



# 校准证书

## CALIBRATION CERTIFICATE

证书编号 GDAC202300689  
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 测振仪  
Description

型号规格 UT312A  
Model/Type

制造厂 UNI-T  
Manufacturer

出厂编号 C223175324  
Serial No.

设备编号 /  
Equipment No.

接收日期 2023 年 09 月 04 日  
Date of Receipt Y M D

结果 见校准结果  
Results Show in the results of calibration

校准日期 2023 年 09 月 05 日  
Date of calibration Y M D

批准人 黎星云  
Approved Signatory

核 验 赵靖  
Reviewed by

校 准 谢坚戈  
Calibrated by

证书专用章  
Stamp







# 说明

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## DIRECTIONS

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1. 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.

2. 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)

3. 校准地点、环境条件:

Place and environmental conditions of the calibration:

地点 本院A4栋4楼声学振动实验室 温度 25 °C 相对湿度 68 %

Place Temperature RH

4. 本次校准的技术依据:

Reference documents for the calibration:

JJG 676-2019 测振仪检定规程 V.R. of Vibration Meters

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	编号	证书号/有效期/溯源单位	计量特性
Name of Equipment /Model/Type/Range	Serial No.	Certificate No./Due Date /Traceability to	Metrological Characteristic
振动标准套组 /8305/2692-012/加速度: (2~100)m/s <sup>2</sup> (20 Hz~2000 Hz)	2630575/263782 3	LSvm2023-01877 /2024-03-15 /中国计量科学研究院	±1%
中频标准振动台 /4808/2719/DG812/20 Hz~2 kHz	2633112/B2719E 02A0K03/DG8A21 3201496	SSD202300238 /2024-04-23 /省计量院	加速度: $U_{rel}=3.0\%$ , 频率: $U_{rel}=0.01\%$ , $k=2$

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.





# 说 明

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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
数字多用表 /34461A/DCV/ACV:0.01mV~1 000V;DCA/ACA:0.01mA~10A; DCR:0.1Ω~100MΩ	MY59033606	DBS202207936 /2023-10-11 /省计量院	DCV: $U_{rel}=0.0015\%$ , ACV: $U_{rel}=0.03\%$ , DCA: $U_{rel}=0.012\%$ , ACA: $U_{rel}=0.04\%$ , OHM: $U_{rel}=0.003\%$ , $k=2$

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# 校准结果

## RESULTS OF CALIBRATION

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一、加速度幅值频率响应（参考频率160Hz）（峰值）：见表1

Acceleration amplitude frequency response: shown in table 1

表 1 table 1

频率 Frequency (Hz)	标准值 Reference Value ( $m \cdot s^{-2}$ )	指示值 Indication Value ( $m \cdot s^{-2}$ )	频率响应 Frequency Response (%)	允许误差 MPE (%)	结论 Conclusion Pass/Fail
20	10.0	9.7	-3.0	±10	Pass
40	10.0	10.0	0.0	±10	Pass
80	10.0	10.0	0.0	±10	Pass
160	10.0	10.0	Ref.	N/A	N/A
315	10.0	10.0	0.0	±10	Pass
630	10.0	10.0	0.0	±10	Pass
1250	10.0	9.9	-1.0	±10	Pass
2000	10.0	10.2	2.0	±10	Pass

二、加速度幅值非线性度（峰值）：见表2

Acceleration amplitude discriminator: shown in table 2

表 2 table 2

频率 Frequency (Hz)	标准值 Reference Value ( $m \cdot s^{-2}$ )	指示值 Indication Value ( $m \cdot s^{-2}$ )	相对误差 Relative Error (%)	允许误差 MPE (%)	结论 Conclusion Pass/Fail
160	1.0	1.0	0.0	±10	Pass
	2.0	2.0	0.0	±10	Pass
	5.0	5.0	0.0	±10	Pass
	10.0	10.0	0.0	±10	Pass
	20.0	20.1	0.5	±10	Pass
	50.0	49.9	-0.2	±10	Pass
	100.0	99.7	-0.3	±10	Pass





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三、速度值非线性(有效值): 见表3

Speed value nonlinear: shown in table 3

表 3 Table 3

频率 Frequency (Hz)	标准值 Reference Value (mm/s)	指示值 Indication Value (mm/s)	相对误差 Relative Error (%)	允许误差 MPE (%)	结论 Conclusion Pass/Fail
80	1.0	1.0	0.0	±10	Pass
	2.0	2.1	5.0	±10	Pass
	5.0	5.0	0.0	±10	Pass
	10.0	9.8	-2.0	±10	Pass
	20.0	19.5	-2.5	±10	Pass
	50.0	49.3	-1.4	±10	Pass

四、位移幅值非线性(峰峰值): 见表4

Displacement amplitude nonlinearity: shown in table 4

表 4 Table 4

频率 Frequency (Hz)	标准值 Reference Value (mm)	指示值 Indication Value (mm)	相对误差 Relative Error (%)	允许误差 MPE (%)	结论 Conclusion Pass/Fail
40	0.100	0.095	-5.0	±10	Pass
	0.200	0.188	-6.0	±10	Pass
	0.500	0.479	-4.2	±10	Pass
	1.000	0.969	-3.1	±10	Pass
	1.500	1.463	-2.5	±10	Pass
	2.000	1.964	-1.8	±10	Pass





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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:

加速度:  $U_{rel}=2.4\%$

速度:  $U_{rel}=3.0\%$

位移:  $U_{rel}=3.0\%$

包含因子:  $k=2$

Acceleration

Speed

Displacement

Coverage factor

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。

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》之5.3.1和JJG 676-2019.

Decision rules of conformity are JJF1094-2002 Evaluation of the Characteristics of Measuring Instruments(5.3.1) and JJG 676-2019.

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.

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