

校准证书

CALIBRATION CERTIFICATE

证书编号:

Certificate No.



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委托方

Client

"REGIONAL CERTIFICATION EXPERTS" LLC

联络信息

Contact Inf.

2, Ibn-Sino Street, Shaikhontokhur District, Tashkent city,
Uzbekistan

仪器名称

Description

Digital Power Meter (FullyMeet LM-79-19 and EN61000-3-2:2019)

型号/规格

Model/Type

LS2050C-IEC

制造厂

Manufacturer

LISUN GROUP

出厂编号

Serial No.

F112927J

管理号

Asset No.

接收日期

Receipt Date

2026年05月12日

Y M D

校准日期

Cal. Date

2026年05月14日

Y M D

发布日期

Issued Date

2026年06月01日

Y M D

批准

Approved by

宋硕

宋硕

审核

Inspected by

赵大星

赵大星

校准

Calibrated by

张锡阳

张锡阳

证书专用章

(Stamp)

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扫一扫验真伪

校验码: 022904

校准说明 DIRECTIONS OF CALIBRATION

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1.本实验室的质量管理体系符合ISO/IEC 17025:2017标准的要求,校准结果均可溯源至国际单位制(SI)单位。(The quality system is in accordance with ISO/IEC 17025:2017,the calibration results are traceable to the International System of Units (SI).)

2.本结果仅对本次校准样品有效。未经实验室批准,不得部分复制。如有疑问请在15个工作日内反馈。(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.本证书编号具有唯一性,后缀若带有“-Gx”的证书为替换证书,自发出后原证书即刻作废,修改后的证书以客户端内容为准。(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.证书中最大允许误差、判定结果仅供参考,其中“P”代表“合格”,“F”代表“不合格”,“N/A”代表“不适用”。使用人员应结合实际测量需求,评估测量不确定度对符合性评定的影响。(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.该仪器的溯源日期为本证书的“校准日期”。(The traceability date of this instrument is the calibration date on this certificate.)

6.校准地点、环境条件(Place and environmental conditions of the calibration):

地点: 无锡计量电参数室
Place

温度: (20.6~21.4) °C
Temperature

相对湿度: (50~53) %
Relative Humidity

7.建议复校时间间隔: 1年,送校单位也可按实际使用情况自主决定。

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

8.本次校准的技术依据及CNAS认可范围,超出范围的内容未被认可。详细认可范围请查看CNAS网站证书附件。(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.)

JJF(军工)52-2014 功率分析仪校准规范(C.S. for Power Analyzer) 直流电压: 10mV~1000V; 直流电流: 30μA~100A; 直流功率: 10mW~20kW; 交流电压: 10mV~1000V(20Hz~10kHz); 交流电流: 30μA~100A(20Hz~10kHz); 交流功率: 10mW~20kW(45Hz~1kHz); 频率: 20Hz~10kHz; 功率因数: 0.1~1.000; 谐波电压: (0.5~88)V(2~63)次; 谐波电流: (0.04~4)A(2~63)次

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9. 本次校准使用的主要测量标准(Main Standards of Measurement Used in the Calibration.):

名称 Description	编号 Serial No.	证书号/有效期 Certificate No./ Due Date	溯源机构 Traceability Institute	技术特征 Technique Character
多功能校准仪(含示波器校准仪选件) Multi-function calibrator (Includes oscilloscope	6027903	J202504023039- 0047 2026-05-23	广电计量检测集团 股份有限公司	DCV: $\pm 1.2E-5$ ACV: $\pm 1.7E-4$ DCI: $\pm 1E-4$ ACI: $\pm 4.7E-4$ Ohm: $\pm 2.8E-5$
电能质量分析仪智能检定装置	610068S	J202509041095- 0018 2026-09-20	广电计量检测集团 股份有限公司	0.05级

10. 计量溯源性声明(Measurement traceability declaration.):

多功能校准仪(含示波器校准仪选件)/Multi-function calibrator (Includes oscilloscope calibrator options)(6027903)→三相多功能综合校验仪/Three Phase Multifunction Calibrator(89439)→单相标准功率电能表;

电能质量分析仪智能检定装置(610068S)→精密交流测量标准/AC measurement standard(4439903)→电压、电流交直流转换标准装置(中国计量科学研究院/NIM);电能质量分析仪智能检定装置(610068S)→三相多功能综合校验仪/Three Phase Multifunction Calibrator(89439)→单相标准功率电能表;电能质量分析仪智能检定装置(610068S)→功率分析仪/Power analyzer(PA8003-P0300-1336)→多功能校准器/Multifunction calibrator(4569901)→频率计/Frequency Counter(6E5042003)→高精度铷原子钟/Rubidium Atomic Frequency Standard(1812152V)→原子时标基准装置(中国计量科学研究院/NIM);

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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、电压指示值 (Voltage Accuracy) Freq:50Hz

量程 Range	标准值 Reference	示值 Indication	误差 Error	不确定度 U (k=2)	允许误差 MPE	结论 Conclusion
(V)	(V)	(V)	(V)	(V)	(V)	(Pass/Fail)
600	50	50.028	0.028	0.080	± 0.126	P
	100	99.98	-0.02	0.10	± 0.26	P
	200	200.15	0.15	0.20	± 0.51	P
	300	300.32	0.32	0.30	± 0.61	P
	400	400.75	0.75	0.40	± 1.01	P
	500	501.08	1.08	0.50	± 1.11	P
	600	601.14	1.14	0.60	± 1.21	P

3、电压指示值 (Voltage Accuracy) Freq:60Hz

量程 Range	标准值 Reference	示值 Indication	误差 Error	不确定度 U (k=2)	允许误差 MPE	结论 Conclusion
(V)	(V)	(V)	(V)	(V)	(V)	(Pass/Fail)
600	50	50.023	0.023	0.080	± 0.126	P
	100	99.99	-0.01	0.10	± 0.26	P
	200	200.12	0.12	0.20	± 0.51	P
	300	300.28	0.28	0.30	± 0.61	P
	400	400.68	0.68	0.40	± 1.01	P
	500	501.03	1.03	0.50	± 1.11	P
	600	601.09	1.09	0.60	± 1.21	P

4、电流指示值 (Current Accuracy) Freq:50Hz

量程 Range	标准值 Reference	示值 Indication	误差 Error	不确定度 U (k=2)	允许误差 MPE	结论 Conclusion
(A)	(A)	(A)	(A)	(A)	(A)	(Pass/Fail)
20	0.5	0.4998	-0.0002	0.0008	± 0.0011	P
	1	0.9996	-0.0004	0.0010	± 0.0031	P
	2	1.9992	-0.0008	0.0014	± 0.0041	P
	5	4.9957	-0.0043	0.0044	± 0.0131	P
	8	7.9962	-0.0038	0.0054	± 0.0161	P
	10	9.996	-0.004	0.010	± 0.031	P
	15	14.992	-0.008	0.012	± 0.036	P
	19	18.986	-0.014	0.013	± 0.040	P

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5、电流指示值 (Current Accuracy) Freq:60Hz

量程 Range (A)	标准值 Reference (A)	示值 Indication (A)	误差 Error (A)	不确定度 U (k=2) (A)	允许误差 MPE (A)	结论 Conclusion (Pass/Fail)
20	0.5	0.4996	-0.0004	0.0008	±0.0011	P
	1	0.9995	-0.0005	0.0010	±0.0031	P
	2	1.9991	-0.0009	0.0014	±0.0041	P
	5	4.9953	-0.0047	0.0044	±0.0131	P
	8	7.9956	-0.0044	0.0054	±0.0161	P
	10	9.996	-0.004	0.010	±0.031	P
	15	14.992	-0.008	0.012	±0.036	P
	19	18.984	-0.016	0.013	±0.040	P

6、功率指示值 (Power Accuracy) Freq:50Hz

标准值 Reference (W)	示值 Indication (W)	误差 Error (W)	不确定度 U (k=2) (W)	允许误差 MPE (W)	结论 Conclusion (Pass/Fail)
50	50.08	0.08	0.07	±0.21	P
100	100.12	0.12	0.12	±0.26	P
200	200.38	0.38	0.25	±0.51	P
500	501.09	1.09	0.65	±1.11	P
1000	1000	0	2	±3	P
2000	2000	0	3	±4	P
3000	3002	2	4	±9	P
4000	4003	3	5	±10	P
5000	5011	11	6	±11	P

7、功率指示值 (Power Accuracy) Freq:60Hz

标准值 Reference (W)	示值 Indication (W)	误差 Error (W)	不确定度 U (k=2) (W)	允许误差 MPE (W)	结论 Conclusion (Pass/Fail)
50	50.06	0.06	0.07	±0.21	P
100	100.09	0.09	0.12	±0.26	P
200	200.32	0.32	0.25	±0.51	P
500	500.96	0.96	0.65	±1.11	P
1000	1000	0	2	±3	P
2000	2000	0	3	±4	P
3000	3002	2	4	±9	P
4000	4003	3	5	±10	P
5000	5008	8	6	±11	P

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8、功率因数 (PF Accuracy)

标准值 Reference	示值 Indication	误差 Error	不确定度 $U (k=2)$	允许误差 MPE	结论 Conclusion (Pass/Fail)
0.5	0.5000	0.0000	0.0020	± 0.0201	P
1.0	1.0000	0.0000	0.0020	± 0.0201	P

9、电压谐波 (Harmonics) (基波电压 $U=220V$, $f=50Hz$)

谐波次数 Harmonic Orde	标准值 Reference (%)	示值 Indication (%)	误差 Error (%)	不确定度 $U_{rel}(k=2)$ (%)	允许误差 MPE (%)	结论 Conclusion (Pass/Fail)
2	1	1.00	0.00	2.8	N/A	/
3	1	1.00	0.00	2.8	N/A	/
5	1	1.00	0.00	2.8	N/A	/
7	1	1.00	0.00	2.8	N/A	/
9	1	1.00	0.00	2.8	N/A	/
11	1	1.00	0.00	2.8	N/A	/
13	1	1.00	0.00	2.8	N/A	/
15	1	1.00	0.00	2.8	N/A	/
17	1	0.99	-0.01	2.8	N/A	/
23	1	0.96	-0.04	2.8	N/A	/
27	1	0.94	-0.06	2.8	N/A	/
31	1	0.94	-0.06	2.8	N/A	/
35	1	0.93	-0.07	2.8	N/A	/
40	1	0.91	-0.09	2.8	N/A	/

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10、电流谐波 (Harmonics of Current) (基波电流I=10A, f=50Hz)

谐波次数 Harmonic Orde	标准值 Reference (%)	示值 Indication (%)	误差 Error (%)	不确定度 $U_{rel}(k=2)$ (%)	允许误差 MPE (%)	结论 Conclusion (Pass/Fail)
2	3	3.00	0.00	1.9	N/A	/
3	3	3.00	0.00	1.9	N/A	/
5	3	3.00	0.00	1.9	N/A	/
7	3	3.00	0.00	1.9	N/A	/
9	3	3.00	0.00	1.9	N/A	/
11	3	2.99	-0.01	1.9	N/A	/
13	3	2.99	-0.01	1.9	N/A	/
15	3	2.99	-0.01	1.9	N/A	/
17	3	2.98	-0.02	1.9	N/A	/
23	3	2.98	-0.02	1.9	N/A	/
27	3	2.98	-0.02	1.9	N/A	/
31	3	2.97	-0.03	1.9	N/A	/
35	3	2.97	-0.03	1.9	N/A	/
40	3	2.96	-0.04	1.9	N/A	/

备注:

Notes:

结论 (Conclusion): 所校项目符合技术要求/The calibration items complied with the technical requirements.

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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