



RF Exposure Evaluation Declaration

FCC ID: 2AGN8-E12N1X

APPLICANT: Sengled Co., Ltd.

Application Type: Certification

Product: element classic

Model No.: E12-N13, E12-N14, E12-N15

Trademark: sengled

FCC Classification: Digital Transmission System (DTS)

Reviewed By : 
Manager : _____
(Robin Wu)

Approved By : 
CEO : _____
(Marlin Chen)



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	Note
1611RSU03502	Rev. 01	Initial report	12-08-2016	Valid

1. PRODUCT INFORMATION

Product Name	element classic
Model No.	E12-N13, E12-N14, E12-N15
ZigBee Specification	
Frequency Range	2405 ~ 2480 MHz
Type of Modulation	O-QPSK
Max Average Output Power	7.24dBm
Antenna Type	PCB Antenna
Antenna Gain	3.7dBi

Note 1: E12-N13 and E12-N15 are the same besides correlated color temperature (CCT) is different, E12-N13 is yellow CCT and E12-N15 is white CCT.

Note 2: E12-N13 and E12-N14 are the same besides color rendering index (CRI) is different.

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

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	element classic
Test Item	RF Exposure Evaluation

Antenna Gain: Refer to clause 1.

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	7.24	0.0025	1

CONCLUSION:

The Max Power Density at R (20 cm) = $0.0025\text{mW/cm}^2 < 1\text{mW/cm}^2$.

So the EUT complies with the requirement.

————— The End —————