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Report No.: 1601RSU00304 Report Version: Issue Date: 01-14-2016

# **RF Exposure Evaluation Declaration**

FCC ID: 2ABX8SH-000000013

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

**Application Type:** Certification

**Product:** Pulse Link

Model No.: C01-BR30NA LINK

**Brand Name:** sengled

FCC Classification: FCC Part 15 Spread Spectrum Transmitter(DSS)

Unlicensed National Information Infrastructure (UNII)

Reviewed By : Robin Wu )

Approved By : Marlinchen

(Marlin Chen)



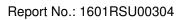


The test results relate only to the samples tested.

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
1601RSU00304	Rev. 01	Initial report	01-14-2016

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## 1. PRODUCT INFORMATION

## 1.1. Equipment Description

Product Name	Pulse Link
Model No.	C01-BR30NA LINK
Frequency Range	Buletooth:
	2402~2480MHz
	Wireless:
	5150~5250MHz, 5725~5850MHz
Type of Modulation	Buletooth:
	1Mbps(GFSK), 2Mbps(Pi/4 DQPSK), 3Mbps (8DPSK)
	Wireless:
	QPSK

## 1.2. Antenna Description

Antenna No.	Antenna Type	Frequency Band	Manufacturer	Tx Paths	Max Peak Gain	
		(MHz)			(dBi)	
Bluetooth Antenna						
Antenna	PCB Antenna	2402 ~ 2480	Zhejiang shenghui			
			lighting Co., Ltd.	1	3.1	
			Shanghai Branch			
Wireless Antenna						
Antenna A PCB Antenna	DCB Antonno	5180 ~ 5240	CMCC Inc	1	3.0	
	POB Antenna	5736 ~ 5814	SMSC Inc.	1	3.2	
Antenna B F	PCB Antenna	5180 ~ 5240	SMSC Inc.	1	3.0	
Antenna b		5736 ~ 5814	SIVISO ITIC.	1	3.2	

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### 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	Electric Field	Magnetic Field	Power Density	Average Time
(MHz)	Strength (V/m)	Strength (A/m)	(mW/cm <sup>2</sup> )	(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<sup>2</sup>

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<sup>2</sup>. 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.

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### 2.2. Test Result of RF Exposure Evaluation

Product	Pulse Link
Test Item	RF Exposure Evaluation

Antenna Gain: Refer to Clause 1.2 of antenna description.

Test Mode	Frequency Band (MHz)	Maximum Output Power (dBm)	Power Density at $R = 20 \text{ cm}$ $(mW/cm^2)$	Limit (mW/cm <sup>2</sup> )
Bluetooth	2402 ~ 2480	0.44	0.0004	1
Wireless	5180 ~ 5240	9.46	0.0035	1
	5736 ~ 5814	13.18	0.0086	1

#### **CONCULISON:**

Both of the Bluetooth 2.4GHz and Wireless 5GHz can transmit simultaneously. Therefore, the Max Power Density at R (20 cm) =  $0.0004 \text{mW/cm}^2 + 0.0086 \text{mW/cm}^2 = 0.0090 \text{mW/cm}^2 < 1 \text{mW/cm}^2$ . So the EUT complies with the requirement.

————— The End	
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