MPE REPORT

Report No.:	W7L-P20241120-1SA01
Product Name:	WiFi Module
Model Name:	MWH414S
Applicant:	Qingdao Intelligent & Precise Electronics Co., Ltd.
Manufacturer:	Qingdao Intelligent & Precise Electronics Co., Ltd.
FCC ID:	2AJVQ-MWH414S

Prepared by Jerry Chen Engineer / Mobile Department	Approved by Luke Lu Manager / Mobile Department
Jerry Chen Date: Nov. 15, 2024	Luke Lu Date: Nov. 15, 2024

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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:	BV 7Layers Communications Technology (Shenzhen) Co., Ltd
Address:	Room B37, Warehouse A5, No.3 Chiwan 4th Road, Zhaoshang Street, Nanshan District Shenzhen, Guangdong, People's Republic of China
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Country or Region:	P.R.China
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Email:	customerservice.sw@bureauveritas.com
Designation Number:	CN1171
Registration number:	525120

1.3 Applicant's details

Company:	Qingdao Intelligent & Precise Electronics Co., Ltd.
Address:	No.218 Qianwangang Road, Qingdao Economic & Technological Development Zone, Qingdao City, Shandong Province, P. R. China
City:	Qingdao
Country or Region:	China
Contacted person:	wanghaining
Tel:	13381232625
Email:	wanghaining@hisense.com

1.4 Manufacturer's details

Company:	Qingdao Intelligent & Precise Electronics Co., Ltd.
Address:	No.218 Qianwangang Road, Qingdao Economic & Technological Development Zone, Qingdao City, Shandong Province, P. R. China
City:	Qingdao
Country or Region:	China
Contacted person:	wanghaining
Tel:	13381232625
Email:	wanghaining@hisense.com

1.5 Test Environment

Date of Receipt of test sample:	2024/11/06
Testing Start Date:	2024/11/07
Testing End Date:	2024/11/14

Environmental Data:	Temperature (°C)	Humidity (%)
Ambient	25	40
Maximum Extreme	70	---
Minimum Extreme	0	---

Normal Supply Voltage (V d.c.):	3.3
Maximum Extreme Supply Voltage (V d.c.):	3.6
Minimum Extreme Supply Voltage (V d.c.):	3.0

2 DESCRIPTION OF THE DEVICE UNDER TEST

2.1 Final Equipment Build Status

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:	For Power/PSD: ANT0：0.3dBi ANT1：3.7dBi
Directional Gain:	2.32 dBi
Software Revision:	NA
Hardware Revision:	V1.00
SN:	ZD8192FC45T
Antenna type:	PCB Antenna

3 REFERENCE SPECIFICATION

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

4 RESULT SUMMARY

Case	Verdict
MPE	Pass

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 50 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 50cm (mW/cm^2)	Limit (mW/cm^2)	Power Density/ Limit
WIFI 2.4G MIMO	2462	18.00	2.32	20.32	107.647	0.021	1	0.021

---End of Test Report---