华南国家计量测试中心
广东省计量科学研究院
SOUTH CHINA NATIONAL CENTER OF METROLOGY
GUANGDONG INSTITUTE OF METROLOGY

中国认可
国际互认
校准
CALIBRATION
CNAS L0730

校 准 证 书
CALIBRATION CERTIFICATE

证书编号 Certificate No. GDDE202300241

委托方 Client 优利德科技(中国)股份有限公司

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

计量器具名称 Description 电子式绝缘电阻表

型号规格 Model/Type UT512D

制造厂 Manufacturer UNI-T

出厂编号 Serial No. C223175333

设备编号 / Equipment No.

接收日期 Date of Receipt 2023 年 Y 04 月 M 13 日 D

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

校准日期 Date of calibration 2023 年 Y 04 月 M 17 日 D

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批 准 人 Approved Signatory 何洪波

核 验 Reviewed by 何洪波

校 准 Calibrated by 郑艺成

证书专用章
Stamp

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说　明

证书编号 GDDE202300241　　第 2 页，共 5 页
Certificate No.　　Page　of

DIRECTIONS

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 Place	本院电学实验室	温度 Temperature	25 ℃	相对湿度 RH	58 %

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 Name of Equipment /Model/Type	编号 Serial No.	证书号/有效期/溯源单位 Certificate No./Due Date /Traceability to	计量特性 Metrological Characteristic
兆欧表检定装置(直流电阻箱) Megameter Calibrator/ZX119-8	9611	GDDG202300016 /2024-02-08 /本中心	电阻:0.2级,电压:1级

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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

证书编号 GDDE202300241 原始记录号 202300241 第 3 页,共 5 页
Certificate No. Record No. Page of

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 Test condition	标准值 Reference Value	指示值 Indication Value	误差 Error	最大允许误差 MPE	结论 Conclusion
(V)	(MΩ)	(MΩ)	(MΩ)	(MΩ)	P/F
250	1.00	0.95	-0.05	±0.10	Pass
	10.00	9.93	-0.07	±0.55	Pass
	100.0	96.6	-3.4	±5.3	Pass
	(GΩ)	(GΩ)	(GΩ)	(GΩ)	P/F
	1.000	0.970	-0.030	±0.054	Pass
	10.0	10.0	0.0	±1.0	Pass
(V)	(MΩ)	(MΩ)	(MΩ)	(MΩ)	P/F
500	1.00	0.94	-0.06	±0.10	Pass
	10.0	10.1	0.1	±1.0	Pass
	100.0	96.5	-3.5	±5.3	Pass
	(GΩ)	(GΩ)	(GΩ)	(GΩ)	P/F
	1.000	0.970	-0.030	±0.054	Pass
	10.0	10.2	0.2	±3.0	Pass
	100	104	4	±31	Pass
(V)	(MΩ)	(MΩ)	(MΩ)	(MΩ)	P/F
1000	1.00	0.95	-0.05	±0.10	Pass
	10.00	9.57	-0.43	±0.53	Pass
	100.0	96.2	-3.8	±5.3	Pass
	(GΩ)	(GΩ)	(GΩ)	(GΩ)	P/F
	1.000	0.981	-0.019	±0.054	Pass
	10.0	10.1	0.1	±1.0	Pass
	100	102	2	±30	Pass

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校 准 结 果
RESULTS OF CALIBRATION

证书编号 GDDE202300241 原始记录号 202300241 第 4 页,共 5 页
Certificate No. Record No. Page of

续表1 Table 1

测试条件 Test condition (V)	标准值 Reference Value (MΩ)	指示值 Indication Value (MΩ)	误差 Error (MΩ)	最大允许误差 MPE (MΩ)	结论 Conclusion P/F
2500	5.00	4.80	-0.20	±0.29	Pass
	10.00	9.62	-0.38	±0.53	Pass
	20.0	19.3	-0.7	±1.5	Pass
	50.0	49.0	-1.0	±3.0	Pass
	100.0	95.6	-4.4	±5.3	Pass
	200	193	-7	±15	Pass
	500	486	-14	±29	Pass
	(GΩ)	(GΩ)	(GΩ)	(GΩ)	P/F
	1.000	0.976	-0.024	±0.054	Pass
	2.00	1.96	-0.04	±0.15	Pass
	5.00	4.99	-0.01	±0.30	Pass
	10.0	10.2	0.2	±1.0	Pass
	20.0	20.1	0.1	±5.0	Pass
	50.0	50.2	0.2	±11.0	Pass
	100	101	1	±30	Pass

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 Reference Value (V)	指示值 Indication Value (V)	标准值允许下限 Low Limit (V)	标准值允许上限 High Limit (V)	结论 Conclusion P/F
279	250	250	300	Pass
545	500	500	600	Pass
1088	1000	1000	1200	Pass
2680	2500	2500	3000	Pass

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校 准 结 果
RESULTS OF CALIBRATION

证书编号 GDDE202300241 原始记录号 202300241 第 5 页,共 5 页
Certificate No. Record No. Page of

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%(≤1GΩ),U_{rel}=3%(≤10GΩ),U_{rel}=6%(≤100GΩ);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.校准结果符合性判定依据JJF1094-2002《测量仪器特性评定》第5.3.1条款和JJG1005-2019。

Decision rules of conformity is in JJF1094-2002《Evaluation of the Characteristics of Measuring Instruments》 and JJG1005-2019.

3.按照所依据技术文件的规定，建议复校时间间隔不超过2年。更换重要部件、维修或对仪器性能有怀疑时，应及时校准。

According to the demand of reference document , next calibration is proposed within 2 year . In case of replacement of important parts , maintenance or doubt on the performance of the instrument , it shall be calibrated in time .

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