

# Testing Report

Customer Name: Shenzhen ZKS Mobile IoT Tech. Com., Ltd.

Product Name: YFL Wireless Temperature Datalogger

Sample Model: C300B

Reference Standard: *GB/T 9410-2008; ANSI/IEEE Std 149-1979*

Issue Date: 2024.11.19

|                 |                  |                                                                                       |
|-----------------|------------------|---------------------------------------------------------------------------------------|
| Engineer: Zkmis | Date: 2024.11.18 |  |
| Auditor: Eason  | Date: 2024.11.19 |                                                                                       |
| Approver: Amona | Date: 2024.11.19 |                                                                                       |

## Version

| Version No. | Date       | Description                   | Formulate | Approval |
|-------------|------------|-------------------------------|-----------|----------|
| A0          | 2024.11.19 | For the first time, formulate | Zkris     | Eason    |
|             |            |                               |           |          |
|             |            |                               |           |          |

## Contents

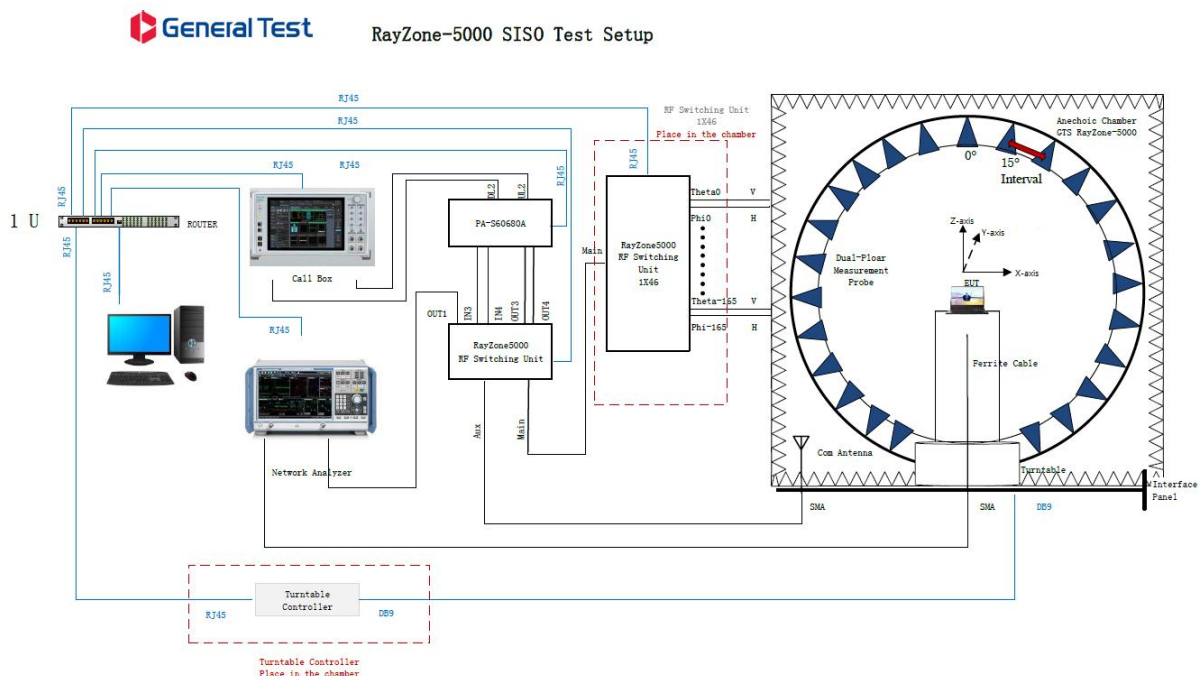
|                                                       |    |
|-------------------------------------------------------|----|
| 1.General Information .....                           | 3  |
| 1.1 General information of testing institutions ..... | 3  |
| 1.2 Testing principle .....                           | 3  |
| 1.3 Test equipment .....                              | 4  |
| 1.4 Test environment .....                            | 4  |
| 1.5 Statement .....                                   | 4  |
| 2.Sample Information .....                            | 5  |
| 2.1 Client information .....                          | 5  |
| 2.2 Description of EUT(S) .....                       | 5  |
| 2.3 EUT appearance .....                              | 6  |
| 2.4 EUT setup photo of free space OTA testing .....   | 6  |
| 3.Test Results .....                                  | 7  |
| 3.1 Test standard .....                               | 7  |
| 3.2 Test uncertainty .....                            | 7  |
| 3.3 Test data .....                                   | 8  |
| 3.3.1 S11 parameters .....                            | 8  |
| 3.3.2 S11 data .....                                  | 8  |
| 3.3.3 Typical free space efficiency and gain .....    | 8  |
| 3.3.4 Typical free space radiation pattern .....      | 9  |
| (The following is blank) .....                        | 10 |

## 1.General Information

## 1.1 General information of testing institutions

|                  |                                                                                                                                                                                            |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Name</b>      | Shenzhen RFI-LAB Communication Technology Co., Ltd.                                                                                                                                        |
| <b>Address</b>   | 103 Building 1 Tingwei Industrial Park,No.6, Liufang Road, Zone 67Xingdong,Xin'an Subdistrict,Bao'an District, Shenzhen, Guangdong, China                                                  |
| <b>Tel</b>       | 13682621346                                                                                                                                                                                |
| <b>E-mail</b>    | rfi-lab_cs@tech-now.com                                                                                                                                                                    |
| <b>Equipment</b> | All the equipment used in the report is fixed in 103 Building 1 Tingwei Industrial Park,No.6, Liufang Road, Zone 67Xingdong,Xin'an Subdistrict,Bao'an District, Shenzhen, Guangdong, China |

## 1.2 Testing principle



### 1.3 Test equipment

| Equipment        | Model No.    | Serial No.     | Manufacturer | Calibration date | Next calibration date |
|------------------|--------------|----------------|--------------|------------------|-----------------------|
| OTA Test System  | RayZone-5000 | RFI-LAB-RF-D00 | GTS          | 2023.3.14        | 2025.3.13             |
| Network Analyzer | E5071C       | RFI-LAB-RF-D01 | KEYSIGHT     | 2024.5.6         | 2025.5.5              |
| Network Analyzer | E5071C       | RFI-LAB-RF-C02 | KEYSIGHT     | 2024.5.6         | 2025.5.5              |

### 1.4 Test environment

|             |           |
|-------------|-----------|
| Temperature | 23.8°C    |
| Humidity    | 58%RH     |
| Pressure    | 100.19kPa |

### 1.5 Statement

- (1) The test results in the report are only applicable to the tested samples and the tested samples work under the environment described in the report.
- (2) Only Shenzhen RFI-LAB Communication Technology Co., Ltd. have the right to modify the report, and the modification information shall be annotated in the revision form.
- (3) Any objection to this report shall be raised within 30 days after formal confirmation of the report.
- (4) This report is invalid if there is any evidence that the sample information provided is falsified.
- (5) The report is invalid without the signature of the auditor and approver.

## 2.Sample Information

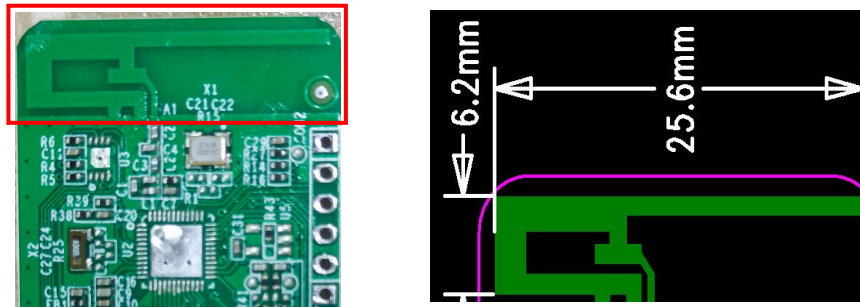
### 2.1 Client information

|              |                                                                                                                                                                    |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name         | Shenzhen ZKS Mobile IoT Tech. Com., Ltd.                                                                                                                           |
| Address      | Room 304、 406, Building B, Huazhong University of Science and Technology Research Institute, No. 9, Yuexing 3rd Road, Nanshan District, Shenzhen, Guangdong, China |
| Contacts     | /                                                                                                                                                                  |
| Tel          | /                                                                                                                                                                  |
| E-mail       | 187341730@qq.com                                                                                                                                                   |
| Manufacturer | Shenzhen ZKS Mobile IoT Tech. Com., Ltd.                                                                                                                           |

### 2.2 Description of EUT(S)

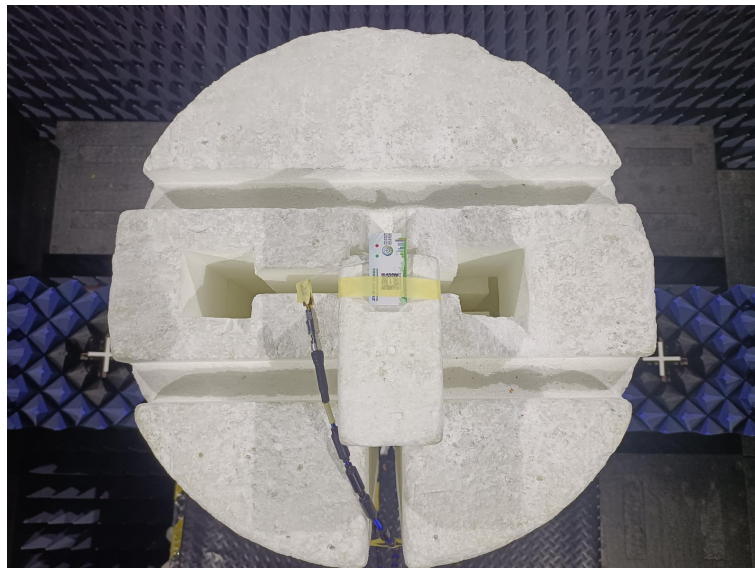
|                 |                                                  |
|-----------------|--------------------------------------------------|
| Product Name    | YFL Wireless Temperature Datalogger              |
| Sample Model    | C300B                                            |
| Serial No.      | /                                                |
| Antenna Size    | 25.58*6.16mm                                     |
| Antenna Type    | PCB Antenna                                      |
| Test Item       | VSWR;Antenna gain; Efficiency; Radiation pattern |
| Frequency Range | 2400-2500MHz                                     |
| Received Date   | 2024.11.15                                       |
| Test Date       | 2024.11.18                                       |
| Remark          | /                                                |

## 2.3 EUT appearance

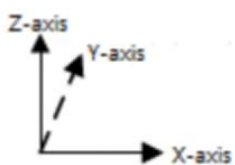
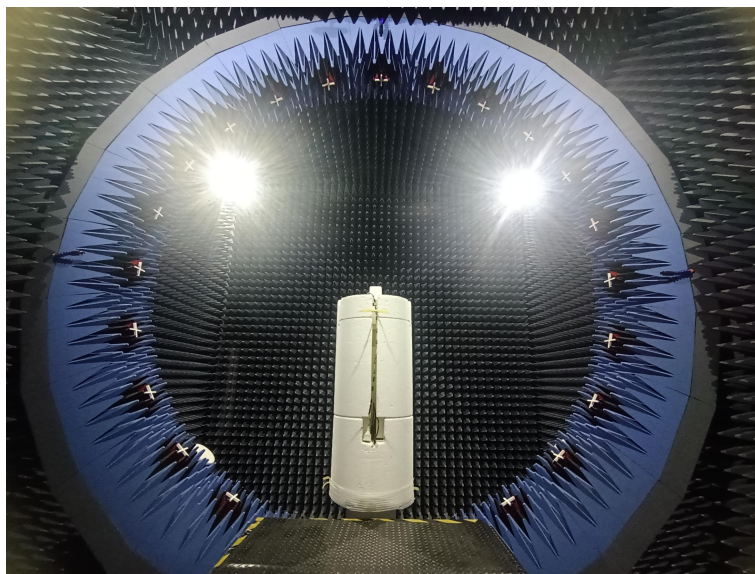


## 2.4 EUT setup photo of free space OTA testing

Planform



Front view



## 3. Test Results

### 3.1 Test standard

| Name                         | Parameter            | Method                                                               | Standard no.           |
|------------------------------|----------------------|----------------------------------------------------------------------|------------------------|
| Mobile communication antenna | Antenna gain         | Generic specification for antennas used in the mobile communications | GB/T 9410-2008         |
|                              | Radiation pattern    |                                                                      |                        |
|                              | VSWR                 |                                                                      |                        |
| Antenna                      | Radiation efficiency | IEEE Standard Test Procedures for Antennas                           | ANSI/IEEE Std 149-1979 |
|                              | Gain and directivity |                                                                      |                        |

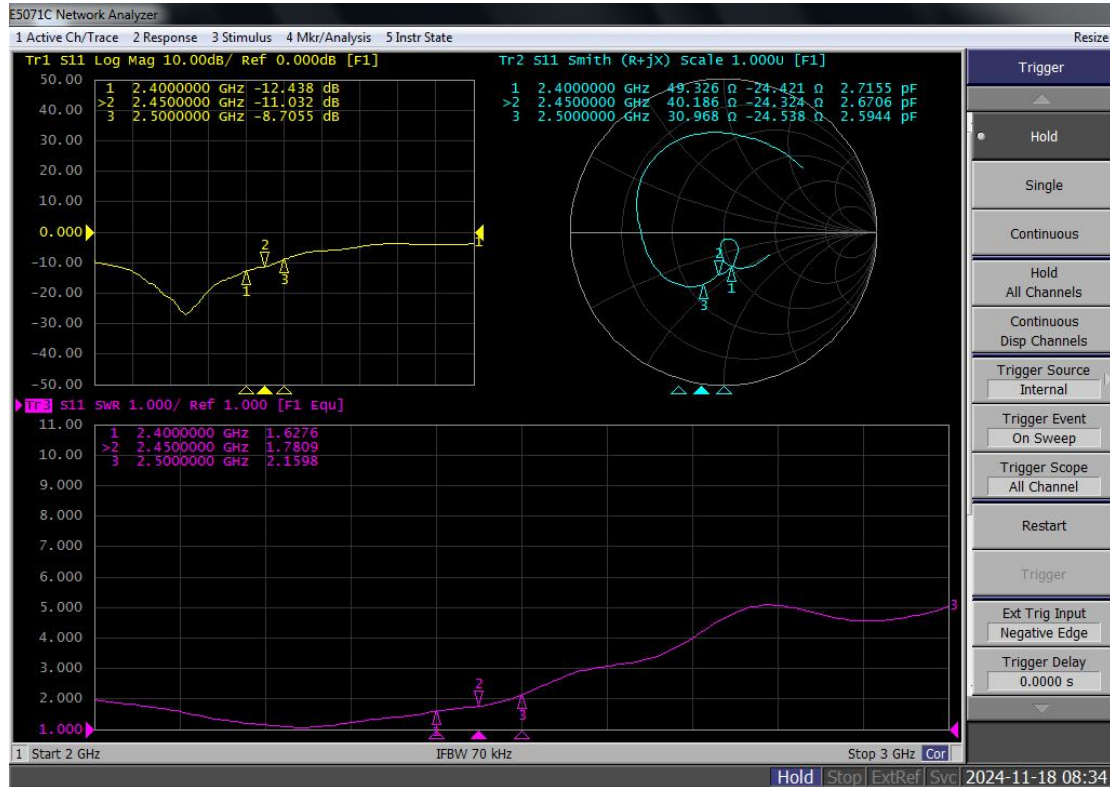
### 3.2 Test uncertainty

The uncertainty was calculated on the basis of the GUM published by ISO, using the inclusion factor of  $K=2$  and the 95% confidence level to express the extended uncertainty.

| Item                 | Uncertainty         |
|----------------------|---------------------|
| VSWR                 | $\pm 0.3$           |
| Antenna gain         | $\pm 0.72\text{dB}$ |
| Radiation efficiency | $\pm 0.72\text{dB}$ |

## 3.3 Test data

### 3.3.1 S11 parameters



### 3.3.2 S11 data

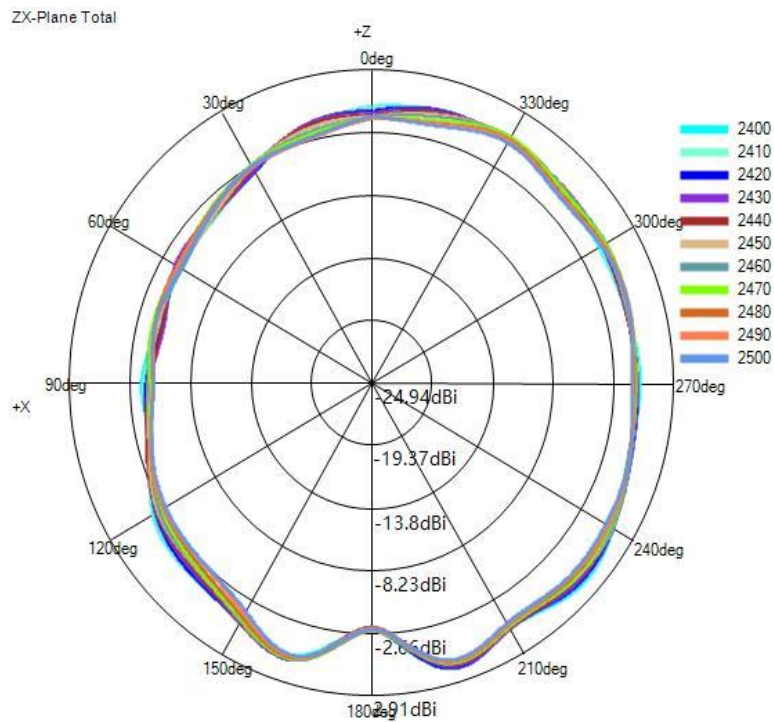
| Frequency/MHz | 2400   | 2450   | 2500   |
|---------------|--------|--------|--------|
| VSWR          | 1.6276 | 1.7809 | 2.1598 |

### 3.3.3 Typical free space efficiency and gain

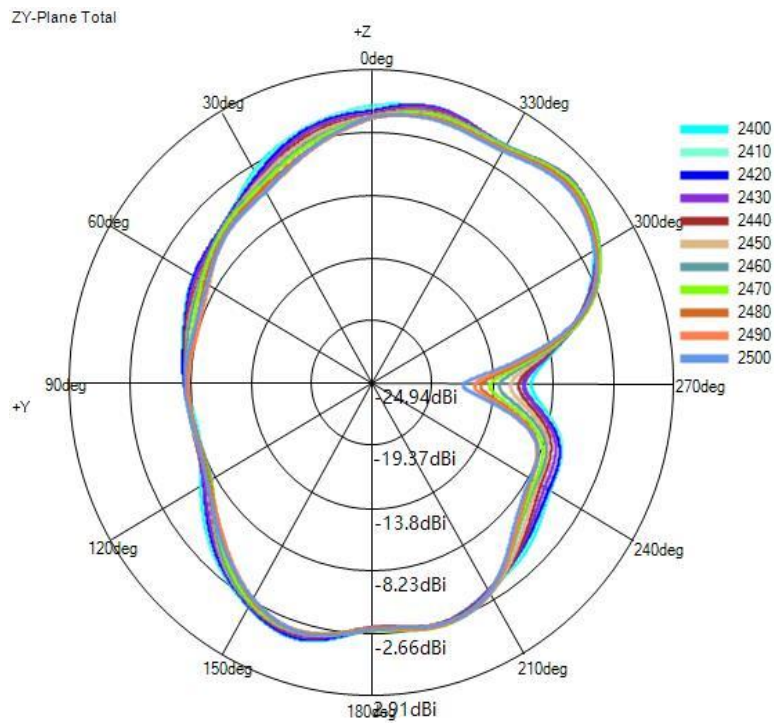
| Frequency/MHz | 2400  | 2410  | 2420  | 2430  | 2440  | 2450  | 2460  | 2470  | 2480  | 2490  | 2500  |
|---------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Peak Gain/dBi | 2.86  | 2.81  | 2.87  | 2.91  | 2.86  | 2.79  | 2.68  | 2.74  | 2.67  | 2.57  | 2.37  |
| Efficiency/%  | 60.46 | 60.03 | 59.99 | 59.09 | 58.16 | 57.92 | 57.61 | 56.99 | 54.66 | 53.72 | 52.85 |

### 3.3.4 Typical free space radiation pattern

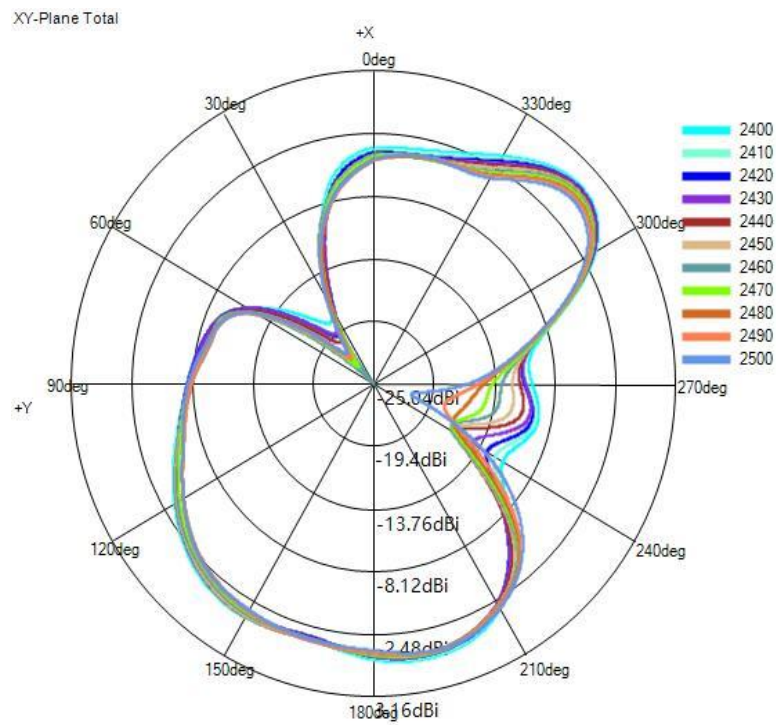
(1) X-Z Plane(unit:dBi):



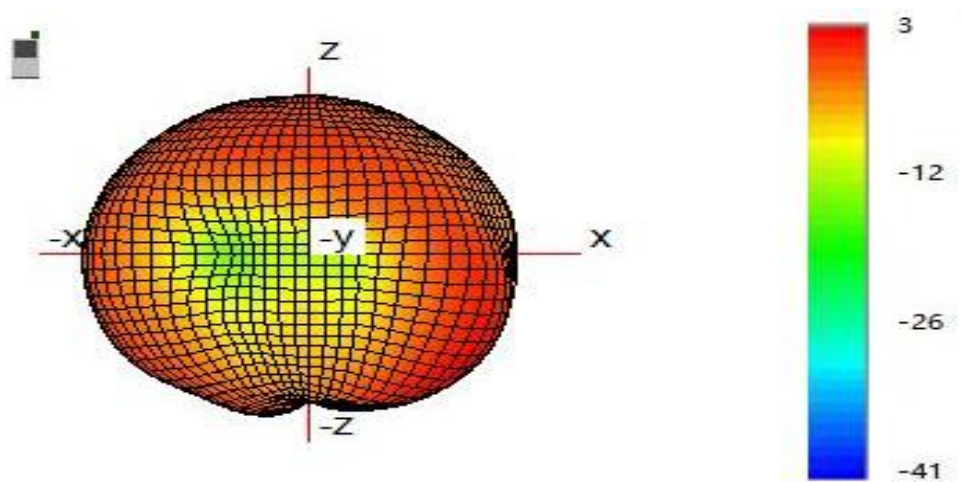
(2) Y-Z Plane(unit:dBi):



(3) X-Y Plane(unit:dBi):



(4) Typical Free Space 3D Radiation Pattern at 2.43GHz(unit:dBi):



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