报告编号（Report No.）: WT233200067

检 验 报 告
TEST REPORT

样品名称 **Product Name**	：	可充电锂离子电池 Rechargeable Lithium ion Cell
样品型号 **Model**	：	105565
委托单位 **Applicant**	：	湖南泰和美新能源科技有限公司 Hunan Times New Energy Technology Co., Ltd.
生产单位 **Factory**	：	湖南泰和美新能源科技有限公司 Hunan Times New Energy Technology Co., Ltd.
检验类别 **Test Category**	：	委托检验 Commission test

（检验检测专用章）

签发日期： 2023 年 01 月 09 日

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深圳市计量质量检测研究院
Shenzhen Academy of Metrology & Quality Inspection

检 验 报 告
TEST REPORT

委托单位 Applicant	:	湖南泰和美新能源科技有限公司 Hunan Times New Energy Technology Co., Ltd.
委托单位地址 Applicant Address	:	中国湖南省泸溪县武溪镇县高新技术产业开发区创新创业园综合楼 7 楼 7/F, Comprehensive Building, Innovation Science Park, High-tech Industrial Development District, Wuxi Town, Luxi County, Hunan Province, China.
制造商 Manufacture	:	湖南泰和美新能源科技有限公司 Hunan Times New Energy Technology Co., Ltd.
制造商地址 Manufacture Address	:	中国湖南省泸溪县武溪镇县高新技术产业开发区创新创业园综合楼 7 楼 7/F, Comprehensive Building, Innovation Science Park, High-tech Industrial Development District, Wuxi Town, Luxi County, Hunan Province, China.
生产厂 Factory	:	湖南泰和美新能源科技有限公司 Hunan Times New Energy Technology Co., Ltd.
生产厂地址 Factory Address	:	中国湖南省泸溪县武溪镇高新技术产业开发区泰和美工业园 Tai He Mei Industrial Park, High-tech Industrial Development Zone,Wuxi, Luxi, Hunan, China
样品名称 Product Name	:	可充电锂离子电池 Rechargeable Lithium ion Cell
样品型号 MODEL	:	105565
样品规格 Specification	:	5000mAh / 18.5Wh
商标 Trade mark	:	TIMES
委托日期 Consign Date	:	2022-11-29
委托单号 Applicant No.	:	8718501
检验地点 Testing location	:	深圳市南山区龙珠大道 92 号 No.92,Longzhu Avenue, Nanshan District, Shenzhen, Guangdong, China
检测依据 Test Standards	:	ST/SG/AC.10/11/Rev.7 United Nations recommendations on the transport of dangerous goods manual of tests and criteria(Section 38.3: Lithium metal and lithium ion batteries)
判定依据 Verdict Standards	:	ST/SG/AC.10/11/Rev.7 United Nations recommendations on the transport of dangerous goods manual of tests and criteria(Section 38.3: Lithium metal and lithium ion batteries)
检验结论 Test Conclusion	:	合格 Pass

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1. 检验结论（TEST RESULTS SUMMARY）

表格（Table）1 检验结论（Test Results Summary）

检验项目（Test Items）	判定（verdicts）
T.1：高度模拟（Altitude Simulation）	P
T.2：温度试验（Thermal Test）	P
T.3：振动（Vibration）	P
T.4：冲击（Shock）	P
T.5：外部短路（External Short Circuit）	P
T.6：撞击/挤压（Impact/Crush）	P
T.7：过度充电（Overcharge）	N/A
T.8：强制放电（Forced discharge）	P

可能的试验情况判定（Possible test case verdicts）：

-试验情况不适用本试验产品 -Test case does not apply to the test object	N/A
-试验样品满足要求 -Test object does meet the requirement	P
-试验样品不满足要求 -Test object does not meet the requirement	F

2. 待测物描述（PRODUCT DESCRIPTION）

待测物名称（Product name）	：	可充电锂离子电池 Rechargeable Lithium ion Cell
型号（Model）	：	105565
形状（Shape）		银色近长方体（Silver almost cuboid）
重量（Weight）	：	约（About）80g
容量/能量（Capacity / Energy）	：	5000mAh / 18.5Wh
标称电压（Nominal voltage）	：	3.7V
充电限制电压（Limited charge voltage）	：	4.2V
放电截止电压（Discharge cut-off voltage）	：	2.75V
标准充电电流（Standard charge current）	：	1000mA
最大充电电流（Max. charge current）	：	3500mA
最大放电电流（Max. discharge current）	：	5000mA

3. 测试环境（TEST CONDITIONS）

检验日期（Date of test）	：	2022.12.02-2023.01.06
样品接收日期（Date of EUT Receive）	：	2022.11.29
温度（Temperature）	：	(22～23)℃
湿度（Relative Humidity）	：	(30～55)%RH

4. 测试设备（TEST EQUIPMENT USED）

表格（Table）2 测试设备（Test Equipment）

序号 No.	名 称 Equipment	型 号 Model No.	编 号 Equipment ID	校准有效期至 Valid until	本次使用（√）
1	高空模拟仿真试验的低气压试验单元箱	ZK-200	SB6689	2023.02.28	√
2	高温箱	GGW-1000	SB11807	2023.06.19	√
3	温控短路试验机	BE-8102	SB16488/03	2023.03.22	√
4	电池重物冲击试验机	BE-8106	SB16488/05	2023.09.27	√
5	高低温湿热试验箱	BTH-150C	SB16489/02	2023.04.01	√
6	电磁振动台	ACT2000-R0110L	SB5485	2023.09.25	√
7	移动终端电池充放电性能测试仪	BTS-20V20A	SB15047	2023.07.14	√
8	移动终端电池充放电性能测试仪	BTS-20V20A	SB15048	2023.07.14	√
9	电池充放电机	RCDS100V150A	SB16487/01	2023.12.04	√
10	电子秤	DC-685	SB3152	2023.10.25	√
11	温度记录仪	LR8431-30	SB13134	2023.10.24	√

5. 检测数据（TEST DATA）

UN 38.3			
条款 Clause	要求-试验 Requirement -Test	结果-评述 Result -Remark	判定 Verdict
38.3.4.1	**T.1: 高度模拟（Altitude Simulation）**		P
	试验电池和电池组应在压力等于或低于 11.6kPa 和环境温度(20℃±5℃)下存放至少 6h。 要求：电池和电池组无渗漏、无排气、无解体、无破裂和无起火，并且每个试验电池和电池组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的电池和电池组。	电池无渗漏、无排气、无解体、无破裂和无起火，并且每个试验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%。 （测试数据见附表 38.3.4.1）	
	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℃). 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 or 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 discharged states.	There is no leakage, no venting, no disassembly, no rupture, no fire and the open circuit voltage of each test cell after testing is not less than 90% of its voltage immediately prior to this procedure. (test data see appended table 38.3.4.1）	
38.3.4.2	**T.2: 温度试验（Thermal Test）**		P
	试验电池和电池组应先在试验温度等于 72℃±2℃的条件下存放至少 6h，接着再在试验温度等于-40℃±2℃的条件下存放至少 6h。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和电池组在环境温度 20℃±5℃下存放 24h。对于大型电池和电池组，暴露于极端试验温度的时间至少应为 12h。 要求：电池和电池组无渗漏、无排气、无解体、无破裂和无起火，并且每个试验电池和电池组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的电池和电池组。	电池无渗漏、无排气、无解体、无破裂和无起火，并且每个试验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%。 （测试数据见附表 38.3.4.2）	
	Test cells and batteries are to be stored for at least six hours at a test temperature equal to 72℃±2℃, followed by storage for at least six hours at a test temperature equal to -40℃±2℃. The maximum time interval between test temperature extremes is 30 minutes. This procedure is to be repeated until 10 total cycles are complete, after which all test cells and batteries are to be stored for 24 hours at ambient temperature (20℃±5℃). For large cells and batteries the duration of exposure to the test temperature extremes should be at least 12 hours. 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 or 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 discharged states.	There is no leakage, no venting, no disassembly, no rupture, no fire and the open circuit voltage of each test cell after testing is not less than 90% of its voltage immediately prior to this procedure. (test data see appended table 38.3.4.2）	

UN 38.3			
条款 Clause	要求-试验 Requirement -Test	结果-评述 Result -Remark	判定 Verdict
38.3.4.3	**T.3:振动（Vibration）**		P
	电池和电池组紧固于振动机平台，但紧固程度不能造成电池变形以致不能准确传递振动。振动应是正弦波形，对数频率扫描从 7Hz 到 200Hz，再回到 7Hz，跨度为 15 分钟。这一振动过程须对三个互相垂直的电池安装方位的每一个方向重复进行 12 次，总共为时 3 小时。其中一个振动方向必须与端面垂直。 作对数式频率扫描，对总质量不足 12kg 的电池和电池组（电池和小型电池组），和对 12kg 及更大的电池组（大型电池组）应有所不同。 对电池和小型电池组：从 7Hz 开始，保持 1gn 的最大加速度，直到频率达到 18Hz。然后将振幅保持在 0.8mm（总偏移 1.6mm），并增加频率直到最大加速度达到 8gn（频率约为 50Hz）。将最大加速度保持在 8gn 直到频率增加到 200Hz。 对大型电池组：从 7Hz 开始，保持 1gn 的最大加速度，直到频率达到 18Hz。然后将振幅保持在 0.8mm（总偏移 1.6mm），并增加频率直到最大加速度达到 2gn（频率约为 25Hz）。将最大加速度保持在 2gn 直到频率增加到 200Hz。 要求：电池和电池组试验中和试验后无渗漏、无排气、无解体、无破裂、无起火，并且每个试验电池或电池组在第三个垂直安装方位上的试验后立即测得的开路电压不小于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的电池和电池组。	电池无渗漏、无排气、无解体、无破裂和无起火，并且每个试验电池在第三个垂直安装方位上的试验后立即测得的开路电压不小于其在进行这一试验前电压的 90%。 （测试数据见附表 38.3.4.3）	
	Cells 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. The logarithmic frequency sweep shall differ for cells and batteries with a gross mass of not more than 12 kg (cells and small batteries), and for batteries with a gross mass of more than 12kg (large batteries). For cells and small batteries: from 7 Hz a peak acceleration of l 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 50Hz). A peak acceleration of 8 g_n is then maintained until the frequency is increased to 200 Hz. For large batteries: from 7 Hz to a peak acceleration of l 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 25Hz). A peak acceleration of 2 g_n is then maintained until the frequency is increased to 200 Hz. Cells and batteries meet this requirement if there is no leakage, no venting, no disassembly, no rupture and no fire	There is no leakage, no venting, no disassembly, no rupture , no fire during the test and after the test and the open circuit voltage of each test cell after testing in its perpendicular mounting position is not less than 90% of its voltage immediately prior to this procedure. (test data see appended table 38.3.4.3）	

UN 38.3			
条款 Clause	要求-试验 Requirement -Test	结果-评述 Result -Remark	判定 Verdict
	during the test and after the test and if the open circuit voltage of each test cell or battery after testing in its 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 discharged states.		
38.3.4.4	**T.4:冲击（Shock）**		P
	试验电池和电池组用坚固支架紧固在试验机上，支架支撑着每个试验电池组的所有安装面。 每个电池须经受最大加速度 150gn 和脉冲时间 6ms 的半正弦波冲击。不过，大型电池须经受最大加速度 50gn 和脉冲持续时间 11ms 的半正弦波冲击。 每个电池须经受的正弦波冲击的最大加速度取决于电池组的质量。小型电池组的脉冲持续时间 6ms，大型电池组的脉冲持续时间 11ms。 每个电池或电池组须在三个互相垂直的电池或电池组安装方位的正极方向经受三次冲击，接着在负极方向经受三次冲击，总共经受 18 次冲击。 要求：电池和电池组试验中和试验后无渗漏、无排气、无解体、无破裂、无起火，并且每个试验电池或在试验后的开路电压不小于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的电池和电池组。	电池无渗漏、无排气、无解体、无破裂和无起火，并且每个试验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%。 （测试数据见附表 38.3.4.4）	
	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. Each cell shall be subjected to a half-sine shock of peak acceleration of 150 g_n and pulse duration of 6 milliseconds. Alternatively, large cells may be subjected to a half-sine shock of peak acceleration of 50 g_n and pulse duration of 11 milliseconds. Each battery shall be subjected to a half-sine shock of peak acceleration depending on the mass of the battery. The pulse duration shall be 6 milliseconds for small batteries and 11 milliseconds for large batteries. 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 cell or battery for a total of 18 shocks. 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 or 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 discharged states.	There is no leakage, no venting, no disassembly, no rupture, no fire and the open circuit voltage of each test cell after testing is not less than 90% of its voltage immediately prior to this procedure. (test data see appended table 38.3.4.4）	

UN 38.3			
条款 Clause	要求-试验 Requirement -Test	结果-评述 Result -Remark	判定 Verdict
38.3.4.5	**T.5: 外部短路（External Short Circuit）**		
	对于待试电池或电池组，应加温一段必要的时间，使从外壳测量的温度达到均匀的稳定温度 57℃±4℃。这段时间的长短取决于电池或电池组的大小和设计，对于这个持续时间应加以评估和记录。如无法进行这种评估，则小型电池和电池组的暴露时间应至少 6h，大型电池和小型电池组的暴露时间应至少 12h。然后，电池或电池组应在 57℃±4℃条件下经受总外电阻小于 0.1 欧姆的短路条件。 这一短路条件应在电池或电池组外壳温度回到 57℃±4℃后继续至少 1 小时，或在大型电池组的情况下外壳温度降幅达试验中所观察的最高温升幅的二分之一并保持低于该数值。 短路和降温阶段的温度应至少相当于环境温度。 要求：电池和电池组外壳温度应不超过 170℃，并且在试验过程中及试验后 6h 内无解体、无破裂、无起火。	电池外壳温度不超过 170℃，并且在试验过程中及试验后 6h 内无解体、无破裂、无起火。 （测试数据见附表 38.3.4.5）	
	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℃, 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. If this assessment is not feasible, the exposure time shall be at least 6 hours for small cells and small batteries, and 12 hours for large cells and large batteries. Then the cell or battery at 57℃±4℃shall be subjected to one short circuit condition with a total external resistance of less than 0.1 ohm. This short circuit condition is continued for at least one hour after the cell or battery external case temperature has returned to 57℃±4℃, or in the case of the large batteries has decreased by half of the maximum temperature increase observed during the test and remain below that value. The short circuit and cooling down phases shall be conducted at least at ambient temperature. Cells and batteries meet this requirement if there external temperature does not exceed 170 ℃ and there is no disassembly, no rupture and no fire during the test and within six hours after the test.	There external temperature does not exceed 170 ℃ and there is no disassembly, no rupture and no fire during the test and within six hours after the test. (test data see appended table 38.3.4.5）	P
38.3.4.6	**T.6: 撞击/挤压（Impact/Crush）**		
	撞击（适用于直径不小于 18.0mm 的圆柱形电池） 试验电池或元件电池放在平坦光滑的表面上，一根 316 型不锈钢棒横放在试样中心，钢棒直径 15.8mm±0.1mm，长度至少 6cm，或电池最长端的尺寸，取二者之长者。将一块 9.1 kg±0.1kg 的重锤从 61cm±2.5cm 高处跌落到钢棒和试样交叉处，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。 接受撞击的试样，纵轴应与平坦表面平行并与横放在试样中心的直径 15.8mm±0.1mm 弯曲表面的纵轴垂直。每一试样只经受一次撞击。 要求：电池和电池组外壳温度应不超过 170℃，并且在试验过程中及试验后 6h 内无解体、无破裂、无起火。		N/A

UN 38.3			
条款 Clause	要求-试验 Requirement -Test	结果-评述 Result -Remark	判定 Verdict
	Impact (applicable to cylindrical cells not less than 18 mm in diameter) The test sample cell or component cell is to be placed on a flat smooth surface. A 15.8mm±0.1mm diameter, at least 6cm 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±0.1kg mass is to be dropped from a height of 61cm±2.5cm 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. 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 ± 0.1 mm diameter curved surface lying across the centre of the test sample. Each sample is to be subjected to only a single impact. Cells and component cells meet this requirement if their external temperature does not exceed 170℃ and there is no disassembly, no rupture and no fire during the test and within six hours after the test.		
	挤压（适用于棱柱形、袋装、硬币/纽扣电池和直径小于18.0mm 的圆柱形电池） 将电池或原件电池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 1.5cm/s。挤压持续进行，直到出现以下三种情况之一： （a）施加的力度达到 13 千牛顿±0.78 千牛顿； （b）电池的电压下降至少 100mV；或 （c）电池的变形达原始厚度的 50%或以上。 一旦达到最大压力、电压下降 100mV 或更多，或电池变形至少达原厚度的 50%，即可解除压力。 棱柱形或袋装电池应从最宽的一面施压。纽扣/硬币形电池应从其平坦表面施压。圆柱形电池应从与纵轴垂直的方向施压。 每个试样电池或元件电池只做一次挤压试验。试样应继续观察 6h。试验应使用之前未做过其他试验的电池或元件电池进行。 要求：电池和电池组外壳温度应不超过 170℃，并且在试验过程中及试验后 6h 内无解体、无破裂、无起火。	电池外壳温度不超过170℃，并且在试验过程中及试验后 6h 内无解体、无破裂、无起火。 （测试数据见附表 38.3.4.6）	P
	Crush (applicable to prismatic, pouch, coin/button and cylindrical cells less than 18 mm in diameter) 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 13kN ± 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.	Their external temperature does not exceed 170℃and there is no disassembly ,no rupture and no fire during the test and within six hours after this test. (test data see appended table 38.3.4.6）	

UN 38.3			
条款 Clause	要求-试验 Requirement -Test	结果-评述 Result -Remark	判定 Verdict
	Once the maximum pressure has been obtained, the voltage drops by 100mV or more, or the cell is deformed by at least 50% of its original thickness, the pressure shall be released. 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. Each test cell or component cell is to be subjected to one crush only. The test sample shall be observed for further 6h. The test shall be conducted using test cells or component cells that have not previously been subjected to other tests. Cells and component cells meet this requirement if their external temperature does not exceed 170℃ and there is no disassembly, no rupture and no fire during the test and within six hours after the test.		
38.3.4.7	**T.7: 过度充电（Overcharge）**		N/A
	充电电流必须是制造商建议的最大持续充电电流的两倍。试验的最下电压如下： （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组最大充电电压的两倍或 22V 两者中的较小者。 （b）制造商建议的充电电压大于 18V 时，试验的最小电压应为最大充电电压的 1.2 倍。 试验应在环境温度下进行。进行试验的时间应为 24h。 要求：充电电池组在试验过程中和试验后 7 天内应无解体、无起火。		
	The charge current shall be twice the manufacturer's recommended maximum continuous charge current. The minimum voltage of the test shall be as follows: (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 22 V. (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. Tests are to be conducted at ambient temperature. The duration of the test shall be 24 hours. Rechargeable batteries meet this requirement if there is no disassembly and no fire during the test and within seven days after this test.		
38.3.4.8	**T.8: 强制放电（Forced discharge）**		P
	每个电池应在环境温度下与 12V 直流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。 将适当大小和额定值的电阻负荷与试验电池串联，计算得出给定的放电电流。对每个电池进行强制放电，放电时间（h）应等于其额定容量除以初始试验电流（A）。 要求：原电池或充电电池在试验过程中和试验后 7 天内无	充电电池在试验过程中和试验后 7 天内无解体、无起火。 （测试数据见附表 38.3.4.8）	

UN 38.3			
条款 Clause	要求-试验 Requirement -Test	结果-评述 Result -Remark	判定 Verdict
	解体、无起火。 Each cell shall be forced discharged at ambient temperature by connecting it in series with a 12V D.C. power supply at an initial current equal to the maximum discharge current specified by the manufacturer. 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 shall be forced discharged for a time interval (in hours) equal to its rated capacity divided by the initial test current (in ampere). Primary or rechargeable cells meet this requirement if there is no disassembly and no fire during the test and within seven days after this test.	There is no disassembly and no fire during the test and within seven days after this test. (test data see appended table 38.3.4.8）	

38.3.4.1	TABLE: T.1 高度模拟（Altitude Simulation）					P
No.	Mass			OCV		
	M1 (g)	M2 (g)	Mass loss (%)	OCV1 (V)	OCV2 (V)	OCV loss (%)
C1#	79.97	79.97	0.00	4.18	4.18	0.00
C2#	79.39	79.38	0.01	4.18	4.18	0.00
C3#	79.57	79.56	0.01	4.18	4.18	0.00
C4#	78.84	78.80	0.05	4.18	4.18	0.00
C5#	79.78	79.75	0.04	4.18	4.18	0.00
C6#	79.57	79.57	0.00	4.18	4.18	0.00
C7#	78.82	78.80	0.03	4.18	4.18	0.00
C8#	80.04	80.04	0.00	4.18	4.18	0.00
C9#	78.92	78.90	0.03	4.18	4.18	0.00
C10#	79.60	79.60	0.00	4.18	4.18	0.00

备注（Remark）：
1. 质量损失（%）=(M_1-M_2)/M_1*100%（M_1是试验前的质量，M_2是试验后的质量）
   Mass loss (%)=(M_1-M_2)/M_1*100% (Where M_1 is the mass before the test and M_2 is the mass after the test).
2. 开路电压损失（%）=(OCV_1- OCV_2)/ OCV_1*100%（OCV_1是试验前的电压，OCV_2是试验后的电压）
   OCV loss (%)=(OCV_1- OCV_2)/ OCV_1*100% (Where OCV_1 is the voltage before the test and OCV_2 is the voltage after the test).
3. 5个在第1个充放电周期完全充电状态的电池(C1#~ C5#)和5个在25个充放电循环后完全充电状态的电池(C6#~C10#)被用于测试。
   Fivel cells (C1#~ C5#) at first cycle in fully charged states and five cells (C6#~C10#) after 25 cycles ending in fully charged states are used.

38.3.4.2	TABLE: T.2 温度试验（Thermal test）					P
No.	Mass			OCV		
	M1 (g)	M2 (g)	Mass loss (%)	OCV1 (V)	OCV2 (V)	OCV loss (%)
C1#	79.97	79.93	0.05	4.18	4.10	1.91
C2#	79.38	79.35	0.04	4.18	4.10	1.91
C3#	79.56	79.55	0.01	4.18	4.10	1.91
C4#	78.80	78.78	0.03	4.18	4.10	1.91
C5#	79.75	79.73	0.03	4.18	4.10	1.91
C6#	79.57	79.56	0.01	4.18	4.10	1.91
C7#	78.80	78.78	0.03	4.18	4.10	1.91
C8#	80.04	80.01	0.04	4.18	4.10	1.91
C9#	78.90	78.89	0.01	4.18	4.10	1.91
C10#	79.60	79.57	0.04	4.18	4.10	1.91

备注（Remark）：
1. 质量损失（%）=(M_1-M_2)/M_1*100%（M_1是试验前的质量，M_2是试验后的质量）
   Mass loss (%)=(M_1-M_2)/M_1*100% (Where M_1 is the mass before the test and M_2 is the mass after the test).
2. 开路电压损失（%）=(OCV_1- OCV_2)/ OCV_1*100%（OCV_1是试验前的电压，OCV_2是试验后的电压）
   OCV loss (%)=(OCV_1- OCV_2)/ OCV_1*100% (Where OCV_1 is the voltage before the test and OCV_2 is the voltage after the test).
3. 5个在第1个充放电周期完全充电状态的电池(C1#~ C5#)和5个在25个充放电循环后完全充电状态的电池(C6#~C10#)被用于测试。
   Fivel cells (C1#~ C5#) at first cycle in fully charged states and five cells (C6#~C10#) after 25 cycles ending in fully charged states are used.

38.3.4.3	TABLE: T.3 振动（Vibration）					P
No.	Mass			OCV		
	M1 (g)	M2 (g)	Mass loss (%)	OCV1 (V)	OCV2 (V)	OCV loss (%)
C1#	79.93	79.90	0.04	4.10	4.09	0.24
C2#	79.35	79.32	0.04	4.10	4.10	0.00
C3#	79.55	79.53	0.03	4.10	4.09	0.24
C4#	78.78	78.78	0.00	4.10	4.09	0.24
C5#	79.73	79.73	0.00	4.10	4.09	0.24
C6#	79.56	79.54	0.03	4.10	4.09	0.24
C7#	78.78	78.77	0.01	4.10	4.09	0.24
C8#	80.01	80.01	0.00	4.10	4.09	0.24
C9#	78.89	78.89	0.00	4.10	4.09	0.24
C10#	79.57	79.55	0.03	4.10	4.09	0.24

备注（Remark）：
1. 质量损失（%）=(M_1-M_2)/M_1*100%（M_1是试验前的质量，M_2是试验后的质量）
Mass loss (%)=(M_1-M_2)/M_1*100% (Where M_1 is the mass before the test and M_2 is the mass after the test).
2. 开路电压损失（%）=(OCV_1- OCV_2)/ OCV_1*100%（OCV_1是试验前的电压，OCV_2是试验后的电压）
OCV loss (%)=(OCV_1- OCV_2)/ OCV_1*100% (Where OCV_1 is the voltage before the test and OCV_2 is the voltage after the test).
3. 5个在第1个充放电周期完全充电状态的电池(C1#~ C5#)和5个在25个充放电循环后完全充电状态的电池(C6#~C10#)被用于测试。
Fivel cells (C1#~ C5#) at first cycle in fully charged states and five cells (C6#~C10#) after 25 cycles ending in fully charged states are used.

38.3.4.4	TABLE: T.4 冲击（Shock）					P
No.	Mass			OCV		
	M1 (g)	M2 (g)	Mass loss (%)	OCV1 (V)	OCV2 (V)	OCV loss (%)
C1#	79.90	79.90	0.00	4.09	4.09	0.00
C2#	79.32	79.32	0.00	4.10	4.10	0.00
C3#	79.53	79.52	0.01	4.09	4.09	0.00
C4#	78.78	78.78	0.00	4.09	4.09	0.00
C5#	79.73	79.71	0.03	4.09	4.09	0.00
C6#	79.54	79.54	0.00	4.09	4.09	0.00
C7#	78.77	78.77	0.00	4.09	4.09	0.00
C8#	80.01	79.99	0.02	4.09	4.09	0.00
C9#	78.89	78.89	0.00	4.09	4.09	0.00
C10#	79.55	79.54	0.01	4.09	4.09	0.00

备注（Remark）：
1. 质量损失（%）=(M_1-M_2)/M_1*100%（M_1是试验前的质量，M_2是试验后的质量）
Mass loss (%)=(M_1-M_2)/M_1*100% (Where M_1 is the mass before the test and M_2 is the mass after the test).
2. 开路电压损失（%）=(OCV_1- OCV_2)/ OCV_1*100%（OCV_1是试验前的电压，OCV_2是试验后的电压）
OCV loss (%)=(OCV_1- OCV_2)/ OCV_1*100% (Where OCV_1 is the voltage before the test and OCV_2 is the voltage after the test).
3. 5个在第1个充放电周期完全充电状态的电池(C1#~ C5#)和5个在25个充放电循环后完全充电状态的电池(C6#~C10#)被用于测试。
Fivel cells (C1#~ C5#) at first cycle in fully charged states and five cells (C6#~C10#) after 25 cycles ending in fully charged states are used.

38.3.4.5	TABLE: T.5 外部短路（External short circuit）				P
No.	**external temperature (℃)**	**No.**	**external temperature (℃)**	**No.**	**external temperature (℃)**
C1#	98.2	C5#	97.9	C9#	92.3
C2#	95.3	C6#	89.4	C10#	94.8
C3#	96.4	C7#	94.7	---	---
C4#	90.6	C8#	99.6	---	---

备注：5个在第1个充放电周期完全充电状态的电池(C1#~ C5#)和5个在25个充放电循环后完全充电状态的电池(C6#~C10#)被用于测试。
Remark: Fivel cells (C1#~ C5#) at first cycle in fully charged states and five cells (C6#~C10#) after 25 cycles ending in fully charged states are used.

38.3.4.6	TABLE: T.6 挤压（Crush）				P
No.	**external temperature (℃)**	**OCV before test (V)**	**No.**	**external temperature (℃)**	**OCV before test (V)**
C11#	23.8	3.78	C16#	23.9	3.76
C12#	24.2	3.76	C7#	23.9	3.76
C13#	23.9	3.76	C18#	24.0	3.77
C14#	24.2	3.77	C19#	24.0	3.76
C15#	24.3	3.76	C20#	24.0	3.76

备注： 5个在第1个充放电周期50%设计额定容量状态的电池(C11#~ C15#)和5个在25个充放电循环后50%设计额定容量状态的电池(C16#~ C20#)被用于测试。
Remark: Five cells (C11#~ C15#) at first cycle at 50% of the design rated capacity and five cells (C16#~ C20#) after 25 cycles at 50% of the design rated capacity are used.

38.3.4.7	TABLE: T.7 过度充电（Overcharge）							N/A
No.								
OCV before test(V)								

备注：

38.3.4.8	TABLE: T.8 强制放电（Forced discharge）									P
No.	C21#	C22#	C23#	C24#	C25#	C26#	C27#	C28#	C29#	C30#
OCV before test(V)	3.35	3.35	3.36	3.36	3.35	3.35	3.35	3.35	3.35	3.35
No.	C31#	C32#	C33#	C34#	C35#	C36#	C37#	C38#	C39#	C40#
OCV before test(V)	3.32	3.33	3.33	3.32	3.33	3.33	3.32	3.33	3.33	3.33

备注：10个在第1个充放电周期完全放电状态的电池(C21#~ C30#)和10个在25个充放电周期后完全放电状态的电池(C31#~ C40#)被用于测试。
Remark: Ten cells (C21#~ C30#) at first cycle in fully discharged states and ten cells (C31#~ C40#) after 25 cycles ending in fully discharged states are used.

6. 样品照片（PHOTOS）

图 1 样品外观照片(Appearance of the sample)

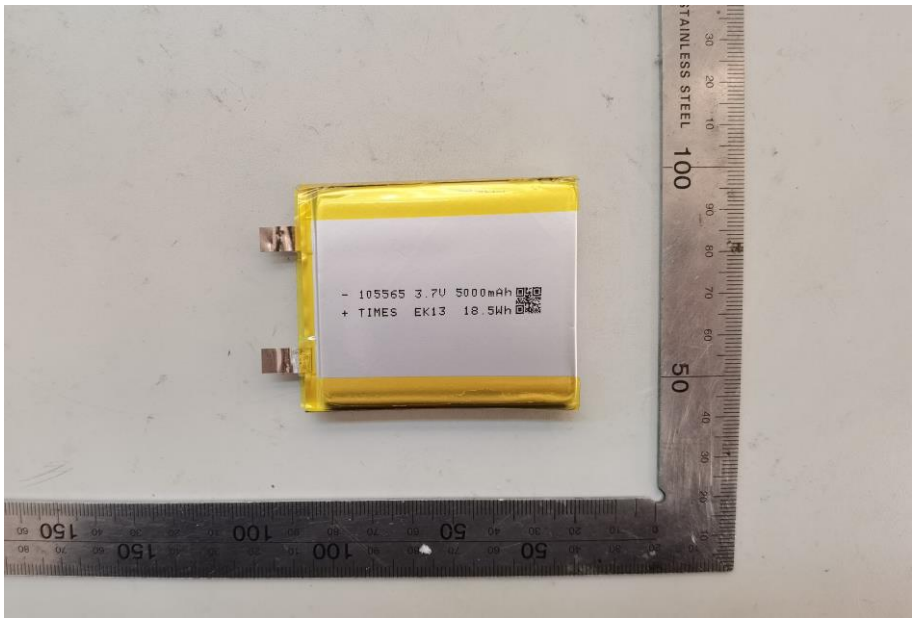
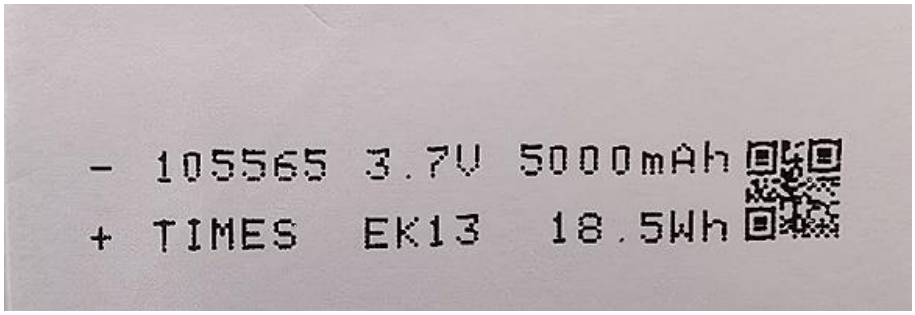


图 2 样品铭牌照片(Marking of the sample)



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