

校准证书

CALIBRATION CERTIFICATE

证书编号:

Certificate No.



J202410212920A-0001-G1

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委托方

Client

Energy & Power Industries Laboratories Co

联络信息

Contact Inf.

(Unit 12, No. 2, Boujari Sefat Dead-End, Corner of Fariman St.,
Bozorgmehr St., Vali-Asr Ave., Tehran-Iran (Post code:
1416854523)

仪器名称

Description

Immunity Test System For Automotive Electronics

型号/规格

Model/Type

LIS-7600/7610/7620/7630

制造厂

Manufacturer

LISUN GROUP

出厂编号

Serial No.

0240901

管理号

Asset No.

接收日期

Receipt Date

2024年10月29日

Y M D

校准日期

Cal. Date

2024年10月29日

Y M D

发布日期

Issued Date

2024年10月29日

Y M D

批准

Approved by

李文兴

李文兴

审核

Inspected by

刘灿星

刘灿星

校准

Calibrated by

邵松军

邵松军

证书专用章

(Stamp)

总部地址(Headquarters Add.): 广东省广州市番禺区创运路8号

No.8.Chuangyun Rd,Panyu District,Guangzhou,Guangdong,China

实验室地址(Add.of the Lab): 广东省广州市番禺区创运路8号

No.8 Chuangyun Rd,Panyu District,Guangzhou,Guangdong,China

联系电话(Tel.):400-602-0999

邮政编码(Postcode):511450

网站(Website):http:// www.grgtest.com

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扫一扫验真伪

校验码: 363119

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

地点: 客户二楼实验室
Place

温度: 21℃
Temperature

相对湿度: 52%
Relative Humidity

- 6.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(电子) 0019-2018 汽车电瞬态传导骚扰模拟器校准规范(C.S. for Road vehicles- Electrical Transient Conduction Disturbance Simulators) 试验电压: $\pm 50V$ 脉冲幅度: $\pm 600V$ 上升/下降时间: 1ns~10ms 脉冲宽度/重复时间: 100ns~10s

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7. 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
群脉冲校准件	103472-1765	J202402181444-0047 2025-02-22	广电计量检测集团股份有限公司	衰减: PE:±(1.00~3.00) dB; 输入阻抗: MPE:±20.0Ω
汽车瞬变校准负载(标准电阻)(10个)	19040296等	J202312292241-0086 2025-01-07	广电计量检测集团股份有限公司	MPE:±0.5Ω
群脉冲校准件	103473-1713	J202402181444-0046 2025-02-22	广电计量检测集团股份有限公司	衰减: PE:±(1.00~3.00) dB; 输入阻抗: MPE:±20.0Ω
示波器 Oscilloscope	C058276	J202404094314-0062 2025-06-08	广电计量检测集团股份有限公司	直流增益:±1.5%;时基:±10ppm
高压差分探头	C030102	J202405305609-0011 2025-07-01	广电计量检测集团股份有限公司	衰减MPE:±3%
数字温湿度计 Digital temperature and humidity meter	831908	J202409090616-0007 2025-09-10	广电计量检测集团股份有限公司	温度: MPE: ±2.0℃, 湿度: MPE: ±7%RH

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

群脉冲校准件(103472-1765)→网络分析仪(MY59202773)→网络分析仪校准件(MY61410234)→2.4mm网络分析仪校准件(中国计量科学研究院/NIM);

汽车瞬变校准负载(标准电阻)(19040296等)→数字多用表(456175079)→精密交直流同轴分流器(中国计量科学研究院/NIM)

群脉冲校准件(103473-1713)→网络分析仪(MY59202773)→网络分析仪校准件(MY61410234)→2.4mm网络分析仪校准件(中国计量科学研究院/NIM);

示波器/Oscilloscope(C058276)→频率计(66C04005)→微波信号发生器/Signal Generator(MY46521348)→频率计(6E5042030)→铷原子频率标准(051101)/60GHz微波频率计(499061)(广东省计量科学研究院/SCM)/(中国计量科学研究院/NIM);

示波器/Oscilloscope(C058276)→多功能校准仪(含示波器校准仪选件)/Multi-function calibrator (Includes oscilloscope calibrator options)(3898901)→三相多功能综合校验仪

/Multi-function integrated calibrator(89439)→三相标准功率电能表(中国计量科学研究院/NIM);

高压差分探头(C030102)→数字万用表(MY60058136)→多功能校准仪(含示波器校准仪选件)(6027905)→三相多功能综合校验仪(89439)→三相标准功率电能

表(中国计量科学研究院/NIM);高压差分探头(C030102)→示波器(C058276)→多功能校准仪(含示波器校准仪选件)(4996902)→数字多用表(北京东方计量测试研究所/CASC);

数字温湿度计/Digital temperature and humidity meter(831908)→自校式铂电阻数字测温仪(19075)→高精度测温仪(612514)→电阻箱(200110)→数字多用表(498876915)→高值电阻器(北京东方计量测试研究所);

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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、测试模式(Test Mode):

2.1、Pulse 1 (Nominal 12 V System)

测试项目 Items	标称值 Nominal (V)	实测值 Measured (V)	误差 Error (V)	不确定度 $U_{rel}(k=2)$ (%)	允许误差 MPE (V)	结论 Conclusion (Pass/Fail)
Us	-75	-76.4	1.4	3.5	± 7.5	P
	-100	-103.0	3.0	3.5	± 10.0	P
	-200	-208.0	8.0	3.5	± 20.0	P
-100V/10Ω	-50	-50.6	0.6	3.5	± 10.0	P
	(ms)	(ms)	(ms)	(%)	(ms)	
Td:空载	2	2.09	-0.09	5.5	± 0.40	P
Td:带载	1.5	1.52	-0.02	5.5	± 0.30	P
Tr		(μs)		(%)	(μs)	
		0.63		5.5	0.5~1.0	P

2.2、Pulse 1 (Nominal 24 V System)

测试项目 Items	标称值 Nominal (V)	实测值 Measured (V)	误差 Error (V)	不确定度 $U_{rel}(k=2)$ (%)	允许误差 MPE (V)	结论 Conclusion (Pass/Fail)
Us	-450	-456	6	3.5	± 45	P
	-500	-508	8	3.5	± 50	P
	-600	-596	-4	3.5	± 60	P
-600V/50Ω	-300	-298	-2	3.5	± 60	P
	(ms)	(ms)	(ms)	(%)	(ms)	
Td:空载	1	1.05	-0.05	5.5	± 0.20	P
Td:带载	1	1.03	-0.03	5.5	± 0.20	P
Tr		(μs)		(%)	(μs)	
		2.2		5.5	1.5~3.0	P

2.3、Pulse 2a(Nominal 12 V/ 24V system)

测试项目 Test Items	标称值 Nominal (V)	实测值 Measured (V)	误差 Error (V)	不确定度 $U_{rel}(k=2)$ (%)	允许误差 MPE (V)	结论 Conclusion (Pass/Fail)
Us	37	36.8	0.2	3.5	± 3.7	P
	50	50.6	-0.6	3.5	± 5.0	P
	75	76.4	-1.4	3.5	± 7.5	P
	200	195.0	5.0	3.5	± 20.0	P
75V/2Ω	37.5	37.6	-0.1	3.5	± 7.5	P
	(μs)	(μs)	(μs)	(%)	(μs)	
Td:空载	50	48.0	2.0	5.5	± 10.0	P
Td:带载	12	12.2	-0.2	5.5	± 2.4	P
Tr		(μs)		(%)	(μs)	
		0.52		5.5	0.5~1.0	P

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2.4、Pulse 2b (Nominal 12 V/24V System)

测试项目 Test Items	标称值 Nominal (V)	实测值 Measured (V)	误差 Error (V)	不确定度 $U_{rel}(k=2)$ (%)	允许误差 MPE (V)	结论 Conclusion (Pass/Fail)
Us	10	10.4	-0.4	3.5	±1.0	P
	20	20.2	-0.2	3.5	±2.0	P
	(ms)	(ms)	(ms)	(%)	(ms)	
T12	1	1.04	-0.04	5.5	±0.50	P
T6	1	0.92	0.08	5.5	±0.50	P
Tr	1	1.10	-0.10	5.5	±0.50	P
	200	202	-2	5.5	±40	P
Td	500	504	-4	5.5	±100	P
	2000	2010	-10	5.5	±400	P

2.5、Pulse 3a(Nominal 12 V /24V system)

测试项目 Test Items	标称值 Nominal (V)	实测值 Measured (V)	误差 Error (V)	不确定度 $U_{rel}(k=2)$ (%)	允许误差 MPE (V)	结论 Conclusion (Pass/Fail)
Us	-112	-110.0	-2.0	3.5	±11.2	P
	-150	-152.0	2.0	3.5	±15.0	P
	-200	-204.0	4.0	3.5	±20.0	P
	-600	-612.0	12.0	3.5	±60.0	P
-200V/50Ω	-100	-102.0	2.0	3.5	±10.0	P
	(ns)	(ns)	(ns)	(%)	(ns)	
Td:空载	150	165	-15	5.5	±45	P
Td:带载	150	158	-8	5.5	±45	P
Tr	5	5.5	-0.5	5.5	±1.5	P
	(μs)	(μs)	(μs)	(%)	(μs)	
T1	100	100	0	5.5	±10	P
	(ms)	(ms)	(ms)	(%)	(ms)	
T4	10	10.0	0.0	5.5	±2.0	P
T5	90	89.8	0.2	5.5	±18.0	P

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2.6、Pulse 3b(Nominal 12 V/24V system)

测试项目 Test Items	标称值 Nominal (V)	实测值 Measured (V)	误差 Error (V)	不确定度 $U_{rel}(k=2)$ (%)	允许误差 MPE (V)	结论 Conclusion (Pass/Fail)
Us	75	75.2	-0.2	3.5	± 7.5	P
	100	101.0	-1.0	3.5	± 10.0	P
	150	154.0	-4.0	3.5	± 15.0	P
	200	208.0	-8.0	3.5	± 20.0	P
	600	592.0	8.0	3.5	± 60.0	P
200V/50Ω	100 (ns)	102.0 (ns)	-2.0 (ns)	3.5 (%)	± 10.0 (ns)	P
Td /空载	150	136	14	5.5	± 45	P
Td /带载	150	138	12	5.5	± 45	P
Tr	5 (μs)	6.2 (μs)	-1.2 (μs)	5.5 (%)	± 1.5 (μs)	P
	T1	100 (ms)	100 (ms)	0 (ms)	5.5 (%)	± 10 (ms)
T4	10	9.9	0.1	5.5	± 2.0	P
T5	90	90.2	-0.2	5.5	± 18.0	P

2.7、Pulse 4 (Nominal 12 V System)

测试项目 Test Items	标称值 Nominal (V)	实测值 Measured (V)	误差 Error (V)	不确定度 $U_{rel}(k=2)$ (%)	允许误差 MPE (V)	结论 Conclusion (Pass/Fail)
Us	-6	-5.92	-0.08	3.5	± 0.60	P
	-7	-6.94	-0.06	3.5	± 0.70	P
Ua	-2.5	-2.50	0.00	3.5	± 0.25	P
	-6 (ms)	-6.02 (ms)	0.02 (ms)	3.5 (%)	± 0.60 (ms)	P
T7	15	14.8	0.2	5.5	± 3.0	P
	40	40.2	-0.2	5.5	± 8.0	P
T8	49	49		5.5	≤50	P
	5	5.0	0.0	5.5	± 1.0	P
T11	10	10.0	0.0	5.5	± 2.0	P
	100 (s)	102.0 (s)	-2.0 (s)	5.5 (%)	± 20.0 (s)	P
T9	0.5	0.50	0.00	5.5	± 0.10	P
	1.0	0.98	0.02	5.5	± 0.20	P
	2.0	1.96	0.04	5.5	± 0.40	P

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2.8、Pulse 4 (Nominal 24 V System)

测试项目 Test Items	标称值 Nominal (V)	实测值 Measured (V)	误差 Error (V)	不确定度 $U_{rel}(k=2)$ (%)	允许误差 MPE (V)	结论 Conclusion (Pass/Fail)
Us	-12	-12.20	0.20	3.5	± 1.20	P
	-16	-16.40	0.40	3.5	± 1.60	P
Ua	-5	-5.08	0.08	3.5	± 0.50	P
	-12	-12.10	0.10	3.5	± 1.20	P
T7	50 (ms)	49 (ms)	1 (ms)	5.5 (%)	± 10 (ms)	P
	100	98	2	5.5	± 20	P
T8		49		5.5	≤ 50	P
T6	10	10.0	0.0	5.5	± 2.0	P
T11	10	10.2	-0.2	5.5	± 2.0	P
	50	50.4	-0.4	5.5	± 10.0	P
	100	102.0	-2.0	5.5	± 20.0	P
T9	0.5 (s)	0.49 (s)	0.01 (s)	5.5 (%)	± 0.10 (s)	P
	1.0	0.98	0.02	5.5	± 0.20	P
	2.0	2.02	-0.02	5.5	± 0.40	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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