



校准证书

CALIBRATION CERTIFICATE

证书编号 GDDE202400026
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 地桩式钳形接地电阻测试仪 (钳形接地电阻表, 接地电阻表)
Description

型号规格 UT278B
Model/Type

制造厂 UNI-T
Manufacturer

出厂编号 C221508034
Serial No.

设备编号 /
Equipment No.

接收日期 2024 年 01 月 05 日
Date of Receipt Y M D

结果 见校准结果
Results

校准日期 2024 年 01 月 10 日
Date of calibration Y M D

批准人 何洪波
Approved Signatory

核 验 何洪波
Reviewed by

校 准 叶峻江
Calibrated by

证书专用章
Stamp





说明

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DIRECTIONS

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- 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.
- 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).
- 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 (21.7~22.0) °C 相对湿度 (54~59) %
Place Temperature RH
- 本次校准的技术依据:
Reference documents for the calibration:
JJG 1054-2009 钳形接地电阻仪检定规程 V.R. of Clamp Earth Resistance Meters
JJG 366-2004 接地电阻表检定规程 V.R. of Earth 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
接地电阻仪检定装置(直流电阻箱)	98400	GDDG202300432	0.1级
/JD-1B/(1mΩ~1kΩ)		/2024-12-03	
		/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. “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.



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一、钳形接地电阻表部分

1、外观及通电检查:

Appearance and power-on inspection

结论

Conclusion

合格

2、分辨力:

Resolution

结论

Conclusion

合格

3、显示能力:

Display capabilities

结论

Conclusion

合格

4、偏心位置影响(电阻)见表1:

Eccentric position effects shown in table 1

表1 Table1

量程	中心位置示值	偏心位置示值	改变量	允许改变量	结论
Range	Center Value	Eccentricity Value	Change Value	Allow Value	Conclusion
(Ω)	(Ω)	(Ω)	(Ω)	(Ω)	P/F
0.02~9.99	4.77	4.77	0.00	± 0.04	Pass

5、测量重复性(电阻)见表2:

Repeatability measurements shown in table 2

表2 Table2

量程	最大值	最小值	改变量	允许误差	结论
Range	Maximum	Minimum	Change Value	Allow Value	Conclusion
(Ω)	(Ω)	(Ω)	(Ω)	(Ω)	P/F
10.0~99.9	9.37	9.35	-0.02	± 0.16	Pass

6、报警临界电阻(电阻)见表3:

Alarm critical resistance shown in table 3

表3 Table3

量程	标准值	设定值	误差	允许误差	结论
Range	Reference Value	Indication Value	Error	MPE	Conclusion
(Ω)	(Ω)	(Ω)	(Ω)	(Ω)	P/F
0.02~9.99	1.06	1.00	-0.06	± 0.12	Pass
	4.26	4.00	-0.26	± 0.18	Fail
10.0~99.9	10.7	10.0	-0.7	± 0.8	Pass
	31.5	30.0	-1.5	± 1.4	Fail
100~199	105	100	-5	± 6	Pass



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7、钳形接地电阻表示值误差（电阻）见表4:

Value Error: shown in table 4

表4 Table4

量程	标准值	指示值	误差	允许误差	结论
Range	Reference Value	Indication Value	Error	MPE	Conclusion
(Ω)	(Ω)	(Ω)	(Ω)	(Ω)	P/F
0.02~9.99	0.20	0.20	0.00	± 0.10	Pass
	9.00	8.42	-0.58	± 0.27	Fail
10.0~99.9	11.0	10.3	-0.7	± 0.8	Pass
	30.0	28.6	-1.4	± 1.4	Pass
	50.0	47.7	-2.3	± 1.9	Fail
	70.0	66.8	-3.2	± 2.5	Fail
	90.0	85.9	-4.1	± 3.1	Fail
100~199	110	105	-5	± 6	Pass
	180	172	-8	± 10	Pass
200~299	220	211	-9	± 26	Pass
	280	250	-30	± 30	Pass
300~699	350	307	-43	± 56	Pass
	600	538	-62	± 91	Pass
700~999	750	702	-48	± 160	Pass
	900	876	-24	± 195	Pass

二、接地电阻表部分

1、示值误差（电阻）见表5:

Value Error: shown in table 5

表5 Table5

量程	标准值	指示值	误差	允许误差	结论
Range	Reference Value	Indication Value	Error	MPE	Conclusion
(Ω)	(Ω)	(Ω)	(Ω)	(Ω)	P/F
0.01~9.99	0.20	0.21	0.01	± 0.20	Pass
	9.00	9.02	0.02	± 0.38	Pass
10.0~99.9	11.0	11.0	0.0	± 1.2	Pass
	20.0	20.0	0.0	± 1.4	Pass
	30.0	30.0	0.0	± 1.6	Pass
	40.0	40.0	0.0	± 1.8	Pass



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续表5 Table5

量程 Range	标准值 Reference Value	指示值 Indication Value	误差 Error	允许误差 MPE	结论 Conclusion
(Ω)	(Ω)	(Ω)	(Ω)	(Ω)	P/F
10.0~99.9	50.0	49.9	-0.1	± 2.0	Pass
	60.0	59.9	-0.1	± 2.2	Pass
	70.0	69.9	-0.1	± 2.4	Pass
	80.0	79.9	-0.1	± 2.6	Pass
	90.0	90.0	0.0	± 2.8	Pass
	95.0	95.0	0.0	± 2.9	Pass
100~999	120	120	0	± 17	Pass
	900	899	-1	± 33	Pass

2、辅助接地电阻影响（电阻）见表6:

Value Error: shown in table 6

表6 Table6

量程 Range	标准值 Reference Value	指示值 Indication Value	误差 Error	允许误差 MPE	结论 Conclusion
(Ω)	(Ω)	(Ω)	(Ω)	(Ω)	P/F
0.01~9.99	9.02	8.88	-0.14	± 0.76	Pass

3、绝缘电阻:

Insulation resistance

结论

Conclusion

合格

说明:

Note:

1. 本次测量结果的扩展不确定度:

The Expanded Uncertainty of Measurement:

电阻（钳形接地电阻表）: $U=0.02\Omega(<1\Omega)$, $U=0.2\Omega(<10\Omega)$, $U=0.6\Omega(<100\Omega)$, $U=3\Omega(\leq 1000\Omega)$

电阻（接地电阻表）: $U=0.02\Omega(<1\Omega)$, $U=0.13\Omega(<10\Omega)$, $U=0.3\Omega(<100\Omega)$, $U=1.6\Omega(\leq 1000\Omega)$

包含因子 $k=2$, 本证书中给出的扩展不确定度依据 JJF 1059.1-2012《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。



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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 JJF1094-2002 *Evaluation of the Characteristic of Measuring Instruments* (5.3.1) and 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。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 1 year. In case of replacement of important parts, maintenance or doubt on the performance of the instrument, it shall be calibrated in time.

UNI-TREND

