

# RF Exposure Evaluation declaration

Product Name	Plug-in AirPlay speaker
Model No.	JBL SoundFly Air
FCC ID	APISNDFAIRLO

Applicant	Harman International Industries, Incorporated
Address	8500 Balboa Blvd, Northridge, CA 91329, UNITED STATES

Date of Receipt	May 14, 2012
Date of Declaration	May 28, 2012
Report No.	125269R-RFUSP42V01

The declaration results relate only to the samples calculated.

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## 1. RF Exposure Evaluation

### 1.1. 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)**

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Average Time (Minutes)
(A) Limits for Occupational/ Control Exposures				
300-1500	--	--	F/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
300-1500	--	--	F/1500	6
1500-100,000	--	--	1	30

F= Frequency in MHz

Friis Formula

Friis transmission formula:  $P_d = (P_{out} * G) / (4 * \pi * r^2)$

Where

$P_d$  = power density in  $\text{mW/cm}^2$

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

$G$  = gain of antenna in linear scale

$\pi$  = 3.1416

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

$P_d$  is the limit of MPE,  $1 \text{ mW/cm}^2$ . 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.

### 1.2. 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:  $18^\circ\text{C}$  and 78% RH.

### 1.3. Test Result of RF Exposure Evaluation

Product : Plug-in AirPlay speaker  
Test Item : RF Exposure Evaluation  
Test Site : No.3 OATS

#### 802.11b (1Mbps) Output Power Into Antenna & RF Exposure Evaluation Distance (3.81dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
1	2412.00	86.2979	0.041279
6	2437.00	89.5365	0.042828
11	2462.00	87.7001	0.041950

Power density in column 4 is much lower than the limit (1 mW/cm<sup>2</sup>).

#### 802.11g (6Mbps) Output Power Into Antenna & RF Exposure Evaluation Distance (3.81dBi):

Channel	Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
1	2412.00	265.4606	0.126979
6	2437.00	252.9298	0.120985
11	2462.00	261.8183	0.125236

Power density in column 4 is much lower than the limit (1 mW/cm<sup>2</sup>).