



# RF Exposure Evaluation Declaration

Report No.: S20241028562503 Issue Date: 12-13-2024

**Applicant:** Shanghai MXCHIP Information Technology Co., Ltd

9th Floor, No.5, Lane2145 JinshaJiang Road, Putuo Address:

District, Shang Hai, China (200333)

FCC ID: P53-EMC3183

2.4GHz Wi-Fi/BLE Module **Product:** 

Model No.: EMC3183-E

Trade Mark: **MXCHIP** 

CFR 47, FCC Part 2.1091 Radio frequency radiation

FCC Rule Part(s): exposure evaluation: mobile devices.

Item Receipt date: Oct. 31, 2024

Test Date: Nov. 10, 2024

Compiled By

(Chuang Li) Senior Test Engineer

Approved By

(Line Chen)

Engineer Manager

The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in KDB 558074 D01. Test results reported herein relate only to the item(s) tested.

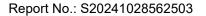
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The test report must not be used by the client to claim product certifications, approval, or endorsement by NVLAP, NIST or any agency of U.S. Government.

TRF No.:FG.WI-07-Part 2.1091(CFR 47)

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## **Revision History**

Report No.	Version	Description	Issue Date	
S20241028562503	Rev. 01	1	12-13-2024	

#### Note:

The module adds a PCB antenna (SUN-wifi stick V1.0,  $2400 \sim 2500 \text{MHz}$ , Max Gain: 2dBi) this time. After evaluation, only radiation items need to be retested. The test results of other conducted items please refer to the FCC test report (Report NO. S20240620077202E03) which was issued by Fangguang Inspection & Testing Co., Ltd. on 2024.08.23.



## 1. PRODUCT INFORMATION

## 1.1. Equipment Description

Product Name:	2.4GHz Wi-Fi/BLE Module
Model Name:	EMC3183-E
Trade Mark:	MXCHIP
Input Voltage Range:	DC: 3.3V
Wi-Fi Specification:	802.11b/g/n20
Bluetooth Version:	5.3
Software Version:	A258
Hardware Version:	1.0
Note:	This information is provided by the Customer and its authenticty is the responsibility of the Customer.

## 1.2. Product Specification Subjective to this Report

Frequency Range:	802.11b/g/n20: 2412 ~ 2462MHz	
	BLE:2402~2480MHz	
Channel Number:	802.11b/g/n20: 11	
	BLE:40	
Type of Modulation:	802.11b: DSSS	
	802.11g/n: OFDM	
	BLE:GFSK	
Data Rate:	802.11b: 1/2/5.5/11Mbps	
	802.11g: 6/9/12/18/24/36/48/54Mbps	
	802.11n: MCS0~MCS7	
	BLE:1Mbps	
Antenna Type:	PCB antenna	
Antenna Gain:	2dBi	



## 2. RF Exposure Evaluation

#### 2.1. Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

### LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range	Electric Field	Magnetic Field	c Field Power Density Average		
(MHz)	Strength (V/m)	Strength (A/m)	(mW/cm <sup>2</sup> )	(Minutes)	
(A) Limits for Occupational/ Control Exposures					
300-1500			f/300	6	
1500-100,000			5 6		
(B) Limits for General Population/ Uncontrolled Exposures					
300-1500		f/1500		6	
1500-100,000		1		30	

f= Frequency in MHz

Calculation Formula: Pd =  $(Pout*G)/(4*pi*r^2)$ 

Where

Pd = power density in mW/cm<sup>2</sup>

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

r = distance between observation point and center of the radiator in cm

Pd is the limit of MPE, 1mW/cm<sup>2</sup>. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.



### 2.2. Test Result of RF Exposure Evaluation

Product	2.4GHz Wi-Fi/BLE Module	
Test Item	RF Exposure Evaluation	

Mode	Frequency (MHz)	Maximum Conducted OutputPower (dBm)	Antenna Gain (dBi)	(dBm)	G (mW)	MPE (mW/cm²)	MPE Limits (mW/cm²)
WIFI	2412~2462	13.84	2	15.84	24.21	0.010	1.00
BLE	2402~2480	7.44	2	9.44	8.79	0.003	1.00

Remark: 1. MPE use distance is 20cm from manufacturer declaration of user manual.

Remark: 2. Use the maximum gain of all bands when evaluating

Remark: 3. The test results of Maximum Conducted OutputPowe please refer to the CE test report (Report NO. S20240620077202E03) which was issued by Fangguang Inspection & Testing Co., Ltd. on 2024.08.23.

#### **CONCULISON:**

The Max Power Density at R (20 cm) = 0.010mW/cm<sup>2</sup> < 1mW/cm<sup>2</sup>. So the EUT complies with the requirement.

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