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Report No.: 1506RSU02103
Report Version: V01
Issue Date: 07-10-2015

RF Exposure Evaluation Declaration

FCC ID: 2ABX8SH-0000000008

APPLICANT: Zhejiang shenghui lighting Co., Ltd. Shanghai Branch

Application Type: Certification

Product: sengled snap

Model No.: AS01-PAR38NAE26

Brand Name: sengled

FCC Classification: Unlicensed National Information Infrastructure (UNII)
Digital Transmission System (DTS)

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The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standards through the calibration of the equipment and evaluated measurement uncertainty herein.

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Revision History

Report No.	Version	Description	Issue Date
1506RSU02103	Rev. 01	Initial report	07-10-2015

1. PRODUCT INFORMATION

1.1. Equipment Description

Product Name	sengled snap
Model No.	AS01-PAR38NAE26
Brand Name	sengled
Frequency Range	For 2.4GHz: 2412~2462MHz; For 5GHz: 5150~5350MHz, 5470~5725MHz, 5725~5850MHz

1.2. Operation Frequency / Channel list

For 2.4GHz band:

802.11b/g/n-HT20

Channel	Frequency	Channel	Frequency	Channel	Frequency
01	2412 MHz	02	2417 MHz	03	2422 MHz
04	2427 MHz	05	2432 MHz	06	2437 MHz
07	2442 MHz	08	2447 MHz	09	2452 MHz
10	2457 MHz	11	2462 MHz	N/A	N/A

802.11n-HT40

Channel	Frequency	Channel	Frequency	Channel	Frequency
03	2422 MHz	04	2427 MHz	05	2432 MHz
06	2437 MHz	07	2442 MHz	08	2447 MHz
09	2452 MHz	N/A	N/A	N/A	N/A

For 5GHz band:

802.11a/n-HT20

Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180 MHz	40	5200 MHz	44	5220 MHz
48	5240 MHz	52	5260 MHz	56	5280 MHz
60	5300 MHz	64	5320 MHz	100	5500 MHz
104	5520 MHz	108	5540 MHz	112	5560 MHz
116	5580 MHz	120	5600 MHz	124	5620 MHz
128	5640 MHz	132	5660 MHz	136	5680 MHz
140	5700 MHz	149	5745 MHz	153	5765 MHz
157	5785 MHz	161	5805 MHz	165	5825 MHz

802.11n-HT40

Channel	Frequency	Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz	54	5270 MHz
62	5310 MHz	102	5510 MHz	110	5550 MHz
118	5590 MHz	126	5630 MHz	134	5670 MHz
151	5755 MHz	159	5795 MHz	--	--

1.3. Antenna Description

Antenna Type	Frequency Band (GHz)	Max Peak Gain (dBi)	Directional Gain (dBi)
PCB Antenna	2.4	ANT 1# 4.9, ANT 2# 5.8	8.4
	5	ANT 1# 2.4, ANT 2# 4.4	6.5

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: $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

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

P_d is the limit of MPE, 1mW/cm². 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	sengled snap
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)
802.11b/g/n	2412 ~ 2462	17.69	0.0444	1
802.11a/n	5180 ~ 5320, 5500 ~ 5720, 5725 ~ 5850	17.50	0.0308	1

CONCULISON:

The Max Power Density at R (20 cm) = $0.0444\text{mW/cm}^2 < 1\text{mW/cm}^2$.

So the EUT complies with the requirement.

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