



NO.1119120373

# 检测报告

## Test Report

样品名称: PANTHER纽扣电池 CR2032 3V 210mAh

Name of Sample: PANTHER Lithium Button Cell CR2032 3V 210mAh

委托单位: 襄阳市乐帆山电子有限公司

Consignor: /



上海化工院检测有限公司

Shanghai Research Institute of Chemical Industry Testing Co., Ltd.

# 上海化工院检测有限公司 检测报告

Shanghai Research Institute of Chemical Industry  
Testing Co., Ltd. Test Report

NO. 1119120373

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|                             |                                                                                                                                                                                                                                                                                       |                                              |                             |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-----------------------------|
| 样品名称<br>Name of Sample      | 中文<br>Chinese                                                                                                                                                                                                                                                                         | PANTHER纽扣电池 CR2032 3V 210mAh                 |                             |
|                             | 英文<br>English                                                                                                                                                                                                                                                                         | PANTHER Lithium Button Cell CR2032 3V 210mAh |                             |
| 样品编号<br>Sample No.          | 1119120373                                                                                                                                                                                                                                                                            |                                              |                             |
| 委托单位<br>Consignor           | 襄阳市乐机山电子有限公司                                                                                                                                                                                                                                                                          |                                              |                             |
| 生产单位<br>Manufacturer        | 常州宇峰电池有限公司<br>Changzhou Yufeng Battery Co., Ltd.                                                                                                                                                                                                                                      |                                              |                             |
| 检测方法<br>Test method         | 联合国《关于危险货物运输的建议书 试验和标准手册》<br>ST/SG/AC.10/11/Rev.6 Amend.1 38.3 UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS" Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 Amend.1 Section 38.3                                                                            |                                              |                             |
| 判定标准<br>Criterion           | 联合国《关于危险货物运输的建议书 试验和标准手册》<br>ST/SG/AC.10/11/Rev.6 Amend.1 38.3 UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS" Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 Amend.1 Section 38.3                                                                            |                                              |                             |
| 样品外观<br>Appearance          | 银色金属外壳<br>Silvery Metal shell                                                                                                                                                                                                                                                         |                                              |                             |
| 样品接受日期<br>Accepted Date     | 2019-12-21                                                                                                                                                                                                                                                                            | 检测起造日期<br>Test Date                          | 2019-12-26 ~ 2020-01-23     |
| 检测项目<br>Test Items          | 高度模拟;热测试;振动;冲击;外短路;挤压;强制放电<br>Altitude simulation, Thermal test, Vibration, Shock, External short circuit, Crush, Forced discharge                                                                                                                                                    |                                              |                             |
| 检测结论<br>Conclusion          | 经检测,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》<br>ST/SG/AC.10/11/Rev.6 Amend.1 38.3标准要求。<br>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 Amend.1 38.3<br>生效日期(Date): 2020-02-13 |                                              |                             |
| 备注<br>Comment               | 锂含量0.066g。Lithium content:0.066g。不可充电锂电池 Primary Lithium Cell./<br>(06)                                                                                                                                                                                                               |                                              |                             |
| 委托单位地址<br>Consignor Address | /                                                                                                                                                                                                                                                                                     |                                              | 邮政编码<br>Post Code<br>518106 |

批准  
Approver:  
职务  
Title:  
副总工程师(Vice chief engineer)

审核  
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陈建峰

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# 上海化工院检测有限公司

## 检测报告

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| 序号<br>No.                              | 检测项目名称<br>Name of Test Items  | 标准要求或标准条款号<br>Standard requirement or The Clause Number of Standard                                                                                    | 检测结果<br>Test Result     | 本项结论<br>Conclusion | 备注<br>Remark    |
|----------------------------------------|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|--------------------|-----------------|
| 1                                      | 高度模拟<br>Altitude simulation   | 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.6 Amend.1 38.3 试验T.1<br>UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 Amend.1 Section 38.3 Test T.1 | 见附表 1<br>See Appendix 1 | 合格<br>Passed       | /               |
| 2                                      | 热测试<br>Thermal test           | 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.6 Amend.1 38.3 试验T.2<br>UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 Amend.1 Section 38.3 Test T.2 | 见附表 2<br>See Appendix 2 | 合格<br>Passed       | /               |
| 3                                      | 振动<br>Vibration               | 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.6 Amend.1 38.3 试验T.3<br>UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 Amend.1 Section 38.3 Test T.3 | 见附表 3<br>See Appendix 3 | 合格<br>Passed       | /               |
| 4                                      | 冲击<br>Shock                   | 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.6 Amend.1 38.3 试验T.4<br>UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 Amend.1 Section 38.3 Test T.4 | 见附表 4<br>See Appendix 4 | 合格<br>Passed       | /               |
| 5                                      | 外短路<br>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》ST/SG/AC.10/11/Rev.6 Amend.1 38.3 试验T.5<br>UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 Amend.1 Section 38.3 Test T.5 | 见附表 5<br>See Appendix 5 | 合格<br>Passed       | /               |
| 6                                      | 挤压<br>Crush                   | 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.6 Amend.1 38.3 试验T.6<br>UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 Amend.1 Section 38.3 Test T.6 | 见附表 6<br>See Appendix 6 | 合格<br>Passed       | /               |
| 7                                      | 强制放电<br>Forced discharge      | 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.6 Amend.1 38.3 试验T.8<br>UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 Amend.1 Section 38.3 Test T.8 | 见附表 7<br>See Appendix 7 | 合格<br>Passed       | /               |
| 8                                      | 以下空白                          | This space intentionally left blank                                                                                                                    |                         |                    |                 |
| 检测环境条件<br>Test Environment Condition   |                               | 环境温度:20℃-24℃;环境湿度:/%<br>Ambient temperature:20℃-24℃;Ambient humidity:/%                                                                                |                         |                    |                 |
| 分包检验情况<br>Subcontracted Test Condition |                               | 检测项目<br>Test Item                                                                                                                                      | /                       |                    |                 |
|                                        |                               | 分包实验室<br>Subcontracted Laboratory                                                                                                                      | 名称<br>Name              | /                  | 邮编<br>Post Code |
|                                        |                               |                                                                                                                                                        | 地址<br>Address           | /                  | 电话<br>Tel       |



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| 序号<br>No.                 | 2                        | 检测项目名称<br>Name of Test Items |                   | 热测试<br>Thermal test |                   |                         |                               |                            |
|---------------------------|--------------------------|------------------------------|-------------------|---------------------|-------------------|-------------------------|-------------------------------|----------------------------|
| 样品<br>编号<br>Sample<br>No. | 样品状态<br>Sample Status    | 试验前 Before                   |                   | 试验后 After           |                   | 质量损失<br>Mass Loss<br>/% | 剩余电压<br>Residual<br>OCV<br>/% | 其他<br>现象<br>Other<br>Event |
|                           |                          | 质量<br>Mass<br>/g             | 开路电压<br>OCV<br>/V | 质量<br>Mass<br>/g    | 开路电压<br>OCV<br>/V |                         |                               |                            |
| 001                       | 未放电<br>Undischarged      | 2.8112                       | 3.53              | 2.8086              | 3.45              | 0.09                    | 97.73                         | O                          |
| 002                       | 未放电<br>Undischarged      | 2.8202                       | 3.55              | 2.8184              | 3.46              | 0.06                    | 97.46                         | O                          |
| 003                       | 未放电<br>Undischarged      | 2.8109                       | 3.55              | 2.8084              | 3.46              | 0.09                    | 97.46                         | O                          |
| 004                       | 未放电<br>Undischarged      | 2.8375                       | 3.53              | 2.8345              | 3.45              | 0.11                    | 97.73                         | O                          |
| 005                       | 未放电<br>Undischarged      | 2.8258                       | 3.52              | 2.8234              | 3.45              | 0.08                    | 98.01                         | O                          |
| 006                       | 未放电<br>Undischarged      | 2.8149                       | 3.53              | 2.8120              | 3.45              | 0.10                    | 97.73                         | O                          |
| 007                       | 未放电<br>Undischarged      | 2.7997                       | 3.54              | 2.7971              | 3.45              | 0.09                    | 97.46                         | O                          |
| 008                       | 未放电<br>Undischarged      | 2.8261                       | 3.53              | 2.8235              | 3.45              | 0.09                    | 97.73                         | O                          |
| 009                       | 未放电<br>Undischarged      | 2.8301                       | 3.54              | 2.8275              | 3.46              | 0.09                    | 97.74                         | O                          |
| 010                       | 未放电<br>Undischarged      | 2.8223                       | 3.54              | 2.8193              | 3.46              | 0.11                    | 97.74                         | O                          |
| 011                       | 完全放电<br>Fully discharged | 2.8948                       | /                 | 2.8928              | /                 | 0.07                    | /                             | O                          |
| 012                       | 完全放电<br>Fully discharged | 2.8539                       | /                 | 2.8525              | /                 | 0.05                    | /                             | O                          |
| 013                       | 完全放电<br>Fully discharged | 2.8853                       | /                 | 2.8835              | /                 | 0.06                    | /                             | O                          |
| 014                       | 完全放电<br>Fully discharged | 2.8698                       | /                 | 2.8686              | /                 | 0.04                    | /                             | O                          |
| 015                       | 完全放电<br>Fully discharged | 2.9084                       | /                 | 2.9067              | /                 | 0.06                    | /                             | O                          |
| 016                       | 完全放电<br>Fully discharged | 2.8765                       | /                 | 2.8764              | /                 | 0.00                    | /                             | O                          |
| 017                       | 完全放电<br>Fully discharged | 2.9040                       | /                 | 2.9023              | /                 | 0.06                    | /                             | O                          |
| 018                       | 完全放电<br>Fully discharged | 2.8841                       | /                 | 2.8816              | /                 | 0.09                    | /                             | O                          |
| 019                       | 完全放电<br>Fully discharged | 2.8916                       | /                 | 2.8898              | /                 | 0.06                    | /                             | O                          |
| 020                       | 完全放电<br>Fully discharged | 2.8840                       | /                 | 2.8816              | /                 | 0.08                    | /                             | O                          |

备注: L-泄漏 V-漏气 D-解体 R-破裂 F-起火 O-无泄漏、无漏气、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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备注: L-泄漏 V-漏气 D-解体 R-破裂 F-起火 O-无泄漏、无漏气、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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检测报告-附表 4

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| 序号<br>No.                 | 4                        | 检测项目名称<br>Name of Test Items |                   | 冲击<br>Shock      |                   |                         |                               |                            |
|---------------------------|--------------------------|------------------------------|-------------------|------------------|-------------------|-------------------------|-------------------------------|----------------------------|
| 样品<br>编号<br>Sample<br>No. | 样品状态<br>Sample Status    | 试验前 Before                   |                   | 试验后 After        |                   | 质量损失<br>Mass Loss<br>/% | 剩余电压<br>Residual<br>OCV<br>/% | 其他<br>现象<br>Other<br>Event |
|                           |                          | 质量<br>Mass<br>/g             | 开路电压<br>OCV<br>/V | 质量<br>Mass<br>/g | 开路电压<br>OCV<br>/V |                         |                               |                            |
| 001                       | 未放电<br>Undischarged      | 2.8072                       | 3.45              | 2.8077           | 3.45              | 0.00                    | 100.00                        | O                          |
| 002                       | 未放电<br>Undischarged      | 2.8161                       | 3.46              | 2.8163           | 3.46              | 0.00                    | 100.00                        | O                          |
| 003                       | 未放电<br>Undischarged      | 2.8062                       | 3.46              | 2.8061           | 3.46              | 0.00                    | 100.00                        | O                          |
| 004                       | 未放电<br>Undischarged      | 2.8334                       | 3.45              | 2.8335           | 3.45              | 0.00                    | 100.00                        | O                          |
| 005                       | 未放电<br>Undischarged      | 2.8202                       | 3.45              | 2.8204           | 3.45              | 0.00                    | 100.00                        | O                          |
| 006                       | 未放电<br>Undischarged      | 2.8114                       | 3.45              | 2.8112           | 3.45              | 0.01                    | 100.00                        | O                          |
| 007                       | 未放电<br>Undischarged      | 2.7955                       | 3.45              | 2.7953           | 3.45              | 0.01                    | 100.00                        | O                          |
| 008                       | 未放电<br>Undischarged      | 2.8220                       | 3.45              | 2.8222           | 3.45              | 0.00                    | 100.00                        | O                          |
| 009                       | 未放电<br>Undischarged      | 2.8256                       | 3.45              | 2.8258           | 3.45              | 0.00                    | 100.00                        | O                          |
| 010                       | 未放电<br>Undischarged      | 2.8176                       | 3.45              | 2.8179           | 3.45              | 0.00                    | 100.00                        | O                          |
| 011                       | 完全放电<br>Fully discharged | 2.8918                       | /                 | 2.8921           | /                 | 0.00                    | /                             | O                          |
| 012                       | 完全放电<br>Fully discharged | 2.8517                       | /                 | 2.8515           | /                 | 0.01                    | /                             | O                          |
| 013                       | 完全放电<br>Fully discharged | 2.8826                       | /                 | 2.8824           | /                 | 0.01                    | /                             | O                          |
| 014                       | 完全放电<br>Fully discharged | 2.8675                       | /                 | 2.8678           | /                 | 0.00                    | /                             | O                          |
| 015                       | 完全放电<br>Fully discharged | 2.9056                       | /                 | 2.9053           | /                 | 0.01                    | /                             | O                          |
| 016                       | 完全放电<br>Fully discharged | 2.8752                       | /                 | 2.8754           | /                 | 0.00                    | /                             | O                          |
| 017                       | 完全放电<br>Fully discharged | 2.9018                       | /                 | 2.9017           | /                 | 0.00                    | /                             | O                          |
| 018                       | 完全放电<br>Fully discharged | 2.8807                       | /                 | 2.8809           | /                 | 0.00                    | /                             | O                          |
| 019                       | 完全放电<br>Fully discharged | 2.8889                       | /                 | 2.8892           | /                 | 0.00                    | /                             | O                          |
| 020                       | 完全放电<br>Fully discharged | 2.8818                       | /                 | 2.8820           | /                 | 0.00                    | /                             | O                          |

备注: L-泄漏 V-漏气 D-解体 R-破裂 F-起火 O-无泄漏、无漏气、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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检测报告-附表 5

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| 序号<br>No.                                                                                                          | 5                        | 检测项目名称<br>Name of Test Items                | 外短路<br>External short circuit |
|--------------------------------------------------------------------------------------------------------------------|--------------------------|---------------------------------------------|-------------------------------|
| 样品编号<br>Sample No.                                                                                                 | 样品状态<br>Sample Status    | 样品表面最高温度<br>Max. External Temperature<br>/℃ | 其他现象<br>Other Event           |
| 001                                                                                                                | 未放电<br>Undischarged      | 57.8                                        | O                             |
| 002                                                                                                                | 未放电<br>Undischarged      | 58.8                                        | O                             |
| 003                                                                                                                | 未放电<br>Undischarged      | 57.6                                        | O                             |
| 004                                                                                                                | 未放电<br>Undischarged      | 58.5                                        | O                             |
| 005                                                                                                                | 未放电<br>Undischarged      | 59.8                                        | O                             |
| 006                                                                                                                | 未放电<br>Undischarged      | 59.2                                        | O                             |
| 007                                                                                                                | 未放电<br>Undischarged      | 59.1                                        | O                             |
| 008                                                                                                                | 未放电<br>Undischarged      | 60.8                                        | O                             |
| 009                                                                                                                | 未放电<br>Undischarged      | 60.5                                        | O                             |
| 010                                                                                                                | 未放电<br>Undischarged      | 60.9                                        | O                             |
| 011                                                                                                                | 完全放电<br>Fully discharged | 58.1                                        | O                             |
| 012                                                                                                                | 完全放电<br>Fully discharged | 58.1                                        | O                             |
| 013                                                                                                                | 完全放电<br>Fully discharged | 57.6                                        | O                             |
| 014                                                                                                                | 完全放电<br>Fully discharged | 58.4                                        | O                             |
| 015                                                                                                                | 完全放电<br>Fully discharged | 58.9                                        | O                             |
| 016                                                                                                                | 完全放电<br>Fully discharged | 59.1                                        | O                             |
| 017                                                                                                                | 完全放电<br>Fully discharged | 58.9                                        | O                             |
| 018                                                                                                                | 完全放电<br>Fully discharged | 59.2                                        | O                             |
| 019                                                                                                                | 完全放电<br>Fully discharged | 59.5                                        | O                             |
| 020                                                                                                                | 完全放电<br>Fully discharged | 59.5                                        | O                             |
| 备注: D-解体 R-破裂 F-起火 O-无解体, 无起火, 无破裂。<br>Note: D-Disassembly R-Ruptur F-Fire O-No Disassembly, No Fire & No Rupture. |                          |                                             |                               |

## SRICI Testing Co., Ltd. Test Report—Appendix 6

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[illegible]

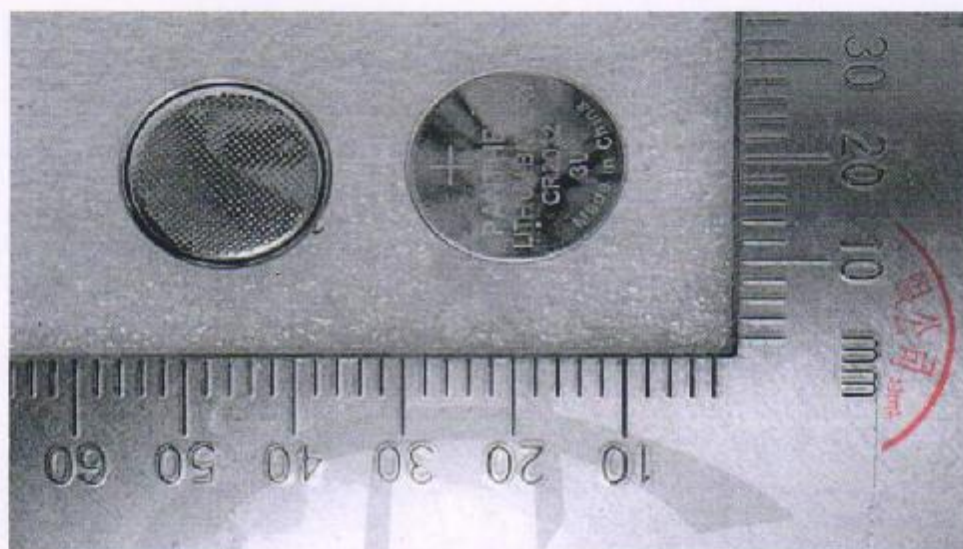
[illegible]

上海化工院检测有限公司  
检测报告-附图

SRICI Testing Co., Ltd. Test Report—Appendix

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\*\*\*报告结束\*\*\*