

# Test Report

Verified code: 431230

Report No.: E202209268928-2

Customer: SINO WEALTH ELECTRONIC LTD.

Address: No. 3, Lane 767, JinZhong Road, Shanghai China 200335

Sample Name: Sino Wealth BLE Module

Sample Model: SH-BLEM18

Receive Sample Date: Oct.09,2022

Test Date: Oct.10,2022 ~ Oct.18,2022

Reference Document: CFR 47, FCC Part 2.1091 Radiofrequency radiation exposure evaluation: mobile devices.

Test Result: Pass

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GUANGZHOU GRG METROLOGY &amp; TEST CO., LTD

Issued Date: 2022-10-27

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REPORT ISSUED HISTORY

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1.0	E202209268928-2	Original Issue	2022-10-24

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## 1. GENERAL DESCRIPTION OF EUT

### 1.1 APPLICANT

Name: SINO WEALTH ELECTRONIC LTD.  
Address: No. 3, Lane 767, JinZhong Road, Shanghai China 200335

### 1.2 MANUFACTURER

Name: SINO WEALTH ELECTRONIC LTD.  
Address: No. 3, Lane 767, JinZhong Road, Shanghai China 200335

### 1.3 FACTORY

Name: SINO WEALTH ELECTRONIC LTD.  
Address: No. 3, Lane 767, JinZhong Road, Shanghai China 200335

### 1.4 BASIC DESCRIPTION OF EQUIPMENT UNDER TEST

Equipment: Sino Wealth BLE Module  
Model No.: SH-BLEM18  
Adding Model: /  
Trade Name: /  
FCC ID: 2AOT2SH-BLEM18  
Power supply: DC 3.3V 10mA  
Frequency Band: 2402-2480MHz  
Transmit Power: GFSK for 1Mbps:0.47dBm  
GFSK for 2Mbps:0.46dBm  
Modulation type: GFSK  
Channel space: 2MHz  
Antenna Specification: Print antenna with 1.2dBi gain (Max.)  
Temperature Range: -40°C ~ +105°C  
Hardware Version: V1.0  
Software Version: V1.0  
Sample No: E202209268928-0001, E202209268928-0002  
Note: /

## 2. LABORATORY

The tests & measurements refer to this report were performed by Shenzhen EMC Laboratory of Guangzhou GRG Metrology & Test Co., Ltd.

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### 3. LIMITS FOR GENERAL POPULATION/UNCONTROLLED EXPOSURE

#### General

According to the KDB 447498 D04 Interim General RF Exposure Guidance v01, General frequency and separation-distance dependent MPE-based effective radiated power (ERP) thresholds are in Table 4.1 to support an exemption from further evaluation from 300 kHz through 100 GHz.

TABLE 4.1—THRESHOLDS FOR SINGLE RF SOURCES SUBJECT TO ROUTINE ENVIRONMENTAL EVALUATION

RF Source Frequency			Minimum Distance			Threshold ERP
$f_L$ MHz		$f_H$ MHz	$\lambda_L / 2\pi$		$\lambda_H / 2\pi$	W
0.3	–	1.34	159 m	–	35.6 m	$1,920 R^2$
1.34	–	30	35.6 m	–	1.6 m	$3,450 R^2/f^2$
30	–	300	1.6 m	–	159 mm	$3.83 R^2$
300	–	1,500	159 mm	–	31.8 mm	$0.0128 R^2 f$
1,500	–	100,000	31.8 mm	–	0.5 mm	$19.2 R^2$
Subscripts L and H are low and high; $\lambda$ is wavelength. From § 1.1307(b)(3)(i)(C), modified by adding Minimum Distance columns.						

For mobile devices that are not exempt per Table 4.1 at distances from 20 cm to 40 cm and in 0.3 GHz to 6 GHz, evaluation of compliance with the exposure limits in §1.1310 is necessary if the ERP of the device is greater than  $ERP_{20\text{cm}}$  in Formula (4.1).

Formula (4.1):

$$P_{\text{th}} (\text{mW}) = ERP_{20 \text{ cm}} (\text{mW}) = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases}$$

#### 4. CALCULATION METHOD

Predication of MPE limit at a given distance

$EIRP(dBm) = \text{Maximum Tune-up Output power (dBm)} + \text{Maximum antenna gain (dBi)}$

$ERP(dBm) = EIRP(dBm) - 2.15$

R= minimum distance to the center of radiation of the antenna

From the EUT RF output power, the minimum mobile separation distance,  $d=20\text{cm}$ , as well as the maximum gain of the used as following information, the RF power ERP can be obtained.

Table 1 Antenna Specification

Mode	Antenna type	Internal Identification	Maximum antenna gain
BLE 1M	Print antenna	Antenna 1	1.2dBi
BLE 2M	Print antenna	Antenna 1	1.2dBi

Table 2 Transmit Power

Mode	Maximum Output Power (dBm)	Maximum Tune-up Output power (dBm)
BLE 1M	0.47	0.50
BLE 2M	0.46	0.50



## 5. ESTIMATION RESULT

### 5.1 MEASUREMENT RESULTS

#### STANDALONE MPE

Mode	Frequency (MHz)	Tune-up Output power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	ERP (dBm)	ERP (W)	Threshold ERP (W)
BLE 1M	2402- 2480	0.50	1.2	1.70	-0.45	0.00090	0.768
BLE 2M	2402- 2480	0.50	1.2	1.70	-0.45	0.00090	0.768

Remark:

1. RF Exposure use distance is 20cm from manufacturer declaration of user manual.
2. Threshold  $ERP(W) = 19.2R^2(W) = 19.2 \times 0.2 \times 0.2(W) = 0.768(W)$ .

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## 6. CONCLUSION

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device.

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