

CALIBRATION CERTIFICATE

Certificate No.



J202609233969A-0018

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Client

Servico Nacional de Aprendizagem Industrial

Contact Inf.

Av. Assis Brasil, 8787 Bairro Sarandi, ZIP CODE 91140-001, Porto Alegre - RS, Brasil

Description

Calibration Resistors

Manufacturer

LISUN GROUP

Model/Type

LIS-CAR

Receipt Date

2026-10-22

Y M D

Serial No.

SO20260624A12

Cal. Date

2026-10-22

Y M D

Asset No.

Issued Date

2026-10-29

Y M D

Approved by

李文兴

li wen xing

Inspected by

鲁格凡

lu ge fan

Calibrated by

曾德胜

zeng de sheng



Headquarters Add.:

No.8, Chuangyun Road, Shiqi Town, Panyu District, Guangzhou, Guangdong, China

Add.of the Lab:

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E-mail:grgtest@grgtest.com



Scan

CheckCode: 431314

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1.The quality system is in accordance with ISO/IEC 17025:2017,the calibration results are traceable to the International System of Units (SI).

2.The result is only valid for the calibrated sample.The certificate shall not be reproduced except in full,without the written approval of our laboratory .please feedback to us within 15 days if you have any question.

3.Each certificate has a unique number. The suffix of "-Gx" will be added to the number as a replacement of the old version. The original certificate will be officially invalid once the new certificate number is issued.The modified certificate shall be based on the client content.

4.MPE & judgement result in the datasheet is only for reference , "P" is "Pass" , "F" is "Fail" and "N/A" is "Not Applicable".Whereas users should evaluate the effects of MU of calibration results on conformance assessment by actual measurement.

5.The traceability date of this instrument is the calibration date on this certificate.

6.Place and environmental conditions of the calibration:

Place: 客户4楼实验室

Temperature: 22.3℃

Relative Humidity: 53%

7.Suggested calibration interval is 1 year or it can be altered depending on the actual usage of the user.

8.Reference document and accredited scope by CNAS for calibration, beyond which isn't accredited. Please see the attachment of certificate on CNAS website for details.

JJG 166-2022 直流标准电阻器检定规程 (V.R. of DC Standard Resistors) 电阻: 1mΩ~200MΩ

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9. Main Standards of Measurement Used in the Calibration.:

Description	Serial No.	Certificate No./ Due Date	Traceability Institute	Technique Character
Multi-function calibrator	2029903	J202602241577- 0002 2027-03-03	广电计量检测集 团股份有限公司	DCV: $\pm 1.2E-5$ ACV: $\pm 1.2E-4$ DCI: $\pm 1.2E-4$ ACI: $\pm 6E-4$ Ohm: $\pm 3E-5$
Digital Multimeter	MY57701097	J202604216813- 0053 2027-05-09	广电计量检测集 团股份有限公司	DCV: $\pm 0.0016\%$; ACV、DCI: $\pm$ 0.05%; ACI: $\pm 0.1\%$; R: $\pm$ 0.004%; Freq: $\pm 0.007\%$

10. Measurement traceability declaration.:

多功能校准器,示波器校准仪(2029903)→数字示波器/Oscilloscope (C400425);多功能校准器,示波器校准仪(2029903)→频率计/Frequency Counter(6E5042017)→铷原子频率标准/Rubidium Atomic Frequency Standards(051101)→铯原子频率标准Cesium atomic frequency 广东省计量科学研究院;多功能校准器,示波器校准仪(2029903)→数字多用表/ Digital multimeter(456175079)→数字多用表/ Digital multimeter(498876915)→标准电阻器/高值电阻器 (1325等 /7935009等/北京东方计量测试研究院/CASC);
万用表(MY57701097)→多产品校准器(6333601)→分流器/Shunt(566579241~566579254)→交直流转换标准 (中国计量科学研究院/NIM);

校准结果
RESULTS OF CALIBRATION

证书编号: J202609233969A-0018

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1、外观以及一般性检查: 正常

In view of External and Generality check : Pass

2、直流电阻: (DC Resistance)

标称值 Nominal (Ω)	实测值 Measured (Ω)	误差 Error (Ω)	不确定度 $U_{rel}(k=2)$ (%)	允许误差 MPE (Ω)	结 论 Conclusion (Pass/Fail)
0.5	0.502	-0.002	1.1	± 0.050	P
1	1.005	-0.005	1.1	± 0.100	P
2	2.113	-0.113	1.1	± 0.200	P
4	4.061	-0.061	1.1	± 0.400	P
4	3.996	0.004	1.1	± 0.400	P
10	10.349	-0.349	1.1	± 1.000	P
20	20.549	-0.549	1.1	± 2.000	P
20	20.851	-0.851	1.1	± 2.000	P
30	29.734	0.266	1.1	± 3.000	P
50	49.805	0.195	1.1	± 5.000	P

备注:

Notes:

结论(Conclusion): 所校项目符合技术要求

1.本报告中的扩展不确定度是由标准不确定度乘以包含概率约为95%时的包含因子 k 。

The expanded uncertainty is given in the report by the standard uncertainty multiplied by the probability of about 95% when the factor k .

2.依据(Reference document)

JJF 1059.1-2012 测量不确定度评定与表示

(JJF 1059.1-2012 Evaluation and Expression of Uncertainty in Measurement)

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