UN38.3 检 测 报 告
UN38.3 Test Report

申请商名称:中山市众旺德新能源科技有限公司

Applicant's name: ZHONGSHAN ZHONGWANGDE NEW ENERGY TECHNOLOGY CO.,LTD

产品名称 Product Name:	锂离子聚合物可充电电池 Lithium-ion Polymer Rechargeable Battery
商标名称 Brand Name:	N/A
型号 Model Name:	ZWD602531V
报告编号 Report No:	STS2002014B02
测试标准 Test Standard:	ST/SG/AC.10/11/Rev.6/Amend.1/Section 38.3

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TEST REPORT
UN38.3, Sixth EditionAmend.1
Recommendations on transport of dangerous goods, manual of test and criteria, Section 38.3 – Lithium metal and lithium ion batteries

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Applicant's name..... :	ZHONGSHAN ZHONGWANGDE NEW ENERGY TECHNOLOGY CO.,LTD
Address ..... :	1-2/F, No.3 Factory Building, Dongya Area , Dache Industrial Park, Nanlang Town, Zhongshan City, Guangdong Province
Test specification:	
Standard..... :	ST/SG/AC.10/11/Rev.6/Amend.1/Section 38.3
Test procedure ..... :	Test report
Non-standard test method.....:	N/A
Test item description.....:	Lithium-ion Polymer Rechargeable Battery
Trade Mark..... :	N/A
Manufacturer ..... :	ZHONGSHAN ZHONGWANGDE NEW ENERGY TECHNOLOGY CO.,LTD
Address ..... :	1-2/F, No.3 Factory Building, Dongya Area , Dache Industrial Park, Nanlang Town, Zhongshan City, Guangdong Province
Model/Type reference..... :	ZWD602531V
Ratings ..... :	Rated Voltage: 3.8Vd.c. Rated Capacity:600mAh 2.28Wh

Summary of testing:

Tests performed (name of test and test clause):

Test items	Sample Number
T.1: Altitude simulation / 高度模拟	B1# - B10#
T.2: Thermal test / 温度测试	
T.3: Vibration / 振动	
T.4 Shock / 冲击	
T.5 External short circuit / 外接短路	
T.6 Crush / 挤压 or Impact/撞击	C11# - C20#
T.7 Overcharge / 过充电	B21# - B28#
T.8 Forced discharge / 强制放电	C29# - C48#

The sample's status is good.
样品状况良好。

The conditions of the batteries of samples No. B1# to B5# are at first cycle, in fully charged states.
样品编号B1# - B5#为第一次循环充放电周期完全充电状态的电池。

The conditions of the batteries of samples No. B6# to B10# are after twenty five cycles, in fully charged states.
样品编号B6# - B10#为第二十五次循环充放电周期完全充电状态的电池。

The conditions of the cells of samples No. C11# to C15# are at first cycle at 50% of the design rated capacity.
样品编号C11# - C15#为第一次循环充放电周期充电至标称容量的50%状态的电芯。

The conditions of the cells of samples No. C16# to C20# are after twenty five cycles at 50% of the design ratedcapacity.
样品编号C16# - C20#为第二十五次循环充放电周期充电至标称容量的50%状态的电芯。

The conditions of the batteries of samples No. B21# - B24# are at first cycle, in fully charged states.
样品编号B21# - B24#为第一次循环充放电周期后完全充电状态的电池。

The conditions of the batteries of samples No. B25# - B28# are after twenty five cycles ending in fully charged states.
样品编号B25# - B28#为二十五次循环充放电周期后完全充电状态的电池。

The conditions of the cells of samples No. C29# to C38# are at first cycle, in fully discharged states.
样品编号C29# - C38#为第一次循环充放电周期完全放电状态的电芯。

The conditions of the cells of samples No. C39# to C48# are after twenty five cycles ending in fully dischargedstates.
样品编号 C39# to C48#为二十五次循环充放电周期后完全放电状态的电芯。

Test Procedure:

1.Each battery type is subjected to tests T.1 to T.8. Tests T.1 to T.5 are conducted in sequence on the same battery. Tests 6 and 8 are conducted using not otherwise tested 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.

每一种类型的电池均应进行 T.1 至 T.8 项试验。电池必须按顺序在相同的一组电池上进行试验 T.1 至 T.5。试验 T.6 和 T.8 应使用未另外试验过的电池。试验 T.7 可以使用先前在试验 T.1 至 T.5 中使用过的未损坏电池进行，以便测试进行在循环过的电池上。

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

Mass loss(%)=(M1-M2)/M1×100

为了量化质量损失，可用以下公式计算：质量损失(%)=(M1-M2)/M1×100

Where M1 is the mass before the test and M2 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：M1 是试验前的质量，M2 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%

3. In test T.1 to T.4, 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 battery after testing is not less than 90% of its voltage immediately prior to this procedure.

在测试 T.1 至 T.4 中，电池须满足无渗漏、无泄气、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%。

Comment:

This report also includes:

- Photo documentation: 1 pages

Possible test case verdicts:	
- test case does not apply to the test object	N (not applicable)
判定不适用于测试对象:	
- test object does meet the requirement	P (Pass)
测试符合规定:	
-test object does not meet the requirement ..... :	F (Fail)
测试不符合规定:	
Testing.....:	
Date of receipt of test item.....:	2020-02-21
Date(s) of performance of tests.....:	2020-02-21 to 2020-03-06

General remarks:

The test results presented in this report relate only to the object tested.
本报告的测试结果仅对送检样品负责。
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"(See Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.
Throughout this report a point is used as the decimal separator.

General product information:

The Battery is constructed with one Lithium-ion Polymer Rechargeable Cell.

The main features of the battery pack and the cell are shown as below:

Product name/产品名称	Lithium-ion Polymer Rechargeable Cell	Lithium-ion Polymer Rechargeable Battery
Type/model/型号	ZWD602531V	ZWD602531V
Nominal voltage/标称电压	3.8V	3.8V
Rated capacity/额定容量	600mAh	600mAh
Recommended charging Voltage/推荐充电电压	4.35V	4.35V
Maximum charging Current/最大充电电流	600mA	600mA
Maximum discharging Current/最大放电电流	900mA	900mA
Discharge cut-off voltage/ 放电截止电压	3.0V	3.0V
Dimensions/尺寸	TxWxL: MAX6.0mm x24.6mmx31.0mm	TxWxL: MAX6.2mm x24.6mmx33.1mm
Weight/重量	Approx.9.1±0.2g	Approx. 9.75±0.2g

The final evaluation of the battery must be conducted in the end product for which the battery will be used.

Clause	Requirement + Test	Result - Remark	Verdict
38.3.4.1	**Test T.1: Altitude simulation/高度模拟**		P
	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) 电池和电芯在温度为 20±5℃、大气压力不大于 11.6 kPa 的环境中贮存不少于 6 个小时。		
	Cells and batteries meet this requirement if there is no mass loss, 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./电芯和电池符合要求：无质量损失、无漏液、无冒烟、无分解、无破裂以及无着火现象：电芯或电池测试后的开路电压不低于测试前开路电压的 90%。此项关于电压方面的要求不适用于完全放电后的电芯和电池	No leakage, no venting, no disassemby, no rupture and no fire./无漏液、无冒烟、无分解、无破裂以及无着火现象。 The data see table 1./测试数据见表 1。	P
38.3.4.2	**Test .2： thermal test/温度测试**		P
	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 and batteries are to be stored for 24 hours at ambient temperature(20±5°C). /首先将样品放在 72 ±2°C 的环境中放置至少 6 个小时，然后放在-40±2℃的环境中放置至少 6 个小时，温度暂缓的最大间隔时间为 30 分钟。如此循环 10 次，最后将样品放在 20±5°C 的环境中静置 24 小时。		P
	For large cells and batteries the duration of exposure to the test temperature extremes should be at least 12 hours./对于大电芯，在高温和低温中放置的时间最少为 12 小时。		N
	Cells and batteries meet this requirement if there is no mass loss no leakage, no venting, disassembly, no repture and no fire and if the open circuit voltage of each cell or battery after testing is not less than 90% of its voltage immediately prior to this procedure. /电芯和电池符合要求：无质量损失、无漏液、无冒烟、无分解、无破裂以及无着火现象：电芯和电池测试后的开路电压不低于测试前开路电压的 90%。	No leakage, no venting, no disassemby, no rupture and no fire./无漏液、无冒烟、无分解、无破裂以及无着火现象。 The data see table 1./测试数据见表 1。	P
38.3.4.3	**Test t.3: Vibration/振动**		P

Clause	Requirement + Test	Result - Remark	Verdict
	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 logarithmicsweep between 7 Hz and 200 Hz and back to 7 Hz traversed in 15 minutes. This cycle shall be repeated 12times for a total of 3 hours for each of three mutually perpendicular mounting positions of the cell. One of thedirections of vibration must be perpendicular to the terminal face./样品必须牢固的安装在振动台面上。振动以正弦波形式，以 7Hz 增加至 200Hz，然后减少回到 7Hz 为一个循环，一个循环持续 15 分钟。对样品从三个互相垂直的方向上循环 12 次，共 3 个小时。其中一个振动方向必须是垂直样品的极性平面。		P
	The logarithmic frequency sweep shall differfor cells and batteries with a gross mass of not more than 12 kg(cells and small batteries),and for batteries witn a gross mass of more than 12 kg(large batteries)./对于质量不大于 12kg 的样品（电芯和电池）和质量超过 12kg 的电池（大电池），对数扫频不同。		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 to200 Hz. /对于电芯和小电池，对数扫频为：从7Hz开始保持1g_n的最大加速度直到频率为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8g_n (频率约为50Hz)，将最大加速度保持在8g_n直到频率增加到200Hz。		P
	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. /对于大电池，对数扫频为：从 7Hz 开始保持 1g_n的最大加速度直到频率为 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 2g_n (频率约为 25Hz)，将最大加速度保持在 2g_n直到频率增加到 200Hz。		N

Clause	Requirement + Test	Result - Remark	Verdict
	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 discharged states./电芯和电池符合要求：无质量损失、无漏液、无冒烟、无分解、无破裂以及无着火现象；电芯或电池测试后的开路电压不低于测试前开路电压的 90%。此项关于电压方面的要求不适用于完全放电后的电芯和电池。	No leakage, no venting, no disassemby, no rupture and no fire./无漏液、无冒烟、无分解、无破裂以及无着火现象。 The data see table 1./测试数据见表 1	P
38.3.4.4	**Test T.4: Shock/冲击**		P
	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 or battery shall be subjected to a half-sine shock of peak acceleration of 150 g_n and pulse duration of 6 milliseconds. Each cell or battery shall be subjected to three shocks in the positive direction followed by three shocks in the negative direction of three mutually perpendicular mounting positions of the cell or battery for a total of 18 shocks. /以稳固的托架固定住每个样品。对每个样品以峰值为 150g_n的半正弦的加速度撞击，脉冲持续 6ms。每个样品必须在三个互相垂直的电池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
	However, large cells and large batteries shall be subjected to a half-sine shock of peak acceleration of 50g_n and pulse duration of 11 milliseconds. Each cell or battery is subjected to three shocks in the positive direction followed by three shocks in the negative direction of each of three mutually perpendicular mounting positions of the cell for a total of 18 shocks. /大电芯和大电池须经受最大加速度50g_n和脉冲持续时间11ms的半正弦波冲击。每个样品必须在三个互相垂直的电池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。		N

Clause	Requirement + Test	Result - Remark	Verdict
	Cells and batteries meet this requirement if there is no mass loss, 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. / 电芯和电池符合要求：无质量损失、无漏液、无冒烟、无分解、无破裂以及无着火现象；电芯或电池测试后的开路电压不低于测试前开路电压的 90%。此项关于电压方面的要求不适用于完全放电后的电芯和电池。	No leakage, no venting, no disassemby, no rupture and no fire./无漏液、无冒烟、无分解、无破裂以及无着火现象。 The data see table 1./测试数据见表 1	P
38.3.4.5	**Test T.5: External short circuit/外部短路**		P
	The cell or battery to be tested shall be temperature stabilized so that its external case temperature reaches 57±4°C and then the cell or battery shall be subjected to a short circuit condition with a total external resistance of less than 0.1 ohm at 57±4°C. 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. /保持测试环境温度稳定在 57±4°C，以便样品外表温度达到 57±4°C，然后将样品正负极用小于 0.1 欧姆的总电阻回路进行短路，样品的外表温度恢复到 57±4°C 之后保持短路状态 1 小时以上。		P
	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./电芯和电池符合要求：在测试过程中以及之后 6 个小时内，外表温度不超过 170°C，并且无分解、无破裂和无着火现象发生。	No disassembly, no rupture and no fire during the test and within six hours after the test./ 在测试过程中以及之后6个小时内，外表温度不超过 170°C，并且无分解、无破裂和无着火现象发生。 The data see table 1. / 测试数据见表 1。	P
38.3.4.6	**Test T.6: Impact / Crush/撞击/挤压**		P
	Test procedure – Impact (applicable to cylindrical cells greater than or equal to 18 mm in diameter) / 撞击(适合于直径大于或等于18mm的圆柱形电芯)		N

Clause	Requirement + Test	Result - Remark	Verdict
	The sample cell or component cell is to be placed on a flat smooth surface. A 15.8 mm±0.1mm 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 center 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. /将样品放在一个平坦的光滑平面上。将一直径为15.8 mm± 0.1mm，长度不小于6cm的316不锈钢棒横过样品中部放置后，将一质量为9.1 kg±0.1kg的重物从61±2.5 cm的高度落向样品		N
	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 center of the test sample. Each sample is to besubjected to only a single impact. /接受撞击的样品，纵轴应与平坦的表面平行并与横放在样品中心的直径15.8 mm±0.1mm弯曲表面的纵轴垂直。每一个样品只接受一次撞击。		N
	Test Procedure – Crush (applicable to prismatic, pouch, coin/button cells and cylindrical cells not more than 18 mm in diameter). /挤压 (适用于棱柱形、袋状、硬币/纽扣电芯和直径不超过18mm的圆柱形电芯)		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 thefirst of the three options below is reached. /将样品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		P
	(a) The applied force reaches 13 kN±0.78 kN; /施加力达到 13 kN±0.78 kN		P
	(b) The voltage of the cell drops by at least 100 mV;/样品的电压下降至少100mV		N
	(c) The cell is deformed by 50% or more of its original thickness. /电池变形达原始厚度的50%以上。		N

Clause	Requirement + Test	Result - Remark	Verdict
	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. /棱柱形或袋状电芯应从最宽的一面施压。纽扣/硬币形电芯应从其平坦表面施压。圆柱形应从与纵轴垂直的方向施压。		P
	Each test cell or component cell is to be subjected to one crush only. The test sample shall be observed for a further 6 h. The test shall be conducted using test cells or component cells that have not previously been subjected to other tests./每个样品都是全新样品，并且只经受一次施压。施压结束后样品应静置观察6小时。		P
	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. /电芯满足要求：在测试过程中以及之后6个小时内，外表温度不超过 170°C，并且无分解和无着火现象发生。	No disassembly and no fire. /无分解，无着火现象发生。 The data see table 2. / 测试数据见表 2。	P
38.3.4.7	**Test T.7: Overcharge/过充电**		P
	The charge current shall be twice the manufacturer's recommended maximum continuous charge current. Tests are to be conducted at ambient temperature. The duration of the test shall be 24 hours. The minimum voltage of the test shall be as follows: /在室温下，以2倍的制造商宣称的最大持续充电电流对样品充电，测试时间为24小时。测试的最小电压如下：		P
	(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. /如果制造商宣称的充电电压不超过18V，本测试的最小充电电压应是制造商宣称的最大充电电压的两倍或者是22V之中的较小者。	The voltage of the test is 8.7V,and the current is 1.2A. / 测试电压为 8.7V, 电流为 1.2A.	P
	(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. /如果制造商宣称的充电电压超过18V，本测试的最小充电电压应该是制造商宣称的最大充电电压的1.2倍。		N
	There is no disassembly and no fire during the test and within seven days after the test. /在测试中和测试完成后 7 天内，样品无分解和无着火现象。	No disassembly and no fire. /无分解，无着火现象发生。 The data see table 3. /测试数据见表 3。	P
38.3.4.8	**Test T.8: Forced discharge/强制放电**		P

Clause	Requirement + Test	Result - Remark	Verdict
	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. /在室温下，将单个电芯连接在12V的直流电源上进行强制放电，此直流电源供给每个电芯初始电流为制造商宣称的最大放电电流。 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). /指定的放电电流通过串联在测试电芯上的合适大小和功率的负载来获得，每个电芯的强制放电时间(小时)为额定容量除以初始电流(安培)。		P
	There is no disassembly and no fire during the test and within seven days after the test./在测试中和测试完成后 7 天内，样品无分解和无着火现象发生	No disassembly and no fire. /无分解和无着火现象发生。 The data see table 4. / 测试数据见表 4	P

Table 1: T.1~T.5 / 表 1. 测试 T.1~测试 T.5											
Sample No. 样品编号	Mass prior to Test (g)/ 试验前质量	OCV prior to test (V)/ 试验前电压	Test 1: Altitude Simulation/ 试验 1：高度模拟		Test 2: Thermal test/ 试验 2：温度试验		Test 3: Vibration/ 试验 3：振动		Test 4 : Shock/ 试验 4：冲击		Test 5 :External Short Circuit/ 试验 5：外部短路
			Mass loss(%) 质量损失(%)	Change ratio 电压比(%)	Mass loss(%) 质量损失(%)	Change ratio 电压比(%)	Mass loss(%) 质量损失(%)	Change ratio 电压比(%)	Mass loss(%) 质量损失(%)	Change ratio 电压比(%)	Temp.(°C)温度(°C)
B1#	9.752	4.325	0.00	100.00	0.00	99.55	0.00	100.00	0.00	100.00	57.3
B2#	9.733	4.321	0.00	100.00	0.00	99.51	0.00	100.00	0.00	100.00	57.5
B3#	9.725	4.325	0.00	100.00	0.00	99.47	0.00	100.00	0.00	100.00	57.3
B4#	9.741	4.328	0.00	100.00	0.00	99.41	0.00	100.00	0.00	100.00	57.8
B5#	9.725	4.324	0.00	100.00	0.00	99.52	0.00	100.00	0.00	100.00	57.4
B6#	9.734	4.326	0.00	100.00	0.00	99.46	0.00	100.00	0.00	100.00	57.6
B7#	9.728	4.325	0.00	100.00	0.01	99.47	0.00	100.00	0.00	100.00	58.1
B8#	9.734	4.327	0.00	100.00	0.00	99.42	0.00	100.00	0.00	100.00	57.4
B9#	9.728	4.324	0.00	100.00	0.00	99.55	0.00	100.00	0.00	100.00	57.3
B10#	9.734	4.323	0.00	100.00	0.01	99.51	0.00	100.00	0.00	100.00	57.1

Table 2: Crush or impact/ 表 2：挤压或撞击										
Test 6: Crush or impact /试验 6 挤压或撞击	Sample No. 样品编号	C11#	C12#	C13#	C14#	C15#	C16#	C17#	C18#	C19#	C20#
	OCV prior to test (V) 试验前电压	3.879	3.883	3.886	3.875	3.874	3.879	3.883	3.886	3.875	3.874
	Temp. (°C) 温度	25.1	25.3	24.8	25.6	25.4	24.7	25.2	25.4	24.9	24.5

Table 3：Overcharge / 表 3：过充电									
Test 7: Overcharge/ 试验 7 过充电	Sample No. 样品编号	B21#	B22#	B23#	B24#	B25#	B26#	B27#	B28#
	OCV prior to test (V) 试验前电压	4.326	4.325	4.324	4.323	4.328	4.326	4.325	4.326

Table 4：Force discharge / 表 4：强制放电											
Test 8: Forced discharge/ 试验 8 强制放电	Sample No. 样品编号	C29#	C30#	C31#	C32#	C33#	C34#	C35#	C36#	C37#	C38#
	OCV prior to test (V) 试验前电压	3.321	3.336	3.325	3.316	3.324	3.319	3.322	3.323	3.336	3.334
	Sample No. 样品编号	C39#	C40#	C41#	C42#	C43#	C44#	C45#	C46#	C47#	C48#
	OCV prior to test (V) 试验前电压	3.331	3.334	3.328	3.331	3.327	3.332	3.333	3.335	3.336	3.338

photos



Figure 1 Front view of battery pack

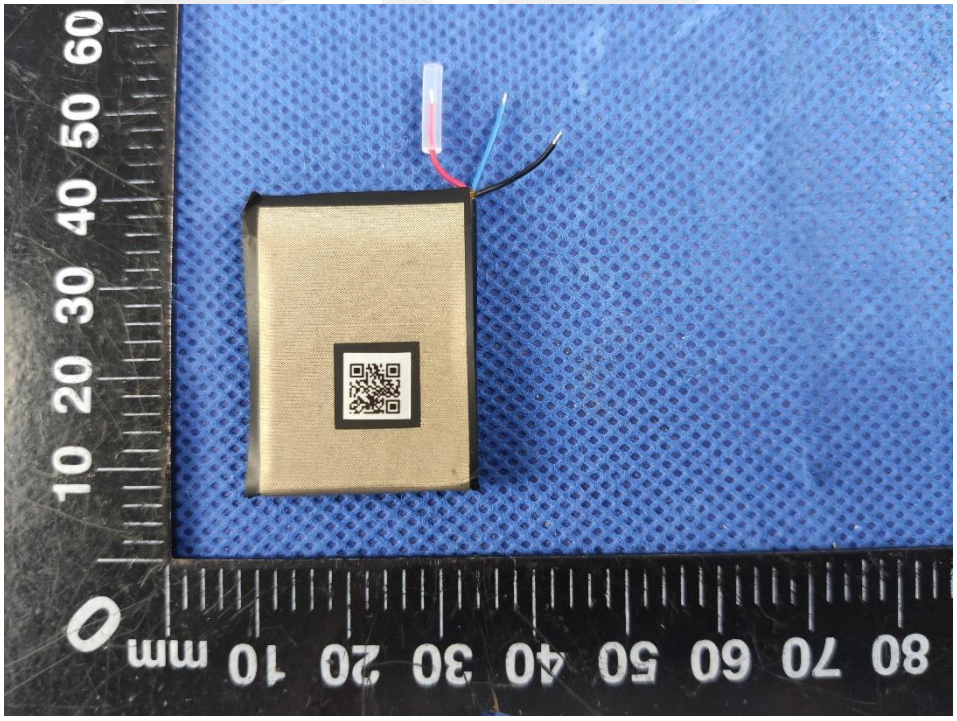


Figure 2 Back view of battery pack

===END OF TEST REPORT==