Certificate #5505.02

MPE REPORT

Report No.: SRTC2024-9004(F)-24042803(I)

Product Name: InVehicle Gateway

Product ID: VG710-NRQ5

Applicant: Beijing InHand Networks Technology Co., Ltd.

Manufacturer: Beijing InHand Networks Technology Co., Ltd.

FCC ID：2AANY- VG710NRQ5

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

Tel: 86-10-57996183 Fax: 86-10-57996388

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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:	2024-04-29
Testing Start Date:	2024-04-30
Testing End Date:	2024-05-21

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

LTE B48

Frequency Range:	LTE Band 48: Tx:3550~3700MHz Rx:3550~3700MHz
Modulation Type(Uplink):	QPSK/16QAM/64QAM/256QAM
Antenna Type:	External Antenna
Antenna Gain:	LTE B48: 0.27dBi ERP = EIRP(Power+Gain) – 2.15 (dB)
Power Supply:	DC supply
Software Revision:	V1.2
Hardware Revision:	V1.1
IMEI:	868371051051601

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:	1.05dBi(Max)
Directional Gain:	NA
Software Revision:	V1.2
Hardware Revision:	V1.1
IMEI:	868371051051601
Antenna type:	External Antenna

Wi-Fi 5G

Frequency Band(s):	U-NII-1:5150MHz-5250MHz U-NII-3:5725MHz-5850MHz
Modulation Type:	802.11a 802.11n (HT20/HT40) 802.11ac (VHT20/VHT40/VHT80)
Antenna Type:	External Antenna
Antenna gain	U-NII-1:-2.63dBi(Max) U-NII-3:-2.71dBi(Max)
Directional Gain:	NA
Power Supply:	DC supply
Software Revision:	V1.2
Hardware Revision:	V1.1
IMEI:	868371051051601

N48

Frequency Range:	N48: Tx: Tx:3550~3700MHz Rx:3550~3700MHz
Single band single SCS single carrier	N48
Single band single SCS HPUE	NA
SCS	30KHz: N48
SA Bandwidth	N48: 10MHz/20MHz/30MHz/40MHz
Modulation Type:	PI/2 BPSK, QPSK,16QAM,64QAM,256QAM
Antenna Type:	External Antenna
Antenna Gain:	N48: 0.27dBi
Power Supply:	DC supply
Software Revision:	V1.2
Hardware Revision:	V1.1
IMEI:	868371051051601

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: Mr. Peng Zhen	Checked by: Mr. Li Bin
Tested by: Mr. Hui Wen	Issued date: 2024/05/29

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/cm2)	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/cm2)	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:

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

Where S = power density in mW/cm^2

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)	Power Density/ Limit
LTE B48	3625	24.16	0.27	24.43	277.332	0.055	1	0.055
WIFI 2.4G	2437	19.97	1.05	21.02	126.474	0.025	1	0.025
WIFI 5.2G	5240	19.60	-2.63	16.97	49.774	0.010	1	0.010
WIFI 5.8G	5825	18.79	-2.71	16.08	40.551	0.008	1	0.008
N48	3555	20.48	0.27	20.75	118.850	0.024	1	0.024

Simultaneous Transmission Result

Power Density1 / Limit (LTE48)	Powe Density2 / Limit WIFI 2.4G (WIFI 2.4G)	Σ(Power Density / Limit)
0.055	0.025	0.080

Note: Simultaneous Transmission Limit = Power_1 / Limit_1 + Power_2 / Limit_2 < 1.

---End of Test Report---