

地址:中国广州市珠江新城花城大道66号B座

Add: Tower B, No. 66 Huacheng Avenue, Zhujiang Xincheng, Guangzhou, China

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QOQCMRSPV

No: 01051500000795-1 (E)

Date: 2015-03-04

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UN38.3 报告

UN38.3 Test Report

样品名称: 锂离子充电电池

Sample Name: Li-ion Rechargeable Battery

委托单位: 惠州隆基电子有限公司

Applicant: VIEW TECH LIMITED



广东出入境检验检疫局检验检疫技术中心

Inspection & Quarantine Technology Center of Guangdong Entry-Exit Inspection
& Quarantine Bureau of The People's Republic of China

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| | | | |
|--|--|-----------------------------|-------------------------|
| 样品名称 Sample Name | 中文 Chinese | 锂离子充电电池 | |
| | 英文 English | Li-ion Rechargeable Battery | |
| 型号 Model | BP290 RECHARGEABLE BATTERY 10.8V 2500mAh 27Wh | | |
| 委托单位 Applicant | 惠州隆基电子有限公司 VIEW TECH LIMITED | | |
| 委托单位地址 Applicant Address | 惠州市博罗县石湾镇南亚北路 No.2, Libo Shui Industrial District, NanYa Bei Lu, Shek Wan Boluo, Huizhou, Guangdong, China | | |
| 生产单位 Manufacture | 惠州隆基电子有限公司 VIEW TECH LIMITED | | |
| 生产单位地址 Manufacture Address | 惠州市博罗县石湾镇南亚北路 No.2, Libo Shui Industrial District, NanYa Bei Lu, Shek Wan Boluo, Huizhou, Guangdong, China | | |
| 测试方法和判定标准 Test method and criterion | 联合国《关于危险货物运输的建议书 试验和标准手册》 ST/SG/AC.10/11/Rev.5, amend 1, 38.3 UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS", Manual of Tests and Criteria ST/SG/AC.10/11/Rev.5, amend 1, 38.3 | | |
| 样品外观 Appearance | 该样品为固体, 标称电压为 10.8V, 额定电容量为 2500mAh。 The battery is solid. The Nominal Voltage is 10.8V, The Rated Capacity is 2500mAh. | | |
| 接样时间 Accepted date | 2015-02-11 | 测试日期 Test date | 2015-02-11 ~ 2015-03-03 |
| 测试项目 Test items | 高度模拟、温度试验、振动、冲击、外部短路、撞击、过度充电、强制放电。 Altitude simulation, Thermal test, Vibration, Shock, External short circuit, Impact, Overcharge, Forced discharge. | | |
| 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 试验和标准手册》 ST/SG/AC.10/11/Rev.5, amend 1, 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 Test and Criteria ST/SG/AC.10/11/Rev.5, amend 1, 38.3. | | |
| 备注 Remark | 检测结果仅对样品有效。 The test results are only valid for the test samples submitted the applicant. | | |

批准

Approver:

审核

Checker:

主检

Appraiser:

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| 序号 No. | 测试项目名称 Name of test | 标准要求或标准条款号 Stand requirement or the clause number of standard | 测试结果 Test result | 本项结论 Test conclusion | 备注 Remark |
|-----------|--|--|-------------------------|-------------------------|--------------|
| 1 | 高空模拟 Altitude simulation | 联合国《关于危险货物运输的建议书 试验和标准手册》UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.5, amend 1, 38.3 试验 T.1 Test T.1 | 见附表 1 See Appendix 1 | 合格 Passed | / |
| 2 | 温度循环 Thermal test | 联合国《关于危险货物运输的建议书 试验和标准手册》UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.5, amend 1, 38.3 试验 T.2 Test T.2 | 见附表 2 See Appendix 2 | 合格 Passed | / |
| 3 | 振动 Vibration | 联合国《关于危险货物运输的建议书 试验和标准手册》UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.5, amend 1, 38.3 试验 T.3 Test T.3 | 见附表 3 See Appendix 3 | 合格 Passed | / |
| 4 | 冲击 Shock | 联合国《关于危险货物运输的建议书 试验和标准手册》UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.5, amend 1, 38.3 试验 T.4 Test T.4 | 见附表 4 See Appendix 4 | 合格 Passed | / |
| 5 | 外部短路 External short circuit | 联合国《关于危险货物运输的建议书 试验和标准手册》UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.5, amend 1, 38.3 试验 T.5 Test T.5 | 见附表 5 See Appendix 5 | 合格 Passed | / |
| 6 | 撞击 Impact | 联合国《关于危险货物运输的建议书 试验和标准手册》UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.5, amend 2, 38.3 试验 T.6 Test T.6 | 见附表 6 See Appendix 6 | 合格 Passed | / |
| 7 | 过度充电 Overcharge | 联合国《关于危险货物运输的建议书 试验和标准手册》UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.5, amend 1, 38.3 试验 T.7 Test T.7 | 见附表 7 See Appendix 7 | 合格 Passed | / |
| | 强制放电 Forced discharge | 联合国《关于危险货物运输的建议书 试验和标准手册》UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.5, amend 1, 38.3 试验 T.8 Test T.8 | 见附表 8 See Appendix 8 | 合格 Passed | / |
| | 测试环境 Test environment condition | 环境温度: 20℃-25℃; 环境湿度: 45%-75% Ambient temperature: 20℃-25℃, Ambient humidity: 45%-75% | | | |
| | 分包测试情况 Subcontracted test condition | 测试项目 Test items | / | | |
| | | 分包实验室 Subcontracted Laboratory | 名称 Name | 邮编 Post code | / |
| | | | 地址 Address | 电话 Tel | / |

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| 序号 No. | 附表 1 Appendix 1 | 测试项目名称 Name of test | 高空模拟 Altitude simulation | | | | |
|------------------------------------|--|----------------------------|-----------------------------|----------------------------|--------------------------|----------------------------|---------------------|
| 标准要求 Requirement of Standard | 试验电池或电池组在压力等于或低于 11.6kPa 和环境温度 20℃±5℃下存放至少 6h。试验电池或电池组应无重量损失、无渗漏、无排气、无解体、无破裂和无燃烧,并且每个试验电池或电池组在试验后的开路电压不少于其在进行这一试验前电压的 90% (完全放电状态的试验电池或电池组除外)。 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. 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. | | | | | | |
| 样品状态 Sample status | b1#~b4#: 第一个循环完全充电的电池; b1#~b4#: first cycle in fully charged states; b5#~b8#: 第五十个循环完全充电的电池。 b5#~b8#: after 50 cycles ending in fully charged states. | | | | | | |
| 样品编号 Sample No. | 测试前 Before | | 测试后 After | | 质量损失 Mass loss (%) | 剩余电压 Residual OCV(%) | 测试结果 Test result |
| | 电池质量 m ₁ (g) | 开路电压 v ₁ (v) | 电池质量 m ₂ (g) | 开路电压 v ₂ (v) | | | |
| b1# | 171.7 | 11.85 | 171.7 | 11.87 | 0.02 | 100.17 | O |
| b2# | 171.3 | 11.84 | 171.2 | 11.85 | 0.02 | 100.08 | O |
| b3# | 171.3 | 11.84 | 171.3 | 11.84 | 0.00 | 100.00 | O |
| b4# | 168.9 | 11.85 | 168.9 | 11.85 | -0.02 | 100.00 | O |
| b5# | 171.0 | 11.80 | 171.0 | 11.79 | 0.01 | 99.92 | O |
| b6# | 172.6 | 11.82 | 171.6 | 11.83 | 0.59 | 100.08 | O |
| b7# | 171.5 | 11.75 | 171.4 | 11.76 | 0.02 | 100.09 | O |
| b8# | 171.7 | 11.84 | 171.7 | 11.85 | 0.02 | 100.08 | O |

注: L-泄漏; V-排气; D-解体; R-破裂; F-起火; O-无泄漏、无排气、无解体、无破裂、无起火。
Note: L-Leakage, V-Venting, D-Disassembly, R-Rupture, F-Fire, O- No Leakage, No Venting, No Disassembly, No Rupture & No Fire.

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| 序号 No. | 附表 2 Appendix 2 | 测试项目名称 Name of test | 温度循环 Thermal test | | | | |
|---|---|----------------------------|----------------------------|----------------------------|--------------------------|----------------------------|---------------------|
| 标准要求 Requirement of Standard | 试验电池或电池组在试验温度等于 75℃±2℃ 下存放至少 6h, 接着在试验温度等于 -40℃±2℃ 下存放至少 6h (大型电池或电池组暴露于极端试验温度的时间至少为 12h)。两个极端试验温度之间的最大时间间隔为 30min。重复 10 次, 再将所有试验电池或电池组在环境温度 20℃±5℃ 下存放 24h。试验电池或电池组应无重量损失、无渗漏、无排气、无解体、无破裂和无燃烧, 并且每个试验电池或电池组在试验后的开路电压不少于其在进行这一试验前电压的 90% (完全放电状态的试验电池或电池组除外)。 Test cells and batteries are to be stored for at least six hours at a test temperature equal to 75 ± 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.). For large cells and batteries the duration of exposure to the test temperature extremes should be at least 12 hours. Cells and batteries meet this requirement if there is no 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. | | | | | | |
| 样品状态 Sample status | b1#~b4#: 第一个循环完全充电的电池; b1#~b4#: first cycle in fully charged states; b5#~b8#: 第五十个循环完全充电的电池。 b5#~b8#: after 50 cycles ending in fully charged states. | | | | | | |
| 样品编号 Sample No. | 测试前 Before | | 测试后 After | | 质量损失 Mass loss (%) | 剩余电压 Residual OCV(%) | 测试结果 Test result |
| | 电池质量 m ₁ (g) | 开路电压 v ₁ (v) | 电池质量 m ₂ (g) | 开路电压 v ₂ (v) | | | |
| b1# | 171.7 | 11.87 | 171.8 | 11.71 | -0.05 | 98.65 | O |
| b2# | 171.2 | 11.85 | 171.3 | 11.70 | -0.05 | 98.73 | O |
| b3# | 171.3 | 11.84 | 171.4 | 11.69 | -0.05 | 98.73 | O |
| b4# | 168.9 | 11.85 | 169.0 | 11.69 | -0.05 | 98.65 | O |
| b5# | 171.0 | 11.79 | 171.1 | 11.65 | -0.04 | 98.81 | O |
| b6# | 171.6 | 11.83 | 172.6 | 11.69 | -0.62 | 98.82 | O |
| b7# | 171.4 | 11.76 | 171.5 | 11.63 | -0.05 | 98.89 | O |
| b8# | 171.7 | 11.85 | 171.7 | 11.70 | -0.05 | 98.73 | O |
| 注: L-泄漏; V-排气; D-解体; R-破裂; F-起火; O-无泄漏、无排气、 无解体、无破裂、无起火。 Note:L-Leakage, V-Venting, D-Disassembly, R-Rupture, F-Fire, O- No Leakage, No Venting, No Disassembly, No Rupture & No Fire. | | | | | | | |

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| 序号 No. | 附表 3 Appendix 3 | 测试项目名称 Name of test | 振动 Vibration | | | | |
|--|--|----------------------------|----------------------------|----------------------------|-----------------------|-------------------------|---------------------|
| 标准要求 Requirement of Standard | 将电池或电池组直接安装或通过夹具安装在振动台的台面上, 用正弦波, 频率在 7Hz 和 200Hz 之间摆动再回到 7Hz 的对数扫频 15min, 对三个互相垂直的电池或电池组安装方向的每个方向重复进行 12 次, 一共振动 3h。试验电池或电池组应无重量损失、无渗漏、无排气、无解体、无破裂和无燃烧, 并且每个试验电池或电池组在试验后的开路电压不少于其在进行这一试验前电压的 90% (完全放电状态的试验电池或电池组除外)。 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. 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. | | | | | | |
| 样品状态 Sample status | b1#~b4#: 第一个循环完全充电的电池; b1#~b4#: first cycle in fully charged states; b5#~b8#: 第五十个循环完全充电的电池。 b5#~b8#: after 50 cycles ending in fully charged states. | | | | | | |
| 样品编号 Sample No. | 测试前 Before | | 测试后 After | | 质量损失 Mass loss (%) | 剩余电压 Residual OCV(%) | 测试结果 Test result |
| | 电池质量 m ₁ (g) | 开路电压 v ₁ (v) | 电池质量 m ₂ (g) | 开路电压 v ₂ (v) | | | |
| b1# | 171.8 | 11.71 | 171.7 | 11.70 | 0.00 | 99.91 | O |
| b2# | 171.3 | 11.70 | 171.3 | 11.69 | 0.00 | 99.91 | O |
| b3# | 171.4 | 11.69 | 171.4 | 11.69 | 0.00 | 100.00 | O |
| b4# | 169.0 | 11.69 | 169.0 | 11.68 | 0.00 | 99.91 | O |
| b5# | 171.1 | 11.65 | 171.1 | 11.65 | 0.00 | 100.00 | O |
| b6# | 172.6 | 11.69 | 172.6 | 11.69 | 0.00 | 100.00 | O |
| b7# | 171.5 | 11.63 | 171.5 | 11.62 | 0.00 | 99.91 | O |
| b8# | 171.7 | 11.70 | 171.7 | 11.69 | 0.00 | 99.91 | O |
| 注: L-泄漏; V-排气; D-解体; R-破裂; F-起火; O-无泄漏、无排气、无解体、无破裂、无起火。 Note:L-Leakage, V-Venting, D-Disassembly, R-Rupture, F-Fire, O- No Leakage, No Venting, No Disassembly, No Rupture & No Fire. | | | | | | | |

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| 序号 No. | 附表 4 Appendix 4 | 测试项目名称 Name of test | 冲击 Shock | | | | |
|--|---|----------------------------|----------------------------|----------------------------|--------------------------|----------------------------|---------------------|
| 标准要求 Requirement of Standard | 将电池或电池组用坚硬支架紧固在试验装置上,对每个电池或电池组以最大加速度 150gn 的半正弦波冲击,脉冲持续时间 6ms,但对大型电池或电池组应以最大加速度 50gn 的半正弦波冲击,脉冲持续时间 11ms。按三个相互垂直的轴向分别对其正负极各冲击 3 次,共冲击 18 次。各试验电池或电池组应无重量损失、无渗漏、无排气、无解体、无破裂和无燃烧,并且每个试验电池或电池组在试验后的开路电压不少于其在进行这一试验前电压的 90% (完全放电状态的试验电池或电池组除外)。 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 150gn and pulse duration of 6 milliseconds. However, large cells and large batteries shall be subjected to a half-sine shock of peak acceleration of 50gn and pulse duration of 11 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. 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. | | | | | | |
| 样品状态 Sample status | b1#~b4#: 第一个循环完全充电的电池; b1#~b4#: first cycle in fully charged states; b5#~b8#: 第五十个循环完全充电的电池。 b5#~b8#: after 50 cycles ending in fully charged states. | | | | | | |
| 样品编号 Sample No. | 测试前 Before | | 测试后 After | | 质量损失 Mass loss (%) | 剩余电压 Residual OCV(%) | 测试结果 Test result |
| | 电池质量 m ₁ (g) | 开路电压 v ₁ (v) | 电池质量 m ₂ (g) | 开路电压 v ₂ (v) | | | |
| b1# | 171.7 | 11.70 | 171.7 | 11.70 | 0.00 | 100.00 | O |
| b2# | 171.3 | 11.69 | 171.3 | 11.68 | 0.00 | 99.91 | O |
| b3# | 171.4 | 11.69 | 171.3 | 11.68 | 0.04 | 99.91 | O |
| b4# | 169.0 | 11.68 | 169.0 | 11.66 | 0.00 | 99.83 | O |
| b5# | 171.1 | 11.65 | 171.3 | 11.64 | -0.15 | 99.91 | O |
| b6# | 172.6 | 11.69 | 172.6 | 11.67 | 0.00 | 99.83 | O |
| b7# | 171.5 | 11.62 | 171.5 | 11.60 | 0.00 | 99.83 | O |
| b8# | 171.7 | 11.69 | 171.7 | 11.67 | 0.00 | 99.83 | O |
| 注: L-泄漏; V-排气; D-解体; R-破裂; F-起火; O-无泄漏、无排气、无解体、无破裂、无起火。 Note:L-Leakage, V-Venting, D-Disassembly, R-Rupture, F-Fire, O- No Leakage, No Venting, No Disassembly, No Rupture & No Fire. | | | | | | | |

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| 序号 No. | 附表 5 Appendix 5 | 测试项目名称 Name of test | 外部短路 External short circuit |
|--|--|------------------------|--------------------------------|
| 标准要求 Requirement of Standard | 待试验电池或电池组的外壳温度稳定在 $55^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 后, 在 $55^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 下使电池或电池组经受总外电阻小于 0.1Ω 的短路条件, 当电池或电池组外壳温度回到 $55^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 后继续至少 1h, 然后短路断开, 再观察电池或电池组 6h 才结束试验。电池或电池组的外壳温度应不超过 170°C , 并且试验后 6h 内应无解体、无破裂和无燃烧。 The cell or battery to be tested shall be temperature stabilized so that its external case temperature reaches $55 \pm 2^{\circ}\text{C}$ 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 $55 \pm 2^{\circ}\text{C}$. This short circuit condition is continued for at least one hour after the cell or battery external case temperature has returned to $55 \pm 2^{\circ}\text{C}$. The cell or battery must be observed for a further six hours for the test to be concluded. 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 within six hours of this test. | | |
| 样品状态 Sample status | b1#~b4#: 第一个循环完全充电的电池; b1#~b4#: first cycle in fully charged states; b5#~b8#: 第五十个循环完全充电的电池。 b5#~b8#: after 50 cycles ending in fully charged states. | | |
| 样品编号 Sample No. | 样品表面最高温度 Max External Temperature ($^{\circ}\text{C}$) | 测试结果 Test result | 备注 Remark |
| b1# | 56.9 | O | / |
| b2# | 57.2 | O | / |
| b3# | 57.3 | O | / |
| b4# | 57.4 | O | / |
| b5# | 56.9 | O | / |
| b6# | 56.5 | O | / |
| b7# | 56.3 | O | / |
| b8# | 56.2 | O | / |
| 注: D-解体; R-破裂; F-起火; O-无解体、无破裂、无起火。 Note: D-Disassembly, R-Rupture, F-Fire, O-No Disassembly, No Rupture & No Fire. | | | |

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| 序号 No. | 附表 6 Appendix 6 | 测试项目名称 Name of test | 撞击 Impact |
|--|---|------------------------|--------------|
| 标准要求 Requirement of Standard | <p>撞击 (适用与直径不小于 18mm 的圆柱形电池): 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的中心, 钢棒的直径 (15.8±0.1) 毫米, 长度至少 6 厘米, 或电池最长端的尺度, 取二者之长者, 用一块 (9.1±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表面支撑表面呈 90 度落下。 接受撞击的试样, 纵轴应于平坦表面平行并与横放在试中心的直径 (15.8±0.1) 毫米弯曲表面的纵轴垂直, 每个试样只经受一次撞击。 试验电池或电池组的组成电芯外部温度不超过 170℃, 并且在试验过程中和试验后 6 小时内应无解体、无破裂、无起火。 Impact (applicable to cylindrical cells not less than 18mm in diameter): Test procedure – Impact (applicable to cylindrical cells greater than 20 mm in diameter) 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. 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 be subjected to only a single impact. 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.</p> | | |
| 样品状态 Sample status | C1#~C5#: 第一个循环 50%的额定容量的电芯。 C1#~C5#: first cycle at 50% of the design rated capacity of cell. | | |
| 样品编号 Sample No. | 样品表面最高温度 Max External Temperature (°C) | 测试结果 Test result | 备注 Remark |
| C1# | 57.5 | O | / |
| C2# | 57.8 | O | / |
| C3# | 57.3 | O | / |
| C4# | 57.1 | O | / |
| C5# | 57.0 | O | / |
| 注: D-解体; R-破裂; F-起火; O-无解体、无破裂、无起火。 Note: D-Disassembly, R-Rupture, F-Fire, O-No Disassembly, No Rupture & No Fire. | | | |

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| 序号 No. | 附表 7 Appendix 7 | 测试项目名称 Name of test | 过度充电 Overcharge |
|--|--|------------------------|--------------------|
| 标准要求 Requirement of Standard | 充电电流必须是制造商建议的最大连续充电电流的两倍，试验的最小电压应为如下： (a) 制造商建议的充电电压不大于 18V 时，试验的最小电压应是电池组最大充电电压的两倍或 22V 两者中的较少者。 (b) 制造商建议的充电电压大于 18V 时，试验的最小电压应是最大充电电压的 1.2 倍。 可再充电电池组在环境温度下试验 24h。试样在试验后 7 天内应无解体和无燃烧。 The charge current shall be twice the manufacturer's recommended maximum continuous charge current. The minimum voltage of the test shall be as follows: (a) When the manufacturer's recommended charge voltage is not more than 18V, the minimum voltage of the test shall be the lesser of two times the maximum charge voltage of the battery or 22V. (b) When the manufacturer's recommended charge voltage is more than 18V, the minimum voltage of the test shall be 1.2 times the maximum charge voltage. Tests are to be conducted at ambient temperature. The duration of the test shall be 24 hours. Rechargeable batteries meet this requirement if there is no disassembly and no fire within seven days of the test. | | |
| 样品状态 Sample status | b9#~b12#：第一个循环完全充电的电池； b9#~b12#： first cycle in fully charged states; b13#~b16#：第五十个循环完全充电的电池。 b13#~b16#： after 50 cycles ending in fully charged states. | | |
| 样品编号 Sample No. | 测试结果 Test result | 备注 Remark | |
| b9# | O | / | |
| b10# | O | / | |
| b11# | O | / | |
| b12# | O | / | |
| b13# | O | / | |
| b14# | O | / | |
| b15# | O | / | |
| b16# | O | / | |
| 注： D-解体； R-破裂； F-起火； O-无解体、无破裂、无起火。 Note: D-Disassembly, R-Rupture, F-Fire, O-No Disassembly, No Rupture & No Fire. | | | |

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| 序号 No. | 附表 8 Appendix 8 | 测试项目名称 Name of test | | 强制放电 Forced discharge | |
|--|---|------------------------|--------------------|--------------------------|--------------|
| 标准要求 Requirement of Standard | 试验原电池或可再充电电池在环境温度下与 12V 的直流电源串联, 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。原电池或可再充电电池在试验后 7 天内应无解体和无燃烧。 Each cell shall be forced discharged at ambient temperature by connecting it in series with a 12 V D.C. power supply at an initial current equal to the maximum discharge current specified by the manufacturer. The specified discharge current is to be obtained by connecting a resistive load of the appropriate size and rating in series with the test cell. Each cell shall be forced discharged for a time interval (in hours) equal to its rated capacity divided by the initial test current (in Ampere).Primary or rechargeable cells meet this requirement if there is no disassembly and no fire within seven days of the test. | | | | |
| 样品状态 Sample status | C6#~C15#: 第一个循环完全放电的电芯; C6#~C15#: first cycle in fully discharged states; C16#~C25#: 第五十个循环完全放电的电芯。 C16#~C25#: after 50 cycles in fully discharged states. | | | | |
| 样品编号 Sample No. | 测试结果 Test result | 备注 Remark | 样品编号 Sample No. | 测试结果 Test result | 备注 Remark |
| C6# | O | / | C16# | O | / |
| C7# | O | / | C17# | O | / |
| C8# | O | / | C18# | O | / |
| C9# | O | / | C19# | O | / |
| C10# | O | / | C20# | O | / |
| C11# | O | / | C21# | O | / |
| C12# | O | / | C22# | O | / |
| C13# | O | / | C23# | O | / |
| C14# | O | / | C24# | O | / |
| C15# | O | / | C25# | O | / |
| 注: D-解体; R-破裂; F-起火; O-无解体、无破裂、无起火。 Note: D-Disassembly, R-Rupture, F-Fire, O-No Disassembly, No Rupture & No Fire. | | | | | |

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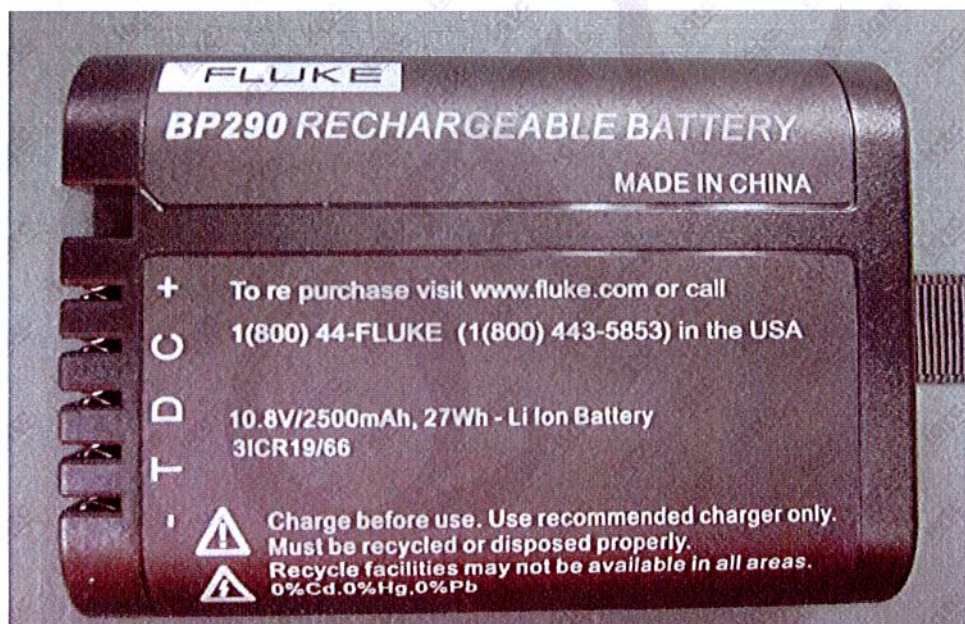
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样品图片
Photo of the sample

电池/Battery



电芯/Cell



* * * * *

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注意事项

Important

1. 本报告无检验单位公章、骑缝章无效。

The test report is invalid without the official stamp and Paging sael of IQTC.

2. 未经本实验室书面同意, 不得部分地复制本报告。

Nobody is allowed to photocopy or partly photocopy this report without written permission of IQTC

3. 本报告无批准人、审核人及主检人签名无效。

The test report is invalid without the signatures of Approver, Checker and Appraiser.

4. 客户必须如实提供样品及资料, 并保证申报品名和样品以及运输货物相同, 否则本检测单位不承担任何相关责任。

The client should provide samples and relevant data, at the same time, they should guarantee the consistence of the product's name they declared, the samples they provided and the goods to be transported. Otherwise we will not bear any relevant responsibilities.

5. 本报告涂改无效。

The test report is invalid if altered.

6. 对检验报告若有异议, 应于收到报告之日起十五天内向检验单位提出。

Objection to the test report must be submitted to IQTC within 15 days.

7. 本报告仅对送检样品负责。

The test report is valid for the tested samples only.





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货物运输条件鉴定书(海运)

Certification for Safe Transport of Goods by Sea

样品名称: 锂离子充电电池

Sample Name: Li-ion Rechargeable Battery

委托单位: 惠州隆基电子有限公司

Applicant: VTEW TECH LIMITED



广东出入境检验检疫局检验检疫技术中心

Inspection & Quarantine Technology Center of Guangdong Entry-Exit Inspection
& Quarantine Bureau of The People's Republic of China

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货物运输条件鉴定书

Certification for Safe Transport of Goods

| | | | | | | | | | | |
|--|---------------|--|--|--------------------|--|------------|----------------------------|--|--|--|
| 货物名称 Goods name | 中文 Chinese | 锂离子充电电池 | | | | | | | | |
| | 英文 English | Li-ion Rechargeable Battery | | | | | | | | |
| 型号 Model | | BP290 RECHARGEABLE BATTERY 10.8V 2500mAh 27Wh | | 电芯型号 Cell Model | ICR18650B4 | | | | | |
| 委托单位 Consignor | | 惠州隆基电子有限公司 VIEW TECH LIMITED | | | | | | | | |
| 生产单位 Manufacturer | | 惠州隆基电子有限公司 VIEW TECH LIMITED | | | | | | | | |
| 检查方法、程序 Inspection method and procedure | | 《国际海运危险货物规则》(36-12 版 IMO IMDG code) IMO IMDG CODE (36-12 Edition) | | | | | | | | |
| 样品外观 Sample Appearance | | 黑色塑胶及塑料薄膜外壳 Black plastic and plastic film shell | | | | | | | | |
| 包装件信息 Package information | | 电池数量 Quantity | 40 | 重量 Weight | 7.90Kg | 尺寸 Size | 400mm(L)*310mm(W)*120mm(H) | | | |
| 电池 信息 Battery information | 序号 | 类型 Type | 型号 Model | | 额定容量 Rate capacity / 锂含量 Li content | | 放置方式 Placement | | | |
| | 1 | 锂离子充电电池 Li-ion Rechargeable Battery | BP290 RECHARGEABLE BATTERY 10.8V 2500mAh 27Wh | | 27Wh | | 只有电池 Battery only | | | |
| 鉴定结论 IDENTIFICATION CONCLUSION | | 1、危险性识别(Hazards identification): 无/NO。 | | | | | | | | |
| | | 2、按照联合国《国际海运危险货物规则》办理类项(Suggestion according to IMDG) 可按普通货物条件办理。According to the conditions of general cargo handled | | | | | | | | |
| | | 3、包装要求(Packaging requirements): 根据 IMDG 特殊规定 188 条办理。 The goods are packaged according to the special provision 188 of IMDG. | | | | | | | | |
| 报告专用章 注(05) | | / | | | | | | | | |

批准

Approver:

审核

Checker:

主检

Appraiser:

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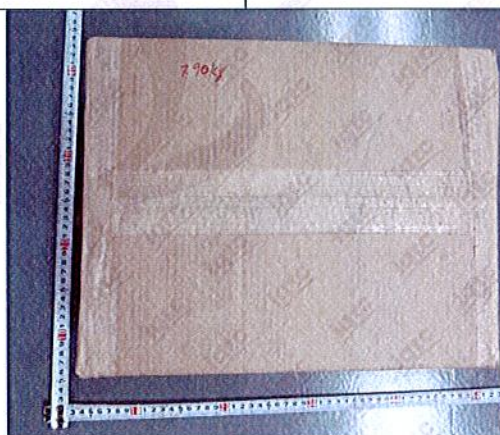
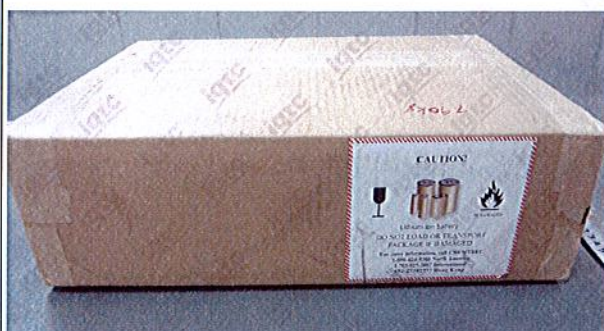
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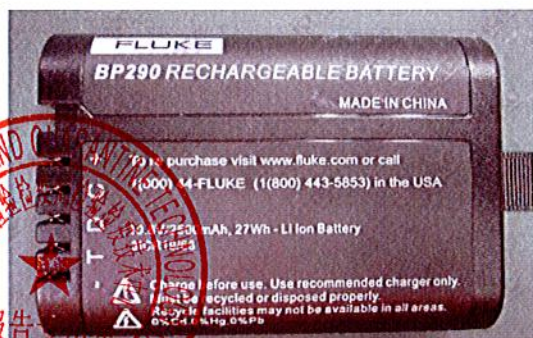
货物运输条件鉴定书 Certification for Safe Transport of Goods

图片/Photo

包装
件
Package



电池
与 电
芯
Battery
and
Cell



1. 我们已尽所知所能实施上述检验, 不能因签发本报告而免除有关各方根据合同和法律所承担的责任和义务。All inspections are carried out conscientiously to the best of our knowledge and ability. This report does not in any respect absolve the other related parties from his contractual and legal obligations.
2. 一般情况, 检验结果仅对申请人所送样品负责。未经本实验室书面同意, 不得部分复制本报告。The results shown in this test report refer only to the sample(s) tested unless otherwise stated. Without the prior written approval from the issuing laboratory, the report shall not be reproduced except in full.

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货物运输条件鉴定书

Certification for Safe Transport of Goods

| 序号 No. | 检查结果及其他事项 Inspection results and other things |
|-----------|--|
| 1 | <p>本报告所述锂电池已通过联合国《试验和标准手册》第 III 部分 38.3 小节相应测试要求(证书编号: 01051500000795-1)。</p> <p>Lithium cells and batteries listed in this report are of the types proven to meet the requirements of each applicable test in the UN Manual of Tests and Criteria, Part III, sub-section 38.3 (Test Report No.: 01051500000795-1).</p> <p>包装件能够承受 1.2m 跌落试验, 包装件的毛重不超过 30kg (证书编号: 01051500000795-2)。</p> <p>The package has passed the 1.2m drop test, Packages of a gross weight not exceeding 30kg (Test Report No.: 01051500000795-2).</p> |
| 2 | <p>电池和电池组, 除安装在设备上的之外, 应使用内容器包装, 将电池和电池组完全包裹。应保护电池和电池组防止发生短路。</p> <p>Cells and batteries, except when installed in equipment, shall be packed in inner packagings that completely enclose the cell or battery. Cells and batteries shall be protected so as to prevent short circuits.</p> |
| 3 | <p>安装在设备上的电池和电池组, 应防止受到损害和发生短路, 设备应配备防止发生意外启动的有效装置。当锂电池组安装在设备上时, 设备应使用坚实的外容器包装, 容器的制造应采用足够强度的适当材料, 设计与容器的容量和用途相符, 除非安装电池组的设备对之已有相当的保护;</p> <p>Cells and batteries when installed in equipment shall be protected from damage and short circuit, and the equipment shall be equipped with an effective means of preventing accidental activation. When lithium batteries are installed in equipment, the equipment shall be packed in strong outer packagings constructed of suitable material of adequate strength and design in relation to the packaging's capacity and its intended use unless the battery is afforded equivalent protection by the equipment in which it is contained;</p> |
| 4 | <p>除非包件内设备安装的电池不超过四个, 或设备安装的电池组不超过两个, 每个包件均应作出以下标记:</p> <p>(一) 根据情况, 标明包件内装有锂离子电池组;</p> <p>(二) 标明包件必须小心轻放, 如果包件损坏, 有着火的危险;</p> <p>(三) 标明如包件受到损坏, 应当遵守的特别程序, 包括检查, 如有必要, 须重包装;</p> <p>(四) 了解其他情况的电话号码;</p> <p>Except for packages containing no more than four cells installed in equipment or no more than two batteries installed in equipment, each package shall be marked with the following:</p> <p>(i) an indication that the package contains lithium ion batteries, as appropriate;</p> <p>(ii) an indication that the package shall be handled with care and that a</p> <p>报告专用章</p> <p>responsibility hazard exists if the package is damaged;</p> <p>(iii) an indication that special procedures shall be followed in the event the package is damaged, to include inspection and repacking if necessary; and (iv) a telephone number for additional information;</p> |

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| | |
|--------------|--|
| 5 | <p>每批交运的货物, 包含一个或多个按(f)段标记的包件, 应附带一份包括以下内容的单据:</p> <p>(一) 根据情况, 标明包件内装有锂离子电池组;</p> <p>(二) 标明包件必须小心轻放, 如果包件损坏, 有着火的危险;</p> <p>(三) 标明如包件受到损坏, 应当遵守的特别程序, 包括检查, 如有必要, 重新包装;</p> <p>(四) 了解其他情况的电话号码。</p> <p>Each consignment of one or more packages marked in accordance with paragraph (f) shall be accompanied with a document including the following:</p> <p>(i) an indication that the package contains lithium ion batteries, as appropriate;</p> <p>(ii) an indication that the package shall be handled with care and that a flammability hazard exists if the package is damaged;</p> <p>(iii) an indication that special procedures shall be followed in the event the package is damaged, to include inspection and repacking if necessary; and</p> <p>(iv) A telephone number for additional information.</p> |
| 备注 Remark | <p>适用于海运。</p> <p>Be applicable to transport by sea</p> |



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No: 01051500000795-4 (E)

Date: 2015-03-04

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检验证书 TEST REPORT

注意事项

Important

1. 本报告无检验单位公章、骑缝章无效。

The test report is invalid without the official stamp and Paging sael of IQTC.

2. 未经本实验室书面同意, 不得部分地复制本报告。

Nobody is allowed to photocopy or partly photocopy this report without written permission of IQTC

3. 本报告无批准人、审核人及主检人签名无效。

The test report is invalid without the signatures of Approver, Checker and Appraiser.

4. 客户必须如实提供样品及资料, 并保证申报品名和样品以及运输货物相同, 否则本检测单位不承担任何相关责任。

The client should provide samples and relevant data, at the same time, they should guarantee the consistence of the product's name they declared, the samples they provided and the goods to be transported. Otherwise we will not bear any relevant responsibilities.

5. 本报告涂改无效。

The test report is invalid if altered.

6. 对检验报告若有异议, 应于收到报告之日起十五天内向检验单位提出。

Objection to the test report must be submitted to IQTC within 15 days.

7. 本报告仅对送检样品负责。

The test report is valid for the tested samples only.



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No: 01051500000795-3 (E)

Date: 2015-03-04

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货物运输条件鉴定书(空运)

Certification for Safe Transport of Goods by Air

样品名称: 锂离子充电电池

Sample Name: Li-ion Rechargeable Battery

委托单位: 惠州隆基电子有限公司

Applicant: VIEW TECH LIMITED



广东出入境检验检疫局检验检疫技术中心

Inspection & Quarantine Technology Center of Guangdong Entry-Exit Inspection
& Quarantine Bureau of The People's Republic of China

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QOQCMRSPV

检验证书
TEST REPORTNo: 01051500000795-3 (E)
Date: 2015-03-04
Page: 2 of 5

货物运输条件鉴定书

Certification for Safe Transport of Goods

| | | | | | | |
|--|---|---|---|---|----------------------|--------------------------------|
| 货物名称 Goods name | 中文 Chinese | 锂离子充电电池 | | | | |
| | 英文 English | Li-ion Rechargeable Battery | | | | |
| 型号 Model | BP290 RECHARGEABLE BATTERY 10.8V 2500mAh 27Wh | | 电芯型号 Cell Model | ICR18650B4 | | |
| 委托单位 Consignor | 惠州隆基电子有限公司 VIEW TECH LIMITED | | | | | |
| 生产单位 Manufacturer | 惠州隆基电子有限公司 VIEW TECH LIMITED | | | | | |
| 检查方法、程序 Inspection method and procedure | 国际航空运输协会《危险品规则》(第55版) IATA Dangerous Goods Regulation(55nd Edition) ICAO 危险物品安全航空运输《技术细则》2013-2014 年版 ICAO Technical Instructions(2013-2014 Edition) | | | | | |
| 样品外观 Sample Appearance | 黑色塑胶及塑料薄膜外壳 Black plastic and plastic film shell | | | | | |
| 包装件信息 Package information | 电池数量 Quantity | 40 | 重量 Weight | 7.90Kg | 尺寸 Size | 400mm(L)*310mm(W) *120mm(H) |
| 电池信息 Battery information | 序号 | 类型 Type | 型号 Model | 额定容量 Rate capacity /锂含量 Li content | 放置方式 Placement | |
| | 1 | 锂离子充电电池 | BP290 RECHARGEABLE BATTERY 10.8V 2500mAh 27Wh | 27Wh | 只有电池 Battery only | |
| 鉴定结论 IDENTIFICATION CONCLUSION | | 1、危险性识别(Hazards identification): 无/NO。 2、按照国际航空运输协会《危险品规则》办理类项(Suggestion according to IATA DGR) 可按普通货物条件办理。According to the conditions of general cargo handled 3、包装要求(Packaging requirements): 根据包装说明 965-IB 部分办理,客、货机均可。 The goods are packaged according to the packaging instruction 965 section IB, Passenger and Cargo Aircraft. | | | | |
| 报告专用章 (注5) | | 每个包装件除应贴有9类危险性标签外,还应贴有锂电池操作标签。 Each package should be labelled with a lithium battery label in addition to hazard label. | | | | |

批准

Approver:

审核

Checker:

主检

Appraiser:

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QOQCMRSNPV

No: 01051500000795-3 (E)

Date: 2015-03-04

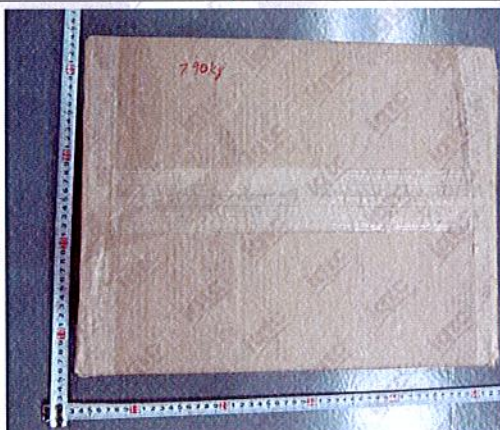
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检验证书 TEST REPORT

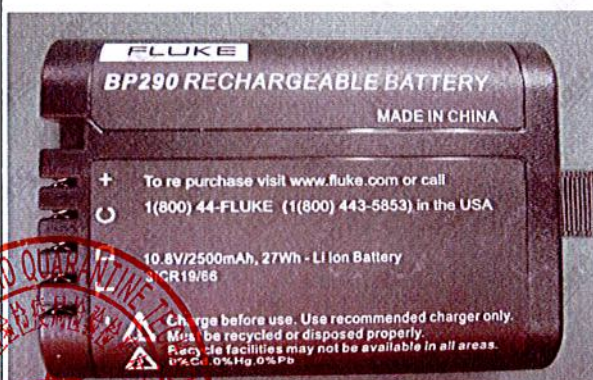
货物运输条件鉴定书 Certification for Safe Transport of Goods

图片/Photo

包装
件
package



电池
与 电
芯
Battery
and
Cell



1. 我们已尽所能实施上述检验, 不能因签发本报告而免除有关各方根据合同和法律所承担的责任和义务。All inspections are carried out conscientiously to the best of our knowledge and ability. This report does not in any respect absolve the other related parties from his contractual and legal obligations.
2. 一般情况, 检验结果仅对申请人所送样品负责。未经本实验室书面同意, 不得部分复制本报告。The results shown in this test report refer only to the sample(s) tested unless otherwise stated. Without the prior written approval from the issuing laboratory, the report shall not be reproduced except in full.

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TEST REPORTNo: 01051500000795-3 (E)
Date: 2015-03-04
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货物运输条件鉴定书

Certification for Safe Transport of Goods

| 序号 No. | 检查结果及其他事项 Inspection results and other things |
|--------------|---|
| 1 | 客户声明 Consignor announcement: 本报告所述锂电池无明显安全缺陷, 不属于因安全原因召回的锂电池; Lithium cells and batteries listed in this report have no significant defect, and they are not the defective cells or batteries returned to the manufacturer for safety reasons. 本报告所述锂电池不进行以回收或处置为目的的航空运输, 不属于废弃锂电池; Lithium cells and batteries listed in this report are not waste lithium cells or batteries, and they will not be shipped for recycling or disposal from air transport. 本报告所述锂电池按照《危险品规则》3.9.2.6e)规定的质量管理体系进行制造。 Lithium cells and batteries listed in this report were manufactured under the quality management programme as described in DGR 3.9.2.6e). |
| 2 | 本报告所述锂电池已通过联合国《试验和标准手册》第 III 部分 38.3 小节相应测试要求 (证书编号: 01051500000795-1)。 Lithium cells and batteries listed in this report are of the types proven to meet the requirements of each applicable test in the UN Manual of Tests and Criteria, Part III, sub-section 38.3 (Test Report No.: 01051500000795-1). 包装件能够承受 1.2m 跌落试验, 包装件的毛重不超过 10kg (证书编号: 01051500000795-2)。 The package has passed the 1.2m drop test, Packages of a gross weight not exceeding 10kg (Test Report No.: 01051500000795-2). |
| 3 | 锂电池完全封装在内包装内, 位于坚固的外包装中。 Lithium cells and batteries are packed in inner packagings that completely enclose the cell or battery and placed in a strong outer packaging |
| 4 | 电池具有适当的防短路措施。 Cells and batteries are properly protected to prevent short circuits. |
| 5 | 每批托运货物必须附带一份包括一下内容的文件: ——根据情况, 标明包件内装有锂离子电池组; ——标明包件必须小心轻放, 如果包件损坏, 有着火的危险; ——标明如包件受到损坏, 应当遵守的特别程序, 包括检查, 如有必要, 重新包装; ——了解其他情况的电话号码。 Each consignment must be accompanied with a document with an indication that: ---The package contains lithium ion batteries. --- The package must be handled with care and that a flammability hazard exists if the package is damaged. --- Special procedures must be followed in the event the package is damaged, to include inspection and repacking if necessary. --- telephone number for additional information. |
| 备注 Remark | 适用于空运。 Be applicable to transport by air. |



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检验证书
TEST REPORT

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