



校准证书

CALIBRATION CERTIFICATE

证书编号 DBB20110111
Certificate No.

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委托方 广州市依泰电子科技有限公司
Client

委托方地址 广州市白云区嘉禾彭上致富路4号F栋3楼
Add. of Client

计量器具名称 DOUBL CLAMP DIGITAL PHASE METER
Description

型号规格 ETCR4200
Model/Type

制造厂 广州市依泰电子科技有限公司
Manufacturer

出厂编号 XW090802
Serial No.

接收日期 2011 年 6 月 12 日
Date of Receipt Y M D

校准日期 2011 年 6 月 16 日
Date of Calibration Y M D

批准人
Approved Signatory 

核 验
Inspected by 

校 准
Calibrated by 

证书专用章



说 明

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DIRECTIONS

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1. 本中心是国家质量监督检验检疫总局在华南地区设立的国家法定计量检定机构。计量授权证书号是：
(国)法计(2007)01043号、(国)法计(2007)01032号。

This laboratory is the National Legal Metrological Verification Institution in southern China set up by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China (AQSIQ) under authorization certificates No.(2007)01043 & (2007)01032.

2. 本中心所出具的数据均可溯源至保存在中国计量科学研究院的国家计量基准和国际单位制(SI)。中国计量科学研究院于1999年代表中国签署了“国家计量基准及国家计量研究院出具的校准和测量证书相互承认协议”。All data issued by this laboratory are traceable to national primary standards maintained in National Institute of Metrology (NIM) and International System of Units (SI). NIM is the signatory to the Mutual Recognition Arrangement (MRA) for national measurement standards and for calibration and measurement certificates issued by national metrology institutes.

3. 本次校准的技术依据:

Reference documents for the calibration:

JJF1075-2001 钳形电流表校准规范 C.S. of Clamp Ammeters

4. 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 Name of Equipment /Model	编号 Serial No.	证书号/有效期 Certificate No. /Due Date	计量特性 Metrological Characteristic
多功能标准源 Multifunction Standard Sources /5520A	8080014	DBB20110111 /2012-06-11	DCV: $\pm 0.001\%$; DCA: $\pm 0.03\%$; ACV: $\pm 0.015\%$; ACA: $\pm 0.04\%$; OHM: $\pm 0.0028\%$; FREQ: $\pm (2.5 \times 10^{-6})$

5. 校准地点、环境条件:

Place and environmental conditions of the calibration:

地点 本中心电磁实验室 (Electrics Lab) 温度 $(23 \pm 2) ^\circ\text{C}$ 相对湿度 $(55 \pm 5) \% \text{RH}$

6. 被校准仪器限制使用条件:

Limiting condition of the instrument calibrated:

注: 1. 本证书校准结果只与受校准仪器有关。

2. 未经本中心书面批准, 不得部分复制此证书。

Note: 1. The results relate only to the items calibrated.

2. This certificate shall not be reproduced except in full, without the written approval of our laboratory.



校准结果 RESULTS OF CALIBRATION

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一、外观(Appearance): 符合要求(Pass)

二、交流电流: 见表1 (ACA: In table 1, f=50 Hz)

表1(Table 1)

回路 Channel	量程 Range	示值 Indication Value	实际值 Reference Value	误差 Error	允许误差 MPE	结论 Conclusion	
		(mA)	(mA)	(mA)	(mA)	(Pass/Fail)	
II	200mA	20.0	20.00	0.0	±0.4	Pass	
		100.6	100.00	+ 0.6	±1.2	Pass	
		191.2	190.00	+ 1.2	±2.1	Pass	
	2A	(A)	(A)	(A)	(A)		
		0.201	0.2000	+ 0.001	±0.004	Pass	
		0.504	0.5000	+ 0.004	±0.007	Pass	
		1.007	1.0000	+ 0.007	±0.012	Pass	
		1.511	1.5000	+ 0.011	±0.017	Pass	
		1.914	1.9000	+ 0.014	±0.021	Pass	
	10A	2.01	2.000	+ 0.01	±0.04	Pass	
		5.02	5.000	+ 0.02	±0.07	Pass	
		9.05	9.000	+ 0.05	±0.11	Pass	
	I2	200mA	(mA)	(mA)	(mA)	(mA)	
			20.2	20.00	+ 0.2	±0.4	Pass
			100.2	100.00	+ 0.2	±1.2	Pass
190.5		190.00	+ 0.5	±2.1	Pass		
2A		(A)	(A)	(A)	(A)		
		0.201	0.2000	+ 0.001	±0.004	Pass	
		0.502	0.5000	+ 0.002	±0.007	Pass	
		1.005	1.0000	+ 0.005	±0.012	Pass	
		1.508	1.5000	+ 0.008	±0.017	Pass	
		1.910	1.9000	+ 0.010	±0.021	Pass	
10A		2.01	2.000	+ 0.01	±0.04	Pass	
		5.03	5.000	+ 0.03	±0.07	Pass	
		9.04	9.000	+ 0.04	±0.11	Pass	



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三、交流电压: 见表2 (ACV: In table 2, f=50 Hz)

表2(Table 2)

回路 Channel	量程 Range	示值 Indication Value (V)	实际值 Reference Value (V)	误差 Error (V)	允许误差 MPE (V)	结论 Conclusion (Pass/Fail)	
U1	20V	2.00	2.000	0.00	±0.04	Pass	
		10.01	10.000	+ 0.01	±0.14	Pass	
		18.99	19.000	- 0.01	±0.25	Pass	
	200V	19.8	20.00	- 0.2	±0.4	Pass	
		49.7	50.00	- 0.3	±0.8	Pass	
		99.8	100.00	- 0.2	±1.4	Pass	
		150.1	150.00	+ 0.1	±2.0	Pass	
		190.4	190.00	+ 0.4	±2.5	Pass	
	500V	198	200.00	- 2	±4	Pass	
		297	300.00	- 3	±6	Pass	
		397	400.00	- 3	±7	Pass	
	U2	20V	2.00	2.000	0.00	±0.04	Pass
			10.02	10.000	+ 0.02	±0.14	Pass
			19.04	19.000	+ 0.04	±0.25	Pass
		200V	19.9	20.00	- 0.1	±0.4	Pass
49.9			50.00	- 0.1	±0.8	Pass	
100.0			100.00	0.0	±1.4	Pass	
150.4			150.00	+ 0.4	±2.0	Pass	
190.7			190.00	+ 0.7	±2.5	Pass	
500V		198	200.00	- 2	±4	Pass	
		298	300.00	- 2	±6	Pass	
		398	400.00	- 2	±7	Pass	



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四、相位: 见表3 (Phase: In table 3, f=50 Hz)

表3(Table 3)

回路 Channel	示值 Indication Value (°)	实际值 Reference Value (°)	误差 Error (°)	允许误差 MPE (°)	结论 Conclusion (Pass/Fail)
U112	0	0.00	0	±3	Pass
	32	30.00	+2	±3	Pass
	62	60.00	+2	±3	Pass
	300	300.00	0	±3	Pass
	332	330.00	+2	±3	Pass
11U2	28	30.00	-2	±3	Pass
	58	60.00	-2	±3	Pass
	298	300.00	-2	±3	Pass
	328	330.00	-2	±3	Pass
	360	360.00	0	±3	Pass

说明(Notes):

1. 测量结果的相对扩展不确定度(The Relative Expanded Uncertainty of Measurement):

交流电压(ACV) $U_{rel}=0.05\%$ 交流电流(ACA) $U_{rel}=0.13\%$ 相位(Phase) $U_{rel}=0.3^\circ$

(包含因子 $k=2$ 依据 JJF1059-1999 测量结果不确定度与表示)

(Coverage factor $k=2$, According to JJF1059-1999 Evaluation and Expression of Uncertainty in Measurement)

2. 校准结果符合以下技术指标要求:

The data of instrument calibrated compliance with the technical characteristics of infra:

交流电压(ACV) $\pm (1.2\% \text{ 读数} + 2 \text{ 个字})$ 、交流电流(ACA) $\pm (1.0\% \text{ 读数} + 2 \text{ 个字})$ 、相位(Phase) $\pm 3^\circ$

3. 建议校准周期不超过1年

The period of calibration advised within 1 year.