



SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

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Report No.: SHEM160400156502
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1 Cover Page

RF Exposure REPORT

Application No.:	SHEM1604001565CR
Applicant:	Zhiwei Robotics Corp
FCC ID:	2AIDMBLE-MICRO
Equipment Under Test (EUT): NOTE: The following sample(s) submitted was/were identified on behalf of the client as	
Product Name:	BLEmicro
Model No.(EUT):	TEL0084
Standards:	FCC Rules 47 CFR §2.1091 KDB447498 D01 General RF Exposure Guidance v06
Date of Receipt:	2016-04-20
Date of Test:	2016-04-21 to 2015-05-06
Date of Issue:	2016-06-01
Test Result:	Pass*

* In the configuration tested, the EUT detailed in this report complied with the standards specified above.



Parlam Zhan
E&E Section Manager
SGS-CSTC (Shanghai) Co., Ltd.



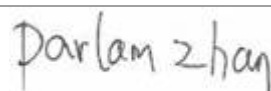
The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

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2 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
00	/	2016-06-01	/	Original

Authorized for issue by:			
Engineer	Eddy Zong		
	Print Name		
Clerk	Susie Liu		
	Print Name		
Reviewer	Parlam Zhan		
	Print Name		

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4 General Information

4.1 Client Information

Applicant:	Zhiwei Robotics Corp
Address of Applicant:	Room 615, Building Y1,112 liangxiu road, Pudong, Shanghai Municipality 201203 China
Manufacturer:	Zhiwei Robotics Corp
Address of Manufacturer:	Room 615, Building Y1,112 liangxiu road, Pudong, Shanghai Municipality 201203 China
Factory:	Chendu Geeker Technology Co., Ltd
Address of Factory:	Bld.18,No.188,KexingRd West,Wenjiang,Chengdu,Sichuan,China

4.2 General Description of E.U.T.

Brand Name:	DFRobot
Product Description:	BT Module
Rated In:	DC 3.3V

4.3 Technical Specifications

Operation Frequency:	2402-2480MHz
Bluetooth Version:	4.0 Single Mode
Modulation Technique:	GFSK
Number of Channel:	40
Antenna Type	PIFA
Antenna Gain	-4dBi

4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China

Tel: +86 21 6191 5666

Fax: +86 21 6191 5678

4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **CNAS (No. CNAS L0599)**

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing. Date of expiry: 2017-07-14.

- **FCC – Registration No.: 402683**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered and fully described in a report filed with the Federal Communications Commission (FCC). The acceptance letter from the FCC is maintained in our files. Registration No.: 402683, Expiry Date: 2017-09-16.

- **Industry Canada (IC) – IC Assigned Code: 8617A**

The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 8617A-1. Expiry Date: 2017-06-18.

- **VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-3868, C-4336, T-2221, G-830 respectively. Date of Expiry: 2017-11-16.

5 Test Standards and Limits

5.1 FCC Radiofrequency radiation exposure limits

According to §1.1310 Radiofrequency radiation exposure limits:

The limit for general population/uncontrolled exposures

Frequency	Power density(mW/cm^2)	Averaging time(minutes)
300MHz~1.5GHz	$f/1500$	30
1.5GHz~100GHz	1.0	30

6 Measurement and Calculation

6.1 Maximum transmit power

The Power Data is based on the RF Test Report SHEM160400156501.

Test Data:

For BT 4.0 BLE mode

Test mode	Channel	Peak Power (dBm)	Peak Power (mW)
GFSK	2402	-3.95	0.40
	2440	-4.58	0.35
	2480	-5.06	0.31

6.2 RF Exposure Calculation

According to the formula $S = \frac{PG}{4R^2\pi}$, we can calculate S which is MPE.

Note:

- 1) P = Power Input to antenna (in mW)
- 2) G = Antenna gain in numeric (in dBi)
- 3) R = distance to the center of radiation of antenna (in meter) = 20cm
- 4) MPE limit = 1mW/cm²

The Max Conducted Peak Output Power is 0.4mW. The best case gain of the antenna is -4dBi. -4dBi logarithmic terms convert to numeric result is nearly 0.4.

$$S = \frac{PG}{4R^2\pi} = \frac{0.4 \times 0.4}{4 \times 400 \times 3.14} = 0.00003 \text{ mW/cm}^2$$

So the device is exclusion from SAR test.

7 EUT Constructional Details

Refer to the < TEL0084_External Photos > & < TEL0084_Internal Photos >.

--End of the Report--