Project No.: BCTC-LH170903544S

UN 38.3 检 测 报 告

UN38.3 Test Report

产 品 名 称: Product Name:	Soshine 18650 2600mAh 60A 3.7V高放电倍率可充电锂离子电池 Soshine VTC5 60A 2600mAh Flat Top High Drain 3.7V Lithium-ion Battery
委 托 单 位: Consignor:	深圳市元明电源有限公司 Shenzhen Soshine Battery Co., Ltd.
委托单位地址: Address:	广东省深圳市龙华新区大浪街道浪口工业区荣鸿泰物业管理处新宇科综合楼4层东 4F East, Xinyuke Complex Building, Ronghongtai Property Management, Langkou Industrial Park, Dalang St., Longhua Dist., Shenzhen 518109, P.R. China
产 品 型 号: Product Type:	18650-VTC5
检 测 日 期: Tested Date:	2017-09-05–2017-09-25
发 布 日 期: Issued Date:	2017-09-25

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产品名称: Product Name:	Soshine 18650 2600mAh 60A 3.7V高放电倍率可充电锂离子电池 Soshine VTC5 60A 2600mAh Flat Top High Drain 3.7V Lithium-ion Battery		
生产单位: Manufacturer:	深圳市元明电源有限公司 Shenzhen Soshine Battery Co., Ltd.		
生产地址: Address:	广东省深圳市龙华新区大浪街道浪口工业区荣鸿泰物业管理处新宇科综合楼4层东 4F East, Xinyuke Complex Building, Ronghongtai Property Management, Langkou Industrial Park, Dalang St., Longhua Dist., Shenzhen 518109, P.R. China		
样品编号: Sample No.:	C1#~ C35#.		
商标 : Trade Mark:	Soshine	接收日期 Receiving Date:	2017-09-05
额定规格: Rating:	3.6V, 2600mAh, 9.36Wh	检验环境: Testing Condition:	20-25℃, 45-75%R.H

样品外观 / Appearance:

形状 / Shape: 圆柱 / Cylindrical;

尺寸 / Size (L X W X T): H: 64.90mm D: 18.19mm

测试方法和判定标准/ Test method and criterion:

Recommendations on the Transport of Dangerous Goods, Manual of Test and Criteria (ST/SG/AC.10/11/Rev.6, 38.3)

联合国《关于危险货物运输的建议书》第六修订版, 38.3标准要求

(ST/SG/AC.10/11/Rev.6, 38.3)

检验项目/ Test Item:

T.1.: Altitude simulation 高度模拟,

T.2.: Thermal test 温度试验,

T.3.: Vibration 振动,

T.4.: Shock 冲击,

T.5.: External short circuit 外部短路,

T.6.: Impact / Crush 撞击/挤压,

T.8.: Forced discharge 强制放电

检验结论 / Conclusion:

经测试，该样品符合联合国《关于危险货物运输的建议书 实验和标准手册》ST/SG/AC.10/11/Rev.6, 38.3标准要求。

The sample has passed the test items of UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS" Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6, 38.3

（检测单位盖章/Sealed）

检 测: Tested by:	Mary Zhang	审 核: Reviewed by:	Levi Li	批 准: Approved by:	Jimmy

一般说明 / General remark:

本报告出现的试验结果仅与试验样品有关.

The test results presented in this report relate only to the object tested.

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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 (or N)
－试验样品满足要求 － Test object does meet the requirement	P (Pass)
－试验样品不满足要求 － Test object does not meet the requirement	F (Fail)

条款/Clause	标准要求/ Requirement + Test	结果 / Result	判定/ 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)/将电芯和电池在 温度为20±5°C、大气压力不大于11.6kpa的环境中 贮存不少于6个小时。		P
	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 disassembly, 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 T.2: Thermal test/温度试验**		**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°C的环境中放置至少6个小时。温度转换的最大间隔时间为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12个小时。		N/A

条款/Clause	标准要求/ Requirement + Test	结果 / Result	判定/ 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 disassembly, 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**
	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. /样品必须牢固地安装在振动台 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 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 12 kg (large batteries). /对于质量不大于12kg的样品(电芯和小电池)和质量超过12kg的电池(大电池)，对数扫频不同。		P

条款/Clause	标准要求/ Requirement + Test	结果 / Result	判定/ Verdict
	For cells and small batteries: from 7 Hz a peak acceleration of 1 gn 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 gn occurs (approximately 50 Hz). A peak acceleration of 8 gn is then maintained until the frequency is increased to 200 Hz. /对于电芯和小电池，对数扫频为：从7Hz开始保持1gn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8gn (频率约为50Hz)，将最大加速度保持在8gn直到频率增加到200Hz。		P
	For large batteries: from 7 Hz to a peak acceleration of 1 gn 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 gn occurs (approximately 25 Hz). A peak acceleration of 2 gn 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1gn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2gn (频率约为25Hz)，将最大加速度保持在2gn直到频率增加到200Hz。		N/A
	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 disassembly, 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**

<table>
<tr><th>条款/Clause</th><th>标准要求/ Requirement + Test</th><th>结果 / Result</th><th>判定/ Verdict</th></tr>
<tr><td></td><td>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 gn and pulse duration of 6 milliseconds. Alternatively, large cells may be subjected to a half-sine shock of peak acceleration of 50 gn 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. The formulas below are provided to calculate the appropriate minimum peak accelerations. /以稳固的托架固定住每个电池/电芯样品，每个样品应该经受峰值加速度为150gn以及脉冲持续时间为6ms的半正弦冲击，另外，大型电池/电芯应该经受峰值加速度为50gn以及脉冲持续时间为11ms的半正弦冲击.
每一个电池将受到一个半正弦冲击的峰值加速度取决于电池的质量。对于小型电池，脉冲持续时间为6毫秒，对于大型电池，脉冲时间为11毫秒。下面提供的公式用来计算适当的最小峰值加速度。</td><td></td><td>P</td></tr>
<tr><td></td><td>
<table>
<tr><th>Battery</th><th>Minimum peak acceleration</th><th>Pulse duration</th></tr>
<tr><td>Small batteries</td><td>150 gn or result of formula
Acceleration(g_n)= $\sqrt{\frac{100850}{mass^*}}$
Acceleration gn whichever is smaller</td><td>6 ms</td></tr>
<tr><td>Large batteries</td><td>50 gn or result of formula
Acceleration(g_n)= $\sqrt{\frac{30000}{mass^*}}$
Acceleration gn whichever is smaller</td><td>11 ms</td></tr>
</table>
*Mass is expressed in kilograms
</td><td>150gn</td><td>P</td></tr>
</table>

条款/Clause	标准要求/ Requirement + Test	结果 / Result	判定/ 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 disassembly, 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 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)	圆柱形电芯 / cylindrical cells	**P**

条款/Clause	标准要求/ Requirement + Test	结果 / Result	判定/ 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 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. /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±0.1 kg的重物从61±2.5 cm的高度落向样品		P
	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 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。		P
	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)	圆柱形电芯 / cylindrical cells	N/A
	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		N/A
	(a)..... he applied force reaches 13 kN±0.78 kN; /施 加力达到13 kN±0.78 kN		N/A
	(b) The voltage of the cell drops by at least 100 mV; /样品的电压下降至少100mV		N/A
	(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/A

条款/Clause	标准要求/ Requirement + Test	结果 / Result	判定/ 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。		N/A
	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。		N/A
	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**		**N/A**
	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：		N/A
	(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。		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. /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/A

条款/Clause	标准要求/ Requirement + Test	结果 / Result	判定/ Verdict
	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。	N/A
38.3.4.8	**Test T.8: Forced discharge/强制放电**		**P**
	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

T.1. Altitude simulation高度模拟

The state of cells 样品状态	No. 编号	Pre-test试验前		After test试验后		Mass loss 质量损失 (%)	Voltage after test/Voltage pre-test 试验后电压/试验前电压(%)	Status 结果
		Mass 质量 (g)	Voltage 电压 (V)	Mass 质量 (g)	Voltage 电压 (V)			
At first cycle,in fully charged States 第一个充放电周期完全充电	C1#	44.104	4.169	44.096	4.162	0.018	99.832	Pass合格
	C2#	44.118	4.172	44.112	4.171	0.014	99.976	Pass合格
	C3#	43.902	4.168	43.897	4.162	0.011	99.856	Pass合格
	C4#	44.096	4.166	44.091	4.164	0.011	99.952	Pass合格
	C5#	44.098	4.171	44.092	4.168	0.014	99.928	Pass合格
	C6#	44.096	4.173	44.091	4.172	0.011	99.976	Pass合格
	C7#	44.041	4.174	44.036	4.171	0.011	99.928	Pass合格
	C8#	44.039	4.164	44.032	4.159	0.016	99.880	Pass合格
	C9#	44.085	4.170	44.082	4.165	0.007	99.880	Pass合格
	C10#	44.086	4.176	44.081	4.172	0.011	99.904	Pass合格
Notes 注释: Atmospheric pressure 大气压强:1.013×10^5Pa, Ambient temperature 环境温度: 23.3℃ After the test, there is no leakage, no venting, no disassembly, no rupture and no fire. 测试后，电池未渗漏、未泄气、未解体、未破裂和未起火。								

T.2. Thermal test温度试验

The state of cells 样品状态	No. 编号	Pre-test试验前		After test试验后		Mass loss 质量损失 (%)	Voltage after test/Voltage pre-test 试验后电压/试验前电压(%)	Status 结果
		Mass 质量 (g)	Voltage 电压 (V)	Mass 质量 (g)	Voltage 电压 (V)			
At first cycle,in fully charged States 第一个充放电周期完全充电	C1#	44.096	4.162	44.091	4.158	0.011	99.904	Pass合格
	C2#	44.112	4.171	44.108	4.169	0.009	99.952	Pass合格
	C3#	43.897	4.162	43.893	4.159	0.009	99.928	Pass合格
	C4#	44.091	4.164	44.087	4.160	0.009	99.904	Pass合格
	C5#	44.092	4.168	44.086	4.162	0.014	99.856	Pass合格
	C6#	44.091	4.172	44.087	4.169	0.009	99.928	Pass合格
	C7#	44.036	4.171	44.031	4.167	0.011	99.904	Pass合格
	C8#	44.032	4.159	44.026	4.152	0.014	99.832	Pass合格
	C9#	44.082	4.165	44.079	4.160	0.007	99.880	Pass合格
	C10#	44.081	4.172	44.076	4.167	0.011	99.880	Pass合格
Notes 注释: Atmospheric pressure 大气压强:1.013×10^5Pa, Ambient temperature 环境温度: 23.3℃ After the test, there is no leakage, no venting, no disassembly, no rupture and no fire. 测试后，电池未渗漏、未泄气、未解体、未破裂和未起火。								

T.3. Vibration振动

The state of cells 样品状态	No. 编号	Pre-test试验前		After test试验后		Mass loss 质量损失 (%)	Voltage after test/Voltage pre-test 试验后电压/试验前电压(%)	Status 结果
		Mass 质量 (g)	Voltage 电压 (V)	Mass 质量 (g)	Voltage 电压 (V)			
At first cycle,in fully charged States 第一个充放电周期完全充电	C1#	44.091	4.158	44.087	4.156	0.009	99.952	Pass合格
	C2#	44.108	4.169	44.096	4.168	0.027	99.976	Pass合格
	C3#	43.893	4.159	43.887	4.157	0.014	99.952	Pass合格
	C4#	44.087	4.160	44.071	4.153	0.036	99.832	Pass合格
	C5#	44.086	4.162	44.083	4.157	0.007	99.880	Pass合格
	C6#	44.087	4.169	44.083	4.163	0.009	99.856	Pass合格
	C7#	44.031	4.167	44.026	4.163	0.011	99.904	Pass合格
	C8#	44.026	4.152	44.017	4.149	0.020	99.928	Pass合格
	C9#	44.079	4.160	44.073	4.156	0.014	99.904	Pass合格
	C10#	44.076	4.167	44.072	4.163	0.009	99.904	Pass合格
Notes 注释: Atmospheric pressure 大气压强:1.013×10^5Pa, Ambient temperature 环境温度: 23.3℃ After the test, there is no leakage, no venting, no disassembly, no rupture and no fire. 测试后，电池未渗漏、未泄气、未解体、未破裂和未起火。								

T.4. Shock冲击

The state of cells 样品状态	No. 编号	Pre-test试验前		After test试验后		Mass loss 质量损失 (%)	Voltage after test/Voltage pre-test 试验后电压/试验前电压(%)	Status 结果
		Mass 质量 (g)	Voltage 电压 (V)	Mass 质量 (g)	Voltage 电压 (V)			
At first cycle,in fully charged States 第一个充放电周期完全充电	C1#	44.087	4.156	44.081	4.153	0.014	99.928	Pass合格
	C2#	44.096	4.168	44.092	4.168	0.009	100.00	Pass合格
	C3#	43.887	4.157	43.882	4.153	0.011	99.904	Pass合格
	C4#	44.071	4.153	44.063	4.150	0.018	99.928	Pass合格
	C5#	44.083	4.157	44.076	4.156	0.016	99.976	Pass合格
	C6#	44.083	4.163	44.079	4.160	0.009	99.928	Pass合格
	C7#	44.026	4.163	44.021	4.163	0.011	100.00	Pass合格
	C8#	44.017	4.149	44.013	4.145	0.009	99.904	Pass合格
	C9#	44.073	4.156	44.072	4.152	0.002	99.904	Pass合格
	C10#	44.072	4.163	44.067	4.160	0.011	99.928	Pass合格
Notes 注释: Atmospheric pressure 大气压强:1.013×10^5Pa, Ambient temperature 环境温度: 23.3℃ After the test, there is no leakage, no venting, no disassembly, no rupture and no fire. 测试后，电池未渗漏、未泄气、未解体、未破裂和未起火。								

T.5. External short circuit 外部短路

The state of cells 样品状态	No. 编号	External Peak temperature(℃) 电池表面最高温度(℃)	Status 结果
At first cycle,in fully charged States 第一个充放电周期完全充电	C1#	80.1	Pass合格
	C2#	80.6	Pass合格
	C3#	81.3	Pass合格
	C4#	81.7	Pass合格
	C5#	82.3	Pass合格
	C6#	80.9	Pass合格
	C7#	81.4	Pass合格
	C8#	81.2	Pass合格
	C9#	82.3	Pass合格
	C10#	80.5	Pass合格
Notes 注释: Atmospheric pressure 大气压强:1.013×10^5Pa, Ambient temperature 环境温度: 57℃ There is no disassembly, no rupture and no fire within six hours after test. 电池在测试后6小时内未解体、未破裂，未起火。			

T.6. Impact /撞击

The state of cells 样品状态	No. 编号	External Peak temperature(℃) 电池表面最高温度(℃)	Status 结果
At first cycle at 50% of the design rated Capacity 一个充放电周期50%设计额定容量状态	C11#	87.2	Pass合格
	C12#	86.9	Pass合格
	C13#	87.1	Pass合格
	C14#	88.1	Pass合格
	C15#	87.4	Pass合格
Notes 注释: Atmospheric pressure 大气压强:1.013×10^5Pa, Ambient temperature 环境温度: 23.3℃ There is no disassembly, no rupture and no fire within six hours after test. 电池在测试后6小时内未解体、未起火。			

T.7. Overcharge过充电

The state of cells 样品状态	No. 编号	Status 结果
At first cycle,in fully charged States 第一个充放电周期完全充电	--	--
	--	--
	--	--
	--	--
After 50 cycles ending in fully charged states 五十个充放电周期后，完全充电	--	--
	--	--
	--	--
	--	--

T.8. Forced discharge强制放电

The state of cells 样品状态	No. 编号	Status 结果
At first cycle,in fully discharged States 第一个充放电周期完全放电	C16#	Pass合格
	C17#	Pass合格
	C18#	Pass合格
	C19#	Pass合格
	C20#	Pass合格
	C21#	Pass合格
	C22#	Pass合格
	C23#	Pass合格
	C24#	Pass合格
	C25#	Pass合格
After 50 cycles ending in fully discharged states 五十个充放电周期后，完全放电	C26#	Pass合格
	C27#	Pass合格
	C28#	Pass合格
	C29#	Pass合格
	C30#	Pass合格
	C31#	Pass合格
	C32#	Pass合格
	C33#	Pass合格
	C34#	Pass合格
	C35#	Pass合格
Notes 注释: Atmospheric pressure 大气压强:1.013×10^5Pa, Ambient temperature 环境温度: 23.3℃ There is no disassembly and no fire during the test and within seven days after the test. 电芯在测试中和测试测试后7天内未解体，未着火。		

样品图片/Photo Documentation:

Fig. 1

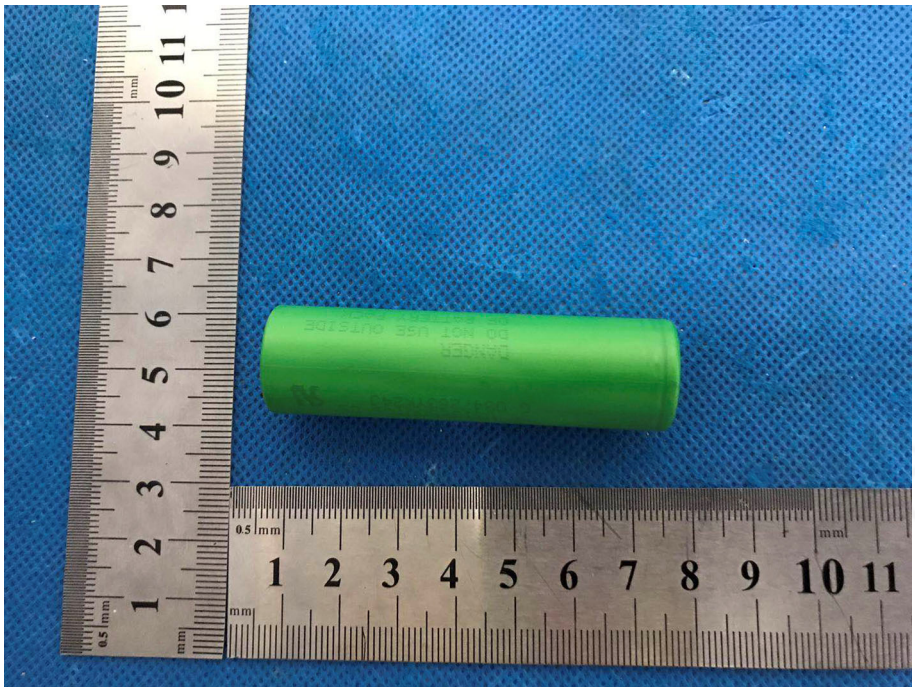

Fig. 2

Fig. 3

试验仪器设备清单 / Test Equipment List:

序号 / No.	编号/ Code	名称 / Equipment name	型号 / Type	本次使用 Used （√）
1.	BCTC-B001	振动试验机 / Vibration Tester	EV103	√
2.	BCTC-B002	加速度冲击试验机 / Shock Tester	HSKT10mm/0.01mm	√
3.	BCTC-B003	电池低压高空模拟试验机 / Altitude Simulation Tester	GX-3020-Z	√
4.	BCTC-B004	电池燃烧试验机 / Projectile Tester	GX-6053	
5.	BCTC-B005	电池热冲击试验箱 / Oven Tester	GX-3020-B	
6.	BCTC-B006	温控型短路试验机 / Thermal Control Short Tester	GX-6055-B	√
7.	BCTC-B007	电池重物冲击试验机 / Impact Tester	GX-5066	
8.	BCTC-B008	电池挤压试验机 / Crush Tester	GX-5067	√
9.	BCTC-B009	强制内部短路试验仪 / Forced Internal Short Circuit Tester	GX-6055-C	
10.	BCTC-B010	可程式恒温恒湿试验箱 / Temp & Humi. Chamber	GX-3000-80LT	√
11.	BCTC-B011	包装跌落试验机 / Packaging Drop Tester	GX-6050-A	
12.	BCTC-B012	电池过充过放防爆试验箱 / Explosion Chamber	GX-FB-200	
13.	BCTC-B015	瑞能充放电仪 / Charging and Discharge Tester	PBTS-20V5A	√
14.	BCTC-B017	电池内阻测试仪 / Battery Internal Resistance Tester	RV-200/400	
15.	BCTC-B018	电子天平 / Electric Scale	LQ-A3003	√
16.	BCTC-B020	直流稳压电源 / DC Power Supply	12050KD	
17.	BCTC019	DC电子负载 / DC Electric Load	IT8512	

注：以上仪器设备均在计量校准周期内。

Remark: The above equipment are within the calibration cycle.

声　明
STATEMENT

1. 本次检测所用的测量设备的量值均可以溯源到国家计量标准。
The equipment lists are traceable to the national reference standards.

2. 检测报告未经本实验室书面批准，不得部分复制。
The test report can not be partially copied unless prior written approval is issued from our lab.

3. 报告未加盖“检测专用章”无效。
The test report is invalid without stamp of laboratory.

4. 报告无检测、批准人员签字无效。
The test report is invalid without signature of person(s) testing and authorizing.

5. 本次检测的结果仅对所检测样品有效。
The test process and test result is only related to the Unit Under Test.

6. 本实验室的质量体系符合ISO/IEC17025标准的要求。
The quality system of our laboratory is in accordance with ISO/IEC17025.

7. 如对本报告有异议，可在收到报告后15 天内向本单位申诉，逾期不予受理。
If there is any objection to report, the client should inform issuing laboratory within 15 days from the date of receiving test report.

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