



校准证书

CALIBRATION CERTIFICATE

证书编号 GDDL202200537
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 钳形电流表 (钳形电流表, 数字多用表)
Description

型号规格 UT208A
Model/Type

制造厂 UNI-T
Manufacturer

出厂编号 C221387606 设备编号 /
Serial No. Equipment No.

接收日期 2022 年 09 月 29 日
Date of Receipt Y M D

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

校准日期 2022 年 09 月 30 日
Date of calibration Y M D

批准人 何洪波
Approved Signatory

核 验 何洪波
Reviewed by

校 准 郑艺成
Calibrated by





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 本院电学实验室

温度

22 °C

相对湿度

50 %

Place

Temperature

RH

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

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

/Traceability to

Characteristic

钳形表检验线圈/20A/50匝

ZB001

DBB202208348

MPE: $\pm 0.3\%$

/2023-04-05

/省计量院

多功能校准源/3041A

L1398B16

DBS202100760

MPE: DCV: $\pm 0.0032\%$, ACV: $\pm 0.04\%$, DCA: $\pm 0.0065\%$, ACA: $\pm 0.08\%$, OHM: $\pm 0.008\%$

/2022-11-17

/省计量院

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

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一、直流电流: 见表1

DCA: Shown in table 1

表1 Table 1

量程	标准值	指示值	误差	允许误差	结论
Range	Reference Value	Indication Value	Error	MPE	Conclusion
(A)	(A)	(A)	(A)	(A)	P/F
40	35.00	34.86	-0.14	± 0.75	Pass
400	40.0	39.5	-0.5	± 1.1	Pass
	100.0	99.3	-0.7	± 2.3	Pass
	200.0	199.0	-1.0	± 4.3	Pass
	300.0	298.9	-1.1	± 6.3	Pass
	350.0	348.8	-1.2	± 7.3	Pass
1000	950	956	6	± 19	Pass

二、交流电流: 见表2

ACA: Shown in table 2

表2 Table 2

测试频率	量程	标准值	指示值	误差	允许误差	结论
Freq	Range	Reference Value	Indication Value	Error	MPE	Conclusion
(Hz)	(A)	(A)	(A)	(A)	(A)	P/F
50	40	35.00	35.01	0.01	± 0.96	Pass
	400	40.0	39.5	-0.5	± 1.5	Pass
		100.0	99.4	-0.6	± 3.0	Pass
		200.0	199.7	-0.3	± 5.5	Pass
		300.0	299.9	-0.1	± 8.0	Pass
		350.0	350.0	0.0	± 9.3	Pass
	1000	950	955	5	± 21	Pass



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三、直流电压: 见表3

DCV: Shown in table 3

表3 Table 3

极性	量程	标准值	指示值	误差	允许误差	结论
Polar	Range	Reference Value	Indication Value	Error	MPE	Conclusion
	(mV)	(mV)	(mV)	(mV)	(mV)	P/F
+	400	390.0	390.0	0.0	±3.4	Pass
	(V)	(V)	(V)	(V)	(V)	P/F
	4	3.900	3.901	0.001	±0.032	Pass
	40	4.00	4.00	0.00	±0.04	Pass
		20.00	20.01	0.01	±0.17	Pass
		39.00	39.02	0.02	±0.32	Pass
	400	390.0	390.0	0.0	±3.2	Pass
	1000	500	504	4	±8	Pass
	(mV)	(mV)	(mV)	(mV)	(mV)	P/F
	400	390.0	389.4	-0.6	±3.4	Pass
-	(V)	(V)	(V)	(V)	(V)	P/F
	4	3.900	3.900	0.000	±0.032	Pass
	40	39.00	39.01	0.01	±0.32	Pass
	400	390.0	389.9	-0.1	±3.2	Pass
	1000	500	504	4	±8	Pass

四、交流电压: 见表4

ACV: Shown in table 4

表4 Table 4

测试频率	量程	标准值	指示值	误差	允许误差	结论
Freq	Range	Reference Value	Indication Value	Error	MPE	Conclusion
(Hz)	(V)	(V)	(V)	(V)	(V)	P/F
50	4	3.900	3.903	0.003	±0.050	Pass
	40	39.00	39.07	0.07	±0.50	Pass
	400	390.0	390.8	0.8	±5.0	Pass
	750	500	503	3	±11	Pass



校准结果 RESULTS OF CALIBRATION

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五、电阻: 见表5

OHM: Shown in table 5

表5 Table 5

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
400	100.0	100.2	0.2	± 1.4	Pass
(k Ω)	(k Ω)	(k Ω)	(k Ω)	(k Ω)	P/F
4	1.000	1.000	0.000	± 0.012	Pass
40	10.00	10.00	0.00	± 0.12	Pass
400	100.0	100.0	0.0	± 1.2	Pass
(M Ω)	(M Ω)	(M Ω)	(M Ω)	(M Ω)	P/F
4	1.000	1.000	0.000	± 0.014	Pass
40	10.00	10.01	0.01	± 0.17	Pass

说明:

Note:

1. 本次测量结果的扩展不确定度:

The Expanded Uncertainty of Measurement:

直流电流: $U_{rel}=0.5\%$; 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 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。

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 JJF 1094-2002 《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 JJF 1094-2002 《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。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.