



FCC RF EXPOSURE REPORT

Applicant	:	Beijing InHand Networks Technology Co., Ltd.
Address of Applicant	:	Room 501, floor 5, building 3, yard 18, ziyue road, chaoyang district, Beijing 100102, China
Manufacturer	:	Beijing InHand Networks Technology Co., Ltd.
Address of Manufacturer	:	Room 501, floor 5, building 3, yard 18, ziyue road, chaoyang district, Beijing 100102, China
Equipment under Test	:	InVehicle Gateway
Model No.	:	VG710, VG710-U, VG710-M, VG710-H, VG710-L
FCC ID	:	2AANYVG710U
Test Standard(s)	:	KDB447498 D01 General RF Exposure Guidance v06
Report No.	:	DDT-RE23122506-2E03
Issue Date	:	2024/03/05
Issue By	:	Guangdong Dongdian Testing Service Co., Ltd.
Address of Laboratory	:	Unit 2, Building 1, No. 17, Zongbu 2nd Road, Songshan Lake Park, Dongguan, Guangdong, China, 523808

REPORT

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Test Report Declare

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Standard Used: KDB447498 D01 General RF Exposure Guidance v06

We Declare:

The equipment described above is assessed by Guangdong Dongdian Testing Service Co., Ltd and in the configuration assessed the equipment complied with the standards specified above. The assessed results are contained in this report and Guangdong Dongdian Testing Service Co., Ltd is assumed of full responsibility for the accuracy and completeness of these assess.

After evaluation, our opinion is that the equipment In Accordance with above standard.

Report No.:	DDT-RE23122506-2E03		
Date of Receipt:	2024/02/01	Date of Test:	2024/02/01~2024/03/05

Prepared By:

Jacky Huang

Jacky Huang/Engineer

Approved By:



Damon Hu/EMC Manager

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Guangdong Dongdian Testing Service Co., Ltd.

Revision History

Rev.	Revisions	Issue Date	Revised By
---	Initial issue	2024/03/05	

1. General Information

1.1. Description of equipment

EUT Name	: InVehicle Gateway
Model Number	: VG710, VG710-U, VG710-M, VG710-H, VG710-L
Model Difference	: These 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. The test model is VG710.
EUT Function Description	: Please reference user manual of this device
Power Supply	: DC 9~36V
Radio Specification	: WLAN (2.4 GHz): IEEE 802.11b/g/n, : WLAN (5 GHz): IEEE 802.11a/n/ac
Operation Frequency	: IEEE 802.11b/g/n: 2412 MHz to 2462 MHz, : IEEE 802.11a/n/ac: 5180 MHz to 5240 MHz, 5745 MHz to 5825 MHz
Modulation	: IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) : IEEE 802.11g/a: OFDM (64QAM, 16QAM, QPSK, BPSK) : IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK) : IEEE 802.11ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK)
Sample Number	: S23122506-03

Note 1: Another RF technical information please refer to the LTE Module Certification report:

2309RSU052-U8

Note 2: EUT is the abbreviation of equipment under test.

Note 3: Antenna information:

Antenna information	
Antenna Type	: External antenna
Antenna Gain (dBi)	: 1.05 dBi for 2.4G Band, from 2412MHz to 2462MHz, : -2.48 dBi for 5G Band, from 5180MHz to 5240MHz, : -2.89 dBi for 5G Band, from 5745MHz to 5825MHz

1.2. Assess laboratory

Guangdong Dongdian Testing Service Co., Ltd.

Unit 2, Building 1, No.17, Zongbu 2nd Road, Songshan Lake Park, Dongguan, Guangdong, China,
523808

Tel.: +86-0769-38826678, <http://www.dgddt.com>, Email: ddt@dgddt.com.

CNAS Accreditation No. L6451; A2LA Accreditation Number: 3870.01

FCC Designation Number: CN1182, Test Firm Registration Number: 540522

Innovation, Science and Economic Development Canada Site Registration Number: 10288A

Conformity Assessment Body identifier: CN0048

VCCI facility registration number: C-20087, T-20088, R-20123, R-20155, G-20118

2. RF Exposure Evaluation

2.1. Requirement

Systems operating under the provisions of FCC 47 CFR section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as mobile device whereby a distance of 0.2 m normally can be maintained between the user and the device, and below RF Permissible Exposure limit shall comply with.

Limits for General Population/Uncontrolled Exposure

(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)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz ; *Plane-wave equivalent power density

2.2. Calculation method

$$E(\text{V/m}) = \frac{\sqrt{30 \times P \times G}}{d} \quad \text{Power Density: } S(\text{mW/cm}^2) = \frac{E^2}{377}$$

E = Electric field (V/m)

P = Peak RF output power (mW)

G = EUT Antenna numeric gain (numeric)=

d = Separation distance between radiator and human body (m)

The formula can be changed to

We can change the formula to:

$$S = \frac{30 \times P \times G}{377 \times d^2} \quad \text{or, } d = \sqrt{\frac{30 \times P \times G}{377 \times S}}$$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2 m, as well as the gain of the used antenna, the RF power density can be obtained.

2.3. Estimation result

Mode	Output power (dBm)	Output power (mW)	tune up power (dBm)	tune up power (mW)	Antenna Gain (dBi)	Antenna Gain (linear)	MPE Values (mW/cm ²)	MPE Limit (mW/cm ²)
2.4G WIFI	17.65	58.21	19.00	79.43	1.05	1.27	0.02	1
5G WIFI	19.97	99.31	21.00	125.89	-2.48	0.56	0.01	1

Simultaneous transmission (worst case):

2.4G WIFI+5G WIFI+ WCDMA: $0.02/1+0.01/1+248.3/425=0.614<1$

2.4G WIFI+5G WIFI+ LTE: $0.02/1+0.01/1+231.7/358=0.677<1$

Note:

1. The estimation distance is 20 cm
2. The test result of WCDMA and LTE was cited from report: 2309RSU052-U8, the specific results of other frequency bands please refer to this report.

Therefore, the device qualifies for RF exposure test exemption.

END OF REPORT