



中国认可
国际互认
检测
TESTING
CNASL0354



检科院网站

检测报告

TEST REPORT



检科院公众号

报告编号

Report No.

STL/R2603661-2

样品名称

Sample Name

可充电锂离子电池系统

Rechargeable Li-ion Battery System

委托单位

Consignor

上海派智能源股份有限公司

Shanghai PYTES Energy Co., Ltd.



浙江省检验检疫科学技术研究院

Zhejiang Academy of Science and Technology for Inspection and Quarantine



报告编号 No.: STL/R2603661-2
报告日期 Date: 2026-04-22

检 测 报 告 TEST REPORT

样品名称 Name	可充电锂离子电池系统 Rechargeable Li-ion Battery System
型号规格 Type/Model	HV48100 SE 1P14S / 716.8V 100Ah 71.68kWh
委托单位 Consignor	上海派智能源股份有限公司 Shanghai PYTES Energy Co., Ltd.
地 址 Address	上海市奉贤区金钱公路 3492 号 No.3492 Jinqian Road,Fengxian District,Shanghai,China
制造商 Manufacture	上海派智能源股份有限公司 Shanghai PYTES Energy Co., Ltd.
地 址 Address	上海市奉贤区金钱公路 3492 号 No.3492 Jinqian Road,Fengxian District,Shanghai,China
生产厂 Factory	上海派智能源股份有限公司 Shanghai PYTES Energy Co., Ltd.
地 址 Address	上海市奉贤区金钱公路 3492 号 No.3492 Jinqian Road,Fengxian District,Shanghai,China
样品数量 Quantity	1 个集成电池组 1 assembled battery
样品编号 Sample No.	2603661-1-1
接样日期 Accepted Date	2026-04-16
试验日期 Test Date	2026-04-20 至 2026-04-21
试验依据 Criterion	联合国《试验和标准手册》第八修订版 38.3 节 ST/SG/AC.10/11/Rev.8/Section 38.3
试验结论 Conclusion	经检测，该样品符合联合国《试验和标准手册》第八修订版 38.3 节标准要求。 The sample has passed the test items of UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.8/Section 38.3
备 注 Comment	/

编制：朱晨辉
Compiler:

审核：李雄
Reviewer:

批准：李雄
Approver:





报告编号 No.: STL/R2603661-2
报告日期 Date: 2026-04-22

样品说明及描述 Description and illustration of Samples

样品外观: 良好
Appearance: Good
样品颜色: 银色
Color: Silver
样品形状: 棱柱形
Shape: Prismatic
电池组状态:
Status of battery:

样品编号 Sample No.	型号 Type	能量 Watt-hour	类别 Category	组成结构 Composition
2603661-1-1	HV48100 SE 1P14S	71.68kWh	Assembled battery	由 14 个锂离子电池模组 HV48100 SE BMU 组成 Consists of 14 Lithium-ion battery modules HV48100 SE BMU

备注:

样品为型号 HV48100 SE 1P14S 的电池系统,其额定瓦时为 71.68kWh,大于 6200Wh。组成电池系统的电池模组型号为 HV48100 SE BMU,已通过 UN38.3 测试,报告编号为 STL/R2506731-2。根据 ST/SG/AC.10/11/Rev.8/Section 38.3.3.1(g)条款要求,电池系统经过验证可防止下列状况,即无需进行试验:

- (一)过度充电;
- (二)短路;
- (三)电池组之间过度放电。

Note:

The Sample (Type: HV48100 SE 1P14S) is a battery system. The rated Watt-hour is 71.68kWh, which is larger than 6200Wh. The modules (Type: HV48100 SE BMU) that assembled in the battery system have passed UN38.3 tests (STL/R2506731-2). According to ST/SG/AC.10/11/Rev.8/Section 38.3.3.1(g), the battery system does not need to be tested if it of a type that has been verified as preventing:

- (i) Overcharge;
- (ii) Short circuits;
- (iii) Over discharge between the batteries.

样品照片及标识 Photos of Samples and Labels



外观 (HV48100 SE 1P14S 电池系统)

Appearance (HV48100 SE 1P14S battery system)



外观 (HV48100 SE 1P14S 电池系统)

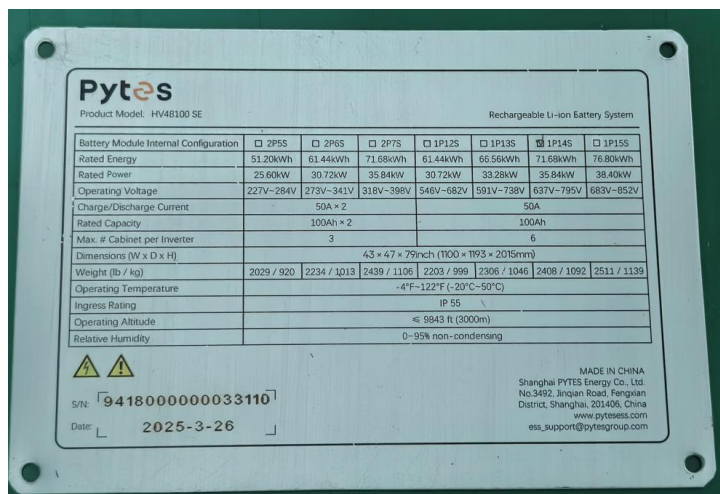
Appearance (HV48100 SE 1P14S battery system)

样品照片及标识 Photos of Samples and Labels



内部 (HV48100 SE 1P14S 电池系统)

Interior (HV48100 SE 1P14S battery system)



铭牌 (HV48100 SE 1P14S 电池系统)

Label (HV48100 SE 1P14S battery system)

样品照片及标识 Photos of Samples and Labels

Item	Battery	Power	SysPower	
Over Voltage	: 3650	57600	795200	mV
Over VoltageR	: 3600	56000	784000	mV
High Voltage	: 3600	56800	787780	mV
High VoltageR	: 3450	55000	774620	mV
Low Voltage	: 3100	49760	696640	mV
Low VoltageR	: 3200	51360	719040	mV
Under Voltage	: 2700	44000	627200	mV
Under VoltageR	: 2900	48000	658000	mV
Sleep Voltage	: 2600	40000	581000	mV

保护参数 (HV48100 SE 1P14S 电池系统)

Protection parameter (HV48100 SE 1P14S battery system)



外观 (HV48100 SE BMU 锂离子电池模组)

Appearance (HV48100 SE BMU Lithium-ion battery module)



报告编号 No.: STL/R2603661-2
报告日期 Date: 2026-04-22

样品照片及标识 Photos of Samples and Labels

Battery Model	HV48100 SE BMU
Battery Cell Type	LFP Battery
Operating Voltage Range	47.5V~57.6V
Nominal Voltage	51.2V
Rated Energy	5.12kWh
Rated Capacity	100Ah
Rated Charge/Discharge Current	50A
Maximum Charge/Discharge Current	50A
Protective Class	Class I
Ingress Protection Code	IP20

铭牌（HV48100 SE BMU 锂离子电池模组）

Label (HV48100 SE BMU Lithium-ion battery module)



报告编号 No.: STL/R2603661-2
报告日期 Date: 2026-04-22

检测结果 Test Results

条款 No.	试验项目及试验要求 Test item and requirements	试验结果 Result	判定 Conclusion
38.3.3.1(g)	要求: 对于已通过所有适用试验的若干电池组以电路连接而成的集成电池组, 如在完全充电时所有正极的合计锂含量大于 500g, 或在锂离子电池组的情况下, 如额定的瓦时数超过 6200Wh, 该集成电池组如经过验证属于可防止下列状况, 即无需进行试验 T.1 - T.8 测试项目: (一) 过度充电; (二) 短路; (三) 电池组之间过度放电。 Requirements: When batteries that have passed all applicable tests are electrically connected to form a battery in which the aggregate lithium content of all anodes, when fully charged, is more than 500g, or in the case of a lithium ion battery, with a Watt-hour rating of more than 6200Wh, the assembled battery does not need to be tested if it of a type that has been verified as preventing: (i) Overcharge; (ii) Short circuits; (iii) Over discharge between the batteries.	依据 《ZAIQ-WI(DQ)-523 集成电池组符合 UN38.3.3.1(g)条款验证流程作业指导书》验证, 样品具有防止过度充电、短路、电池组之间过度放电能力。过度充电、电池组之间过度放电详见附表 1-2 和评估表 1-2, 短路详见评估表 3。 According to the verification specified in file ZAIQ-WI(DQ)-523, the sample has the ability to prevent overcharging, short circuiting and over discharging between batteries. Overcharging, excessive discharging between battery packs is detailed in Appendix 1-2 and Evaluation Form 1-2, and short circuits are detailed in Evaluation Form 3.	合格 Passed



报告编号 No.: STL/R2603661-2
报告日期 Date: 2026-04-22

附表 Appendix 1

序号 No.	1	试验项目 Test Item	过充电保护验证 Overcharge protection verification	
样品编号 Sample No.	充电电压 Charge Voltage	充电电流 Charge Current	结束条件 Termination condition	现象 Event
2603661-1-1	397.978V	50A	☒ 试验对象自动终止充电电流 Sample automatically terminates charging current. ☐ 试验对象发出终止充电电流的信号 Sample sends out the signal for terminating charging current.	O
备注: L-泄漏, V-漏气, D-解体, R-破裂, F-起火, O-无泄漏、无排气、无解体、无破裂和无起火 Note: L-Leakage, V-Venting, D-Disassembly, R-rupture, F-Fire, O- no leakage, no venting, no disassembly, no rupture and no fire				

附表 Appendix 2

序号 No.	1	试验项目 Test Item	电池组间过度放电保护验证 Protection verification of over discharge between the batteries	
样品编号 Sample No.	终止放电电流时的电压 Voltage when discharge is terminated		结束条件 Termination condition	现象 Event
2603661-1-1	集成电池组 Assembled battery	电池组/电池 Battery/Cell	☒ 试验对象自动终止放电电流 Sample automatically terminates discharge current.	O
	317.471V	2.696V	☐ 试验对象保护策略发生不可恢复性断路 An unrecoverable open circuit occurred due to the protection strategy of the sample.	
备注：L-泄漏，V-漏气，D-解体，R-破裂，F-起火，O-无泄漏、无排气、无解体、无破裂和无起火 Note: L-Leakage, V-Venting, D-Disassembly, R-rupture, F-Fire, O- no leakage, no venting, no disassembly, no rupture and no fire				



报告编号 No.: STL/R2603661-2

报告日期 Date: 2026-04-22

评估表 Evaluation Form 1

评估项目 Evaluation Item		过充电保护验证 Overcharge protection verification	
序号 No.	类型 Type	保护功能详情 Details of the protection function	佐证资料 Proof materials
1	软件保护 (由 7 个锂离子电 池模组组成) Software protection (Consists of 7 Lithium-ion battery module)	样品具有电芯过压保护、电池簇总压过压保护等保护功能, 各级保护功能中又分为一级报警、二级报警、三级报警保护等三种等级保护状态。 在过压三级报警保护状态下可控制高压盒直流继电器切断样品充电回路。 The sample has functions such as cell overvoltage protection and battery cluster total overvoltage protection. The functions are divided into three levels: first-level alarm protection, second-level alarm protection and third-level alarm protection. The DC relay in the high voltage box can be controlled to cut off the sample charging circuit in the protection state of third-level overvoltage alarm.	1. 可充电锂离子电池系统产品保护参数 Product protection parameter for Rechargeable Li-ion Battery System 2. 可充电锂离子电池系统电气原理图 Electrical schematic diagram of Rechargeable Li-ion Battery System 3. 高压盒直流接触器 (EVHB250A-12B / DC1000V/250A) 规格书 Specification for High voltage box positive and negative DC relay (EVHB250A-12B / DC1000V/250A) 4. 高压盒直流接触器 (EVHB250A-12B / DC1000V/250A)UL 认证证书 UL certification for High voltage box positive and negative DC relay (EVHB250A-12B / DC1000V/250A)
2	软件保护 (由 14 个锂离子电 池模组组成) Software protection (Consists of 14 Lithium-ion battery modules)	样品具有电芯过压保护、电池簇总压过压保护等保护功能, 各级保护功能中又分为一级报警、二级报警、三级报警保护等三种等级保护状态。 在过压三级报警保护状态下可控制高压盒直流继电器切断样品充电回路。 The sample has functions such as cell overvoltage protection and battery cluster total overvoltage protection. The functions are divided into three levels: first-level alarm protection, second-level alarm protection and third-level alarm protection. The DC relay in the high voltage box can be controlled to cut off the sample charging circuit in the protection state of third-level overvoltage alarm.	1. 可充电锂离子电池系统产品保护参数 Product protection parameter for Rechargeable Li-ion Battery System 2. 可充电锂离子电池系统电气原理图 Electrical schematic diagram of Rechargeable Li-ion Battery System 3. 高压盒直流接触器 (EVHB250A-12B / DC1000V/250A) 规格书 Specification for High voltage box positive and negative DC relay (EVHB250A-12B / DC1000V/250A) 4. 高压盒直流接触器 (EVHB250A-12B / DC1000V/250A)UL 认证证书 UL certification for High voltage box positive and negative DC relay (EVHB250A-12B / DC1000V/250A)



报告编号 No.: STL/R2603661-2

报告日期 Date: 2026-04-22

评估项目 Evaluation Item		过充电保护验证 Overcharge protection verification	
序号 No.	类型 Type	保护功能详情 Details of the protection function	佐证资料 Proof materials
评估结论 Evaluation conclusion		测试数据是在电池系统（由 7 个锂离子电池模组组成）上进行，测试结果表明保护功能有效。由于电池系统（由 7 个锂离子电池模组组成）和电池系统（由 14 个锂离子电池模组组成）采用了相同的高压盒和保护策略，因此可以认为电池系统（由 14 个锂离子电池模组组成）同样具有该保护功能。 The test data was obtained on the battery system (consisting of 7 lithium-ion battery modules), and the test results indicated that the protection function was effective. Since the battery system (consisting of 7 lithium-ion battery modules) and the battery system (consisting of 14 lithium-ion battery modules) adopt the same high-voltage box and protection strategy, it can be considered that the battery system (consisting of 14 lithium-ion battery modules) also has this protection function.	



报告编号 No.: STL/R2603661-2
报告日期 Date: 2026-04-22

评估表 Evaluation Form 2

评估项目 Evaluation Item		电池组间过度放电保护验证 Protection verification of over discharge between the batteries	
序号 No.	类型 Type	保护功能详情 Details of the protection function	佐证资料 Proof materials
1	软件保护（由7个锂离子电池模组组成） Software protection (Consists of 7 Lithium-ion battery module)	样品具有电芯过压保护、电池簇总压过压保护等保护功能，各级保护功能中又分为一级报警、二级报警、三级报警保护等三种等级保护状态。在过压三级报警保护状态下可控制高压盒直流继电器切断样品充电回路。 The sample has functions such as cell overvoltage protection and battery cluster total overvoltage protection. The functions are divided into three levels: first-level alarm protection, second-level alarm protection and third-level alarm protection. The DC relay in the high voltage box can be controlled to cut off the sample charging circuit in the protection state of third-level overvoltage alarm.	1. 可充电锂离子电池系统产品保护参数 Product protection parameter for Rechargeable Li-ion Battery System 2. 可充电锂离子电池系统电气原理图 Electrical schematic diagram of Rechargeable Li-ion Battery System 3. 高压盒直流接触器 (EVHB250A-12B / DC1000V/250A) 规格书 Specification for High voltage box positive and negative DC relay (EVHB250A-12B / DC1000V/250A) 4. 高压盒直流接触器 (EVHB250A-12B / DC1000V/250A) UL 认证证书 UL certification for High voltage box positive and negative DC relay (EVHB250A-12B / DC1000V/250A)
2	软件保护（由14个锂离子电池模组组成） Software protection (Consists of 14 Lithium-ion battery modules)	样品具有电芯过压保护、电池簇总压过压保护等保护功能，各级保护功能中又分为一级报警、二级报警、三级报警保护等三种等级保护状态。在过压三级报警保护状态下可控制高压盒直流继电器切断样品充电回路。 The sample has functions such as cell overvoltage protection and battery cluster total overvoltage protection. The functions are divided into three levels: first-level alarm protection, second-level alarm protection and third-level alarm protection. The DC relay in the high voltage box can be controlled to cut off the sample charging circuit in the protection state of third-level overvoltage alarm.	1. 可充电锂离子电池系统产品保护参数 Product protection parameter for Rechargeable Li-ion Battery System 2. 可充电锂离子电池系统电气原理图 Electrical schematic diagram of Rechargeable Li-ion Battery System 3. 高压盒直流接触器 (EVHB250A-12B / DC1000V/250A) 规格书 Specification for High voltage box positive and negative DC relay (EVHB250A-12B / DC1000V/250A) 4. 高压盒直流接触器 (EVHB250A-12B / DC1000V/250A) UL 认证证书 UL certification for High voltage box positive and negative DC relay (EVHB250A-12B / DC1000V/250A)



报告编号 No.: STL/R2603661-2

报告日期 Date: 2026-04-22

评估项目 Evaluation Item		电池组间过度放电保护验证 Protection verification of over discharge between the batteries	
序号 No.	类型 Type	保护功能详情 Details of the protection function	佐证资料 Proof materials
评估结论 Evaluation conclusion		测试数据是在电池系统（由 7 个锂离子电池模组组成）上进行，测试结果表明保护功能有效。由于电池系统（由 7 个锂离子电池模组组成）和电池系统（由 14 个锂离子电池模组组成）采用了相同的高压盒和保护策略，因此可以认为电池系统（由 14 个锂离子电池模组组成）同样具有该保护功能。 The test data was obtained on the battery system (consisting of 7 lithium-ion battery modules), and the test results indicated that the protection function was effective. Since the battery system (consisting of 7 lithium-ion battery modules) and the battery system (consisting of 14 lithium-ion battery modules) adopt the same high-voltage box and protection strategy, it can be considered that the battery system (consisting of 14 lithium-ion battery modules) also has this protection function.	



报告编号 No.: STL/R2603661-2

报告日期 Date: 2026-04-22

评估表 Evaluation Form 3

评估项目 Evaluation Item		短路保护验证 Short circuit protection verification	
序号 No.	类型 Type	保护功能详情 Details of the protection function	佐证资料 Proof materials
1	硬件保护 Hardware protection	样品具有高压盒熔断器 (RS306-01/DC1000V/160A) 外部短路保护装置, 在外部短路状态下, 保护装置动作, 可切断短路回路。 The sample has an external short-circuit protection device with a high voltage box fuse (RS306-01/DC1000V/160A). In the event of an external short circuit, the protection device will activate and can cut off the short circuit circuit.	1. 可充电锂离子电池系统电气原理图 Electrical schematic diagram of Rechargeable Li-ion Battery System 2. 高压盒熔断器 (RS306-01/DC1000V/160A) 规格书 Specification for High voltage box fuse (RS306-01/DC1000V/160A) 3. 高压盒熔断器 (RS306-01/DC1000V/160A) UL 认证证书 UL certification for High voltage box fuse (RS306-01/DC1000V/160A)
2	软件保护 Software protection	样品具有过流及短路保护功能, 当检测到过流状态时, 可控制高压盒直流继电器切断样品电气回路。 The sample has the function of overcurrent and short circuit protection. When the overcurrent state is detected, the High voltage box DC relay can be controlled to cut off the sample electrical circuit.	1. 可充电锂离子电池系统产品保护参数 Product protection parameter for Rechargeable Li-ion Battery System 2. 可充电锂离子电池系统电气原理图 Electrical schematic diagram of Rechargeable Li-ion Battery System 3. 高压盒正负直流继电器 (EVHB250A-12B / DC1000V/250A) 规格书 Specification for High voltage box positive and negative DC relay (EVHB250A-12B / DC1000V/250A) 4. 高压盒正负直流继电器 (EVHB250A-12B / DC1000V/250A) UL 认证证书 UL certification for High voltage box positive and negative DC relay (EVHB250A-12B / DC1000V/250A)
评估结论 Evaluation conclusion		样品具有该保护功能 The sample has this protection function.	

报告结束

*** END ***



声 明

1. 本机构保证检测的公正性、独立性和诚实性，对报告的内容负责，由委托方提供的信息除外。委托人不得擅自使用检验结果进行不当宣传。
2. 本机构对委托方提供信息的真实性不负责，不承担样品传递过程中产生的风险，委托检测结果仅适用于收到的样品。
3. 本报告无本机构检验检测报告专用章及骑缝章无效。
4. 本报告无批准人（授权签字人）签名无效。
5. 本报告涂改无效。
6. 复制报告未重新加盖本机构“检验检测专用章”无效。
7. 本报告各页均为报告不可分割部分，使用者部分使用检测报告而导致误解或由此造成后果，本机构不承担任何责任。
8. 如不盖 CMA 章，此报告仅作为科研/教学或内部使用，不具社会证明作用（适用时）。

STATEMENT

1. Our organization guarantees impartiality, independence and honesty of inspection, and is responsible for the content of report, except for the information provided by the client. The client shall not use the test results for improper publicity without authorization.
2. Our organization shall not be responsible for the authenticity of the information provided by the client, nor shall bear the risks arising in the process of sample delivery. Test result is only responsible for the sample.
3. This report is invalid without the dedicated seal for inspection and testing report and the paging seal.
4. This report is invalid without the signature of the approver (authorized signatory).
5. Test report is invalid if altered.
6. The duplicate report without the "dedicated seal for inspection and testing" of the institution is invalid.
7. Each page of the report is an integral part of the report. Our organization shall not be responsible for any misunderstanding or consequences arising from the improper use of the test report by the user.
8. Without the CMA seal, this report is for research/teaching purposes or internal quality control only and is invalid for social certification.



报告编号 No.: STL/R2603661-2
报告日期 Date: 2026-04-22

浙江省检科院实验室及业务联系方式

机电产品检测研究所: 检测地址: 杭州市萧山区建设三路 398 号 (311215) 业务范围: 家用电器、电动工具、电器附件、照明电器、电池、电线电缆、医疗器械、非金属材料、音视频产品、信息技术产品等的安全试验、性能、电磁兼容试验、环境试验、IP 试验、噪音和能效试验。 联系电话: 0571-56160086 电子邮件: mj@zaiq.org.cn	环境与化学检测: 检测地址: 杭州市萧山区建设三路 398 号 (311215) 业务范围: 环境与资源、玩具、轻工、危险化学品与包装、化妆品 联系电话: 0571-56160164(环境与资源)/83527223 (玩具)/83527264 (轻工)/83527220 (危化)/83527190 (化妆品) 电子邮件: 45050157@qq.com/ 99695878@qq.com/734126921@qq.com/ 1967435312@qq.com/284317796@qq.com
纺织与丝类产品检测研究所: 检测地址: 杭州市萧山区建设三路 398 号 (311215) 业务范围: 纺织、箱包、鞋类、皮革化工、染料助剂、一次性卫生用品。 联系电话: 0571-83527185/192 电子邮件: 37708403@qq.com	纺织与丝类产品检测研究所(丝类实验室): 检测地址: 杭州市文三路 2 号 (310012) 业务范围: 生丝、羽绒、麻、羊毛、化纤等纺织原料检测与固废鉴定。 联系电话: 0571-56663057 传 真: 0571-56663000 电子邮件: 934758201@qq.com
食品安全检测研究所: 检测地址: 杭州市上城区富春路 126 号 (310016) 业务范围: 专业从事食品、农副产品安全卫生检测, 提供农药残留、兽药残留、微生物、元素、食品添加剂、非法添加有毒有害项目和食品理化等的检测服务。 联系电话: 0571-81100631 传 真: 0571-81100583 电子邮件: 226724760@qq.com	动植物检疫及动植物产品检测: 检测地址: 杭州市上城区富春路 126 号 (310016) 业务范围: 动物及动物产品、植物及植物产品、饲料及其添加剂、农产品检测; 动植物产品及植物源食品风险评估、有害生物监测与预警; 生物标本制作、有害生物本底调查; 动植物物种鉴定、红木鉴定、转基因检测、食品真伪鉴别、过敏原检测等。 联系电话(传真): 0571-81100403 电子邮件: 3079352193@qq.com
机场综合实验室: 检测地址: 杭州萧山国际机场海关大楼 (311207) 业务范围: 食品、饮用水、空气微生物检测。 联系电话(传真): 0571-86661795 电子邮件: 226724760@qq.com	机电产品检测研究所(校准实验室): 检测地址: 杭州市萧山区建设三路 398 号 (311215) 业务范围: 设备校准服务。 联系电话: 0571-83527137 电子邮件: jyq@zaiq.org.cn
温州技术服务部: 检测地址 1: 浙江省瑞安市集贤路 699 号 (325200) 业务范围: 低压电器, 电气产品通用安全试验, 鞋类及鞋材 联系电话: 0577-66683231	温州技术服务部: 检测地址 2: 浙江省温州市乐清市柳市镇进港大道检验检疫大楼 (325604) 业务范围: 低压电器、绝缘材料 联系电话: 0577-61728996
温州技术服务部: 检测地址 3: 浙江省温州市洞头区新区雁升路 1188 号 (325026) 业务范围: 食品类, 饲料, 纺织品, 皮革, 塑料, 玩具, 油漆, 鞋类及鞋材, 转基因成分, 动物皮毛 联系电话: 0577-88373556	