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Report No.: SZEM180100017302  
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## 1 Cover Page

# FCC MPE REPORT

<b>Application No.:</b>	SZEM1801000173CR (SHEM1712008827CR)
<b>Applicant:</b>	Hangzhou Gubei Electronics Technology Co., Ltd
<b>FCC ID:</b>	2ACDZ-BL1205-P
<b>IC:</b>	21239-BL1205P
<b>Equipment Under Test (EUT):</b>	
<b>NOTE:</b> The following sample(s) was/were submitted and identified by the client as	
<b>Product Name:</b>	WiFi Module
<b>Model No.(EUT):</b>	BL1205-P
<b>Standards:</b>	FCC Rules 47 CFR §2.1091 KDB447498 D01 General RF Exposure Guidance v06 RSS-102 Issue 5
<b>Date of Receipt:</b>	2017-12-22
<b>Date of Test:</b>	2018-01-04
<b>Date of Issue:</b>	2018-01-10
<b>Test Result:</b>	<b>Pass*</b>

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





Jack Zhang  
 EMC Laboratory Manager

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. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

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<i>Revision Record</i>				
<i>Version</i>	<i>Chapter</i>	<i>Date</i>	<i>Modifier</i>	<i>Remark</i>
01	/	2018-01-10	/	Original

<b>Authorized for issue by:</b>				
				
		<hr/> <b>Foray Chen /Project Engineer</b>		
				
		<hr/> <b>Eric Fu /Reviewer</b>		



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### 3 General Information

#### 3.1 Client Information

Applicant:	Hangzhou Gubei Electronics Technology Co., Ltd
Address of Applicant:	Room 106, No.1 Building, No.611 Jianghong Road Binjiang, Hangzhou
Manufacturer:	Hangzhou Gubei Electronics Technology Co., Ltd
Address of Manufacturer:	Room 106, No.1 Building, No.611 Jianghong Road Binjiang, Hangzhou
Factory:	Hangzhou Gubei Electronics Technology Co., Ltd
Address of Factory:	Room 106, No.1 Building, No.611 Jianghong Road Binjiang, Hangzhou

#### 3.1 Technical Specifications

Power supply:	DC 5V from USB port of PC
Operation Frequency:	802.11 b/g/n(HT20): 2412MHz-2462MHz 802.11n (HT40): 2422MHz-2452MHz
Modulation Type:	802.11 b DSSS(CCK, DQPSK, DBPSK) 802.11 g/n(HT20, HT40) OFDM(64QAM, 16QAM, QPSK, BPSK)
Number of Channel:	802.11 b/g/n(HT20): 11 802.11 n(HT40): 7
Data Rate:	802.11b: 1/2/5.5/11Mbps, 802.11g: 6/9/12/18/24/36/48/54Mbps 802.11n: MCS0-MCS7
Antenna Type:	PIFA antenna
Antenna Gain:	1.5 dBi

### 3.2 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China.  
518057.

Tel: +86 755 2601 2053

Fax: +86 755 2671 0594

### 3.3 Test Facility

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

- **CNAS (No. CNAS L2929)**

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab 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.

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI**

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-823, R-4188, T-1153 and C-2383 respectively.

- **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

- **Industry Canada (IC)**

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.

## 4 Test Standards and Limits

### 4.1 FCC Radiofrequency radiation exposure limits:

According to §1.1310, the limit for general population/uncontrolled exposures

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

### 4.2 IC Radiofrequency radiation exposure limits:

According to RSS-102 section 2.5.2, RF exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

below 20 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1 W (adjusted for tune-up tolerance);

- at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than  $4.49/f^{0.5}$  W (adjusted for tune-up tolerance), where  $f$  is in MHz;
- at or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance);
- at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than  $1.31 \times 10^{-2} f^{0.6834}$  W (adjusted for tune-up tolerance), where  $f$  is in MHz;
- at or above 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 5 W (adjusted for tune-up tolerance).

For 2.4G device, the limit of worse case is 2.68 W

## 5 Measurement and Calculation

### 5.1 Maximum transmit power

The Power Data is based on the RF Test Report SZEM180100017301

Test Mode	Test Frequency (MHz)	Output Power (dBm)	Output Power (mW)
11B	2412	<b>18.56</b>	<b>71.78</b>
11B	2437	18.16	65.46
11B	2462	17.45	55.59
11G	2412	16.3	42.66
11G	2437	16.44	44.06
11G	2462	15.31	33.96
11N20SISO	2412	15.27	33.65
11N20SISO	2437	15.04	31.92
11N20SISO	2462	14.3	26.92
11N40SISO	2422	11.8	15.14
11N40SISO	2437	11.43	13.90
11N40SISO	2452	10.96	12.47

## 5.2 MPE Calculation

The Max Output Power is 18.56dBm (71.78mW)

The best case gain of the antenna is 1.5dBi. 1.5dB logarithmic terms convert to numeric result is nearly 1.41

*For FCC:*

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

Note:

- 1) P (Watts) = Power Input to antenna =  $10^{\frac{dBm}{10}} / 1000$
- 2) G (Antenna gain in numeric) =  $10^{(Antenna\ gain\ in\ dBi / 10)}$
- 3) R = distance to the center of radiation of antenna (in meter) = 20cm
- 4) MPE limit = 1mW/cm<sup>2</sup>

$$\text{For WiFi: } S = \frac{PG}{4R^2\pi} = \frac{71.78 \times 1.41}{4 \times 400 \times 3.14} = 0.02 \text{ mW/cm}^2$$

*For IC:*

$$E.I.R.P. = P * G = 0.07178 \times 1.41 = 0.101 < 2.68W$$

So the device is exclusion from SAR test.

**--End of the Report--**