MRT Technology (Suzhou) Co., Ltd Phone: +886-755-26928918 Web: www.mrt-cert.com

Report No.: 2105RSU006-U6 Report Version: V01 Issue Date: 10-07-2021

# **RF Exposure Evaluation Declaration**

| FCC ID:    | SFK-WF808              |  |  |
|------------|------------------------|--|--|
| Applicant: | CIG Shanghai Co., Ltd. |  |  |

**Application Type:** Certification

**Product:** WiFi 6 Extender

Model No.: WF-808

**Brand Name:** CIG

FCC Classification: Digital Transmission System (DTS)

Unlicensed National Information Infrastructure (NII)

Test Procedure(s): FCC part 2.1091

| Reviewed By: |           |  |
|--------------|-----------|--|
|              | Sunny Sun | lac-MRA                                |
| Approved By: |           | ACCREDITED                             |
|              | Robin Wu  | TESTING LABORATORY CERTIFICATE #3628.0 |

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.



## **Revision History**

| Report No.    | Version | Description    | Issue Date | Note  |
|---------------|---------|----------------|------------|-------|
| 2105RSU006-U6 | Rev. 01 | Initial Report | 09-30-2021 | Valid |
|               |         |                |            |       |



## **CONTENTS**

|    | scriptio |                                       | Page |
|----|----------|---------------------------------------|------|
| 1. | Gene     | ral Information                       | 4    |
|    | 1.1.     | Applicant                             | 4    |
|    | 1.2.     | Manufacturer                          | 4    |
|    | 1.3.     | Testing Facility                      | 4    |
|    |          | Product Information                   |      |
|    | 1.5.     | Description of Available Antennas     | 5    |
| 2. | RF E     | xposure Evaluation                    | 6    |
|    | 2.1.     | Limit of Maximum Permissible Exposure | 6    |
|    | 2.2.     | Calculated Results                    | 7    |
| Αp | pendix   | A - EUT Photograph                    | 8    |



### 1. General Information

### 1.1. Applicant

CIG Shanghai Co., Ltd.

5F, Building 8, NO.2388 CHENGHANG ROAD, MINHANG DISTRTCT, SHANGHAI

#### 1.2. Manufacturer

CIG Shanghai Co., Ltd.

5F, Building 8, NO.2388 CHENGHANG ROAD, MINHANG DISTRTCT, SHANGHAI

### 1.3. Testing Facility

| $\boxtimes$ | Test Site - MRT Suzhou Laboratory   |                    |                    |                     |                     |  |  |  |
|-------------|---|--------------------|--------------------|---------------------|---------------------|--|--|--|
|             | Laboratory Location (Suzhou - Wuzhong)  |                    |                    |                     |                     |  |  |  |
|             | D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China        |                    |                    |                     |                     |  |  |  |
|             | Laboratory Locat  | tion (Suzhou - SIP | <b>'</b> )         |                     |                     |  |  |  |
|             | 4b Building, Liand  | o U Valley, No.200 | Xingpu Rd., Shengp | u Town, Suzhou Indu | ustrial Park, China |  |  |  |
|             | Laboratory Acc  | reditations        |                    |                     |                     |  |  |  |
|             | A2LA: 3628.01   |                    | CNAS: L            | _10551              |                     |  |  |  |
|             | FCC: CN1166   |                    | ISED: C            | N0001               |                     |  |  |  |
|             | VCCI  | □R-20025           | ☐G-20034           | □C-20020            | □T-20020            |  |  |  |
|             | VCCI:   | □R-20141           | □G-20134           | □C-20103            | □T-20104            |  |  |  |
|             | Test Site - MRT   | Shenzhen Labo      | ratory             |                     |                     |  |  |  |
|             | Laboratory Location (Shenzhen)  |                    |                    |                     |                     |  |  |  |
|             | 1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, |                    |                    |                     |                     |  |  |  |
|             | China   |                    |                    |                     |                     |  |  |  |
|             | Laboratory Accreditations   |                    |                    |                     |                     |  |  |  |
|             | A2LA: 3628.02 CNAS: L10551  |                    |                    |                     |                     |  |  |  |
|             | FCC: CN1284 ISED: CN0105  |                    |                    |                     |                     |  |  |  |
|             | Test Site - MRT Taiwan Laboratory   |                    |                    |                     |                     |  |  |  |
|             | Laboratory Location (Taiwan)  |                    |                    |                     |                     |  |  |  |
|             | No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)                  |                    |                    |                     |                     |  |  |  |
|             | Laboratory Accreditations   |                    |                    |                     |                     |  |  |  |
|             | TAF: L3261-19072  | 25                 |                    |                     |                     |  |  |  |
|             | FCC: 291082, TW3261 ISED: TW3261  |                    |                    |                     |                     |  |  |  |



#### 1.4. Product Information

| Product Name            | WiFi 6 Extender                |  |
|-------------------------|--------------------------------|--|
| Model No.               | WF-808                         |  |
| Brand Name              | CIG                            |  |
| Operating Temperature   | 0 ~ 40°C                       |  |
| Wi-Fi Specification     | 802.11a/b/g/n/ac               |  |
| Bluetooth Specification | v4.0 single mode               |  |
| Antenna Information     | Refer to section 1.5           |  |
| Power Type              | AC/DC Adapter                  |  |
| Accessory               |                                |  |
| AC to DC Adapter        | Model: ADS0248T-W050250        |  |
|                         | Input: 100-240V ~ 50-60Hz 0.6A |  |
|                         | Output: 5V, 2.5A               |  |
| Remark:                 |                                |  |

<sup>1.</sup> The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.

### 1.5. Description of Available Antennas

| Antenna Type      | Frequency     | TX Path | Max Antenna | Uncorrelated Antenna |
|-------------------|---------------|---------|-------------|----------------------|
|                   | (MHz)         |         | Gain (dBi)  | Gain (dBi)           |
| Wi-Fi Antenna     |               |         |             |                      |
| PCB Antenna       | 2400 ~ 2483.5 | 2       | 3.0         | 0.51                 |
| PCB Antenna       | 5150 ~ 5350   | 4       | 6.5         | 1.95                 |
| PCB Antenna       | 5470 ~ 5725   | 4       | 7.2         | 1.97                 |
| Bluetooth Antenna |               |         |             |                      |
| PCB Antenna       | 2400 ~ 2483.5 | 1       | 1.9         |                      |

#### Remark

- 1. The device supports SISO Mode for 802.11a and support MIMO mode for 802.11b/g/n/ac and supports the STBC mode only.
- 2. Due to the same modulation & power setting between 802.11n and 802.11ac, so 802.11n-HT20 and HT40 are covered by 802.11ac-VHT20 and VHT40 in this report.



### 2. RF Exposure Evaluation

### 2.1. Limit of Maximum Permissible Exposure

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   | Electric Field                                 | Magnetic Field | Power Density         | Average Time |  |  |
|---|--|----------------|-----------------------|--------------|--|--|
| (MHz)   | Strength (V/m)                                 | Strength (A/m) | (mW/cm <sup>2</sup> ) | (Minutes)    |  |  |
|   | (A) Limits for Occupational/ Control Exposures |                |                       |              |  |  |
| 300-1500  |  |                | f/300                 | 6            |  |  |
| 1500-100,000  |  |                | 5                     | 6            |  |  |
| (B) Limits for General Population/ Uncontrolled Exposures |  |                |                       |              |  |  |
| 300-1500  |  |                | f/1500                | 6            |  |  |
| 1500-100,000  |  |                | 1                     | 30           |  |  |

f= Frequency in MHz

Calculation Formula:  $Pd = (Pout*G)/(4*pi*r^2)$ 

Where

Pd = power density in mW/cm<sup>2</sup>

Pout = 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

Pd is the limit of MPE, 1mW/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.





### 2.2. Calculated Results

| Product   | WiFi 6 Extender        |
|-----------|------------------------|
| Test Item | RF Exposure Evaluation |

| Test Mode | Frequency Band | Maximum EIRP | Power Density at R            | Limit                 |
|-----------|----------------|--------------|-------------------------------|-----------------------|
|           | (MHz)          | (dBm)        | = 20 cm (mW/cm <sup>2</sup> ) | (mW/cm <sup>2</sup> ) |
|           | 2412 ~ 2462    | 23.15        | 0.0411                        | 1                     |
| Wi-Fi     | 5150 ~ 5350    |              |                               |                       |
|           | 5470 ~ 5725    | 27.10        | 0.1020                        | 1                     |
|           | 5725 ~ 5850    |              |                               |                       |
| Bluetooth | 2402 ~ 2480    | 1.14         | 0.0003                        | 1                     |

#### **CONCLUSION:**

Therefore, the Max Power Density at R (20 cm) =  $0.0411 \text{ mW/cm}^2 + 0.1020 \text{mW/cm}^2 + 0.0003 \text{ mW/cm}^2 = 0.1434 \text{ mW/cm}^2 < 1 \text{ mW/cm}^2$ .

So the safety distance is 20cm for WiFi 6 Extender installed without any other radio equipment.

\_\_\_\_\_ The End \_\_\_\_\_



## Appendix A - EUT Photograph

Refer to "2105RSU006-UE" file.