



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

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Report No.: SHEM141200327603
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1 Cover Page

FCC MPE REPORT

Application No.:	SHEM1412003276RF
Applicant:	ZOGLAB MICROSYSTEM CO., LTD.
FCC ID:	2AEBK-WPU2015R
Equipment Under Test (EUT):	
NOTE:	The following sample(s) submitted was/were identified on behalf of the client as
Product Name:	wireless temperature and humidity probe
Model No.(EUT):	WPU
Standards:	FCC Rules 47 CFR §2.1091 KDB447498 D01 General RF Exposure Guidance
Date of Receipt:	November 18, 2014
Date of Test:	January 07, 2015 to January 13, 2015
Date of Issue:	February 04, 2015
Test Result:	Pass*

* In the configuration tested, the EUT complied with the standards specified above.



Tony Wu

E&E Section Manager

SGS-CSTC (Shanghai) Co., Ltd.



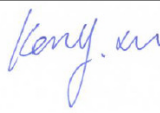
The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant 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	/	February 04, 2015	/	Original

Authorized for issue by:			
Engineer	Eddy Zong		
	Print Name		
Clerk	Susie Liu		
	Print Name		
Reviewer	Kenx Xu		
	Print Name		

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4 General Information

4.1 Client Information

Applicant:	ZOGLAB MICROSYSTEM CO., LTD.
Address of Applicant:	F1-2, SOUTH BLK, BUILDING A, NO61 BAIJIAYUAN RD, WEST LAKE DISTRICT, HANGZHOU CHINA.
Manufacturer:	ZOGLAB MICROSYSTEM CO., LTD.
Address of Manufacturer:	F1-2, SOUTH BLK, BUILDING A, NO61 BAIJIAYUAN RD, WEST LAKE DISTRICT, HANGZHOU CHINA.
Factory:	ZOGLAB MICROSYSTEM CO., LTD.
Address of Factory:	F1-2, SOUTH BLK, BUILDING A, NO61 BAIJIAYUAN RD, WEST LAKE DISTRICT, HANGZHOU CHINA.

4.2 General Description of E.U.T.

Product Description:	Mobile Product with WiFi function
Batteries:	DC 5V Li-on Rechargeable Battery
	Supply the EUT with fully charged battery during the testing.
USB Charging:	DC 5V via Adapter or adapter
Adapter:	Model No.: A1357 W010A051
	Rated Input: AC 100V-240V 50-60Hz 0.45A
	Rated Output: DC 5.1V 2.1A
	Cable length: AC port: 2 wires
	DC port: 80cm

4.3 Details of E.U.T.

Operation Frequency:	802.11 b/g/n20: 2412MHz-2472MHz
Modulation Technique:	802.11 b: DSSS(CCK, DQPSK, DBPSK)
	802.11 g/n(HT20): OFDM(64QAM, 16QAM, QPSK, BPSK)
Number of Channel:	802.11 b/g/ n(HT20): 13
Data Rate:	802.11b: 1/2/5.5/11Mbps,
	802.11g: 6/9/12/18/24/36/48/54Mbps
	802.11n(HT20): MCS 0-7
Antenna Type:	Integral Chip antenna
Antenna Gain:	2.5dBi

4.4 Test Location

All tests were performed at SGS E&E EMC lab

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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 and C-4336 respectively. Date of Registration: 2012-05-29. Date of Expiry: 2015-05-28.

5 Test Standards and Limits

According to §1.1310 Radiofrequency radiation exposure limits:

The limit for general population/uncontrolled exposures

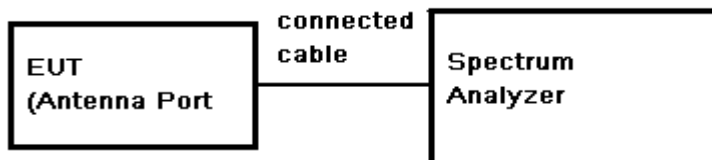
Frequency	Power density(mW/cm ²)	Averaging time(minutes)
300MHz~1.5GHz	f/1500	30
1.5GHz~100GHz	1.0	30

6 Measurement and Calculation

6.1 Maximum transmit power

EUT Operation: Test in fixing frequency operating mode at lowest, middle and highest frequency.

Test Configuration:



Test Data:

Test mode	Test Channel	Reading Power (dBm)	Cable Loss (dB)	Output Power (dBm)	Output Power (mW)	Power Limit (dBm)	Result
802.11b	Lowest	16.27	0.5	16.77	47.53	30	PASS
	Middle	16.69	0.5	17.19	52.36	30	PASS
	Highest	17.05	0.5	17.55	56.89	30	PASS
802.11g	Lowest	21.61	0.5	22.11	162.55	30	PASS
	Middle	21.80	0.5	22.30	169.82	30	PASS
	Highest	22.42	0.5	22.92	195.88	30	PASS
802.11n20	Lowest	21.63	0.5	22.13	163.31	30	PASS
	Middle	22.26	0.5	22.76	188.80	30	PASS
	Highest	22.42	0.5	22.92	195.88	30	PASS

6.2 MPE Calculation

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/cm²

The Max Conducted Peak Output Power is 195.88mW in Highest of 802.11g & 802.11n20;

The best case gain of the antenna is 2.5dBi. 2.5dB logarithmic terms convert to numeric result is nearly 1.778

$$\text{So, } S = \frac{PG}{4R^2\pi} = \frac{195.88 \times 1.778}{4 \times 400 \times 3.14} = 0.06933 \text{ mW/cm}^2$$

The DTS modules can't simultaneous transmitting at frequency 2.4GHz band, according to the KDB447498 D01 section 7.2 determine the device is exclusion from SAR test.

7 EUT Constructional Details

Refer to the < WPU _External Photos > & < WPU _Internal Photos>.

--End of the Report--