



UN38.3 检测报告

UN38.3 Test Report

样品名称:	可充电锂离子电池 ARB-L21-5000U
Sample Name:	Rechargeable Li-ion Battery ARB-L21-5000U
型号规格:	ARB-L21-5000U 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
检测项目:	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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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).
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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-L21-5000U 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 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	2019.09.16
检测日期 Test Date	2019.09.17-2019.10.09			
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、撞击、过度充电、强制放电 Altitude simulation, Thermal test, Vibration, Shock, External short circuit, Impact, 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): 2019 年 10 月 10 日</p>			

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	LG 化学株式会社 LG CHEM Co.,Ltd		
电芯厂家联系电话 Phone number	张先生 +86-025-85603000	邮箱 e-mail	sales@lgchen.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	武凤杰 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			
电芯型号 Cell model	INR21700M50T		
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	Φ21.2×70.5mm

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-L21-5000U 3.6V 5000mAh 18Wh	电池尺寸 Battery size	Φ21.4×76.0mm
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

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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	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	/
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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 $m_1(g)$	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	73.195	4.169	73.192	0.004	4.166	99.93	No
A2	首次完全充电 First cycle fully charged	73.057	4.169	73.056	0.001	4.166	99.93	No
A3	首次完全充电 First cycle fully charged	73.332	4.167	73.332	0.000	4.164	99.93	No
A4	首次完全充电 First cycle fully charged	73.076	4.170	73.074	0.003	4.166	99.90	No
A5	首次完全充电 First cycle fully charged	73.098	4.169	73.098	0.000	4.165	99.90	No
A6	25次完全充电 25 cycles fully charged	73.418	4.168	73.415	0.004	4.165	99.93	No
A7	25次完全充电 25 cycles fully charged	73.466	4.166	73.466	0.000	4.163	99.93	No
A8	25次完全充电 25 cycles fully charged	73.026	4.169	73.024	0.003	4.165	99.90	No
A9	25次完全充电 25 cycles fully charged	73.024	4.171	73.024	0.000	4.168	99.93	No
A10	25次完全充电 25 cycles fully charged	73.209	4.170	73.206	0.004	4.167	99.93	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 $m_1(g)$	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	73.192	4.166	73.179	0.018	4.091	98.20	No
A2	首次完全充电 First cycle fully charged	73.056	4.166	73.043	0.018	4.090	98.18	No
A3	首次完全充电 First cycle fully charged	73.332	4.164	73.320	0.016	4.090	98.22	No
A4	首次完全充电 First cycle fully charged	73.074	4.166	73.064	0.014	4.091	98.20	No
A5	首次完全充电 First cycle fully charged	73.098	4.165	73.088	0.014	4.090	98.20	No
A6	25次完全充电 25 cycles fully charged	73.415	4.165	73.403	0.016	4.093	98.27	No
A7	25次完全充电 25 cycles fully charged	73.466	4.163	73.453	0.018	4.093	98.32	No
A8	25次完全充电 25 cycles fully charged	73.024	4.165	73.012	0.016	4.092	98.25	No
A9	25次完全充电 25 cycles fully charged	73.024	4.168	73.011	0.018	4.092	98.18	No
A10	25次完全充电 25 cycles fully charged	73.206	4.167	73.193	0.018	4.093	98.22	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	73.179	4.091	73.171	0.011	4.091	100.00	No
A2	首次完全充电 First cycle fully charged	73.043	4.090	73.036	0.010	4.090	100.00	No
A3	首次完全充电 First cycle fully charged	73.320	4.090	73.315	0.007	4.090	100.00	No
A4	首次完全充电 First cycle fully charged	73.064	4.091	73.058	0.008	4.091	100.00	No
A5	首次完全充电 First cycle fully charged	73.088	4.090	73.084	0.005	4.090	100.00	No
A6	25次完全充电 25 cycles fully charged	73.403	4.093	73.396	0.010	4.092	99.98	No
A7	25次完全充电 25 cycles fully charged	73.453	4.093	73.447	0.008	4.093	100.00	No
A8	25次完全充电 25 cycles fully charged	73.012	4.092	73.009	0.004	4.092	100.00	No
A9	25次完全充电 25 cycles fully charged	73.011	4.092	73.007	0.005	4.090	99.95	No
A10	25次完全充电 25 cycles fully charged	73.193	4.093	73.188	0.007	4.091	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	73.171	4.091	73.168	0.004	4.091	100.00	No
A2	首次完全充电 First cycle fully charged	73.036	4.090	73.034	0.003	4.089	99.98	No
A3	首次完全充电 First cycle fully charged	73.315	4.090	73.315	0.000	4.090	100.00	No
A4	首次完全充电 First cycle fully charged	73.058	4.091	73.056	0.003	4.091	100.00	No
A5	首次完全充电 First cycle fully charged	73.084	4.090	73.080	0.005	4.090	100.00	No
A6	25 次完全充电 25 cycles fully charged	73.396	4.092	73.396	0.000	4.092	100.00	No
A7	25 次完全充电 25 cycles fully charged	73.447	4.093	73.447	0.000	4.092	99.98	No
A8	25 次完全充电 25 cycles fully charged	73.009	4.092	73.009	0.000	4.091	99.98	No
A9	25 次完全充电 25 cycles fully charged	73.007	4.090	73.007	0.000	4.090	100.00	No
A10	25 次完全充电 25 cycles fully charged	73.188	4.091	73.188	0.000	4.090	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	55.3	No
A2	首次完全充电 First cycle fully charged	55.9	No
A3	首次完全充电 First cycle fully charged	55.8	No
A4	首次完全充电 First cycle fully charged	56.0	No
A5	首次完全充电 First cycle fully charged	56.2	No
A6	25次完全充电 25 cycles fully charged	55.6	No
A7	25次完全充电 25 cycles fully charged	56.1	No
A8	25次完全充电 25 cycles fully charged	56.4	No
A9	25次完全充电 25 cycles fully charged	55.9	No
A10	25次完全充电 25 cycles fully charged	55.7	No
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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	32.9	No
B2	首次 50%容量 First cycle charged 50% rated capacity	31.7	No
B3	首次 50%容量 First cycle charged 50% rated capacity	32.5	No
B4	首次 50%容量 First cycle charged 50% rated capacity	31.8	No
B5	首次 50%容量 First cycle charged 50% rated capacity	32.1	No
B6	25 次 50%容量 25 cycles charged 50% rated capacity	34.0	No
B7	25 次 50%容量 25 cycles charged 50% rated capacity	33.6	No
B8	25 次 50%容量 25 cycles charged 50% rated capacity	34.3	No
B9	25 次 50%容量 25 cycles charged 50% rated capacity	34.5	No
B10	25 次 50%容量 25 cycles charged 50% rated capacity	34.1	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

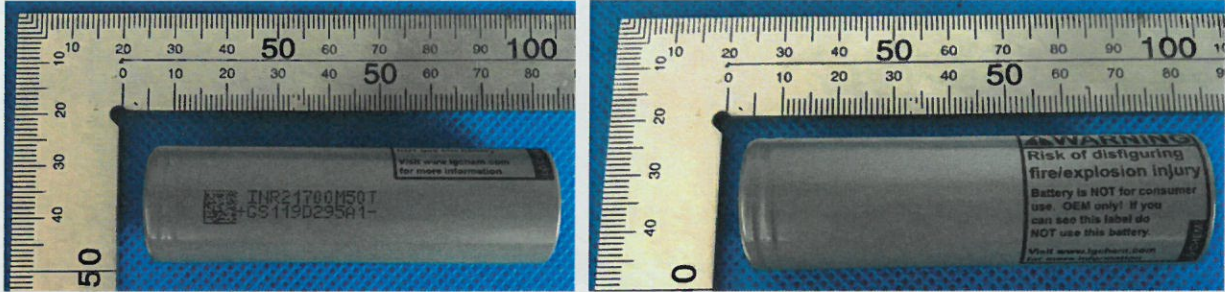
T.8: Forced Discharge

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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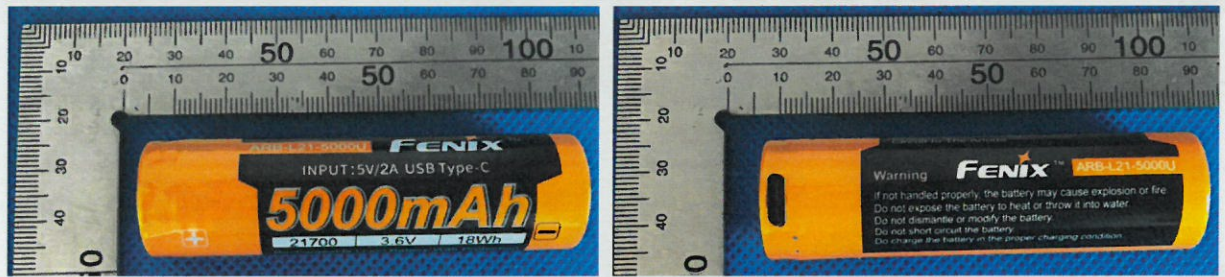
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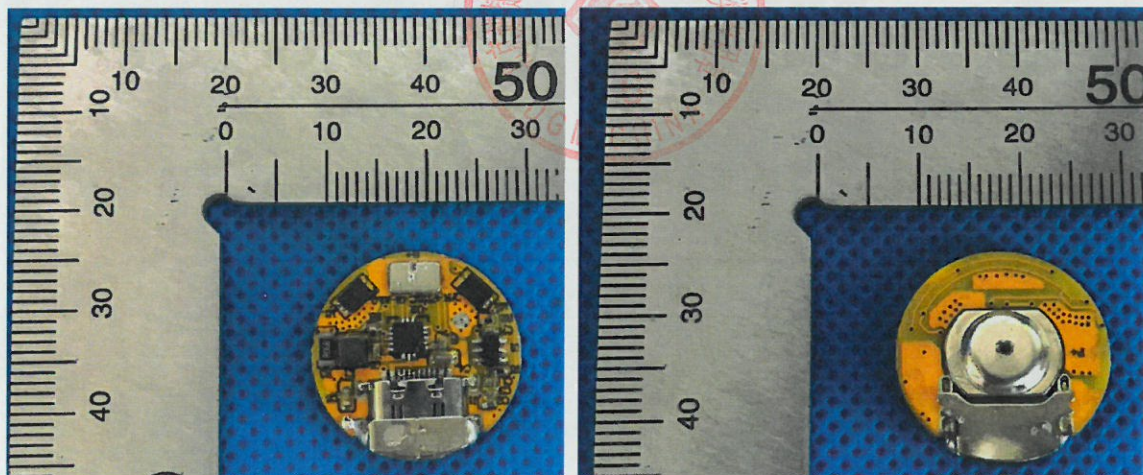
电芯照片/Cell pictures



电池照片/Battery pictures



保护装置/Protective devices



* End of the report *