RF Exposure Evaluation Declaration

FCC ID:	2ABX8SH-000000004
APPLICANT:	Zhejiang shenghui lighting Co., Ltd. Shanghai Branch
Application Type:	Certification
Product:	LED lamp
Model No.:	A01-A60XXE26(where X can be 0-9, A-Z, a-z or blank for different customer code which will not influence safety)
Brand Name:	sengled
FCC Classification:	Digital Transmission System (DTS)

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ACCREDITED
TESTING LABORATORY
CERTIFICATE #3628.01

Revision History

Report No.	Version	Description	Issue Date
1409RSU00802	Rev. 01	Initial report	09-15-2014

1. PRODUCT INFORMATION

1.1. Equipment Description

Product Name	LED lamp
Model No.	A01-A60XXE26(where X can be 0-9, A-Z, a-z or blank for different customer code which will not influence safety)
Power Type	120VAC / 60Hz
Frequency Range	802.11b/g/n-HT20: 2412 ~ 2462 MHz 802.11n-HT40: 2422 ~ 2452 MHz
Type of Modulation	802.11b: DSSS 802.11g/n: OFDM
Maximum Average Output Power	802.11b: 14.92dBm 802.11g: 15.15dBm 802.11n-HT20: 16.75dBm 802.11n-HT40: 16.40dBm
Antenna Type	PCB Antenna
Antenna Gain	1.47dBi

Note: The difference of models is for different marketing requirement.

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*r2)

Where
Pd = power density in mW/cm2
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	LED lamp
Test Item	RF Exposure Evaluation

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1.47dBi for 2.4GHz in logarithm scale.

For 2.4G ISM Band:

Test Mode	Frequency Band (MHz)	Maximum Average Output Power (dBm)	Power Density at R = 20 cm (mW/cm^2)	Limit (mW/cm^2)
802.11b	2412 ~ 2462	14.92	0.0087	1
802.11g	2412 ~ 2462	15.15	0.0091	1
802.11n-HT20	2412 ~ 2462	16.75	0.0132	1
802.11n-HT40	2422 ~ 2452	16.40	0.0122	1

CONCULISON:

Therefore, the Max Power Density at R (20 cm) = 0.0132mW/cm^2 < 1mW/cm^2.

So the EUT complies with the requirement.

The End