



# RF Exposure Evaluation Declaration

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**FCC ID:** 2AGN8-W2GN84  
**Applicant:** Sengled Co., Ltd.  
**Product:** WIFI Backlights with Camera  
**Model No.:** W2G-N84, W2G-N83  
**FCC Classification:** Digital Transmission System (DTS)  
**FCC Rule Part(s)** FCC Part 2.1091  
**Test Procedure** KDB 447498 D04 Interim General RF Exposure Guidance v01

**Reviewed By:**

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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.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

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### Revision History

Report No.	Version	Description	Issue Date	Note
2204RSU060-U2	Rev. 01	Initial Report	05-16-2022	Valid

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#### 1.4. Product Information

Product Name	WIFI Backlights with Camera
Model No.	W2G-N84, W2G-N83
Serial No.	2218D1000010(Conducted) 2218D1000015(Radiated)
Wi-Fi Specification	802.11b/g/n
Antenna Information	Refer to clause 1.5
Accessories	
Adapter	Model No.: ASLP67A-120170 Input Power: 100 - 240V ~ 50/60Hz, 0.8A Output Power: 12V, 1.7A
Remark:	
<ol style="list-style-type: none"> <li>The difference between the two models is that the length of the light strip is different. The length of the light strip of the W2G-N84 is 4.8m, and the length of the light strip of the W2G-N83 is 3.6m. The RF circuit, block diagram, schematics and PCB layout of the two models are all identical. The model W2G-N84 was selected by manufacturer to perform all test.</li> <li>The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.</li> </ol>	

#### 1.5. Radio Specification

Frequency Range	802.11b/g/n-HT20: 2412 ~ 2462MHz 802.11n-HT40: 2422 ~ 2452MHz
Channel Number	802.11b/g/n-HT20: 11 802.11n-HT40: 7
Type of Modulation	802.11b: DSSS 802.11g/n: OFDM
Data Rate	802.11b: 1/2/5.5/11Mbps 802.11g: 6/9/12/18/24/36/48/54Mbps 802.11n: up to 150Mbps
Antenna Type	PCB Antenna
Antenna Gain	0dBi

#### 1.6. Device Classification

According to the user manual, the antenna of this device is at least 20cm away from the body of the user, this device is classified as a **Mobile Device**. Therefore, the RF exposure evaluation requirements of FCC Part 2.1091 for mobile device exposure conditions subject to MPE limits.

## 2. RF Exposure Evaluation

### 2.1. Test Limits

According to FCC Part 2.1091, A mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 cm is normally maintained between the RF source's radiating structure(s) and the body of the user or nearby persons.

According to FCC Part 1.1307(b)(3)(i)(C), for the exemption in Table 1 to apply, R must be at least  $\lambda/2\pi$ , where  $\lambda$  is the free-space operating wavelength in meters. If the ERP of a single RF source is not easily obtained, then the available maximum time-averaged power may be used in lieu of ERP if the physical dimensions of the radiating structure(s) do not exceed the electrical length of  $\lambda/4$  or if the antenna gain is less than that of a half-wave dipole.

Table 1 to § 1.1307(b)(3)(i)(C) - Single RF Sources Subject to Routine Environmental Evaluation

RF Source Frequency (MHz)	Threshold ERP (watts)
0.3-1.34	1.920 R <sup>2</sup>
1.34-30	3.450 R <sup>2</sup> /f <sup>2</sup>
30-300	3.83 R <sup>2</sup>
300-1500	0.0128 R <sup>2</sup> f
1500-100,000	19.2 R <sup>2</sup>

f = frequency in MHz, R = minimum separation distance in meters.

According to FCC Part 1.1307(b)(3)(ii)(B), in the case of fixed RF sources operating in the same time-averaging period, or of multiple mobile or portable RF sources within a device operating in the same time averaging period, if the sum of the fractional contributions to the applicable thresholds is less than or equal to 1 as indicated in the following equation.

$$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{Exposure Limit_k} \leq 1$$

## 2.2. Test Result

Product	WIFI Backlights with Camera
Test Item	RF Exposure Evaluation

Test Mode	Frequency Band (MHz)	Max. Conducted Power (dBm)	Max. Antenna Gain (dBi)	EIRP (dBm)	ERP (W)	Compliance Distance (R) (m)	Threshold ERP (W)	Result
802.11b/g/n	2412 ~ 2462	18.43	0	18.43	0.042	0.2	0.768	Pass

Note:

1.  $EIRP \text{ (dBm)} = \text{Max. Conducted Power (dBm)} + \text{Max. Antenna Gain (dBi)}$
2.  $ERP \text{ (W)} = 10^{[ERP \text{ (dBm)} - 30]/10} = 10^{[EIRP \text{ (dBm)} - 2.15 \text{ (dB)} - 30]/10}$
3.  $\text{Threshold ERP (W)} = 19.2 * R^2 \text{ (W)} = 19.2 * 0.2^2 \text{ (W)} = 0.768 \text{ (W)}$

Therefore, this device meets the RF Exposure requirements when it is installed and operated with a minimum distance of 20cm between the radiator and user.