



# EMF TEST REPORT

Product Name: LoRaWAN

Model Name: F8L10GW, F8L10GW-02915

FCC ID: 2ALUWF8L10GW

Issued For : Xiamen Four-Faith Communication Technology Co., Ltd.  
11th Floor, A-06 Area, No.370, Chengyi Street, Jimei, Xiamen,  
Fujian, China.

Issued By : Shenzhen LGT Test Service Co., Ltd.  
Room 205, Building 13, Zone B, Zhenxiong Industrial Park,  
No.177, Renmin West Road, Jinsha, Kengzi Street, Pingshan  
District, Shenzhen, Guangdong, China

Report Number: LGT24L213HA01

Sample Received Date: Dec. 30, 2024

Date of Test: Dec. 30, 2024 ~ Feb. 17, 2025

Date of Issue: Feb. 17, 2025

The test report is effective only with both signature and specialized stamp. This report shall not be reproduced except in full without the written approval of the Laboratory. The results in this report only apply to the tested sample.



## TEST REPORT CERTIFICATION

**Applicant:** Xiamen Four-Faith Communication Technology Co., Ltd.  
**Address:** 11th Floor, A-06 Area, No.370, Chengyi Street, Jimei, Xiamen, Fujian, China.  
**Manufacturer:** Xiamen Four-Faith Communication Technology Co., Ltd.  
**Address:** 11th Floor, A-06 Area, No.370, Chengyi Street, Jimei, Xiamen, Fujian, China.  
**Product Name:** LoRaWAN  
**Trademark:** Four-Faith  
**Model Name:** F8L10GW, F8L10GW-02915  
**Sample Status:** Normal

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC 47 CFR §2.1091 KDB 447498 D01 General RF Exposure Guidance v06	PASS

Prepared by:

Zane Shan

Zane Shan  
Engineer

Approved by:

Vita Li

Vita Li  
Technical Director





## TABLE OF CONTENTS

<b>1 . GENERAL INFORMATION</b>	<b>5</b>
1.1 GENERAL DESCRIPTION OF THE EUT	5
1.2 TEST LABORATORY	5
<b>2 . FCC 47CFR § 2.1091 REQUIREMENT</b>	<b>6</b>
2.1 TEST STANDARDS	6
2.2 LIMIT	6
2.3 EUT OPERATION CONDITION	7
2.4 CLASSIFICATION	7
2.5 TEST RESULT	8



### **Revision History**

Rev.	Issue Date	Revisions
00	Feb. 17, 2025	Initial Issue



## 1. GENERAL INFORMATION

### 1.1 GENERAL DESCRIPTION OF THE EUT

Product Name:	LoRaWAN	
Trademark:	Four-Faith	
Model Name:	F8L10GW	
Series Model:	F8L10GW-02915	
Model Difference:	Only difference in model name	
Frequency Bands:	WCDMA	Band V: 824 MHz ~ 849 MHz Band II: 1850 MHz ~ 1910 MHz Band IV: 1710 MHz ~ 1755 MHz
	LTE	Band 2:1850~1910MHz Band 4:1710~1755MHz Band 5: 824~849MHz Band 12: 699-716MHz Band 13: 777-787MHz Band 17: 706-714MHz Band 66: 1710-1780MHz Band 71: 663-698MHz
	LORA	902-928MHz
	2.4G WLAN	802.11b/g/n(20MHz): 2412~2462MHz 802.11n(40MHz):2422~2452MHz
Rating:	100-240 VAC	
Hardware Version:	V1.2	
Software Version:	uimage-F8L10GW-V2-IOTGW-32M-STD-VPN	

### 1.2 TEST LABORATORY

Company Name:	Shenzhen LGT Test Service Co., Ltd.
Address:	Room 205, Building 13, Zone B, Zhenxiong Industrial Park, No.177, Renmin West Road, Jinsha, Kengzi Street, Pingshan District, Shenzhen, Guangdong, China
Accreditation Certificate	A2LA Certificate No.: 6727.01
	FCC Registration No.: 746540
	CAB ID: CN0136



## 2. FCC 47CFR §2.1091 REQUIREMENT

### 2.1 TEST STANDARDS

The limit for Maximum Permissible Exposure (MPE) specified in FCC 1.1310 is followed. The gain of the antennas used in the product is extracted from the Antenna data sheets provided and also the maximum total power input to the antenna is measured. Through the Friis transmission formula and the maximum gain of the antenna, we can calculate the distance, away from the product, where the limit of MPE is reached.

Although the Friis Transmission formula is far field assumption, the calculated result of that is an over-prediction for near field power density. It is taken as worst case to specify the safety range.

### 2.2 LIMIT

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environmental impact of the human exposure to radio-frequency (RF) radiation as specified in 1.1307 (b)

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> )
Limits for Occupational / controlled Exposures			
0.3-3.0	614	1.63	*(100)
3.0-30	1842/f	4.89/f	*(900/f <sup>2</sup> )
30-300	61.4	0.163	1.0
300 - 1500	--	--	F/300
1500 – 100000	--	--	5.0
Limits for General population / Uncontrolled Exposure			
0.3-1.34	614	1.63	*(100)
1.34-30	824/f	2.19/f	*(180/f <sup>2</sup> )
30-300	27.5	0.073	0.2
300 - 1500	--	--	F/1500
1500 – 100000	--	--	1.0

F= Frequency in MHz

\* = Plane-wave equivalent power density.

Friss Formula

Friss Transmission Formula:  $P_d = (P_{out} * G) / (4 * \pi * r^2)$

Where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

G = gain of antenna in linear scale

$\pi$  = 3.1416

R = Distance between observation point and the center of radiator in cm

If we know the maximum gain of the antenna and the total output power to the antenna, through calculation, we will know MPE value at distance 20cm.



## **2.3 EUT OPERATION CONDITION**

EUT was enabled to transmit and receive at lowest, middle and highest channels.

## **2.4 CLASSIFICATION**

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. Warning statement to the user for keeping at least 20cm or more separation distance from the antenna should be included in the User manual. So, this device is classified as Mobile device.



## 2.5 TEST RESULT

### Maximum RF average output power among production units

Mode	Turn up Power(dBm)
WCDMA Band II	24.5
WCDMA Band IV	24.5
WCDMA Band V	24.5
LTE Band 2	24
LTE Band 4	24
LTE Band 5	24
LTE Band 12	24
LTE Band 13	24
LTE Band 17	24
LTE Band 66	24
LTE Band 71	24
2.4G WIFI-802.11b	15±1dBm
2.4G WIFI-802.11g	14.5±1dBm
2.4G WIFI-802.11n(HT20)	14.5±1dBm
2.4G WIFI-802.11n(HT40)	15±1dBm
Lora	11.85± 1dBm





**The MPE result of worst mode:**

RF Function	Frequency (MHz)	Max Power (dBm)	ANT Gain (dBi)	Max EIRP (dBi)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Ratio	Result
WCDMA Band II	1852.4	24.5	4	28.50	0.141	1	0.141	Pass
WCDMA Band IV	1712.4	24.5	4	28.50	0.141	1	0.141	Pass
WCDMA Band V	826.4	24.5	4	28.50	0.141	0.551	0.256	Pass
LTE Band 2	1852.7	24	4	28.00	0.126	1	0.126	Pass
LTE Band 4	1710.7	24	4	28.00	0.126	1	0.126	Pass
LTE Band 5	824.7	24	4	28.00	0.126	0.55	0.228	Pass
LTE Band 12	699.7	24	4	28.00	0.126	0.466	0.269	Pass
LTE Band 13	779.5	24	4	28.00	0.126	0.52	0.241	Pass
LTE Band 17	706.5	24	4	28.00	0.126	0.471	0.267	Pass
LTE Band 66	1710.7	24	4	28.00	0.126	1	0.126	Pass
LTE Band 71	665.5	24	4	28.00	0.126	0.444	0.283	Pass

RF Function	Frequency (MHz)	Max Turn up Power (dBm)	ANT Gain (dBi)	MAX EIRP	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Ratio	Result
900	915	12.85	2.5	15.35	0.007	0.61	0.011	Pass
2.4G WIFI	2452	16.00	2.8	18.80	0.015	1	0.015	Pass



**The max MPE of simultaneous transmission:**

$$\text{LTE}(0.283)+2.4\text{G WIFI}(0.015)+\text{LORA}(0.011)=0.309<1$$

**Note:**

1. The Maximum Power Density is less than the limit, complies with the exemption requirements.

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