



中国认可  
国际互认  
检测  
TESTING  
CNAS L3767

# 检测报告

## Test Report

报告编号 (Report No.): RTN-UN-2007-4031

样品名称: 锂离子电池组

Sample Name: Secondary Li-ion Battery

样品型号: EB-BG991ABY

Sample Model: EB-BG991ABY

委托单位: 宁德新能源科技有限公司

Consignor: Ningde Amperex Technology Limited

东莞新能源科技有限公司中心实验室

Dongguan Amperex Technology Limited Central Lab

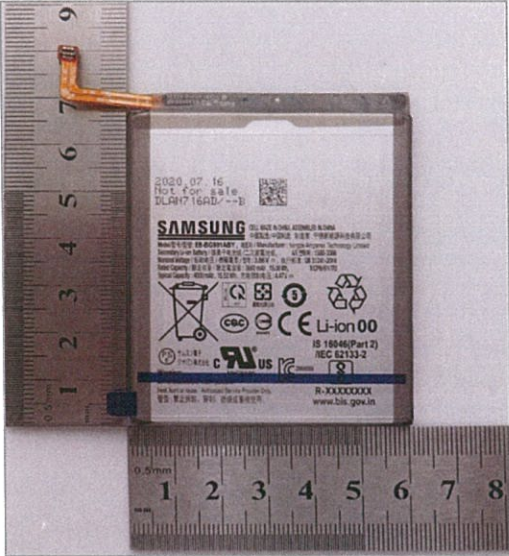
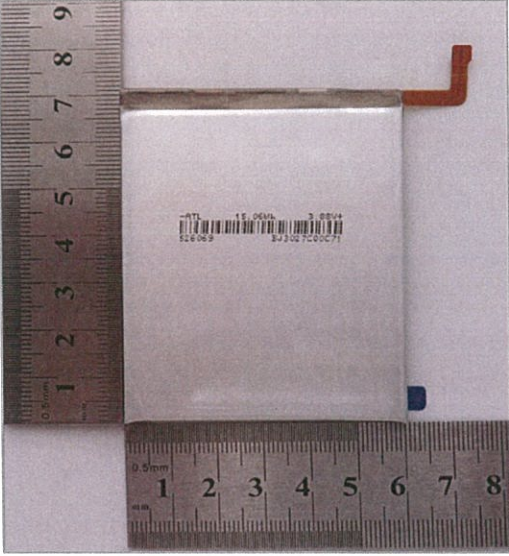


|                                        |                                                                                                                                                                                                                                                                 |                                                                                                                   |                                               |  |  |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|--|--|
| 样品名称<br>Sample name                    | 锂离子电池组<br>Secondary Li-ion Battery                                                                                                                                                                                                                              | 测试类别<br>Test category                                                                                             | 委托检测<br>After testing                         |  |  |
| 样品型号<br>Sample model                   | EB-BG991ABY                                                                                                                                                                                                                                                     | 样品接收日期<br>Accepted date                                                                                           | 2020-07-24                                    |  |  |
| 样品规格<br>Sample specification           | 3.88V 15.06Wh                                                                                                                                                                                                                                                   | 测试开始日期<br>Test start date                                                                                         | 2020-07-27                                    |  |  |
| 样品数量(个)<br>Sample quantity (pcs.)      | 48                                                                                                                                                                                                                                                              | 测试结束日期<br>Test end date                                                                                           | 2020-08-22                                    |  |  |
| 委托单位信息<br>Consignor Information        | 委托单位<br>Consignor                                                                                                                                                                                                                                               | 宁德新能源科技有限公司<br>Ningde Amperex Technology Limited                                                                  |                                               |  |  |
|                                        | 委托单位地址<br>Consignor address                                                                                                                                                                                                                                     | 中国福建省宁德市蕉城区漳湾镇新港路 1 号<br>No.1 XinGang Road, Zhangwan Town, JiaoCheng City, Ningde,<br>Fujian Province, P.R. China |                                               |  |  |
| 制造商信息<br>Manufacturer Information      | 制造商名称<br>Manufacturer Name                                                                                                                                                                                                                                      | 宁德新能源科技有限公司<br>Ningde Amperex Technology Limited                                                                  |                                               |  |  |
|                                        | 制造商地址<br>Manufacturer address                                                                                                                                                                                                                                   | 中国福建省宁德市蕉城区漳湾镇新港路 1 号<br>No.1 XinGang Road, Zhangwan Town, JiaoCheng City, Ningde,<br>Fujian Province, P.R. China |                                               |  |  |
|                                        | 电话号码<br>Telephone Number                                                                                                                                                                                                                                        | +86-(0)593-258 3888                                                                                               | 电子邮箱<br>E-mail<br>ND-Reception@ATLBattery.com |  |  |
|                                        | 网址<br>Website                                                                                                                                                                                                                                                   | www.atlbattery.com                                                                                                |                                               |  |  |
| 测试环境条件<br>Test environment condition   | 环境温度: 15℃ - 25℃; 环境湿度: 45%~75%<br>Ambient temperature: 15℃ - 25℃; Ambient humidity: 45%~75%                                                                                                                                                                     |                                                                                                                   |                                               |  |  |
| 样品外观<br>Appearance                     | 银色尼龙/铝/聚丙烯复合膜<br>Silver nylon/Al/PP compound film                                                                                                                                                                                                               |                                                                                                                   |                                               |  |  |
| 测试方法和判定标准<br>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》<br>ST/SG/AC.10/11 Rev.6/Amend 1, 38.3<br>UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS" Manual of Tests and Criteria<br>ST/SG/AC.10/11 Rev.6/Amend 1, 38.3                                                      |                                                                                                                   |                                               |  |  |
| 测试项目<br>Test items                     | 高度模拟、温度试验、振动、冲击、外部短路、挤压、过度充电、强制放电<br>Altitude simulation, Thermal test, Vibration, Shock, External short circuit, Crush, Overcharge, Forced discharge                                                                                                           |                                                                                                                   |                                               |  |  |
| 测试结论<br>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》<br>ST/SG/AC.10/11 Rev.6/Amend 1, 38.3 标准的要求<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 |                                                                                                                   |                                               |  |  |
| 测试人员<br>Testers                        | 陈超 杨卓锦 (检测人员)<br>(Testers)                                                                                                                                                                                                                                      |                                                                                                                   |                                               |  |  |
| 编制人员<br>Compiler                       | 陈雅 (技术员)<br>(Technician)                                                                                                                                                                                                                                        |                                                                                                                   |                                               |  |  |
| 审核<br>Checker                          | 刘城欽 (测试工程师)<br>(Test Engineer)                                                                                                                                                                                                                                  |                                                                                                                   |                                               |  |  |
| 批准<br>Approval                         | 郭佳丽 (签章)<br>(signature)                                                                                                                                                                                                                                         |                                                                                                                   |                                               |  |  |
|                                        | 蔡京晶: 技术负责人<br>Cai JingJing: Technical Director<br>郭佳丽: 中心主任<br>Guo Jiali: Center Director                                                                                                                                                                       |                                                                                                                   |                                               |  |  |

东莞新能源科技有限公司  
中心实验室  
Dongguan Amperex Technology  
Limited Central Lab  
(签章)

签发日期: 2020 年 8 月 27 日

| 样品描述及说明<br>Sample description and description |                                                                                                                            |                         |             |
|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-------------------------|-------------|
| 样品名称<br>Sample name                           | 锂离子电池组<br>Secondary Li-ion Battery                                                                                         | 型号<br>Model             | EB-BG991ABY |
| 额定容量<br>Rated capacity                        | 3880mAh                                                                                                                    | 标称电压<br>Nominal voltage | 3.88V       |
| 化学组分<br>Chemical composition                  | 钴酸锂-石墨                                                                                                                     |                         |             |
| 测试用充电程序<br>Test charge program                | 按照制造商规定的办法进行充电(1.3Cmin Max to 4.16V, CV to 1.0Cmin; 1.0Cmin to 4.28V, CV to 0.8Cmin, 0.8Cmin to 4.47V, then CV to 0.1Cmin) |                         |             |
| 测试用放电程序<br>Test using a program               | 按照制造商规定的电流进行恒流放电至放电截止电压(1.0Cmin DC to 2.75V)                                                                               |                         |             |

| 测试样品图<br>Test sample image                                                           |                                                                                      |
|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|   |  |
| 图 1: 正面<br>Figure 1: positive                                                        | 图 2: 反面<br>Figure 2: negative                                                        |
|  |                                                                                      |
| 图 3: 标识<br>Figure 3: Logo                                                            |                                                                                      |

| 序号<br>No.                              | 测试项目名称<br>Name of test            | 标准要求或标准条款号<br>Standard requirement or the clause<br>number of standard                                    | 测试结果<br>Test result     | 本项结论<br>Test<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》试验 T1; UN Manual of Test and Criteria ST/SG/AC.10/11/Rev.6/Amend 1, 38.3 Test 1  | 见附表 1<br>See Appendix 1 | 合格<br>Passed               | /                  |   |
| 2                                      | 温度试验<br>Thermal                   | 联合国《关于危险货物运输的建议书 试验和标准手册》试验 T2; UN Manual of Test and Criteria ST/SG/AC.10/11/Rev.6/ Amend 1, 38.3 Test 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》试验 T3; UN Manual of Test and Criteria ST/SG/AC.10/11/Rev.6 /Amend 1, 38.3 Test 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》试验 T4; UN Manual of Test and Criteria ST/SG/AC.10/11/Rev.6 /Amend 1, 38.3 Test 4 | 见附表 4<br>See Appendix 4 | 合格<br>Passed               | /                  |   |
| 5                                      | 外部短路<br>External<br>short-circuit | 联合国《关于危险货物运输的建议书 试验和标准手册》试验 T5; UN Manual of Test and Criteria ST/SG/AC.10/11/Rev.6 /Amend 1, 38.3 Test 5 | 见附表 5<br>See Appendix 5 | 合格<br>Passed               | /                  |   |
| 6                                      | 挤压/撞击<br>Crush/Impact             | 联合国《关于危险货物运输的建议书 试验和标准手册》试验 T6; UN Manual of Test and Criteria ST/SG/AC.10/11/Rev.6 /Amend 1, 38.3 Test 6 | 见附表 6<br>See Appendix 6 | 合格<br>Passed               | /                  |   |
| 7                                      | 过度充电<br>Overcharge                | 联合国《关于危险货物运输的建议书 试验和标准手册》试验 T7; UN Manual of Test and Criteria ST/SG/AC.10/11/Rev.6/Amend 1 , 38.3 Test 7 | 见附表 7<br>See Appendix 7 | 合格<br>Passed               | /                  |   |
| 8                                      | 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》试验 T8; UN Manual of Test and Criteria ST/SG/AC.10/11/Rev.6 /Amend 1, 38.3 Test 8 | 见附表 8<br>See Appendix 8 | 合格<br>Passed               | /                  |   |
| 分包测试情况<br>Subcontracted test condition |                                   | 测试项目<br>Test items                                                                                        | /                       |                            |                    |   |
|                                        |                                   | 分包实验室<br>Subcontracted<br>Laboratory                                                                      | 名称<br>Name              | /                          | 邮编<br>Post<br>code | / |
|                                        |                                   |                                                                                                           | 地址<br>Address           | /                          | 电话<br>Tel.         | / |

| 序号<br>No.                             | 1                               | 测试项目名称<br>Name of test items |                   | 高度模拟<br>Altitude simulation |                   |                       |                          |                     |
|---------------------------------------|---------------------------------|------------------------------|-------------------|-----------------------------|-------------------|-----------------------|--------------------------|---------------------|
| 样品编号<br>Sample No.                    | 样品状态<br>Sample status           | 测试前 Before test              |                   | 测试后 After test              |                   | 质量损失<br>Mass loss (%) | 剩余电压<br>Residual OCV (%) | 测试结果<br>Test result |
|                                       |                                 | 质量<br>$m_1$ (g)              | 开路电压<br>$U_1$ (V) | 质量<br>$m_2$ (g)             | 开路电压<br>$U_2$ (V) |                       |                          |                     |
| TBDDVSMG991U<br>+DLAN716AD+00<br>0802 | 首次完全充电<br>1cyc fully charged    | 53.2800                      | 4.412             | 53.2792                     | 4.408             | 0.00%                 | 99.91%                   | O                   |
| TBDDVSMG991U<br>+DLAN716AD+00<br>0843 | 首次完全充电<br>1cyc fully charged    | 53.2363                      | 4.410             | 53.2356                     | 4.407             | 0.00%                 | 99.93%                   | O                   |
| TBDDVSMG991U<br>+DLAN716AD+00<br>0699 | 首次完全充电<br>1cyc fully charged    | 53.4183                      | 4.412             | 53.4175                     | 4.408             | 0.00%                 | 99.91%                   | O                   |
| TBDDVSMG991U<br>+DLAN716AD+00<br>0596 | 首次完全充电<br>1cyc fully charged    | 53.3318                      | 4.410             | 53.3310                     | 4.407             | 0.00%                 | 99.93%                   | O                   |
| TBDDVSMG991U<br>+DLAN716AD+00<br>0627 | 首次完全充电<br>1cyc fully charged    | 53.1284                      | 4.411             | 53.1277                     | 4.407             | 0.00%                 | 99.91%                   | O                   |
| TBDDVSMG991U<br>+DLAN716AD+00<br>0513 | 25 次完全充电<br>25cyc fully charged | 53.2515                      | 4.415             | 53.2508                     | 4.412             | 0.00%                 | 99.93%                   | O                   |
| TBDDVSMG991U<br>+DLAN716AD+00<br>0726 | 25 次完全充电<br>25cyc fully charged | 53.3984                      | 4.415             | 53.3975                     | 4.411             | 0.00%                 | 99.91%                   | O                   |
| TBDDVSMG991U<br>+DLAN716AD+00<br>0532 | 25 次完全充电<br>25cyc fully charged | 53.3345                      | 4.415             | 53.3337                     | 4.412             | 0.00%                 | 99.93%                   | O                   |
| TBDDVSMG991U<br>+DLAN716AD+00<br>0815 | 25 次完全充电<br>25cyc fully charged | 53.4310                      | 4.413             | 53.4302                     | 4.409             | 0.00%                 | 99.91%                   | O                   |
| TBDDVSMG991U<br>+DLAN716AD+00<br>0827 | 25 次完全充电<br>25cyc fully charged | 53.3551                      | 4.414             | 53.3543                     | 4.411             | 0.00%                 | 99.93%                   | O                   |
| 以下空白                                  |                                 |                              |                   |                             |                   |                       |                          |                     |
|                                       |                                 |                              |                   |                             |                   |                       |                          |                     |
|                                       |                                 |                              |                   |                             |                   |                       |                          |                     |
|                                       |                                 |                              |                   |                             |                   |                       |                          |                     |
|                                       |                                 |                              |                   |                             |                   |                       |                          |                     |
|                                       |                                 |                              |                   |                             |                   |                       |                          |                     |
|                                       |                                 |                              |                   |                             |                   |                       |                          |                     |

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.

| 序号<br>No.                             | 2                               | 测试项目名称<br>Name of test items |                   | 温度试验<br>Thermal test |                   |                       |                          |                     |
|---------------------------------------|---------------------------------|------------------------------|-------------------|----------------------|-------------------|-----------------------|--------------------------|---------------------|
| 样品编号<br>Sample No.                    | 样品状态<br>Sample status           | 测试前 Before test              |                   | 测试后 After test       |                   | 质量损失<br>Mass loss (%) | 剩余电压<br>Residual OCV (%) | 测试结果<br>Test result |
|                                       |                                 | 质量<br>$m_1$ (g)              | 开路电压<br>$U_1$ (V) | 质量<br>$m_2$ (g)      | 开路电压<br>$U_2$ (V) |                       |                          |                     |
| TBDDVSMG991U<br>+DLAN716AD+00<br>0802 | 首次完全充电<br>1eye fully charged    | 53.2792                      | 4.408             | 53.2730              | 4.338             | 0.01%                 | 98.41%                   | O                   |
| TBDDVSMG991U<br>+DLAN716AD+00<br>0843 | 首次完全充电<br>1eye fully charged    | 53.2356                      | 4.407             | 53.2297              | 4.337             | 0.01%                 | 98.41%                   | O                   |
| TBDDVSMG991U<br>+DLAN716AD+00<br>0699 | 首次完全充电<br>1eye fully charged    | 53.4175                      | 4.408             | 53.4112              | 4.339             | 0.01%                 | 98.43%                   | O                   |
| TBDDVSMG991U<br>+DLAN716AD+00<br>0596 | 首次完全充电<br>1eye fully charged    | 53.3310                      | 4.407             | 53.3242              | 4.339             | 0.01%                 | 98.46%                   | O                   |
| TBDDVSMG991U<br>+DLAN716AD+00<br>0627 | 首次完全充电<br>1eye fully charged    | 53.1277                      | 4.407             | 53.1216              | 4.339             | 0.01%                 | 98.46%                   | O                   |
| TBDDVSMG991U<br>+DLAN716AD+00<br>0513 | 25 次完全充电<br>25eye fully charged | 53.2508                      | 4.412             | 53.2446              | 4.346             | 0.01%                 | 98.50%                   | O                   |
| TBDDVSMG991U<br>+DLAN716AD+00<br>0726 | 25 次完全充电<br>25eye fully charged | 53.3975                      | 4.411             | 53.3916              | 4.348             | 0.01%                 | 98.57%                   | O                   |
| TBDDVSMG991U<br>+DLAN716AD+00<br>0532 | 25 次完全充电<br>25eye fully charged | 53.3337                      | 4.412             | 53.3281              | 4.348             | 0.01%                 | 98.55%                   | O                   |
| TBDDVSMG991U<br>+DLAN716AD+00<br>0815 | 25 次完全充电<br>25eye fully charged | 53.4302                      | 4.409             | 53.4244              | 4.346             | 0.01%                 | 98.57%                   | O                   |
| TBDDVSMG991U<br>+DLAN716AD+00<br>0827 | 25 次完全充电<br>25eye fully charged | 53.3543                      | 4.411             | 53.3487              | 4.348             | 0.01%                 | 98.57%                   | O                   |
| 以下空白                                  |                                 |                              |                   |                      |                   |                       |                          |                     |
|                                       |                                 |                              |                   |                      |                   |                       |                          |                     |
|                                       |                                 |                              |                   |                      |                   |                       |                          |                     |
|                                       |                                 |                              |                   |                      |                   |                       |                          |                     |
|                                       |                                 |                              |                   |                      |                   |                       |                          |                     |
|                                       |                                 |                              |                   |                      |                   |                       |                          |                     |
|                                       |                                 |                              |                   |                      |                   |                       |                          |                     |

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.

| 序号<br>No.                     | 3                               | 测试项目名称<br>Name of test items |                   | 振动<br>Vibration |                   |                       |                          |                     |
|-------------------------------|---------------------------------|------------------------------|-------------------|-----------------|-------------------|-----------------------|--------------------------|---------------------|
| 样品编号<br>Sample No.            | 样品状态<br>Sample status           | 测试前 Before test              |                   | 测试后 After test  |                   | 质量损失<br>Mass loss (%) | 剩余电压<br>Residual OCV (%) | 测试结果<br>Test result |
|                               |                                 | 质量<br>$m_1$ (g)              | 开路电压<br>$U_1$ (V) | 质量<br>$m_2$ (g) | 开路电压<br>$U_2$ (V) |                       |                          |                     |
| TBDDVSMG991U+DLAN716AD+000802 | 首次完全充电<br>1eye fully charged    | 53.2730                      | 4.338             | 53.2741         | 4.336             | 0.00%                 | 99.95%                   | O                   |
| TBDDVSMG991U+DLAN716AD+000843 | 首次完全充电<br>1eye fully charged    | 53.2297                      | 4.337             | 53.2304         | 4.336             | 0.00%                 | 99.98%                   | O                   |
| TBDDVSMG991U+DLAN716AD+000699 | 首次完全充电<br>1eye fully charged    | 53.4112                      | 4.339             | 53.4120         | 4.337             | 0.00%                 | 99.95%                   | O                   |
| TBDDVSMG991U+DLAN716AD+000596 | 首次完全充电<br>1eye fully charged    | 53.3242                      | 4.339             | 53.3257         | 4.337             | 0.00%                 | 99.95%                   | O                   |
| TBDDVSMG991U+DLAN716AD+000627 | 首次完全充电<br>1eye fully charged    | 53.1216                      | 4.339             | 53.1224         | 4.338             | 0.00%                 | 99.98%                   | O                   |
| TBDDVSMG991U+DLAN716AD+000513 | 25 次完全充电<br>25eye fully charged | 53.2446                      | 4.346             | 53.2461         | 4.345             | 0.00%                 | 99.98%                   | O                   |
| TBDDVSMG991U+DLAN716AD+000726 | 25 次完全充电<br>25eye fully charged | 53.3916                      | 4.348             | 53.3931         | 4.346             | 0.00%                 | 99.95%                   | O                   |
| TBDDVSMG991U+DLAN716AD+000532 | 25 次完全充电<br>25eye fully charged | 53.3281                      | 4.348             | 53.3287         | 4.346             | 0.00%                 | 99.95%                   | O                   |
| TBDDVSMG991U+DLAN716AD+000815 | 25 次完全充电<br>25eye fully charged | 53.4244                      | 4.346             | 53.4262         | 4.344             | 0.00%                 | 99.95%                   | O                   |
| TBDDVSMG991U+DLAN716AD+000827 | 25 次完全充电<br>25eye fully charged | 53.3487                      | 4.348             | 53.3499         | 4.346             | 0.00%                 | 99.95%                   | O                   |
| 以下空白                          |                                 |                              |                   |                 |                   |                       |                          |                     |
|                               |                                 |                              |                   |                 |                   |                       |                          |                     |
|                               |                                 |                              |                   |                 |                   |                       |                          |                     |
|                               |                                 |                              |                   |                 |                   |                       |                          |                     |
|                               |                                 |                              |                   |                 |                   |                       |                          |                     |
|                               |                                 |                              |                   |                 |                   |                       |                          |                     |
|                               |                                 |                              |                   |                 |                   |                       |                          |                     |

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.

| 序号<br>No.                     | 4                               | 测试项目名称<br>Name of test items |                   | 冲击<br>Shock     |                   |                       |                          |                     |
|-------------------------------|---------------------------------|------------------------------|-------------------|-----------------|-------------------|-----------------------|--------------------------|---------------------|
| 样品编号<br>Sample No.            | 样品状态<br>Sample status           | 测试前 Before test              |                   | 测试后 After test  |                   | 质量损失<br>Mass loss (%) | 剩余电压<br>Residual OCV (%) | 测试结果<br>Test result |
|                               |                                 | 质量<br>$m_1$ (g)              | 开路电压<br>$U_1$ (V) | 质量<br>$m_2$ (g) | 开路电压<br>$U_2$ (V) |                       |                          |                     |
| TBDDVSMG991U+DLAN716AD+000802 | 首次完全充电<br>1eye fully charged    | 53.2741                      | 4.336             | 53.2747         | 4.336             | 0.00%                 | 100.00%                  | O                   |
| TBDDVSMG991U+DLAN716AD+000843 | 首次完全充电<br>1eye fully charged    | 53.2304                      | 4.336             | 53.2306         | 4.335             | 0.00%                 | 99.98%                   | O                   |
| TBDDVSMG991U+DLAN716AD+000699 | 首次完全充电<br>1eye fully charged    | 53.4120                      | 4.337             | 53.4123         | 4.337             | 0.00%                 | 100.00%                  | O                   |
| TBDDVSMG991U+DLAN716AD+000596 | 首次完全充电<br>1eye fully charged    | 53.3257                      | 4.337             | 53.3261         | 4.337             | 0.00%                 | 100.00%                  | O                   |
| TBDDVSMG991U+DLAN716AD+000627 | 首次完全充电<br>1eye fully charged    | 53.1224                      | 4.338             | 53.1227         | 4.338             | 0.00%                 | 100.00%                  | O                   |
| TBDDVSMG991U+DLAN716AD+000513 | 25 次完全充电<br>25eye fully charged | 53.2461                      | 4.345             | 53.2465         | 4.345             | 0.00%                 | 100.00%                  | O                   |
| TBDDVSMG991U+DLAN716AD+000726 | 25 次完全充电<br>25eye fully charged | 53.3931                      | 4.346             | 53.3934         | 4.346             | 0.00%                 | 100.00%                  | O                   |
| TBDDVSMG991U+DLAN716AD+000532 | 25 次完全充电<br>25eye fully charged | 53.3287                      | 4.346             | 53.3291         | 4.346             | 0.00%                 | 100.00%                  | O                   |
| TBDDVSMG991U+DLAN716AD+000815 | 25 次完全充电<br>25eye fully charged | 53.4262                      | 4.344             | 53.4265         | 4.344             | 0.00%                 | 100.00%                  | O                   |
| TBDDVSMG991U+DLAN716AD+000827 | 25 次完全充电<br>25eye fully charged | 53.3499                      | 4.346             | 53.3501         | 4.346             | 0.00%                 | 100.00%                  | O                   |
| 以下空白                          |                                 |                              |                   |                 |                   |                       |                          |                     |
|                               |                                 |                              |                   |                 |                   |                       |                          |                     |
|                               |                                 |                              |                   |                 |                   |                       |                          |                     |
|                               |                                 |                              |                   |                 |                   |                       |                          |                     |
|                               |                                 |                              |                   |                 |                   |                       |                          |                     |
|                               |                                 |                              |                   |                 |                   |                       |                          |                     |
|                               |                                 |                              |                   |                 |                   |                       |                          |                     |

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.

| 序号<br>No.                                                                                                                 | 5                               | 测试项目名称<br>Name of test items                 | 外部短路<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>(℃) | 测试结果<br>Test result            | 备注<br>Remark |
| TBDDVSMG991U+<br>DLAN716AD+00080<br>2                                                                                     | 首次完全充电<br>1cyc fully charged    | 59.0                                         | O                              | /            |
| TBDDVSMG991U+<br>DLAN716AD+00084<br>3                                                                                     | 首次完全充电<br>1cyc fully charged    | 60.1                                         | O                              | /            |
| TBDDVSMG991U+<br>DLAN716AD+00069<br>9                                                                                     | 首次完全充电<br>1cyc fully charged    | 56.1                                         | O                              | /            |
| TBDDVSMG991U+<br>DLAN716AD+00059<br>6                                                                                     | 首次完全充电<br>1cyc fully charged    | 55.6                                         | O                              | /            |
| TBDDVSMG991U+<br>DLAN716AD+00062<br>7                                                                                     | 首次完全充电<br>1cyc fully charged    | 55.5                                         | O                              | /            |
| TBDDVSMG991U+<br>DLAN716AD+00051<br>3                                                                                     | 25 次完全充电<br>25cyc fully charged | 57.2                                         | O                              | /            |
| TBDDVSMG991U+<br>DLAN716AD+00072<br>6                                                                                     | 25 次完全充电<br>25cyc fully charged | 59.5                                         | O                              | /            |
| TBDDVSMG991U+<br>DLAN716AD+00053<br>2                                                                                     | 25 次完全充电<br>25cyc fully charged | 56.2                                         | O                              | /            |
| TBDDVSMG991U+<br>DLAN716AD+00081<br>5                                                                                     | 25 次完全充电<br>25cyc fully charged | 55.6                                         | O                              | /            |
| TBDDVSMG991U+<br>DLAN716AD+00082<br>7                                                                                     | 25 次完全充电<br>25cyc fully charged | 55.6                                         | O                              | /            |
| 以下空白                                                                                                                      |                                 |                                              |                                |              |
|                                                                                                                           |                                 |                                              |                                |              |
|                                                                                                                           |                                 |                                              |                                |              |
|                                                                                                                           |                                 |                                              |                                |              |
|                                                                                                                           |                                 |                                              |                                |              |
|                                                                                                                           |                                 |                                              |                                |              |
|                                                                                                                           |                                 |                                              |                                |              |
| 注: D-解体; R-破裂; F-起火; O-无解体, 无破裂, 无起火。<br>Note: D-Disassembly, R-Rupture, F-Fire, O- No disassembly, no rupture & no fire. |                                 |                                              |                                |              |

| 序号<br>No.                                                                              | 6                                | 测试项目名称<br>Name of test items                  | 挤压<br>Crush         |              |  |
|----------------------------------------------------------------------------------------|----------------------------------|-----------------------------------------------|---------------------|--------------|--|
| 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>(°C) | 测试结果<br>Test result | 备注<br>Remark |  |
| BJ3027AA031C                                                                           | 首次 50%容量<br>1eye 50% capacity    | 21.8                                          | O                   | /            |  |
| BJ3026GA0B9D                                                                           | 首次 50%容量<br>1eye 50% capacity    | 21.9                                          | O                   | /            |  |
| BJ3026GA0836                                                                           | 首次 50%容量<br>1eye 50% capacity    | 21.7                                          | O                   | /            |  |
| BJ3026GA095B                                                                           | 首次 50%容量<br>1eye 50% capacity    | 21.7                                          | O                   | /            |  |
| BJ3026GA0968                                                                           | 首次 50%容量<br>1eye 50% capacity    | 22.1                                          | O                   | /            |  |
| BJ3027AA0459                                                                           | 25 次 50%容量<br>25eye 50% capacity | 21.9                                          | O                   | /            |  |
| BJ3026GA0D64                                                                           | 25 次 50%容量<br>25eye 50% capacity | 21.9                                          | O                   | /            |  |
| BJ3026GA027F                                                                           | 25 次 50%容量<br>25eye 50% capacity | 21.8                                          | O                   | /            |  |
| BJ3026GA027A                                                                           | 25 次 50%容量<br>25eye 50% capacity | 21.7                                          | O                   | /            |  |
| BJ3026FA04DA                                                                           | 25 次 50%容量<br>25eye 50% capacity | 21.7                                          | O                   | /            |  |
| 以下空白                                                                                   |                                  |                                               |                     |              |  |
|                                                                                        |                                  |                                               |                     |              |  |
|                                                                                        |                                  |                                               |                     |              |  |
|                                                                                        |                                  |                                               |                     |              |  |
|                                                                                        |                                  |                                               |                     |              |  |
|                                                                                        |                                  |                                               |                     |              |  |
|                                                                                        |                                  |                                               |                     |              |  |
|                                                                                        |                                  |                                               |                     |              |  |
| 注: D-解体; F-起火; O-无解体, 无起火。<br>Note: D-Disassembly, F-Fire, O- No disassembly, no fire. |                                  |                                               |                     |              |  |

| 序号<br>No.                         | 7                               | 测试项目名称<br>Name of test items | 过度充电<br>Overcharge |
|-----------------------------------|---------------------------------|------------------------------|--------------------|
| 样品编号<br>Sample No.                | 样品状态<br>Sample status           | 测试结果<br>Test result          | 备注<br>Remark       |
| TBDDVSMG991U+D<br>LAN716AD+000453 | 首次完全充电<br>1cyc fully charged    | O                            | /                  |
| TBDDVSMG991U+D<br>LAN716AD+000800 | 首次完全充电<br>1cyc fully charged    | O                            | /                  |
| TBDDVSMG991U+D<br>LAN716AD+000355 | 首次完全充电<br>1cyc fully charged    | O                            | /                  |
| TBDDVSMG991U+D<br>LAN716AD+000683 | 首次完全充电<br>1cyc fully charged    | O                            | /                  |
| TBDDVSMG991U+D<br>LAN716AD+000253 | 25 次完全充电<br>25cyc fully charged | O                            | /                  |
| TBDDVSMG991U+D<br>LAN716AD+000385 | 25 次完全充电<br>25cyc fully charged | O                            | /                  |
| TBDDVSMG991U+D<br>LAN716AD+000631 | 25 次完全充电<br>25cyc fully charged | O                            | /                  |
| TBDDVSMG991U+D<br>LAN716AD+000473 | 25 次完全充电<br>25cyc fully charged | O                            | /                  |
| 以下空白                              |                                 |                              |                    |
|                                   |                                 |                              |                    |
|                                   |                                 |                              |                    |
|                                   |                                 |                              |                    |
|                                   |                                 |                              |                    |
|                                   |                                 |                              |                    |
|                                   |                                 |                              |                    |
|                                   |                                 |                              |                    |
|                                   |                                 |                              |                    |
|                                   |                                 |                              |                    |
|                                   |                                 |                              |                    |
|                                   |                                 |                              |                    |
|                                   |                                 |                              |                    |
|                                   |                                 |                              |                    |
|                                   |                                 |                              |                    |
|                                   |                                 |                              |                    |
|                                   |                                 |                              |                    |
|                                   |                                 |                              |                    |

注：D-解体； F-起火； O-无解体，无起火。

Note: D-Disassembly, F-Fire, O- No disassembly, no fire.

| 序号<br>No.                                                                                       | 8                                  | 测试项目名称<br>Name of test items | 强制放电<br>Forced discharge |
|-------------------------------------------------------------------------------------------------|------------------------------------|------------------------------|--------------------------|
| 样品编号<br>Sample No.                                                                              | 样品状态<br>Sample status              | 测试结果<br>Test result          | 备注<br>Remark             |
| BJ3026FA047B                                                                                    | 首次完全放电<br>1cyc fully discharged    | O                            | /                        |
| BJ3026FA0046                                                                                    | 首次完全放电<br>1cyc fully discharged    | O                            | /                        |
| BJ3026GA0E14                                                                                    | 首次完全放电<br>1cyc fully discharged    | O                            | /                        |
| BJ3027AA0509                                                                                    | 首次完全放电<br>1cyc fully discharged    | O                            | /                        |
| BJ3026GA0929                                                                                    | 首次完全放电<br>1cyc fully discharged    | O                            | /                        |
| BJ3026GA0EA9                                                                                    | 首次完全放电<br>1cyc fully discharged    | O                            | /                        |
| BJ3026GA0308                                                                                    | 首次完全放电<br>1cyc fully discharged    | O                            | /                        |
| BJ3026GA078C                                                                                    | 首次完全放电<br>1cyc fully discharged    | O                            | /                        |
| BJ3026FA03F0                                                                                    | 首次完全放电<br>1cyc fully discharged    | O                            | /                        |
| BJ3026GA0D02                                                                                    | 首次完全放电<br>1cyc fully discharged    | O                            | /                        |
| BJ3027AA03FA                                                                                    | 25 次完全放电<br>25cyc fully discharged | O                            | /                        |
| BJ3026GA0B81                                                                                    | 25 次完全放电<br>25cyc fully discharged | O                            | /                        |
| BJ3026GA0E8F                                                                                    | 25 次完全放电<br>25cyc fully discharged | O                            | /                        |
| BJ3026FA0839                                                                                    | 25 次完全放电<br>25cyc fully discharged | O                            | /                        |
| BJ3027AA06F1                                                                                    | 25 次完全放电<br>25cyc fully discharged | O                            | /                        |
| BJ3026FA04D7                                                                                    | 25 次完全放电<br>25cyc fully discharged | O                            | /                        |
| BJ3026FA04D8                                                                                    | 25 次完全放电<br>25cyc fully discharged | O                            | /                        |
| BJ3026GA0072                                                                                    | 25 次完全放电<br>25cyc fully discharged | O                            | /                        |
| BJ3027AA07A3                                                                                    | 25 次完全放电<br>25cyc fully discharged | O                            | /                        |
| BJ3026GA08C7                                                                                    | 25 次完全放电<br>25cyc fully discharged | O                            | /                        |
| <p>注: D-解体; F-起火; O-无解体, 无起火。<br/> Note: D-Disassembly, F-Fire, O- No disassembly, no fire.</p> |                                    |                              |                          |

# 声 明

## Statement



1. 检测报告无本实验室公章无效。

The test report is invalid if not affixed the official seal of the laboratory to it.

2. 检测报告涂改无效。

The test report is invalid if it is blotted out.

3. 送样委托检测结果，仅对所送样品有效。

The conclusion of the consignment test is only valid for the provided sample.

4. 对检测报告若有异议，应于收到报告之日起十五天内向检测单位提出。

Objections to the test report must be submitted to ATL Central Lab within 15 days.

5. 本报告未经本实验室书面许可，不可部分复制。

This report cannot be partial copied, without the written permission of Amperex Technology Limited Central Lab.

东莞新能源科技有限公司中心实验室

Dong guan Amperex Technology Limited Central Lab

地址：中国广东省东莞市松山湖科技园工业西路 1 号

Addr.: West Industrial Road 1#, Songshan Lake Industry Park, Dongguan City,  
Guangdong Province, P. R. China

电话 Tel.: +86-0769-88989149

传真 Fax.: +86-0769-88989483

邮箱 E-mail: Lab-Service@ATLBattery.com

网址 Website : [www.atlbattery.com](http://www.atlbattery.com)

# 检测概要

## Test Summary

|                                        |                                                   |                                                                                                                                                                                                                  |                               |                          |                             |                                                                                                      |                                    |  |
|----------------------------------------|---------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------|-----------------------------|------------------------------------------------------------------------------------------------------|------------------------------------|--|
| 报告编号<br>Report No.                     | RTN-UN-2007-4031                                  |                                                                                                                                                                                                                  | 报告签发日期<br>Date of test report | 2020.8.27                |                             | 样品名称<br>Sample name                                                                                  | 锂离子电池组<br>Secondary Li-ion Battery |  |
| 样品型号<br>Sample model                   | EB-BG991ABY                                       |                                                                                                                                                                                                                  | 样品规格<br>Specification         | 3.88V 15.06Wh<br>3880mAh |                             | 质量 (g)<br>mass (g)                                                                                   | 53.3g                              |  |
| 样品外观<br>Appearance                     | 银色尼龙/铝/聚丙烯复合膜<br>Silver nylon/Al/PP compound film |                                                                                                                                                                                                                  |                               |                          |                             |                                                                                                      |                                    |  |
| 制造商信息<br>Manufacturer Information      | 制造商名称<br>Manufacturer Name                        | 宁德新能源科技有限公司<br>Ningde Amperex Technology Limited                                                                                                                                                                 |                               |                          |                             |                                                                                                      |                                    |  |
|                                        | 制造商地址<br>Manufacturer address                     | 中国福建省宁德市蕉城区漳湾镇新港路1号<br>No.1 XinGang Road, Zhangwan Town, JiaoCheng City, Ningde, Fujian Province, P.R. China                                                                                                     |                               |                          |                             |                                                                                                      |                                    |  |
|                                        | 电话号码<br>Telephone Number                          | +86-(0)593-258 3888                                                                                                                                                                                              |                               | 电子邮箱<br>E-mail           | ND-Reception@ATLBattery.com |                                                                                                      |                                    |  |
|                                        | 网址<br>Website                                     | www.atlbattery.com                                                                                                                                                                                               |                               |                          |                             |                                                                                                      |                                    |  |
| 实验室信息<br>Lab Information               | 实验室名称<br>Lab Name                                 | 东莞新能源科技有限公司中心实验室<br>Dongguan Amperex Technology Limited Central Lab                                                                                                                                              |                               |                          |                             |                                                                                                      |                                    |  |
|                                        | 实验室地址<br>Lab address                              | 中国广东省东莞市松山湖科技园工业西路1号<br>West Industrial Road 1#, Songshan Lake Industry Park, Dongguan City, Guangdong Province, P. R. China                                                                                     |                               |                          |                             |                                                                                                      |                                    |  |
|                                        | 电话号码<br>Telephone Number                          | +86-(0)769-8898 9149                                                                                                                                                                                             |                               | 电子邮箱<br>E-mail           | Lab-Service@ATLBattery.com  |                                                                                                      |                                    |  |
|                                        | 网址<br>Website                                     | www.atlbattery.com                                                                                                                                                                                               |                               |                          |                             |                                                                                                      |                                    |  |
| 序号<br>No.                              | 测试项目名称<br>Name of test items                      | 检测结果(合格/不合格)<br>Test result (Pass/Fail)                                                                                                                                                                          |                               |                          |                             | 备注<br>Remark                                                                                         |                                    |  |
| 1                                      | 高度模拟<br>Altitude simulation                       | 合格<br>Passed                                                                                                                                                                                                     |                               |                          |                             | /                                                                                                    |                                    |  |
| 2                                      | 温度试验<br>Thermal                                   | 合格<br>Passed                                                                                                                                                                                                     |                               |                          |                             | /                                                                                                    |                                    |  |
| 3                                      | 振动<br>Vibration                                   | 合格<br>Passed                                                                                                                                                                                                     |                               |                          |                             | /                                                                                                    |                                    |  |
| 4                                      | 冲击<br>Shock                                       | 合格<br>Passed                                                                                                                                                                                                     |                               |                          |                             | /                                                                                                    |                                    |  |
| 5                                      | 外部短路<br>External short-circuit                    | 合格<br>Passed                                                                                                                                                                                                     |                               |                          |                             | /                                                                                                    |                                    |  |
| 6                                      | 挤压/撞击<br>Crush/Impact                             | 合格<br>Passed                                                                                                                                                                                                     |                               |                          |                             | /                                                                                                    |                                    |  |
| 7                                      | 过度充电<br>Overcharge                                | 合格<br>Passed                                                                                                                                                                                                     |                               |                          |                             | /                                                                                                    |                                    |  |
| 8                                      | 强制放电<br>Forced discharge                          | 合格<br>Passed                                                                                                                                                                                                     |                               |                          |                             | /                                                                                                    |                                    |  |
| 测试方法和判定标准<br>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》<br>ST/SG/AC.10/11 Rev.6/Amend 1, 38.3<br>UNITED NATIONS "Recommendations on the<br>TRANSPORT OF DANGEROUS GOODS" Manual of<br>Tests and Criteria<br>ST/SG/AC.10/11 Rev.6/Amend 1, 38.3 |                               |                          |                             | 东莞新能源科技有限公司<br>中心实验室<br>Dongguan Amperex<br>Technology Limited Central<br>Lab<br>(盖章)<br>(signature) |                                    |  |
| 签名:<br>Signature:                      |                                                   | 郭佳丽: 中心主任<br>Guo Jiali: Center Director                                                                                                                                                                          |                               |                          |                             | 签发日期: 2020年 8月27日                                                                                    |                                    |  |