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Report No.: SHEM120600076409  
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## FCC MPE REPORT

**Application No.:** SHEM1206000764RF

**Address of Applicant:** Hansong(Nanjing) Technology Ltd.

**Equipment Under Test (EUT):**

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

**EUT Name:** Two channel power amplifier

**Brand Name:** Audio Pro

**Model No.:** Air One

**FCC ID:** XCO-AIRONE

**IC:** 7756A-AIRONE

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

**Date of Receipt:** June 13, 2012

**Date of Test:** August 28, 2012

**Date of Issue:** September 12, 2012

<b>Test Result :</b>	<b>PASS*</b>
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\* In the configuration tested, the EUT complied with the standards specified above.

E&E Section Head  
SGS-CSTC(Shanghai) Co., Ltd.

E&E EMC Engineer  
SGS-CSTC(Shanghai) Co., Ltd.

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Member of the SGS Group (Société Générale de Surveillance)

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### 3 General Information

#### 3.1 Client Information

<b>Applicant :</b>	Hansong (Nanjing) Technology Ltd.
<b>Applicant Address:</b>	8th Kanping Road, Jiangning Economy and Technology Development Zone, Nanjing, 211106, China
<b>Manufacturer:</b>	Hansong (Nanjing) Technology Ltd.
<b>Manufacturer Address:</b>	8th Kanping Road, Jiangning Economy and Technology Development Zone, Nanjing, 211106, China

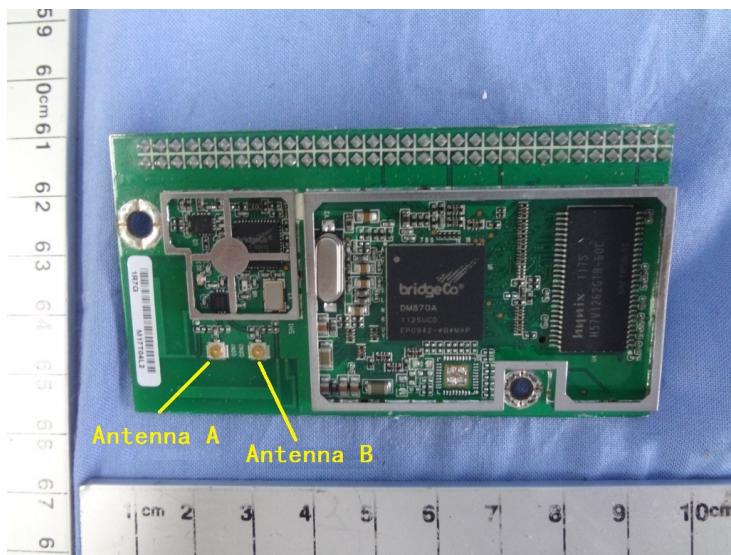
#### 3.2 General Description of EUT (Equipment Under Test)

Product Name:	Two channel power amplifier
Model No.(EUT):	Air One
Add Model No.:	N/A
Trade Mark:	Audio Pro

#### 3.3 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 PIFA antenna Remark: the two antennas is not working at the same time. The antennas define like below figure.
Antenna Gain:	2.0 dBi

**Power Supply:**

Rated Input:	115-230VAC, 50/60Hz
Power Cable:	2 wires 1.5m

### **3.4 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.  
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### **3.5 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.

## 4 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)*	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

## 5 Summary of Results

For antenna A

Frequency Band	Limit (mW/cm <sup>2</sup> )	Result (mW/cm <sup>2</sup> )	Verdict
2412-2464MHz	1.0	0.023	Pass

For antenna B

Frequency Band	Limit (mW/cm <sup>2</sup> )	Result (mW/cm <sup>2</sup> )	Verdict
2412-2464MHz	1.0	0.031	Pass

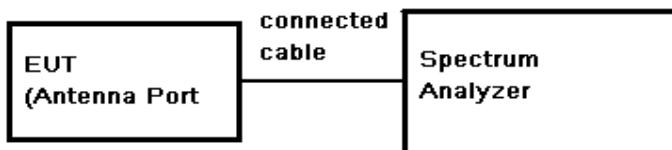
## 6 Measurement and Calculation

### 6.1 Maximum transmit power

Test Date: August 28, 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

## 6.2 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

$$S = (73.79 * 1.585 * 1) / (4\pi * 20^2) = 0.023mW/cm^2$$

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

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

**THE END OF REPORT**