



UN38.3 测试报告

UN38.3 Test Report

样品名称:	可充电锂离子电池 ARB-LP2000U
Sample Name:	Rechargeable Li-ion Battery ARB-LP2000U
型号规格:	ARB-LP2000U 3.7V 2000mAh 7.4Wh
Model:	
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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样品名称 Sample Name	可充电锂离子电池 ARB-LP2000U Rechargeable Li-ion Battery ARB-LP2000U		商标 Trademark	FENIX
			型号/规格 Model	ARB-LP2000U 3.7V 2000mAh 7.4Wh
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		
来样方式 Means of Receiving	委托方送样 Submitted by applicant		送样日期 Accepted Date	2019.01.07
检验日期 Test Date	2019.01.08-2019.02.01			
检验地点 Test Site	本检测室（电池室） DGM(Battery room)			
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 版修订一）38.3 节 UN Recommendations on the Transport of Dangerous Goods Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 /Amend. 1/ Subsection 38.3			
检验结论 Conclusion	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 版修订一）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 /Amend. 1/ Subsection 38.3. 检验单位(盖章) Test Lab(Stamp) 签发日期(Issue Date): 2019 年 03 月 12 日			

检测:

Tested by:

罗晓峰

审核:

Checked by:

宋明

批准:

Approved by:

冯海

电池信息 Information for battery			
电芯生产厂家 Cell manufacturer	东莞市扬德新能源有限公司 Dongguan yang de energy Co., Ltd		
电芯厂家联系电话 Phone number	+86-0769-62033103	邮箱 e-mail	pengpeng@yangdepower.com
电芯厂家地址 Address	东莞市清溪镇扬德工业园 Yang De Industry Pack Qing Xi Vallage Dong Guan, China		
电芯厂家网址 Website	//		
Pack 厂家 Pack manufacturer	深圳市优能电源技术有限公司 SHENZHEN YOUR POWER TECHNOLOGY CO.,LTD		
Pack 厂家联系电话 Phone number	13603018105	邮箱 e-mail	Sales@yourpower.cn
Pack 厂家地址 Address	深圳市龙华区观澜街道盛德兰工业园办公楼 4 楼 4/F, Office Building SDL Industry Park, Longhua District, Shenzhen, China		
Pack 厂家网址 Website	//		

电芯信息 Information for cell			
电芯型号 Cell model	LP 113645A200		
标称电压 Nominal Voltage	3.7V	额定容量 Rated Capacity	2000mAh
最大连续充电电流 Maximum charging current	1000mA	最大放电电流 Maximum discharge current	2000mA
充电限制电压 Limited charging voltage	4.2V	放电截止电压 Cut-Off voltage	2.75V
外观形状 Appearance	银色长方体 Silvery cuboid	电芯尺寸 Cell size	43.1×34.5×10.5mm

电池信息 Information for battery			
最大连续充电电流 Maximum charging current	1000mA	最大放电电流 Maximum discharge current	2000mA
充电限制电压 Limited charging voltage	4.2V	放电截止电压 Cut-Off voltage	2.75V
规格/型号 Model	ARB-LP2000U 3.7V 2000mAh 7.4Wh	电池尺寸 Battery size	51.0×37.5×12.0mm
组成电芯数量 Number of cell	单电芯 Single cell	外观形状 Appearance	黄黑长方体 Black cuboid

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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/ Amend. 1/ Subsection 38.3 Test T.1	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/ Amend. 1/ Subsection 38.3 Test T.2	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/ Amend. 1/ Subsection 38.3 Test T.3	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/ Amend. 1/ Subsection 38.3 Test T.4	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/ Amend. 1/ Subsection 38.3 Test T.5	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/ Amend. 1/ Subsection 38.3 Test T.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/ Amend. 1/ Subsection 38.3 Test T.7	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/ Amend. 1/ Subsection 38.3 Test T.8	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

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	42.630	4.180	42.613	0.040	4.171	99.78	No
A2	首次完全充电 First cycle fully charged	42.942	4.181	42.930	0.028	4.174	99.83	No
A3	首次完全充电 First cycle fully charged	43.123	4.174	43.108	0.035	4.168	99.86	No
A4	首次完全充电 First cycle fully charged	42.977	4.176	42.960	0.040	4.170	99.86	No
A5	首次完全充电 First cycle fully charged	43.248	4.178	43.230	0.042	4.171	99.83	No
A6	25 次完全充电 25 cycles fully charged	42.868	4.172	42.851	0.040	4.164	99.81	No
A7	25 次完全充电 25 cycles fully charged	43.108	4.171	43.096	0.028	4.161	99.76	No
A8	25 次完全充电 25 cycles fully charged	43.094	4.176	43.083	0.026	4.168	99.81	No
A9	25 次完全充电 25 cycles fully charged	43.087	4.169	43.075	0.028	4.160	99.78	No
A10	25 次完全充电 25 cycles fully charged	43.063	4.169	43.049	0.033	4.160	99.78	No
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T.2: 温度试验

T.2: Thermal Test

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	42.613	4.171	42.583	0.070	4.107	98.47	No
A2	首次完全充电 First cycle fully charged	42.930	4.174	42.890	0.093	4.111	98.49	No
A3	首次完全充电 First cycle fully charged	43.108	4.168	43.064	0.102	4.105	98.49	No
A4	首次完全充电 First cycle fully charged	42.960	4.170	42.922	0.088	4.113	98.63	No
A5	首次完全充电 First cycle fully charged	43.230	4.171	43.190	0.093	4.112	98.59	No
A6	25 次完全充电 25 cycles fully charged	42.851	4.164	42.817	0.079	4.108	98.66	No
A7	25 次完全充电 25 cycles fully charged	43.096	4.161	43.063	0.077	4.109	98.75	No
A8	25 次完全充电 25 cycles fully charged	43.083	4.168	43.054	0.067	4.110	98.61	No
A9	25 次完全充电 25 cycles fully charged	43.075	4.160	43.042	0.077	4.106	98.70	No
A10	25 次完全充电 25 cycles fully charged	43.049	4.160	43.014	0.081	4.105	98.68	No
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T.3: 振动

T.3: Vibration

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	42.583	4.107	42.580	0.007	4.104	99.93	No
A2	首次完全充电 First cycle fully charged	42.890	4.111	42.886	0.009	4.109	99.95	No
A3	首次完全充电 First cycle fully charged	43.064	4.105	43.058	0.014	4.103	99.95	No
A4	首次完全充电 First cycle fully charged	42.922	4.113	42.919	0.007	4.108	99.88	No
A5	首次完全充电 First cycle fully charged	43.190	4.112	43.187	0.007	4.110	99.95	No
A6	25 次完全充电 25 cycles fully charged	42.817	4.108	42.813	0.009	4.105	99.93	No
A7	25 次完全充电 25 cycles fully charged	43.063	4.109	43.057	0.014	4.107	99.95	No
A8	25 次完全充电 25 cycles fully charged	43.054	4.110	43.050	0.009	4.109	99.98	No
A9	25 次完全充电 25 cycles fully charged	43.042	4.106	43.037	0.012	4.104	99.95	No
A10	25 次完全充电 25 cycles fully charged	43.014	4.105	43.009	0.012	4.103	99.95	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	42.580	4.104	42.577	0.007	4.102	99.95	No
A2	首次完全充电 First cycle fully charged	42.886	4.109	42.883	0.007	4.107	99.95	No
A3	首次完全充电 First cycle fully charged	43.058	4.103	43.056	0.005	4.102	99.98	No
A4	首次完全充电 First cycle fully charged	42.919	4.108	42.916	0.007	4.105	99.93	No
A5	首次完全充电 First cycle fully charged	43.187	4.110	43.185	0.005	4.108	99.95	No
A6	25 次完全充电 25 cycles fully charged	42.813	4.105	42.811	0.005	4.104	99.98	No
A7	25 次完全充电 25 cycles fully charged	43.057	4.107	43.053	0.009	4.106	99.98	No
A8	25 次完全充电 25 cycles fully charged	43.050	4.109	43.048	0.005	4.107	99.95	No
A9	25 次完全充电 25 cycles fully charged	43.037	4.104	43.034	0.007	4.104	100.00	No
A10	25 次完全充电 25 cycles fully charged	43.009	4.103	43.007	0.005	4.103	100.00	No

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T.5: 外部短路**T.5: External Short Circuit**

样品编号 Sample No	样品状态 Sample Status	样品表面最高温度(℃) Highest External Temperature/℃	有无解体、破裂、起火 Disassembly, Rupture, Fire(Yes/No)
A1	首次完全充电 First cycle fully charged	59.8	No
A2	首次完全充电 First cycle fully charged	60.1	No
A3	首次完全充电 First cycle fully charged	59.6	No
A4	首次完全充电 First cycle fully charged	60.4	No
A5	首次完全充电 First cycle fully charged	60.6	No
A6	25 次完全充电 25 cycles fully charged	60.0	No
A7	25 次完全充电 25 cycles fully charged	59.9	No
A8	25 次完全充电 25 cycles fully charged	60.2	No
A9	25 次完全充电 25 cycles fully charged	59.6	No
A10	25 次完全充电 25 cycles fully charged	60.2	No
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T.6: 挤压**T.6: Crush**

样品编号 Sample No.	样品状态 Sample Status	样品表面最高温度(℃) Highest External Temperature/℃	有无解体、起火 Disassembly, Fire(Yes/No)
B1	首次 50%容量 First cycle charged 50% rated capacity	20.3	No
B2	首次 50%容量 First cycle charged 50% rated capacity	20.8	No
B3	首次 50%容量 First cycle charged 50% rated capacity	23.1	No
B4	首次 50%容量 First cycle charged 50% rated capacity	21.5	No
B5	首次 50%容量 First cycle charged 50% rated capacity	22.7	No
B6	25 次 50%容量 25 cycles charged 50% rated capacity	21.2	No
B7	25 次 50%容量 25 cycles charged 50% rated capacity	21.6	No
B8	25 次 50%容量 25 cycles charged 50% rated capacity	21.7	No
B9	25 次 50%容量 25 cycles charged 50% rated capacity	21.5	No
B10	25 次 50%容量 25 cycles charged 50% rated capacity	22.4	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	25 次完全充电 25 cycles fully charged	No
C6	25 次完全充电 25 cycles fully charged	No
C7	25 次完全充电 25 cycles fully charged	No
C8	25 次完全充电 25 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	25 次完全放电 25 cycles fully discharged	No
D12	25 次完全放电 25 cycles fully discharged	No
D13	25 次完全放电 25 cycles fully discharged	No
D14	25 次完全放电 25 cycles fully discharged	No
D15	25 次完全放电 25 cycles fully discharged	No
D16	25 次完全放电 25 cycles fully discharged	No
D17	25 次完全放电 25 cycles fully discharged	No
D18	25 次完全放电 25 cycles fully discharged	No
D19	25 次完全放电 25 cycles fully discharged	No
D20	25 次完全放电 25 cycles fully discharged	No
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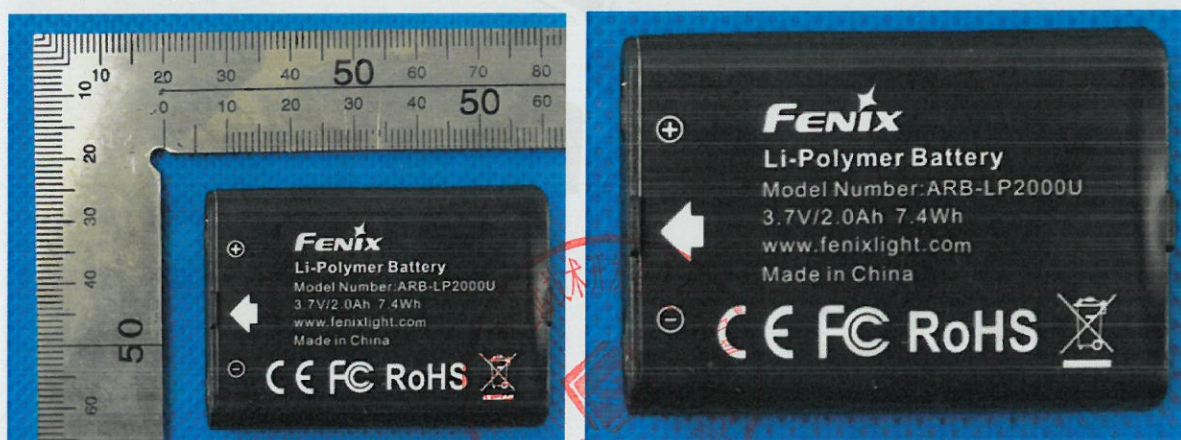
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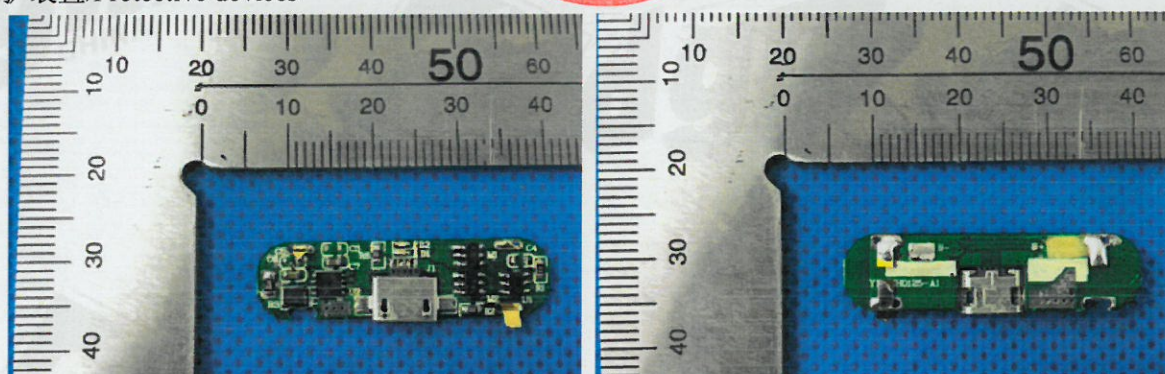
电芯照片/Cell pictures



电池照片/Battery pictures



保护装置/Protective devices



* End of the report *