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Report No.: SHEM140700165804  
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**1 Cover Page**

***FCC MPE REPORT***

<b>Application No.:</b>	SHEM1407001658RF
<b>Applicant:</b>	Audio Partnership PLC
<b>FCC ID:</b>	YKBMA201-014
<b>IC ID:</b>	9095A-MA201014
<b>Equipment Under Test (EUT):</b>	
<b>NOTE:</b> The following sample(s) submitted was/were identified on behalf of the client as	
<b>Product Name:</b>	Wireless Music System
<b>Model No.(EUT):</b>	Air 200 V2
<b>Standards:</b>	FCC Rules 47 CFR §2.1091 KDB447498 D01 General RF Exposure Guidance
<b>Date of Receipt:</b>	July 07, 2014
<b>Date of Test:</b>	July 18, 2014 to August 11, 2014
<b>Date of Issue:</b>	August 13, 2014
<b>Test Result:</b>	<b>Pass*</b>

\* 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		August 13, 2014		Original

<b>Authorized for issue by:</b>			
<b>Engineer</b>		Eddy Zong _____	<i>Eddy Zong</i> _____
<b>Clerk</b>		Susie Liu _____	<i>Susie Liu</i> _____
<b>Reviewer</b>		Keny Xu _____	<i>Keny Xu</i> _____

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## 4 General Information

### 4.1 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.  
Address of Factory: 8th Kangping Road, Jiangning Economy & Technology Development Zone, Nanjing, 211106, China.

### 4.2 General Description of E.U.T.

Product Description: Mobile product  
Brand Name: Cambridge Audio  
Power Supply: AC 100-120V/220-240V 50/60Hz  
Rated Max Power: 200W

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

Operation Frequency: BT:2402MHz~2480MHz  
DTS: 2412MHz~2462MHz  
Bluetooth Version: 3.0+HS  
Modulation Type: BT: GFSK,  $\pi/4$ DQPSK, 8DPSK  
DTS: 802.11b: DSSS(CCK, DQPSK, DBPSK)  
802.11g: OFDM(64QAM, 16QAM, QPSK, BPSK)  
Number of Channel: BT: 79  
DTS: 11  
Antenna Type: BT: Integral  
DTS: Integral  
Remark: the two PIFA antennas are not working simultaneously.  
Antenna Gain: BT: 2.0 dBi  
DTS: 2.0dBi

#### 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: 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-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

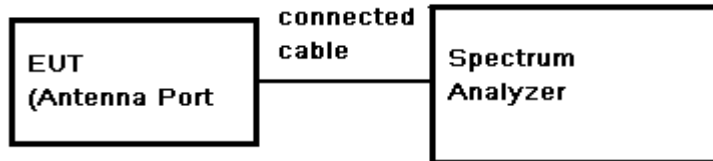
Frequency	Power density(mW/cm <sup>2</sup> )	Averaging time(minutes)
300MHz~1.5GHz	f/1500	30
1.5GHz~100GHz	1.0	30

## 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:**

For BT:

Test mode	Channel	Reading Peak Power (dBm)	Cable Loss (dB)	Peak Power (dBm)	Peak Power (mW)	Peak Power Limit (dBm)	Result
GFSK	Low	-3.47	0.5	-2.97	0.50	30	PASS
	Mid	-0.88	0.5	-0.38	0.916	30	PASS
	High	0.48	0.5	0.98	1.253	30	PASS
$\pi/4$ DQPSK	Low	-2.99	0.5	-2.49	0.564	30	PASS
	Mid	-0.48	0.5	0.02	1.005	30	PASS
	High	<b>0.72</b>	<b>0.5</b>	<b>1.22</b>	<b>1.324</b>	30	PASS
8DPSK	Low	-3.02	0.5	-2.52	0.560	30	PASS
	Mid	-0.52	0.5	-0.02	0.995	30	PASS
	High	0.71	0.5	1.21	1.321	30	PASS

For DTS:

Antenna A

Test mode	Test Channel	Reading Power (dBm)	Cable Loss (dB)	Output Power (dBm)	Output Power (mW)	Power Limit (dBm)	Result
802.11b	Lowest	16.35	0.5	16.85	48.42	30	PASS
	Middle	16.86	0.5	17.36	54.45	30	PASS
	Highest	<b>17.33</b>	<b>0.5</b>	<b>17.83</b>	<b>60.67</b>	30	PASS
802.11g	Lowest	16.83	0.5	17.33	54.08	30	PASS
	Middle	17.18	0.5	17.68	58.61	30	PASS
	Highest	17.25	0.5	17.75	59.57	30	PASS

Antenna B

Test mode	Test Channel	Reading Power (dBm)	Cable Loss (dB)	Output Power (dBm)	Output Power (mW)	Power Limit (dBm)	Result
802.11b	Lowest	16.44	0.5	16.94	49.43	30	PASS
	Middle	16.81	0.5	17.31	53.83	30	PASS
	Highest	<b>17.09</b>	<b>0.5</b>	<b>17.59</b>	<b>57.41</b>	30	PASS
802.11g	Lowest	16.95	0.5	17.45	55.59	30	PASS
	Middle	17.09	0.5	17.59	57.41	30	PASS
	Highest	17.01	0.5	17.51	56.36	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/cm<sup>2</sup>

For BT:

The Max Conducted Peak Output Power is 1.324mW in highest channel of π/4DQPSK;

The best case gain of the antenna is 2dBi. 2dB logarithmic terms convert to numeric result is nearly 1.58

$$\text{So, } S = \frac{PG}{4R^2\pi} = \frac{1.324 \times 1.58}{4 \times 400 \times 3.14} = 0.00042 \text{ mW/cm}^2$$

For DTS:

The Max Conducted Peak Output Power is 60.67mW in highest channel of 802.11b;

The best case gain of the antenna is 2.0dBi. 2dB logarithmic terms convert to numeric result is nearly 1.58

$$\text{So, } S = \frac{PG}{4R^2\pi} = \frac{60.67 \times 1.58}{4 \times 400 \times 3.14} = 0.01914 \text{ mW/cm}^2$$

The BT and 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 < Air 200 V2\_External Photos > & < Air 200 V2\_Internal Photos >.

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