|--------------|
| Ambient             | 25               | 40           |
| Maximum Extreme     | 50               | ---          |
| Minimum Extreme     | -10              | ---          |

|                                          |     |
|------------------------------------------|-----|
| Normal Supply Voltage (V d.c.):          | 5   |
| Maximum Extreme Supply Voltage (V d.c.): | 5.5 |
| Minimum Extreme Supply Voltage (V d.c.): | 4.5 |

## 2 DESCRIPTION OF THE DEVICE UNDER TEST

### 2.1 Final Equipment Build Status

#### LTE B48

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Frequency Range:         | LTE Band 2: Tx:1850~1910MHz Rx:1930~1990MHz<br>LTE Band 4: Tx: 1710~1755MHz Rx: 2110~2155MHz<br>LTE Band 5: Tx: 824~849MHz Rx: 869~894MHz<br>LTE Band 7: Tx: 2500~2570MHz Rx: 2620~2690MHz<br>LTE Band 12: Tx: 699 ~716 MHz Rx: 729 ~746 MHz<br>LTE Band 13: Tx: 777~787MHz Rx: 746~756MHz<br>LTE Band 14: Tx: 788 ~798 MHz Rx: 758 ~768 MHz<br>LTE Band 25: Tx: 1850 ~ 1915 MHz Rx: 1930 ~ 1995 MHz<br>LTE Band 26: Tx: 814~849MHz Rx: 859~894MHz<br>LTE Band 30: Tx: 2305 ~ 2315 MHz Rx: 2350 ~ 2360 MHz<br>LTE Band 41: Tx: 2496~2690MHz Rx: 2496~2690MHz<br>LTE Band 48: Tx:3550~3700MHz Rx:3550~3700MHz<br>LTE Band 66: Tx: 1710~1780MHz Rx: 2110~2200MHz<br>LTE Band 71: Tx: 663 ~698 MHz Rx: 617 ~652 MHz |
| Modulation Type(Uplink): | QPSK/16QAM/64QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Antenna Type:            | Ant0/ Ant1:FPC Antenna ANT2/3: External Antenna                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Antenna Gain:            | LTE B48: Ant0:1.7dBi ANT1:2.4dBi<br>Ant2:-0.92dBi ANT3:-0.92dBi<br>ERP = EIRP(Power+Gain) – 2.15 (dB)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Power Supply:            | DC supply                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Software Revision:       | V1.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Hardware Revision:       | V1.6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

#### Wi-Fi 2.4G

|                              |                                           |
|------------------------------|-------------------------------------------|
| Frequency Band:              | 2.412GHz~2.462GHz                         |
| Number of Channel For 20MHz: | 11                                        |
| Number of Channel For 40MHz: | 7                                         |
| Modulation Type:             | 802.11b<br>802.11g<br>802.11n (HT20/HT40) |
| Power Supply:                | DC supply                                 |
| Antenna gain:                | ANT0: 0.77 dBi(max) ANT1: 3 dBi(max)      |
| Directional Gain:            | 2.03 dBi                                  |

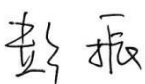
|                    |             |
|--------------------|-------------|
| Software Revision: | V1.0        |
| Hardware Revision: | V1.6        |
| Antenna type:      | FPC Antenna |
| Antenna connector: | NA          |

### 3 REFERENCE SPECIFICATION

| Specification | Version | Title                                      |
|---------------|---------|--------------------------------------------|
| Part 1.1310   | Latest  | Radio frequency radiation exposure limits. |

### 4 RESULT SUMMARY

| Case | Verdict |
|------|---------|
| MPE  | Pass    |

|                                                                                                                                        |                                                                                                                    |
|----------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| This Test Report Is Issued by:<br>Mr. Peng Zhen<br> | Checked by:<br>Mr. Li Bin<br> |
| Tested by:<br>Mr. Hui Wen<br>                       | Issued date:<br>2024/08/06                                                                                         |

## 5.CALCULATION RESULT

### 5.1 Maximum permissible exposure (MPE)

#### Limit:

(A) Limits for Occupational/Controlled Exposure ☐

| Frequency Range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/cm <sup>2</sup> ) | Averaging Time  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes) |
|-----------------------|-----------------------------------|-----------------------------------|-----------------------------------------|-------------------------------------------------------------------|
| 0.3-3.0               | 614                               | 1.63                              | *100                                    | 6                                                                 |
| 3.0-30                | 1842/f                            | 4.89/f                            | *900/f <sup>2</sup>                     | 6                                                                 |
| 30-300                | 61.4                              | 0.163                             | 1.0                                     | 6                                                                 |
| 300-1500              | --                                | --                                | f/300                                   | 6                                                                 |
| 1500-100,000          | --                                | --                                | 5                                       | 6                                                                 |

(B) Limits for General Population/Uncontrolled Exposure ☒

| Frequency Range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/cm <sup>2</sup> ) | Averaging Time  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes) |
|-----------------------|-----------------------------------|-----------------------------------|-----------------------------------------|-------------------------------------------------------------------|
| 0.3-1.34              | 614                               | 1.63                              | *100                                    | 30                                                                |
| 1.34-30               | 824/f                             | 2.19/f                            | *180/f <sup>2</sup>                     | 30                                                                |
| 30-300                | 27.5                              | 0.073                             | 0.2                                     | 30                                                                |
| 300-1500              | --                                | --                                | f/1500                                  | 30                                                                |
| 1500-100,000          | --                                | --                                | 1.0                                     | 30                                                                |

f = frequency in MHz \*Plane-wave equivalent power density

### Result:

According to §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines.

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$S = PG / (4\pi R^2)$$

Where S = power density in mW/cm<sup>2</sup>

P = transmit power in mW

G = numeric gain of transmit antenna

R = distance (cm)

### Standalone Transmission Result

| Band      | Freq. (MHz) | Maximum Power (dBm) | ANT Gain (dBi) | Maximum EIRP (dBm) | Maximum EIRP(mW) | Power Density at 20cm (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) | Power Density/ Limit |
|-----------|-------------|---------------------|----------------|--------------------|------------------|---------------------------------------------|-----------------------------|----------------------|
| LTE B2    | 1850.7      | 25.00               | 2.8            | 27.80              | 602.560          | 0.120                                       | 1                           | 0.120                |
| LTE B4    | 1710.7      | 25.00               | 2.8            | 27.80              | 602.560          | 0.120                                       | 1                           | 0.120                |
| LTE B5    | 824.7       | 25.00               | 0.2            | 25.20              | 331.131          | 0.066                                       | 0.5498                      | 0.120                |
| LTE B7    | 2502.5      | 25.00               | 2.9            | 27.90              | 616.595          | 0.123                                       | 1                           | 0.123                |
| LTE B12   | 699.7       | 25.00               | -0.5           | 24.50              | 281.838          | 0.056                                       | 0.4665                      | 0.120                |
| LTE B13   | 779.5       | 25.00               | -0.5           | 24.50              | 281.838          | 0.056                                       | 0.5197                      | 0.108                |
| LTE B14   | 790.5       | 25.00               | -0.5           | 24.50              | 281.838          | 0.056                                       | 0.5270                      | 0.106                |
| LTE B25   | 1850.7      | 25.00               | 2.8            | 27.80              | 602.560          | 0.120                                       | 1                           | 0.120                |
| LTE B26   | 824.7       | 25.00               | 0.2            | 25.20              | 331.131          | 0.066                                       | 0.5498                      | 0.120                |
| LTE B30   | 2307.5      | 25.00               | 3              | 28.00              | 630.957          | 0.126                                       | 1                           | 0.126                |
| LTE B48   | 3560        | 24.53               | -0.92          | 23.61              | 229.615          | 0.046                                       | 1                           | 0.046                |
| LTE B66   | 1710.7      | 25.00               | 2.8            | 27.80              | 602.560          | 0.120                                       | 1                           | 0.120                |
| LTE B71   | 665.5       | 25.00               | -0.9           | 24.10              | 257.040          | 0.051                                       | 0.4437                      | 0.115                |
| WIFI 2.4G | 2462        | 18.06               | 2.03           | 20.09              | 102.094          | 0.020                                       | 1                           | 0.020                |

**NOTE : The above table reuses test data from the Report DSS\_SEWA2208000035RG03-FCC MPE Report for MPE evaluation in the LTE section.**

### Simultaneous Transmission Result

| Power Density1 / Limit ( LTE30 ) | Powe Density2 / Limit WIFI 2.4G ( WIFI 2.4G ) | Σ(Power Density / Limit) |
|----------------------------------|-----------------------------------------------|--------------------------|
| 0.126                            | 0.020                                         | 0.146                    |

Note: Simultaneous Transmission Limit = Power\_1 / Limit\_1 + Power\_2 / Limit\_2 < 1.

---End of Test Report---