



Test report No. : 4788402176A-US-R0-V0  
Page : 1 of 8  
Issued date : Apr. 9, 2018  
FCC ID : 2AMPP-FB00000

## Maximum Permissible Exposure Report

**Applicant** : Sunrise Technology Co., Ltd  
**Model Name** : FB00000  
**FCC ID** : 2AMPP-FB00000  
**Test Regulation** : 47 CFR FCC Part 2.1091  
**Test Result** : Complied

**Date of Test** : Apr. 9, 2018

**Date of Sample Received** : Mar. 15, 2018

**Prepared By** : Alan Liu  
Project Engineer / Alan Liu

**Representative Test Engineer** : WaterNil Guan  
Engineer / WaterNil Guan

**Approved By** : John Cheng  
Project Engineer/ John Cheng



The tested sample is in compliance with the above regulation.

The test results in the report apply only to the sample tested and are traceable to the national or international standards.

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Doc No: 17-EM-F0864 / 1.0



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## REVISION HISTORY

**Original Test Report No.:**

[illegible]

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## 1. Attestation of Test Results

### Applicant

Company Name: Sunrise Technology Co., Ltd  
Address: No.28, Longshan St., Xitun Dist., Taichung City 407, Taiwan

### Manufacturer

Company Name: Sunrise Technology Co., Ltd  
Address: No.28, Longshan St., Xitun Dist., Taichung City 407, Taiwan

| APPLICABLE STANDARDS   |              |
|------------------------|--------------|
| STANDARD               | Test Results |
| 47 CFR FCC PART 2.1091 | PASS         |

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## 2. Test Methodology

The tests documented in this report were performed in accordance with KDB 447498 D01 General RF Exposure Guidance v06.

## 3. Facilities and Accreditation

|                                  |                                                                                                                                                                                                                                                                                                                                 |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Test Location</b>             | Underwriters Laboratories Taiwan Co., Ltd.                                                                                                                                                                                                                                                                                      |
| <b>Address</b>                   | Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan                                                                                                                                                                                                                           |
| <b>Accreditation Certificate</b> | Underwriters Laboratories Taiwan Co., Ltd. is accredited by TAF, Laboratory Code 3398. The full scope of accreditation can be viewed at <a href="http://accreditation.taftw.org.tw/taf/public/basic/viewApplyItems.action?unitNo=3398">http://accreditation.taftw.org.tw/taf/public/basic/viewApplyItems.action?unitNo=3398</a> |

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## 4. Equipment Under Test

### 4.1. Description of EUT

|                                                 |                                                                                                                                                       |
|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Product Name</b>                             | Dual-band WiFi Module                                                                                                                                 |
| <b>Brand Name</b>                               | Sunrise                                                                                                                                               |
| <b>Model Name</b>                               | FB00000                                                                                                                                               |
| <b>Radio Technology and Operating Frequency</b> | IEEE 802.11b: 2412 MHz - 2462 MHz<br>IEEE 802.11g: 2412 MHz - 2462 MHz<br>IEEE 802.11n HT20: 2412 MHz - 2462 MHz<br>IEEE 802.11a: 5180 MHz - 5240 MHz |
| <b>Modulation</b>                               | CCK, DQPSK, DBPSK for DSSS<br>64QAM, 16QAM, QPSK, BPSK for OFDM                                                                                       |
| <b>Beamforming Function</b>                     | Without beamforming                                                                                                                                   |
| <b>Power Supply</b>                             | DC 3.2~4.5 V                                                                                                                                          |
| <b>Hardware Version</b>                         | N/A                                                                                                                                                   |
| <b>Software Version</b>                         | N/A                                                                                                                                                   |

### 4.2. Description Of Available Antennas

| Antenna  | Brand Name                            | Model Name            | Antenna Type | Connector Type | Antenna Gain(dBi) |
|----------|---------------------------------------|-----------------------|--------------|----------------|-------------------|
| Chain(0) | Shenzhen Xiangboyi Technology Co. Ltd | XBY20170262 (L=220MM) | PCB Antenna  | IPEX I         | 2                 |

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## 5. Requirement

### Limits for General Population/Uncontrolled Exposure

| Limits for General Population/Uncontrolled Exposure                                                                                                                                                                                                                                              |                                   |                                   |                                         |                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-----------------------------------|-----------------------------------------|-------------------------------------------------------------------|
| Frequency Range (MHz)                                                                                                                                                                                                                                                                            | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/cm <sup>2</sup> ) | Averaging Time  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes) |
| 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                                                                |
| Note 1: f = frequency in MHz, * means Plane-wave equivalent power density                                                                                                                                                                                                                        |                                   |                                   |                                         |                                                                   |
| Note 2: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure. |                                   |                                   |                                         |                                                                   |

Power Density (S) is calculated by the following formula:

$$S=(P*G)/4\pi R^2$$

where: S = power density (in appropriate units, e.g. mW/ cm<sup>2</sup>)

P = power input to the antenna (in appropriate units, e.g., mW)

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 (appropriate units, e.g., cm)

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## 6. Radio Frequency Radiation Exposure Evaluation

### WLAN 2.4GHz

| WIFI 2.4 GHz   |       |                    |              |           |           |                       |                       |
|----------------|-------|--------------------|--------------|-----------|-----------|-----------------------|-----------------------|
| Operating Mode | Freq. | Max. Average power | Antenna Gain | Max. EIRP | Max. EIRP | Power density @ 20 cm | Limit                 |
|                | (MHz) | (dBm)              | (dBi)        | (dBm)     | (mW)      | (mW/cm <sup>2</sup> ) | (mW/cm <sup>2</sup> ) |
| 802.11b        | 2462  | 13.77              | 2            | 15.77     | 37.76     | 0.008                 | 1                     |

Note:

1. Max. EIRP (dBm) = Max. Average power (dBm) + Antenna Gain (dBi)
2. Max. EIRP (mW) =  $10^{(\text{Max. EIRP (dBm)} / 10)}$
3. Power density (mW/cm<sup>2</sup>) = Max. EIRP (mW) /  $[4 \times \pi \times (\text{calculated distance})^2]$ , the calculated distance is 20 cm.

### WLAN 5GHz

| WIFI 5 GHz     |       |                    |              |           |           |                       |                       |
|----------------|-------|--------------------|--------------|-----------|-----------|-----------------------|-----------------------|
| Operating Mode | Freq. | Max. Average power | Antenna Gain | Max. EIRP | Max. EIRP | Power density @ 20 cm | Limit                 |
|                | (MHz) | (dBm)              | (dBi)        | (dBm)     | (mW)      | (mW/cm <sup>2</sup> ) | (mW/cm <sup>2</sup> ) |
| 802.11a        | 5240  | 11.20              | 2            | 13.20     | 20.89     | 0.004                 | 1                     |

Note:

1. Max. EIRP (dBm) = Max. Average power (dBm) + Antenna Gain (dBi)
2. Max. EIRP (mW) =  $10^{(\text{Max. EIRP (dBm)} / 10)}$
3. Power density (mW/cm<sup>2</sup>) = Max. EIRP (mW) /  $[4 \times \pi \times (\text{calculated distance})^2]$ , the calculated distance is 20 cm.

### Conclusion:

According to 47 CFR §2.1091, the RF exposure analysis concludes that the RF Exposure is FCC compliant.

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