



UN38.3 检验报告

UN38.3 Test Report

样品名称:	可充电锂离子电池 ARB-L21-5000
Sample Name:	Rechargeable Li-ion Battery ARB-L21-5000
型号规格:	ARB-L21-5000 3.6V 5000mAh 18Wh
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、撞击、过度充电、强制放电
Test Items:	Altitude simulation, Thermal test, Vibration, Shock, External short circuit, Impact, 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.

报告书使用约定

Terms of the Using of the Report

1. 本公司依据委托人（托运人或其代理人）提供的物品，做出检验并出具此报告书。
The report is issued by DGM China according to the test of the goods and the information of its shipping provided by the applicant (shipper or his agent).
2. 依据检验的需要，本公司要求委托人提供真实、完整的货物样品及资料。
According to the demand of test, DGM China requires the applicant to provide true and exact sample and data of the cargo.
3. 委托人保证申报的物品和/或提供的样品与交运的货物是一致的。
The applicant guarantees that the declared goods and/or the sample who provides should be identical with the contents of cargo that is to be transported.
4. 本公司仅对样品的检验结果负责。
DGM China is only responsible for the test of the sample provided by the applicant.
5. 本报告书经主检员、审核人和批准人签字并加盖本公司印章后生效。
This report will be effective only after it is signed by the inspector, checker and approver, and stamped by DGM China.
6. 未经本公司书面批准，不得复制本报告书。
The duplicating of this report is prohibited without the written approval of DGM China.
7. 私自转让、复制、盗用、冒用、涂改、或以任何媒体形式篡改的报告书无效。
The report is invalid when anything of the following happens - illegal transfer, reproduce, embezzlement, imposture, modification or tampering in any media form.

地址：北京首都机场货运北路天竺综合保税区 BGS 货运楼 249 室 邮编：

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

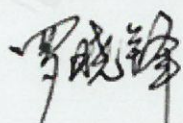
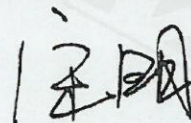

Website:

邮箱：test@dgmchina.com.cn

E-mail:

北京迪捷姆空运技术开发有限公司
 Beijing DGM Air Transport Technology Co., Ltd.
UN38.3 检 验 报 告
UN38.3 Test Report

样品类型 Sample Type	可充电锂离子电池 Rechargeable Li-ion Battery		商标 Trademark	FENIX
			型号/规格 Model	ARB-L21-5000 3.6V 5000mAh 18Wh
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	2019.05.22
检验日期 Test Date	2019.05.23-2019.06.13			
检验地点 Test Site	本检测室 DGM			
检验项目 Test Items	高度模拟、温度试验、振动、冲击、外部短路、撞击、过度充电、强制放电 Altitude simulation, Thermal test, Vibration, Shock, External short circuit, Impact, 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	<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>检验单位(盖章) Test Lab(Stamp)</p> <p>签发日期(Issue Date): 2019 年 06 月 14 日</p>			

检测: Tested by:  审核: Checked by:  批准: Approved by: 



电池信息 Information for battery			
电芯生产厂家 Cell manufacturer	LG 化学株式会社 LG CHEM Co.,Ltd		
电芯厂家联系电话 Phone number	+86-025-85603000	邮箱 e-mail	Sales@lgchem.com
电芯厂家地址 Address	南京经济技术开发区恒谊路 17 号 No.17, Hengyi Road, Nanjing Economic And Technological Development Zone Nanjing 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	深圳市龙华区民治街道民康路东明大厦 811 811.8/F Dongming Building Min Kang Road Long Hua District Shenzhen, China		
Pack 厂家网址 Website	//		

电芯参数 Parameter for cell			
标称电压 Nominal Voltage	3.6V	额定容量 Rated Capacity	5000mAh
标准充电电流 Standard Charging Current	1000mA	标准放电电流 Standard discharging Current	1000mA
最大连续充电电流 Maximum charging current	2500mA	最大放电电流 Maximum discharge current	7500mA
充电限制电压 Limited charging voltage	4.2V	放电截止电压 Cut-Off voltage	2.50V
外观形状 Appearance	灰色圆柱体 Gray cylinder	电芯尺寸 Cell size	Φ21.1×70.9mm

电池参数 Parameter for battery			
标准充电电流 Standard Charging Current	1000mA	标准放电电流 Standard discharging Current	1000mA
最大连续充电电流 Maximum charging current	2500mA	最大放电电流 Maximum discharge current	7500mA
充电限制电压 Limited charging voltage	4.2V	放电截止电压 Cut-Off voltage	2.50V
规格/型号 Model	ARB-L21-5000 3.6V 5000mAh 18Wh	电池尺寸 Battery size	Φ21.4×76.2mm
组成电芯数量 Number of cell	单电芯 Single cell	外观形状 Appearance	黄黑杂色圆柱体 Yellow and black cylinder

北京迪捷姆空运技术开发有限公司
 Beijing DGM Air Transport Technology Co., Ltd.
 UN38.3 检验报告
 UN38.3 Test Report

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	撞击 Impact	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	/
以下空白 Blank below					

T.1: 高度模拟

T.1: Altitude Simulation

样品编号 Sample No.	样品状态 Sample Status	检验前 Pre-test		检验后 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	72.516	4.170	72.511	0.007	4.166	99.90	No
A2	首次完全充电 First cycle fully charged	72.392	4.172	72.384	0.011	4.166	99.86	No
A3	首次完全充电 First cycle fully charged	72.620	4.173	72.615	0.007	4.168	99.88	No
A4	首次完全充电 First cycle fully charged	72.627	4.173	72.627	0.000	4.168	99.88	No
A5	首次完全充电 First cycle fully charged	72.708	4.172	72.706	0.003	4.168	99.90	No
A6	25次完全充电 25 cycles fully charged	72.585	4.171	72.585	0.000	4.169	99.95	No
A7	25次完全充电 25 cycles fully charged	72.439	4.172	72.437	0.003	4.170	99.95	No
A8	25次完全充电 25 cycles fully charged	72.677	4.174	72.677	0.000	4.171	99.93	No
A9	25次完全充电 25 cycles fully charged	72.612	4.173	72.612	0.000	4.170	99.93	No
A10	25次完全充电 25 cycles fully charged	72.637	4.173	72.636	0.001	4.170	99.93	No
以下空白 Blank below								

T.2: 温度试验

T.2: Thermal Test

样品编号 Sample No.	样品状态 Sample Status	检验前 Pre-test		检验后 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	72.511	4.166	72.510	0.001	4.089	98.15	No
A2	首次完全充电 First cycle fully charged	72.384	4.166	72.384	0.000	4.087	98.10	No
A3	首次完全充电 First cycle fully charged	72.615	4.168	72.615	0.000	4.089	98.10	No
A4	首次完全充电 First cycle fully charged	72.627	4.168	72.627	0.000	4.089	98.10	No
A5	首次完全充电 First cycle fully charged	72.706	4.168	72.706	0.000	4.090	98.13	No
A6	25次完全充电 25 cycles fully charged	72.585	4.169	72.585	0.000	4.093	98.18	No
A7	25次完全充电 25 cycles fully charged	72.437	4.170	72.437	0.000	4.094	98.18	No
A8	25次完全充电 25 cycles fully charged	72.677	4.171	72.676	0.001	4.094	98.15	No
A9	25次完全充电 25 cycles fully charged	72.612	4.170	72.612	0.000	4.093	98.15	No
A10	25次完全充电 25 cycles fully charged	72.636	4.170	72.635	0.001	4.093	98.15	No
以下空白 Blank below								

T.3: 振动

T.3: Vibration

样品编号 Sample No.	样品状态 Sample Status	检验前 Pre-test		检验后 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	72.510	4.089	72.510	0.000	4.088	99.98	No
A2	首次完全充电 First cycle fully charged	72.384	4.087	72.384	0.000	4.087	100.00	No
A3	首次完全充电 First cycle fully charged	72.615	4.089	72.612	0.004	4.088	99.98	No
A4	首次完全充电 First cycle fully charged	72.627	4.089	72.623	0.006	4.089	100.00	No
A5	首次完全充电 First cycle fully charged	72.706	4.090	72.699	0.010	4.088	99.95	No
A6	25次完全充电 25 cycles fully charged	72.585	4.093	72.580	0.007	4.092	99.98	No
A7	25次完全充电 25 cycles fully charged	72.437	4.094	72.433	0.006	4.093	99.98	No
A8	25次完全充电 25 cycles fully charged	72.676	4.094	72.672	0.006	4.093	99.98	No
A9	25次完全充电 25 cycles fully charged	72.612	4.093	72.607	0.007	4.093	100.00	No
A10	25次完全充电 25 cycles fully charged	72.635	4.093	72.631	0.006	4.092	99.98	No
以下空白 Blank below								

T.4: 冲击

T.4: Shock

样品编号 Sample No.	样品状态 Sample Status	检验前 Pre-test		检验后 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	72.510	4.088	72.510	0.000	4.088	100.00	No
A2	首次完全充电 First cycle fully charged	72.384	4.087	72.382	0.003	4.087	100.00	No
A3	首次完全充电 First cycle fully charged	72.612	4.088	72.610	0.003	4.088	100.00	No
A4	首次完全充电 First cycle fully charged	72.623	4.089	72.622	0.001	4.089	100.00	No
A5	首次完全充电 First cycle fully charged	72.699	4.088	72.699	0.000	4.088	100.00	No
A6	25次完全充电 25 cycles fully charged	72.580	4.092	72.580	0.000	4.092	100.00	No
A7	25次完全充电 25 cycles fully charged	72.433	4.093	72.430	0.004	4.093	100.00	No
A8	25次完全充电 25 cycles fully charged	72.672	4.093	72.668	0.006	4.093	100.00	No
A9	25次完全充电 25 cycles fully charged	72.607	4.093	72.604	0.004	4.093	100.00	No
A10	25次完全充电 25 cycles fully charged	72.631	4.092	72.629	0.003	4.092	100.00	No
以下空白 Blank below								

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	55.3	No
A2	首次完全充电 First cycle fully charged	59.8	No
A3	首次完全充电 First cycle fully charged	55.4	No
A4	首次完全充电 First cycle fully charged	57.9	No
A5	首次完全充电 First cycle fully charged	58.6	No
A6	25次完全充电 25 cycles fully charged	56.1	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	57.8	No
A9	25次完全充电 25 cycles fully charged	56.1	No
A10	25次完全充电 25 cycles fully charged	57.5	No
以下空白 Blank below			

T.6: 撞击

T.6: Impact

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	28.9	No
B2	首次 50%容量 First cycle charged 50% rated capacity	28.7	No
B3	首次 50%容量 First cycle charged 50% rated capacity	29.2	No
B4	首次 50%容量 First cycle charged 50% rated capacity	29.7	No
B5	首次 50%容量 First cycle charged 50% rated capacity	29.4	No
B6	25 次 50%容量 25 cycles charged 50% rated capacity	30.6	No
B7	25 次 50%容量 25 cycles charged 50% rated capacity	30.0	No
B8	25 次 50%容量 25 cycles charged 50% rated capacity	29.6	No
B9	25 次 50%容量 25 cycles charged 50% rated capacity	28.1	No
B10	25 次 50%容量 25 cycles charged 50% rated capacity	30.1	No
以下空白 Blank below			

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
以下空白 Blank below		

T.8: 强制放电

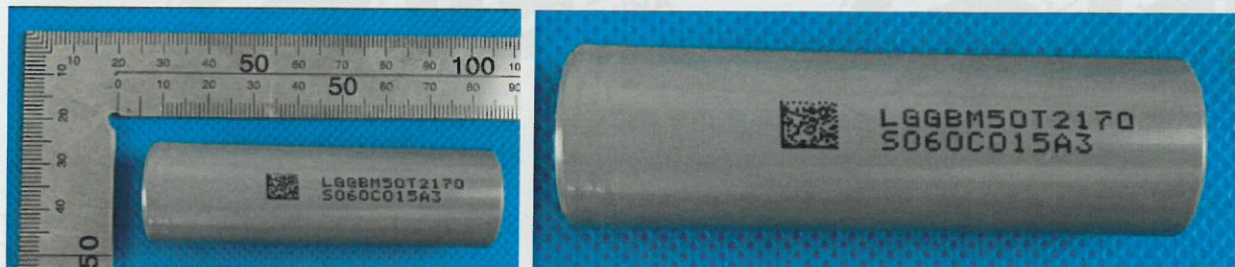
T.8: Forced Discharge

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
以下空白 Blank below		

UN38.3 检验报告

UN38.3 Test Report

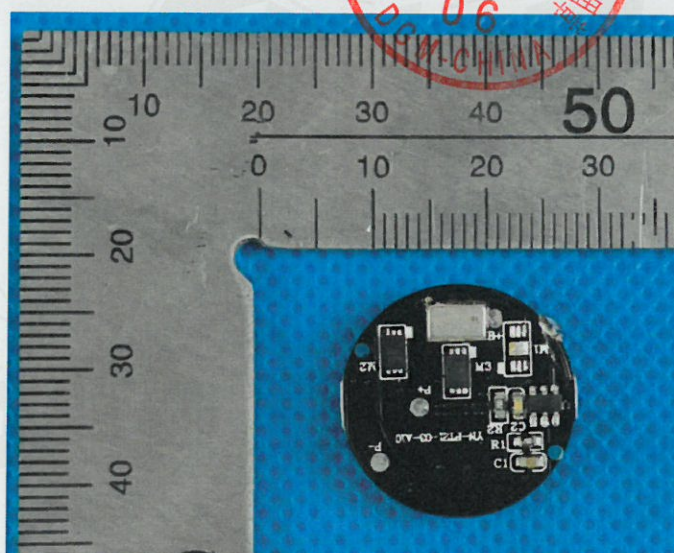
电芯照片/Cell pictures



电池照片/Battery pictures



保护装置/Protective devices



* End of the report *