



UN38.3 检测报告

UN38.3 Test Report

样品名称: 可充电锂离子电池 ARB-L16-700UP
Sample Name: Rechargeable Li-ion Battery ARB-L16-700UP

型号规格: ARB-L16-700UP 3.6V 700mAh 2.52Wh
Model:

委托单位: 深圳市朗恒电子有限公司
Applicant: SHEN ZHEN LANG HENG ELECTRONIC CO.,LTD

检测项目: 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

检测类别: 委托检测
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.

报告书使用约定

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样品类型 Sample Type	单电芯锂离子电池 Single Cell Li-ion Battery		商标 Trademark	FENIX
			型号/规格 Model	ARB-L16-700UP 3.6V 700mAh 2.52Wh
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 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	2020.06.15
检测日期 Test Date	2020.06.16-2020.07.13			
检测地点 Test Site	深圳实验室 Shenzhen Laboratory		出证地点 Certificate Site	深圳分公司 Shenzhen Branch
检测项目 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			
检测依据 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			
检测结论 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。</p> <p>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.</p> <p>检测单位(盖章) Test Lab(Stamp)</p> <p>签发日期(Issue Date): 2020 年 07 月 16 日</p>			

检测:

Tested by:

罗晓峰

审核:

Checked by:

宋明

批准:

Approved by:

马海

电池信息 Information for Battery			
电芯生产厂家 Cell manufacturer	常德毅力能源有限公司 Chang De YIKLIK energy Co.,Ltd		
电芯厂家联系电话 Phone number	+86-13823273345	邮箱 e-mail	huangguihe@yiklik.com
电芯厂家地址 Address	中国湖南省安乡县深柳镇洞庭大道南段长岭洲村（工业园内） Southern Dong Ting Avenue, Chang ling Zhou Village, Shen Liu Town, An Xiang County, Hu Nan Province, P. R. China (inside Industrial Park)		
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	武风杰 13603018105	武风杰 13603018105	武风杰 13603018105
Pack 厂家地址 Address	深圳市龙华区民治街道民康路东明大厦 811 811.8/F Dong Ming Building, Min Kang Road, Long Hua District, Shenzhen, China		
Pack 厂家网址 Website	//		

电芯参数 Information for cell			
电芯型号 Cell Model	INR163200D70		
标称电压 Nominal Voltage	3.6V	额定容量 Rated Capacity	700mAh
标准充电电流 Standard Charging Current	350mA	标准放电电流 Standard discharging Current	350mA
最大连续充电电流 Maximum charging current	700mA	最大放电电流 Maximum discharge current	700mA
充电限制电压 Limited charging voltage	4.2V	放电截止电压 Cut-Off voltage	2.5V
外观形状 Appearance	蓝色圆柱体 Blue cylinder	电芯尺寸 Cell size	ϕ 16.3×29.9 mm

电池参数 Information for battery			
标准充电电流 Standard charging current	350mA	标准放电电流 Standard discharging current	350mA
最大连续充电电流 Maximum charging current	700mA	最大放电电流 Maximum discharge current	700mA
充电限制电压 Limited charging voltage	4.2V	放电截止电压 Cut-Off voltage	2.5V
规格/型号 Model	ARB-L16-700UP 3.6V 700mAh 2.52Wh	电池尺寸 Battery size	ϕ 16.5×35.0 mm
组成电芯数量 Number of cell	单电芯 Single cell	外观形状 Appearance	橙黑杂色圆柱体 Orange and black cylinder

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序号 No.	检测项目 Test Items	标准要求或标准条款 Standard Requirement or the Clause of Standard	检测结果 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	检测前 Pre-test		检测后 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	
		$m_1(\text{g})$	$V_1(\text{V})$	$m_2(\text{g})$	(%)	$V_2(\text{V})$	OCV (%)	
A1	首次完全充电 First cycle fully charged	18.490	4.189	18.489	0.005	4.186	99.93	No
A2	首次完全充电 First cycle fully charged	18.746	4.186	18.746	0.000	4.184	99.95	No
A3	首次完全充电 First cycle fully charged	18.592	4.187	18.591	0.005	4.183	99.90	No
A4	首次完全充电 First cycle fully charged	18.554	4.187	18.553	0.005	4.184	99.93	No
A5	首次完全充电 First cycle fully charged	18.542	4.185	18.541	0.005	4.182	99.93	No
A6	25次完全充电 25 cycles fully charged	18.443	4.184	18.442	0.005	4.181	99.93	No
A7	25次完全充电 25 cycles fully charged	18.745	4.185	18.744	0.005	4.183	99.95	No
A8	25次完全充电 25 cycles fully charged	18.686	4.187	18.685	0.005	4.185	99.95	No
A9	25次完全充电 25 cycles fully charged	18.710	4.183	18.709	0.005	4.181	99.95	No
A10	25次完全充电 25 cycles fully charged	18.608	4.182	18.606	0.011	4.180	99.95	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	检测前 Pre-test		检测后 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	18.489	4.186	18.483	0.032	4.140	98.90	No
A2	首次完全充电 First cycle fully charged	18.746	4.184	18.741	0.027	4.141	98.97	No
A3	首次完全充电 First cycle fully charged	18.591	4.183	18.587	0.022	4.138	98.92	No
A4	首次完全充电 First cycle fully charged	18.553	4.184	18.549	0.022	4.143	99.02	No
A5	首次完全充电 First cycle fully charged	18.541	4.182	18.537	0.022	4.136	98.90	No
A6	25 次完全充电 25 cycles fully charged	18.442	4.181	18.439	0.016	4.135	98.90	No
A7	25 次完全充电 25 cycles fully charged	18.744	4.183	18.742	0.011	4.144	99.07	No
A8	25 次完全充电 25 cycles fully charged	18.685	4.185	18.682	0.016	4.139	98.90	No
A9	25 次完全充电 25 cycles fully charged	18.709	4.181	18.707	0.011	4.140	99.02	No
A10	25 次完全充电 25 cycles fully charged	18.606	4.180	18.603	0.016	4.140	99.04	No
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T.3: 振动

T.3: Vibration

样品编号 Sample No.	样品状态 Sample Status	检测前 Pre-test		检测后 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	18.483	4.140	18.481	0.011	4.138	99.95	No
A2	首次完全充电 First cycle fully charged	18.741	4.141	18.740	0.005	4.140	99.98	No
A3	首次完全充电 First cycle fully charged	18.587	4.138	18.585	0.011	4.137	99.98	No
A4	首次完全充电 First cycle fully charged	18.549	4.143	18.547	0.011	4.141	99.95	No
A5	首次完全充电 First cycle fully charged	18.537	4.136	18.536	0.005	4.136	100.00	No
A6	25 次完全充电 25 cycles fully charged	18.439	4.135	18.439	0.000	4.135	100.00	No
A7	25 次完全充电 25 cycles fully charged	18.742	4.144	18.741	0.005	4.142	99.95	No
A8	25 次完全充电 25 cycles fully charged	18.682	4.139	18.680	0.011	4.138	99.98	No
A9	25 次完全充电 25 cycles fully charged	18.707	4.140	18.707	0.000	4.139	99.98	No
A10	25 次完全充电 25 cycles fully charged	18.603	4.140	18.602	0.005	4.138	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	检测前 Pre-test		检测后 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	18.481	4.138	18.480	0.005	4.137	99.98	No
A2	首次完全充电 First cycle fully charged	18.740	4.140	18.740	0.000	4.139	99.98	No
A3	首次完全充电 First cycle fully charged	18.585	4.137	18.583	0.011	4.137	100.00	No
A4	首次完全充电 First cycle fully charged	18.547	4.141	18.546	0.005	4.140	99.98	No
A5	首次完全充电 First cycle fully charged	18.536	4.136	18.536	0.000	4.134	99.95	No
A6	25 次完全充电 25 cycles fully charged	18.439	4.135	18.438	0.005	4.134	99.98	No
A7	25 次完全充电 25 cycles fully charged	18.741	4.142	18.740	0.005	4.141	99.98	No
A8	25 次完全充电 25 cycles fully charged	18.680	4.138	18.680	0.000	4.138	100.00	No
A9	25 次完全充电 25 cycles fully charged	18.707	4.139	18.706	0.005	4.138	99.98	No
A10	25 次完全充电 25 cycles fully charged	18.602	4.138	18.601	0.005	4.137	99.98	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(°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	56.6	No
A2	首次完全充电 First cycle fully charged	55.8	No
A3	首次完全充电 First cycle fully charged	56.2	No
A4	首次完全充电 First cycle fully charged	56.5	No
A5	首次完全充电 First cycle fully charged	55.9	No
A6	25次完全充电 25 cycles fully charged	56.4	No
A7	25次完全充电 25 cycles fully charged	57.3	No
A8	25次完全充电 25 cycles fully charged	56.7	No
A9	25次完全充电 25 cycles fully charged	56.0	No
A10	25次完全充电 25 cycles fully charged	56.8	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(°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	37.7	No
B2	首次 50%容量 First cycle charged 50% rated capacity	37.3	No
B3	首次 50%容量 First cycle charged 50% rated capacity	38.2	No
B4	首次 50%容量 First cycle charged 50% rated capacity	37.5	No
B5	首次 50%容量 First cycle charged 50% rated capacity	38.4	No
B6	25 次 50%容量 25 cycles charged 50% rated capacity	38.9	No
B7	25 次 50%容量 25 cycles charged 50% rated capacity	39.2	No
B8	25 次 50%容量 25 cycles charged 50% rated capacity	39.5	No
B9	25 次 50%容量 25 cycles charged 50% rated capacity	38.7	No
B10	25 次 50%容量 25 cycles charged 50% rated capacity	39.1	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

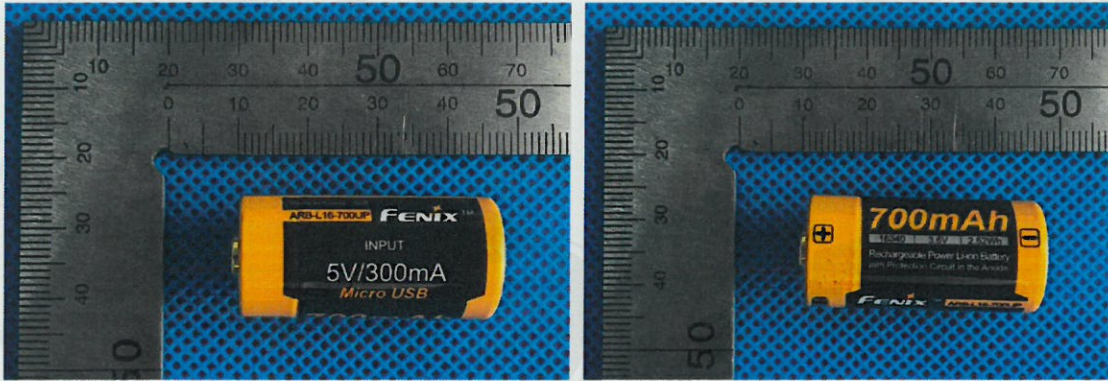
T.8: Forced Discharge

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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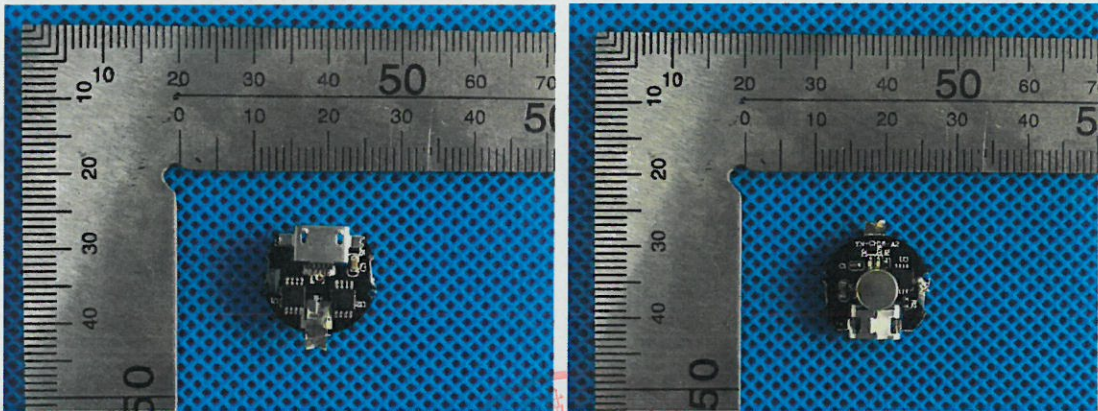
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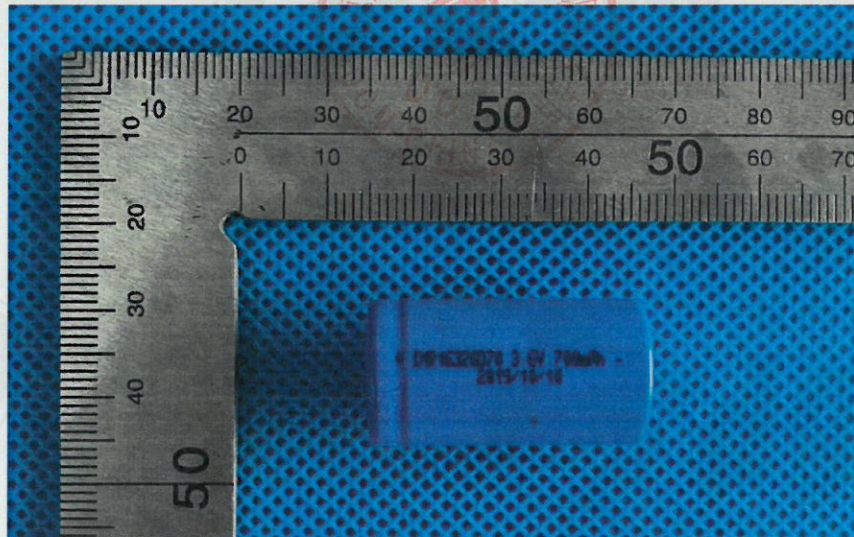
电池图片/Battery pictures



保护装置/Protective devices



内部电芯/Internal cell:



* End of the report *