



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.

GDDE202500119

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客户名称
Name of the Customer

优利德科技(中国)股份有限公司

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

绝缘电阻测试仪(电子式绝缘电阻表)

型号/规格
Model/Type

UT513B

制造厂
Manufacturer

UNI-T

出厂编号
Serial No.

/

设备管理编号 8250214033.15
Equipment No.

接收日期
Receipt on

2025 年 02 月 14 日
Y M D

结论

见校准结果

Conclusion

校准日期
Calibration on

2025 年 02 月 18 日
Y M D

发布日期
Issue on

2025 年 02 月 18 日
Y M D

批准
Authorized by

何洪波

核 验
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Calibrated by

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证书专用章
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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 A4-402 安规实验室 温度 (21.6~21.6) °C 相对湿度 (59~59) %
Location 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/测量范围	编号	证书号/有效期/溯源单位	计量特性
Name of Equipment	Serial No.	Certificate No./Due Date	Metrological
/Model/Type/Range		/Traceability to	Characteristic
兆欧表检定装置(直流电阻箱)	9611	GDDG202500008	电阻:0.2级, 电压:1级
/ZX119-8/1kΩ~211GΩ		/2026-01-02	
		/本中心	

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. “客户名称”、“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 Name of the Customer and Contact Information are provided by client, and the Manufacturer, Model/Type, Serial No. and Equipment No. are marked on the items.



校准结果

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一、外观及通电检查

Appearance and power on inspection

结论: Pass

二、示值误差(电阻): 见表1

Indication error(Resistance): Shown in table 1

表1 Table 1

测试条件	标准值	示值	误差	最大 允许误差	结论
Test condition	Standard value	Indication Value	Error	MPE	Conclusion
(V)	(M Ω)	(M Ω)	(M Ω)	(M Ω)	P/F
250	1.00	1.00	0.00	± 0.10	Pass
	2.00	2.01	0.01	± 0.15	Pass
	5.00	5.02	0.02	± 0.30	Pass
	10.0	10.0	0.0	± 1.0	Pass
	20.0	20.0	0.0	± 1.5	Pass
	50.0	50.3	0.3	± 3.0	Pass
	100	100	0	± 10	Pass
	200	201	1	± 15	Pass
	500	503	3	± 30	Pass
	(G Ω)	(G Ω)	(G Ω)	(G Ω)	P/F
	1.00	1.01	0.01	± 0.10	Pass
	2.00	2.01	0.01	± 0.15	Pass
	5.00	5.06	0.06	± 0.61	Pass
	10.0	10.2	0.2	± 2.0	Pass
	20.0	20.3	0.3	± 3.0	Pass
(V)	(M Ω)	(M Ω)	(M Ω)	(M Ω)	P/F
500	1.00	1.00	0.00	± 0.10	Pass
	2.00	2.00	0.00	± 0.15	Pass
	5.00	5.02	0.02	± 0.30	Pass
	10.0	10.0	0.0	± 1.0	Pass



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续表1 Table 1

测试条件	标准值	示值	误差	最大 允许误差	结论
Test condition	Standard value	Indication Value	Error	MPE	Conclusion
(V)	(MΩ)	(MΩ)	(MΩ)	(MΩ)	P/F
500	20.0	20.0	0.0	±1.5	Pass
	50.0	50.2	0.2	±3.0	Pass
	100.0	99.7	-0.3	±5.5	Pass
	200	201	1	±15	Pass
	500	503	3	±30	Pass
	(GΩ)	(GΩ)	(GΩ)	(GΩ)	P/F
	1.00	1.00	0.00	±0.10	Pass
	2.00	2.02	0.02	±0.15	Pass
	5.00	5.05	0.05	±0.61	Pass
	10.0	10.2	0.2	±2.0	Pass
	20.0	20.3	0.3	±3.0	Pass
	50.0	50.5	0.5	±6.1	Pass
	(MΩ)	(MΩ)	(MΩ)	(MΩ)	P/F
	5.00	5.00	0.00	±0.30	Pass
1000	10.0	10.0	0.0	±1.0	Pass
	20.0	20.0	0.0	±1.5	Pass
	50.0	50.1	0.1	±3.0	Pass
	100.0	99.6	-0.4	±5.5	Pass
	200	200	0	±15	Pass
	500	502	2	±30	Pass
	(GΩ)	(GΩ)	(GΩ)	(GΩ)	P/F
	1.00	1.00	0.00	±0.10	Pass
	2.00	2.01	0.01	±0.15	Pass
	5.00	5.06	0.06	±0.61	Pass
	10.0	10.1	0.1	±2.0	Pass
	20.0	20.3	0.3	±3.0	Pass



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续表1 Table 1

测试条件	标准值	示值	误差	最大 允许误差	结论
Test condition	Standard value	Indication Value	Error	MPE	Conclusion
(V)	(GΩ)	(GΩ)	(GΩ)	(GΩ)	P/F
1000	50.0	50.6	0.6	±6.1	Pass
	100	101	1	±20	Pass
(V)	(MΩ)	(MΩ)	(MΩ)	(MΩ)	P/F
2500	10.00	9.96	-0.04	±0.35	Pass
	20.0	20.0	0.0	±1.5	Pass
	50.0	50.1	0.1	±3.0	Pass
	100.0	99.3	-0.7	±5.5	Pass
	200	200	0	±15	Pass
	500	500	0	±30	Pass
	(GΩ)	(GΩ)	(GΩ)	(GΩ)	P/F
	1.00	1.00	0.00	±0.10	Pass
	2.00	2.01	0.01	±0.15	Pass
	5.00	5.06	0.06	±0.30	Pass
	10.0	10.1	0.1	±1.0	Pass
	20.0	20.2	0.2	±1.5	Pass
	50.0	50.5	0.5	±8.6	Pass
	100	101	1	±25	Pass
(V)	(MΩ)	(MΩ)	(MΩ)	(MΩ)	P/F
5000	10.00	9.96	-0.04	±0.55	Pass
	20.0	20.0	0.0	±1.5	Pass
	50.0	50.3	0.3	±3.0	Pass
	100.0	99.0	-1.0	±5.5	Pass
	200	199	-1	±15	Pass
	500	499	-1	±30	Pass



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续表1 Table 1

测试条件	标准值	示值	误差	最大 允许误差	结论
Test condition	Standard value	Indication Value	Error	MPE	Conclusion
(V)	(GΩ)	(GΩ)	(GΩ)	(GΩ)	P/F
5000	1.00	1.00	0.00	±0.10	Pass
	2.00	2.01	0.01	±0.15	Pass
	5.00	5.06	0.06	±0.30	Pass
	10.0	10.1	0.1	±1.0	Pass
	20.0	20.1	0.1	±1.5	Pass
	50.0	50.2	0.2	±9.5	Pass
	100	101	1	±35	Pass

三、开路电压（电压）：见表2

Open circuit voltage(Voltage):Shown in table 2

表2 Table 2

实测值	标称值	标准值 允许下限	标准值 允许上限	结论
Actual value	Nominal value	Low Limit	High Limit	Conclusion
(V)	(V)	(V)	(V)	P/F
285	250	250	300	Pass
543	500	500	600	Pass
1057	1000	1000	1200	Pass
2582	2500	2500	3000	Pass
5250	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: $U_{rel}=1.6\%(\leq 1G\Omega)$, $U_{rel}=3\%(\leq 10G\Omega)$, $U_{rel}=6\%(\leq 100G\Omega)$; 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。



校准结果 RESULTS OF CALIBRATION

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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 条款和该仪器说明书技术要求。

Decision rules of conformity is in JJF1094-2002 "Evaluation of the Characteristic of Measuring Instruments" (5.3.1) and the technical requirements in the manual.

3. 该仪器的溯源日期为本证书的“校准日期”，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。更换重要部件、维修或对仪器性能有怀疑时，应及时校准。

The traceability date of this instrument is the "Calibration Date" on this certificate. According to the demand of reference document, next calibration is proposed within 1 year. In case of replacement of important parts, maintenance or doubt on the performance of the instrument, it shall be calibrated in time.

4. 校准活动中对测量结果有影响的条件:

Conditions under which the calibrations were made that have an influence on the measurement results:

温度(Temperature): (21.6~21.6)°C, 湿度(Humidity): (59~59)%RH.

