

MPE REPORT

Report No.: SRTC2024-9004(F)-24032607(I)
Product Name: Industrial Cellular Router
Product ID: IR315
Series Model: IR325, IR365, IR395
Applicant: Beijing InHand Networks Technology Co., Ltd.
Manufacturer: Beijing InHand Networks Technology Co., Ltd.
FCC ID: 2AANY-IR315

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
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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:	2024-3-22
Testing Start Date:	2024-3-23
Testing End Date:	2024-4-12

Environmental Data:	Temperature (°C)	Humidity (%)
Ambient	25	40
Maximum Extreme	70	---
Minimum Extreme	-20	---

Normal Supply Voltage (V d.c.):	12
Maximum Extreme Supply Voltage (V d.c.):	36
Minimum Extreme Supply Voltage (V d.c.):	9

2 DESCRIPTION OF THE DEVICE UNDER TEST

2.1 Final Equipment Build Status

Frequency Range:	LTE
Modulation Type(Uplink):	QPSK/16QAM/64QAM
Antenna Gain:	3.76dBi(MAX)
Power Supply:	DC supply

LTE B48

Frequency Range:	LTE Band 48: Tx:3550~3700MHz Rx:3550~3700MHz
Modulation Type(Uplink):	QPSK/16QAM/64QAM
Antenna Type:	Sucker antenna
Antenna Gain:	LTE B48: -2dBi ERP = EIRP(Power+Gain) – 2.15 (dB)
Power Supply:	DC supply
Software Revision:	V1.0
Hardware Revision:	V1.1

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 802.11g 802.11n (HT20/HT40)
Power Supply:	DC supply
Antenna gain:	2.69 dBi(max)
Directional Gain:	2.69 dBi
Software Revision:	V1.0
Hardware Revision:	V1.1
Antenna type:	Sucker antenna
Antenna connector:	RP-SMA

NOTE: Test Model No.: IR315

Series Models NO: IR3X5, Where X represents the numbers 0-9

The five models are the same in these:appearance,PCB layout and basic software function; The only difference is that the products are used in different markets.

3 REFERENCE SPECIFICATION

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

4 RESULT SUMMARY

Case	Verdict
MPE	Pass

Note: WWAN reused from 2110RSU053-U7.

This Test Report Is Issued by: Mr. Peng Zhen 	Checked by: Mr. Li Bin 
Tested by: Mr. Hui Wen 	Issued date: 2024/04/29

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 ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*900/f ²	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 ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	*180/f ²	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:

$$\text{The } S = PG / (4\pi R^2)$$

Where S = power density in mW/cm²

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 ²)	Limit/(mW/cm ²)
WCDMA B2	1850 ~ 1910	24.50	2.63	27.13	516.416	0.103	1
WCDMA B4	1710 ~ 1755	24.50	2.86	27.36	544.503	0.108	1
WCDMA B5	824 ~ 849	24.50	1.61	26.11	408.319	0.081	1
LTE B2	1850 ~ 1910	24.00	2.63	26.63	460.257	0.092	1
LTE B4	1710 ~ 1755	24.00	2.86	26.86	485.289	0.097	1
LTE B5	824 ~ 849	24.00	1.61	25.61	363.915	0.072	1
LTE B7	2500 ~ 2570	24.00	1.07	25.07	321.366	0.064	1
LTE B12	699 ~ 716	24.00	1.61	25.61	363.915	0.072	1
LTE B13	777 ~ 787	24.00	2.19	26.19	415.911	0.083	1
LTE B14	788 ~ 798	24.00	2.22	26.22	418.794	0.083	1
LTE B17	704 ~ 716	24.00	1.61	25.61	363.915	0.072	1
LTE B25	1850 ~ 1915	24.00	2.63	26.63	460.257	0.092	1
LTE B26	814 ~ 849	24.00	1.93	25.93	391.742	0.078	1
LTE B30	2305 ~ 2315	24.00	0.67	24.67	293.089	0.058	1
LTE B41	2496 ~ 2690	24.00	2.49	26.49	445.656	0.089	1
LTE B41 HPUE	2496 ~ 2690	27.00	2.49	29.49	889.201	0.177	1
LTE B42	3450 ~ 3600	24.00	-1.18	22.82	191.426	0.038	1
LTE B43	3600 ~ 3800	24.00	-0.13	23.87	243.781	0.048	1
LTE B48	3550 ~ 3700	23.36	-2.00	21.39	137.721	0.027	1
LTE B66	1710 ~ 1780	24.00	3.76	27.76	597.035	0.119	1
LTE B71	663 ~ 698	24.00	1.39	25.39	345.939	0.069	1
WIFI2.4G	2412	17.25	2.69	19.94	98.628	0.020	1

Simultaneous Transmission Result

Power Density1 / Limit	Power Density2 / Limit	Σ(Power Density / Limit)
0.020(WIFI2.4G)	0.177 (LTE B41_HPUE)	0.197

Note: Simultaneous Transmission Limit = Power Density_1 / Limit_1 + Power Density_2 / Limit_2 < 1.

---End of Test Report---