

# UN38.3 测试报告

## UN38.3 Test Report

报告编号

RKEYS250627189

Report No.

样品名称及型号

锂离子电池组 24V230Ah

Sample Name  
&Model

Li-ion Battery 24V230Ah

委托单位

青岛大黄蜂新能源科技有限公司

Consignor

Qingdao Bumblebee New Energy Technology  
Co., Ltd

广东立祥检测技术有限公司  
Guangdong KEYS Testing Technology Co.,Ltd.

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扫码核验

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|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-----------------------|
| 委托人<br>Applicant                       | 青岛大黄蜂新能源科技有限公司<br>Qingdao Bumblebee New Energy Technology Co., Ltd                                                                                                                                                                                                                                                                                                    |                     |                       |
| 委托人地址<br>Applicant's address           | 山东省青岛市莱西市经济开发区扬州路 52 号 13 号楼 101 户<br>Unit 101, Building 13, No. 52 Yangzhou Road, Laixi Economic Development Zone, Qingdao City, Shandong Province                                                                                                                                                                                                                   |                     |                       |
| 制造商<br>Manufacturer                    | 青岛大黄蜂新能源科技有限公司<br>Qingdao Bumblebee New Energy Technology Co., Ltd                                                                                                                                                                                                                                                                                                    |                     |                       |
| 制造商地址<br>Manufacturer's address        | 山东省青岛市莱西市经济开发区扬州路 52 号 13 号楼 101 户<br>Unit 101, Building 13, No. 52 Yangzhou Road, Laixi Economic Development Zone, Qingdao City, Shandong Province                                                                                                                                                                                                                   |                     |                       |
| 联系电话<br>Telephone Number               | 18938191986                                                                                                                                                                                                                                                                                                                                                           |                     |                       |
| 邮件地址<br>Email address                  | 362499615@qq.com                                                                                                                                                                                                                                                                                                                                                      |                     |                       |
| 网址<br>Website                          | /                                                                                                                                                                                                                                                                                                                                                                     |                     |                       |
| 样品名称<br>Sample Name                    | 锂离子电池组<br>Li-ion Battery                                                                                                                                                                                                                                                                                                                                              |                     |                       |
| 样品型号<br>Sample Model                   | 24V230Ah                                                                                                                                                                                                                                                                                                                                                              |                     |                       |
| 样品外观<br>Appearance                     | 黑色近长方体,尺寸: 490*270*230mm<br>Approximate Black Cuboid, size: 490*270*230mm                                                                                                                                                                                                                                                                                             |                     |                       |
| 商标<br>Trademark                        | /                                                                                                                                                                                                                                                                                                                                                                     |                     |                       |
| 测试方法和判定标准<br>Test method and criterion | 联合国《试验和标准手册》第八修正版 38.3 章节<br>United Nations Manual of Tests and Criteria ST/SG/AC.10/11/Rev.8/Subsection 38.3                                                                                                                                                                                                                                                         |                     |                       |
| 样品接收日期<br>Accepted date                | 2025.06.02                                                                                                                                                                                                                                                                                                                                                            | 测试起讫日期<br>Test date | 2025.06.02~2025.06.30 |
| 测试项目<br>Test items                     | 高度模拟、温度试验、振动、冲击、外部短路、撞击/挤压、过度充电、强制放电。<br>Altitude simulation, Thermal test, Vibration, Shock, External short circuit, Impact/Crush, Overcharge, Forced discharge.                                                                                                                                                                                                     |                     |                       |
| 测试结论<br>Conclusion                     | 检验结论:<br>Test conclusion:<br>由青岛大黄蜂新能源科技有限公司送检的锂离子电池组, 根据联合国《试验和标准手册》第八修正版 38.3 章节进行检测。<br>The Li-ion Battery submitted for inspection by Qingdao Bumblebee New Energy Technology Co., Ltd are tested according to United Nations Manual of Tests and Criteria ST/SG/AC.10/11/Rev.8/Subsection 38.3.<br>检验结果: 通过<br>Test result: Pass<br>签发日期(Issue date): 2025.06.30 |                     |                       |
| 主检<br>Tested by:                       | 陈巧丽                                                                                                                                                                                                                                                                                                                                                                   | 审核<br>Checked by:   | 李海燕                   |
|                                        |                                                                                                                                                                                                                                                                                                                                                                       | 批准<br>Approved by:  | 检测专用章                 |

| 参数信息<br>Parameter information        |            |               |
|--------------------------------------|------------|---------------|
| 产品<br>Product                        | 电芯<br>Cell | 电池<br>Battery |
| 型号<br>Model                          | 3.2V320A   | 24V230Ah      |
| 标称电压<br>Nominal Voltage              | 3.2V       | 25.6V(5888Wh) |
| 额定容量<br>Rated Capacity               | 230Ah      | 230Ah         |
| 充电限制电压<br>Limited Charge Voltage     | 3.65V      | 29.2V         |
| 标准充电电流<br>Standard Charge Current    | 46A        | 46A           |
| 标准放电电流<br>Standard Discharge Current | 115A       | 115A          |
| 最大充电电流<br>Max Charge Current         | 50A        | 50A           |
| 最大放电电流<br>Max Discharge Current      | 230A       | 230A          |
| 充电截止电流<br>End Charge Current         | 5A         | 5A            |
| 放电终止电压<br>Discharge Cut-off Voltage  | 2.5V       | 20V           |
| 电源输入输出<br>Input and Output of Bank   | /          |               |
| 电芯个数<br>Cells Number                 | 8PCS(8S1P) |               |

| 序号<br>No.                            | 测试项目名称<br>Name of test         | 标准要求或标准条款号<br>Standard requirement or the clause number of standard                                                                 | 测试结果<br>Test result     | 本项结论<br>Test conclusion | 备注<br>Remarks |
|--------------------------------------|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------------------------|---------------|
| 1                                    | 高度模拟<br>Altitude simulation    | 联合国《试验和标准手册》第八修正版 38.3 章节<br>United Nations Manual of Tests and Criteria<br>ST/SG/AC.10/11/Rev.8/Subsection 38.3<br>试验 T.1 Test T.1 | 见附表 1<br>See Appendix 1 | 合格<br>Passed            | /             |
| 2                                    | 温度试验<br>Thermal test           | 联合国《试验和标准手册》第八修正版 38.3 章节<br>United Nations Manual of Tests and Criteria<br>ST/SG/AC.10/11/Rev.8/Subsection 38.3<br>试验 T.2 Test T.2 | 见附表 2<br>See Appendix 2 | 合格<br>Passed            | /             |
| 3                                    | 振动<br>Vibration                | 联合国《试验和标准手册》第八修正版 38.3 章节<br>United Nations Manual of Tests and Criteria<br>ST/SG/AC.10/11/Rev.8/Subsection 38.3<br>试验 T.3 Test T.3 | 见附表 3<br>See Appendix 3 | 合格<br>Passed            | /             |
| 4                                    | 冲击<br>Shock                    | 联合国《试验和标准手册》第八修正版 38.3 章节<br>United Nations Manual of Tests and Criteria<br>ST/SG/AC.10/11/Rev.8/Subsection 38.3<br>试验 T.4 Test T.4 | 见附表 4<br>See Appendix 4 | 合格<br>Passed            | /             |
| 5                                    | 外部短路<br>External short circuit | 联合国《试验和标准手册》第八修正版 38.3 章节<br>United Nations Manual of Tests and Criteria<br>ST/SG/AC.10/11/Rev.8/Subsection 38.3<br>试验 T.5 Test T.5 | 见附表 5<br>See Appendix 5 | 合格<br>Passed            | /             |
| 6                                    | 撞击/挤压<br>Impact/Crush          | 联合国《试验和标准手册》第八修正版 38.3 章节<br>United Nations Manual of Tests and Criteria<br>ST/SG/AC.10/11/Rev.8/Subsection 38.3<br>试验 T.6 Test T.6 | 见附表 6<br>See Appendix 6 | 合格<br>Passed            | /             |
| 7                                    | 过度充电<br>Overcharge             | 联合国《试验和标准手册》第八修正版 38.3 章节<br>United Nations Manual of Tests and Criteria<br>ST/SG/AC.10/11/Rev.8/Subsection 38.3<br>试验 T.7 Test T.7 | 见附表 7<br>See Appendix 7 | 合格<br>Passed            | /             |
| 8                                    | 强制放电<br>Forced discharge       | 联合国《试验和标准手册》第八修正版 38.3 章节<br>United Nations Manual of Tests and Criteria<br>ST/SG/AC.10/11/Rev.8/Subsection 38.3<br>试验 T.8 Test T.8 | 见附表 8<br>See Appendix 8 | 合格<br>Passed            | /             |
| 测试环境条件<br>Test environment condition |                                | 环境温度: 20°C-25°C; 环境湿度: 45%-75%<br>Ambient temperature: 20°C-25°C; Ambient humidity: 45%-75%                                         |                         |                         |               |

附表 1

| 序号<br>No.                | T.1                              | 测试项目名称<br>Name of Test Items |                   | 高度模拟<br>Altitude simulation |                   |                       |                              |                     |
|--------------------------|----------------------------------|------------------------------|-------------------|-----------------------------|-------------------|-----------------------|------------------------------|---------------------|
| 样品<br>编号<br>Sample<br>No | 样品状态<br>Sample status            | 测试前 Before                   |                   | 测试后 After                   |                   | 质量损失<br>Mass loss (%) | 剩余电压<br>Residual voltage (%) | 测试结果<br>Test result |
|                          |                                  | 电池质量<br>$m_1$ (kg)           | 开路电压<br>$V_1$ (V) | 电池质量<br>$m_2$ (kg)          | 开路电压<br>$V_2$ (V) |                       |                              |                     |
| B1                       | 首次完全充电<br>1 CYC Fully Charged    | 45.33                        | 27.56             | 45.31                       | 27.56             | 0.044                 | 100.00                       | O                   |
| B2                       | 首次完全充电<br>1 CYC Fully Charged    | 45.33                        | 27.68             | 45.33                       | 27.68             | 0.000                 | 100.00                       | O                   |
| B3                       | 25 次完全充电<br>25 CYC Fully Charged | 45.31                        | 27.66             | 45.31                       | 27.66             | 0.000                 | 100.00                       | O                   |
| B4                       | 25 次完全充电<br>25 CYC Fully Charged | 45.35                        | 27.57             | 45.35                       | 27.57             | 0.000                 | 100.00                       | O                   |
| 以下空白                     |                                  |                              |                   |                             |                   |                       |                              |                     |
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注： L-泄露； V-排气； D-解体； R-破裂； F-起火； O-无泄露、无排气、无解体、无破裂、无起火
Note: L-Leakage, V-Venting, D-Disassembly, R-Rupture, F-Fire
O-No leakage, no venting, no disassembly, no rupture, no fire.

附表 2  
Appendix 2

| 序号<br>No.         | T.2                              | 测试项目名称<br>Name of Test Items |                   | 温度试验<br>Thermal test |                   |                       |                              |                     |
|-------------------|----------------------------------|------------------------------|-------------------|----------------------|-------------------|-----------------------|------------------------------|---------------------|
| 样品编号<br>Sample No | 样品状态<br>Sample status            | 测试前 Before                   |                   | 测试后 After            |                   | 质量损失<br>Mass loss (%) | 剩余电压<br>Residual voltage (%) | 测试结果<br>Test result |
|                   |                                  | 电池质量<br>$m_1$ (kg)           | 开路电压<br>$V_1$ (V) | 电池质量<br>$m_2$ (kg)   | 开路电压<br>$V_2$ (V) |                       |                              |                     |
| B1                | 首次完全充电<br>1 CYC Fully Charged    | 45.31                        | 27.56             | 45.31                | 27.39             | 0.000                 | 99.38                        | O                   |
| B2                | 首次完全充电<br>1 CYC Fully Charged    | 45.33                        | 27.68             | 45.32                | 27.52             | 0.022                 | 99.42                        | O                   |
| B3                | 25 次完全充电<br>25 CYC Fully Charged | 45.31                        | 27.66             | 45.31                | 27.37             | 0.000                 | 98.95                        | O                   |
| B4                | 25 次完全充电<br>25 CYC Fully Charged | 45.35                        | 27.57             | 45.34                | 27.40             | 0.022                 | 99.38                        | O                   |
| 以下空白              |                                  |                              |                   |                      |                   |                       |                              |                     |
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附表 3

[illegible]

附表 4

[illegible]

注: L-泄露; V-排气; D-解体; R-破裂; F-起火; O-无泄露、无排气、无解体、无破裂、无起火

Note: L-Leakage, V-Venting, D-Disassembly, R-Rupture, F-Fire

O-No leakage, no venting, no disassembly, no rupture, no fire.

## Appendix 5

| 序号<br>No.         | T.5                             | 测试项目名称<br>Name of Test Items               | 外部短路<br>External short circuit |              |
|-------------------|---------------------------------|--------------------------------------------|--------------------------------|--------------|
| 样品编号<br>Sample No | 样品状态<br>Sample status           | 样品表面最高温度<br>Max. External Temperature (°C) | 测试结果<br>Test result            | 备注<br>Remark |
| B1                | 首次完全充电<br>1 CYC Fully Charged   | 58.2                                       | O                              | /            |
| B2                | 首次完全充电<br>1 CYC Fully Charged   | 57.7                                       | O                              | /            |
| B3                | 25次完全充电<br>25 CYC Fully Charged | 56.3                                       | O                              | /            |
| B4                | 25次完全充电<br>25 CYC Fully Charged | 56.6                                       | O                              | /            |
| 以下空白              |                                 |                                            |                                |              |
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注： D-解体； R-破裂； F-起火； O-无解体、无破裂、无起火、外表温度不超过 170℃  
Note:D-Disassembly, R-Rupture, F-Fire, O- No disassembly, no rupture, no fire, external temperature not exceed 170℃.

附表 6  
Appendix 6

| 序号<br>No.         | T.6                               | 测试项目名称<br>Name of Test Items               | 撞击<br>Impact        | 不适用<br>Not applicable |
|-------------------|-----------------------------------|--------------------------------------------|---------------------|-----------------------|
|                   |                                   |                                            | 挤压<br>Crush         | 合格<br>PASS            |
| 样品编号<br>Sample No | 样品状态<br>Sample status             | 样品表面最高温度<br>Max. External Temperature (°C) | 测试结果<br>Test result | 备注<br>Remark          |
| C1                | 首次 50%容量<br>1 CYC 50% Capacity    | 23.4                                       | O                   | /                     |
| C2                | 首次 50%容量<br>1 CYC 50% Capacity    | 23.4                                       | O                   | /                     |
| C3                | 首次 50%容量<br>1 CYC 50% Capacity    | 23.1                                       | O                   | /                     |
| C4                | 首次 50%容量<br>1 CYC 50% Capacity    | 23.3                                       | O                   | /                     |
| C5                | 首次 50%容量<br>1 CYC 50% Capacity    | 24.0                                       | O                   | /                     |
| C6                | 25 次 50%容量<br>25 CYC 50% Capacity | 23.7                                       | O                   | /                     |
| C7                | 25 次 50%容量<br>25 CYC 50% Capacity | 23.5                                       | O                   | /                     |
| C8                | 25 次 50%容量<br>25 CYC 50% Capacity | 24.0                                       | O                   | /                     |
| C9                | 25 次 50%容量<br>25 CYC 50% Capacity | 23.3                                       | O                   | /                     |
| C10               | 25 次 50%容量<br>25 CYC 50% Capacity | 23.9                                       | O                   | /                     |
| 以下空白              |                                   |                                            |                     |                       |
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注: D-解体; F-起火; O-无解体、无起火、外表温度不超过 170°C  
Note: D-Disassembly, F-Fire, O- No disassembly, no fire, external temperature not exceed 170°C.

附表 7  
Appendix 7

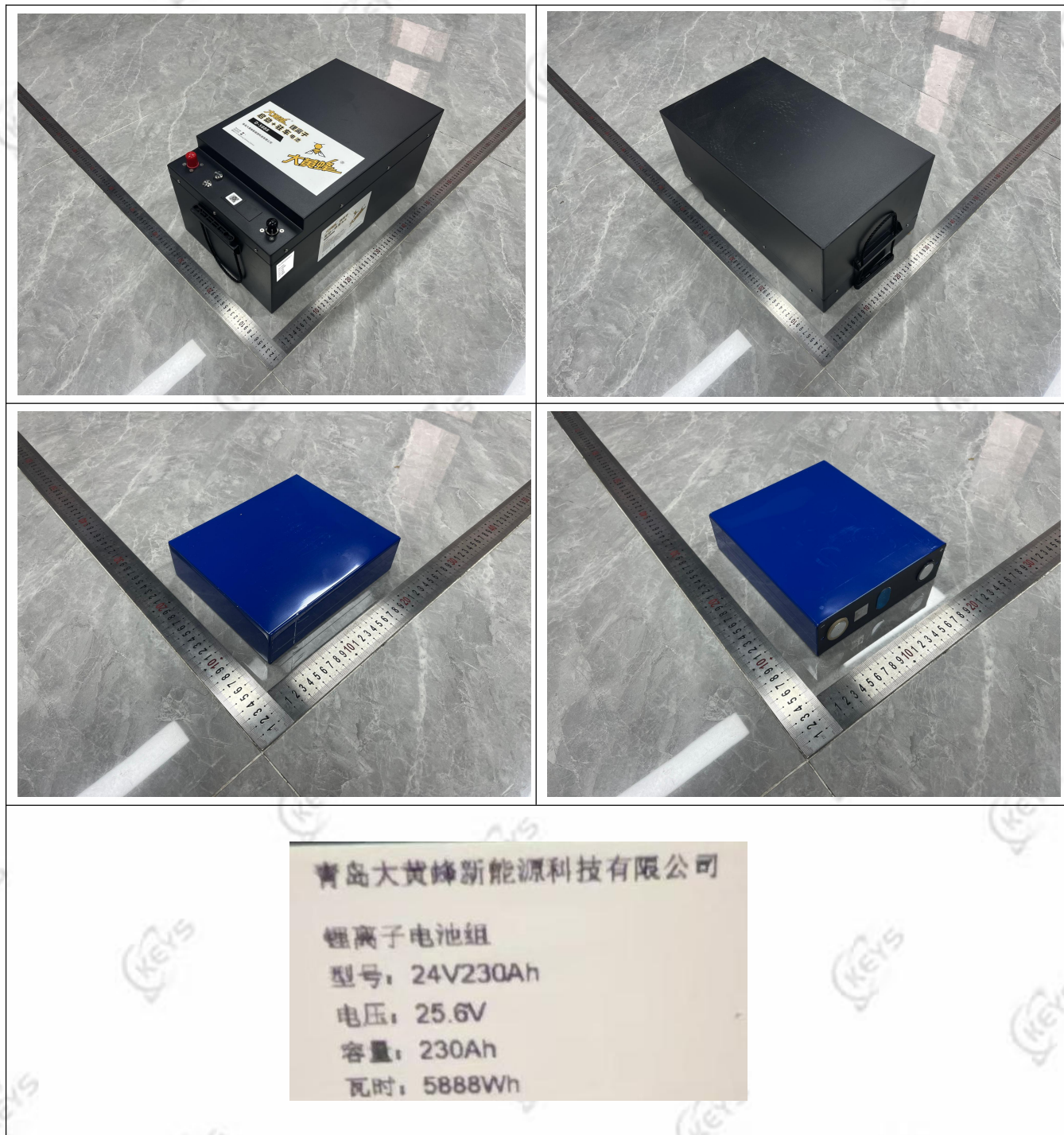
| 序号<br>No.         | T.7                             | 测试项目名称<br>Name of Test Items | 过度充电<br>Overcharge |
|-------------------|---------------------------------|------------------------------|--------------------|
| 样品编号<br>Sample No | 样品状态<br>Sample status           | 测试结果<br>Test result          | 备注<br>Remark       |
| B5                | 首次完全充电<br>1 CYC Fully Charged   | O                            | /                  |
| B6                | 首次完全充电<br>1 CYC Fully Charged   | O                            | /                  |
| B7                | 25次完全充电<br>25 CYC Fully Charged | O                            | /                  |
| B8                | 25次完全充电<br>25 CYC Fully Charged | O                            | /                  |
| 以下空白              |                                 |                              |                    |
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注： D-解体； F-起火； O-无解体、无起火；  
Note: D-Disassembly, F-Fire, O- No disassembly, no fire.

附表 8  
Appendix 8

| 序号<br>No.                                                                            | T.8                                 | 测试项目名称<br>Name of Test Items | 强制放电<br>Forced discharge |
|--------------------------------------------------------------------------------------|-------------------------------------|------------------------------|--------------------------|
| 样品编号<br>Sample No                                                                    | 样品状态<br>Sample status               | 测试结果<br>Test result          | 备注<br>Remark             |
| C11                                                                                  | 首次完全放电<br>1 CYC Fully Discharged    | O                            | /                        |
| C12                                                                                  | 首次完全放电<br>1 CYC Fully Discharged    | O                            | /                        |
| C13                                                                                  | 首次完全放电<br>1 CYC Fully Discharged    | O                            | /                        |
| C14                                                                                  | 首次完全放电<br>1 CYC Fully Discharged    | O                            | /                        |
| C15                                                                                  | 首次完全放电<br>1 CYC Fully Discharged    | O                            | /                        |
| C16                                                                                  | 首次完全放电<br>1 CYC Fully Discharged    | O                            | /                        |
| C17                                                                                  | 首次完全放电<br>1 CYC Fully Discharged    | O                            | /                        |
| C18                                                                                  | 首次完全放电<br>1 CYC Fully Discharged    | O                            | /                        |
| C19                                                                                  | 首次完全放电<br>1 CYC Fully Discharged    | O                            | /                        |
| C20                                                                                  | 首次完全放电<br>1 CYC Fully Discharged    | O                            | /                        |
| C21                                                                                  | 25 次完全放电<br>25 CYC Fully Discharged | O                            | /                        |
| C22                                                                                  | 25 次完全放电<br>25 CYC Fully Discharged | O                            | /                        |
| C23                                                                                  | 25 次完全放电<br>25 CYC Fully Discharged | O                            | /                        |
| C24                                                                                  | 25 次完全放电<br>25 CYC Fully Discharged | O                            | /                        |
| C25                                                                                  | 25 次完全放电<br>25 CYC Fully Discharged | O                            | /                        |
| C26                                                                                  | 25 次完全放电<br>25 CYC Fully Discharged | O                            | /                        |
| C27                                                                                  | 25 次完全放电<br>25 CYC Fully Discharged | O                            | /                        |
| C28                                                                                  | 25 次完全放电<br>25 CYC Fully Discharged | O                            | /                        |
| C29                                                                                  | 25 次完全放电<br>25 CYC Fully Discharged | O                            | /                        |
| C30                                                                                  | 25 次完全放电<br>25 CYC Fully Discharged | O                            | /                        |
| 注: D-解体; F-起火; O-无解体、无起火<br>Note: D-Disassembly, F-Fire, O- No disassembly, no fire. |                                     |                              |                          |

样品图片 Sample Photo



## 注意事项

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2. The test report is invalid without the signatures of Ratifier, Reviewer and Testing engineer.

本报告书无批准人、审核人、及主检人签名无效。

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本报告仅对本次测试样品有效。

7. The Chinese contents in this report are only for reference.

本报告中的中文内容仅供参考。

8. Objections to the test report must be submitted to KEYS within 15 days.

对报告书若有异议, 应于收到报告之日起 15 天内向本公司提出。

\*\*\*End of report\*\*\*