



# Maximum Permissible Exposure Evaluation

**FCC ID: 2AK43RD-850**

## 1. Client Information

|                     |   |  |
|---------------------|---|--|
| <b>Applicant</b>    | : | Guangzhou Rigal Electronics Co., Ltd.  |
| <b>Address</b>      | : | Floor 1, Floor 2, Floor 3, Factory Building, NO.30, The north of Hongmiandadao, Xiuquan Street, Huadu District, Guangzhou, China |
| <b>Manufacturer</b> | : | Guangzhou Rigal Electronics Co., Ltd.  |
| <b>Address</b>      | : | Floor 1, Floor 2, Floor 3, Factory Building, NO.30, The north of Hongmiandadao, Xiuquan Street, Huadu District, Guangzhou, China |

## 2. General Description of EUT

|                               |                      |   |
|-------------------------------|----------------------|---|
| <b>EUT Name</b>               | :                    | MINI LED PROJECTOR  |
| <b>Models No.</b>             | :                    | RD-850, RD-***("*"Represents 0-9)   |
| <b>Model Different</b>        | :                    | All these models are identical in the same PCB, layout and electrical circuit, The only difference is model name. |
| <b>Product Description</b>    | Operation Frequency: | 802.11b/g/n(HT20): 2412MHz~2462MHz<br>802.11n(HT40): 2422MHz~2452MHz  |
|                               | Number of Channel:   | 802.11b/g/n(HT20):11 channels<br>802.11n(HT40): 7 channels  |
|                               | Antenna Gain:        | 1.2dBi FPC Antenna  |
| <b>Power Rating</b>           | :                    | Input: AC120V 60Hz  |
| <b>Software Version</b>       | :                    | N/A   |
| <b>Hardware Version</b>       | :                    | N/A   |
| <b>Connecting I/O Port(S)</b> | :                    | Please refer to the User's Manual   |
| <b>Remark</b>                 | :                    | the evaluation report used the EUT(20211029-17-2#).   |

## MPE Calculations for WIFI

### 1. Antenna Gain:

FPC Antenna:1.2dBi.

### 2. EUT Operation Condition:

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

### 3. Exposure Evaluation:

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S=(PG)/4\pi R^2$$

Where

**S:** power density

**P:** power input to the antenna

**G:** power gain of the antenna in the direction of interest relative to an isotropic radiator.

**R:** distance to the center of radiation of the antenna

### 4. Test Result:

#### 2.4G WiFi

| Mode          | Conducted Power(max)<br>(dBm) | Turn-up Power<br>(dB) | Max tune up power<br>(dBm)<br>[P] | ANT Gain<br>(dBi)<br>[G] | Distance<br>(cm)<br>[R] | Power Density<br>(mW/ cm <sup>2</sup> )<br>[S] | Limit of Power Density<br>(mW/ cm <sup>2</sup> )<br>(S) |
|---------------|-------------------------------|-----------------------|-----------------------------------|--------------------------|-------------------------|--|---|
| 802.11B       | 16.750                        | 16±1                  | 17                                | 1.2                      | 20                      | 0.01314  | 1   |
| 802.11G       | 17.780                        | 17±1                  | 18                                | 1.2                      | 20                      | 0.01655  | 1   |
| 802.11N(HT20) | 17.610                        | 17±1                  | 18                                | 1.2                      | 20                      | 0.01655  | 1   |
| 802.11N(HT40) | 15.930                        | 15±1                  | 16                                | 1.2                      | 20                      | 0.01044  | 1   |

### 5. Conclusion:

As specified in Table 1B of 47 CFR 1.1310- Limits for Maximum Permissible Exposure (MPE),

#### Limits for General Population/ Uncontrolled Exposure

| Frequency Range<br>(MHz) | Power density<br>(mW/ cm <sup>2</sup> ) |
|--------------------------|---|
| 300-1,500                | F/1500                                  |
| 1,500-100,000            | 1.0                                     |



For 2.4WIFI:2412~2462 MHz

MPE limit S:  $1\text{mW}/\text{cm}^2$

The MPE is calculated as  **$0.01655\text{ mW}/\text{cm}^2 < \text{limit } 1\text{mW}/\text{cm}^2$** . So, RF exposure limit warning or SAR test are not required.

The EUT will only be used with a separation of 20cm or greater between the antenna and nearby persons and can therefore be considered a mobile transmitter per 47 CFR2.1091 (b).

The RF Exposure Information page from the manual is included here for reference.

#### Note

For a more detailed features description, please refer to the RF Test Report.

#### 6. Conclusion:

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device.

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