



# RF EXPOSURE EVALUATION REPORT

**APPLICANT** : Xiamen Four-Faith Communication  
Technology Co., Ltd.

**PRODUCT NAME** : IoT RTU IP Camera

**MODEL NAME** : F-SC241

**BRAND NAME** : Four-Faith

**FCC ID** : 2A8OE-F-SC241

**STANDARD(S)** : FCC 47 CFR Part 2(2.1091)

**RECEIPT DATE** : 2022-03-10

**TEST DATE** : 2022-03-15 to 2022-05-13

**ISSUE DATE** : 2022-11-21

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| Change History |            |                   |
|----------------|------------|-------------------|
| Version        | Date       | Reason for Change |
| 1.0            | 2022-11-21 | First edition     |
|                |            |                   |



# 1. Technical Information

**Note:** Provide by applicant.

## 1.1 Applicant and Manufacturer Information

|                              |  |
|------------------------------|--|
| <b>Applicant:</b>            | Xiamen Four-Faith Communication Technology Co., Ltd.   |
| <b>Applicant Address:</b>    | 11th Floor, A-06 Area, No.370, Chengyi Street, Jimei District, Xiamen City, Fujian Province, China |
| <b>Manufacturer:</b>         | Xiamen Four-Faith Communication Technology Co., Ltd.   |
| <b>Manufacturer Address:</b> | 11th Floor, A-06 Area, No.370, Chengyi Street, Jimei District, Xiamen City, Fujian Province, China |

## 1.2 Equipment under Test (EUT) Description

|                          |  |                    |
|--------------------------|--|--------------------|
| <b>Product Name:</b>     | IoT RTU IP Camera  |                    |
| <b>EUT No.:</b>          | N/A  |                    |
| <b>Hardware Version:</b> | V1.0.1.0   |                    |
| <b>Software Version:</b> | FFIPC_11.1.0.6-r29   |                    |
| <b>Frequency Bands:</b>  | LTE Band 2: 1850 MHz ~ 1910 MHz<br>LTE Band 4: 1710 MHz ~ 1755 MHz<br>LTE Band 48: 3550 MHz ~ 3700 MHz |                    |
| <b>Modulation Mode:</b>  | LTE: QPSK, 16QAM, 64QAM, 256QAM  |                    |
| <b>Antenna Type:</b>     | Fixed External Antenna   |                    |
| <b>Antenna Gain:</b>     | Frequency Bands  | Antenna Gain (dBi) |
|                          | LTE Band 2   | 2.42               |
|                          | LTE Band 4   | 0.75               |
|                          | LTE Band 48  | 3.49               |

**Note:** When the test result is a critical value, we will use the measurement uncertainty give the judgment result based on the 95% confidence intervals.



### 1.3 Applied Reference Documents

Leading reference documents for testing:

| Identity  | Document Title  | Method determination /Remark |
|---|---|------------------------------|
| FCC 47 CFR Part 2(2.1091)   | Radio Frequency Radiation Exposure Assessment: mobile devices | No deviation                 |
| KDB 447498 D01v06   | General RF Exposure Guidance                                  | No deviation                 |
| <p><b>Note 1:</b> The test item is not applicable.</p> <p><b>Note 2:</b> Additions to, deviation, or exclusions from the method shall be judged in the "method determination" column of add, deviate or exclude from the specific method shall be explained in the "Remark" of the above table.</p> |   |                              |



## 2. Device Category and RF Exposure Limit

Per user manual, Based on 47CFR 2.1091, this device belongs to mobile device category with General Population/Uncontrolled exposure.

### Mobile Devices:

47CFR 2.1091(b)

For purposes of this section, 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 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons. In this context, the term "fixed location" means that the device is physically secured at one location and is not able to be easily moved to another location. Transmitting devices designed to be used by consumers or workers that can be easily re-located, such as wireless devices associated with a personal computer, are considered to be mobile devices if they meet the 20 centimeter separation requirement.

### General Population/Uncontrolled Exposure:

The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity. Warning labels placed on low-power consumer devices such as cellular telephones are not considered sufficient to allow the device to be considered under the occupational/controlled category, and the general population/uncontrolled exposure limits apply to these devices.

**Table 1—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>(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                       |
| 300-1500   | -                             | -                             | f/1500                              | 30                       |
| 1500-100,000   | -                             | -                             | 1.0                                 | 30                       |

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

### 3. RF Output Power

➤ **Maximum Output Power**

| Frequency Bands | Frequency (MHz) | Conducted Power (dBm) |
|-----------------|-----------------|-----------------------|
| LTE Band 2      | 1880            | 25.0                  |
| LTE Band 4      | 1710.7          | 25.0                  |
| LTE Band 48     | 3697.5          | 23.0                  |

**Note:** The test results of all conducted test items please refer to the module FCC test report (FCC ID: ZMOFM160NA, Report No: DSS\_SUZR20221002201), which issued on May 16,2022 by SGS-CSTC Standards Technical Services (Suzhou)Co.,Ltd. and the module FCC test report (FCC ID: ZMOFM160NA, Report No: FYCR220400010001), which issued on May 20,2022 by Compliance Certification Services (Kunshan) Inc. Shenzhen Branch. We only recorded the output power test result in this report.

### 4. RF Exposure Assessment

➤ **Standalone Transmission Assessment**

| Bands       | Frequency (MHz) | Tune-up Power (dBm) | Antenna Gain (dBi) | EIRP (mW) | PD (mW/cm <sup>2</sup> ) | Limit Value (mW/cm <sup>2</sup> ) |
|-------------|-----------------|---------------------|--------------------|-----------|--------------------------|-----------------------------------|
| LTE Band 2  | 1880            | 25.0                | 2.42               | 552.08    | 0.110                    | 1.0                               |
| LTE Band 4  | 1710.7          | 25.0                | 0.75               | 375.84    | 0.075                    | 1.0                               |
| LTE Band 48 | 3697.5          | 23.0                | 3.49               | 445.66    | 0.089                    | 1.0                               |

**Note:**

1. According to KDB 447498, MPE assessment is based on source-based time-averaged maximum conducted output power of the RF channel requiring assessment, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions.
2. MPE calculate method

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

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

P = Time-average maximum tune-up power (in appropriate units, e.g. dBm)

G = numeric gain of the antenna (in appropriate units, e.g. dBi)

R = Separation distance to the centre of radiation of the antenna (20cm)



### 3. Declaration of Conformity

The output power test results in the report are provided by the manufacturer, and the test laboratory is not responsible for the accuracy of the information.

#### ➤ **Simultaneous Transmission Assessment**

This device only incorporates a WWAN transmitter, therefore simultaneous assessment is not required.

#### ➤ **Conclusion**

According to FCC 47 CFR Part 2(2.1091), this device complies with human exposure basic restrictions.



## Annex A General Information

### 1. Identification of the Responsible Testing Laboratory

|                     |  |
|---------------------|--|
| Laboratory Name:    | Shenzhen Morlab Communications Technology Co., Ltd.  |
| Laboratory Address: | FL.1-3, Building A, FeiYang Science Park, No.8<br>LongChang Road, Block 67, BaoAn District, ShenZhen,<br>GuangDong Province, P. R. China |
| Telephone:          | +86 755 36698555   |
| Facsimile:          | +86 755 36698525   |

### 2. Identification of the Responsible Testing Location

|          |  |
|----------|--|
| Name:    | Shenzhen Morlab Communications Technology Co., Ltd.  |
| Address: | FL.1-3, Building A, FeiYang Science Park, No.8<br>LongChang Road, Block 67, BaoAn District, ShenZhen,<br>GuangDong Province, P. R. China |

### 3. Facilities and Accreditations

The FCC designation number is CN1192, the test firm registration number is 226174.

————— END OF REPORT —————