



# RF EXPOSURE Test Report

**Report No.:** MTi221130014-01E3  
**Date of issue:** 2023-03-09  
**Applicant:** JIANGSU SHUSHI TECHNOLOGY CO.LTD  
**Product:** Smart Night Light-W  
**Model(s):** 3RSNL02041WM  
**FCC ID:** 2BAGQ-3RSNL02041WM

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.com>

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<b>Test Result Certification</b>	
<b>Applicant:</b>	<b>JIANGSU SHUSHI TECHNOLOGY CO.LTD</b>
<b>Address:</b>	NO.9 NANXU ROAD RUNZHOU DISTRICT ZHENJIANG, JIANGSU, China
<b>Manufacturer:</b>	<b>Shushi (Zhenjiang) Intelligent Technology Co., Ltd.</b>
<b>Address:</b>	NO.9 NANXU ROAD RUNZHOU DISTRICT ZHENJIANG JIANGSU CHINA
<b>Product description</b>	
<b>Product name:</b>	Smart Night Light-W
<b>Trademark:</b>	N/A
<b>Model name:</b>	3RSNL02041WM
<b>Serial Model:</b>	N/A
<b>Standards:</b>	N/A
<b>Test procedure:</b>	KDB 447498 D01 v06
<b>Date of Test</b>	
<b>Date of test:</b>	2022-12-24 ~ 2023-01-13
<b>Test result:</b>	Pass

**Test Engineer :**

*Yanice Xie*

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(Yanice Xie)

**Reviewed By: :**

*Leon Chen*

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(Leon Chen)

**Approved By: :**

*Tom Xue*

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(Tom Xue)

## RF EXPOSURE EVALUATION

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 <sup>2</sup> )	Averaging time (minutes)
<b>(A) Limits for Occupational/Controlled Exposure</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
300-1,500			f/300	6
1,500-100,000			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
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz \* = Plane-wave equivalent power density

### MPE Calculation Method

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

Where

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

$P_{out}$  = output power to antenna in mW

G = Numeric gain of the antenna relative to isotropic antenna

$\pi$  = 3.1415926

R = distance between observation point and center of the radiator in cm (20cm)

$P_d$  the limit of MPE, 1mW/cm<sup>2</sup>. If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

## Measurement Result

### BLE:

Operation Frequency: 2402-2480MHz,

Power density limited: 1mW/ cm<sup>2</sup>

### 2.4GWiFi:

Operation Frequency: WIFI 802.11b/g/n HT20: 2412-2462MHz,

Power density limited: 1mW/ cm<sup>2</sup>

Antenna Type: PCB Antenna;

WIFI antenna gain: 2.36dBi

R=20cm

$mW=10^{(dBm/10)}$

antenna gain Numeric= $10^{(dBi/10)}=10^{(2.36/10)}=1.72$

### BLE:

Channel Freq. (MHz)	modulation	conducted power	Tune-up power (dBm)	Max		Antenna		Evaluation result (mW/cm <sup>2</sup> )	Power density Limits (mW/cm <sup>2</sup> )
		(dBm)		tune-up power		Gain			
				(dBm)	(dBm)	(mW)	(dBi)	Numeric	
2402	BLE-1M	13.05	13±1	14	25.119	2.36	1.72	0.0086	1
2440		13.52	13±1	14	25.119	2.36	1.72	0.0086	1
2480		13.62	13±1	14	25.119	2.36	1.72	0.0086	1



2.4GWiFi:

Channel Freq. (MHz)	modulation	conducted power (dBm)	Tune-up power (dBm)	Max		Antenna Gain Numeric	Evaluation result at 20cm Power density(mW/cm <sup>2</sup> )	Power density Limits (mW/cm <sup>2</sup> )
				tune-up power (dBm)	(mW)			
						2412	802.11b	18.15
2437	17.93	18±1	19	79.433	1.72	0.02721		1
2462	17.93	18±1	19	79.433	1.72	0.02721		1
2412	802.11g	22.81	22±1	23	199.526	1.72	0.06835	1
2437		22.79	22±1	23	199.526	1.72	0.06835	1
2462		22.63	22±1	23	199.526	1.72	0.06835	1
2412	802.11n H20	22.65	22±1	23	199.526	1.72	0.06835	1
2437		22.66	22±1	23	199.526	1.72	0.06835	1
2462		22.46	22±1	23	199.526	1.72	0.06835	1

**Conclusion:**

The device can transmitter simultaneously.

**Simultaneous transmission condition**

WWAN Band	The MPE ratio
Wi-Fi 2.4G	0.06835
BLE	0.0086

Note:The MPE ratio=Mac Test Result/Limit Value

So the simultaneous transmitting antenna pairs as below:

$\sum$  of MPE ratio=Wi-Fi 2.4G+BLE=0.06835+0.0086=0.07695<1

**----END OF REPORT----**