



# 校准证书

## CALIBRATION CERTIFICATE

证书编号 GDDE202200107  
Certificate No.

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委托方 优利德科技(中国)股份有限公司  
Client

委托方联络信息 广东省东莞市松山湖园区工业北一路6号  
Contact Information

计量器具名称 电子式绝缘电阻表  
Description

型号规格 UT513A  
Model/Type

制造厂 UNI-T  
Manufacturer

出厂编号 H200135736  
Serial No.

设备编号 /  
Equipment No.

接收日期 2022 年 03 月 09 日  
Date of Receipt Y M D

结果 见校准结果  
Results Show in the results of calibration

校准日期 2022 年 03 月 09 日  
Date of calibration Y M D

批准人 何洪波  
Approved Signatory

核 验 齐海军  
Reviewed by

校 准 郑艺成  
Calibrated by

证书专用章  
Stamp





## 说明

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### DIRECTIONS

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1. 本中心是国家市场监督管理总局在华南地区设立的国家法定计量检定机构, 本中心的质量管理体系符合 ISO/IEC 17025:2017 标准的要求。

This laboratory is the National Legal Metrological Verification Institution in southern China set up by the General Administration of Quality Supervision. The quality system is in accordance with ISO/IEC 17025:2017.

2. 本中心所出具的数据均可溯源至国家计量基准和/或国际单位制 (SI)。

All data issued by this laboratory are traceable to national primary standards and/or International System of Units (SI)

3. 校准地点、环境条件:

Place and environmental conditions of the calibration:

地点 本院电学实验室

温度

20 °C

相对湿度

50 %

Place

Temperature

RH

4. 本次校准的技术依据:

Reference documents for the calibration:

JJG 1005-2019 电子式绝缘电阻表检定规程 V.R. of Electronic Insulating Resistance Meters

5. 本次校准所使用的主要计量标准器具:

Major standards of measurement used in the calibration:

| 设备名称/型号规格<br>Name of Equipment<br>/Model/Type      | 编号<br>Serial No. | 证书号/有效期/溯源单位<br>Certificate No./Due Date<br>/Traceability to | 计量特性<br>Metrological<br>Characteristic |
|----------------------------------------------------|------------------|--------------------------------------------------------------|----------------------------------------|
| 兆欧表检定装置(直流电阻箱)<br>Megameter Calibrator<br>/ZX119-8 | 9611             | GDDG202200017<br>/2023-02-09<br>/本中心                         | 电阻:0.2级, 电压:1级                         |
| 高压高值电阻器<br>/TG100                                  | 1222             | DYQ202200206<br>/2023-01-27<br>/省计量院                         | 2级                                     |

注: 1. 本证书校准结果只与受校准仪器有关。 The results relate only to the items calibrated.  
Note: 2. 未经本机构书面批准, 不得部分复制此证书。 This certificate shall not be reproduced except in full, without the written approval of our laboratory.  
3. “委托方”、“委托方联络信息”由委托方提供, “制造厂”、“型号规格”、“出厂编号”以及“设备编号”为仪器上标注。 The information Client and Contact Information are provided by client, and the Manufacturer, Model/Type, Serial No. and Equipment No. are marked on the items.  
4. 本次校准日期视为发布日期。 The calibration date is the date of issue of the certificate.



## 校准结果 RESULTS OF CALIBRATION

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一、示值误差(电阻): 见表1

Error value(resistance): Shown in table 1

表1 Table 1

| 测试条件           | 标准值             | 指示值              | 误差    | 最大<br>允许误差 | 结论         |
|----------------|-----------------|------------------|-------|------------|------------|
| Test condition | Reference Value | Indication Value | Error | MPE        | Conclusion |
| (V)            | (MΩ)            | (MΩ)             | (MΩ)  | (MΩ)       | P/F        |
| 500            | 1.0             | 1.0              | 0.0   | ±0.5       | Pass       |
|                | 2.0             | 2.0              | 0.0   | ±0.6       | Pass       |
|                | 5.0             | 5.0              | 0.0   | ±0.7       | Pass       |
|                | 10.0            | 10.0             | 0.0   | ±0.8       | Pass       |
|                | 20.0            | 20.0             | 0.0   | ±1.1       | Pass       |
|                | 50.0            | 50.3             | 0.3   | ±2.0       | Pass       |
|                | 100.0           | 100.1            | 0.1   | ±3.5       | Pass       |
|                | 200             | 200              | 0     | ±11        | Pass       |
|                | 500             | 499              | -1    | ±20        | Pass       |
|                | (GΩ)            | (GΩ)             | (GΩ)  | (GΩ)       | P/F        |
|                | 1.00            | 1.00             | 0.00  | ±0.08      | Pass       |
|                | 2.00            | 2.01             | 0.01  | ±0.11      | Pass       |
|                | 5.00            | 5.04             | 0.04  | ±0.20      | Pass       |
|                | 10.00           | 10.14            | 0.14  | ±0.35      | Pass       |
|                | 20.0            | 20.1             | 0.1   | ±1.1       | Pass       |
|                |                 |                  |       |            |            |
| (V)            | (MΩ)            | (MΩ)             | (MΩ)  | (MΩ)       | P/F        |
| 1000           | 1.0             | 1.0              | 0.0   | ±0.5       | Pass       |
|                | 10.0            | 10.0             | 0.0   | ±0.8       | Pass       |
|                | 100.0           | 100.0            | 0.0   | ±3.5       | Pass       |
|                | (GΩ)            | (GΩ)             | (GΩ)  | (GΩ)       | P/F        |
|                | 1.000           | 1.000            | 0.000 | ±0.035     | Pass       |
|                | 10.00           | 10.12            | 0.12  | ±0.35      | Pass       |



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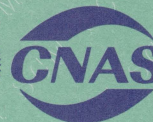
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表1 Table 1

| 测试条件           | 标准值             | 指示值              | 误差            | 最大<br>允许误差    | 结论         |
|----------------|-----------------|------------------|---------------|---------------|------------|
| Test condition | Reference Value | Indication Value | Error         | MPE           | Conclusion |
| (V)            | (M $\Omega$ )   | (M $\Omega$ )    | (M $\Omega$ ) | (M $\Omega$ ) | P/F        |
| 2500           | 1.0             | 1.0              | 0.0           | $\pm 0.5$     | Pass       |
|                | 10.0            | 10.0             | 0.0           | $\pm 0.8$     | Pass       |
|                | 100.0           | 99.6             | -0.4          | $\pm 3.5$     | Pass       |
|                | (G $\Omega$ )   | (G $\Omega$ )    | (G $\Omega$ ) | (G $\Omega$ ) | P/F        |
|                | 1.00            | 1.00             | 0.00          | $\pm 0.08$    | Pass       |
|                | 10.0            | 10.1             | 0.1           | $\pm 0.8$     | Pass       |
|                | 100.0           | 100.3            | 0.3           | $\pm 3.5$     | Pass       |
| (V)            | (M $\Omega$ )   | (M $\Omega$ )    | (M $\Omega$ ) | (M $\Omega$ ) | P/F        |
| 5000           | 10.0            | 10.0             | 0.0           | $\pm 0.8$     | Pass       |
|                | 100.0           | 99.3             | -0.7          | $\pm 3.5$     | Pass       |
|                | (G $\Omega$ )   | (G $\Omega$ )    | (G $\Omega$ ) | (G $\Omega$ ) | P/F        |
|                | 1.00            | 1.00             | 0.00          | $\pm 0.08$    | Pass       |
|                | 10.0            | 10.1             | 0.1           | $\pm 0.8$     | Pass       |
|                | 100.0           | 100.7            | 0.7           | $\pm 3.5$     | Pass       |
|                | 200             | 199              | -1            | $\pm 11$      | Pass       |
|                | 500             | 493              | -7            | $\pm 20$      | Pass       |
|                | 1000            | 978              | -22           | $\pm 34$      | Pass       |



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二、开路电压（电压）：见表2

Open circuit voltage（voltage）：Shown in table 2

表2 Table 2

| 标准值             | 指示值              | 标准值<br>允许下限 | 标准值<br>允许上限 | 结论         |
|-----------------|------------------|-------------|-------------|------------|
| Reference Value | Indication Value | Low Limit   | High Limit  | Conclusion |
| (V)             | (V)              | (V)         | (V)         | P/F        |
| 573             | 500              | 500         | 600         | Pass       |
| 1109            | 1000             | 1000        | 1200        | Pass       |
| 2883            | 2500             | 2500        | 3000        | Pass       |
| 5556            | 5000             | 5000        | 6000        | Pass       |

说明：

Note:

1. 本次测量结果的扩展不确定度：

The Expanded Uncertainty of Measurement:

电阻： $U_{rel}=1.6\%(\leq 1G\Omega)$ ,  $U_{rel}=3\%(\leq 10G\Omega)$ ,  $U_{rel}=6\%(\leq 1T\Omega)$ ; 电压： $U_{rel}=3\%$ ;

包含因子 $k=2$ ，本证书中给出的扩展不确定度依据JJF1059.1-2012《测量不确定度评定与表示》评定，由合成标准不确定度乘以包含概率约为95%时对应的包含因子 $k$ 得到。

Coverage factor  $k=2$ , the expanded uncertainty given in this certificate is evaluated according to JJF 1059.1-2012 "Evaluation and Expression of Uncertainty in Measurement", which is obtained by multiplying the combined standard uncertainty by the coverage factor  $k$  corresponding to the coverage probability of about 95%.

2. 判定准则为JJF1094-2002《测量仪器特性评定》第5.3.1条款和JJG1005-2019。

Decision criteria is JJF1094-2002《Evaluation of the Characteristics of Measuring Instruments》 and JJG1005-2019. the technical requirements in the manual.

3. 按照所依据技术文件的规定，建议复校时间间隔不超过1年。

According to the demand of reference document, next calibration is proposed within 1 year.