

# RF Exposure Evaluation Report

**Product** : Good Night Light  
**Trade mark** : Novostella  
**Model/Type reference** : BNL-02  
**Serial Number** : N/A  
**Report Number** : EED32N80484902  
**FCC ID** : 2AWONBNL-02  
**Date of Issue** : Jul. 12, 2021  
: 47 CFR Part 1.1307  
: 47 CFR Part 1.1310  
**Test Standards** : KDB447498D01 General RF  
Exposure Guidance v06  
**Test result** : PASS

Prepared for:

**Shenzhen Ustellar Technology Ltd.**  
**Rm.201, A Bldg., No. A Qianhai 1st Rd.,**  
**Shen' gang Cooperation Zone,**  
**Qianhai, Shenzhen, CHINA 518000**

Prepared by:

**Centre Testing International Group Co., Ltd.**  
**Hongwei Industrial Zone, Bao'an 70 District,**  
**Shenzhen, Guangdong, China**  
**TEL: +86-755-3368 3668**  
**FAX: +86-755-3368 3385**



Compiled by:

*Martin Lee*

Approved by:

*David Wang*

David Wang

Reviewed by:

*Aaron Ma*

Aaron Ma

Date:

Jul. 12, 2021

Check No.: 2144170621

## 2 Version

| Version No. | Date          | Description |
|-------------|---------------|-------------|
| 00          | Jul. 12, 2021 | Original    |
|             |               |             |
|             |               |             |

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## 4 General Information

### 4.1 Client Information

|                          |                                                                                                      |
|--------------------------|------------------------------------------------------------------------------------------------------|
| Applicant:               | Shenzhen Ustellar Technology Ltd.                                                                    |
| Address of Applicant:    | Rm.201, A Bldg., No. A Qianhai 1st Rd., Shen' gang Cooperation Zone, Qianhai, Shenzhen, CHINA 518000 |
| Manufacturer:            | Shenzhen Ustellar Technology Ltd.                                                                    |
| Address of Manufacturer: | Rm.201, A Bldg., No. A Qianhai 1st Rd., Shen' gang Cooperation Zone, Qianhai, Shenzhen, CHINA 518000 |
| Factory:                 | Shenzhen Ustellar Technology Ltd.                                                                    |
| Address of Factory:      | Rm.201, A Bldg., No. A Qianhai 1st Rd., Shen' gang Cooperation Zone, Qianhai, Shenzhen, CHINA 518000 |

### 4.2 General Description of EUT

|                                                                                                                                                                                              |                                                                                                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| Product Name:                                                                                                                                                                                | Good Night Light                                                                                                   |
| Mode No.:                                                                                                                                                                                    | BNL-02                                                                                                             |
| Trade Mark:                                                                                                                                                                                  | Novostella                                                                                                         |
| Bluetooth Version:                                                                                                                                                                           | V5.2                                                                                                               |
| Operation Frequency:                                                                                                                                                                         | 2402MHz~2480MHz                                                                                                    |
| Modulation Type:                                                                                                                                                                             | GFSK                                                                                                               |
| Transfer Rate:                                                                                                                                                                               | <input checked="" type="checkbox"/> 1Mbps <input type="checkbox"/> 2Mbps                                           |
| Test Power Grade:                                                                                                                                                                            | Default                                                                                                            |
| Test Software of EUT:                                                                                                                                                                        | LeKit                                                                                                              |
| Product Type:                                                                                                                                                                                | <input type="checkbox"/> Mobile <input type="checkbox"/> Portable <input checked="" type="checkbox"/> Fix Location |
| Antenna Type:                                                                                                                                                                                | PCB antenna                                                                                                        |
| Antenna Gain:                                                                                                                                                                                | 0dBi                                                                                                               |
| Power Supply:                                                                                                                                                                                | Switching Adapter<br>Model: HJ-0501000E1-US<br>Input: 100-240V~50/60Hz 0.2A<br>OUTPUT: 5V 1000mA                   |
| Test Voltage:                                                                                                                                                                                | AC 120V 60Hz                                                                                                       |
| Sample Received Date:                                                                                                                                                                        | June 17, 2021                                                                                                      |
| Sample tested Date:                                                                                                                                                                          | June 17, 2021 to July 8, 2021                                                                                      |
| Company Name and Address shown on Report, the sample(s) and sample Information was/ were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified. |                                                                                                                    |

## 4.3 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd

Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China

Telephone: +86 (0) 755 33683668 Fax: +86 (0) 755 33683385

No tests were sub-contracted.

FCC Designation No.: CN1164

## 4.4 Deviation from Standards

None.

## 4.5 Abnormalities from Standard Conditions

None.

## 4.6 Other Information Requested by the Customer

None.

## 5 SAR Evaluation

### 5.1 RF Exposure Compliance Requirement

#### 5.1.1 Limits

According to FCC Part1.1310: 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 part1.1307(b)

**TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)**

| Frequency range<br>(MHz)                                       | Electric field<br>strength<br>(V/m) | Magnetic field<br>strength<br>(A/m) | Power density<br>(mW/cm <sup>2</sup> ) | Averaging time<br>(minutes) |
|----------------------------------------------------------------|-------------------------------------|-------------------------------------|----------------------------------------|-----------------------------|
| <b>(A) Limits for Occupational/Controlled Exposures</b>        |                                     |                                     |                                        |                             |
| 0.3–3.0 .....                                                  | 614                                 | 1.63                                | *(100)                                 | 6                           |
| 3.0–30 .....                                                   | 1842/f                              | 4.89/f                              | *(900/f <sup>2</sup> )                 | 6                           |
| 30–300 .....                                                   | 61.4                                | 0.163                               | 1.0                                    | 6                           |
| 300–1500 .....                                                 | .....                               | .....                               | f/300                                  | 6                           |
| 1500–100,000 .....                                             | .....                               | .....                               | 5                                      | 6                           |
| <b>(B) Limits for General Population/Uncontrolled Exposure</b> |                                     |                                     |                                        |                             |
| 0.3–1.34 .....                                                 | 614                                 | 1.63                                | *(100)                                 | 30                          |
| 1.34–30 .....                                                  | 824/f                               | 2.19/f                              | *(180/f <sup>2</sup> )                 | 30                          |
| 30–300 .....                                                   | 27.5                                | 0.073                               | 0.2                                    | 30                          |
| 300–1500 .....                                                 | .....                               | .....                               | f/1500                                 | 30                          |
| 1500–100,000 .....                                             | .....                               | .....                               | 1.0                                    | 30                          |

F= Frequency in MHz

Friis Formula

Friis transmission formula:  $P_d = (P_{out} * G) / (4 * \pi * R^2)$

Where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = 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

$P_d$  is the limit of MPE, 1 mW/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.

#### 5.1.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

### 5.1.3 EUT RF Exposure

Antenna Gain: 0dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1.0 in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

#### Measurement Data

| GFSK mode(1Mbps) |                            |                            |                       |       |
|------------------|----------------------------|----------------------------|-----------------------|-------|
| Test channel     | Peak Output Power<br>(dBm) | Tune up tolerance<br>(dBm) | Maximum tune-up Power |       |
|                  |                            |                            | (dBm)                 | (mW)  |
| Lowest(2402MHz)  | 0.83                       | 0±1                        | 1.0                   | 1.259 |
| Middle(2440MHz)  | 0.51                       | 0±1                        | 1.0                   | 1.259 |
| Highest(2480MHz) | 0.15                       | -0.5±1                     | 0.5                   | 1.122 |

The worst case:

| Maximum tune-up Power<br>(mW) | Antenna Gain<br>(dBi) | Power Density<br>at R = 20 cm<br>(mW/cm <sup>2</sup> ) | Limit | Result |
|-------------------------------|-----------------------|--------------------------------------------------------|-------|--------|
| 1.259                         | 0                     | 0.00025                                                | 1.0   | PASS   |

Note: 1) Refer to report No. EED32N80484901 for EUT test Max Conducted Peak Output Power value.

2)  $P_d = (P_{out} * G) / (4 * \pi * R^2) = (1.259 * 1.0) / (4 * 3.1416 * 20^2) = 0.00025$

## PHOTOGRAPHS OF EUT Constructional Details

Refer to Report No. EED32N80484901 for EUT external and internal photos.

The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CTI, this report can't be reproduced except in full.

\*\*\* End of Report \*\*\*