


FCC RF EXPOSURE REPORT

FCC ID: 2BLKE-SOM7981

Test Report No.....: RF240311020-02-004
Product(s) Name.....: Wi-Fi module
Model(s).....: SOM7981
Trade Mark.....: N/A
Applicant.....: OpenEmbed M&C
Address.....: 408, Building 3, Minle Industrial Zone, Minle Community, Minzhi
Street, Longhua District, Shenzhen, Guangdong, China.
Receipt Date.....: 2024.04.26
Test Date.....: 2024.05.28~2024.08.27
Issued Date.....: 2024.09.03
Standards.....: FCC Guidelines for Human Exposure IEEE C95.1
FCC Title 47 Part 2.1091
KDB 447498 D01 General RF Exposure Guidance v06
Testing Laboratory.....: Shenzhen Haiyun Standard Technical Co., Ltd.

Prepared By:	Checked By:	Approved By:	
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History of this test report

Original Report Issue Date: 2024.09.03

- ☒ No additional attachment
- ☐ Additional attachments were issued following record

Attachment No.	Issue Date	Description

1.. MPE CALCULATION METHOD

Calculation Method of RF Safety Distance:

$$S = \frac{PG}{4\pi r^2} = \frac{EIRP}{4\pi r^2}$$

where:

S = power density

P = power input to the antenna

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna

Table for Filed Antenna

For 2.4GHz_WiFi:

Antenna	Antenna gain	Antenna Type
Ant1	4.3dBi	External Antenna
Ant2	4.3dBi	External Antenna

For 5GHz_WiFi:

Antenna	Antenna gain	Antenna Type
Ant1	5.16dBi	External Antenna
Ant2	5.16dBi	External Antenna
Ant3	5.16dBi	External Antenna

2.. TEST RESULTS

Worst case as below

Operating Mode	Freq.	Maximum conducted output power	Directional Antenna Gain	Calculated maximum EIRP		MPE Limit	MPE Value
	(MHz)	(dBm)	(dBi)	(dBm)	(mW)	(mW/cm ²)	
2.4G Wifi ant1	2412-2462	23.85	4.3	28.15	653.13	1	0.130
2.4G Wifi ant2	2412-2462	23.17	4.3	27.47	558.47	1	0.111
5G Wifi ant1	5180-5825	16.77	5.16	21.93	155.96	1	0.031
5G Wifi ant2	5180-5825	16.80	5.16	21.96	157.04	1	0.031
5G Wifi ant3	5180-5825	17.52	5.16	22.68	185.35	1	0.037

Note: 1. The calculated distance is 20 cm.

2. The 2.4G Wifi function can transmit at the same time with the 5G Wifi function

$$\begin{aligned} \text{The ratio} &= \text{MPE}_{2.4\text{G Wifi ant1}}/\text{limit} + \text{MPE}_{2.4\text{G Wifi ant2}}/\text{limit} + \text{MPE}_{5\text{G Wifi ant1}}/\text{limit} + \text{MPE}_{5\text{G Wifi ant2}}/\text{limit} + \text{MPE}_{5\text{G Wifi ant3}}/\text{limit} \\ &= 0.130/1 + 0.111/1 + 0.031/1 + 0.031/1 + 0.034/1 = 0.34 < 1.0 \end{aligned}$$

As the sum of MPE ratios for all simultaneous transmitting antennas is ≤ 1.0 , simultaneous transmission MPE test exclusion will be applied.

Result: Complies

Statement

1. The report is invalid without the official seal or special seal of Shenzhen Haiyun Standard Technology Co., Ltd. (hereinafter referred to as the unit).
2. The report is invalid without the signature of the approver.
3. The report is invalid if altered arbitrarily.
4. The report shall not be partially copied without the written approval of the unit.
5. The reported test results are only valid for the tested samples.
6. If there is any objection to the test report, it shall be submitted to the test unit within 15 days from the date of receiving the report, and the overdue shall not be accepted.

Shenzhen Haiyun Standard Technology Co., Ltd.

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(END OF REPORT)