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Report No.: SZEM110900398002

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# RF Exposure Evaluation declaration

**Application No.:** SZEM1109003980RF  
**Applicant:** Philips Consumer Lifestyle  
**Address of Applicant:** 1600 Summer Street Stamford Connecticut 06905 United States  
**Manufacturer:** Philips Electronics Hong Kong Ltd.  
**Address of Manufacturer:** 5/F., Philips Electronics Building 5 Science Park East Avenue, Hong Kong Science Park, Shatin, New Territories, Hong Kong  
**Factory:**  
1. ACTION INDUSTRIES (MALAYSIA) SDN. BHD.  
2. Action Asia (Shenzhen) Co. Ltd.  
3. Philips Ltd. Assembly Centre Hungary (PACH)  
**Address of Factory:**  
1. 2480, TINGKAT PERUSAHAAN ENAM, PRAI FREE TRADE ZONE, 13600 PERAI, PENANG, MALAYSIA.  
2. Dede Industrial Park Jianan Rd, FuyongHI-Tech Park, Shenzhen, China  
3. Szekesfehervar Holland fasor 6. H-8000 Hungary  
**FCC ID:** BOUBDP5406  
**Fundamental Carrier Frequency:** 2412MHz~2462MHz  
**Equipment Under Test (EUT):**  
Name: Blu-ray Disc / DVD Player  
Model: BDP5406  
**Date of Receipt:** 2011-09-30  
**Date of Test:** 2011-10-01  
**Date of Issue:** 2011-11-03

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

Authorized Signature:



Jack Zhang  
EMC Laboratory Manager

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. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

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 RF Exposure Evaluation

### 2.1 Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

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

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

##### (A) Limits for Occupational/Controlled 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)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f <sup>2</sup> )*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

##### (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

NOTE 1: See Section 1 for discussion of exposure categories.

NOTE 2: The averaging time for General Population/Uncontrolled exposure to fixed transmitters is not applicable for mobile and portable transmitters. See 47 CFR §§2.1091 and 2.1093 on source-based time-averaging requirements for mobile and portable transmitters.

F= Frequency in MHz

Friis Formula

Friis transmission formula:  $Pd = (Pout * G) / (4 * \pi * R^2)$

Where

$P_d$  = power density in  $mW/cm^2$

$P_{out}$  = output power to antenna in mW

G = gain of antenna in linear scale

$P_i = 3.1416$

R = distance between observation point and center of the radiator in cm

$P_d$  is the limit of MPE,  $1 mW/cm^2$ . If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

## 2.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

The temperature and related humidity: 18°C and 78% RH.

## 2.3 Test Result of RF Exposure Evaluation

Product : Bluetooth hands-free system

Test Item : RF Exposure Evaluation

Test Site : No.3 OATS

Antenna Gain: 0dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1 in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

Channel	Frequency (MHz)	Max Conducted Peak Output Power (dBm)	Output Power to Antenna (mW)	Power Density at R = 20 cm ( $mW/cm^2$ )
Lowest	2412	21.85	153.1087	0.03047

The distance r (4th column) calculated from the Friis transmission formula is far greater than 20 cm separation requirement.