



UN38.3 测试报告

UN38.3 Test Report

样品名称:	可充电锂离子电池 ARB-L14-1600U
Sample Name:	Rechargeable Li-ion Battery ARB-L14-1600U
型号规格:	
Model:	ARB-L14-1600U 1.5V 1600mAh 2.40Wh
委托单位:	深圳市朗恒电子有限公司
Applicant:	SHEN ZHEN LANG HENG ELECTRONIC CO.,LTD
检验项目:	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
Test Items:	Altitude simulation, Thermal test, Vibration, Shock, External short circuit, Crush, Overcharge, Forced discharge
检验类别:	委托检验
Test Category:	Commission test

北京迪捷姆空运技术开发有限公司

Beijing DGM Air Transport Technology Co., Ltd.



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Address: room 249, BGS cargo Terminal, Cargo Road, Capital international airport, Beijing, China Postcode: 101300

电话：010-69479673

Tel:

传真：010-69479621

Fax:

网址：

www.dgmchina.com.cn

Website:

邮箱：

test@dgmchina.com.cn

E-mail:

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Beijing DGM Air Transport Technology Co., Ltd.
UN38.3 测试报告
UN38.3 Test Report

Page 1 of 11

样品名称 Sample Name	可充电锂离子电池 ARB-L14-1600U		商标 Trademark	FENIX
	Rechargeable Li-ion Battery ARB-L14-1600U		型号/规格 Model	ARB-L14-1600U 1.5V 1600mAh 2.40Wh
委托单位 Applicant	名称 Name	深圳市朗恒电子有限公司 SHEN ZHEN LANG HENG ELECTRONIC CO.,LTD		
	地址 Address	深圳市宝安区 33 区东方明工业城二栋八楼 8/F, 2nd Building, DongFangMing Industrial Center, 33rd District, Bao'an, Shenzhen		
生产厂家 Manufacturer	深圳市优能电源技术有限公司 SHENZHEN YOUR POWER TECHNOLOGY CO.,LTD.			
来样方式 Means of Receiving	委托方送样 Submitted by applicant	送样日期 Accepted Date	2016-08-28	
检验日期 Test Date	2016-08-28~2016-09-22			
检验地点 Test Site	本检测室(电池室) DGM(Battery room, Shenzhen)			
检验项目 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			
检验依据 Test Method	联合国《关于危险货物运输的建议书-试验和标准手册》(第6版) 38.3 节 UN Recommendations on the Transport of Dangerous Goods - Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 Subsection 38.3			
样品状态 Appearance	黑色圆柱体电池, 约 $\Phi 14.1\text{mm} \times 49.6\text{mm}$ 。 black cylindrical battery, about $\Phi 14.1\text{mm} \times 49.6\text{mm}$.			
检验结论 Conclusion	<p>根据联合国《关于危险货物运输的建议书-试验和标准手册》(第6版) 38.3 节的规定, 该电池样品通过所有项目检测, 符合该条款的性能要求。 The samples have passed all test items of UN Recommendations on the Transport of Dangerous Goods - Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 Subsection 38.3.</p> <p style="text-align: right;">检验单位(盖章) Test Lab(Stamp) 签发日期(Issue Date): 2016 年 11 月 10 日</p>			
备注 Comment	可充电单电芯电池。 Rechargeable single cell battery.			

检测:
Tested by:

蒋晓芳

审核:
Checked by:

王明

批准:

Approved by:



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UN38.3 测试报告
UN38.3 Test Report

Page 2 of 11

序号 No.	检验项目 Test Items	标准要求或标准条款 Standard Requirement or the Clause of Standard	检验结果 Test Result	单项评价 Conclusion	备注 Remark
1	高度模拟 Altitude Simulation	ST/SG/AC.10/11/Rev.6	无泄漏、无排气、无解体、无破裂、无起火， 试验后的开路电压不低于试验前的 90%。 No leakage, no venting, no disassembly, no rupture and no fire. The open circuit voltage of each battery after testing is not less than 90% of its voltage immediately prior to this procedure.	符合 Pass	/
2	温度试验 Thermal Test	ST/SG/AC.10/11/Rev.6	无泄漏、无排气、无解体、无破裂、无起火， 试验后的开路电压不低于试验前的 90%。 No leakage, no venting, no disassembly, no rupture and no fire. The open circuit voltage of each battery after testing is not less than 90% of its voltage immediately prior to this procedure.	符合 Pass	/
3	振动 Vibration	ST/SG/AC.10/11/Rev.6	无泄漏、无排气、无解体、无破裂、无起火， 试验后的开路电压不低于试验前的 90%。 No leakage, no venting, no disassembly, no rupture and no fire. The open circuit voltage of each battery after testing is not less than 90% of its voltage immediately prior to this procedure.	符合 Pass	/
4	冲击 Shock	ST/SG/AC.10/11/Rev.6	无泄漏、无排气、无解体、无破裂、无起火， 试验后的开路电压不低于试验前的 90%。 No leakage, no venting, no disassembly, no rupture and no fire. The open circuit voltage of each battery after testing is not less than 90% of its voltage immediately prior to this procedure.	符合 Pass	/
5	外部短路 External Short Circuit	ST/SG/AC.10/11/Rev.6	外壳温度不超过 170 °C，无解体、无破裂、无 起火。 External temperature does not exceed 170°C. No disassembly, no rupture and no fire.	符合 Pass	/
6	挤压 Crush	ST/SG/AC.10/11/Rev.6	外壳温度不超过 170 °C，无解体、无起火。 External temperature does not exceed 170°C. No disassembly, no fire.	符合 Pass	/
7	过度充电 Overcharge	ST/SG/AC.10/11/Rev.6	无解体、无起火。 No disassembly, no fire.	符合 Pass	/
8	强制放电 Forced Discharge	ST/SG/AC.10/11/Rev.6	无解体、无起火。 No disassembly, no fire.	符合 Pass	/
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T.1: 高度模拟

T.1: Altitude Simulation

Page 3 of 11

样品编号 Sample No.	样品状态 Sample Status	测试前 Pre-test		测试后 After-test				有无泄漏、排气、解体、破裂、起火 Leakage, Venting, Disassembly, Rupture, Fire(Yes/No)
		质量 Mass $m_1(g)$	开路电压 OCV $V_1(V)$	质量 Mass $m_2(g)$	质量损失 Mass Loss (%)	开路电压 OCV $V_2(V)$	剩余电压 Residual OCV (%)	
A1	首次完全充电 First cycle fully charged	19.095	1.497	19.091	0.021	1.497	100.000	No
A2	首次完全充电 First cycle fully charged	19.120	1.507	19.117	0.016	1.506	99.934	No
A3	首次完全充电 First cycle fully charged	18.858	1.497	18.855	0.016	1.497	100.000	No
A4	首次完全充电 First cycle fully charged	19.064	1.498	19.060	0.021	1.498	100.000	No
A5	首次完全充电 First cycle fully charged	18.806	4.496	18.801	0.027	4.496	100.000	No
A6	首次完全充电 First cycle fully charged	19.084	1.501	19.079	0.026	1.500	99.933	No
A7	首次完全充电 First cycle fully charged	18.849	1.502	18.846	0.016	1.502	100.000	No
A8	首次完全充电 First cycle fully charged	18.988	1.491	18.984	0.021	1.491	100.000	No
A9	首次完全充电 First cycle fully charged	19.195	1.503	19.193	0.010	1.503	100.000	No
A10	首次完全充电 First cycle fully charged	19.046	1.506	19.044	0.011	1.506	100.000	No
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T.2: 温度试验

T.2: Thermal Test

Page 4 of 11

样品编号 Sample No.	样品状态 Sample Status	测试前 Pre-test		测试后 After-test				有无泄漏、排气、 解体、破裂、起火 Leakage, Venting, Disassembly, Rupture, Fire(Yes/No)
		质量 Mass	开路电压 OCV	质量 Mass	质量损失 Mass Loss	开路电压 OCV	剩余电压 Residual	
		m ₁ (g)	V ₁ (V)	m ₂ (g)	(%)	V ₂ (V)	OCV (%)	
A1	首次完全充电 First cycle fully charged	19.091	1.497	19.088	0.016	1.496	99.933	No
A2	首次完全充电 First cycle fully charged	19.117	1.506	19.099	0.094	1.504	99.867	No
A3	首次完全充电 First cycle fully charged	18.855	1.497	18.839	0.085	1.490	99.532	No
A4	首次完全充电 First cycle fully charged	19.060	1.498	19.053	0.037	1.488	99.332	No
A5	首次完全充电 First cycle fully charged	18.801	4.496	18.798	0.016	4.495	99.933	No
A6	首次完全充电 First cycle fully charged	19.079	1.500	19.064	0.079	1.498	99.867	No
A7	首次完全充电 First cycle fully charged	18.846	1.502	18.844	0.011	1.501	99.933	No
A8	首次完全充电 First cycle fully charged	18.984	1.491	18.969	0.079	1.490	99.933	No
A9	首次完全充电 First cycle fully charged	19.193	1.503	19.183	0.052	1.501	99.867	No
A10	首次完全充电 First cycle fully charged	19.044	1.506	19.036	0.042	1.504	99.867	No
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T.3: 振动

T.3: Vibration

Page 5 of 11

样品编号 Sample No.	样品状态 Sample Status	测试前 Pre-test		测试后 After-test				有无泄漏、排气、 解体、破裂、起火 Leakage, Venting, Disassembly, Rupture, Fire(Yes/No)
		质量 Mass	开路电压 OCV	质量 Mass	质量损失 Mass Loss	开路电压 OCV	剩余电压 Residual	
		$m_1(g)$	$V_1(V)$	$m_2(g)$	(%)	$V_2(V)$	OCV (%)	
A1	首次完全充电 First cycle fully charged	19.088	1.496	19.088	0.000	1.496	100.000	No
A2	首次完全充电 First cycle fully charged	19.099	1.504	19.099	0.000	1.504	100.000	No
A3	首次完全充电 First cycle fully charged	18.839	1.490	18.839	0.000	1.490	100.000	No
A4	首次完全充电 First cycle fully charged	19.053	1.488	19.053	0.000	1.488	100.000	No
A5	首次完全充电 First cycle fully charged	18.798	4.495	18.798	0.000	4.495	100.000	No
A6	首次完全充电 First cycle fully charged	19.064	1.498	19.064	0.000	1.498	100.000	No
A7	首次完全充电 First cycle fully charged	18.844	1.501	18.844	0.000	1.501	100.000	No
A8	首次完全充电 First cycle fully charged	18.969	1.490	18.969	0.000	1.490	100.000	No
A9	首次完全充电 First cycle fully charged	19.183	1.501	19.183	0.000	1.501	100.000	No
A10	首次完全充电 First cycle fully charged	19.036	1.504	19.036	0.000	1.504	100.000	No
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T.4: 冲击

T.4: Shock

样品编号 Sample No.	样品状态 Sample Status	测试前 Pre-test		测试后 After-test				有无泄漏、排气、 解体、破裂、起火 Leakage, Venting, Disassembly, Rupture, Fire(Yes/No)
		质量 Mass	开路电压 OCV	质量 Mass	质量损失 Mass Loss	开路电压 OCV	剩余电压 Residual	
		m ₁ (g)	V ₁ (V)	m ₂ (g)	(%)	V ₂ (V)	OCV (%)	
A1	首次完全充电 First cycle fully charged	19.088	1.496	19.088	0.000	1.496	100.000	No
A2	首次完全充电 First cycle fully charged	19.099	1.504	19.099	0.000	1.504	100.000	No
A3	首次完全充电 First cycle fully charged	18.839	1.490	18.839	0.000	1.490	100.000	No
A4	首次完全充电 First cycle fully charged	19.053	1.488	19.053	0.000	1.488	100.000	No
A5	首次完全充电 First cycle fully charged	18.798	4.495	18.798	0.000	4.495	100.000	No
A6	首次完全充电 First cycle fully charged	19.064	1.498	19.064	0.000	1.498	100.000	No
A7	首次完全充电 First cycle fully charged	18.844	1.501	18.844	0.000	1.501	100.000	No
A8	首次完全充电 First cycle fully charged	18.969	1.490	18.969	0.000	1.490	100.000	No
A9	首次完全充电 First cycle fully charged	19.183	1.501	19.183	0.000	1.501	100.000	No
A10	首次完全充电 First cycle fully charged	19.036	1.504	19.036	0.000	1.504	100.000	No
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T.5: 外部短路

T.5: External Short Circuit

Page 7 of 11

样品编号 Sample No	样品状态 Sample Status	样品表面最高温度(°C) Highest External Temperature/°C	有无解体、破裂、起火 Disassembly, Rupture, Fire(Yes/No)
A1	首次完全充电 First cycle fully charged	56.2	No
A2	首次完全充电 First cycle fully charged	56.4	No
A3	首次完全充电 First cycle fully charged	56.0	No
A4	首次完全充电 First cycle fully charged	56.3	No
A5	首次完全充电 First cycle fully charged	56.4	No
A6	首次完全充电 First cycle fully charged	56.2	No
A7	首次完全充电 First cycle fully charged	56.5	No
A8	首次完全充电 First cycle fully charged	56.2	No
A9	首次完全充电 First cycle fully charged	56.0	No
A10	首次完全充电 First cycle fully charged	56.3	No
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T.6: 挤压**T.6: Crush**

Page 8 of 11

样品编号 Sample No.	样品状态 Sample Status	样品表面最高温度(°C) Highest External Temperature/°C	有无解体、起火 Disassembly, Fire(Yes/No)
B1	首次 50%容量 First cycle charged 50% rated capacity	24.2	No
B2	首次 50%容量 First cycle charged 50% rated capacity	24.5	No
B3	首次 50%容量 First cycle charged 50% rated capacity	24.1	No
B4	首次 50%容量 First cycle charged 50% rated capacity	24.3	No
B5	首次 50%容量 First cycle charged 50% rated capacity	24.2	No
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T.7: 过度充电**T.7: Overcharge**

样品编号 Sample No.	样品状态 Sample Status	有无解体、起火 Disassembly, Fire(Yes/No)
C1	首次完全充电 First cycle fully charged	No
C2	首次完全充电 First cycle fully charged	No
C3	首次完全充电 First cycle fully charged	No
C4	首次完全充电 First cycle fully charged	No
C5	50次完全充电 50 cycles fully charged	No
C6	50次完全充电 50 cycles fully charged	No
C7	50次完全充电 50 cycles fully charged	No
C8	50次完全充电 50 cycles fully charged	No
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T.8: 强制放电

T.8: Forced Discharge

样品编号 Sample No.	样品状态 Sample Status	有无解体、起火 Disassembly, Fire(Yes/No)
D1	首次完全放电 First cycle fully discharged	No
D2	首次完全放电 First cycle fully discharged	No
D3	首次完全放电 First cycle fully discharged	No
D4	首次完全放电 First cycle fully discharged	No
D5	首次完全放电 First cycle fully discharged	No
D6	首次完全放电 First cycle fully discharged	No
D7	首次完全放电 First cycle fully discharged	No
D8	首次完全放电 First cycle fully discharged	No
D9	首次完全放电 First cycle fully discharged	No
D10	首次完全放电 First cycle fully discharged	No
D11	50次完全放电 50 cycles fully discharged	No
D12	50次完全放电 50 cycles fully discharged	No
D13	50次完全放电 50 cycles fully discharged	No
D14	50次完全放电 50 cycles fully discharged	No
D15	50次完全放电 50 cycles fully discharged	No
D16	50次完全放电 50 cycles fully discharged	No
D17	50次完全放电 50 cycles fully discharged	No
D18	50次完全放电 50 cycles fully discharged	No
D19	50次完全放电 50 cycles fully discharged	No
D20	50次完全放电 50 cycles fully discharged	No
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UN38.3 Test Report



电池照片

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