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

FCC MPE REPORT

Application No.: SHEM1207001082RF

Address of Applicant: Audio Partnership Plc

Equipment Under Test (EUT):

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

EUT Name:	Wireless Music System
Model No.:	AIR100
FCC ID:	YKBMA100-002
IC:	9095A-MA100002
Standards:	FCC Rules 47 CFR §2.1091 & FCC OET Bulletin 65 supplement C
Date of Receipt:	July 31, 2012
Date of Test:	September 24, 2012
Date of Issue:	September 30, 2012
Test Result :	**PASS***

* 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.

2 Contents

3 General Information

3.1 Client Information

Applicant:	Audio Partnership Plc
Address of Applicant:	Gallery Court, Hankey Place London, SE1 4BB United Kingdom
Manufacturer:	Audio Partnership Plc
Address of Manufacturer:	Gallery Court, Hankey Place London, SE1 4BB United Kingdom
Factory:	Hansong(Nanjing) Technology Ltd.

3.2 General Description of EUT (Equipment Under Test)

Product Name:	Wireless Music System
Model No.(EUT):	AIR100
Add Model No.:	N/A
Model Difference:	N/A
Trade Mark:	Cambridge Audio
Supported Frequency Bands:	WiFi (802.11 b/g): 2.412 to 2.462GHz Bluetooth(BT): 2.402GHz to 2.480GHz

3.3 Details of E.U.T.

Technical Specifications:

Modulation Technique:	☒ 802.11b: DSSS ☒ 802.11g: OFDM ☒ Bluetooth 3.0 EDR
Modulation Type:	☒ 802.11b: DSSS(CCK, DQPSK, DBPSK) ☒ 802.11g: OFDM(64QAM, 16QAM, QPSK, BPSK) ☒ Bluetooth: GFSK, π/4DQPSK, 8DPSK
Equipment classification:	☒ equipment for fixed use
Antenna Gain:	3.0 dBi

Power Supply:

Rated Input:	100-230VAC, 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.
Tel: +86 21 6191 5666 Fax: +86 21 6191 5678

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^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	($180/f^2$)*	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

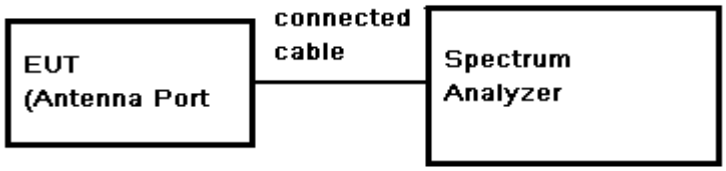
5 Measurement and Calculation

5.1 Maximum transmit power

Test Date: September 24, 2012

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

Test Configuration:



Test Results

WiFi-Antenna A maximum power

Tx frequency (MHz)	Antenna Gain (dB)	Max Test level (dBm)		P(power) e.i.r.p. (dBm)	Max. Out Power (mW)
		Cable loss (dB)	Read level (dBm)		
2412	3.0	0.6	23.20	26.80	478.63
2437	3.0	0.6	23.96	27.56	570.16
2462	3.0	0.6	23.78	27.38	547.016

WiFi-Antenna B maximum Power

Tx frequency (MHz)	Antenna Gain (dB)	Max Test level (dBm)		P(power) e.i.r.p. (dBm)	Max. Out Power (mW)
		Cable loss (dB)	Read level (dBm)		
2412	3.0	0.6	23.65	27.25	530.88
2437	3.0	0.6	23.74	27.34	542.00
2462	3.0	0.6	23.75	27.35	543.25

BT maximum Power.

Tx frequency (MHz)	Antenna Gain (dB)	Max Test level (dBm)		P(power) e.i.r.p. (dBm)	Max. Out Power (mW)
		Cable loss (dB)	Read level (dBm)		
2402	3.0	0.6	0.35	3.95	2.48
2441	3.0	0.6	0.04	3.64	2.31
2480	3.0	0.6	0.27	3.87	2.44

5.2 SAR Calculation

For Antenna A:

Test Results: MPE Limit Calculation: the EUT's operating frequencies 2412MHz to 2462MHz; the highest power is Middle channel(2437MHz). The Measured maximum radiated power is 27.56 dBm(570.16mW).with maximum peak gain is 3.0dBi. 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
G =Antenna Gain
R = distance to the center of radiation of antenna (in meter) = 20cm
$S_{WiFi-A} = (570.16*1)/ (4\pi * 20^2) =$ **0.113mW/cm²**

For Antenna B:

Test Results: MPE Limit Calculation: the EUT's operating frequencies 2412MHz to 2462MHz; the highest power is Hight channel(2462MHz). The Measured maximum radiated power is 27.35 dBm(543.25mW).with maximum peak gain is 3.0dBi. 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
G =Antenna Gain
R = distance to the center of radiation of antenna (in meter) = 20cm
$S_{WiFi-B} = (543.25*1)/ (4\pi * 20^2) =$ **0.108mW/cm²**

MPE limit = 1.0mW/cm²

For BT:

Test Results: MPE Limit Calculation: the EUT's operating frequencies 2412MHz to 2480MHz; the highest power is Low channel(2402MHz). The Measured maximum radiated power is 3.95 dBm(2.48mW).with maximum peak gain is 3.0dBi. Duty factor is 100%

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

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

P =Power Input to antenna

G =Antenna Gain

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

$S = (2.48^{*}1)/ (4\pi * 20^2) =$ **0.001mW/cm²**

So the maximum $S_{max} = S_{WiFi-A} + S_{BT} = 0.113+0.001=0.114$mW/ m²<1mW/cm²

Note:

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

2) G (Antenna gain in numeric) = 10^ (Antenna gain in dBi /10)

3) MPE limit = 1mW/cm²

THE END OF REPORT