



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

No. 588 West Jindu Road, Songjiang District, Shanghai, China

Telephone: +86 (0) 21 61915666

Fax: +86 (0) 21 61915678

ee.shanghai@sgs.com

Report No.: SHEM120800121308

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## ***FCC MPE REPORT***

**Application No.:** SHEM1208001213RF  
**Applicant:** Hansong (Nanjing) Technology Ltd.  
**Manufacturer:** Paradigm Electronics Inc

### **Equipment Under Test (EUT):**

**NOTE:** The following sample(s) submitted was/were identified on behalf of the client as

**EUT Name:** AERA

**Brand Name:** AERA

**Model No.:** AERA

**FCC ID:** XCO-AERA

**IC:** 7756A-AERA

**Standards:** FCC Rules 47 CFR §2.1091 & FCC OET Bulletin 65 supplement C

**Date of Receipt:** August 24, 2012

**Date of Test:** September 06, 2012

**Date of Issue:** October 06, 2012

<b>Test Result :</b>	<b>PASS*</b>
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\* 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		October 06, 2012		Original

Authorized for issue by:				
Engineer		Zenger Zhang _____ Print Name		Zenger Zhang _____ Print Name
Clerk		Zenger Zhang _____ Print Name		Zenger Zhang _____ Print Name
Reviewer		Jim Xu _____ Print Name		Jim Xu _____ Print Name



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## 4 General Information

### 4.1 Client Information

Applicant:	Hansong (Nanjing) Technology Ltd.
Address of Applicant:	8th Kanping Road, Jiangning Economy and Technology Development Zone, Nanjing, 211106, China
Manufacturer:	Paradigm Electronics Inc
Address of Manufacturer:	205 Annagem Blvd, Mississauga, ONL5T 2V1
Factory:	Hansong (Nanjing) Technology Ltd.

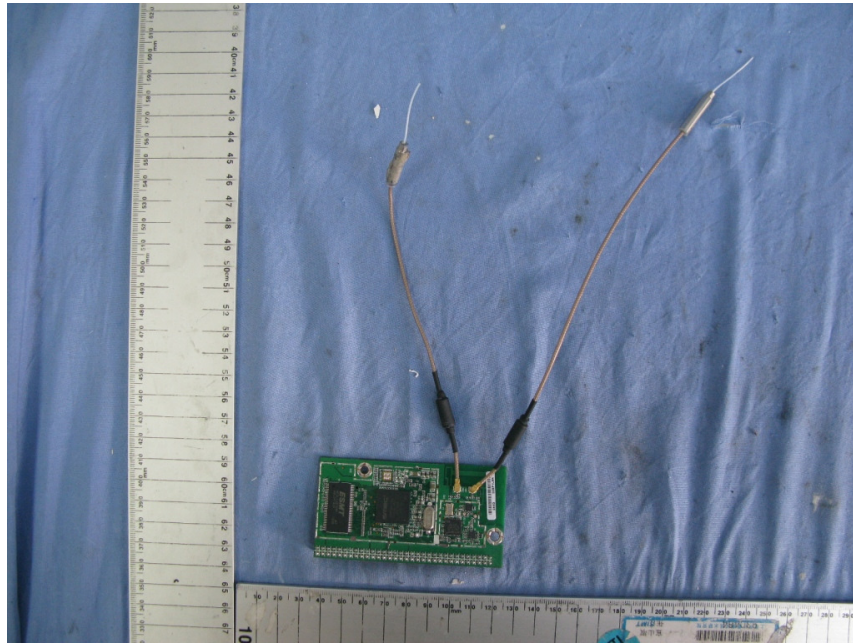
### 4.2 General Description of EUT (Equipment Under Test)

Product Name:	AERA
Model No.(EUT):	AERA
Add Model No.:	N/A
Trade Mark:	AERA

### 4.3 Details of E.U.T.

#### Technical Specifications:

Modulation Technique:	<input checked="" type="checkbox"/> 802.11b: DSSS <input checked="" type="checkbox"/> 802.11g: OFDM
Modulation Type:	<input checked="" type="checkbox"/> 802.11b: DSSS(CCK, DQPSK, DBPSK) <input checked="" type="checkbox"/> 802.11g: OFDM(64QAM, 16QAM, QPSK, BPSK)
Frequency Range / Channel Number:	<input checked="" type="checkbox"/> 802.11b/g: 2412-2462MHz / 11 Channels
Data Rate:	<input checked="" type="checkbox"/> 802.11b: 1Mbps, 5.5Mbps, 11Mbps, <input checked="" type="checkbox"/> 802.11g: 6Mbps, 9Mbps, 12Mbps, 18Mbps, 36Mbps, 48Mbps, 54Mbps
Equipment classification:	<input checked="" type="checkbox"/> equipment for fixed use
Antenna Type:	Double integral antenna Remark: the two antennas is not working at the same time. The antennas define like below figure.
Antenna Gain:	2.0 dBi



Remark: the two Integral antennas are not working simultaneously.

**Power Supply:**

Rated Input:	100-240V AC 50/60Hz		
Test voltage:	120V AC 60Hz		
☒ Adapter:	Manufacturer:	KINGWALL Ltd.	
	Model No.:	AS650-180-AB356	
	Rated Input:	100V-240V AC 50-60Hz 1.6A	
	Rated Output:	18.0V D.C., 3.56A	
	Cable length:	AC port:	180 cm Length (2 wires)
		DC port:	150 cm Length (2 wires)



#### **4.4 Test Location**

All tests were performed at SGS E&E EMC lab

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.  
No.588 West Jindu Road, Songjiang District, Shanghai, China. 201612.  
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: 2014-07-26.

- **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: 2015-02-22.

- **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. Expiry Date: 2014-09-20.

- **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

The Equipment under Test (EUT) has been tested at SGS's (own or subcontracted) laboratories.

The following table summarizes the specific reference documents such as harmonized standards or test specifications which were used for testing as SGS's (own or subcontracted) laboratories.

Identity	Document Title	Version
FCC OET Bulletin 65 supplement C	Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields	2001

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

### FCC LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

#### (B) Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm <sup>2</sup> )	Averaging Time  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f <sup>2</sup> )*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz \*Plane-wave equivalent power density

## 6 Summary of Results

For antenna A

Frequency Band	Limit (mW/cm <sup>2</sup> )	Result (mW/cm <sup>2</sup> )	Verdict
2412-2462MHz	1.0	0.023	Pass

For antenna B

Frequency Band	Limit (mW/cm <sup>2</sup> )	Result (mW/cm <sup>2</sup> )	Verdict
2412-2462MHz	1.0	0.031	Pass

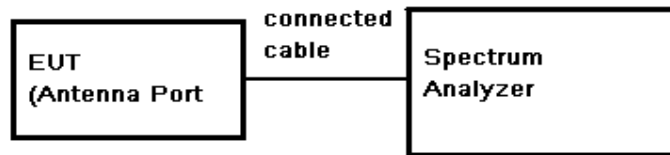
## 7 Measurement and Calculation

### 7.1 Maximum transmit power

**Test Date:** September 06, 2012

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

**Test Configuration:**



### Test Results

**Test Data for Antenna A**

**Test mode: 802.11b**

CH	Frequency (MHz)	Reading Peak Power (dBm)	Cable Loss (dB)	Output Peak Power (dBm)	Output Peak Power (mW)	Peak Power Limit (dBm)	Result
Low	2412	17.09	0.5	17.59	57.41	30	PASS
Mid	2437	16.91	0.5	17.41	55.08	30	PASS
High	2462	18.18	0.5	18.68	73.79	30	PASS

**Test Data for Antenna A**

**Test mode: 802.11g**

CH	Frequency (MHz)	Reading Peak Power (dBm)	Cable Loss (dB)	Output Peak Power (dBm)	Output Peak Power (mW)	Peak Power Limit (dBm)	Result
Low	2412	13.89	0.5	14.39	27.48	30	PASS
Mid	2437	13.10	0.5	13.60	22.91	30	PASS
High	2462	13.30	0.5	13.80	23.99	30	PASS





Test Data for Antenna B

Test mode: 802.11b

CH	Frequency (MHz)	Reading Peak Power (dBm)	Cable Loss (dB)	Output Peak Power (dBm)	Output Peak Power (mW)	Peak Power Limit (dBm)	Result
Low	2412	16.93	0.5	17.43	55.34	30	PASS
Mid	2437	16.92	0.5	17.42	55.21	30	PASS
High	2462	17.20	0.5	17.7	58.88	30	PASS

Test Data for Antenna B

Test mode: 802.11g

CH	Frequency (MHz)	Reading Peak Power (dBm)	Cable Loss (dB)	Output Peak Power (dBm)	Output Peak Power (mW)	Peak Power Limit (dBm)	Result
Low	2412	19.43	0.5	19.93	98.40	30	PASS
Mid	2437	19.33	0.5	19.83	96.16	30	PASS
High	2462	19.34	0.5	19.84	96.38	30	PASS

## 7.2 SAR Calculation

For Antenna A:

**Test Results:** MPE Limit Calculation: the EUT's operating frequencies 2412MHz to 2464MHz; the highest power is High channel(2462MHz). The Measured maximum radiated power is 18.68 dBm(73.79mW).with maximum peak gain is 2.0dBi. Duty factor is 100%

Equation from page 18 of OET 65, Edition 97-01

$$S = PG * \text{Duty factor} / 4\pi R^2$$

P =Power Input to antenna (73.79mWatts)

G =Antenna Gain (1.585numeric)

R = distance to the center of radiation of antenna (in meter) = 20cm

$$S = (73.79 * 1.585) / (4\pi * 20^2) = 0.023\text{mW/cm}^2$$

For Antenna B:

**Test Results:** MPE Limit Calculation: the EUT's operating frequencies 2412MHz to 2464MHz; the highest power is Low channel(2412MHz). The Measured maximum radiated power is 19.93 dBm(98.40mW).with maximum peak gain is 2.0dBi. Duty factor is 100%

Equation from page 18 of OET 65, Edition 97-01

$$S = PG * \text{Duty factor} / 4\pi R^2$$

P =Power Input to antenna (98.40mWatts)



G =Antenna Gain (1.585numeric)

R = distance to the center of radiation of antenna (in meter) = 20cm

$S = (98.40 * 1.585 * 1) / (4\pi * 20^2) = 0.031 \text{mW/cm}^2$

MPE limit = 1.0mW/cm<sup>2</sup>

Note:

1)  $P \text{ (Watts)} = 10^{\frac{\text{dBm}}{10}} / 1000$

2)  $G \text{ (Antenna gain in numeric)} = 10^{\text{(Antenna gain in dBi /10)}}$



## **8 EUT Constructional Details**

Refer to the < Appendix B Aera\_External Photos > & < Appendix C Aera\_Internal Photos >.

***THE END OF REPORT***