UN38.3 Test Report
UN38.3 检测报告

Product Name: 产品名称：	Sodium-ion cell 钠离子电芯
Model: 型号：	NA200
Applicant: 委托单位：	Guangdong Selian Energy Technology Co., Ltd. 广东肆连能源科技有限公司
Applicant Address: 委托单位地址：	8th Floor, Building 8, Gangzhilong Science and Technology Park, No. 33, Songbailing Avenue, Zhongkai District, Huizhou City, Guangdong Province, China 惠州市仲恺区中韩惠州产业园起步区松柏岭大道 33 号港之龙科技园 8#厂房 8 楼
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General Information 基本信息			
Manufacturer 制造商	Guangdong Selian Energy Technology Co., Ltd. 广东肆连能源科技有限公司		
Manufacturer Address 制造商地址	8th Floor, Building 8, Gangzhilong Science and Technology Park, No. 33, Songbailing Avenue, Zhongkai District, Huizhou City, Guangdong Province, China 惠州市仲恺区中韩惠州产业园起步区松柏岭大道 33 号港之龙科技园 8#厂房 8 楼		
Factory 生产工厂	Guangdong Selian Energy Technology Co., Ltd. 广东肆连能源科技有限公司		
Factory Address 生产工厂地址	8th Floor, Building 8, Gangzhilong Science and Technology Park, No. 33, Songbailing Avenue, Zhongkai District, Huizhou City, Guangdong Province, China 惠州市仲恺区中韩惠州产业园起步区松柏岭大道 33 号港之龙科技园 8#厂房 8 楼		
Product Name 产品名称	Sodium-ion cell 钠离子电芯		
Model 型号	NA200	Rating Parameter 额定参数	3.0V, 210Ah, 630Wh
Manufacturer Telephone 制造商电话	+86-18707556501	E-mail 邮箱	1361064925@qq.com
Accepted date 接样日期	2026-08-10	Test Date 测试日期	2026-08-10 ~ 2026-08-27
Testing Laboratory 测试实验室	Dongguan Lepont Testing Service Co., Ltd. 东莞市力邦检测服务有限公司		
Testing Address 测试地址	Room 202, Building 1/Room 103,Building 2, No.65, Jiulong Road, Dongcheng Subdistrict, Dongguan, Guangdong, China 广东省东莞市东城街道九龙路 65 号 1 栋 202 室/2 栋 103 室		
Test method and criterion 测试方法和判定标准	UN "Manual of Tests and Criteria" ST/SG/AC.10/11/Rev.8/Amend.1/Subsection 38.3 联合国《试验和标准手册》（第八修订版 修正 1）38.3 节		

Test Items 测试项目:			
☒ T.1: Altitude simulation 高度模拟	PASS/通过	☒ T.5: External short circuit 外部短路	PASS/通过
☒ T.2: Thermal Test 温度试验	PASS/通过	☒ T.6: Crush 挤压/☐ Impact 撞击	PASS/通过
☒ T.3: Vibration 振动	PASS/通过	☐ T.7: Overcharge 过充	N/A/不适用
☒ T.4: Shock 冲击	PASS/通过	☐ T.8: Forced discharge 强制放电	N/A/不适用

Test Conclusion 测试结论：

The sample has passed the test items of UN "Manual of Tests and Criteria" ST/SG/AC.10/11/Rev.8/Amend.1/Subsection 38.3

经测试，该产品符合联合国《试验和标准手册》（第八修订版 修正 1）38.3 节。

Remark: P-Pass, F-Fail, N/A-Not Applicable
注：P-通过，F-失败，N/A-不适用

Tested by: Watson Ye 检测：叶深威	叶深威	东莞市力邦检测服务有限公司 Dongguan Lepont Testing Service Co., Ltd. (Stamp 签章)
Reviewed by: Allen Yang 审核人：杨春辉	杨春辉	
Approved by:Steven Chen 批准人：陈列光	陈列光	

General product information 产品信息：			
Nominal Voltage 标称电压	3.0V	Rated Capacity 额定容量	210Ah
Total Energy 总能量	630Wh	Limited Charge Voltage 充电上限电压	3.9V
Standard Charging Current 标准充电电流	105A	Standard Discharge Current 标准放电电流	105A
Max. Continuous Charging Current 最大持续充电电流	210A	Max. Continuous Discharge Current 最大持续放电电流	210A
Cut-off Voltage 放电截止电压	1.5V	Appearance 样品外观	Approximate Blue Cuboid 蓝色近长方体
Sample Size 样品尺寸	(203.7×173.6×71.3)mm		

Test Item 测试项目	Sample No.编号	Sample State 样品状态
T.1-T.5	LP26080056C01-C001~ LP26080056C01-C005	At first cycle, in fully charged states 第 1 个充放电循环满电状态
	LP26080056C01-C006~ LP26080056C01-C010	After 25 cycles ending in fully charged states 第 25 个充放电循环后满电状态
T.6	LP26080056C01-C011 ~ LP26080056C01-C015	At first cycle, in fully charged states 第 1 个充放电循环满电状态
	LP26080056C01-C016 ~ LP26080056C01-C020	After 25 cycles ending in fully charged states 第 25 个充放电循环后满电状态
Test environment condition: Ambient temperature: 20 ± 5°C 环境温度：20 ± 5°C		

Test Procedure: 测试程序：

Tests T.1 to T.5 shall be conducted in sequence on the same cell or battery. Tests T.6 and T.8 shall be conducted using not otherwise tested cells and batteries. Test T.7 may be conducted using undamaged batteries previously used in Tests T.1 to T.5 for purposes of testing on cycled batteries.

试验T.1至T.5应在同一电芯或电池上按顺序进行。试验T.6和T.8应使用未经其他试验的电芯和电池进行。试验T.7可以使用试验T.1至测试T.5中使用过的且未损坏电池进行。

In order to quantify the mass loss, the following procedure is provided:

$$\text{Mass loss}(\%)=(M_1-M_2)/M_1\times 100$$

为了量化质量损失，可用以下公式计算：

$$\text{质量损失}(\%)=(M_1-M_2)/M_1\times 100$$

Where M_1 is the mass before the test and M_2 is the mass after the test. When mass loss does not exceed the values in Table below, it is considered as "no mass loss".

式中：M_1是试验前的质量，M_2是试验后的质量。如果质量损失不超过下表所列的数值，应视为“无质量损失”。

Mass M of cell or battery 电芯或电池的质量	Mass loss limit 质量损失限值
M＜1g	0.5%
1g≤M≤75g	0.2%
M＞75g	0.1%

In tests T.1 to T.4, cells or batteries meet mass loss limit requirement and there is no leakage, no venting, no disassembly, no rupture and no fire and if the open circuit voltage of each test cell or battery after testing is not less than 90% of its voltage immediately prior to this procedure.

在 T.1 至 T.4 的试验中，电芯或电池须满足质量损失限值要求还需无渗漏、无泄气、无解体、无破裂和无起火，并且每个试验电芯或电池在试验后的开路电压不小于其在进行这一试验前电压的 90%。

Clause 章节	Requirement 标准要求	Result 结果	Verdict 判定
38.3.4	**Procedure 程序**		**P**
38.3.4.1	**Test T.1: Altitude simulation** **试验 1：高度模拟**		**P**
38.3.4.1.1	Purpose: This test simulates air transport under low-pressure conditions. 目的：本试验模拟了低气压条件下的航空运输		P
38.3.4.1.2	Test procedure: Test cells and batteries shall be stored at a pressure of 11.6 kPa or less for at least six hours at ambient temperature (20 ± 5°C). 试验程序：试验电芯和电池被放置在压力等于或低于 11.6 kPa 和环境温度(20±5°C)下存放至少 6 小时。	11.6 kPa, 6 hours	P
38.3.4.1.3	Requirement:Cells and batteries meet this requirement if there is no leakage, no venting, no disassembly, no rupture and no fire and if the open circuit voltage of each test cell after testing is not less than 90% of its voltage immediately prior to this procedure. The requirement relating to voltage is not applicable to test cells and batteries at fully discharge states. 要求：电芯和电池须无渗漏、无泄气、无解体、无破裂和无起火，并且每个试验电芯在试验后的开路电压不小于其在进行这一试验前电压的 90%。有关电压的要求不适用于完全放电状态下的试验电芯和电池。	See Table 1 见表 1	P
38.3.4.2	**Test T.2: Thermal test** **试验 T.2：温度试验**		**P**
38.3.4.2.1	Purpose: This test assesses cell and battery seal integrity and internal electrical connections. The test is conducted using rapid and extreme temperature changes. 目的：本试验评估电芯和电池的密封完整性和内部电气连接，试验是利用快速和极端的温度变化进行的。		P
38.3.4.2.2	Test procedure: Test cells and batteries are to be stored for at least six hours at a test temperature equal to 72 ± 2°C, followed by storage for at least six hours at a test temperature equal to -40 ± 2°C. The maximum time interval between test temperature extremes is 30 minutes. This procedure is to be repeated 10 times, after which all test cells are to be stored for 24 hours at ambient temperature (20 ± 5°C). 试验程序：试验电芯和电池放置在试验温度等于 72±2°C 的条件下存放至少 6 小时，接着在试验温度等于-40±2°C 的条件下存放至少 6 小时。两个极端试验温度之间的最大时间间隔为 30 分钟。此程序重复进行，共完成 10 次，接着将所有试验电池在环境温度(20±5°C)下存放 24 小时。		P
	For large cells and batteries the duration of exposure to the test temperature extremes should be at least 12 hours. 对于大型电芯和电池，暴露在极端试验温度下的时间应至少 12 小时。		P

Clause 章节	Requirement 标准要求	Result 结果	Verdict 判定
38.3.4.2.3	Requirement: Cells and batteries meet this requirement if there is no leakage, no venting, no disassembly, no rupture and no fire and if the open circuit voltage of each test cell and battery after testing is not less than 90% of its voltage immediately prior to this procedure. The requirement relating to voltage is not applicable to test cells and batteries at fully discharge states. 要求：电芯和电池须无渗漏、无泄气、无解体、无破裂和无起火，并且每个试验电芯或电池在试验后的开路电压不小于其在进行这一试验前电压的 90%。有关电压的要求不适用于完全放电状态下的试验电芯和电池。	See Table 2 见表 2	P
38.3.4.3	**Test T.3: Vibration** **试验 T.3：振动**		**P**
38.3.4.3.1	Purpose: This test simulates vibration during transport. 目的：本试验模拟运输过程中的振动		P
38.3.4.3.2	Test procedure: Cell and batteries are firmly secured to the platform of the vibration machine without distorting the cells in such a manner as to faithfully transmit the vibration. The vibration shall be a sinusoidal waveform with a logarithmic sweep between 7 Hz and 200 Hz and back to 7 Hz traversed in 15 minutes. This cycle shall be repeated 12 times for a total of 3 hours for each of three mutually perpendicular mounting positions of the cell. One of the directions of vibration must be perpendicular to the terminal face. 试验程序：电芯和电池紧固于振动台台面，但不得造成电芯变形，并能准确可靠地传播振动。振动应是一个正弦波形，对数扫描频率在 7 Hz 和 200 Hz 之间进行对数扫描，并在 15 分钟内回到 7 Hz。这一振动过程须对三个互相垂直的电芯安装方位的每一方向重复进行 12 次，总共为时 3 小时。其中一个振动方向必须与端面垂直。		P
	The logarithmic frequency sweep shall differ for cells and batteries with a gross mass of not more than 12kg (cells and small batteries), and for batteries with a gross mass of more than 12 kg (large batteries). 做对数频率扫描，对总质量不超过 12kg 的电芯和电池(电芯和小型电池)和总质量大于 12kg 的电池(大型电池)有所不同。		P
	For cells and small batteries: from 7 Hz a peak acceleration of 1 g_n is maintained until 18 Hz is reached. The amplitude is then maintained at 0.8 mm (1.6 mm total excursion) and the frequency increased until a peak acceleration of 8 g_n occurs (approximately 50 Hz). A peak acceleration of 8 g_n is then maintained until the frequency is increased to 200 Hz. 对电芯和小型电池：从7 Hz开始，保持1 g_n的最大加速度，直到频率达到18 Hz。然后将振幅保持在0.8mm（总位移1.6mm），并增加频率直到峰值加速度达到8 g_n（频率约为50 Hz）。将峰值加速度保持在8 g_n直到频率增加到200 Hz。		P

Clause 章节	Requirement 标准要求	Result 结果	Verdict 判定
	For large batteries: from 7 Hz a peak acceleration of 1 g_n is maintained until 18 Hz is reached. The amplitude is then maintained at 0.8 mm (1.6 mm total excursion) and the frequency increased until a peak acceleration of 2 g_n occurs (approximately 25 Hz). A peak acceleration of 2 g_n is then maintained until the frequency is increased to 200 Hz. 对大型电池：从7 Hz开始，保持1 g_n的最大加速度，直到频率达到18 Hz。然后将振幅保持在0.8mm（总位移1.6mm），并增加频率直到峰值加速度达到2 g_n（频率约为25 Hz）。将峰值加速度保持在2 g_n直到频率增加到200 Hz。		N/A
38.3.4.3.3	Requirement: Cells and batteries meet this requirement if there is no leakage, no venting, no disassembly, no rupture and no fire during the test and after the test and if the open circuit voltage of each test cell or battery directly after testing in its third perpendicular mounting position is not less than 90% of its voltage immediately prior to this procedure. The requirement relating to voltage is not applicable to test cells and batteries at fully discharge states. 要求：电芯和电池实验中和试验后无渗漏、无泄气、无解体、无破裂和无起火，并且每个试验电芯或电池在第三个垂直安装方位上的试验后立即测得得开路电压不小于其在进行这一试验前电压的 90%。有关电压的要求不适用于完全放电状态下的试验电芯和电池。	See Table 3 见表 3	P
38.3.4.4	**Test T.4: Shock** **试验 T.4：冲击**		**P**
38.3.4.4.1	Purpose: This test assesses the robustness of cells and batteries against cumulative shocks. 目的：本试验评估电芯和电池抵抗累积冲击的耐受强度		P
38.3.4.4.2	Test procedure: Test cells and batteries shall be secured to the testing machine by means of a rigid mount which will support all mounting surfaces of each test battery. 试验程序：试验电芯和电池用刚性支架紧固在试验装置上，支架支撑着每个试验电池的所有安装面。		P
	Each cell shall be subjected to a half-sine shock of peak acceleration of 150 g_n and pulse duration of 6 milliseconds. 每个电芯须经受峰值加速度 150g_n 和脉冲持续时间 6ms 的半正弦波冲击		N/A
	Alternatively, large cells may be subjected to a half-sine shock of peak acceleration of 50 g_n and pulse duration of 11 milliseconds. 或者，大型电芯须经受峰值加速度 50g_n 和脉冲持续时间 11ms 的半正弦波冲击	50g_n, 11ms	P
	Each battery shall be subjected to a half-sine shock of peak acceleration depending on the mass of battery. The pulse duration shall be 6 milliseconds for small batteries and 11 milliseconds for		N/A

Clause 章节	Requirement 标准要求	Result 结果	Verdict 判定

large batteries. The formulas below are provided to calculate the appropriate minimum peak accelerations.

Battery	Minimum peak acceleration	Pulse duration
Small batteries	150 g_n or result of formula $\text{Acceleration}(g_n) = \sqrt{\left(\frac{100850}{\text{mass}^a}\right)}$ whichever is smaller	6 ms
Large batteries	50 g_n or result of formula $\text{Acceleration}(g_n) = \sqrt{\left(\frac{30000}{\text{mass}^a}\right)}$ whichever is smaller	11 ms

[a] Mass is expressed in kilograms

每个电池因根据电池的质量而收到峰值加速度的正半弦波冲击。对于小型电池的脉冲持续时间为 6ms，对于大型电池的脉冲持续时间应为 11ms，下面的公式用于计算适当的最小峰值加速度。

电池	最小峰值加速度	脉冲持续时间
小型电池	150 g_n或公式结果中的较小值 $Acceleration(g_n) = \sqrt{\left(\frac{100850}{mass*}\right)}$	6 ms
大型电池	50 g_n或公式结果中的较小值 $\text{Acceleration}(g_n) = \sqrt{\left(\frac{30000}{\text{mass}^a}\right)}$	11 ms

a 质量单位用 kg 计算

Each cell or battery shall be subjected to three shocks in the positive direction and to three shocks in the negative direction in each of three mutually perpendicular mounting positions of the cell or battery for total of 18 shocks.
每个电芯或电池需在三个互相垂直的安装方位的正方向经受三次冲击，接着在反方向经受三次冲击，总共经受 18 次冲击。

P

38.3.4.4.3

Requirement: Cells and batteries meet this requirement if there is no leakage, no venting, no disassembly, no rupture and no fire and if the open circuit voltage of each test cell and battery after testing is not less than 90% of its voltage immediately prior to this procedure. The requirement relating to voltage is not applicable to test cells and batteries at fully discharge states.
要求：电芯和电池须无渗漏、无泄气、无解体、无破裂和无起火，并且每个试验电芯或电池在试验后的开路电压不小于其在进行这一试验前电压的 90%。有关电压的要求不适用于完全放电状态下的试验电芯和电池。

See Table 4
见表 4

P

Clause 章节	Requirement 标准要求	Result 结果	Verdict 判定
38.3.4.5	**Test T.5: External short circuit** **试验 T.5：外部短路**		**P**
38.3.4.5.1	Purpose: This test simulates an external short circuit 目的：本试验模拟外部短路		P
38.3.4.5.2	Test procedure: The cell or battery to be tested shall be heated for a period of time necessary to reach a homogeneous stabilized temperature of 57 ± 4 °C, measured on the external case. This period of time depends on the size and design of the cell or battery and should be assessed and documented. 试验程序：待测电芯或电池应加热一段时间，使其外表面温度达到均匀稳定在57 ± 4°C的温度，加热时间取决于电芯或电池的大小和设计，并应进行评估和记录。		P
	If this assessment is not feasible, the exposure time shall be at least 6 hours for small cells and small batteries. 如果这种评估是不可行的，对于小型电芯和小型电池至少存放6小时。		N/A
	12 hours for large cells and large batteries. 对于大型电芯和大型电池存放12小时。		P
	Then the battery at 57 ± 4 °C is subjected to one short circuit condition with a total external resistance of less than 0.1 ohm. 然后电池在57 ± 4°C的环境中，接受一个外部总阻值小于0.1Ω的短路条件。		P
	This short circuit condition is continued for at least one hour after the cell or battery external case temperature has returned to 57 ± 4 °C. 这个短路条件应在电芯或电池的外壳温度回到57 ± 4°C后继续短路1小时		P
	or in the case if the large batteries, has decreased by half of the maximum temperature increase observed during the test and remains below that value. 或对于大型电池其外壳温度已下降了一半的最大升温，并保持低于该值。		N/A
	The short circuit and cooling down phases shall be conducted at least at ambient temperature. 短路和冷却过程至少在环境温度中进行。		P
38.3.4.5.3	Requirement: Cells and batteries meet this requirement if their external temperature does not exceed 170 °C and there is no disassembly, no rupture and no fire during the test and within six hours after the test. 要求：电芯和电池外壳温度不超过170°C，并且在试验过程中及试验6小时内无解体，无破裂和无起火。	See Table 5 见表 5	P
38.3.4.6	**Test T.6: Impact/Crush** **试验T.6：撞击/挤压**		**P**

Clause 章节	Requirement 标准要求	Result 结果	Verdict 判定
38.3.4.6.1	Purpose: These tests simulate mechanical abuse from an impact or crush that may result in an internal short circuit. 目的：本试验试模拟撞击或挤压等可能造成内部短路的机械破坏		P
38.3.4.6.2	Test procedure-Impact (applicable to cylindrical cells not less than 18.0 mm in diameter) 测试程序-撞击（适用于直径不小于18.0mm的圆柱形电芯）		N/A
	The test sample cell or component cell is to be placed on a flat smooth surface. A 15.8 mm ±0.1 mm diameter, at least 6 cm long, or the longest dimension of the cell, whichever is greater, Type 316 stainless steel bar is to be placed across the centre of the sample. A 9.1 kg ± 0.1 kg mass is to be dropped from a height of 61 ± 2.5 cm at the intersection of the bar and sample in a controlled manner using a near frictionless, vertical sliding track or channel with minimal drag on the falling mass. The vertical track or channel used to guide the falling mass shall be oriented 90 degrees from the horizontal supporting surface. 试验电芯或元件电芯放置在平坦光滑的表面上，一个316型的不锈钢棒横放在样品中心，钢棒直径15.8 mm ±0.1 mm，长度至少6cm，或电芯最长段的尺度，取二者之长。将一块质量9.1 kg ± 0.1 kg的重锤从61 ± 2.5 cm高处跌落到钢棒和样品交叉点处，使用一个几乎没有摩擦的，对落体重锤阻力最小的垂直轨道或者管道加以控制。垂直轨道或管道用于引导落锤沿与水平支撑表面呈90度落下。		N/A
	The test sample is to be impacted with its longitudinal axis parallel to the flat surface and perpendicular to the longitudinal axis of the 15.8 mm ± 0.1mm diameter curved surface lying across the centre of the centre of the test sample. Each sample is to be subjected to only a single impact. 试验样品被撞击时，其纵轴应与平坦表面平行并与横放在样品中心直径15.8 mm ±0.1 mm弯曲表面的纵轴垂直。每一次试验样品只受一次撞击。		N/A
38.3.4.6.3	Test procedure-Crush (applicable to prismatic, pouch, coin/button cells and cylindrical cells less than 18.0 mm in diameter) 测试程序-挤压（适用于棱柱形，袋装，硬币/纽扣电芯和直径小于18.0mm 圆柱形电芯）		P
	A cell or component cell is to be crushed between two flat surfaces. The crushing is to be gradual with a speed of approximately 1.5 cm/s at the first point of contact. The crushing is to be continued until the first of the three options below is reached. (a) The applied force reaches 13 kN ± 0.78 kN; (b) The voltage of the cell drops by at least 100 mV; or (c) The cell is deformed by 50% or more of its original thickness. Once the maximum pressure has been obtained, the voltage drops by 100 mV or more, or the cell is deformed by at least 50% of its		P

Clause 章节	Requirement 标准要求	Result 结果	Verdict 判定
	original thickness, the pressure is released. 将电芯或元件电芯放在两个平面之间挤压，挤压力度逐渐加大，在第一个接触点上的速度大约为 1.5 cm/s。挤压持续进行，直到出现以下三种情况之一： (a) 施加的力量达到 13 kN ± 0.78 kN； (b) 电芯的电压下降至少 100mV；或 (c) 电芯形变达原始厚度的 50%或更多。 一旦达到最大压力、电压下降 100mV 或更多，或电芯形变至少达原厚度的 50%，即可解除压力。		
	A prismatic or pouch cell shall be crushed by applying the force to the widest side. A button/coin cell shall be crushed by applying the force on its flat surfaces. For cylindrical cells, the crush force shall be applied perpendicular to the longitudinal axis. 棱柱形或袋装电芯须从最宽的面施压。扣式或币式电芯，须施加挤压力在它的扁平面之间。圆柱形电芯，挤压力须施加于垂直于电芯纵轴的方向上。		P
	Each test cell or component cell is to be subjected to one crush only. 每个试验电芯或元件电芯只做一次挤压试验。		P
	The test sample shall be observed for a further 6 h. The test is conducted using test cell or component cells that have not previously been subjected to other tests. 试验后须继续观察 6 小时。试验须使用之前未做过其他试验的电芯或元件电芯进行。		P
38.3.4.6.4	Requirement: Cells and component cells meet this requirement if their external temperature does not exceed 170 °C and there is no disassembly and no fire during the test and within six hours after this test. 要求：电芯和元件电芯外部温度不超过170°C，并且在试验过程中及试验后6小时内无解体和无起火。	See Table 6 见表 6	P
38.3.4.7	**Test T.7: Overcharge** **试验T.7：过度充电**		**N/A**
38.3.4.7.1	Purpose: This test evaluates the ability of a rechargeable battery or a single cell rechargeable battery to withstand an overcharge condition. 目的：本试验评估可充电电池或单电芯可充电池承受过度充电状况的能力。		N/A
38.3.4.7.2	Test procedure: The charge current shall be twice the manufacturer's recommended maximum continuous charge current. The minimum voltage of the test shall be as follows: 试验程序：充电电流为制造商建议的最大持续充电电流的两倍。试验的最小电压如下：		N/A

Clause 章节	Requirement 标准要求	Result 结果	Verdict 判定
	(a) when the manufacturer's recommended charge voltage is not more than 18V, the minimum voltage of the test shall be the lesser of two times the maximum charge voltage of the battery or 22V. (a) 制造商建议的充电电压不大于18V时，试验的最小电压应是电池最大充电电压的两倍或22伏两者中的较小者。		N/A
	(b) when the manufacturer's recommended charge voltage is more than 18V, the minimum voltage of the test shall be 1.2 times the maximum charge voltage. (b) 制造商建议的充电电压大于18V时，试验的最小电压应是电池最大充电电压的1.2倍。		N/A
	Tests are to be conducted at ambient temperature. The duration of the test shall be 24 hours. 试验在环境温度下进行。试验时间为24小时。		N/A
38.3.4.7.3	Requirement:Rechargeable batteries meet this requirement if there is no disassembly and no fire during the test and within seven days after the test. 要求: 可充电电池在试验过程中和试验后7天内无解体和无起火。	See Table 7 见表 7	N/A
38.3.4.8	**Test T.8: Forced discharge** **试验T.8：强制放电**		**N/A**
38.3.4.8.1	Purpose:This test evaluates the ability of a primary or a rechargeable cell to withstand a forced discharge condition. 目的：本试验评估原电池或可充电电池承受强制放电条件的能力。		N/A
38.3.4.8.2	Test procedure: Each cell shall be forced discharged at ambient temperature by connecting it in series with a 12V DC power supply at an initial current equal to the maximum discharge current specified by the manufacturer. 试验程序：每个电芯在环境温度下与12V直流电电源串联在起始电流等于制造商给定的最大放电电流的条件下强制放电。		N/A
	The specified discharge current is to be obtained by connecting a resistive load of the appropriate size and rating in series with the test cell. Each cell is forced discharged for a time interval (in hours) equal toits rated capacity divided by the initial test current (in ampere). 电芯与一个适当大小的电阻负载串联以调节到规定大小的放电电流。每块电芯的放电时间（单位为 h）等于电芯的额定容量除以试验初始放电电流（单位 A）。		N/A
38.3.4.8.3	Requirement:Primary or rechargeable cells meet this requirement if there is no disassembly and no fire during the test and within seven days after the test. 要求：原电芯或可充电电芯在试验过程中和试验后 7 天内无解体和无起火。	See Table 8 见表 8	N/A

Table 1 **表 1**	**Altitude simulation** **高度模拟**						
Sample No. 样品编号	Prior to test 试验前		After test 试验后		Mass loss 质量损失 (%)	Residual OCV 剩余电压 (%)	Results 结果
	Mass 质量 (kg)	Voltage 电压 (V)	Mass 质量 (kg)	Voltage 电压 (V)			
LP26080056 C01-C001	4.693	3.864	4.693	3.862	0.000	99.95	**O**
LP26080056 C01-C002	4.637	3.860	4.636	3.858	0.022	99.95	**O**
LP26080056 C01-C003	4.737	3.862	4.736	3.862	0.021	100.00	**O**
LP26080056 C01-C004	4.714	3.869	4.713	3.868	0.021	99.97	**O**
LP26080056 C01-C005	4.731	3.861	4.730	3.861	0.021	100.00	**O**
LP26080056 C01-C006	4.736	3.865	4.735	3.863	0.021	99.95	**O**
LP26080056 C01-C007	4.726	3.870	4.726	3.868	0.000	99.95	**O**
LP26080056 C01-C008	4.638	3.868	4.638	3.867	0.000	99.97	**O**
LP26080056 C01-C009	4.680	3.860	4.679	3.858	0.021	99.95	**O**
LP26080056 C01-C010	4.740	3.870	4.739	3.869	0.021	99.97	**O**
Note: **L**–Leakage, **V**–Venting, **D**–Disassembly, **R**–Rupture, **F**–Fire, **O**–No leakage, no venting, no disassembly, no rupture and no fire 注：**L**–漏液；**V**–泄气；**D**–解体；**R**–破裂；**F**–起火；**O**–无漏液、无泄气、无解体、无破裂、无起火。							

Table 2 **表 2**	**Thermal test** **温度试验**						
Sample No. 样品编号	Prior to test 试验前		After test 试验后		Mass loss 质量损失 (%)	Residual OCV 剩余电压 (%)	Results 结果
	Mass 质量 (kg)	Voltage 电压 (V)	Mass 质量 (kg)	Voltage 电压 (V)			
LP26080056 C01-C001	4.693	3.862	4.692	3.842	0.021	99.48	**O**
LP26080056 C01-C002	4.636	3.858	4.635	3.843	0.022	99.61	**O**
LP26080056 C01-C003	4.736	3.862	4.735	3.847	0.021	99.61	**O**
LP26080056 C01-C004	4.713	3.868	4.712	3.849	0.021	99.51	**O**
LP26080056 C01-C005	4.730	3.861	4.728	3.841	0.042	99.48	**O**
LP26080056 C01-C006	4.735	3.863	4.733	3.848	0.042	99.61	**O**
LP26080056 C01-C007	4.726	3.868	4.724	3.851	0.042	99.56	**O**
LP26080056 C01-C008	4.638	3.867	4.636	3.851	0.043	99.59	**O**
LP26080056 C01-C009	4.679	3.858	4.677	3.838	0.043	99.48	**O**
LP26080056 C01-C010	4.739	3.869	4.738	3.851	0.021	99.53	**O**
Note: **L**–Leakage, **V**–Venting, **D**–Disassembly, **R**–Rupture, **F**–Fire, **O**–No leakage, no venting, no disassembly, no rupture and no fire 注：**L**–漏液；**V**–泄气；**D**–解体；**R**–破裂；**F**–起火；**O**–无漏液、无泄气、无解体、无破裂、无起火。							

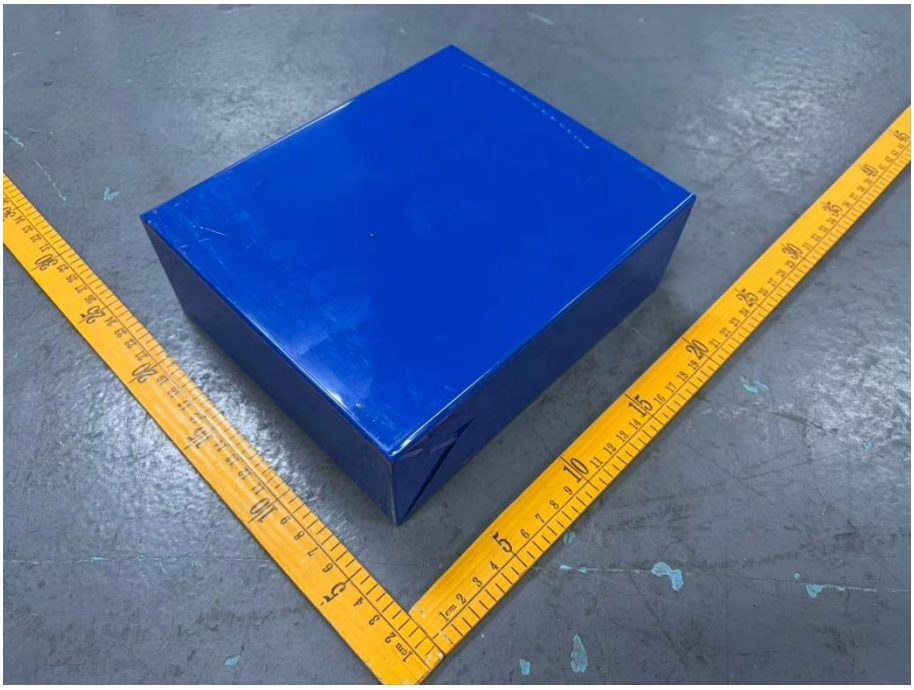
Table 3 **表 3**	**Vibration** **振动**						
Sample No. 样品编号	Prior to test 试验前		After test 试验后		Mass loss 质量损失 (%)	Residual OCV 剩余电压 (%)	Results 结果
	Mass 质量 (kg)	Voltage 电压 (V)	Mass 质量 (kg)	Voltage 电压 (V)			
LP26080056 C01-C001	4.692	3.842	4.691	3.840	0.021	99.95	**O**
LP26080056 C01-C002	4.635	3.843	4.634	3.842	0.022	99.97	**O**
LP26080056 C01-C003	4.735	3.847	4.735	3.846	0.000	99.97	**O**
LP26080056 C01-C004	4.712	3.849	4.711	3.848	0.021	99.97	**O**
LP26080056 C01-C005	4.728	3.841	4.728	3.840	0.000	99.97	**O**
LP26080056 C01-C006	4.733	3.848	4.732	3.848	0.021	100.00	**O**
LP26080056 C01-C007	4.724	3.851	4.724	3.850	0.000	99.97	**O**
LP26080056 C01-C008	4.636	3.851	4.636	3.849	0.000	99.95	**O**
LP26080056 C01-C009	4.677	3.838	4.677	3.838	0.000	100.00	**O**
LP26080056 C01-C010	4.738	3.851	4.737	3.849	0.021	99.95	**O**
Note: **L**–Leakage, **V**–Venting, **D**–Disassembly, **R**–Rupture, **F**–Fire, **O**–No leakage, no venting, no disassembly, no rupture and no fire 注：**L**–漏液；**V**–泄气；**D**–解体；**R**–破裂；**F**–起火；**O**–无漏液、无泄气、无解体、无破裂、无起火。							

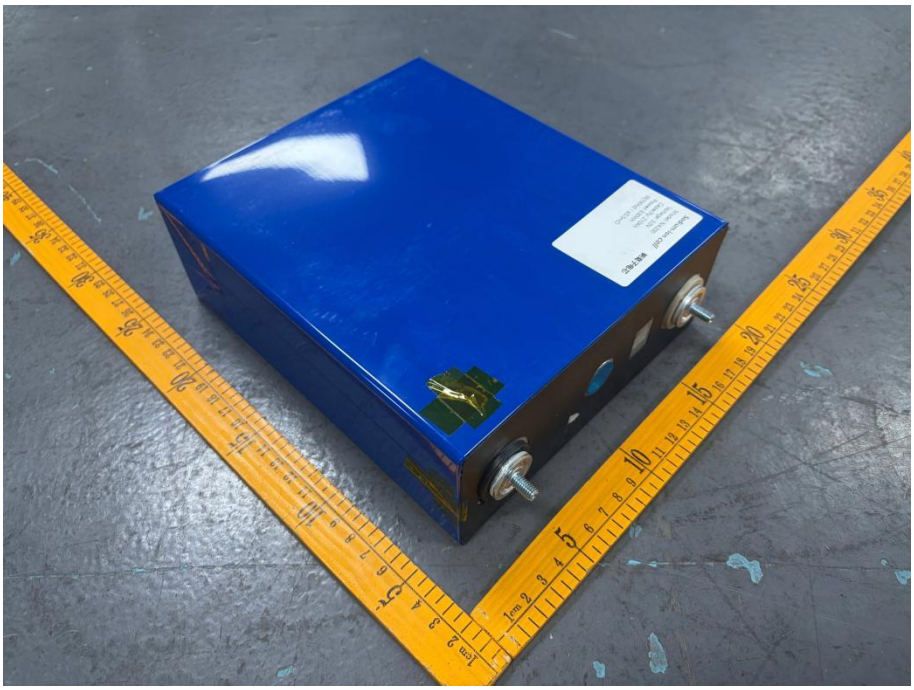
Table 4 **表 4**	**Shock** **冲击**						
Sample No. 样品编号	Prior to test 试验前		After test 试验后		Mass loss 质量损失 (%)	Residual OCV 剩余电压 (%)	Results 结果
	Mass 质量 (kg)	Voltage 电压 (V)	Mass 质量 (kg)	Voltage 电压 (V)			
LP26080056 C01-C001	4.691	3.840	4.691	3.839	0.000	99.97	**O**
LP26080056 C01-C002	4.634	3.842	4.633	3.842	0.022	100.00	**O**
LP26080056 C01-C003	4.735	3.846	4.735	3.845	0.000	99.97	**O**
LP26080056 C01-C004	4.711	3.848	4.711	3.848	0.000	100.00	**O**
LP26080056 C01-C005	4.728	3.840	4.727	3.839	0.021	99.97	**O**
LP26080056 C01-C006	4.732	3.848	4.731	3.847	0.021	99.97	**O**
LP26080056 C01-C007	4.724	3.850	4.724	3.850	0.000	100.00	**O**
LP26080056 C01-C008	4.636	3.849	4.635	3.849	0.022	100.00	**O**
LP26080056 C01-C009	4.677	3.838	4.676	3.837	0.021	99.97	**O**
LP26080056 C01-C010	4.737	3.849	4.737	3.848	0.000	99.97	**O**
Note: **L**–Leakage, **V**–Venting, **D**–Disassembly, **R**–Rupture, **F**–Fire, **O**–No leakage, no venting, no disassembly, no rupture and no fire 注：**L**–漏液；**V**–泄气；**D**–解体；**R**–破裂；**F**–起火；**O**–无漏液、无泄气、无解体、无破裂、无起火。							

Table 5 **表 5**	**External short circuit** **外部短路**	
Sample No. 样品编号	Maximum outer casing temperature 电池表面最高温度(°C)	Results 结果
LP26080056C01-C001	59.9	**O**
LP26080056C01-C002	59.6	**O**
LP26080056C01-C003	59.3	**O**
LP26080056C01-C004	59.7	**O**
LP26080056C01-C005	59.2	**O**
LP26080056C01-C006	59.6	**O**
LP26080056C01-C007	59.7	**O**
LP26080056C01-C008	59.7	**O**
LP26080056C01-C009	59.6	**O**
LP26080056C01-C010	60.0	**O**
Note: **L**–Leakage, **V**–Venting, **D**–Disassembly, **R**–Rupture, **F**–Fire, **O**–No disassembly, no rupture and no fire 注：**L**–漏液；**V**–泄气；**D**–解体；**R**–破裂；**F**–起火；**O**–无解体、无破裂、无起火。		

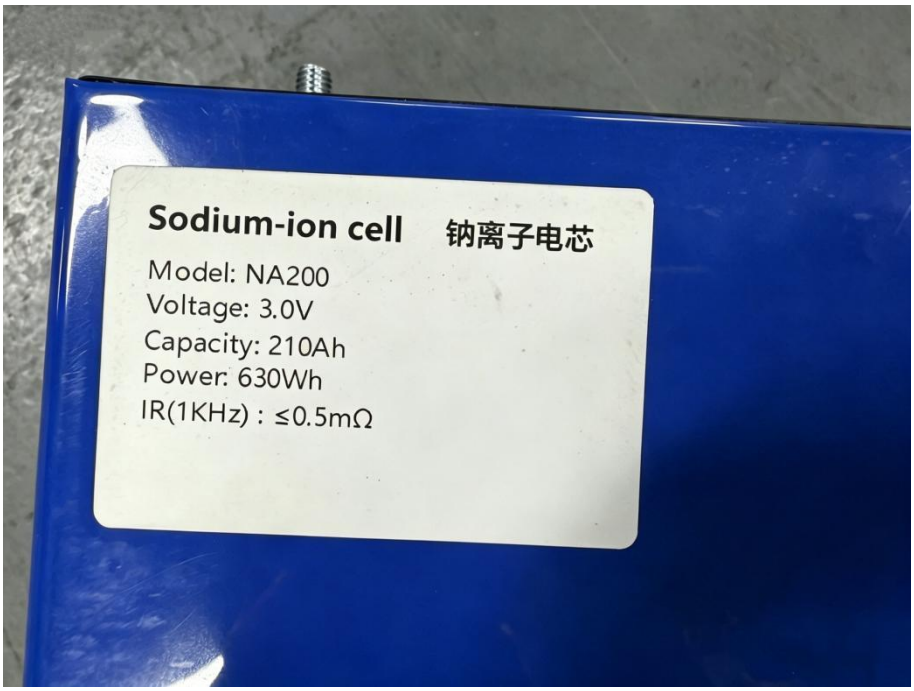
Table 6 **表 6**	**Crush** **挤压**	
Sample No. 样品编号	Maximum outer casing temperature 电池表面最高温度(°C)	Results 结果
LP26080056C01-C011	24.6	**O**
LP26080056C01-C012	24.0	**O**
LP26080056C01-C013	24.7	**O**
LP26080056C01-C014	24.3	**O**
LP26080056C01-C015	24.5	**O**
LP26080056C01-C016	24.6	**O**
LP26080056C01-C017	23.9	**O**
LP26080056C01-C018	24.5	**O**
LP26080056C01-C019	24.1	**O**
LP26080056C01-C020	24.5	**O**
Note: **D**–Disassembly, **F**– Fire, **O**–No disassembly and no fire 注：**D**–解体；**F**–起火；**O**–无解体、无起火。		

Photos of sample
样品照片





Photos of sample
样品照片



******End of Test Report 检测报告结束******

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6. The test report is valid for the tested samples only.

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