



RF TEST REPORT

Product Name: LoRaWAN wireless communication model

Model Name: WSL05-A0

FCC ID: UU3FCWSL05

Issued For : Shenzhen Friendcom Technology Co., Ltd.

3/F, 6 Building, Guangqian Industrial Park, Longzhu Road, Xili Town, Nanshan, Shenzhen, 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: LGT24A096HA02

Sample Received Date: Jan. 22, 2024

Date of Test: Jan. 22, 2024 – Feb. 05, 2024

Date of Issue: Feb. 05, 2024

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TEST REPORT CERTIFICATION

Applicant: Shenzhen Friendcom Technology Co., Ltd.
Address: 3/F, 6 Building, Guangqian Industrial Park, Longzhu Road, Xili Town, Nanshan, Shenzhen, China

Manufacture: Shenzhen Friendcom Technology Co., Ltd.
Address: 3/F, 6 Building, Guangqian Industrial Park, Longzhu Road, Xili Town, Nanshan, Shenzhen, China

Product Name: LoRaWAN wireless communication model

Trademark: Friendcom

Model Name: WSL05-A0

Sample Status: Normal

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

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Revision History

| Rev. | Issue Date | Revisions |
|------|---------------|---------------|
| 00 | Feb. 05, 2024 | Initial Issue |
| | | |



1. GENERAL INFORMATION

1.1 GENERAL DESCRIPTION OF THE EUT

| | |
|-------------------|--------------------------------------|
| Product Name: | LoRaWAN wireless communication model |
| Trademark: | Friendcom |
| Model Name: | WSL05-A0 |
| Series Model: | N/A |
| Model Difference: | N/A |
| Frequency Bands: | 902.3MHz~927.7MHz |
| Modulation: | LoRa |
| Antenna Type: | Rod |
| Antenna Gain: | 4.5dBi |
| Rating: | Input: DC 2.8~3.7V;Tpy 3.3V |
| Hardware Version: | N/A |
| Software Version: | N/A |

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 ²) |
|---|-------------------------------|-------------------------------|-------------------------------------|
| Limits for Occupational / controlled Exposures | | | |
| 300 - 1500 | -- | -- | F/300 |
| 1500 – 100000 | -- | -- | 5.0 |
| Limits for General population / Uncontrolled Exposure | | | |
| 300 - 1500 | -- | -- | F/1500 |
| 1500 – 100000 | -- | -- | 1.0 |

F= Frequency in MHz

Friss Formula

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

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 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

Turn up Result

| | |
|------|---------------|
| Mode | Turn up Power |
| LoRa | 2±1dBm |

The MPE result of worst mode:

| RF Function | Frequency (MHz) | Max Turn up Power (dBm) | Max Turn up Power (mW) | ANT Gain (dBi) | ANT Gain (gain of antenna in linear scale) | Power Density (mW/cm ²) | Limit (mW/cm ²) | Ratio | Result |
|-------------|-----------------|-------------------------|------------------------|----------------|--|-------------------------------------|-----------------------------|--------|--------|
| LoRa | 902.3 | 3 | 1.995 | 4.5 | 2.818 | 0.0011 | 1 | 0.0011 | Pass |

Note:

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

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