



中国合格评定国家认可委员会 实验室认可证书

(注册号: CNAS L4362)

兹证明:

皆利士多层线路版(中山)有限公司物理实验室

(法人: 皆利士多层线路版(中山)有限公司)

广东省中山市小榄镇永宁螺沙, 528415

符合 ISO/IEC 17025: 2017 《检测和校准实验室能力的通用要求》
(CNAS-CL01 《检测和校准实验室能力认可准则》) 的要求, 具备承担本
证书附件所列服务能力, 予以认可。

获认可的能力范围见标有相同认可注册号的证书附件, 证书附件是
本证书组成部分。

生效日期: 2025-01-12

截止日期: 2031-01-11



中国合格评定国家认可委员会授权人

张朝华

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本证书的有效性可登陆 www.cnas.org.cn 获认可的机构名录查询。

名称：皆利士多层线路版（中山）有限公司物理实验室

地址：广东省中山市小榄镇永宁螺沙

注册号：CNAS L4362

认可依据：ISO/IEC 17025:2017 以及 CNAS 特定认可要求

生效日期：2024 年 12 月 27 日 截止日期：2031 年 01 月 11 日

附件 3 认可的检测能力范围

序号	检测对象	项目/参数		检测标准（方法）	说明	生效日期
		序号	名称			
1	印制线路板	1	金相切片制作	试验方法手册 IPC-TM-650 2.1.1 (2015.06 F 版)	只测：手动和半自动	2024-12-27
		2	金相切片测量	印制板的可接受性 IPC-A-600K (2020.07) 3.2.1		2024-12-27
				刚性印制板的鉴定及性能规范 IPC-6012 F(2023.9)	只测：3.6 结构完整性，3.7.3 阻焊膜厚度	2024-12-27
		3	阻焊剂硬度	试验方法手册 IPC-TM-650 2.4.27.2 (1988.02 Revision A-Reaffirmed)	只测：特定用户的特定产品	2024-12-27
		4	热应力冲击	试验方法手册 IPC-TM-650 2.6.8 (2004.05 E 版)		2024-12-27
		5	热冲击	试验方法手册 IPC-TM-650 2.6.7(1997.08 A 版)	只测：① 温度：-	2024-12-27



No. CNAS L4362

第 1 页 共 4 页

序号	检测对象	项目/参数		检测标准（方法）	说明	生效日期
		序号	名称			
		中国合格评定国家认可委员会		试验方法手册 IPC-TM-650 2.6.7.2(2020.03 C版)	60℃~+175℃② 容积：120L 只测：① 温度：-60℃~+175℃② 容积：120L	2024-12-27
				环境试验 第2部分：试验方法 方法N：温度变化 IEC60068-2-14：2023	只测：Na 方法， ① 温度：-60℃~+175℃②容积：120L	2024-12-27
			6	阻焊剂耐电压	试验方法手册 IPC-TM-650 2.5.6.1(2007.3 B版)	只测：电压： AC/DC 0~10kV
		7	线路间/层间耐电压	试验方法手册 IPC-TM-650 2.5.7(2004.05 D版)	只测：电压： AC/DC0~10kV	2024-12-27
		8	线路剥离强度	试验方法手册 IPC-TM-650 2.4.8(1994.12 C版)	只测：①条件A（无前处理）和条件B（做热应力冲击测试后）②拉力范围：0~1kN	2024-12-27
		9	可焊性	印制版可焊性测试 IPC J-STD-003 D(2022.10) 4.2.1, 4.2.2, 4.4	只测： ①边缘浸锡测试 ②浮锡测试	2024-12-27
		10	粘结力	试验方法手册 IPC-TM-650 2.4.28.1 (2007.03 F版)		2024-12-27
				试验方法手册 IPC-TM-650 2.4.1 (2004.05 E版)		2024-12-27



序号	检测对象	项目/参数		检测标准（方法）	说明	生效日期
		序号	名称			
		11	非支撑元件孔拉力	试验方法手册 IPC-TM-650 2.4.21 (2007.01 F 版)	只测：拉力范围：0~1kN	2024-12-27
		12	弓曲/扭曲	试验方法手册 IPC-TM-650 2.4.22 (1999.06 C 版)	不测：扭曲的仲裁试验方法	2024-12-27
				试验方法手册 IPC-TM-650 2.4.22.1 (1993.05 C 版)		2024-12-27
		13	离子污染	试验方法手册 IPC-TM-650 2.3.25 (2012.11 D 版)		2024-12-27
				试验方法手册 IPC-TM-650 2.3.25.1 (2000.10)		2024-12-27
		14	玻璃化转变温度 (DSC)	试验方法手册 IPC-TM-650 2.4.25 (2017.11 D 版)	只测：温度范围：-40℃~+725℃	2024-12-27
		15	绝缘电阻	试验方法手册 IPC-TM-650 2.6.3 (2004.05 F 版)	只测：B 方法（无保形涂料）	2024-12-27
				试验方法手册 IPC-TM-650 2.6.3.1 (2007.03 E 版)		2024-12-27
				试验方法手册 IPC-TM-650 2.6.3.5 (2004.01)		2024-12-27
				试验方法手册 IPC-TM-650 2.6.3.6 (2004.01)		2024-12-27
				电信产品和设备物理设计和制造的一般要求 GR-78-CORE (2007.09 第 2 次发行) 14.4		2024-12-27
		16	电化学迁移	电信产品和设备物理设计和制造的一般要求 GR-78-CORE (2007.09 第 2 次发行) 13.2.7		2024-12-27
				试验方法手册 IPC-TM-650 2.6.14 (2007.03 D 版)	只测：测试箱方法	2024-12-27



序号	检测对象	项目/参数		检测标准（方法）	说明	生效日期
		序号	名称			
		17	高温	环境试验 第2部分：试验方法 方法B：高温 IEC 60068-2-2：2007	只测：Bb 方法 ① 温度范围：室温~+155℃②容积：115L	2024-12-27
		18	拉伸强度及延展性	试验方法手册 IPC-TM-650 2.4.18.1 (2004.05 A版)	只测：拉力范围：0~1kN	2024-12-27
				试验方法手册 IPC-TM-650 2.4.18 (1980.8 B版)	只测：常温条件测试方法，拉力范围：0~1kN	2024-12-27
		19	低温	环境试验 第2部分：试验方法 方法A：低温 IEC 60068-2-1：2007	只测：Ab 方法 ① 温度范围：-60℃~室温②容积：330L	2024-12-27



No. CNAS L4362



China National Accreditation Service for Conformity Assessment
LABORATORY ACCREDITATION CERTIFICATE
(Registration No. CNAS L4362)

Kalex Multi-Layer Circuit Board (Zhongshan) Co., Ltd.
Physical Lab

(Legal Entity: Kalex Multi-Layer Circuit Board (Zhongshan) Co., Ltd.)

Luosha, Yongning, Xiaolan, Zhongshan, Guangdong, China

is accredited in accordance with ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence to undertake the service described in the schedule attached to this certificate.

The scope of accreditation is detailed in the attached schedule bearing the same registration number as above. The schedule forms an integral part of this certificate.

Effective Date: 2025-01-12

Expiry Date: 2031-01-11

Signed on behalf of China National Accreditation Service for Conformity Assessment

陈朝华

China National Accreditation Service for Conformity Assessment (CNAS) is authorized by Certification and Accreditation Administration of the People's Republic of China (CNCA) to operate the national accreditation schemes for conformity assessment. CNAS is a signatory of the International Laboratory Accreditation Cooperation Mutual Recognition Arrangement (ILAC MRA) and the Asia Pacific Accreditation Cooperation Mutual Recognition Arrangement (APAC MRA).

The validity of the certificate can be checked on CNAS website at <http://www.cnas.org.cn/english/findanaccreditedbody/index.shtml>.

Name: Kalex Multi-Layer Circuit Board (Zhongshan) Co., Ltd. Physical Lab

Address: Luosha, Yongning, Xiaolan, Zhongshan, Guangdong, China

Registration No. CNAS L4362

Accreditation Criteria: ISO/IEC 17025:2017 and relevant requirements of CNAS

Effective Date: 2024-12-27 Expiry Date: 2031-01-11

SCHEDULE 3 ACCREDITED TESTING SCOPE

No	Test Object	Item/Parameter		Standard or Method	Note	Effective Date
		No	Item/ Parameter			
1	Print Circuit Board	1	Micro-section Fabrication	Test Methods manual IPC-TM-650 2.1.1 (2015.06 Revision F)	Accredited only for manual and semi-automatic	2024-12-27
		2	Micro-section Measurement	Acceptability of printed boards IPC-A-600 K(2020.07) 3.2.1		2024-12-27
				Qualification and performance specification for rigid printed boards IPC-6012F (2023.9)	Accredited only for 3.6 Structural Integrity 3.7.3 Solder Mask thickness	2024-12-27
		3	Solder mask abrasion hardness	Test Methods manual IPC-TM-650 2.4.27.2 (1988.02 Revision A-Reaffirmed)	Accredited only for	2024-12-27

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The scope of the accreditation in Chinese remains the definitive version.

No.	Test Object	Item/Parameter		Standard or Method	Note	Effective Date
		No.	Item/ Parameter			
					specific customers and products	
		4	Thermal stress	Test Methods manual IPC-TM-650 2.6.8 (2004.05 Revision E)		2024-12-27
		5	Thermal shock	Test Methods manual IPC-TM-650 2.6.7(1997.08 Revision A)	Accredited only for ① temperature : -60°C~+175°C ② volume : 120L	2024-12-27
				Test Methods manual IPC-TM-650 2.6.7.2 (2020.03 CRevision C)	Accredited only for ① temperature : -60°C~+175°C ② volume : 120L	2024-12-27
				Environment testing-Part2-14: tests-test temperature IEC60068-2-14: 2023 N:change of	Accredited only for Na: ① temperature : -60°C~+175°C ② volume	2024-12-27



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№	Test Object	Item/Parameter		Standard or Method	Note	Effective Date
		№	Item/ Parameter			
					: 120L	
		6	Hot potential (solder mask)	Test Methods manual IPC-TM-650 2.5.6.1 (2007.03 Revision B)	Accredited only for: Voltage :AC/DC 0~10kV	2024-12-27
		7	High voltage between conductor /layers	Test Methods manual IPC-TM-650 2.5.7 (2004.05 Revision D)	Accredited only for: Voltage : AC/DC 0~10kV	2024-12-27
		8	Peel strength of conductor	Test Methods manual IPC-TM-650 2.4.8 (1994.12 Revision C)	Accredited only for condition A (no precondition) and B (after thermal stress) Force:0~1kN	2024-12-27
		9	Solderability	Solderability Tests for Printed Bords IPC J-STD-003 D(2022.10) 4.2.1, 4.2.2, 4.4	Accredited only for : ①Edge Dip Test, ②Solder float test .	2024-12-27



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№	Test Object	Item/Parameter		Standard or Method	Note	Effective Date
		№	Item/ Parameter			
		10	Adhesion	Test Methods manual IPC-TM-650 2.4.28.1 (2007.03 Revision F)		2024-12-27
				Test Methods manual IPC-TM-650 2.4.1 (2004.05 Revision E)		2024-12-27
		11	Pull strength of Unsupported Component Hole	Test Methods manual IPC-TM-650 2.4.21 (2007.01 Revision F)	Accredited only for: Force: 0 ~ 1kN	2024-12-27
		12	Bow and twist	Test Methods manual IPC-TM-650 2.4.22 (1999.06 Revision C)	Except for Referee Method (Twist)	2024-12-27
				Test Methods manual IPC-TM-650 2.4.22.1 (1993.05 Revision C)		2024-12-27
		13	Ionic contamination	Test Methods manual IPC-TM-650 2.3.25 (2012.11 Revision D)		2024-12-27
				Test Methods manual IPC-TM-650 2.3.25.1 (2000.10)		2024-12-27
		14	Glass Transition Temperature (DSC)	Test Methods manual IPC-TM-650 2.4.25 (2017.11 Revision D)	Accredited only for temperature range: -40°C ~ +725°C	2024-12-27
		15	Insulation resistance	Test Methods manual IPC-TM-650 2.6.3 (2004.05 Revision F)	Accredited only for method B (without Conformal Coating)	2024-12-27



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№	Test Object	Item/Parameter		Standard or Method	Note	Effective Date
		№	Item/ Parameter			
				Test Methods manual IPC-TM-650 2.6.3.1 (2007.03 Revision E)		2024-12-27
				Test Methods manual IPC-TM-650 2.6.3.5 (2004.01)		2024-12-27
				Test Methods manual IPC-TM-650 2.6.3.6 (2004.01)		2024-12-27
				Generic Requirements for the Physical Design and Manufacture of Telecommunications Products and Equipment GR-78-CORE (2007.09 Issue 2) 14.4		2024-12-27
		16	Electrochemical Migration	Generic Requirements for the Physical Design and Manufacture of Telecommunications Products and Equipment GR-78-CORE (2007.09 Issue 2) 13.2.7		2024-12-27
				Test Methods manual IPC-TM-650 2.6.14 (2007.03 Revision D)	Accredited only for chamber method	2024-12-27
		17	Dry heat	Environment testing - Part 2-2:Tests-Test B:Dry heat IEC 60068-2-2: 2007	Accredited only for method Bb	2024-12-27
					①temperature range: room temperature ~ +155°C;② volume:115 L	
		18	Tensile strength and elongation	Test Methods manual IPC-TM-650 2.4.18.1 (2004.05 Revision A)	Accredited only for:	2024-12-27
					Force:0~	



No. CNAS L4362

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№	Test Object	Item/Parameter		Standard or Method	Note	Effective Date
		№	Item/ Parameter			
					1kN	
				Test Methods manual IPC-TM-650 2.4.18 (1980.8 Revision B)	Accredited only for ambient temperature testing Force: 0~1kN	2024-12-27
		19	Cold	Environmental testing -Part 2-1: Tests-Test A: cold IEC 60068-2-1 : 2007	Accredited only for method Ab ① temperature range: -60°C~ room temperature ; ② volume: 330L	2024-12-27



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