Test Report

UN38.3

On Behalf of

Shanghai Stoneoim Intelligent Technology Co.,Ltd

上海匠岩智能科技有限公司

Rechargeable Li-Ion Polymer Battery

可充式鋰離子電池組

675465ART

Prepared for :		Shanghai Stoneoim Intelligent Technology Co.,Ltd
申请：		上海匠岩智能科技有限公司
Address :		Floors 11-12,Building 7,innovation Intelligence Center, No.410.Yunzhen Road,Songjiang District,Shanghai
地址：		上海市松江区云振路410号创智中心7号楼 11-12楼
Prepared By :		World Standardization Certification & Testing Group (Shenzhen) Co., Ltd.
编制：		深圳世标检测认证股份有限公司
Address :		No. 104/202/402/502, Building B, Baoli'an Industrial Park, No.58, Tangtou Avenue, Tangtou Community, Shiyan Street, Bao'an District, Shenzhen, Guangdong, China
地址：		广东省深圳市宝安区石岩街道塘头社区塘头大道58号宝利安工业园B栋 104、202、402、502
		TEL: 0086-755-26996192; FAX: 0086-755-86376605
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Test Report

Tested by ..... 测试工程师	何东明	何东明
Checked by ..... 审 核	傅浩展	傅浩展
Approved by ..... 批 准	程序	
Date of issue ..... 签发日期	25 April 2025 2025年04月25日	
Applicant ..... 申请商	Shanghai Stoneoim Intelligent Technology Co.,Ltd 上海匠岩智能科技有限公司	
Address ..... 地址	Floors 11-12,Building 7,innovation Intelligence Center, No.410.Yunzhen Road,Songjiang District,Shanghai 上海市松江区云振路410号创智中心7号楼 11-12楼	
Manufacturer..... 制造商	Shenzhen Aerospace Electronic Co., Ltd. 深圳市贵航电子有限公司	
Address ..... 地址	3F, Room 201 of 2F, No. 42 Langkou Industrial Park, Langkou Community,Dalang Street, Longhua District, Shenzhen City, Guangdong Province, China 广东省深圳市龙华区大浪街道浪口社区浪口工业园42号3层、2层201室	
Contact/联系方式	Tel/电话: 18281307094 Email/电邮: lilin@szapsc.cn	
Factory 生产厂	Shenzhen Aerospace Electronic Co., Ltd. 深圳市贵航电子有限公司	
Address ..... 地址	3F, Room 201 of 2F, No. 42 Langkou Industrial Park, Langkou Community,Dalang Street, Longhua District, Shenzhen City, Guangdong Province, China 广东省深圳市龙华区大浪街道浪口社区浪口工业园42号3层、2层201室	
Sample number/样品编号:	001-048	
Date of receipt of test item 收样日期:	2025-03-19	
Standard..... 标准	"Manual of Tests and Criteria" ST/SG/AC.10/11/Rev.8/Subsection 38.3 联合国《试验和标准手册》（第8版）38.3节	

Test Conclusion 检验结论：

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

经检测，该样品符合联合国《试验和标准手册》ST/SG/AC.10/11/Rev.8/Subsection 38.3标准要求。

Product basic information description: **产品基本信息描述：**	
Name of sample..... 样品名称	Rechargeable Li-Ion Polymer Battery 可充式鋰離子電池組
Model..... 型号	675465ART
Ratings ..... 额定值	3.7V 3000mAh 11.1Wh
Trade mark..... 商标	D-Link®
Maximum charge voltage..... 最大充电电压	4.2V
Discharge cut-off voltage..... 放电截止电压	3.0V
Max. continuous charge current..... 最大连续充电电流	电池：1500mA 标充：600mA 截止：60mA 电芯：1500mA 标充：600mA 截止：60mA
Max. continuous discharge current... 最大连续放电电流	电池：2100mA 标放：600mA 电芯：2100mA 标放：600mA
Dimension ..... 尺寸	电池：67.66mm*54.95mm*6.51mm (L*W*T) 电芯：64.45mm*53.39mm*5.93mm (L*W*T)
Mass ..... 质量	电池：57.45g 电芯：54.08g
Shape of battery/cell ..... 电池/芯形状	Almost cuboid 近长方体
Li Content/锂含量	N/A
Classification ..... 类别	Single Cell Li-ion Battery 单电芯锂离子电池
Possible test case verdicts: **报告中可能用到的结论标识：**	
Test case does not apply to the test object..... 测试项目不适用于该产品	N/A 不适用
Test item does meet the requirement. 测试项目符合标准的要求	P(ass) 合格

Test item does not meet the requirement..... 测试项目不符合标准的要求	F(ail) 不合格

I、Test items /检测项目：

No. 序号	Name of Test 检测项目名称	Standard requirement or The Clause Number of Standard标准要求或标准条款号	Test result 检测结果	Conclusion本项结论	Remark 备注
1	Altitude simulation 高度模拟	联合国《试验和标准手册》ST/SG/AC.10/11/Rev.8/ Subsection 38.3 Test T1	See Appendix 1 见附表1	Passed 合格	/
2	Thermal test 温度试验	联合国《试验和标准手册》ST/SG/AC.10/11/Rev.8/ Subsection 38.3 Test T2	See Appendix 2 见附表2	Passed 合格	/
3	Vibration 振动	联合国《试验和标准手册》ST/SG/AC.10/11/Rev.8/ Subsection 38.3 Test T3	See Appendix 3 见附表3	Passed 合格	/
4	Shock 冲击	联合国《试验和标准手册》ST/SG/AC.10/11/Rev.8/ Subsection 38.3 Test T4	See Appendix 4 见附表4	Passed 合格	/
5	External short circuit 外部短路	联合国《试验和标准手册》ST/SG/AC.10/11/Rev.8/ Subsection 38.3 Test T5	See Appendix 5 见附表5	Passed 合格	/
6	Impact / Crush 撞击/挤压	联合国《试验和标准手册》ST/SG/AC.10/11/Rev.8/ Subsection 38.3 Test T6	See Appendix 6 见附表6	Passed 合格	/
7	Overcharge 过度充电	联合国《试验和标准手册》ST/SG/AC.10/11/Rev.8/ Subsection 38.3 Test T7	See Appendix 7 见附表7	Passed 合格	/
8	Forced discharge 强制放电	联合国《试验和标准手册》ST/SG/AC.10/11/Rev.8/ Subsection 38.3 Test T8	See Appendix 8 见附表8	Passed 合格	/
9	blank below 以下空白	This space intentionally left blank这个空格故意留空			
Test Environment Condition 检测环境条件		环境温度:22℃-24℃;环境湿度:/% Ambient temperature:22℃-24℃:Ambient humidity:/%			
Subcontracted Test Condition	Test Item 检测项目				

分包检验情况	Subcontracted Laboratory 分包实验室	Name 名称	/	Post Code 邮编	
		Address 地址	/	Tel 电话	

Test Procedure/试验程序:

001~005，at first cycle, in fully charged state，第一个交替充电放电周期完全充电状态。
006~010，after 25 cycles ending in fully charged state，第二十五个交替充电放电周期完全充电状态。
019~023，at first cycle at 50% of the design rated capacity，第一个交替充电放电周期充电到设计额定容量的50%。
024~028，after 25 cycles at 50% of the design rated capacity，第二十五个交替充电放电周期充电到设计额定容量的50%。
011~014，at first cycle, in fully charged state，第一个交替充电放电周期完全充电状态。
015~018，after 25 cycles ending in fully charged state，第二十五个交替充电放电周期完全充电状态。
029~038，at first cycle, in fully discharged state，第一个交替充电放电周期完全放电状态。
039~048，after 25 cycles ending in fully discharged state，第二十五个交替充电放电周期完全放电状态。

II、Test Method And Result 测试方法和结果

Tests T.1 to T.5 shall be conducted in sequence on the same cell or battery. Tests T.6 and T.8 shall be conducted using not otherwise tested cells or 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.

小型电池或电池组应按顺序进行试验T.1至T.5。试验T.6和T.8应使用未另外试验过的电池或电池组。试验T.7可以使用原先在试验T.1至T.5中使用过的未损坏的电池组进行，以便测试经过充放电的电池组。

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

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

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 blow, it shall be considered as “no mass loss”.

质量损失量化数值可用下式计算：

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

式中M_1是试验前的质量，M_2是试验后的质量。如质量损失不超过下表所列数值，即视为“无质量损失”。

Mass M of cell or battery 电池或电池组质量M	Mass lost limite 质量损失限值
M＜1g	0.5%
1g≤M≤75g	0.2%
M＞75g	0.1%

When testing a lithium battery assembly in which the aggregate lithium content of all anodes, when fully charged, is not more than 500 g, or in the case of a lithium ion battery, with a watt-hour rating of not more than 6200

Wh, that is assembled from batteries that have passed all applicable tests, one assembled battery in a fully charged state shall be tested under tests T.3, T.4 and T.5, and, in addition, test T.7 in the case of a rechargeable battery.

当试验集成锂电池时，如集成电池在完全充电时所有阳极的合计锂含量不大于500 克，或在锂离子电池组的情况下，额定瓦特小时不超过6200 瓦时，并且是用已通过所有适用试验电池组集合而成的，应对一个完全充电状态的集成电池进行试验T.3、T.4和T.5，此外，在可充电电池组的情况下，还应进行试验T.7。

When lithium batteries that have passed all applicable tests are electrically connected to form a battery in which the aggregate lithium content of all anodes, when fully charged, is more than 500 g, or in the case of a lithium ion battery, with a watt-hour rating of more than 6200 Wh, the assembled battery does not need to be tested if the assembled battery is of a type that has been verified as preventing:

Overcharge;Short circuits; and Over discharge between the batteries.

For an assembled lithium battery not equipped with overcharge protection that is designed for use only as a component in another battery, in equipment, or in a vehicle,which affords such protection:

- the overcharge protection shall be verified at the battery, equipment or vehicle level, as appropriate, and
- the use of charging systems without overcharge protection shall be prevented through a physical system or process controls.

对于已通过所有适用试验的若干锂电池组以电路连接而成的电池组，如在完全充电时所有正极的合计锂含量大于500 克，或在锂离子电池组的情况下，如额定的瓦特小时数超过6200 瓦时，该集成电池组如经过验证属于可防止下列状况，即无需进行试验：

过度充电；短路；和电池组之间过度放电。

对于未安装过度充电保护装置、按设计要求只能作为部件用在另一个带过度充电保护装置的电池组、设备或车辆中的集成锂电池组:

- 应视情况在电池组、设备或车辆层面验证过度充电保护，并
- 应通过物理系统或过程控制防止使用没有过度充电保护的充电系统。

In test T.1 ,T.2,T.4, 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.

在测试 T.1、T.2、T.4中，如果无渗漏、无排气、无解体、无破裂和无起火，并且每个试验电池或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%，电池和电池组即符合这一要求。有关电压的要求不适用于完全放电状态的试验电池和电池组。

In test T.3,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.

在测试 T.3中，如果试验中和试验后无渗漏、无排气、无解体、无破裂和无起火，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%，电池和电池组即符合本项要求。有关电压的要求不适用于完全放电状态的试验电池和电池组。

Clause	Requirement + Test	Result -Remark	Conclusion
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 11.6kPa or less for at least six hours at ambient temperature (20±5°C)./试验电池和电池组应在压力等于或低于 11.6 千帕和环境温度(20±5°C)下存放至少6小时。		P
	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./如果无渗漏、无排气、无解体、无破裂和无起火，并且每个试验电池或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%，电池和电池组即符合这一要求。有关电压的要求不适用于完全放电状态的试验电池和电池组。	The samples 001-010: No leakage, no venting, no disassembly, no rupture and no fire. /编号为001-010的样品：无漏液、无排气、无解体、无破裂和无起火现象。	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 30minutes. 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°C)./试验电池和电池组应先在试验温度等于 72±2°C的条件下存放至少6小时，接着再在试验温度等于-40±2°C的条件下存放至少6小时。两个极端试验温度之间的最大时间间隔为 30 分钟。此程序重复进行，共完成10次，接着将所有试验电池和电池组在环境温度(20±5°C)下存放24小时。		P
	For large cells and batteries the duration of exposure to the test temperature extremes should be at least 12 hours./对于大型电池和电池组，暴露于极端试验温度的时间至少应为12小时。		N/A

Clause	Requirement + Test	Result -Remark	Conclusion
	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./如果无漏液、无排气、无解体、无破裂和无起火，并且每个试验电池或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％，电池和电池组即符合这一要求。有关电压的要求不适用于完全放完电状态的试验电池和电池组。	The samples 001-010: No leakage, no venting, no disassembly, no rupture and no fire./编号为001-010的样品：无漏液、无排气、无解体、无破裂和无起火现象。	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./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7赫兹到 200 赫兹，再回到7赫兹，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方向重复进行 12次，总共为时3小时。其中一个振动方向必须与端面垂直。		P
	The logarithmic frequency sweep shall differ for cells and batteries with a gross mass of not more than 12 Kg (cells and small batteries),and for batteries with a gross mass of more than 12Kg (large batteries).做对数作对数式频率扫描，对总质量不足12千克的电池和电池组（电池和小型电池组），和对12千克及更大的电池组（大型电池组）应有所不同。		P

Clause	Requirement + Test	Result -Remark	Conclusion
	For cells and small batteries: from 7 Hz a peak acceleration of 1 g_n is maintained until 18 Hz is reached. The amplitude is then maintained at 0.8 mm (1.6 mm total excursion) and the frequency increased until a peak acceleration of 8 g_n occurs (approximately 50 Hz).A peak acceleration of 8 g_n is then maintained until the frequency is increased to 200 Hz.对电芯和小对电池和小型电池组：从7赫兹开始，保持1g_n的最大加速度，直到频率达到18赫兹。然后将振幅保持在0.8毫米（总偏移1.6毫米），并增加频率直到最大加速度达到8g_n（频率约为50赫兹）。将最大加速度保持在8g_n直到频率增加到200赫兹。		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.对大型电池组：从7赫兹开始，保持1g_n的最大加速度，直到频率达到18赫兹。然后将振幅保持在0.8毫米（总偏移1.6毫米），并增加频率直到最大加速度达到2g_n（频率约为25赫兹）。将最大加速度保持在2g_n直到频率增加到200赫兹。		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.如果试验中和试验后无渗漏、无排气、无解体、无破裂和无起火，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%，电池和电池组即符合本项要求。有关电压的要求不适用与完全放电状态的试验电池和电池组。	The samples 001-010: No leakage, no venting, no disassembly, no rupture and no fire. /编号为001-010的样品：无漏液、无排气、无解体、无破裂和无起火现象。	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.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。		P

Clause	Requirement + Test	Result -Remark	Conclusion
	Small cells: Each cell shall be subjected to a half-sine shock of peak acceleration of 150 g_n and pulse duration of 6 milliseconds. / 小型电池：每个电池须经受最大加速度150g_n和脉冲持续时间6毫秒的半正弦波冲击。		P
	Large cells: Each cell shall be subjected to a half-sine shock of peak acceleration of 50 g_n and pulse duration of 11 milliseconds./ 大型电池：每个电池须经受最大加速度50g_n和脉冲持续时间11毫秒的半正弦波冲击。		N/A
	Each battery shall be subjected to a half-sine shock of peak acceleration depending on the mass of the battery./每个电池须经受的正弦波冲击最大加速度取决于电池组的质量。		N/A
	Small batteries :The pulse duration shall be 6milliseconds ,acceleration is 150 g_n or $(g_n)=\sqrt{\left(\frac{100850}{mass^a}\right)}$, whichever is smaller. /小型电池组:脉冲持续时间6毫秒，加速度为150g_n或 $(g_n)=\sqrt{\left(\frac{100850}{质量^a}\right)}$，取数值较小者。		N/A
	Large batteries: The pulse duration shall be 11milliseconds,acceleration is 50 g_n or $(g_n)=\sqrt{\left(\frac{30000}{mass^a}\right)}$, whichever is smaller. /大型电池组:脉冲持续时间11毫秒。加速度为50g_n 或 $(g_n)=\sqrt{\left(\frac{30000}{质量^a}\right)}$，取数值较小者。		N/A
	Each cell or battery shall be subjected to three shocks in the positive direction and to three shocks in the negative direction in each of three mutually perpendicular mounting positions of the cell or battery for a total of 18 shocks.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。		P

Clause	Requirement + Test	Result -Remark	Conclusion
	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.如果无漏液、无排气、无解体、无破裂和无起火，并且每个试验电池或电池组在试验后的开路电压不小于其在进行这项试验前电压的90％，电池和电池组即符合这一要求。有关电压的要求不适用于完全放完电状态的试验电池和电池组。	The samples 001-010: No leakage, no venting, no disassembly, no rupture and no fire./编号为001-010的样品：无漏液、无排气、无解体、无破裂和无起火现象。	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 heated for a period of time necessary to reach a homogeneous stabilized temperature of 57±4°C,measured on the external case.This period of time depends on the size and design of the cell or battery and should be assessed and documented./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°C。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。		P
	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./如无法进行这种评估，则小型电池和小型电池组的暴露时间应至少6小时，大型电池和小型电池组的暴露时间应至少 12 小时。		N/A
	Then the cell or battery at 57±4°C shall be subjected to one short circuit condition with a total external resistance of less than 0.1 ohm./然后，电池或电池组应在 57±4°C条件下经受总外电阻小于0.1欧姆的短路条件。		P
	This short circuit condition is continued for at least one hour after the cell or battery external case temperature has returned to 57±4°C./这一短路条件应在电池或电池组外壳温度回到57±4°C后继续至少1小时。		P
	or in the case of the large batteries, has decreased by half of the maximum temperature increase observed during the test and remains below that value./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。		N/A

Clause	Requirement + Test	Result -Remark	Conclusion
	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./如果外壳温度不超过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，电池和电池组即符合本项要求。	The samples 001-010: External temperature does not exceed 170°C, No disassembly, no rupture and no fire./编号为001-010的样品：外壳温度不超过170°C，无解体、无破裂和无起火现象。	P
38.3.4.6	**Test T.6: Impact/Crush 撞击/挤压**	Crush /挤压	P
	Impact (applicable to cylindrical cells not less than 18mm in diameter)/撞击（适用于直径不小于18.0毫米的圆柱形电池） Note: Diameter here refers to the design parameter (for example the diameter of 18650 cells is 18.0mm)注：此处直径指设计参数（例如：18650电池的直径为18.0毫米）		N/A
	The test 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±0.1kg mass is to be dropped from a height of 61 ±2.5 cm at the intersection of the bar and sample in a controlled manner using a near frictionless, vertical sliding track or channel with minimal drag on the falling mass. The vertical track or channel used to guide the falling mass shall be oriented 90 degrees from the horizontal supporting surface./ 试样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15.8毫米±0.1毫米，长度至少6厘米，或电池最长端的尺寸，取二者之长者。将一块9.1千克±0.1千克的重锤从61±2.5厘米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。		N/A
	The test sample is to be impacted with its longitudinal axis parallel to the flat surface and perpendicular to the longitudinal axis of the 15.8mm±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./ 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15.8毫米±0.1毫米弯曲表面的纵轴垂直。每一试样只经受一次撞击。		N/A

Clause	Requirement + Test	Result -Remark	Conclusion
	Crush (applicable to prismatic, pouch, coin/button cells and cylindrical cells less than 18.0 mm in diameter)/挤压(适用于棱柱形、袋装、硬币/纽扣电池和直径小于18.0毫米的圆柱形电池) NOTE: Diameter here refers to the design parameter (for example the diameter of 18650 cells is 18.0 mm)./注: 此处直径指设计参数(例如，18650电池的直径为18.0毫米)。		P
	A cell or component cell is to be crushed between two flat surfaces. The crushing is to be gradual with a speed of approximately 1.5 cm/s at the first point of contact. The crushing is to be continued until the first of the three options below is reached./ 将电池或元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1.5厘米/秒。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; /施加的力量达到 13 千牛顿±0.78 千牛顿；		P
	(b)The voltage of the cell drops by at least 100mV; /电池的电压下降至少100毫伏；		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%或以上。		N/A
	A prismatic or pouch cell shall be crushed by applying the force to the widest side. A button/coin cell shall be crushed by applying the force on its flat surfaces. For cylindrical cells, the crush force shall be applied perpendicular to the longitudinal axis./棱柱形或袋装电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。		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./每个试样电池或元件电池只做一次挤压试验。试样应继续观察6小时。试验应使用之前未做过其他试验的电池或元件电池进行。		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./ 如果外壳温度不超过170°C，并且在试验过程中及试验后6小时内无解体、无起火，电池和元件电池组即符合本项要求。	The samples 019-028: External temperature does not exceed 170°C,No disassembly and no fire./编号为019-028的样品：外壳温度不超过170°C，无解体和无起火现象。	P

Clause	Requirement + Test	Result -Remark	Conclusion
38.3.4.7	**Test T.7: Overcharge 过度充电**		P
	The charge current shall be twice the manufacturer's recommended maximum continuous charge current.The minimum voltage of the test shall be as follows./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./制造商建议的充电电压不大于18伏时，试验的最小电压应是电池最大充电电压的两倍或22伏两者中的较小者。		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./制造商建议的充电电压大于18伏时，试验的最小电压应为最大充电电压的1.2倍。		N/A
	Tests are to be conducted at ambient temperature.The duration of the test shall be 24 hours./试验应在环境温度下进行。进行试验的时间应为24小时。		P
	Rechargeable batteries meet this requirement if there is no disassembly and no fire during the test and within seven days after the test./可充电电池组如在试验过程中和试验后7天内无解体，无起火，即符合本项要求。	The samples 011-018: No disassembly and no fire./编号为011-018的样品：无解体，无起火。	P
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 12VD.C. power supply at an initial current equal to the maximum discharge current specified by the manufacturer./每个电池应在环境温度下与12伏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。		P
	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)./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(小时)应等于其额定容量除以初始试验电流(安培)。		P
	Primary or rechargeable cells meet this requirement if there is no disassembly and no fire during the test and within seven days after the test./原电池或可充电电池如在试验过程中和试验后7天内无解体，无起火，即符合本项要求。	The samples 029-048: No disassembly and no fire./编号为029-048的样品：无解体和无起火现象。	P

III、TEST DATA测试数据

Appendix 1: Altitude simulation / 附表1：高度模拟							
No.编号	Pre-test测试前		After test测试后		Mass loss 质量损失 (%)	Voltage loss 电压损失(%)	Verdict 判定
	Mass(g) 质量(g)	Voltage(V) 电压(V)	Mass(g) 质量(g)	Voltage(V) 电压(V)			
001	56.957	4.16	56.957	4.16	0.000	0.00	P
002	57.122	4.15	57.122	4.15	0.000	0.00	P
003	56.800	4.15	56.800	4.15	0.000	0.00	P
004	57.068	4.15	57.068	4.15	0.000	0.00	P
005	57.269	4.15	57.269	4.15	0.000	0.00	P
006	57.236	4.17	57.236	4.17	0.000	0.00	P
007	56.916	4.18	56.914	4.18	0.004	0.00	P
008	57.092	4.17	57.092	4.17	0.000	0.00	P
009	57.446	4.17	57.441	4.17	0.009	0.00	P
010	57.231	4.17	57.231	4.17	0.000	0.00	P

Appendix 2: Thermal test / 附表2：温度试验							
No.编号	Pre-test测试前		After test测试后		Mass loss 质量损失 (%)	Voltage loss 电压损失(%)	Verdict 判定
	Mass(g) 质量(g)	Voltage(V) 电压(V)	Mass(g) 质量(g)	Voltage(V) 电压(V)			
001	56.957	4.16	56.949	4.14	0.014	0.48	P
002	57.122	4.15	57.112	4.13	0.018	0.48	P
003	56.800	4.15	56.791	4.13	0.016	0.48	P
004	57.068	4.15	57.059	4.14	0.016	0.24	P
005	57.269	4.15	57.257	4.14	0.021	0.24	P
006	57.236	4.17	57.229	4.15	0.012	0.48	P
007	56.914	4.18	56.905	4.16	0.016	0.48	P
008	57.092	4.17	57.086	4.15	0.011	0.48	P
009	57.441	4.17	57.431	4.15	0.017	0.48	P
010	57.231	4.17	57.226	4.15	0.009	0.48	P

Appendix 3: Vibration / 附表3：振动							
No.编号	Pre-test测试前		After test测试后		Mass loss 质量损失 (%)	Voltage loss 电压损失(%)	Verdict 判定
	Mass(g) 质量(g)	Voltage(V) 电压(V)	Mass(g) 质量(g)	Voltage(V) 电压(V)			
001	56.949	4.14	56.949	4.14	0.000	0.00	P
002	57.112	4.13	57.112	4.13	0.000	0.00	P
003	56.791	4.13	56.791	4.13	0.000	0.00	P
004	57.059	4.14	57.059	4.14	0.000	0.00	P
005	57.257	4.14	57.257	4.14	0.000	0.00	P
006	57.229	4.15	57.227	4.15	0.003	0.00	P
007	56.905	4.16	56.905	4.16	0.000	0.00	P
008	57.086	4.15	57.083	4.15	0.005	0.00	P
009	57.431	4.15	57.431	4.15	0.000	0.00	P
010	57.226	4.15	57.226	4.15	0.000	0.00	P

Appendix 4: Shock / 附表4：冲击							
No.编号	Pre-test测试前		After test测试后		Mass loss 质量损失 (%)	Voltage loss 电压损失(%)	Verdict 判定
	Mass(g) 质量(g)	Voltage(V) 电压(V)	Mass(g) 质量(g)	Voltage(V) 电压(V)			
001	56.949	4.14	56.949	4.14	0.000	0.00	P
002	57.112	4.13	57.112	4.13	0.000	0.00	P
003	56.791	4.13	56.791	4.13	0.000	0.00	P
004	57.059	4.14	57.059	4.14	0.000	0.00	P
005	57.257	4.14	57.257	4.14	0.000	0.00	P
006	57.227	4.15	57.227	4.15	0.000	0.00	P
007	56.905	4.16	56.905	4.16	0.000	0.00	P
008	57.083	4.15	57.083	4.15	0.000	0.00	P
009	57.431	4.15	57.431	4.15	0.000	0.00	P
010	57.226	4.15	57.226	4.15	0.000	0.00	P

Appendix 5: External short circuit / 附表5：外部短路										
No.编号	001	002	003	004	005	006	007	008	009	010
Resistance of circuit 电路电阻(mΩ)	80	80	80	81	81	80	83	83	80	80
Peak temperature 最高温度(℃)	56.9	57.0	57.0	56.7	57.1	57.0	56.7	56.8	56.8	56.6
Verdict 判定	P	P	P	P	P	P	P	P	P	P

Appendix 6: Crush / 附表6：挤压										
No.编号	019	020	021	022	023	024	025	026	027	028
试验前电压(V) OCV prior to test	3.78	3.78	3.77	3.78	3.78	3.79	3.79	3.78	3.79	3.79
Peak temperature 最高温度(℃)	25.6	24.2	26.1	25.6	25.7	25.1	26.2	26.3	25.2	25.9
Verdict 判定	P	P	P	P	P	P	P	P	P	P

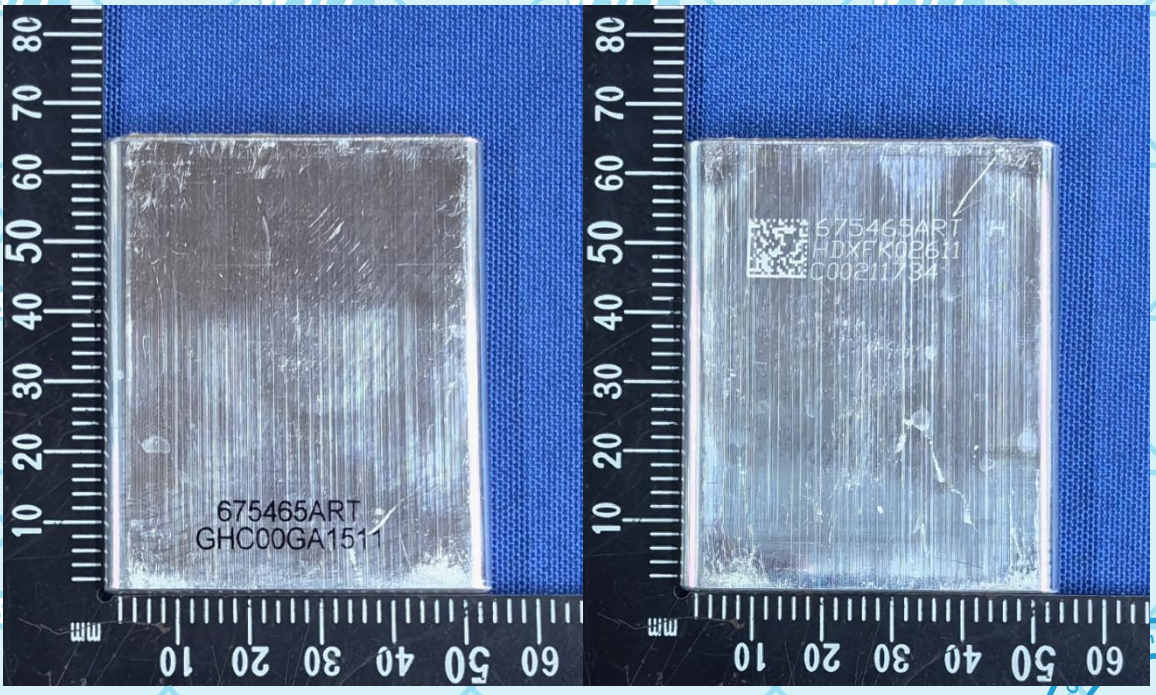
Appendix 7：Overcharge / 附表7：过度充电								
No.编号	011	012	013	014	015	016	017	018
Test voltage 试验电压(V)	8.4							
Test current 试验电流(A)	3							
Verdict 判定	P	P	P	P	P	P	P	P

Appendix 8：Forced discharge / 附表8：强制放电										
No.编号	029	030	031	032	033	034	035	036	037	038
试验前电压(V) OCV prior to test	3.91	3.93	3.83	3.93	3.91	3.93	3.92	3.89	3.93	3.90
Verdict 判定	P	P	P	P	P	P	P	P	P	P
No.编号	039	040	041	042	043	044	045	046	047	048
试验前电压(V) OCV prior to test	3.91	3.92	3.93	3.83	3.90	3.93	3.92	3.91	3.93	3.93
Verdict 判定	P	P	P	P	P	P	P	P	P	P

Ⅳ、The Photo Of Sample 样品照片

Battery 电池

Cell 电芯



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