



校准证书

CALIBRATION CERTIFICATE

证书编号 GDDG202400007
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 LCR数字电桥 (LCR测量仪)
Description

型号规格 UT622E
Model/Type

制造厂 UNI-T
Manufacturer

出厂编号 C202843843
Serial No.

设备编号 /
Equipment No.

接收日期 2024 年 01 月 05 日
Date of Receipt Y M D

结果 见校准结果
Results

校准日期 2024 年 01 月 09 日
Date of calibration Y M D

批准人 何洪波
Approved Signatory

核 验 何洪波
Reviewed by

校 准 张东顺
Calibrated by

证书专用章
Stamp





说明

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DIRECTIONS

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- 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.
- 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)
- 校准地点、环境条件:
Place and environmental conditions of the calibration:
地点 A4-406 恒温实验室 温度 (20.7~20.8) °C 相对湿度 (54~60) %
Place Temperature RH
- 本次校准的技术依据:
Reference documents for the calibration:
GJB 8817-2015 宽量程数字 RLC 测量仪检定规程 V.R. for Wide Range Digital RLC Meter

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
十进电感箱 /DGX-1/1 μH~111mH	931202	WWC202300779 /2024-04-11 /省计量院	0.02级
标准大电容箱 /C014-2B/100pF~111 μF	011	WWC202300778 /2024-04-11 /省计量院	0.05级
高频四端电阻 /42030A/1mΩ~100kΩ	3143J00306	XDgp2023-03427 /2024-10-11 /中国计量科学研究院	0.01级

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、电感:见表1

Inductance: Shown in table 1.

表1 Table1

测试频率	标准值	指示值	误差	允许误差	结论
Frequency	Reference Value	Indication Value	Error	MPE	Conclusion
(kHz)	(μ H)	(μ H)	(μ H)	(μ H)	P/F
1	10.0	10.0	0.0	± 0.1	Pass
	100.0	100.1	0.1	± 0.2	Pass
	(mH)	(mH)	(mH)	(mH)	P/F
	1.0000	0.9998	-0.0002	± 0.0011	Pass
	10.000	9.999	-0.001	± 0.011	Pass
	99.96	99.96	0.00	± 0.11	Pass
0.1	(H)	(H)	(H)	(H)	P/F
	1.0025	1.0030	0.0005	± 0.0011	Pass
	9.993	9.996	0.003	± 0.011	Pass

二、电阻: 见表2

Resistor: Shown in table 2

表2 Table 2

测试频率	标准值	指示值	误差	允许误差	结论
Frequency	Reference Value	Indication Value	Error	MPE	Conclusion
(kHz)	(Ω)	(Ω)	(Ω)	(Ω)	P/F
1	1.0000	1.0001	0.0001	± 0.0010	Pass
	10.000	10.005	0.005	± 0.010	Pass
	100.00	100.02	0.02	± 0.10	Pass
	(k Ω)	(k Ω)	(k Ω)	(k Ω)	P/F
	1.0000	0.9999	-0.0001	± 0.0010	Pass
	10.000	10.000	0.000	± 0.010	Pass
100.00	99.94	99.94	-0.06	± 0.10	Pass



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三、电容: 见表3

Capacitor: Shown in table 3

表3 Table 3

测试频率	标准值	指示值	误差	允许误差	结论
Frequency	Reference Value	Indication Value	Error	MPE	Conclusion
(kHz)	(nF)	(nF)	(nF)	(nF)	P/F
1	1.0001	1.0002	0.0001	±0.0010	Pass
	10.026	10.023	-0.003	±0.010	Pass
	100.13	100.10	-0.03	±0.10	Pass
0.1	(μF)	(μF)	(μF)	(μF)	P/F
	1.0000	0.9999	-0.0001	±0.0010	Pass
	9.997	10.000	0.003	±0.010	Pass
	100.03	99.97	-0.06	±0.10	Pass
	(mF)	(mF)	(mF)	(mF)	P/F
	0.9997	0.9996	-0.0001	±0.0010	Pass

四、频率: 见表4

Frequency: Shown in table 4

表4 Table4

实测值	指示值	误差	允许误差	结论
Measured values	Indicated value	Error	MPE	Conclusion
(kHz)	(kHz)	(kHz)	(kHz)	P/F
0.1000	0.1000	0.0000	±0.0001	Pass
0.1200	0.1200	0.0000	±0.0001	Pass
1.0000	1.0000	0.0000	±0.0010	Pass
10.000	10.000	0.000	±0.010	Pass
100.00	100.00	0.00	±0.10	Pass



校准结果 RESULTS OF CALIBRATION

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说明:

Note:

1. 本次测量结果的扩展不确定度:

The Expanded Uncertainty of Measurement:

电容: $U_{rel}=0.06\%(\leq 100\mu F)$, $U_{rel}=0.06\%(\geq 500\mu F)$;

电感: $U_{rel}=2.4\%(10\mu H)$, $U_{rel}=0.26\%(0.1mH)$,

电感: $U_{rel}=0.06\%(1mH\sim 100mH)$, $U_{rel}=0.12\%(\geq 1H)$;

电阻: $U_{rel}=0.12\%(< 100\Omega)$, $U_{rel}=0.12\%(100\Omega\sim 100k\Omega)$; 频率: $U_{rel}=0.02\%$;

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. 校准结果符合性判定依据 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 rules of conformity is JJF1094-2002 *Evaluation of the Characteristic of Measuring Instruments*(5.3.1) 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.