中国赛宝实验室计量检测中心
(工业和信息化部电子第五研究所计量检测中心)
CHINA CEPREI LABORATORY CALIBRATION & TESTING CENTRE

校 准 证 书
CALIBRATION CERTIFICATE

证书编号：2GB22S00495-0001
Certificate No.

中国认可
国际互认
校准
CALIBRATION
CNAS L13344

委托单位: Client	深圳麦科信仪器有限公司
委托方地址: Address	广东省深圳市宝安区西乡街道航城大道华丰机器人产业园A106
仪器名称: Description	交流/直流电流探头
型号规格: Model/Type	CP2100B
制造商: Manufacturer	Micsig
机身号: Serial No.	310004549
接收日期: Rec. Date	2022-04-28
校准日期: Cal. Date	2022-05-06
签发日期: App. Date	2022-05-07
建议校准周期: Reference Cal. Period	12个月(12 months)
结论: Conclusion	所校准项目合格(Passed at Calibration Items)

校准: Calibrated by

核验: Inspected by

签发: Approved by

印章: Stamp

电子报告专用章

赛宝计量检测中心
广州总部地址：广州市增城区朱村街朱村大道西78号
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Complaint Tel: 020-87236896
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Website: www.ceprei-cal.com

说　明
DIRECTIONS

1. 本机构质量管理体系符合ISO/IEC 17025:2017标准的要求，获得中国合格评定国家认可委员会（CNAS）认可，认可证书号为：CNAS L13344。
This laboratory quality management system meets the ISO/IEC 17025:2017 and is accredited by the China National Accreditation Service for Conformity Assessment, No. CNAS L13344.

2. 本次校准的技术依据及CNAS认可范围(Reference documents and CNAS accredited scopes)：
- JJF(电子)0036-2019 示波器电流探头校准规范：DC Attenuation Coefficent:(1:1～1000:1);AC Current:(1mA～100A)@(45Hz～1kHz)(100～2000)A@(45Hz～65Hz);DC Current:1mA～2000A;Bandwidth:10Hz～200MHz;Rise Time:(0.35～350)ns

* 详细内容请查看CNAS网站中注册编号为L13344的证书附件，超出范围的内容未被认可，其结果/结论所依据的合格评定活动不在认可范围内。(Please see the attachment of certificate No. L13344 at CNAS website for details, beyond which is not accredited, the conformity assessment activities on which the results/conclusions are based are outside the scope of accreditation.)。

3. 本次校准所使用的主要测量标准(The main measurement standards used during the calibration)：

名　称 (Description)	证书号/有效期/溯源单位 (Certificate No./Due Date/Traceability to)	技术指标 (Specification)	测量范围 (Measuring Range)
超级多产品校准器(1972903)	4GC21000433-0010/2022-09-23/赛宝(广州)	DCV：±1.2×10^{-5}；DCI：±1×10^{-4}；ACV：±1.2×10^{-4}；ACI：±0.06%；R：±2.8×10^{-5}；ACPower：±0.08%；DCPower：±0.023%；T：±0.14℃；Phase：±0.07°；f：±2.5×10^{-6}；C：±0.19%	DCV:(0～±1020)V；DCI:(0～±20.5)A；ACV:(1mV～1020V)@(10Hz～500kHz)；ACI:(29μA～20.5A)@(10Hz～30kHz)；R:(0～1100)MΩ；DCPower:109μW～20.5kW；ACPower:(109μW～20.5kW)@(45Hz～65Hz,PF=1)；T：(-250～2316)℃；Phase：(0～179.99°)@(10Hz～10kHz)；f：0.01Hz～2MHz；C：0.22nF～1.1mF
数字万用表(MY572133448)	4GC22000014-0090/2023-01-28/赛宝(广州)	DCV：±0.0035%；ACV：±0.06%；DCI：±0.05%；ACI：±0.1%；R：±0.01%；f：±0.001%	DCV：（0～1000）V；ACV：（0.001～750）V@(3Hz～300kHz)；DCI：（0～10）A；ACI：（0～10）A@(3Hz～10kHz)；R：（0～100）MΩ；F：3Hz～300kHz
信号发生器(3847U00473)	4GC22000003-0001/2023-01-04/赛宝(广州)	f：±1×10^{-7},Level：±1dB,AM：±5%,FM：±3%,φM：±3%	f：9kHz～4GHz；Level：（13～-136）dBm；AM：0～100%；FM：0～800kHz；φM：0～40 rad
数字示波器(B020107)	GFJGJL20521F000294/2022-08-25/赛宝(广州)	幅度:±1.5%；时基:±0.01%；上升时间:≤350ps	垂直偏转：1mV/div～10V/div；扫描时间系数：0.2ns/div～10s/div；带宽:1GHz

4. 校准地点(The calibration place)：
广州市增城区朱村街朱村大道西78号9栋306室

5. 环境条件(Environmental conditions)：
温度(Temperature)：23.9℃　　相对湿度(Relative Humidity)：57%

6. 本证书中给出的扩展不确定度依据JJF1059.1-2012《测量不确定度的评定与表示》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。

The extended uncertainty given in this certificate is evaluated according to JJF1059.1-2012 “Evaluation and Expression of Uncertainty in Measurement”, and is calculated by multiplying the combined standard uncertainty by the coverage factor *k* which corresponding to the coverage probability about 95%.

7. 证书中"P"、"合格"代表"测量结果在允许范围内"，"F"、"不合格"代表"测量结果不在允许范围内"，"N/A"代表"不适用或技术指标暂时无法确认等"。本证书报告的结论仅供参考，使用人员应结合实际测量的要求合理使用，如考虑测量结果测量不确定度的影响等。

"P" and "Pass" in this certificate stand for "Low Limit≤the measured value ≤High Limit", "F" and "Fail" stand for "the measured value＜Low Limit or the measured value＞High Limit", "N/A" stands for "Not Applicable or The technical specification has not been confirmed etc".The conclusions of this certificate are for reference only. Users should use them reasonably according to the actual measurement requirements, such as considering the impact of measurement uncertainty, etc.

8. 建议校准周期是本实验室依据本证书报告的技术依据和仪器设备常规使用条件给出的建议，供委托方参考。委托方可以根据实际使用情况自行决定样品的校准周期。

The reference calibration period is based on the reference documents and normal operating conditions of the calibrated instrument. It is only for reference. The client may decide the calibration period of the instrument according to the actual use.

1. 外观与工作正常性检查（Appearance and Function Check）

无影响证书中测量结果准确度的因素和缺陷。

There are no factor and defect that affect the measurement result accuracy of the certificate.

2. 直流电流测量(DC Current Measurement)

输出比（Ratio）	输入电流值 (Input) (A)	输出电流测量值 (Output) (A)	误差 (Error) (A)	允许误差 (Limit) (A)	结论 (Pass/Fail)	*U* (*k*=2) (A)
10mV/A	10.0	10.15	0.15	±0.45	P	0.09
	20.0	20.35	0.35	±0.85	P	0.17
	40.0	40.18	0.18	±1.65	P	0.33
	60.0	59.1	-0.9	±9.0	P	1.8
	80.0	76.7	-3.3	±12.0	P	2.4
	100.0	93.0	-7.0	±15.0	P	3.0
100mV/A	2.0	1.984	-0.016	±0.110	P	0.02
	4.0	3.967	-0.033	±0.170	P	0.03
	6.0	5.955	-0.045	±0.230	P	0.05
	8.0	7.94	-0.06	±0.29	P	0.06
	10.0	9.93	-0.07	±0.35	P	0.07

3. 交流电流测量(AC Current Measurement) （1kHz）

输出比（Ratio）	输入电流值 (Input) (A)	输出电流测量值 (Output) (A)	误差 (Error) (A)	允许误差 (Limit) (A)	结论 (Pass/Fail)	*U* (*k*=2) (A)
10mV/A	10.0	10.09	0.09	±0.45	P	0.09
	20.0	20.17	0.17	±0.85	P	0.17
	40.0	39.7	-0.3	±6.00	P	1.2
	60.0	58.0	-2.0	±9.0	P	1.8
	70.0	66.5	-3.5	±10.5	P	2.1
100mV/A	2.0	1.984	-0.016	±0.110	P	0.02
	4.0	3.982	-0.018	±0.170	P	0.03
	6.0	5.972	-0.028	±0.230	P	0.05
	7.0	6.97	-0.03	±0.26	P	0.05

4. 带宽 （ -3 dB BandWidth）

标准值 (Reference) (MHz)	允许误差 (Limit) (MHz)	结论 (Pass/Fail)	*U* (*k*=2) (MHz)
3.2	≥2.5	P	0.6

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