RF Exposure Evaluation Declaration

FCC ID:	2ABX8SH-000000010
APPLICANT:	Zhejiang shenghui lighting Co., Ltd. Shanghai Branch

Application Type:	Certification
Product:	sengled element
Model No.:	Z01-A19NAE26
Trademark:	sengled
FCC Classification:	Digital Transmission System (DTS)

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Revision History

Report No.	Version	Description	Issue Date
1603RSU00302	Rev. 01	Initial report	03-10-2016

1. PRODUCT INFORMATION

1.1. Equipment Description

Product Name	sengled element
Model No.	Z01-A19NAE26
Frequency Range	2405 ~ 2480 MHz
Type of Modulation	O-QPSK
Antenna Type	PIFA Antenna
Antenna Gain	3.66dBi

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	sengled element
Test Item	RF Exposure Evaluation

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 3.66dBi for ZigBee in logarithm scale.

Test Mode	Frequency Band (MHz)	Maximum Average Output Power (dBm)	Power Density at R = 20 cm (mW/cm^2)	Limit (mW/cm^2)
802.15.4	2405 ~ 2480	5.66	0.0017	1

CONCULISON:

The Max Power Density at R (20 cm) = 0.0017mW/cm^2 << 1mW/cm^2.
So the EUT complies with the requirement.

The End