



# RF EXPOSURE REPORT

**Report No.:** SET2023-01170

**Product Name:** LoRaWAN Sensor Terminal

**Model No.:** FST100

**FCC ID:** 2A8OE-FST100

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

**Address:** 11th Floor, A-06 Area, No.370, Chengyi Street, Jimei, Xiamen, Fujian, China.

**Dates of Testing:** 01/10/2023 - 03/01/2023

**Issued by:** CCIC Southern Testing Co., Ltd.

**Lab Location:** Electronic Testing Building, No. 43 Shahe Road, Xili Street, Nanshan District, Shenzhen, Guangdong, China.


**Tel:** 86 755 26627338    **Fax:** 86 755 26627238

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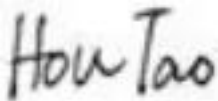


## Test Report

**Product**.....: LoRaWAN Sensor Terminal  
**Trade Name** .....: Four-Faith  
**Applicant**.....: Xiamen Four-Faith Communication Technology Co., Ltd.  
**Applicant Address**.....: 11th Floor, A-06 Area, No.370, Chengyi Street, Jimei,  
Xiamen, Fujian, China.  
**Manufacturer**.....: Xiamen Four-Faith Communication Technology Co., Ltd.  
**Manufacturer Address**.....: 11th Floor, A-06 Area, No.370, Chengyi Street, Jimei,  
Xiamen, Fujian, China.  
**Test Standards**.....: 47 CFR Part 2.1091  
**Test Result**.....: Pass

**Tested by** .....:  2023.03.01  
Chuiwang Zhang, Test Engineer

**Reviewed by**.....:  2023.03.01  
Chris You, Senior Engineer

**Approved by**.....:  2023.03.01  
Tao Hou, Manager

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Change History		
Issue	Date	Reason for change
1.0	2023.03.01	First edition

## 1. GENERAL INFORMATION

### 1.1. EUT Description

Product Name	LoRaWAN Sensor Terminal
Model No.	FST100
Device Type	Fixed devices
Frequency Range(Tx)	LoRa: 902MHz~928MHz
Modulation Type	LoRa
Antenna gain	1.63dBi
Antenna Type	Internal Antenna

## 1.2. EUT Description

EUT has been tested according to the following standards.

No.	Identity	Document Title
1	47 CFR Part 1	Practice and Procedure
2	47 CFR Part 2	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
3	KDB 447498 D01 General RF Exposure Guidance v06	RF Exposure Procedures and Equipment Authorization Policies for Mobile and Portable Devices
4	OET Bulletin 65 Edition 97-01	Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields

## 1.3. Laboratory Facilities

### FCC-Registration No.: 406086

CCIC Southern Testing Co., Ltd EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Designation Number: CN1283, valid time is until April 19th, 2023.

### ISED Registration: 11185A-1

CCIC Southern Testing Co., Ltd. EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 11185A-1 on Aug. 04, 2016, valid time is until Jun. 30th, 2023.

### A2LA Code: 5721.01

CCIC-SET is a third party testing organization accredited by A2LA according to ISO/IEC 17025. The accreditation certificate number is 5721.01.

## 1.4. Laboratory Location

Company Name:	CCIC Southern Testing Co., Ltd.
Address:	Electronic Testing Building, No. 43 Shahe Road, Xili Street, Nanshan District, Shenzhen, Guangdong, China

## 2. Technical Requirements Specification in CFR Title 47 Part 2.1091

### 2.1. Evaluation method

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).

**Table 1 to § 1.1310(e)(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)
(i) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*(100)	< 6
3.0-30	1824/f	4.89/f	*(900/f <sup>2</sup> )	< 6
30-300	61.4	0.163	1.0	< 6
300-1500	/	/	f/300	< 6
1500-100,000	/	/	5	< 6
(ii) Limits for General Population/Uncontrolled Exposure				
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: f = frequency in MHz. * = Plane-wave equivalent power density.				

### 2.2. Predication of MPE limit at a given distance

Refer to formulas on page 19 of OET Bulletin 65, Edition 97-01.

$$S = \frac{PG}{4\pi R^2}$$

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 = numeric gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the centre of radiation of the antenna (appropriate units, e.g., cm)

## 2.3. Evaluation Results

### Worst-Case mode Conducted Output Power Results for LoRa

Mode	Frequency (MHz)	Maximum Output power (dBm)	Max Tune up power (dBm)	Max Tune up power (mW)
LoRa	902.5	16.752	$16 \pm 1$	50.12

### Calculation results: Worst-Case mode

Mode	Antenna Gain (dBi)	Antenna Gain (numeric)	Distance (cm)	Result (mW/cm <sup>2</sup> )	Power Density (mW/cm <sup>2</sup> )
LoRa	1.63	1.46	20	0.015	0.6

## 2.4. Conclusion

According to the KDB 447498 D01 General RF Exposure Guidance v06 section 7.2 determine the device is exclusion from SAR test.

**\*\* END OF REPORT \*\***