



中国认可
国际互认
检测
TESTING
CNAS L5516

Report No.报告编号:
S20062203402001

UN38.3 Test Report

UN38.3 检测报告

Name of Products: Cylindrical Lithium-ion Rechargeable Cell CMICR18650F5

产品名称: 圆柱形锂离子二次电池 CMICR18650F5

Applicant: DONGGUAN CHAM BATTERY TECHNOLOGY CO., LTD.

委托单位: 东莞市创明电池技术有限公司

Manufacturer: DONGGUAN CHAM BATTERY TECHNOLOGY CO., LTD.

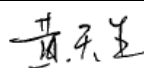
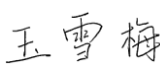

生产厂商: 东莞市创明电池技术有限公司

Date of issue: 2020-07-13

签发日期:

Shenzhen NTEK Testing Technology Co., Ltd.

深圳市北测检测技术有限公司

Applicant 委托单位	DONGGUAN CHAM BATTERY TECHNOLOGY CO., LTD. 东莞市创明电池技术有限公司	
Address of Applicant 委托单位地址	No.9, Third West Industry Road, Songshan Lake High-tech Industrial Zone, Dongguan, Guangdong, China 中国广东省东莞市松山湖高新技术产业开发区工业西三路 9 号	
Manufacturer 生产厂商	DONGGUAN CHAM BATTERY TECHNOLOGY CO., LTD. 东莞市创明电池技术有限公司	
Address of manufacturer 生产厂商地址	No.9, Third West Industry Road, Songshan Lake High-tech Industrial Zone, Dongguan, Guangdong, China 中国广东省东莞市松山湖高新技术产业开发区工业西三路 9 号	
Name of Products 产品名称	Cylindrical Lithium-ion Rechargeable Cell 圆柱形锂离子二次电池	
Model/type reference 型号	CMICR18650F5	
Tested according to 测试依据: Recommendations on the TRANSPORT OF DANGEROUS GOODS, Manual of Tests and Criteria, PART III, section 38.3 Lithium metal and lithium ion batteries, the sixth revised edition, amendment 1 (ST/SG/AC.10/11/Rev.6/Amend.1). 联合国《关于危险货物运输的建议书, 试验和标准手册》, 第三部分, 38.3 节锂金属和锂离子电池要求, 第六修订版修正 1 (ST/SG/AC.10/11/Rev.6/Amend.1)		
Tests performed 测试项目: Test T.1: Altitude simulation 试验 T.1: 高度模拟 Test T.5: External short circuit 试验 T.5: 外部短路 Test T.2: Thermal Test 试验 T.2: 温度试验 Test T.6: Impact 试验 T.6: 撞击 Test T.3: Vibration 试验 T.3: 振动 Test T.8: Forced discharge 试验 T.8: 强制放电 Test T.4: Shock 试验 T.4: 冲击		
Test Conclusion 试验结论: The Cylindrical Lithium-ion Rechargeable Cell submitted by DONGGUAN CHAM BATTERY TECHNOLOGY CO., LTD. is tested according to the <i>Recommendations on the TRANSPORT OF DANGEROUS GOODS, Manual of Tests and Criteria, PART III, section 38.3 Lithium metal and lithium ion batteries, the sixth revised edition, amendment 1 (ST/SG/AC.10/11/Rev.6/Amend.1)</i> . Test results: PASS 由东莞市创明电池技术有限公司提交的圆柱形锂离子二次电池按照联合国《关于危险货物运输的建议书, 试验和标准手册》, 第三部分, 38.3 节锂金属和锂离子电池要求, 第六修订版修正 1 (ST/SG/AC.10/11/Rev.6/Amend.1)进行测试。 测试结果: 合格		
Tested by: 主检人:	Mumu Huang 黄天生	
Reviewed by: 审核人:	KK Yu 玉雪梅	
Approved by: 批准人:	Wetow Huang 黄文韬	
		Seal of NTEK 报告单位 (盖章)

General product information 通用产品信息:			
Nominal Voltage 标称电压	3.7V	Rated Capacity 额定容量	2200mAh
Standard Charging Current 标准充电电流	1100mA	Nominal energy / Watt-hour rating 额定能量/额定瓦时	8.14Wh
Limited Charging Voltage 充电限制电压	4.2V	Max. Continuous Charging Current 最大持续充电电流	2200mA
Standard Discharge Current 标准放电电流	440mA	Cut-off Voltage 放电截止电压	2.75V
Max. Continuous Discharge Current 最大持续放电电流	17600mA	Appearance 外观	Blue and Cylindrical 蓝色、圆柱形
Classification 类别	Small Lithium ion Cells 小型锂离子电芯	Dimension (DxH) 尺寸	18.6x65.2mm

Date of receipt of test item 接收日期	2020-06-30	Completion Date 完成日期	2020-07-13
---	------------	-------------------------	------------

<p>Remarks 备注说明:</p> <p>Cells of #S200622034003-001 ~ #S200622034003-005 are fully charged at first cycle; Cells of #S200622034003-006 ~ #S200622034003-010 are fully charged after 25 cycles; Cells of #S200622034003-011 ~ #S200622034003-015 at 50% of the design rated capacity at first cycle; Cells of #S200622034003-016 ~ #S200622034003-020 at 50% of the design rated capacity after 25 cycles; Cells of #S200622034003-021 ~ #S200622034003-030 are fully discharged at first cycle; Cells of #S200622034003-031 ~ #S200622034003-040 are fully discharged after 25 cycles; Test environment condition: Room temperature: 15-25°C; Room humidity: 40-70% 电芯#S200622034003-001 ~ #S200622034003-005 为首次循环满电状态; 电芯#S200622034003-006 ~ #S200622034003-010 为 25 次循环后满电状态; 电芯#S200622034003-011 ~ #S200622034003-015 为首次循环 50%电荷状态; 电芯#S200622034003-016 ~ #S200622034003-020 为 25 次循环后 50%电荷状态; 电芯#S200622034003-021 ~ #S200622034003-030 为首次循环完全放电状态; 电芯#S200622034003-031 ~ #S200622034003-040 为 25 次循环后完全放电状态; 试验环境条件: 环境温度: 15-25°C; 环境湿度: 40-70%</p> <p>Summaries of testing 测试摘要:</p> <p>All cell types are subjected to tests T.1 to T.6 and T.8. Tests T.1 to T.5 are conducted in sequence on the same cells. Tests T.6 and T.8 are conducted using not otherwise tested cells. 所有类型的电芯均应进行T.1至T.6和T.8项试验。电芯必须按顺序在相同的一组电芯上进行试验T.1至T.5。试验T.6和T.8应使用另外未试验过的电芯。 In order to quantify the mass loss, the following procedure is provided:</p>

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

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".

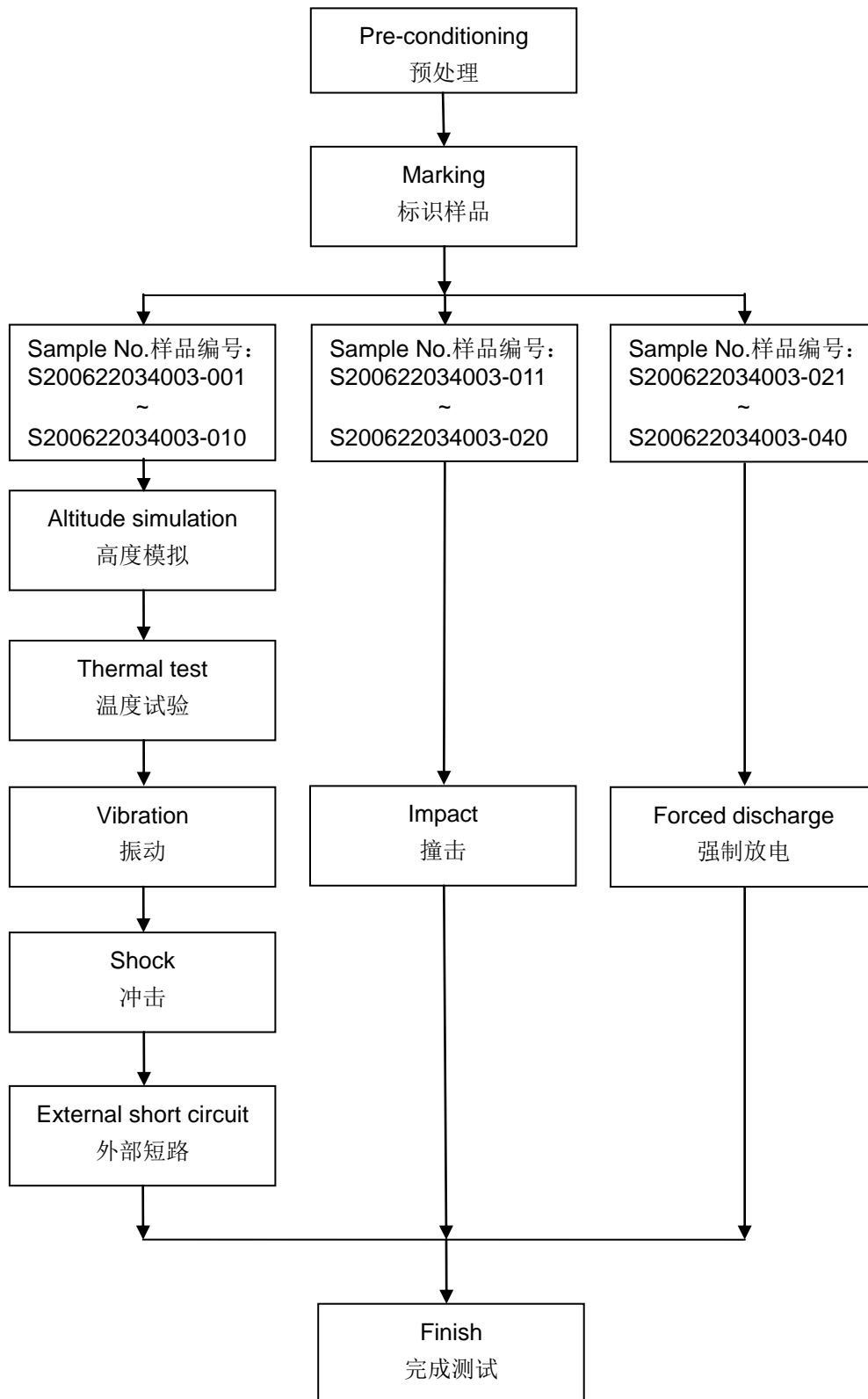
式中： M_1 是试验前的质量， M_2 是试验后的质量。如果质量损失不超过下表所列的数值，应视为“无质量损失”。

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%
$1g \leq M \leq 75g$	0.2%
$M > 75g$	0.1%

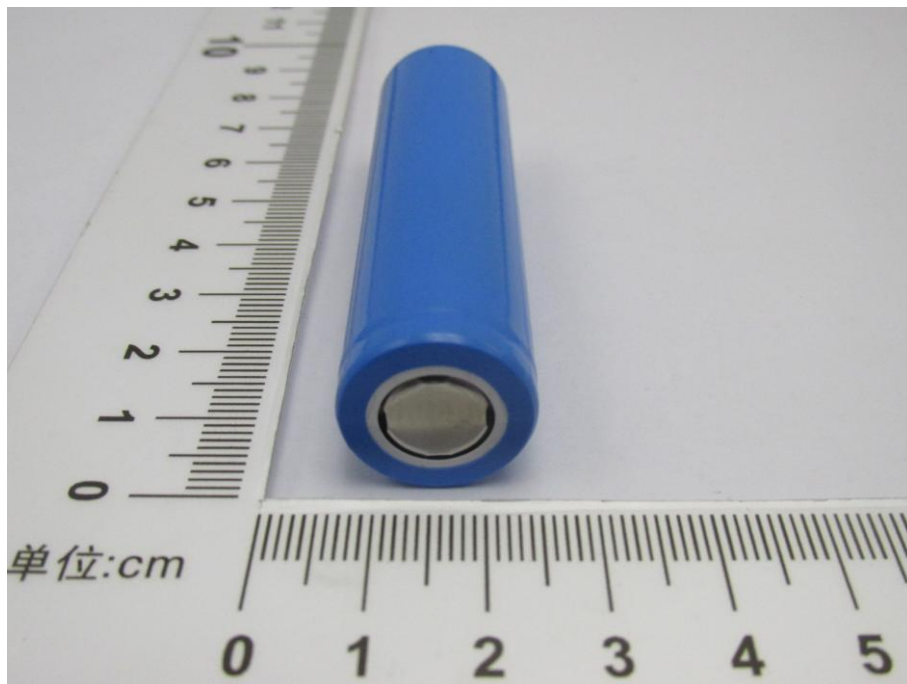
In tests T.1 to T.4, cells meet this requirement if there is no leakage, no venting, no disassembly, no rupture and no fire and if the open circuit voltage of each test cell after testing is not less than 90% of its voltage immediately prior to this procedure.

在T.1至T.4的试验中，电芯须满足无渗漏、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%。

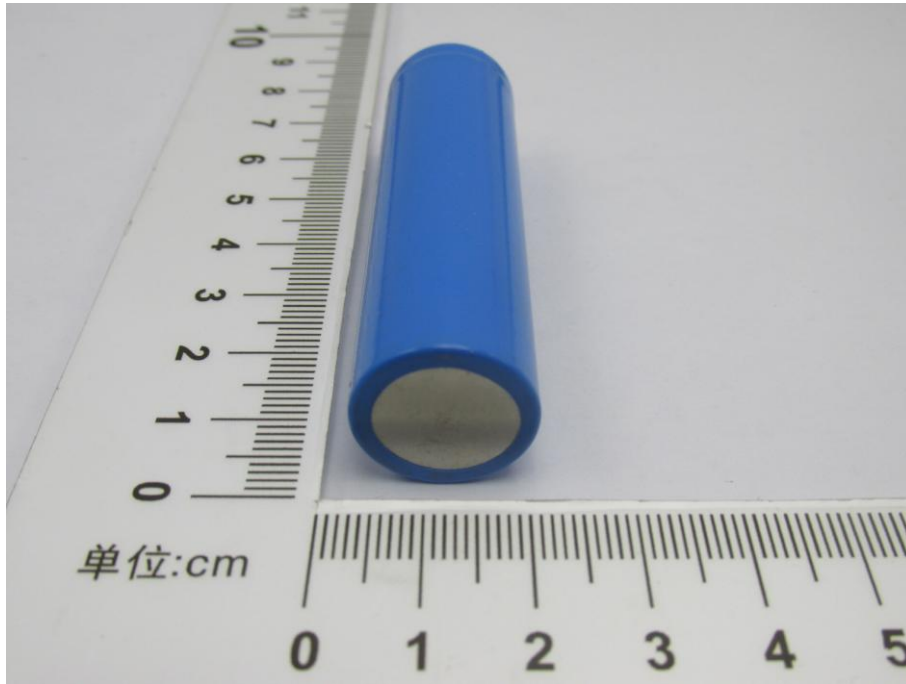
Test Procedure 测试程序



Photos of sample 样品照片



Photos of sample 样品照片



Test results 测试结果:
Test T.1: Altitude simulation 试验T.1: 高度模拟
Test method 测试方法

Cells are stored at a pressure of 11.6 kPa or less for at least six hours at ambient temperature (20 ± 5°C).

试验电芯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。

Requirement 要求

Cells 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.

电芯须无渗漏、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%。

Test Data showed in table below 测试数据见下表

State of samples 样品状态	No. 编号	Prior to test 试验前		After test 试验后		Mass loss 质量损失 (%)	Voltage after test/ voltage prior to test 试验后电压/ 试验前电压 (%)	Results 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 首次循环满电 状态	S20062203 4003-001	45.639	4.183	45.639	4.182	0.000	99.98	PASS 合格
	S20062203 4003-002	45.713	4.185	45.713	4.183	0.000	99.95	PASS 合格
	S20062203 4003-003	45.542	4.183	45.542	4.181	0.000	99.95	PASS 合格
	S20062203 4003-004	45.406	4.183	45.406	4.180	0.000	99.93	PASS 合格
	S20062203 4003-005	45.562	4.183	45.562	4.183	0.000	100.0	PASS 合格
After 25 cycles ending in fully charged states 25次循环后满 电状态	S20062203 4003-006	45.382	4.183	45.382	4.181	0.000	99.95	PASS 合格
	S20062203 4003-007	45.707	4.183	45.707	4.183	0.000	100.0	PASS 合格
	S20062203 4003-008	45.441	4.185	45.441	4.184	0.000	99.98	PASS 合格
	S20062203 4003-009	45.382	4.184	45.381	4.184	0.002	100.0	PASS 合格
	S20062203 4003-010	45.679	4.184	45.679	4.182	0.000	99.95	PASS 合格

Notes 注释:

After the test, there is no leakage, no venting, no disassembly, no rupture and no fire.

测试后，电芯未渗漏、未泄气、未解体、未破裂和未起火。

Room temperature 环境温度: 22.3°C

Test T.2: Thermal test 试验T.2: 温度试验
Test method 测试方法

Cells are to be stored for at least six hours at a test temperature equal to $72 \pm 2^\circ\text{C}$, followed by storage for at least six hours at a test temperature equal to $-40 \pm 2^\circ\text{C}$. 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 ($20 \pm 5^\circ\text{C}$).

电芯放置在试验温度等于 $72 \pm 2^\circ\text{C}$ 的条件下存放至少6小时,接着再在试验温度等于 $-40 \pm 2^\circ\text{C}$ 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,接着将所有试验电芯在环境温度($20 \pm 5^\circ\text{C}$)下存放24小时。

Requirement 要求

Cells 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.

电芯须无渗漏、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%。

Test Data showed in table below 测试数据见下表

State of samples 样品状态	No. 编号	Prior to test 试验前		After test 试验后		Mass loss 质量损失 (%)	Voltage after test/ voltage prior to test 试验后电压/ 试验前电压 (%)	Results 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 首次循环满电 状态	S20062203 4003-001	45.639	4.182	45.630	4.151	0.020	99.26	PASS 合格
	S20062203 4003-002	45.713	4.183	45.700	4.150	0.028	99.21	PASS 合格
	S20062203 4003-003	45.542	4.181	45.531	4.149	0.024	99.23	PASS 合格
	S20062203 4003-004	45.406	4.180	45.395	4.148	0.024	99.23	PASS 合格
	S20062203 4003-005	45.562	4.183	45.550	4.146	0.026	99.12	PASS 合格
After 25 cycles ending in fully charged states 25次循环后满 电状态	S20062203 4003-006	45.382	4.181	45.368	4.151	0.031	99.28	PASS 合格
	S20062203 4003-007	45.707	4.183	45.695	4.152	0.026	99.26	PASS 合格
	S20062203 4003-008	45.441	4.184	45.428	4.153	0.029	99.26	PASS 合格
	S20062203 4003-009	45.381	4.184	45.369	4.151	0.026	99.21	PASS 合格
	S20062203 4003-010	45.679	4.182	45.666	4.149	0.028	99.21	PASS 合格

Notes 注释:

After the test, there is no leakage, no venting, no disassembly, no rupture and no fire.

测试后, 电芯未渗漏、未泄气、未解体、未破裂和未起火。

Room temperature 环境温度: 21.5°C

Test T.3: Vibration 试验T.3: 振动
Test method 测试方法

Cells 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 is as follows: 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.

电芯紧固于振动台台面, 但不得造成电芯变形, 并能准确可靠地传播振动。振动应是正弦波形, 对数扫描频率在 7 Hz 和 200 Hz 之间, 再回到 7 Hz, 1 次循环时间为 15 分钟。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。

对数扫频方式: 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 0.8 mm (总位移 1.6 mm), 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。

Requirement 要求

Cells 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 directly after testing in its third perpendicular mounting position is not less than 90% of its voltage immediately prior to this procedure.

测试中和测试后电芯须无渗漏、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%。

Test Data showed in table below 测试数据见下表

State of samples 样品状态	No. 编号	Prior to test 试验前		After test 试验后		Mass loss 质量损失 (%)	Voltage after test/ voltage prior to test 试验后电压/ 试验前电压 (%)	Results 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 首次循环满电 状态	S20062203 4003-001	45.630	4.151	45.630	4.150	0.000	99.98	PASS 合格
	S20062203 4003-002	45.700	4.150	45.700	4.150	0.000	100.0	PASS 合格
	S20062203 4003-003	45.531	4.149	45.531	4.149	0.000	100.0	PASS 合格

	S20062203 4003-004	45.395	4.148	45.395	4.148	0.000	100.0	PASS 合格
	S20062203 4003-005	45.550	4.146	45.550	4.144	0.000	99.95	PASS 合格
After 25 cycles ending in fully charged states 25 次循环后满 电状态	S20062203 4003-006	45.368	4.151	45.367	4.151	0.002	100.0	PASS 合格
	S20062203 4003-007	45.695	4.152	45.695	4.152	0.000	100.0	PASS 合格
	S20062203 4003-008	45.428	4.153	45.428	4.152	0.000	99.98	PASS 合格
	S20062203 4003-009	45.369	4.151	45.368	4.151	0.002	100.0	PASS 合格
	S20062203 4003-010	45.666	4.149	45.666	4.148	0.000	99.98	PASS 合格

Notes 注释:

During and after the test, there is no leakage, no venting, no disassembly, no rupture and no fire.

测试中和测试后, 电芯未渗漏、未泄气、未解体、未破裂和未起火。

Room temperature 环境温度: 23.1°C

Test T.4: Shock 试验 T.4: 冲击
Test method 测试方法

Cells are secured to the testing machine by means of a rigid mount which will support all mounting surfaces of each test cell. Each cell is subjected to a half-sine shock of peak acceleration of 150 g_n and pulse duration of 6 milliseconds. Each cell is 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 for a total of 18 shocks.

试验电芯用刚性支架紧固在试验装置上, 支架支撑着每个试验电芯的所有安装面。每个电芯须经受峰值加速度150 g_n和脉冲持续时间6 ms的半正弦波冲击。每个电芯须在三个互相垂直的电芯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。

Requirement 要求

Cells 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.

电芯须无渗漏、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%。

Test Data showed in table below 测试数据见下表

State of samples 样品状态	No. 编号	Prior to test 试验前		After test 试验后		Mass loss 质量损失 (%)	Voltage after test/ voltage prior to test 试验后电压/ 试验前电压 (%)	Results 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 首次循环满电状态	S20062203 4003-001	45.630	4.150	45.630	4.150	0.000	100.0	PASS 合格
	S20062203 4003-002	45.700	4.150	45.700	4.150	0.000	100.0	PASS 合格
	S20062203 4003-003	45.531	4.149	45.531	4.149	0.000	100.0	PASS 合格
	S20062203 4003-004	45.395	4.148	45.395	4.148	0.000	100.0	PASS 合格
	S20062203 4003-005	45.550	4.144	45.550	4.144	0.000	100.0	PASS 合格
After 25 cycles ending in fully charged states 25次循环后满电状态	S20062203 4003-006	45.367	4.151	45.367	4.151	0.000	100.0	PASS 合格
	S20062203 4003-007	45.695	4.152	45.695	4.152	0.000	100.0	PASS 合格
	S20062203 4003-008	45.428	4.152	45.428	4.152	0.000	100.0	PASS 合格
	S20062203 4003-009	45.368	4.151	45.368	4.151	0.000	100.0	PASS 合格
	S20062203 4003-010	45.666	4.148	45.666	4.148	0.000	100.0	PASS 合格

Notes 注释:

After the test, there is no leakage, no venting, no disassembly, no rupture and no fire.

测试后, 电芯未渗漏、未泄气、未解体、未破裂和未起火。

Room temperature 环境温度: 22.5°C

Test T.5: External short circuit 试验T.5: 外部短路
Test method 测试方法

Cells to be tested are 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 and is assessed and documented. Then the cell at 57 ± 4 °C is 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 external case temperature has returned to 57 ± 4 °C.

The short circuit and cooling down phases are conducted at least at ambient temperature.

试验电芯首先被加热或恒定一段时间, 使其达到 57 ± 4 °C并使其外表面温度均匀恒定在 57 ± 4 °C。该加热时间或热恒定时间的长短取决于该电芯的尺寸和设计, 并同时加以评估及提供文件证明。然后该电芯在 57 ± 4 °C的条件下承受一个外部总阻抗小于0.1Ω的短路条件。

该短路测试持续到电芯外表面温度返回至 57 ± 4 °C后再保持至少1小时。

该短路和冷却阶段均被执行在 57 ± 4 °C的环境温度下。

Requirement 要求

Cells 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 test.

电芯外壳温度不超过170°C, 并且在试验过程中及试验后6小时内无解体、无破裂, 无起火。

Test data showed in table below 测试数据见下表

State of samples 样品状态	No. 编号	Maximum outer casing temperature 电芯表面最高温度 (°C)	Results 结果
At first cycle, in fully charged states 首次循环满电状态	S200622034003-001	107.4	PASS 合格
	S200622034003-002	108.5	PASS 合格
	S200622034003-003	110.1	PASS 合格
	S200622034003-004	107.0	PASS 合格
	S200622034003-005	109.0	PASS 合格
After 25 cycles ending in fully charged states 25次循环后满电状态	S200622034003-006	107.3	PASS 合格
	S200622034003-007	108.7	PASS 合格
	S200622034003-008	109.1	PASS 合格
	S200622034003-009	107.2	PASS 合格
	S200622034003-010	109.5	PASS 合格

Notes 注释:

There is no disassembly, no rupture and no fire during the test and within six hours after test.

电芯在测试中和测试后 6 小时内未解体、未破裂, 未起火。

Room temperature 环境温度: 21.8°C

Test T.6: Impact 试验T.6: 撞击

Test method 测试方法

Each cell is to be placed on a flat smooth surface. A 15.8 mm \pm 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 \pm 0.1 kg mass is to be dropped from a height of 61 \pm 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.

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 \pm 0.1mm diameter curved surface lying across the centre of the test sample.

Each sample is to be subjected to only a single impact.

每个电芯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 15.8 \pm 0.1 毫米, 长度至少 6 厘米, 或电芯的最长尺度, 取二者中较大者。将一块 9.1 \pm 0.1 kg 的重锤从 61 \pm 2.5 厘米高处跌落到钢棒和试样交叉点, 使用一个几乎没有摩擦的、对落体重锤阻力很小的垂直导轨或管道加以控制。垂直导轨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, 纵轴应与测试平面平行并与横放在试样中心的直径 15.8 \pm 0.1 毫米弯曲表面的纵轴垂直。每一

试样只经受一次撞击。

Requirement 要求

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 the test.

电芯外壳温度不超过170°C，并且在试验过程中及试验后6小时内无解体，无起火。

Test data showed in table below 测试数据见下表

State of samples 样品状态	No. 编号	Maximum outer casing temperature 电芯表面最高温度 (°C)	Results 结果
At first cycle at 50% of the design rated capacity.首次循环 50%电荷状态	S200622034003-011	23.4	PASS 合格
	S200622034003-012	22.9	PASS 合格
	S200622034003-013	22.9	PASS 合格
	S200622034003-014	22.5	PASS 合格
	S200622034003-015	23.2	PASS 合格
After 25 cycles ending at 50% of the design rated capacity. 25次循环后 50%电荷状态	S200622034003-016	23.5	PASS 合格
	S200622034003-017	23.1	PASS 合格
	S200622034003-018	23.6	PASS 合格
	S200622034003-019	22.8	PASS 合格
	S200622034003-020	111.5	PASS 合格

Notes 注释:

There is no disassembly, no rupture and no fire during the test and within six hours after the test.

电芯在测试中和测试后 6 小时内未解体、未起火。

Room temperature 环境温度: 22.1°C

Test T.8: Forced discharge 试验 T.8: 强制放电

Test method 测试方法

Each cell is 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 is forced discharged for a time interval (in hours) equal to its rated capacity divided by the initial test current (in ampere).

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。

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）。

Requirement 要求

Cells meet this requirement if there is no disassembly and no fire during the test and within seven days after the test.

电芯在试验过程中和试验后 7 天内无解体，无起火。

Test data showed in table below 测试数据见下表

Initial current 初始电流(mA)	17600mA	
Supply voltage 试验电压(Vdc)	12Vdc	
Time interval 试验时间(Minutes)	8 Minutes	
State of samples 样品状态	No.编号	Results 结果
At first cycle, in fully discharged states 首次循环完全放电状态	S200622034003-021	PASS 合格
	S200622034003-022	PASS 合格
	S200622034003-023	PASS 合格
	S200622034003-024	PASS 合格
	S200622034003-025	PASS 合格
	S200622034003-026	PASS 合格
	S200622034003-027	PASS 合格
	S200622034003-028	PASS 合格
	S200622034003-029	PASS 合格
	S200622034003-030	PASS 合格
After 25 cycles ending in fully discharged states 25 次循环后完全放电状态	S200622034003-031	PASS 合格
	S200622034003-032	PASS 合格
	S200622034003-033	PASS 合格
	S200622034003-034	PASS 合格
	S200622034003-035	PASS 合格
	S200622034003-036	PASS 合格
	S200622034003-037	PASS 合格
	S200622034003-038	PASS 合格
	S200622034003-039	PASS 合格
	S200622034003-040	PASS 合格

Notes 注释:

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后 7 天内未解体, 未着火。

Room temperature 环境温度: 22.7°C

*******End of Test Report 检测报告结束*******

Important Notice

注意事项

- 1. The test report is invalid without the Report Seal of NTEK and Paging seal of NTEK.**
本报告书无本公司报告专用章、骑缝章无效。
- 2. Nobody is allowed to photocopy or partly photocopy this test report without written permission of NTEK.**
未经本公司书面同意，不得部分地复制本报告书。
- 3. The test report is invalid without the signatures of Ratifier, Reviewer and Testing engineer.**
本报告书无批准人、审核人、及主检人签名无效。
- 4. The report is invalid when anything of following happens – illegal transfer, reproduce, embezzlement, imposture, modification or tampering in any media form.**
私自转让、复制、盗用、冒用、涂改、或以任何媒体形式篡改的报告书无效。
- 5. Objections to the test report must be submitted to NTEK within 15 days.**
对报告书若有异议，应于收到报告之日起15天内向本公司提出。
- 6. The test report is valid for the tested samples only.**
本报告仅对测试样品有效。
- 7. The Chinese contents in this report are only for reference.**
本报告中的中文内容仅供参考。

Shenzhen NTEK Testing Technology Co., Ltd.

深圳市北测检测技术有限公司

Address: 1/F, Building C, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen 518126 P.R. China

地址：深圳市宝安区西乡三围奋达科技园 C 栋 1 楼

Tel 电话：+86-755-6115 6588 Fax 传真：+86-755-6115 6599

E-mail 邮箱：Coco@ntek.org.cn Kevin@ntek.org.cn

Service complaint hotline 客户投诉电话：+86-755-6115 6566

Service complaint e-mail 客户投诉邮箱：Complaint@ntek.org.cn

Website 网址：http://www.ntek.org.cn