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. GDDL202100622

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 钳形电流表（钳形电流表，数字多用表）

型号规格 Model/Type UT205A+

制造厂 Manufacturer UNI-T

出厂编号 Serial No. C210005679

设备编号 / Equipment No.

接收日期 Date of Receipt 2021 年 10 月 19 日
Y M D

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

校准日期 Date of calibration 2021 年 10 月 21 日
Y M D

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批 准 人 Approved Signatory 何洪波

核 验 Reviewed by 齐海军

校 准 Calibrated by 郑艺成

证书专用章 Stamp

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说　明

证书编号 GDDL202100622
Certificate No.

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	22 ℃	相对湿度 RH	55 %

4. 本次校准的技术依据：
Reference documents for the calibration:

JJF 1587-2016 数字多用表校准规范　C.S. for Multimeters
JJF 1075-2015 钳形电流表校准规范　C.S. of Clamp Ammeters

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
多功能校准器 /3041A	L1398B16	DBS202001908 /2021-11-12 /省计量院	MPE:DCV:±0.0032%, ACV:±0.04%, DCA:±0.0065%, ACA:±0.08%, OHM:±0.008%
钳形表检验线圈 /20A/50匝	ZB001	DBB202109247 /2022-04-08 /省计量院	MPE:±0.3%

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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 GDDL202100622 原始记录号 202100622 第 3 页,共 5 页
Certificate No. Record No. Page of

一、交流电流：见表1
ACA：Shown in table 1

表1 Table 1

测试频率 Freq (Hz)	量程 Range (A)	标准值 Reference Value (A)	指示值 Indication Value (A)	误差 Error (A)	允许误差 MPE (A)	结论 Conclusion P/F
50	40	39.00	39.06	0.06	±0.64	Pass
	400	40.0	40.1	0.1	±1.1	Pass
		100.0	99.9	-0.1	±2.0	Pass
		200.0	200.0	0.0	±3.5	Pass
		390.0	390.1	0.1	±6.4	Pass
	1000	950	953	3	±19	Pass

二、直流电压：见表2
DCV：Shown in table 2

表2 Table 2

极性 Polar	量程 Range	标准值 Reference Value	指示值 Indication Value	误差 Error	允许误差 MPE	结论 Conclusion
	(mV)	(mV)	(mV)	(mV)	(mV)	P/F
+	400	390.0	390.1	0.1	±3.0	Pass
	(V)	(V)	(V)	(V)	(V)	P/F
	4	3.900	3.899	-0.001	±0.033	Pass
	40	4.00	4.00	0.00	±0.05	Pass
		20.00	20.00	0.00	±0.18	Pass
		39.00	39.02	0.02	±0.33	Pass
	400	390.0	390.3	0.3	±3.3	Pass
	1000	500	499	-1	±6	Pass
	(mV)	(mV)	(mV)	(mV)	(mV)	P/F
-	400	390.0	390.1	0.1	±3.0	Pass
	(V)	(V)	(V)	(V)	(V)	P/F
	4	3.900	3.897	-0.003	±0.033	Pass
	40	39.00	39.00	0.00	±0.33	Pass
	400	390.0	390.1	0.1	±3.3	Pass
	1000	500	499	-1	±6	Pass

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校 准 结 果
RESULTS OF CALIBRATION

证书编号 GDDL202100622 Certificate No.
原始记录号 202100622 Record No.
第 4 页,共 5 页 Page of

三、交流电压：见表3
ACV：Shown in table 3

表3 Table 3

测试频率 Freq (Hz)	量程 Range (V)	标准值 Reference Value (V)	指示值 Indication Value (V)	误差 Error (V)	允许误差 MPE (V)	结论 Conclusion P/F
50	4	3.879	3.900	0.021	±0.041	Pass
	40	38.90	39.02	0.12	±0.41	Pass
	400	388.8	390.5	1.7	±4.1	Pass
	600	499	499	0	±7	Pass

四、电阻：见表4
OHM：Shown in table 4

表4 Table 4

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
200	100.0	99.9	-0.1	±1.5	Pass
(kΩ)	(kΩ)	(kΩ)	(kΩ)	(kΩ)	P/F
2	1.000	0.999	-0.001	±0.010	Pass
20	10.00	9.99	-0.01	±0.10	Pass
200	100.0	99.9	-0.1	±1.0	Pass
(MΩ)	(MΩ)	(MΩ)	(MΩ)	(MΩ)	P/F
2	1.000	0.998	-0.002	±0.030	Pass
20	10.00	9.96	-0.04	±0.30	Pass

UNI-TREND.VN

校 准 结 果
RESULTS OF CALIBRATION

证书编号 GDDL202100622 Certificate No.　　原始记录号 202100622 Record No.　　第 5 页,共 5 页 Page of

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}=0.5%;

直流电压:U_{rel}=0.12%;交流电压:U_{rel}=0.12%;电阻:U_{rel}=0.12%;

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条款和该仪器说明书技术要求。

Decision criteria is JJF1094-2002《Evaluation of the Characteristics of Measuring Instruments》 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。

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

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