



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-1607-025

样品名称: 锂离子电池

Sample Name: Li-ion battery

样品型号: BT61

Sample Model: BT61

委托单位: 东莞新能源科技有限公司

Consignor: Dongguan Amperex Technology Limited

东莞新能源科技有限公司测试中心

Dongguan Amperex Technology Limited Test Center



样品名称 Sample name	锂离子电池 Li-ion battery	测试类别 Test category	委托检测 After testing
样品型号 Sample model	BT61	样品接收日期 Accepted date	2016-07-22
样品规格 Sample specification	3.85V 15.4Wh	测试开始日期 Test start date	2016-07-25
样品数量(个) Sample quantity(pcs)	43	测试结束日期 Test end date	2016-08-11
委托单位 Consignor	东莞新能源科技有限公司 Dongguan Amperex Technology Limited		
委托单位地址 Consignor address	中国广东省东莞市松山湖科技园工业西路1号 West Industrial Road 1#, Songshan Lake Industry Park, Dongguan City, Guangdong Province, P. R. China		
制造商 Manufacturer	同委托单位 To entrust unit		
制造商地址 Manufacturer address	同委托单位地址 To entrust unit address		
测试环境条件 Test environment condition	环境温度: 15℃ - 25℃; 环境湿度: 45%~75% Ambient temperature: 15℃ - 25℃; Ambient humidity: 45%~75%		
样品外观 Appearance	银色尼龙/铝/聚丙烯复合膜 Silver nylon/Al/PP compound film		
测试方法和判定标准 Test method and criterion	联合国《关于危险货物运输的建议书 试验和标准手册》 ST/SG/AC.10/11 Rev5, amend 2, 38.3 UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS" Manual of Tests and Criteria ST/SG/AC.10/11 Rev5, amend 2, 38.3		
测试项目 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 Altitude simulation, Thermal test, Vibration, Shock, External short circuit, Crush, Overcharge, Forced discharge		
测试结论 Conclusion	经测试, 该样品符合联合国《关于危险货物运输的建议书 试验和标准手册》 ST/SG/AC.10/11 Rev5, amend 2, 38.3 标准的要求 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 Rev5, amend 2, 38.3		
测试人员 Testers	王绪成 2016.8.12 黎卓彪 2016.8.12		
编制人员 Compiler	陈雅 2016.8.12		
审核 Checker	郭佳丽 2016.8.12		
批准 Approval	郭佳丽 2016.8.12		
	蔡京晶: 技术负责人 Cai JingJing: Technical Director 郭佳丽: 中心主任 Guo Jiali: Center Director		



样品描述及说明 Sample description and description			
样品名称 Sample name	锂离子电池	型号 Model	BT61
额定容量 Rated capacity	4000mAh	标称电压 Nominal voltage	3.85V
电池化学组分 Battery chemical composition	钴酸锂-石墨		
测试用充电程序 Test charge program	按照制造商规定的办法进行充电 (0.2C CC to 4.4V, then CV to 0.02C)		
测试用放电程序 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 (0.2C DC to 3.0V)		

### 测试样品图 Test sample image



图 1: 正面  
Figure 1: positive

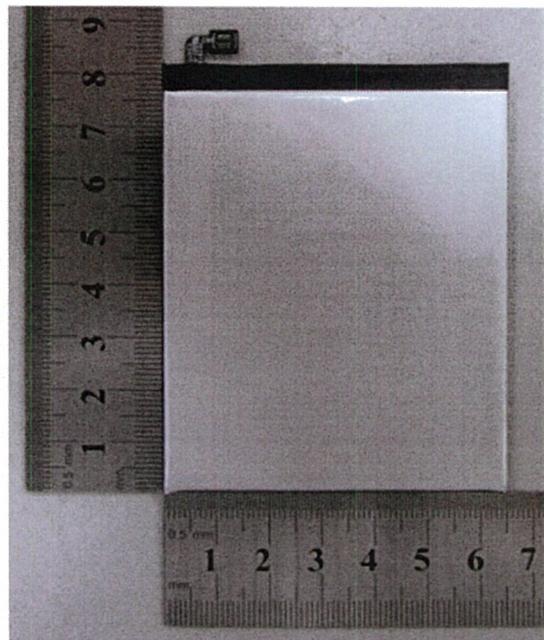


图 2: 反面  
Figure 2: negative

Nom du modèle: BT61(1ICP5/65/80)  
 Capacité: 3.85VDC  
 4000/4080mAh(min/typ) 15.4/15.71Wh(min/typ)  
 Tension de charge maximale: 4.4VDC

图 3: 标识  
Figure 3: Logo

序号 No.	测试项目名称 Name of test	标准要求或标准条款号 Standard requirement or the clause number of standard	测试结果 Test result	本项结论 Test conclusion	备注 Remark	
1	高度模拟 Altitude simulation	联合国《关于危险货物运输的建议书 试验和标准手册》试验 T1; UN Manual of Test and Criteria ST/SG/AC.10/11/Rev.5, amend 2, 38.3 Test 1	见附表 1 See Appendix 1	合格 Passed	/	
2	温度试验 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.5, amend 2, 38.3 Test 2	见附表 2 See Appendix 2	合格 Passed	/	
3	振动 Vibration	联合国《关于危险货物运输的建议书 试验和标准手册》试验 T3; UN Manual of Test and Criteria ST/SG/AC.10/11/Rev.5, amend 2, 38.3 Test 3	见附表 3 See Appendix 3	合格 Passed	/	
4	冲击 Shock	联合国《关于危险货物运输的建议书 试验和标准手册》试验 T4; UN Manual of Test and Criteria ST/SG/AC.10/11/Rev.5, amend 2, 38.3 Test 4	见附表 4 See Appendix 4	合格 Passed	/	
5	外部短路 External short-circuit	联合国《关于危险货物运输的建议书 试验和标准手册》试验 T5; UN Manual of Test and Criteria ST/SG/AC.10/11/Rev.5, amend 2, 38.3 Test 5	见附表 5 See Appendix 5	合格 Passed	/	
6	挤压/撞击 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.5, amend 2, 38.3 Test 6	见附表 6 See Appendix 6	合格 Passed	/	
7	过度充电 Overcharge	联合国《关于危险货物运输的建议书 试验和标准手册》试验 T7; UN Manual of Test and Criteria ST/SG/AC.10/11/Rev.5, amend 2, 38.3 Test 7	见附表 7 See Appendix 7	合格 Passed	/	
8	强制放电 Forced discharge	联合国《关于危险货物运输的建议书 试验和标准手册》试验 T8; UN Manual of Test and Criteria ST/SG/AC.10/11/Rev.5, amend 2, 38.3 Test 8	见附表 8 See Appendix 8	合格 Passed	/	
分包测试情况 Subcontracted test condition		测试项目 Test items	/			
		分包实验室 Subcontracted Laboratory	名称 Name	/	邮编 Post code	/
			地址 Address	/	电话 Tel.	/

序号 No.	1	测试项目名称 Name of test items		高度模拟 Altitude simulation				
样品编号 Sample No.	样品状态 Sample status	测试前 Before test		测试后 After test		质量损失 Mass loss (%)	剩余电压 Residual OCV (%)	测试结果 Test result
		电池质量 $m_1$ (g)	开路电压 $U_1$ (V)	电池质量 $m_2$ (g)	开路电压 $U_2$ (V)			
KT0010L002629 000924N00	首次完全充电 1cyc fully charged	53.7055	4.356	53.7048	4.344	0.00%	99.72%	O
KT0010L002629 000914N00	首次完全充电 1cyc fully charged	53.7488	4.357	53.7478	4.343	0.00%	99.68%	O
KT0010L002629 000614N00	首次完全充电 1cyc fully charged	53.8882	4.356	53.8877	4.343	0.00%	99.70%	O
KT0010L002629 000944N00	首次完全充电 1cyc fully charged	54.0629	4.357	54.0620	4.344	0.00%	99.70%	O
KT0010L002629 000654N00	首次完全充电 1cyc fully charged	53.5697	4.355	53.5685	4.343	0.00%	99.72%	O
KT0010L002629 000604N00	首次完全充电 1cyc fully charged	54.2001	4.363	54.1990	4.351	0.00%	99.72%	O
KT0010L002629 000894N00	首次完全充电 1cyc fully charged	54.0817	4.355	54.0800	4.342	0.00%	99.70%	O
KT0010L002629 000874N00	首次完全充电 1cyc fully charged	54.0543	4.357	54.0512	4.344	0.01%	99.70%	O
KT0010L002629 000714N00	首次完全充电 1cyc fully charged	53.7365	4.356	53.7339	4.343	0.00%	99.70%	O
KT0010L002629 000864N00	首次完全充电 1cyc fully charged	54.1846	4.355	54.1828	4.342	0.00%	99.70%	O
以下空白								
<p>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 &amp; no fire.</p>								

序号 No.	2	测试项目名称 Name of test items		温度试验 Thermal test				
样品编号 Sample No.	样品状态 Sample status	测试前 Before test		测试后 After test		质量损失 Mass loss (%)	剩余电压 Residual OCV (%)	测试 结果 Test result
		电池质量 $m_1$ (g)	开路电压 $U_1$ (V)	电池质量 $m_2$ (g)	开路电压 $U_2$ (V)			
KT0010L002629 000924N00	首次完全充电 1cyc fully charged	53.7048	4.344	53.7042	4.266	0.00%	98.20%	O
KT0010L002629 000914N00	首次完全充电 1cyc fully charged	53.7478	4.343	53.7467	4.263	0.00%	98.16%	O
KT0010L002629 000614N00	首次完全充电 1cyc fully charged	53.8877	4.343	53.8869	4.265	0.00%	98.20%	O
KT0010L002629 000944N00	首次完全充电 1cyc fully charged	54.0620	4.344	54.0624	4.265	0.00%	98.18%	O
KT0010L002629 000654N00	首次完全充电 1cyc fully charged	53.5685	4.343	53.5676	4.267	0.00%	98.25%	O
KT0010L002629 000604N00	首次完全充电 1cyc fully charged	54.1990	4.351	54.1981	4.272	0.00%	98.18%	O
KT0010L002629 000894N00	首次完全充电 1cyc fully charged	54.0800	4.342	54.0798	4.264	0.00%	98.20%	O
KT0010L002629 000874N00	首次完全充电 1cyc fully charged	54.0512	4.344	54.0505	4.266	0.00%	98.20%	O
KT0010L002629 000714N00	首次完全充电 1cyc fully charged	53.7339	4.343	53.7330	4.264	0.00%	98.18%	O
KT0010L002629 000864N00	首次完全充电 1cyc fully charged	54.1828	4.342	54.1813	4.263	0.00%	98.18%	O
以下空白								
<p>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 &amp; no fire.</p>								

序号 No.	3	测试项目名称 Name of test items		振动 Vibration				
样品编号 Sample No.	样品状态 Sample status	测试前 Before test		测试后 After test		质量损失 Mass loss (%)	剩余电压 Residual OCV (%)	测试结果 Test result
		电池质量 $m_1$ (g)	开路电压 $U_1$ (V)	电池质量 $m_2$ (g)	开路电压 $U_2$ (V)			
KT0010L002629 000924N00	首次完全充电 1cyc fully charged	53.7042	4.266	53.7038	4.265	0.00%	99.98%	O
KT0010L002629 000914N00	首次完全充电 1cyc fully charged	53.7467	4.263	53.7456	4.261	0.00%	99.95%	O
KT0010L002629 000614N00	首次完全充电 1cyc fully charged	53.8869	4.265	53.8864	4.264	0.00%	99.98%	O
KT0010L002629 000944N00	首次完全充电 1cyc fully charged	54.0624	4.265	54.0610	4.264	0.00%	99.98%	O
KT0010L002629 000654N00	首次完全充电 1cyc fully charged	53.5676	4.267	53.5671	4.266	0.00%	99.98%	O
KT0010L002629 000604N00	首次完全充电 1cyc fully charged	54.1981	4.272	54.1969	4.271	0.00%	99.98%	O
KT0010L002629 000894N00	首次完全充电 1cyc fully charged	54.0798	4.264	54.0801	4.262	0.00%	99.95%	O
KT0010L002629 000874N00	首次完全充电 1cyc fully charged	54.0505	4.266	54.0511	4.265	0.00%	99.98%	O
KT0010L002629 000714N00	首次完全充电 1cyc fully charged	53.7330	4.264	53.7340	4.262	0.00%	99.95%	O
KT0010L002629 000864N00	首次完全充电 1cyc fully charged	54.1813	4.263	54.1827	4.262	0.00%	99.98%	O
以下空白								
<p>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 &amp; no fire.</p>								

序号 No.	4	测试项目名称 Name of test items		冲击 Shock				
样品编号 Sample No.	样品状态 Sample status	测试前 Before test		测试后 After test		质量损失 Mass loss (%)	剩余电压 Residual OCV (%)	测试结果 Test result
		电池质量 $m_1$ (g)	开路电压 $U_1$ (V)	电池质量 $m_2$ (g)	开路电压 $U_2$ (V)			
KT0010L002629 000924N00	首次完全充电 1cyc fully charged	53.7038	4.265	53.7034	4.264	0.00%	99.98%	O
KT0010L002629 000914N00	首次完全充电 1cyc fully charged	53.7456	4.261	53.7445	4.260	0.00%	99.98%	O
KT0010L002629 000614N00	首次完全充电 1cyc fully charged	53.8864	4.264	53.8859	4.263	0.00%	99.98%	O
KT0010L002629 000944N00	首次完全充电 1cyc fully charged	54.0610	4.264	54.0596	4.263	0.00%	99.98%	O
KT0010L002629 000654N00	首次完全充电 1cyc fully charged	53.5671	4.266	53.5666	4.265	0.00%	99.98%	O
KT0010L002629 000604N00	首次完全充电 1cyc fully charged	54.1969	4.271	54.1957	4.270	0.00%	99.98%	O
KT0010L002629 000894N00	首次完全充电 1cyc fully charged	54.0801	4.262	54.0804	4.262	0.00%	100.00%	O
KT0010L002629 000874N00	首次完全充电 1cyc fully charged	54.0511	4.265	54.0517	4.264	0.00%	99.98%	O
KT0010L002629 000714N00	首次完全充电 1cyc fully charged	53.7340	4.262	53.7350	4.261	0.00%	99.98%	O
KT0010L002629 000864N00	首次完全充电 1cyc fully charged	54.1827	4.262	54.1841	4.260	0.00%	99.95%	O
以下空白								
<p>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 &amp; no fire.</p>								

序号 No.	5	测试项目名称 Name of test items	外部短路 External short circuit	
样品编号 Sample No.	样品状态 Sample status	样品表面最高温度 Max. External Temperature (°C)	测试结果 Test result	备注 Remark
KT0010L002629 000924N00	首次完全充电 1cyc fully charged	54.4	O	/
KT0010L002629 000914N00	首次完全充电 1cyc fully charged	54.8	O	/
KT0010L002629 000614N00	首次完全充电 1cyc fully charged	54.8	O	/
KT0010L002629 000944N00	首次完全充电 1cyc fully charged	54.1	O	/
KT0010L002629 000654N00	首次完全充电 1cyc fully charged	53.6	O	/
KT0010L002629 000604N00	首次完全充电 1cyc fully charged	55.2	O	/
KT0010L002629 000894N00	首次完全充电 1cyc fully charged	55.2	O	/
KT0010L002629 000874N00	首次完全充电 1cyc fully charged	55.1	O	/
KT0010L002629 000714N00	首次完全充电 1cyc fully charged	54.6	O	/
KT0010L002629 000864N00	首次完全充电 1cyc fully charged	54.4	O	/
以下空白				
<p>注: D-解体; R-破裂; F-起火; O-无解体, 无破裂, 无起火。                      Note: D-Disassembly, R-Rupture, F-Fire, O- No disassembly, no rupture &amp; no fire.</p>				





序号 No.	8	测试项目名称 Name of test items	强制放电 Forced discharge	
样品编号 Sample No.	样品状态 Sample status	测试结果 Test result	备注 Remark	
0215C6700209	首次完全放电 1cyc fully discharged	O	/	
0215CA520215	首次完全放电 1cyc fully discharged	O	/	
0215CA520247	首次完全放电 1cyc fully discharged	O	/	
0215CA520651	首次完全放电 1cyc fully discharged	O	/	
0215CA520454	首次完全放电 1cyc fully discharged	O	/	
0215CA520652	首次完全放电 1cyc fully discharged	O	/	
0215CA520159	首次完全放电 1cyc fully discharged	O	/	
0215CA550538	首次完全放电 1cyc fully discharged	O	/	
0215CA550101	首次完全放电 1cyc fully discharged	O	/	
0215CA520207	首次完全放电 1cyc fully discharged	O	/	
0215CA520518	50 次完全放电 50yc fully discharged	O	/	
0215CA520177	50 次完全放电 50yc fully discharged	O	/	
0215CA515189	50 次完全放电 50yc fully discharged	O	/	
0215CA520373	50 次完全放电 50yc fully discharged	O	/	
0215CA520086	50 次完全放电 50yc fully discharged	O	/	
0215CA515616	50 次完全放电 50yc fully discharged	O	/	
0215CA520103	50 次完全放电 50yc fully discharged	O	/	
0215CA520428	50 次完全放电 50yc fully discharged	O	/	
0215CA520646	50 次完全放电 50yc fully discharged	O	/	
0215CA520587	50 次完全放电 50yc fully discharged	O	/	
<p>注: D-解体; F-起火; O-无解体, 无起火。  <b>Note: D-Disassembly, F-Fire, O- No disassembly, no fire.</b></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. 本报告未经本实验室书面许可，不可部分复制。

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东莞新能源科技有限公司测试中心

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