



## FCC RF EXPOSURE REPORT

<b>Applicant</b>	:	Mercku Inc.
<b>Address of Applicant</b>	:	3600 Steeles Avenue East, Suite C108B, Markham, Ontario, L3R 9Z7, Canada
<b>Manufacturer</b>	:	Mercku Technology (China), Inc.
<b>Address of Manufacturer</b>	:	Block B1, Southern Software Park No.1 Software Road, Tangjia Zhuhai, Guangdong, China
<b>Equipment under Test</b>	:	Mercku M6s Nano Mesh Wi-Fi Router
<b>Model No.</b>	:	MBAA0
<b>FCC ID</b>	:	2APR4-M6SN
<b>Test Standard(s)</b>	:	KDB447498 D01 General RF Exposure Guidance v06
<b>Report No.</b>	:	DDT-RE23111605-2E08
<b>Issue Date</b>	:	2024/03/06
<b>Issue By</b>	:	Guangdong Dongdian Testing Service Co., Ltd.
<b>Address of Laboratory</b>	:	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.**

<b>Report No.:</b>	DDT-RE23111605-2E08		
<b>Date of Receipt:</b>	2023/11/20	<b>Date of Test:</b>	2023/11/20 ~ 2024/03/06

**Prepared By:**

**Approved By:**

*Tiger Mo*

*Damon Hu*

**Tiger Mo/Engineer**

**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	2024/03/06	

## 1. General Information

### 1.1. Description of equipment

EUT Name	: Mercku M6s Nano Mesh Wi-Fi Router
Model Number	: MBAA0
EUT function description	: Please reference user manual of this device
Power Supply	: AC 100~240V, 50-60Hz, 0.55A
Radio Technology	: IEEE 802.11b/g/a/n/ac/ax
Operation frequency	: IEEE 802.11b: 2412MHz-2462MHz IEEE 802.11g: 2412MHz-2462MHz IEEE 802.11n HT20: 2412MHz-2462MHz IEEE 802.11n HT40: 2422MHz-2452MHz IEEE 802.11ax HE20: 2412MHz-2462MHz IEEE 802.11ax HE40: 2422MHz-2452MHz IEEE 802.11a: 5180MHz-5240MHz, 5260MHz-5320MHz, 5500MHz-5720MHz, 5745MHz-5825MHz IEEE 802.11n HT20: 5180MHz-5240MHz, 5260MHz-5320MHz, 5500MHz-5720MHz, 5745MHz-5825MHz IEEE 802.11n HT40: 5190MHz-5230MHz, 5270MHz-5310MHz, 5510MHz-5710MHz, 5755MHz-5795MHz IEEE 802.11ac VHT20: 5180MHz-5240MHz, 5260MHz-5320MHz, 5500MHz-5720MHz, 5745MHz-5825MHz IEEE 802.11ac VHT40: 5190MHz-5230MHz, 5270MHz-5310MHz, 5510MHz-5710MHz, 5755MHz-5795MHz IEEE 802.11ac VHT80: 5210MHz, 5290MHz, 5530MHz, 5610MHz, 5690MHz, 5775MHz IEEE 802.11ac VHT160: 5250MHz, 5570MHz IEEE 802.11ax HE20: 5180MHz-5240MHz, 5260MHz-5320MHz,5500MHz-5720MHz, 5745MHz-5825MHz IEEE 802.11ax HE40: 5190MHz-5230MHz, 5270MHz-5310MHz, 5510MHz-5710MHz, 5755MHz-5795MHz IEEE 802.11ax HE80: 5210MHz, 5290MHz, 5530MHz,5610MHz, 5690MHz, 5775MHz IEEE 802.11ax VHT160: 5250MHz, 5570MHz
Modulation	: IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g/a: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT20, HT40: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ax: OFDM (1024QAM,256QAM, 64QAM, 16QAM, QPSK, BPSK)
Antenna Type	: 2.4G WIFI Antenna 1: PCB antenna, Maximum PK gain: 5.29 dBi, Antenna 2: PCB antenna, Maximum PK gain: 5.29 dBi 5G WIFI: Antenna 1: PCB antenna, 5150MHz-5350MHz, Maximum PK gain: 6.43 dBi, 5470MHz-5850MHz, Maximum PK gain: 6.6 dBi Antenna 2: PCB antenna, 5150MHz-5350MHz, Maximum PK gain: 6.43 dBi, 5470MHz-5850MHz, Maximum PK gain: 6.6 dBi

Note: EUT is the abbreviation of equipment under test.

## 1.2. Assess laboratory

Guangdong Dongdian Testing Service Co., Ltd.

Add.: 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](mailto: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 <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)*	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)	Antenna Gain (dBi)	Antenna Gain (linear)	MPE Values (mW/cm <sup>2</sup> )	MPE Limit (mW/cm <sup>2</sup> )
2.4G WIFI	23.69	233.88	24	5.29	3.38	0.157	1
5G WIFI	21.85	153.11	22	6.6	4.57	0.139	1

The EUT support simultaneous emission, worst case is:  
 $0.157/1+0.139/1=0.296<1$

Note: The estimation distance is 20 cm

Conclusion: MPE evaluation required since transmitter power is below FCC threshold

**END OF REPORT**