



校准证书

CALIBRATION CERTIFICATE

证书编号 DBS202405140
Certificate No.

第 1 页, 共 5 页
Page of

客户名称 优利德科技(中国)股份有限公司
Name of the Customer

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 Flex Clamp
Description

型号/规格 UT281E+
Model/Type

制造厂 UNI-T
Manufacturer

出厂编号 ZBUT281E+ 设备管理编号 ----
Serial No. Equipment No.

接收日期 2024 年 12 月 10 日
Receipt on Y M D

结论 见校准结果
Conclusion Shown in the results of calibration

校准日期 2024 年 12 月 16 日
Calibration on Y M D

发布日期 2024 年 12 月 16 日
Issue on Y M D

批准 戴伟
Authorized by

核验 马思龙
Reviewed by

校准 周云英
Calibrated by

证书专用章
Stamp



扫一扫查真伪



说 明

证书编号 DBS202405140
Certificate No.

DIRECTIONS

第 2 页, 共 5 页
Page of

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 State Administration for Market Regulation. 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:

Location and environmental conditions of the calibration:

地点 本中心电磁实验室
Location (Electrics-magnetics Lab)

温度 (20~22) °C
Temperature

相对湿度 (50~60) %
R.H.

4. 本次校准的技术依据:

Reference documents for the calibration:

JJF1075-2015 钳形电流表校准规范 C.S. for Clamp Ammeters
JJF1587-2016 数字多用表校准规范 C. S. for Multimeters

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 Name of Equipment /Model/Type/Range	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
多功能校准源 Multi function calibration source /5522A/DCV:(0~1000)V;DCI: (0~20)A;OHM(0~1)GΩ;DCP: (0~1000)V,(0~20)A	3032901	DBS202400688 /2025-04-14 /本中心	DCV:±0.0011%;DCI:±0.01%; OHM:±0.0028%;DCP:±0.019%
多功能校准源 Multi function calibration source /5522A/ACV:(0~1000)V;ACI: (0~20)A;ACP: (0~1000)V,(0~20)A;PHASE:±1 80°	3032901	DBS202400688 /2025-04-14 /本中心	ACV:±0.012%;ACI:±0.035%; ACP:±0.08%;PHASE:±0.10°

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, 委托方对上面内容如有异议, 须在收到证书后二十个工作日内提出。

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. Client shall submit any objection within 20 working days after receiving the certificate for the information above.



校准结果

RESULTS OF CALIBRATION

证书编号 DBS202405140
Certificate No.

原始记录号 DBS202405140
Record No.

第 3 页, 共 5 页
Page of

1 外观: 符合要求
Apparent inspection: Pass

2 直流电压: 见表1
DCV: Shown in table 1

表 1
Table 1

量 程	示 值	实 际 值	误 差	允许误差	结论
Range	Indication Value	Reference Value	Error	MPE	Conclusion
	(V)	(V)	(V)	(V)	(Pass/Fail)
6V	0.500	0.5000	0.000	±0.006	Pass
	3.000	3.0000	0.000	±0.026	Pass
	5.898	5.9000	- 0.002	±0.049	Pass
60V	58.95	59.000	- 0.05	±0.49	Pass
600V	589.4	590.00	- 0.6	±4.9	Pass
1000V	999	1000.0	- 1	±12	Pass

3 交流电压: 见表2, $f=50$ Hz
ACV: Shown in table 2

表 2
Table 2

量 程	示 值	实 际 值	误 差	允许误差	结论
Range	Indication Value	Reference Value	Error	MPE	Conclusion
	(V)	(V)	(V)	(V)	(Pass/Fail)
6V	5.897	5.9000	- 0.003	±0.062	Pass
60V	58.95	59.000	- 0.05	±0.62	Pass
600V	589.3	590.00	- 0.7	±6.2	Pass
1000V	999	1000.0	- 1	±15	Pass



校准结果

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原始记录号 DBS202405140
Record No.

第 4 页, 共 5 页
Page of

4 交流电流: 见表3, $f=50\text{ Hz}$
ACI: Shown in table 3

表 3
Table 3

量 程 Range	示 值 Indication Value	实 际 值 Reference Value	误 差 Error	允许误差 MPE	结 论 Conclusion
	(A)	(A)	(A)	(A)	(Pass/Fail)
9.99 A	0.99	1.000	- 0.01	± 0.07	Pass
	5.02	5.000	+ 0.02	± 0.15	Pass
	9.04	9.000	+ 0.04	± 0.23	Pass
99.9 A	9.9	10.00	- 0.1	± 0.3	Pass
	50.1	50.00	+ 0.1	± 1.1	Pass
	90.4	90.00	+ 0.4	± 1.9	Pass
999 A	99	100.0	- 1	± 3	Pass
	501	500.0	+ 1	± 13	Pass
	903	900.0	+ 3	± 23	Pass

5 电阻: 见表4
OHM: Shown in table 4

表 4
Table 4

量 程 Range	示 值 Indication Value	实 际 值 Reference Value	误 差 Error	允许误差 MPE	结 论 Conclusion
	(Ω)	(Ω)	(Ω)	(Ω)	(Pass/Fail)
600 Ω	100.5	100.00	+ 0.5	± 1.5	Pass
	(k Ω)	(k Ω)	(k Ω)	(k Ω)	
6k Ω	1.002	1.0000	+ 0.002	± 0.015	Pass
60k Ω	9.99	10.000	- 0.01	± 0.15	Pass
600k Ω	99.9	100.00	- 0.1	± 1.5	Pass
	(M Ω)	(M Ω)	(M Ω)	(M Ω)	
6M Ω	0.998	1.0000	- 0.002	± 0.025	Pass
60M Ω	9.98	10.000	- 0.02	± 0.30	Pass



校准结果 RESULTS OF CALIBRATION

证书编号 DBS202405140
Certificate No.

原始记录号 DBS202405140
Record No.

第 5 页, 共 5 页
Page of

说明:

Note:

1 测量结果的扩展不确定度:

Expanded uncertainty of measuring results:

直流电压 $U_{rel} = 0.1\%$

DCV

交流电流 $U_{rel} = 0.4\%$

ACI

包含因子 $k = 2$

Coverage factor

交流电压 $U_{rel} = 0.1\%$

ACV

电阻 $U_{rel} = 0.1\%$

OHM

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。

The expanded uncertainty given in this certificate is evaluated in accordance with 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》5.3.1和仪器说明书技术要求。

Decision rule of conformity is in JJF1094-2002 "Evaluation of the Characteristics of Measuring Instruments" (5.3.1) and 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):(20~22)°C, 湿度(Humidity):(50~60)%RH.



华南国家计量测试中心
广东省计量科学研究所

SOUTH CHINA NATIONAL CENTER OF METROLOGY
GUANGDONG INSTITUTE OF METROLOGY

校准证书

CALIBRATION CERTIFICATE

证书编号
Certificate No.

DYL202461155

第 1 页, 共 3 页
Page of

客户名称

优利德科技(中国)股份有限公司

Name of the Customer

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

柔性电流钳表

Description

型号/规格

UT281E+

Model/Type

制造厂

UNI-T

Manufacturer

出厂编号

86C2230YR2

Serial No.

设备管理编号

Equipment No.

接收日期

2024 年 12 月 10 日

Receipt on

Y M D

结论

见校准结果

Conclusion

Shown in the results of calibration

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Issue on

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批准

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戴伟

戴伟

核验

Reviewed by

李华杰

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校准

Calibrated by

苏建明

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扫一扫查真伪

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说明

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Certificate No.

DIRECTIONS

第 2 页, 共 3 页
Page of

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Location and environmental conditions of the calibration:

地点 本院电磁实验室
Location (Electrics-magnetics Lab)

温度 (19~21) °C
Temperature

相对湿度 (45~55) %
R.H.

4. 本次校准的技术依据:

Reference documents for the calibration:

JJF1075-2015 钳形电流表校准规范 C. S. for Clamp Ammeters1

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 Name of Equipment /Model/Type/Range	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
交流比较仪 AC comparator /JLB-1/(0.1~2000)A	09003	DCH202470029 /2026-06-17 /本中心	MPE:±0.002%rdg
高功率电阻标准 High Power Resistance standard /TH0300/1Ω, (0.1A~1A) 50Hz	24052340101	DCjd2024-03482 /2025-08-11 /国家计量院	$U_{rel}=10\mu A/A, k=2$
数字多用表 Digital Multimeter /8508A/ACV:(1mV~1000 V);ACI: (10μA~20 A)	908852108	DBS202404592 /2025-09-25 /本中心	ACV:±(0.0065%rdg + 0.001%FS);ACI:±(0.025%rdg + 0.01%FS)

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校准结果 RESULTS OF CALIBRATION

证书编号 DYL202461155
Certificate No.

原始记录号 620241155
Record No.

第 3 页, 共 3 页
Page of

1 外观 (Apparent inspection): 符合要求 (Pass)

2 电流测量见表1(Current test shown in table 1):

表1(Table 1)

	示值 Indication (kA)	标准值 Reference Value (kA)	误差 Error (kA)	允许误差 MPE (kA)	结论 Conclusion (Pass/Fail)
AC:50Hz	1.00	1.000	0.00	±0.08	P
	2.02	2.000	+ 0.02	±0.11	P
	3.04	3.000	+ 0.04	±0.14	P
	4.05	4.000	+ 0.05	±0.17	P
	5.07	5.000	+ 0.07	±0.20	P
	6.08	6.000	+ 0.08	±0.23	P

说明:

Note:

1 本次测量结果的扩展不确定度:

The Expanded Uncertainty of Measurement

交流电流 $U_{rel} = 1\%$

ACI

包含因子 $k = 2$

Coverage factor

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。

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