RF Exposure Evaluation Declaration

FCC ID:	2ABX8SH-000000009
APPLICANT:	Zhejiang shenghui lighting Co., Ltd. Shanghai Branch

Application Type:	Certification
Product:	Wireless Subwoofer Adapter
Model No.:	C01-BR30NA AMP
Brand Name:	sengled
FCC Classification:	Unlicensed National Information Infrastructure (UNII)

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Approved By : Marlin Chen
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Revision History

Report No.	Version	Description	Issue Date
1506RSU01702	Rev. 01	Initial report	07-04-2015

1. PRODUCT INFORMATION

1.1. Equipment Description

Product Name	Wireless Subwoofer Adapter
Model No.	C01-BR30NA AMP
Frequency Range	5150~5250MHz, 5725~5850MHz
Type of Modulation	QPSK

1.2. Operation Frequency / Channel list

Channel	Frequency	Channel	Frequency	Channel	Frequency
01	5180 MHz	02	5210 MHz	03	5240 MHz
04	5736 MHz	05	5762 MHz	06	5814 MHz

1.3. Antenna Description

Antenna No.	Antenna Type	Frequency Band (GHz)	Manufacturer	Tx Paths	Max Peak Gain (dBi)
Antenna A	PCB Antenna	UNII-1	SMSC Inc.	1	3
		UNII-3		1	3.2
Antenna B	PCB Antenna	UNII-1	SMSC Inc.	1	3
		UNII-3		1	3.2

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)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	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

Calculation Formula: $Pd = (Pout*G)/(4*pi*r^2)$

Where
Pd = power density in mW/cm^2
Pout = 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

Pd is the limit of MPE, $1mW/cm^2$. 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 Result of RF Exposure Evaluation

Product	Wireless Subwoofer Adapter
Test Item	RF Exposure Evaluation

Antenna Gain: Refer to Clause 1.2 of antenna description.

Test Mode	Frequency Band (MHz)	Maximum Average Output Power (dBm)	Power Density at R = 20 cm (mW/cm^2)	Limit (mW/cm^2)
QPSK	5150 ~ 5250	12.34	0.0068	1
QPSK	5725 ~ 5850	13.18	0.0086	1

CONCULISON:

The Max Power Density at R (20 cm) = 0.0086mW/cm^2 < 1mW/cm^2.
So the EUT complies with the requirement.

The End