



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



校准证书

CALIBRATION CERTIFICATE

证书编号 DBB201508765
Certificate No.

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委托方 广州市依泰电子科技有限公司
Client

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Add. of Client

计量器具名称 大口径三相钳形功率表
Description

型号规格 ETCR7300
Model/Type

制造厂 ETCR
Manufacturer

出厂编号 73150023
Serial No.

设备编号
Equipment No.

接收日期 2015年 09月 10日
Date of Receipt Y M D

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

校准日期 2015年 09月 18日
Date of Calibration Y M D

批准人
Approved Signatory

核 验 石劲毅
Checked by

校 准 叶晓华
Calibrated by



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证书真伪查询: www.scm.com.cn; www.mtsp.com Certificate Authenticity Identify: www.scm.com.cn; www.mtsp.com



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, 本中心的质量管理体系符合 ISO/IEC 17025:2005 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 17025:2005.

2. 本中心所出具的数据均可溯源至国家计量基准和国际单位制(SI)。

All data issued by this laboratory are traceable to national primary standards and International System of Units (SI).

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

JJG(航天) 34-1999 交流数字电压表检定规程 V.R. of AC Digital Voltmeter

JJG 780-1992 交流数字功率表检定规程 V.R. of AC Digital Powermeter

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
多功能校准源 Multifunction Calibrator /5520A	8080014	DBB201506413 /2016-04-13	ACV: $\pm 0.015\%$ rdg; ACA: $\pm 0.04\%$ rdg; FREQ: $\pm 2.5 \times 10^{-6}$ rdg

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 magnetics
Place Lab)

温度 $(22 \pm 2) ^\circ\text{C}$ 相对湿度 $(55 \pm 5) \%$
Temperature R.H.

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. 未经本机构书面批准, 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: 符合要求

Apparent inspection: Pass

二、交流电压: 见表1, $f=50$ Hz

ACV: Shown in table 1

表 1

Table 1

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)
1	600V	50.0	50.00	0.0	±1.3	Pass
		100	100.00	0	±7	Pass
		199	200.00	-1	±8	Pass
		299	300.00	-1	±9	Pass
		399	400.00	-1	±11	Pass
		500	500.00	0	±13	Pass
2	600V	50.0	50.00	0.0	±1.3	Pass
		100	100.00	0	±7	Pass
		199	200.00	-1	±8	Pass
		299	300.00	-1	±9	Pass
		400	400.00	0	±11	Pass
		500	500.00	0	±13	Pass
3	600V	50.0	50.00	0.0	±1.3	Pass
		100	100.00	0	±7	Pass
		199	200.00	-1	±8	Pass
		299	300.00	-1	±9	Pass
		399	400.00	-1	±11	Pass
		499	500.00	-1	±12	Pass



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三、交流电流: 见表2, $f=50\text{ Hz}$
ACA: Shown in table 1

表 2

Table 2

量程 Range	示值 Indication Value (A)	实际值 Reference Value (A)	误差 Error (A)	允许误差 MPE (A)	结论 Conclusion (Pass/Fail)
1200A	50.5	50.00	+ 0.5	±1.3	Pass
	101	100.00	+ 1	±7	Pass
	201	200.00	+ 1	±9	Pass
	302	300.00	+ 2	±11	Pass
	403	400.00	+ 3	±13	Pass
	504	500.0	+ 4	±15	Pass





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四、交流功率: 见表3, $f=50$ Hz
AC Power: Shown in table 3

表 3

Table 3

回路 Channel	量程 Range	功率因数 PF	示值 Indication Value (kW)	实际值 Reference Value (kW)	误差 Error (kW)	允许误差 MPE (kW)	结论 Conclusion (Pass/Fail)
1	600V/1200A	1.0	10.1	10.00	+ 0.1	±0.8	Pass
		1.0	20.2	20.00	+ 0.2	±1.1	Pass
		1.0	40.0	40.00	0.0	±1.7	Pass
		1.0	60.1	60.00	+ 0.1	±2.3	Pass
		1.0	80.2	80.00	+ 0.2	±2.9	Pass
		1.0	100	100.00	0	±8	Pass
2	600V/1200A	1.0	10.1	10.00	+ 0.1	±0.8	Pass
		1.0	20.2	20.00	+ 0.2	±1.1	Pass
		1.0	40.1	40.00	+ 0.1	±1.7	Pass
		1.0	60.3	60.00	+ 0.3	±2.3	Pass
		1.0	80.3	80.00	+ 0.3	±2.9	Pass
		1.0	100	100.00	0	±8	Pass
3	600V/1200A	1.0	10.1	10.00	+ 0.1	±0.8	Pass
		1.0	20.2	20.00	+ 0.2	±1.1	Pass
		1.0	40.2	40.00	+ 0.2	±1.7	Pass
		1.0	60.3	60.00	+ 0.3	±2.3	Pass
		1.0	80.6	80.00	+ 0.6	±2.9	Pass
		1.0	101	100.00	+ 1	±8	Pass





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五、功率因数: 见表 4, $f=50$ Hz
PF: Shown in table 4

表 4

Table 4

回路 Channel		示值 Indication Value	实际值 Reference Value	误差 Error	允许误差 MPE	结论 Conclusion
		(cosφ)	(cosφ)	(cosφ)	(cosφ)	(Pass/Fail)
1	L	0.495	0.5000	- 0.005	±0.025	Pass
		0.863	0.8660	- 0.003	±0.025	Pass
		1.000	1.0000	0.000	±0.025	Pass
		0.866	0.8660	0.000	±0.025	Pass
	C	0.503	0.5000	+ 0.003	±0.025	Pass
2	L	0.490	0.5000	- 0.010	±0.025	Pass
		0.860	0.8660	- 0.006	±0.025	Pass
		0.999	1.0000	- 0.001	±0.025	Pass
		0.868	0.8660	+ 0.002	±0.025	Pass
	C	0.503	0.5000	+ 0.003	±0.025	Pass
3	L	0.490	0.5000	- 0.010	±0.025	Pass
		0.860	0.8660	- 0.006	±0.025	Pass
		0.999	1.0000	- 0.001	±0.025	Pass
		0.866	0.8660	0.000	±0.025	Pass
	C	0.503	0.5000	+ 0.003	±0.025	Pass





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六、频率: 见表 5
FREQ: Shown in table 5

表 5
Table 5

回路 Channel	示 值 Indication Value	实际值 Reference Value	误 差 Error	允许误差 MPE	结 论 Conclusion
	(Hz)	(Hz)	(Hz)	(Hz)	(Pass/Fail)
1	50.0	50.00	0.0	±0.8	Pass
	60.0	60.00	0.0	±0.8	Pass
2	50.0	50.00	0.0	±0.8	Pass
	60.0	60.00	0.0	±0.8	Pass
3	50.0	50.00	0.0	±0.8	Pass
	60.0	60.00	0.0	±0.8	Pass

说明:

Note:

1. 测量结果的扩展不确定度:

Expanded uncertainty of measuring results:

交流电压 $U_{rel}=0.05\%$

ACV

功率因数 $U_{rel}=0.10\%$

PF

交流电流 $U_{rel}=0.13\%$

ACA

频率 $U_{rel}=0.01\%$

FREQ

交流功率 $U_{rel}=0.13\%$

AC Power

包含因子 $k=2$, 依据 JJF1059.1-2012 测量不确定度评定与表示

Coverage factor $k=2$, In accordance with JJF 1059.1-2012 Evaluation and Expression of Uncertainty in Measurement.

2. 建议校准周期不超过 1 年。

The interval of calibration advised within one year.

