Test Report

Applicant : Ningbo Lvneng Lithium battery Technology Co. LTD

Address : 220 Jiangning Road, Jiangkou Street, Fenghua City, Ningbo City, Zhejiang Province, China

The following sample(s) and sample information was/were submitted and identified by/on behalf of the client

Sample Name	:	Rechargeable Li-ion Battery
Sample Model	:	18650-2000mAh 3.7V 2000mAh 7.4Wh 18650-4000mAh 3.7V 4000mAh 14.8Wh 18650-2200mAh 3.7V 2200mAh 8.14Wh 18650-2600mAh 3.7V 2600mAh 9.62Wh 18650-6600mAh 3.7V 6600mAh 24.42Wh 18650-8800mAh 3.7V 8800mAh 32.56Wh 18650-1200mAh 3.7V 1200mAh 4.44Wh 18650-1500mAh 3.7V 1500mAh 5.55Wh 18650-1800mAh 3.7V 1800mAh 6.66Wh 18650-3600mAh 3.7V 3600mAh 13.32Wh 18650-4400mAh 3.7V 4400mAh 16.28Wh 18650-5400mAh 3.7V 5400mAh 19.98Wh 18650-7200mAh 3.7V 7200mAh 26.64Wh
Sample Style	:	/
Sample Lot	:	/
Sample Received Date	:	May 25, 2022
Test Completed Date	:	May 28, 2022
Test Requested	:	As specified by client, with reference to Directive 2006/66/EC and its amended Directive 2013/56/EU to determine Lead(Pb), Cadmium(Cd), Mercury(Hg) contents in the submitted sample.
Test Method	:	Refer to the next page(s).
Test Results	:	Refer to the next page(s).
Test Conclusion	:	Based upon the performed tests by submitted samples, the test results comply with the limits of the Directive 2006/66/EC and its amended Directive 2013/56/EU

Reviewed by: _____ Lab Senior Engineer

Authorized Signature: _____ Technology Manager

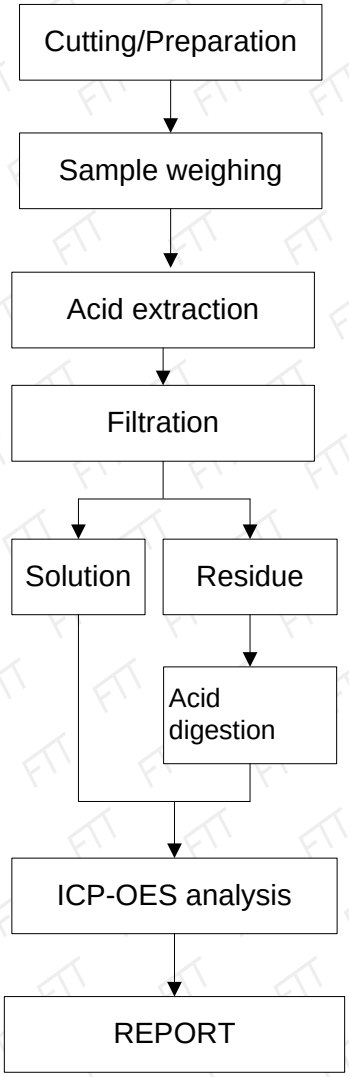
FLION TESTING TECHNOLOGIES
Add :Gangzi Industrial Park,Furong Industrial Area, Xinqiao Village, Shajing Town, Bao'an District, Shenzhen City
Tel : 86-0755-2724 8885 Fax : 86-0755-2746 0090 Http://www.cnftt.com

Test Results:

Test Item	Test method/Instrument	MDL (%)	Result (%)	Limit (%)
Lead(Pb)	EPA3050B&EPA3052/ICP-OES	0.0002	N.D.	--
Cadmium(Cd)	EPA3050B&EPA3052/ICP-OES	0.0002	N.D.	0.002
Mercury(Hg)	EPA3050B&EPA3052/ICP-OES	0.0002	N.D.	0.0005

Note:
(1) 1 mg/kg = 1 ppm = 0.0001%
(2) N.D. = Not Detected (less than MDL)
(3) MDL = Method Detection Limit
(4) "--" = Not Regulated
(5) Remark: According to the Article 21(3) of Directive 2006/66/EC, Battery, accumulator and button cell shall include the chemical symbol Mercury when containing morn than 0.0005% of Hg, the chemical symbol Cadmium when containing more than 0.002% of Cd and the chemical symbol Pb when containing more than 0.004% of Pb
Remark: The test report is only used for customer research, teaching, internal quality control, product development and other purposes, for internal reference only.

Testing Flow Chart:



Test Part Description: Battery

Sample Photo

Note: The results shown in this report refer only to the sample(s) tested.

* * * * * End of Report * * * * *

FLION TESTING TECHNOLOGIES

Add :Gangzi Industrial Park,Furong Industrial Area, Xinqiao Village, Shajing Town, Bao'an District, Shenzhen City

Tel : 86-0755-2724 8885 Fax : 86-0755-2746 0090 Http://www.cnftt.com

空 运
By Air

仅限货机
CAO

NO.212200817385402

CNAS 中国认可 检验 INSPECTION CNAS IB0071

货物运输条件鉴定书

Certification for Safe Transport of Chemical Goods

危险品

样品名称 ： 可充电锂离子电池 18650-4000mAh 3.7V 4000mAh 14.8Wh

Sample name: Rechargeable Li-ion Battery 18650-4000mAh 3.7V 4000mAh 14.8Wh

委托单位 ： 宁波绿能锂电池科技有限公司
Ningbo Lvneng Lithium Battery Technology Co.,Ltd.

生产单位 ： 宁波绿能锂电池科技有限公司
Ningbo Lvneng Lithium Battery Technology Co.,Ltd.

上海化工院检测有限公司 检验检测专用章

Witness Better Life
SICIT 上海化工院检测有限公司
Shanghai Institute of Chemical Industry Testing Co., Ltd

空 运
By Air

空 运
By Air

NO. 212200817385402

Page 1/3

货物运输条件鉴定书

Certification for Safe Transport of Chemical Goods

样品名称 Sample Name	中文 Chinese	可充电锂离子电池 18650-4000mAh 3.7V 4000mAh 14.8Wh
	英文 English	Rechargeable Li-ion Battery 18650-4000mAh 3.7V 4000mAh 14.8Wh
委托单位 Consignor		宁波绿能锂电池科技有限公司 Ningbo Lvneng Lithium Battery Technology Co.,Ltd.
生产单位 Manufacturer		宁波绿能锂电池科技有限公司 Ningbo Lvneng Lithium Battery Technology Co.,Ltd.
检验方法、程序 Inspection method and procedure		国际航空运输协会《危险品规则》63版 IATA Dangerous Goods Regulations (DGR) 63rd Edition
样品外观 Sample appearance		蓝色塑料薄膜外壳 Blue Plastic film shell
包装件信息 Package information		锂电池总净重≤10kg。 Lithium batteries total net weight≤10kg.

序号 NO.	电池种类 Battery type	型号 Model	容量Capacity /锂含量Li content	放置方式 Placement	单颗重量kg Unit weight	数量 Quantity
1	可充电锂离子电池组 Rechargeable Li-ion battery	18650-4000mAh	4000mAh 14.8Wh	电池单独运输 Battery only	0.0909	50

鉴定结论 IDENTIFICATION CONCLUSION

1. 危险性识别(Hazards identification)

杂项。
Miscellaneous.

2. 空运按照国际航空运输协会《危险品规则》办理的类项(Suggestion according to IATA DGR)

Shipping name:Lithium ion batteries
Class or division:9
UN Number:UN3480

3. 包装要求(Packaging requirements)

按包装说明965第IB部分要求办理。
The goods are packaged according to the Packaging Instruction 965 section IB.

仅限货机
Cargo Aircraft Only

检验日期: Inspection Date: 2022-01-07　签发日期: Issue Date: 2022-01-07　生效日期: Effective Date: 2022-01-07

上海化工院检测有限公司 检验检测专用章 (35)

备注 Comment	/

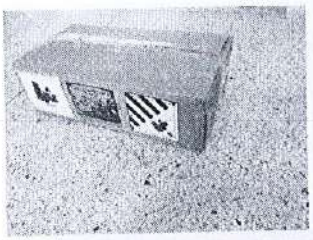
批准 Approver:　审核 Checker:　主检 Appraiser:

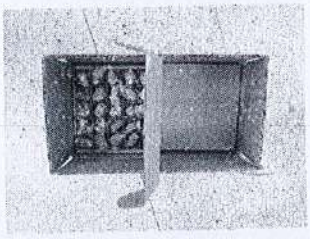
货物运输条件鉴定书

Certification for Safe Transport of Chemical Goods

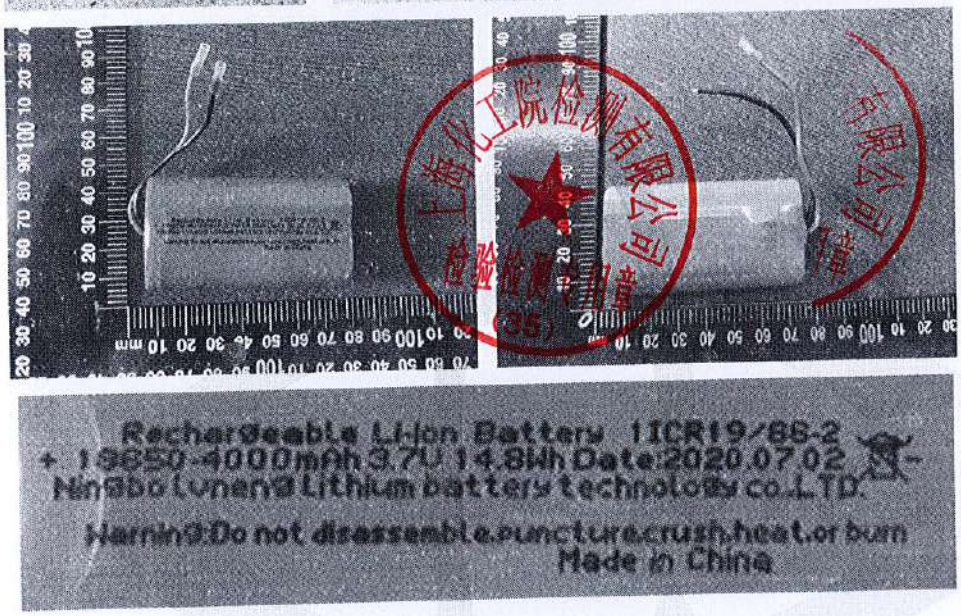
NO. 212200817385402

序号 No.	检验结果及其他事项 Inspection results and other things
1	本报告所述锂电池按照《危险品规则》(63版)[以下简称DGR] 3.9.2.6.1(e)规定的质量管理体系进行制造。 本报告所述锂电池不属于因安全原因召回的锂电池。 本报告所述锂电池不进行以回收或处置为目的的航空运输，不属于废弃锂电池。 Lithium cells and batteries listed in this report were manufactured under the quality management program described in IATA DGR 63rd 3.9.2.6.1(e). Lithium cells and batteries listed in this report are not the defective cells or batteries returned to the manufacturer for safety reasons. Lithium cells and batteries listed in this report are not waste lithium cells or batteries, and they will not be shipped for recycling or disposal.
2	本报告所述锂电池已通过《联合国试验和标准手册》第III部分38.3小节相应测试要求。 包装件能够承受1.2m跌落试验。 Lithium cells and batteries listed in this report are of the types proved to meet the requirements of each applicable test in the UN Manual of Tests and Criteria, Part III, sub-section 38.3. The package has passed the 1.2m drop test. UN38.3试验概要编号 The UN38.3 Test Summary No.(s) 812000000360741 详细信息请扫描右侧二维码。 Please scan the QR code on the right for more information.
3	锂电池完全封装在内包装内，位于坚固的刚性外包装中。 电池具有适当的防短路措施。 Lithium cells and batteries are packed in inner packagings that completely enclose the cell or battery and placed in a strong rigid outer packaging. Cells and batteries are properly protected to prevent short circuits.
4	按DGR IB部分托运的电池必须根据第8部分规定在托运人申报单中描述；并且当使用航空货运单时，货运单必须包含8.2.1和8.2.2中相关适用要求。 Cells or batteries shipped under the provisions of Section IB in IATA DGR must be described on a Shipper's Declaration as set out in Section 8, and the air waybill, when used, must contain the applicable information required by 8.2.1 and 8.2.2.
5	除使用9类锂电池危险性标签(DGR图7.3.X)外，每个包装件必须按DGR图7.1.C所示做耐久清晰的标记。 每个包装件必须按DGR7.1.4.1(a)和(b)要求标记，此外当7.1.4.1(c)有要求时还必须标明包装件净重。 每个包装件必须贴有“仅限货机”标签(DGR图7.4.B)。 Each package must be durably and legibly marked with the mark shown in Figure 7.1.C in IATA DGR in addition to the Class 9-Lithium Battery hazard label (Figure 7.3.X in IATA DGR). Each package must be marked in accordance with the requirements of 7.1.4.1(a) and (b) in IATA DGR and in addition the net weight when required by 7.1.4.1(c) must be marked on the package. Each package must be labelled with the "Cargo Aircraft Only" label(Figure 7.4.B in IATA DGR).
6	根据委托单位声明，本报告所述锂离子电池交付运输时，其荷电状态必须不超过额定容量的30%。 According to the statement of the consignor, lithium ion cells and batteries listed in this report must be offered for transport at a state of charge (SoC) not exceeding 30% of their rated capacity.
7	电池不得与第1类爆炸品(1.4S项除外)，2.1项易燃气体，第3类易燃液体，4.1项易燃固体或5.1项氧化性物质等危险品包装在同一外包装或集合包装内。 Cells and batteries must not be packed in the same outer packaging or overpack with dangerous goods classified in Class 1 (explosives) other than Division 1.4S, Division 2.1 (flammable gases), Class 3 (flammable liquids), Division 4.1 (flammable solids) or Division 5.1 (oxidizers).






UN 3480
For more information, call


RechargeableLi-ionBattery IICR19/66-2
+ 18650-4000mAh 3.7V 14.8Wh Date:2020.07.02
Ningbo Lunen Lithium battery technology co.,LTD.
Warning:Do not disassemble,puncture,crush,heat,or burn
Made in China

报告结束

海 运
By Sea

NO.212200417085803

CNAS 中国认可 检验 INSPECTION CNAS IB0071

货物运输条件鉴定书

Certification for Safe Transport of Chemical Goods

锂电池类货物

样品名称 ： 可充电锂离子电池 18650-4000mAh 3.7V 4000mAh 14.8Wh

Sample name: Rechargeable Li-ion Battery 18650-4000mAh 3.7V 4000mAh 14.8Wh

委托单位 ： 宁波绿能锂电池科技有限公司
Ningbo Lvneng Lithium Battery Technology Co.,Ltd.

生产单位 ： 宁波绿能锂电池科技有限公司
Ningbo Lvneng Lithium Battery Technology Co.,Ltd.

上海化工院检测有限公司 检验检测专用章

Witness Better Life
SICIT 上海化工院检测有限公司
Shanghai Institute of Chemical Industry Testing Co., Ltd

海 运
By Sea

海 运
By Sea

货物运输条件鉴定书

NO. 212200417085803

Certification for Safe Transport of Chemical Goods

<table>
<tr><td rowspan="2">样品名称
Sample Name</td><td>中文
Chinese</td><td colspan="3">可充电锂离子电池 18650-4000mAh 3.7V 4000mAh 14.8Wh</td></tr>
<tr><td>英文
English</td><td colspan="3">Rechargeable Li-ion Battery 18650-4000mAh 3.7V 4000mAh 14.8Wh</td></tr>
<tr><td colspan="2">委托单位
Consignor</td><td colspan="3">宁波绿能锂电池科技有限公司
Ningbo Lvneng Lithium Battery Technology Co.,Ltd.</td></tr>
<tr><td colspan="2">生产单位
Manufacturer</td><td colspan="3">宁波绿能锂电池科技有限公司
Ningbo Lvneng Lithium Battery Technology Co.,Ltd.</td></tr>
<tr><td colspan="2">检验方法、程序
Inspection method and procedure</td><td colspan="3">国际海事组织《国际海运危险货物规则》(2020版)
IMO International Maritime Dangerous Goods Code (2020 Edition)</td></tr>
<tr><td colspan="2">样品外观
Sample appearance</td><td colspan="3">蓝色塑料薄膜外壳
Blue Plastic film shell</td></tr>
<tr><td colspan="2">包装件信息
Package information</td><td colspan="3">重量≤30kg。
weight≤30kg.</td></tr>
<tr><td>序号
NO.</td><td>电池种类
Battery type</td><td>型号
Model</td><td>容量Capacity
/锂含量Li content</td><td>放置方式
Placement</td></tr>
<tr><td>1</td><td>可充电锂离子电池组
Rechargeable Li-ion battery</td><td>18650-4000mAh</td><td>4000mAh 14.8Wh</td><td>电池单独运输
Battery only</td></tr>
</table>

鉴定结论 IDENTIFICATION CONCLUSION

1. 危险性识别(Hazards identification)

锂离子电池。

Lithium ion battery.

2. 海运按照国际海事组织《国际海运危险货物规则》办理的类项(Suggestion according to IMO IMDG Code)

根据特殊规定188，该物品不受IMO IMDG Code其他条款限制。

The article is not subject to other provisions of IMO IMDG Code according to special provision 188.

3. 包装要求(Packaging requirements)

无。

None.

检验日期: Inspection Date: 2022-01-07　签发日期: Issue Date: 2022-01-07　生效日期: Effective Date: 2022-01-07

上海化工院检测有限公司 检验检测专用章

备注 Comment: /

批准 Approver: 王宾　审核 Checker: 黄学胜　主检 Appraiser: 顾杨幸

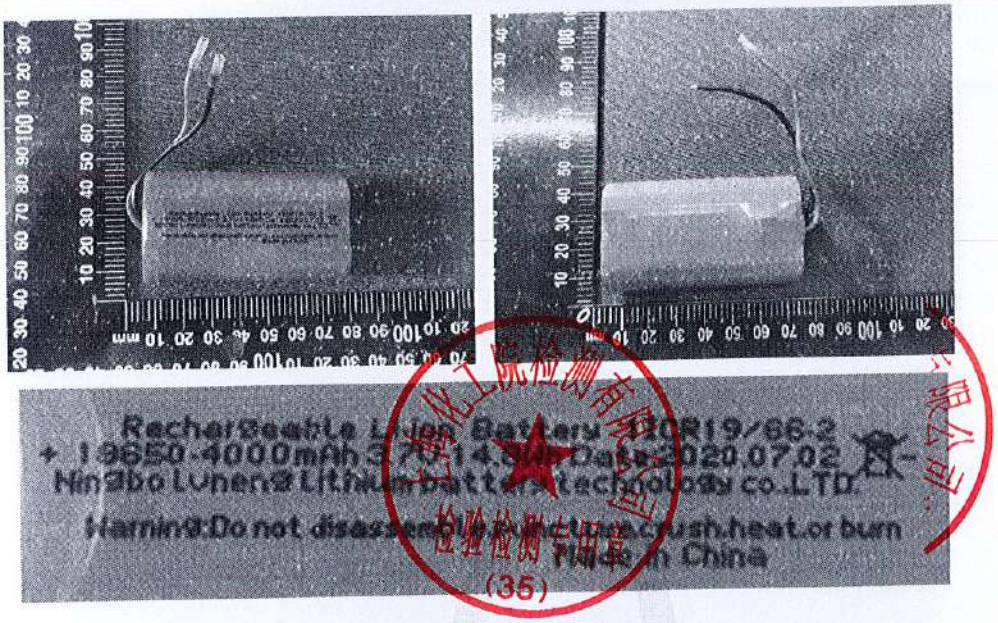
货物运输条件鉴定书

Certification for Safe Transport of Chemical Goods

序号 No.	检验结果及其他事项 Inspection results and other things
1	本报告所述锂电池按照《国际海运危险货物规则》(2020版) 2.9.4.5规定的质量管理体系进行制造。 Lithium cells and batteries listed in this report were manufactured under the quality management program described in IMDG CODE 2020 EDITION 2.9.4.5 .
2	本报告所述锂电池已通过《联合国试验和标准手册》第III部分38.3小节相应测试要求。 包装件能够承受1.2m跌落试验。 Lithium cells and batteries listed in this report are of the types proved to meet the requirements of each applicable test in the UN Manual of Tests and Criteria, Part III, sub-section 38.3. The package has passed the 1.2m drop test. UN38.3试验概要编号 The UN38.3 Test Summary No.(s) 812000000360741 详细信息请扫描右侧二维码。 Please scan the QR code on the right for more information.
3	锂电池完全封装在内包装内，位于坚固的外包装中。 Lithium cells and batteries are packed in inner packagings that completely enclose the cell or battery and placed in a strong outer packaging.
4	电池具有适当的防短路措施。 Cells and batteries are properly protected to prevent short circuits.
5	每个包装件必须标示恰当的锂电池标记。 装有锂电池的包装件，符合国际民航组织《危险物品安全航空运输技术细则》第4部分第II章的包装说明965或968第IB部分规定的，贴贴5.2.1.10(锂电池标记)和5.2.2.2所示的9A型标签，应视为符合本特殊规定188的规定。 Each package shall be marked with the appropriate lithium battery mark. Packages containing lithium batteries packed in conformity with the provisions of part 4, chapter II, packing instructions 965 or 968, section IB of the ICAO Technical Instructions for the Safe Transport of Dangerous Goods by air that bear the mark as shown in 5.2.1.10(lithium battery mark) and the label shown 5.2.2.2, Model No.9A shall be deemed to meet the provisions of this special provision 188.
6	/
7	/

货物运输条件鉴定书

Certification for Safe Transport of Chemical Goods



报告结束

三帕认证

Safety Data Sheet

安全技术说明书

Product Name 产品名称:	Rechargeable Li-ion Battery 可充电锂离子电池
Model 型号:	18650-4000mAh
Issue Date 签发日期:	2021.12.30
Effective date 生效日期:	2022.01.01
Report No.报告号:	NBFS20211228SDS06
Compiler 编制:	Jack Yang
Reviewer 审核:	Tracy Chen
Approver 批准:	

广州三帕认证技术服务有限公司

Guangzhou CP-UP Certification Technology Service Co., Ltd.

Tel: 86-020 3112 7037 Email: info@cp-up.com Website: www.cp-up.com

Section 1 - Chemical and Company Identification 第一部分-化学品及企业标识		
Product Name 产品名称		Rechargeable Li-ion Battery 可充电锂离子电池
Model/型号		18650-4000mAh
Ratings/额定参数		3.7V, 4000mAh, 14.8Wh
Applicant 申请商		Ningbo Lvneng Lithium Battery Technology Co., Ltd. 宁波绿能锂电池科技有限公司
Applicant address 申请商地址		Jiangning road, jiangkou street, fenghua district, ningbo city, zhejiang province, China 浙江省宁波市奉化区江口街道江宁路
Manufacturer 制造商		Ningbo Lvneng Lithium Battery Technology Co., Ltd. 宁波绿能锂电池科技有限公司
Manufacturer Contact information 制造商联系信息	address 地址	Jiangning road, jiangkou street, fenghua district, ningbo city, zhejiang province, China 浙江省宁波市奉化区江口街道江宁路
	Tel./应急电话	86-18069253365
	Email/邮箱	81386729@qq.com

Section 2 - Hazards Identification
第二部分-危险性概述

Hazards Identification：危险性描述

Not dangerous with normal use. Do not dismantle, open or shred the battery ingredients contained within or their ingredients products could be harmful.

正常使用没有危险，不能拆解、打开或分解电池，里面的材料或成分是有害的。

Primary Route (s) of Exposure: 接触途径

inhalation, ingestion, Skin contact and Eye contact.

吸入、食入、皮肤接触、眼睛接触。

Potential Health Effects: 潜在健康影响

inhalation： Vapors or mists from a ruptured battery may cause respiratory irritation.

吸入：破裂的电池散发出来的气雾会引起呼吸道刺激。

Ingestion： The battery ingredients contained within or their ingredients products can cause serious chemical burns of mouth, esophagus, and gastrointestinal tract.

食入：电池的组成成分或原料可以导致嘴，食道和胃肠道的严重化学烧伤。

Skin： Skin contact with contents of an open battery can cause severe irritation or burns to the skin.

皮肤：皮肤接触到电池的内部化学材料可能会导致严重的刺激或烧伤皮肤。

Eye： Eye contact with contents of an open battery can cause severe irritation or burns to the eye.

眼睛：眼睛接触到电池的内部化学材料可能会导致严重的刺激或烧伤眼睛。

Section 3- Composition/Information on Ingredients 第三部分-成分/组成信息		
Chemical Name **化学名称**	**CAS Number** **CAS 号（化学文摘索引登记号）**	**Concentration or concentration ranges (%)** **浓度或浓度范围(%)**
Lithium Cobalt Oxide	12190-79-3	35.05
Graphite powder	7782-42-5	15.98
Carbon black	1333-86-4	0.79
Hexafluoropropylene-vinylidene fluoride copolyme	9011-17-0	9.87
Dimethyl carbonate	616-38-6	4.38
Ethyl methyl carbonate	623-53-0	2.29
Lithium hexafluorophosphate	21324-40-3	2.95
Ethylene carbonate(EC)	96-49-1	6.34
Diethyl carbonate(DEC)	105-58-8	2.76
Propylene carbonate(PC)	108-32-7	1.11
Copper	7440-50-8	8.39
Styrene-butadiene rubber(SBR)	61789-96-6	0.71
Aluminium	7429-90-5	9.38
Note: CAS number is Chemical Abstract Service Registry Number. 注意：CAS 号是化学文摘服务注册号。 N/A=Not apply. N/A=不适用		

Section 4- First Aid Measure 第四部分-急救措施	
Inhalation **吸入**	Remove source of contamination or move victim to fresh air. Obtain medical advice. 移除污染源或者将受害者移至新鲜空气处。寻求医生建议。
Ingestion **食入**	Please rinse mouth thoroughly with water, induce vomiting under the guidance of professional personage. Please seek medical treatment in time. 立即用清水漱口，在专业人士的指导下催吐，速就医。
Skin contact **皮肤接触**	Remove contaminated clothes and rinse skin with plenty of water or shower for 15 minutes. Get medical aid. 脱下已污染衣服，用大量的水冲洗至少 15 分钟，速就医。
Eye contact **眼睛接触**	Irrigate with flowing water for 15 minutes. If irritation persists, consult a physician. 用流动水冲洗 15 分钟，如刺激持续发生，请求助于医生。

Section 5- Fire Fighting Measures 第五部分-消防措施	
Characteristics of Hazard **危险特性**	Toxic fumes, gases or vapors may evolve on burning. 火灾时可释放有害浓烟、气体或者蒸汽。
Hazardous Combustion Products **燃烧产生的危险物品**	Carbon monoxide, carbon dioxide, lithium oxide fumes and so on. 一氧化碳，二氧化碳，锂氧化物烟气等。
Fire-extinguishing Methods and Extinguishing Media **灭火方法及灭火剂**	Please use water, dry sand and other proper fire extinguishing media. 请使用水，干沙等合适的灭火介质。
Attention in Fire-extinguishing **灭火注意事项**	The firemen should put on antigas masks and full fire-fighting suits. 消防人员须佩戴防毒面具、穿全身消防服。

Section 6- Accidental Release Measure 第六部分-泄漏应急处理	
Personal Precautions, protective equipment, and emergency procedures **个人预防措施、防护装备和应急程序**	Restrict access to area until completion of clean-up. Do not touch the spilled material. Wear adequate personal protective equipment as indicated in Section 8. 限制区域，直到完成清理工作。请勿触摸泄漏的材料。穿戴适当的个人防护设备，如第 8 部分所示。
Environmental Precautions **环境保护措施**	Prevent material from contaminating soil and from entering sewers or waterways. 防止物质污染土壤和进入下水道或水道。
Methods and materials for Containment **方法和材料控制**	Stop the leak if safe to do so. Contain the spilled liquid with dry sand or earth. Clean up spills immediately. 出于安全，阻止泄漏，可以用干沙或沙土来遏制液体泄露，立即清理泄漏。
Methods and materials for cleaning up **清理的方法和材料**	Absorb spilled material with an inert absorbent (dry sand or earth). Scoop contaminated absorbent into an acceptable waste container. Collect all contaminated absorbent and dispose of according to directions in Section 13. Scrub the area with detergent and water; collect all contaminated wash water for proper disposal. 用惰性吸收剂(干沙或沙土)吸收溢出的材料。污染物转移到可吸收废物的容器。收集所有受污染的吸收剂和根据第 13 部分的指令处置。用洗涤剂和水清洁污染区域,收集所有受污染的洗涤水进行适当处置。

Section 7- Handling and Storage 第七部分-操作处置与储存	
Handling **操作**	Don't handing the batteries in manner that allows terminals to short circuit. Do not open, disassemble, crush or burn battery. 不要以让接头短路的方式对电池进行操作。不要打开，分解，挤压或燃烧电池。
Storage **储存**	if the battery is subject to storage for such a long term as more than 3 months, it is recommended to recharge the battery periodically.

	如果电池长期存放超过 3 个月，建议定期对电池充电。 Long period storage: 25±5°C, 60±25%R.H 长期存储：25±5°C,相对湿度 60±25% Do not storage the battery haphazardly in a box or drawer where they may short-circuit each other or be short-circuited by other metal objects. 不要将电池随意丢在盒子或抽屉里，以免电池之间或电池与其他金属物质发生短路。 Keep out of reach of children. 储存在小孩接触不到的地方。 Do not expose the battery to heat or fire. Avoid storage in direct sunlight. 不要将电池暴露在火源和热源附近，避免在阳光直射下存储。 Do not store together with oxidizing and acidic materials. 不要与氧化和酸性物质存储在一起。

Section 8 - Exposure Controls/Personal Protection **第八部分-接触控制和个体防护**	
Engineering Controls **工程控制**	No engineering controls are required for handling batteries that have not been damaged. Personal protective equipments for damaged batteries should include chemical resistant gloves and safety glasses. 操作未破损的电池，没有工程控制要求。对于破损的电池，个人防护用品应包括化学品防护手套和安全眼镜。
Personal Protective Equipment **个人防护设备**	Respiratory Protection: in case of battery venting, provide as much ventilation as possible. Avoid confined areas with venting cell cores. Respiratory Protection is not necessary under conditions of normal use. Not necessary under conditions of normal use. 呼吸保护：当电池排气阀打开时，应尽量使通风设备开至最大，避免将打开排气阀的电芯局限在某一狭窄空间内。正常操作条件下，呼吸保护是不必要的。正常使用条件下不必考虑。 Protective Gloves: Not necessary under conditions of normal use. 防护手套：正常使用条件下不必考虑。 Other Protective Clothing or Equipment: Not necessary under conditions of normal use. 其他防护服装或设备：正常使用条件下不必考虑。 Personal Protection is recommended for venting battery: Respiratory Protection, Protective Gloves, Protective Clothing and safety glass with side shields. 当电池排气阀打开时，应做好个人防护。呼吸防护，防护手套，防护服装和有护边的安全玻璃罩都是要准备的。

Section 9- Physical and Chemical Properties **第九部分-理化特性**
Color: Blue **颜色：**蓝色
Physical state: Solid **物理状态：**固体
Form: Prismatic

形状：棱柱形
Melting Point ℃: >300℃ **熔点℃：**>300℃
Odor: Odorless **气味：**无气味
Solubility: Partial soluble in water **溶解度：**部分溶于水

Section 10 - Stability and Reactivity **第十部分-稳定性和反应性**	
Stability **稳定性**	Stable under normal temperatures and pressures. 常温常压下稳定。
Conditions to Avoid **应避免的条件**	Heat above 70°C or Incinerate, Deform, Mutilate, Crush, Disassemble, Overcharge, Short circuit, Expose over a long period to humid conditions. 加热 70°C 以上或焚烧、变形、毁坏、粉碎、拆卸、过充电、短路，长时间暴露在潮湿的条件下。
Hazardous Decomposition Products **危害分解物**	Toxic Fumes, and may form peroxides. 有毒烟雾，并可能形成过氧化物。
Possibility of Hazardous Reaction **危险反应的可能性**	If leaked, forbidden to contact with strong oxidizers ,mineral acids ,strong alkalis, halogenated hydrocarbons. 如果发生泄露，避免与强氧化剂，无机酸，强碱，卤代烃接触。

Section 11 - Toxicological Information **第十一部分-毒理学信息**	
Irritation **刺激**	In the event of exposure to internal contents, vapor fumes may be very irritating to the eyes and skin. 内部物质暴露的情况下，蒸汽烟雾可能对眼睛和皮肤产生刺激性。
Sensitization **致敏**	Not applicable. 不适用
Reproductive Toxicity **再生毒性**	Not applicable. 不适用
Toxicologically Synergistic Materials **协同材料毒理学**	Not applicable. 不适用

Section 12-Ecological Information **第十二部分-生态学信息**	
General note **通用信息**	Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system. 不允许未稀释或大量的产品到达地下水、水道或污水系统。
Anticipated behavior of a chemical product in environment/possible	Not applicable. 不适用

environmental impact/ ecotoxicity **化学产品在环境/可能的环境预 期的行为的一种生态毒性**	
Mobility in soil **土壤中移动性**	Not applicable. 不适用
Persistence and Degradability **持久性和降解性**	Not applicable. 不适用

Section 13 - Disposal Considerations **第十三部分-废弃处置**	
Waste Treatment **废弃处置方法**	Recycle or dispose of in accordance with government, state & local regulations. 建议遵照国家和地方法规处置或再利用。
Attention for Waste Treatment **废弃注意事项**	Deserted batteries couldn't be treated as ordinary trash. Couldn't be thrown into fire or placed in high temperature. Couldn't be dissected, pierced, crushed or treated similarly. Best way is recycling. 废电池不能被当做普通垃圾。不能扔进火中或置于高温下。不能解体， 刺穿，破碎或类似的处理。最好的办法是回收利用。

Section 14 - Transport Information
第十四部分-运输信息

The battery shall be passed the test items of the UNITED NATIONS “Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria" section 38.3 and meet the requirements of UNITED NATIONS “Recommendations on the Transport of Dangerous Goods, model Regulations "
该电池必须通过联合国《关于危险货物运输的建议书 试验和标准手册》第 38.3 章节的测试项目和满足联合国《关于危险货物运输的建议书 规章范本》的要求。

The battery shall be protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to short circuit;
该电池必须做好防短路保护。包括防止与同一封装内的导电材料接触可能导致的短路。

The packaging shall be adequate to avoid mechanical damage during transport, handling and stacking.
包装应足以避免在运输，处理和堆放期间的机械损坏。

The package must be handled with care and that a flammability hazard exists if the package is damaged. 包装必须小心处理，如果包装损坏，存在易燃危险。

With regard to transport, the following regulations are cited and considered:
关于运输，引用和考虑了以下法规：
-The international Civil Aviation Organization (ICAO) Technical Instructions.
-国际民用航空组织(ICAO)技术细则。
-The international Air transport Association (IATA) Dangerous Goods Regulations.
-国际航空运输协会(IATA)危险物品规则。
The battery can be shipped by air in according to PACKING INSTRUCTION 965 Section IB, or PACKING

INSTRUCTION 966∽967 Section II of the 2022 IATA Dangerous Goods regulations 63rd Edition.
该电池可以根据 2022 年 IATA 危险物品规则第 63 版包装指令 965 第 IB 部分或包装指令 966∽967 第 II 部分运输。
UN number: UN3480 or UN3481;
UN 编号：UN3480 或 UN3481:
UN Proper shipping name/Description (technical name): Lithium ion batteries or Lithium ion batteries packed with equipment or Lithium ion batteries contained in equipment;
UN 合适的运输名称/描述(技术名称)：锂离子电池或锂离子电池与设备包装在一起或锂离子电池内置于设备中;
UN Classification (Transport hazard class): Class 9 (PI965 Section IB) or N/A (PI966∽967 Section II)
UN 分类(运输危险类别): 9 类危险品(包装指令 965 第 IB 部分)或者不适用(包装指令 966∽967 第 II 部分)
UN packaging group: N/A
UN 包装类别：不适用

-The international Maritime Dangerous Goods (IMDG) Code.
-国际海运危险货物(IMDG)规则。
UN number: UN3480 or UN3481;
UN 编号：UN3480 或 UN3481；
UN Proper shipping name/Description (technical name): Lithium ion batteries or Lithium ion batteries packed with equipment or Lithium ion batteries contained in equipment;
UN 合适的运输名称/描述(技术名称)：锂离子电池或锂离子电池与设备包装在一起或锂离子电池内置于设备中;
UN Classification (Transport hazard class): N/A
UN 分类(运输危险类别)：不适用
UN packaging group: N/A
UN 包装类别：不适用
The battery is not restricted according to IMO IMDG Code (inc. Amendment 40-20) Special Provision188.
海运按照国际海事组织《国际海运危险货物规则》(40-20 版)特殊规定 188 不受限制。

Section 15 - Regulatory Information
第十五部分-法规信息

International Civil Aviation Organization (ICAO) Technical Instructions
ICAO 国际民用航空组织(ICAO)技术细则:
1.Unless be exempted according to ICAO TI, the lithium ion cell/batteries (UN 3480，PI 965) and lithium metal cell/batteries (UN 3090，PI 968) are forbidden for carriage on passenger aircraft.
除非依据《技术细则》的相关要求取得豁免，单独包装的锂离子电池（芯）(UN 3480,PI 965）和锂金属电池（芯）（UN 3090，PI 968）货物禁止使用客机运输。
2.Unless be approved according to ICAO TI, Lithium ion cells/batteries (UN 3480，PI 965) must be offered for transport at a state of charge (SoC) not exceeding 30% of their rated design capacity.
除非依据《技术细则》的相关要求取得特别批准，按照包装说明 965 要求运输的锂离子电池（芯）货物，交运时锂离子电池（芯）的荷电状态不得超过其额定容量的 30%。

Section 16 - Additional Information
第十六部分-附加信息

Compile unit 编制单位：

Guangzhou CP-UP Certification Technology Service Co., Ltd.
广州三帕认证技术服务有限公司
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Tel./电话: 0086-20-31127037
Web/网址: www.cp-up.com
Email/邮箱: info@cp-up.com

Revision 修订: 0

Other Information 其他信息:

The information above is believed to be accurate and represents the best information currently available to us. However, we makes no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. Although reasonable precautions have been taken in the preparation of the data contained herein, it is offered solely for your information, consideration and investigation. This safety data sheet provides guidelines for the safe handling and use of this product; it does not and cannot advise on all possible situations, therefore, your specific use of this product should be evaluated to determine if additional precautions are required.

在我们看来上面的信息是准确的，这是我们目前能提供的最佳的信息。但是，对于这些信息，我们不对商品的性能做任何明示的或者暗示的保证，我们也不对使用这些信息造成的后果担负任何责任。用户应当自己调查研究后决定这些信息是否适用于他们的特定用途。尽管在该文档里提出了合理的预警，但是这仅仅只是给您做参考、考量和调查。这份安全技术说明书提供了安全处理和使用该产品的指南，但是它没有，也不能对所有可能发生的情景提出建议，所以您需要根据您对该产品的特定使用情况来决定是否需要其他的预防措施。

--End of report--
--报告结束--

三帕认证

TEST REPORT

Name of Sample: Rechargeable Li-ion Battery

Model: 18650-4000mAh

Ratings: 3.7Vd.c., 4000mAh

Report No: NBLN20201124IEC02

Guangzhou CP-UP Certification Technology Service Co., Ltd.

TEST REPORT
IEC 62133-2
Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications – Part 2: Lithium systems

Report Number. .....:	NBLN20201124IEC02
Date of issue .....:	2020-11-26
Total number of pages.....:	25 pages
Tested by (name, signature).....:	Max Feng
Reviewed by (name, signature)....:	Tracy Chen
Approved by (name, signature)....:	Leo Zhi
Name of Testing Laboratory preparing the Report.....:	Guangzhou CP-UP Certification Technology Service Co., Ltd.
Applicant's name.....:	Ningbo Lvneng Lithium battery Technology Co.,LTD
Address .....:	220 Jiangning Road, Jiangkou Street, Fenghua City, Ningbo City, Zhejiang Province, China
Test specification:	
Standard .....:	IEC 62133-2:2017
Test procedure.....:	Entrust test
Non-standard test method.....:	N/A
Test Report Form No.....:	IEC62133_2A
Test Report Form(s) Originator.....:	DEKRA
Master TRF.....:	Dated 2017-08-10
Test item description .....:	Rechargeable Li-ion Battery
Trade Mark .....:	N/A
Manufacturer.....:	Same as the applicant
Model/Type reference .....:	18650-4000mAh
Ratings .....:	3.7Vd.c., 4000mAh

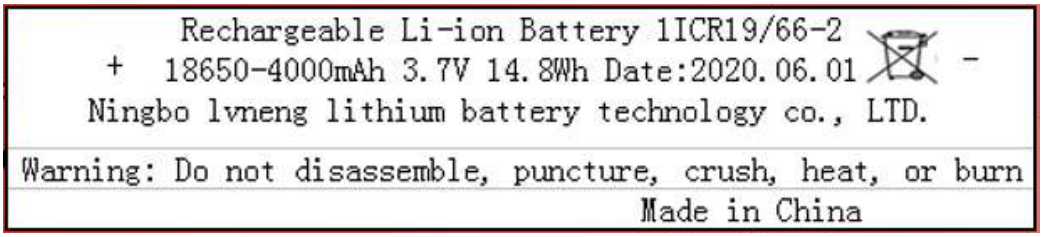
Summary of testing:

Tests performed (name of test and test clause):	**Testing location:**
Tests are made with the number of samples specified in Table 1 of IEC 62133-2: 2017 (Edition 1.0). Cl. 7.2.1 Continuous charging at constant voltage (cells) Cl. 7.2.2 Case stress at high ambient temperature (battery) Cl. 7.3.1 External short circuit (cell) Cl. 7.3.2 External short circuit (battery) Cl. 7.3.3 Free fall Cl. 7.3.4 Thermal abuse (cells) Cl. 7.3.5 Crush (cells) Cl. 7.3.6 Over-charging of battery Cl. 7.3.7 Forced discharge (cells) Cl. 7.3.8.1 Vibration Cl. 7.3.8.2 Mechanical shock Cl. 7.3.9 Design evaluation – Forced internal short-circuit (cells) The samples comply with the requirements of IEC 62133-2: 2017 (Edition 1.0).	Guangzhou CP-UP Certification Technology Service Co., Ltd. No.1, Aigang 7th Lane, Yunxing Zhukeng Village, Shiqiao Street, Panyu District, Guangzhou City, China

Summary of compliance with National Differences (List of countries addressed):

The product fulfils the requirements of EN 62133-2:2017.

Copy of marking plate:



Remark:
1.Date code: “2020.06.01” represents the battery was manufactured on the 01st June 2020. This date is not the manufacture date of actual products and only for example.
2. The marking is not evaluated according to client’s request.

Test item particulars .....:	
Classification of installation and use .....:	Use in portable applications
Supply Connection.....:	Supplied by lead wires
Recommend charging method declared by the manufacturer.....:	Charge at constant current 2000mA until the voltage reaches 4.2V, then charge at 4.2V till charge current is 40mA.
Discharge current (0,2 It A) .....:	800mA
Specified final voltage .....:	2.75V
Upper limit charging voltage per cell .....:	4.25V
Maximum charging current.....:	4000mA
Charging temperature upper limit.....:	45°C
Charging temperature lower limit .....:	0°C
Polymer cell electrolyte type .....:	☐ gel polymer ☐ solid polymer ☒ N/A
Possible test case verdicts:	
- test case does not apply to the test object..... :	N/A
- test object does meet the requirement ..... :	P (Pass)
- test object does not meet the requirement ..... :	F (Fail)
Testing ..... :	
Date of receipt of test item ..... :	2020-06-18
Date (s) of performance of tests..... :	2020-06-18 to 2020-07-10

General remarks:

"(See Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

Throughout this report a ☐ comma / ☒ point is used as the decimal separator.

Remark:

1. The original Test Report Ref. No. NBLN20200618IEC02, dated 2020-07-16 was modified on 2020-11-26 to include additions as following, which does not affect the testing result. The new test Report No.: NBLN20201124IEC02

(1) Add the cell color, the 3 cells are identical except for the color.

(2) Change the PCB Size to 44mm×7.9mm×0.8mm.

Name and address of factory (ies).....:	Same as the applicant

General product information and other remarks:

1. The Rechargeable Li-ion Battery, Model 18650-4000mAh is used for portable appliance and consists of single cell, cell model: 18650-2000mAh. The cell is tested with battery.

2. Additionally, detailed information of the cell and battery are as following:

Product name	Rechargeable Li-ion Cell	Rechargeable Li-ion Battery
Type/model	18650-2000mAh	18650-4000mAh
Nominal voltage	3.7Vd.c.	3.7Vd.c.
Rated capacity	2000mAh	4000mAh
Charging voltage declared by manufacturer	4.20V	4.20V
Upper limit charging voltage	4.25V	4.25V
Final voltage	2.75V	2.75V
Charging current declared by manufacturer	1000mA	2000mA
Maximum charging current	2000mA	4000mA
Charging temp. upper limit	45°C	45°C
Charging temp. lower limit	0°C	0°C
First charging procedure (20°C ± 5°C)	Charge at constant current 1000mA until the voltage reaches 4.20V, then charge at 4.20V till charge current is 20mA.	Charge at constant current 2000mA until the voltage reaches 4.20V, then charge at 4.20V till charge current is 40mA.
Second charging procedure	Store at -5°C for 4 hours and 45°C for 1 hour, then charge at constant current 2000mA until the voltage reaches 4.25V, then charge at 4.25V till charge current is $0.05I_tA$ (100mA).	-
Dimensions	18.40mm(Diameter) × 65.15mm(Height)	(37mm±1mm)(D) × (67mm±1mm)(H)
Weight	Approx. 43.3g	Approx. 91g
Lower limit discharge voltage	2.40V	-
Discharging current declared by manufacturer	1000mA	2000mA
Maximum discharging current	2000mA	4000mA
Discharging temperature range	-20°C to 60°C	-20°C to 60°C
Storage temperature	-20°C to 60°C (Less than 1 month), -10°C to 45°C (Less than 3 months), -10°C to 25°C (Less than 1 year)	-20°C to 60°C (Less than 1 month), -10°C to 45°C (Less than 3 months), -10°C to 25°C (Less than 1 year)
Cell Connection method	--	1S-2P

Note: The information above is from the documents provided by the applicant.

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
4	**PARAMETER MEASUREMENT TOLERANCES**		P
	Parameter measurement tolerances		P
5	**GENERAL SAFETY CONSIDERATIONS**		P
5.1	**General**		P
	Cells and batteries so designed and constructed that they are safe under conditions of both intended use and reasonably foreseeable misuse		P
5.2	**Insulation and wiring**		P
	The insulation resistance between the positive terminal and externally exposed metal surfaces of the battery (excluding electrical contact surfaces) is not less than 5 MΩ		N/A
	Insulation resistance (MΩ)..... :		—
	Internal wiring and insulation are sufficient to withstand maximum anticipated current, voltage and temperature requirements		P
	Orientation of wiring maintains adequate clearance and creepage distances between conductors		P
	Mechanical integrity of internal connections accommodates reasonably foreseeable misuse		P
5.3	**Venting**		P
	Battery cases and cells incorporate a pressure relief mechanism or are constructed so that they relieve excessive internal pressure at a value and rate that will preclude rupture, explosion and self-ignition		P
	Encapsulation used to support cells within an outer casing does not cause the battery to overheat during normal operation nor inhibit pressure relief		P
5.4	**Temperature, voltage and current management**		P
	Batteries are designed such that abnormal temperature rise conditions are prevented		P
	Batteries are designed to be within temperature, voltage and current limits specified by the cell manufacturer		P
	Batteries are provided with specifications and charging instructions for equipment manufacturers so that specified chargers are designed to maintain charging within the temperature, voltage and current limits specified		P
5.5	**Terminal contacts**		N/A
	The size and shape of the terminal contacts ensure that they can carry the maximum anticipated current		N/A
	External terminal contact surfaces are formed from conductive materials with good mechanical strength and corrosion resistance		N/A

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Terminal contacts are arranged to minimize the risk of short-circuit		N/A
5.6	**Assembly of cells into batteries**		P
5.6.1	General		P
	Each battery have an independent control and protection for current, voltage, temperature and any other parameter required for safety and to maintain the cells within their operating region		P
	This protection may be provided external to the battery such as within the charger or the end devices		P
	If protection is external to the battery, the manufacturer of the battery provide this safety relevant information to the external device manufacturer for implementation		P
	If there is more than one battery housed in a single battery case, each battery have protective circuitry that can maintain the cells within their operating regions		N/A
	Manufacturers of cells specify current, voltage and temperature limits so that the battery manufacturer/designer may ensure proper design and assembly		P
	Batteries that are designed for the selective discharge of a portion of their series connected cells incorporate circuitry to prevent operation of cells outside the limits specified by the cell manufacturer		N/A
	Protective circuit components added as appropriate and consideration given to the end-device application	Considered in end-device	N/A
	The manufacturer of the battery provide a safety analysis of the battery safety circuitry with a test report including a fault analysis of the protection circuit under both charging and discharging conditions confirming the compliance		N/A
5.6.2	Design recommendation		P
	For the battery consisting of a single cell or a single cellblock, it is recommended that the charging voltage of the cell does not exceed the upper limit of the charging voltage specified in Table 2		P
	For the battery consisting of series-connected plural single cells or series-connected plural cellblocks, it is recommended that the voltages of any one of the single cells or single cellblocks does not exceed the upper limit of the charging voltage, specified in Table 2, by monitoring the voltage of every single cell or the single cellblocks		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	For the battery consisting of series-connected plural single cells or series-connected plural cellblocks, it is recommended that charging is stopped when the upper limit of the charging voltage is exceeded for any one of the single cells or single cellblocks by measuring the voltage of every single cell or the single cellblocks		N/A
	For batteries consisting of series-connected cells or cell blocks, nominal charge voltage not be counted as an overcharge protection		N/A
	For batteries consisting of series-connected cells or cell blocks, cells have closely matched capacities, be of the same design, be of the same chemistry and be from the same manufacturer		N/A
	It is recommended that the cells and cell blocks not discharged beyond the cell manufacturer's specified final voltage		N/A
	For batteries consisting of series-connected cells or cell blocks, cell balancing circuitry incorporated into the battery management system		N/A
5.6.3	Mechanical protection for cells and components of batteries		N/A
	Mechanical protection for cells, cell connections and control circuits within the battery provided to prevent damage as a result of intended use and reasonably foreseeable misuse		N/A
	The mechanical protection can be provided by the battery case or it can be provided by the end product enclosure for those batteries intended for building into an end product		N/A
	The battery case and compartments housing cells designed to accommodate cell dimensional tolerances during charging and discharging as recommended by the cell manufacturer		N/A
	For batteries intended for building into a portable end product, testing with the battery installed within the end product considered when conducting mechanical tests		N/A
5.7	**Quality plan**		P
	The manufacturer prepares and implements a quality plan that defines procedures for the inspection of materials, components, cells and batteries and which covers the whole process of producing each type of cell or battery		P
5.8	**Battery safety components**		N/A
	According annex F		N/A

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
6	**TYPE TEST AND SAMPLE SIZE**		P
	Tests are made with the number of cells or batteries specified in Table 1 using cells or batteries that are not more than six months old		P
	Coin cells with resistance ≤ 3 Ω (measured according annex D) are tested according table 1		N/A
	Unless otherwise specified, tests are carried out in an ambient temperature of 20 °C ± 5 °C		P
	The safety analysis of 5.6.1 identify those components of the protection circuit that are critical for short-circuit, overcharge and overdischarge protection		P
	When conducting the short-circuit test, consideration given to the simulation of any single fault condition that is likely to occur in the protecting circuit that would affect the short-circuit test		P
7	**SPECIFIC REQUIREMENTS AND TESTS**		P
7.1	**Charging procedure for test purposes**		P
7.1.1	First procedure		P
	This charging procedure applies to subclauses other than those specified in 7.1.2		P
	Unless otherwise stated in this document, the charging procedure for test purposes is carried out in an ambient temperature of 20 °C ± 5 °C, using the method declared by the manufacturer		P
	Prior to charging, the battery have been discharged at 20 °C ± 5 °C at a constant current of 0,2 It A down to a specified final voltage		P
7.1.2	Second procedure		P
	This charging procedure applies only to 7.3.1, 7.3.4, 7.3.5, and 7.3.9		P
	After stabilization for 1 h and 4 h, respectively, at ambient temperature of highest test temperature and lowest test temperature, as specified in Table 2, cells are charged by using the upper limit charging voltage and maximum charging current, until the charging current is reduced to 0,05 It A, using a constant voltage charging method		P
7.2	**Intended use**		P
7.2.1	Continuous charging at constant voltage (cells)		P
	Fully charged cells are subjected for 7 days to a charge using the charging method for current and standard voltage specified by the cell manufacturer		P
	Results: No fire. No explosion. No leakage ..... :	(See appended table 7.2.1)	P
7.2.2	Case stress at high ambient temperature (battery)	The test is specially requested by Applicant.	P

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Oven temperature (°C) ..... :	70 ºC ± 2 ºC	—
	Results: No physical distortion of the battery case resulting in exposure of internal protective components and cells		P
7.3	**Reasonably foreseeable misuse**		P
7.3.1	External short-circuit (cell)		P
	The cells were tested until one of the following occurred:		P
	- 24 hours elapsed; or		N/A
	- The case temperature declined by 20 % of the maximum temperature rise		P
	Results: No fire. No explosion .....:	(See appended table 7.3.1)	P
7.3.2	External short-circuit (battery)		P
	The batteries were tested until one of the following occurred:		P
	- 24 hours elapsed; or		P
	- The case temperature declined by 20 % of the maximum temperature rise		P
	In case of rapid decline in short circuit current, the battery pack remained on test for an additional one hour after the current reached a low end steady state condition		N/A
	A single fault in the discharge protection circuit conducted on one to four (depending upon the protection circuit) of the five samples before conducting the short-circuit test		P
	A single fault applies to protective component parts such as MOSFET, fuse, thermostat or positive temperature coefficient (PTC) thermistor		P
	Results: No fire. No explosion .....:	(See appended table 7.3.2)	P
7.3.3	Free fall		P
	Results: No fire. No explosion		P
7.3.4	Thermal abuse (cells)		P
	Oven temperature (°C) ..... :	130°C±2°C	—
	Results: No fire. No explosion		P
7.3.5	Crush (cells)		P
	The crushing force was released upon:		P
	- The maximum force of 13 kN ± 0,78 kN has been applied; or		P
	- An abrupt voltage drop of one-third of the original voltage has been obtained		N/A
	Results: No fire. No explosion .....:	(See appended table 7.3.5)	P
7.3.6	Over-charging of battery		P

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Clause	Requirement + Test	Result - Remark	Verdict
	The supply voltage which is:		P
	- 1,4 times the upper limit charging voltage presented in Table A.1 (but not to exceed 6,0 V) for single cell/cell block batteries or		P
	- 1,2 times the upper limit charging voltage resented in Table A.1 per cell for series connected multi-cell batteries, and		N/A
	- Sufficient to maintain a current of 2,0 It A throughout the duration of the test or until the supply voltage is reached		P
	Test was continued until the temperature of the outer casing:		P
	- Reached steady state conditions (less than 10 °C change in 30-minute period); or		N/A
	- Returned to ambient		P
	Results: No fire. No explosion .....:	(See appended table 7.3.6)	P
7.3.7	Forced discharge (cells)		P
	If the discharge voltage reaches the negative value of upper limit charging voltage within the testing duration, the voltage is maintained at the negative value of the upper limit charging voltage by reducing the current for the remainder of the testing duration		N/A
	If the discharge voltage does not reach the negative value of upper limit charging voltage within the testing duration, the test is terminated at the end of the testing duration		P
	Results: No fire. No explosion .....:	(See appended table 7.3.7)	P
7.3.8	Mechanical tests (batteries)		P
7.3.8.1	Vibration		P
	Results: No fire, no explosion, no rupture, no leakage or venting.....:	(See appended table 7.3.8.1)	P
7.3.8.2	Mechanical shock		P
	Results: No leakage, no venting, no rupture, no explosion and no fire.....:	(See appended table 7.3.8.2)	P
7.3.9	Design evaluation – Forced internal short-circuit (cells)		P
	The cells complied with national requirement for..... :	France, Japan, Korea, Switzerland	—
	The pressing was stopped upon:		P
	- A voltage drop of 50 mV has been detected; or		N/A
	- The pressing force of 800 N (cylindrical cells) or 400 N (prismatic cells) has been reached	800N	P
	Results: No fire.....:	(See appended table 7.3.9)	P
8	**INFORMATION FOR SAFETY**		P

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
8.1	**General**		P
	Manufacturers of secondary cells ensure that information is provided about current, voltage and temperature limits of their products		P
	Manufacturers of batteries ensure that equipment manufacturers and, in the case of direct sales, end-users are provided with information to minimize and mitigate hazards		P
	Systems analyses performed by device manufacturers to ensure that a particular battery design prevents hazards from occurring during use of a product		N/A
	As appropriate, any information relating to hazard avoidance resulting from a system analysis provided to the end user		N/A
	Do not allow children to replace batteries without adult supervision		P
8.2	**Small cell and battery safety information**		N/A
	The following warning language is to be provided with the information packaged with the small cells and batteries or equipment using them:		N/A
	- Keep small cells and batteries which are considered swallowable out of the reach of children		N/A
	- Swallowing may lead to burns, perforation of soft tissue, and death. Severe burns can occur within 2 h of ingestion		N/A
	- In case of ingestion of a cell or battery, seek medical assistance promptly		N/A

9	**MARKING**		P
9.1	**Cell marking**		N/A
	Cells marked as specified in IEC 61960, except coin cells		N/A
	Coin cells whose external surface area is too small to accommodate the markings on the cells show the designation and polarity		N/A
	By agreement between the cell manufacturer and the battery and/or end product manufacturer, component cells used in the manufacture of a battery need not be marked		N/A
9.2	**Battery marking**	Not evaluated according to client's request	N/A
	Batteries marked as specified in IEC 61960, except for coin batteries		N/A

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Coin batteries whose external surface area is too small to accommodate the markings on the batteries show the designation and polarity. Batteries also marked with an appropriate caution statement		N/A
	Terminals have clear polarity marking on the external surface of the battery		N/A
	Batteries with keyed external connectors designed for connection to specific end products need not be marked with polarity markings if the design of the external connector prevents reverse polarity connections		N/A
9.3	**Caution for ingestion of small cells and batteries**		N/A
	Coin cells and batteries identified as small batteries according to 8.2 include a caution statement regarding the hazards of ingestion in accordance with 8.2		N/A
	When small cells and batteries are intended for direct sale in consumer-replaceable applications, caution for ingestion given on the immediate package		N/A
9.4	**Other information**		P
	Storage and disposal instructions		P
	Recommended charging instructions		P
10	**PACKAGING AND TRANSPORT**		P
	Packaging for coin cells not small enough to fit within the limits of the ingestion gauge of Figure 3		N/A
	The materials and packaging design are chosen so as to prevent the development of unintentional electrical conduction, corrosion of the terminals and ingress of environmental contaminants		P
ANNEX A	**CHARGING AND DISCHARGING RANGE OF SECONDARY LITHIUM ION CELLS FOR SAFE USE**		P
A.1	**General**		P
A.2	**Safety of lithium ion secondary battery**		P
A.3	**Consideration on charging voltage**		P
A.3.1	General		P
A.3.2	Upper limit charging voltage		P
A.3.2.1	General		P
A.3.2.2	Explanation of safety viewpoint		P
A.3.2.3	Safety requirements, when different upper limit charging voltage is applied		N/A

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
A.4	**Consideration of temperature and charging current**		P
A.4.1	General		P
A.4.2	Recommended temperature range		P
A.4.2.1	General		P
A.4.2.2	Safety consideration when a different recommended temperature range is applied		P
A.4.3	High temperature range		N/A
A.4.3.1	General		N/A
A.4.3.2	Explanation of safety viewpoint		N/A
A.4.3.3	Safety considerations when specifying charging conditions in the high temperature range		N/A
A.4.3.4	Safety considerations when specifying a new upper limit in the high temperature range		N/A
A.4.4	Low temperature range		N/A
A.4.4.1	General		N/A
A.4.4.2	Explanation of safety viewpoint		N/A
A.4.4.3	Safety considerations, when specifying charging conditions in the low temperature range		N/A
A.4.4.4	Safety considerations when specifying a new lower limit in the low temperature range		N/A
A.4.5	Scope of the application of charging current		P
A.4.6	Consideration of discharge		P
A.4.6.1	General		P
A.4.6.2	Final discharge voltage and explanation of safety viewpoint		P
A.4.6.3	Discharge current and temperature range		P
A.4.6.4	Scope of application of the discharging current		P
A.5	**Sample preparation**		P
A.5.1	General		P
A.5.2	Insertion procedure for nickel particle to generate internal short		P
A.5.3	Disassembly of charged cell		P
A.5.4	Shape of nickel particle		P
A.5.5	Insertion of nickel particle in cylindrical cell		P
A.5.5.1	Insertion of nickel particle in winding core		P
A.5.5.2	Marking the position of the nickel particle on both ends of the winding core of the separator		P
A.5.6	Insertion of nickel particle in prismatic cell		N/A

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
A.6	**Experimental procedure of the forced internal short-circuit test**		P
A.6.1	Material and tools for preparation of nickel particle		P
A.6.2	Example of a nickel particle preparation procedure		P
A.6.3	Positioning (or placement) of a nickel particle		P
A.6.4	Damaged separator precaution		P
A.6.5	Caution for rewinding separator and electrode		P
A.6.6	Insulation film for preventing short-circuit		P
A.6.7	Caution when disassembling a cell		P
A.6.8	Protective equipment for safety		P
A.6.9	Caution in the case of fire during disassembling		P
A.6.10	Caution for the disassembling process and pressing the electrode core		P
A.6.11	Recommended specifications for the pressing device		P
ANNEX B	**RECOMMENDATIONS TO EQUIPMENT MANUFACTURERS AND BATTERY ASSEMBLERS**		P
ANNEX C	**RECOMMENDATIONS TO THE END-USERS**		N/A
ANNEX D	**MEASUREMENT OF THE INTERNAL AC RESISTANCE FOR COIN CELLS**		N/A
D.1	**General**		N/A
D.2	**Method**		N/A
	A sample size of three coin cells is required for this measurement.....:	(See appended table D.2)	N/A
	Coin cells with an internal resistance of less than or equal to 3 Ω are subjected to the testing according to Clause 6 and Table 1		N/A
	Coin cells with an internal resistance greater than 3 Ω require no further testing		N/A
ANNEX E	**PACKAGING AND TRANSPORT**		N/A
ANNEX F	**COMPONENT STANDARDS REFERENCES**		N/A

TABLE: Critical components information					
Object / part No.	**Manufacturer / trademark**	**Type / model**	**Technical data**	**Standard**	**Mark(s) of conformity[1)]**
1. Rechargeable Li-ion Cell	Ningbo Lvneng Lithium battery Technology Co. LTD	18650-2000mAh	3.7Vd.c., 2000mAh	IEC 62133-2: 2017	Tested with battery
-Electrolyte	Sinochem Blue Sky Group Co. LTD	ZP5	$LiPF_6$, EC, EMC, DMC, DEC, PC, VC	-	-
-Separator	Shenzhen Xinminzhi New Energy Co. LTD	61*0.016	PE	-	-
-Positive electrode	Shandong Qianyun Gaoke New Material Co. LTD	SDQY-A01	$LiCoO_2$, etc., Aluminum Foil	-	-
-Negative electrode	Jiangxi Shengchuang Innovation Energy Technology Co. LTD	SC-102	Graphite, etc., Copper Foil	-	-
-Heat-shrinking outer-wrap	Nantong Hongming Heat-shrinking Material Technology Co., Ltd.	PVC	PVC, VW-1, 130°C	-	-
2. IC (U0)	HYCON Technology Corp.	HY2111-GB	Over-charge Threshold Voltage: 4.28V±0.025V; Over-discharge Threshold: 2.90V±0.080V; Excess discharge-current threshold: 0.150V±0.025V;	-	-
3. MOSFETs (U1, U2, U3, U4, U5)	PUOLOP	PT8205	V_{DS}: 20V, V_{GS}: ±12V, I_D: 6A@T_A=25°C, T_J, T_{stg}: -55°C to +150°C	-	-
4. PCB material	GOLDENMAX INTERNATIONAL TECHNOLOGY (HANGZHOU) LTD.	LN-1S-6M	130°C, V-0, FR-4	-	-
5. Wiring	Shenzhen Jiahuida Electronics Co., Ltd.	3239	22AWG, 200°C, 3kV	UL 758	UL E361915
Note: The information above is from the documents provided by the applicant.					

7.2.1	TABLE: Continuous charging at constant voltage (cells)			P
Sample no.	**Recommended charging voltage Vc (Vdc)**	**Recommended charging current I_{rec} (mA)**	**OCV before test (Vdc)**	**Results**
C1#	4.20	1000	4.188	A, B
C2#	4.20	1000	4.186	A, B
C3#	4.20	1000	4.189	A, B
C4#	4.20	1000	4.187	A, B
C5#	4.20	1000	4.188	A, B
Supplementary information: A- No fire or explosion B- No leakage C- Others (please explain)				

7.3.1	TABLE: External short-circuit (cell)				P
Sample no.	**Ambient T (°C)**	**OCV before test (Vdc)**	**Resistance of circuit (mΩ)**	**Maximum case temperature(° C)**	**Results**
Samples charged at charging temperature upper limit					
C6#	52.3	4.211	81	125.4	A
C7#	52.3	4.213	82	122.2	A
C8#	52.3	4.215	84	120.9	A
C9#	52.3	4.212	83	117.9	A
C10#	52.3	4.213	82	112.0	A
Samples charged at charging temperature lower limit					
C11#	52.3	4.142	80	123.1	A
C12#	52.3	4.145	81	125.7	A
C13#	52.3	4.143	84	119.6	A
C14#	52.3	4.141	79	122.0	A
C15#	52.3	4.144	82	125.4	A
Supplementary information: A- No fire or explosion B- Others (please explain)					

7.3.2	TABLE: External short-circuit (battery)					P
Sample no.	**Ambient T (°C)**	**OCV before test (Vdc)**	**Resistance of circuit (mΩ)**	**Maximum case temperature(°C)**	**Component single fault condition**	**Results**
B1#	23.8	4.185	81	24.1	-	A
B2#	23.8	4.187	82	24.0	-	A
B3#	23.8	4.184	84	115.7	MOSFET(U1) was short circuited.	A
B4#	23.8	4.186	83	124.6	MOSFET(U1) was short circuited.	A
B5#	23.8	4.183	82	122.8	MOSFET(U1) was short circuited.	A
Supplementary information: A- No fire or explosion B- Others (please explain)						

7.3.5	TABLE: Crush (cells)		P
Sample no.	**OCV before test (Vdc)**	**Maximum force applied to the cell during crush (kN)**	**Results**
Samples charged at charging temperature upper limit			
C29#	4.213	12.95	A
C30#	4.211	12.99	A
C31#	4.214	12.98	A
C32#	4.211	12.97	A
C33#	4.212	12.98	A
Samples charged at charging temperature lower limit			
C34#	4.142	12.96	A
C35#	4.144	12.99	A
C36#	4.141	12.97	A
C37#	4.143	12.96	A
C38#	4.141	12.98	A
Supplementary information: A- No fire or explosion B- Others (please explain)			

7.3.6	TABLE: Over-charging of battery		P
Constant charging current (A).....:		8	—
Supply voltage (Vdc).....:		5.95	—

Sample no.	OCV before charging (Vdc)	Maximum outer case temperature (°C)	Results
B9#	3.273	42.3	A
B10#	3.245	45.8	A
B11#	3.252	49.2	A
B12#	3.218	47.4	A
B13#	3.264	48.7	A

Supplementary information:

A- No fire or explosion
B- Others (please explain)

7.3.7	TABLE: Forced discharge (cells)			P

Sample no.	OCV before application of reverse charge (Vdc)	Measured reverse charge I_t (mA)	Total Time for Reversed Charge Application(min)	Results
C39#	3.067	2000	90	A
C40#	3.044	2000	90	A
C41#	3.062	2000	90	A
C42#	3.056	2000	90	A
C43#	3.084	2000	90	A

Supplementary information:

A- No fire or explosion
B- Others (please explain)

7.3.8.1	TABLE: Vibration				P
Sample no.	**OCV before test (Vdc)**	**OCV after test (Vdc)**	**Mass before test (g)**	**Mass after test (g)**	**Results**
B14#	4.186	4.184	90.459	90.455	A, B, C, D
B15#	4.184	4.181	90.682	90.678	A, B, C, D
B16#	4.185	4.182	90.573	90.569	A, B, C, D

Supplementary information:

A- No fire or explosion
B- No rupture
C- No leakage
D- No venting
E- Others (please explain)

7.3.8.2	TABLE: Mechanical shock				P
Sample no.	**OCV before test (Vdc)**	**OCV after test (Vdc)**	**Mass before test (g)**	**Mass after test (g)**	**Results**
B17#	4.183	4.182	90.539	90.537	A, B, C, D
B18#	4.185	4.184	90.670	90.668	A, B, C, D
B19#	4.184	4.183	90.552	90.550	A, B, C, D

Supplementary information:

A- No fire or explosion
B- No rupture
C- No leakage
D- No venting
E- Others (please explain)

7.3.9	TABLE: Forced internal short circuit (cells)					P
Sample no.	**Chamber ambient T (°C)**	**OCV before test (Vdc)**	**Particle location [1)]**	**Maximum applied pressure (N)**	**Voltage drop, mV**	**Results**
Samples charged at charging temperature upper limit						
C44#	45	4.212	1	800	21	A
C45#	45	4.214	1	800	13	A
C46#	45	4.211	1	800	28	A
C47#	45	4.213	1	800	16	A
C48#	45	4.212	1	800	19	A
Samples charged at charging temperature lower limit						
C49#	-5	4.142	1	800	24	A
C50#	-5	4.143	1	800	17	A
C51#	-5	4.142	1	800	24	A
C52#	-5	4.144	1	800	11	A
C53#	-5	4.145	1	800	15	A

Supplementary information:

[1)] Identify one of the following:

1: Nickel particle inserted between positive and negative (active material) coated area.

2: Nickel particle inserted between positive aluminium foil and negative active material coated area.

A- No fire or explosion

B- Others (please explain)

Remark: There is no Test Particle location 2 in this cell.

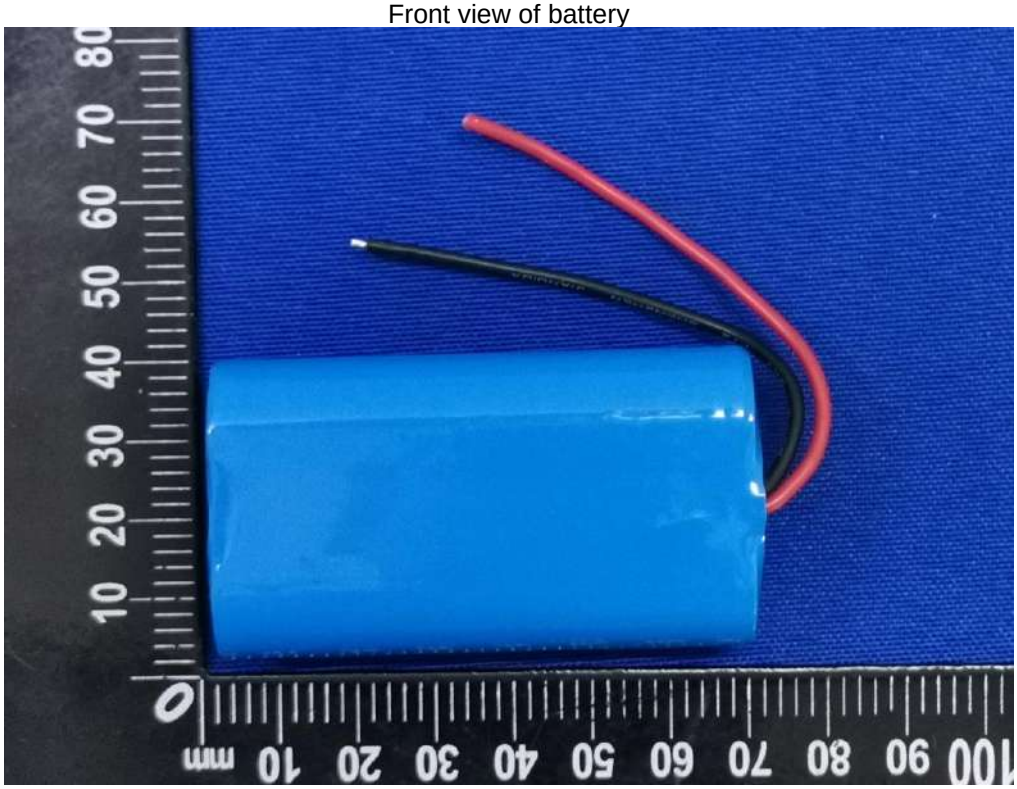
D.2	TABLE: Internal AC resistance for coin cells			N/A
Sample no.	**Ambient T (°C)**	**Store time (h)**	**Resistance Rac (Ω)**	**Results [1)]**
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-

Supplementary information:

[1)] Coin cells with internal resistance less than or equal to 3 Ω, see test result on corresponding tables

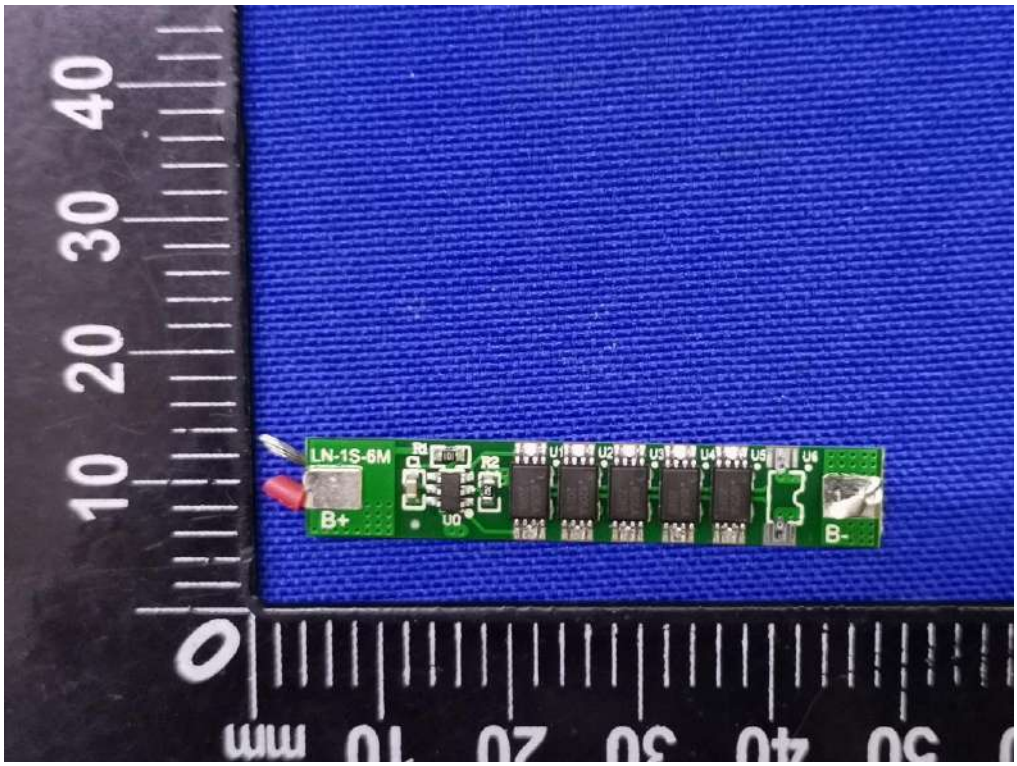
Photos

Front view of battery

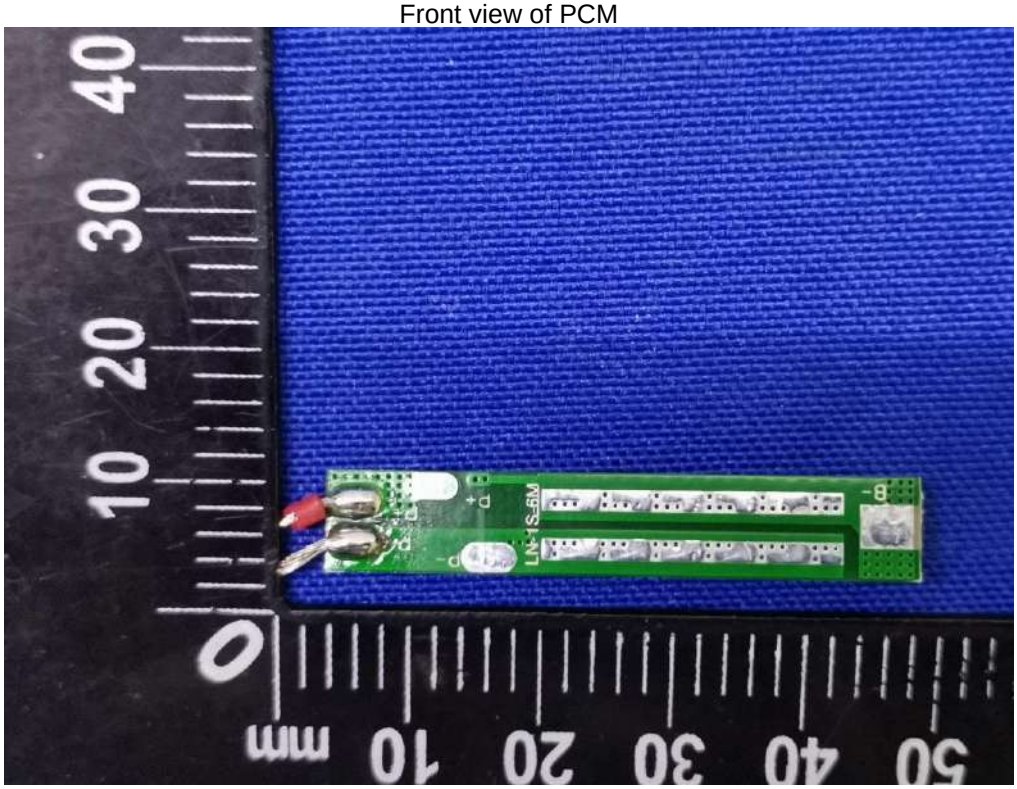


Back view of battery

Photos



Front view of PCM



Back view of PCM

Photos

Front view of cell

Back view of cell

Notice

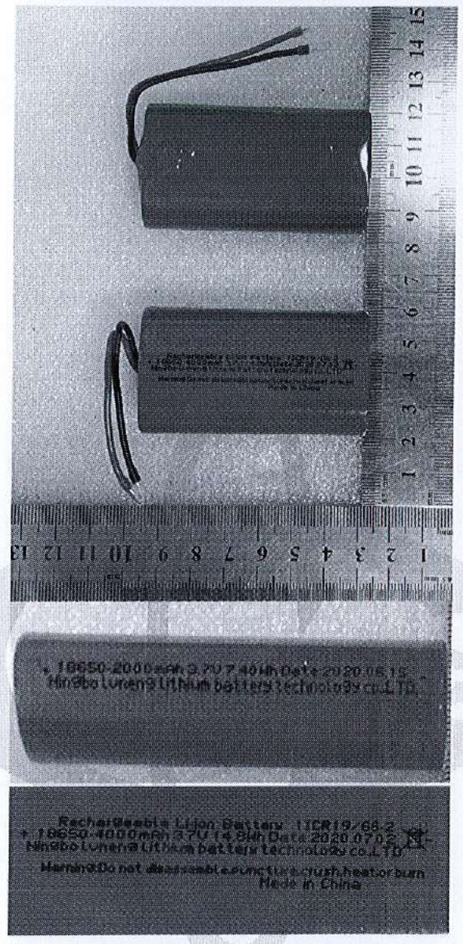
1. The test report is invalid without the testing stamp of Guangzhou CP-UP Certification Technology Service Co., Ltd..
2. Nobody is allowed to photocopy or partly photocopy this test report without written permission of Guangzhou CP-UP Certification Technology Service Co., Ltd..
3. The test report is invalid without the signatures of Approver, Checker and Tester.
4. The test report is invalid if altered.
5. Objections to the test report must be submitted to Guangzhou CP-UP Certification Technology Service Co., Ltd. Within 15 days.
6. The test report is responsible for the tested samples only.
7. As for the test conclusion, “N/A” means “not applicable”, “P” means “pass” and “F” means “fail”.
8. Our lab shall not take any responsibility if the information provided by the applicant has the problem of authenticity, which may influence the validity of the testing result.

--End of report--

UN38.3 试验概要
UN38.3 Test Summary

812000000360741

单位信息 Company information			
委托单位 Consignor	宁波绿能锂电池科技有限公司 Ningbo Lvneng Lithium Battery Technology Co., Ltd. 浙江省宁波市奉化区江口街道江宁路 Jiangning road, jiangkou street, fenghua district, ningbo city, zhejiang province, China 18069253365 81386729@qq.com /		
生产单位 Manufacturer	宁波绿能锂电池科技有限公司 Ningbo Lvneng Lithium Battery Technology Co., Ltd. 浙江省宁波市奉化区江口街道江宁路 Jiangning road, jiangkou street, fenghua district, ningbo city, zhejiang province, China 18069253365 81386729@qq.com /		
测试单位 Test lab	上海化工院检测有限公司 Shanghai Research Institute of Chemical Industry Testing Co., Ltd. 中国.上海.普陀区云岭东路 345 号，200062 No.345 East Yunling Road, Putuo, Shanghai, China 200062 86-21-31765555 battery@ghs.cn www.ghs.cn		
电池信息 Battery information			
名称 Name	可充电锂离子电池 Rechargeable Li-ion Battery	品牌 Brand	/
型号 Type	18650-4000mAh	原始测试型号 Original tested type	/
标称电压(V) Nominal voltage	3.7	容量/能量 Capacity/energy	4000mAh 14.8Wh
描述 Description	可充电锂离子电池组 Rechargeable Li-ion battery	锂含量(g) Li content	/
质量(kg) Mass	0.0909	外观 Appearance	蓝色塑料薄膜外壳 Blue plastic film shell
测试信息 Test information			
原报告编号 Original test report No.	1120060550	测试报告日期 Date of test report	2020-08-03
测试标准 Test standard	联合国《关于危险货物运输的建议书 试验和标准手册》第 38.3 章 UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS" Manual of Tests and Criteria 38.3		ST/SG/AC.10/11/Rev.6/Amend.1
T.1 高度模拟 Altitude simulation	合格 Passed	T.2 温度测试 Thermal test	合格 Passed
T.3 振动测试 Vibration	合格 Passed	T.4 冲击测试 Shock	合格 Passed
T.5 外部短路 External short circuit	合格 Passed	T.6 撞击 Impact	合格 Passed
T.7 过度充电 Overcharge	合格 Passed	T.8 强制放电 Forced discharge	合格 Passed
38.3.3 (f)	/	38.3.3 (g)	/

样品图片 Sample Picture	
	
结论 Conclusion	测试样品符合联合国《关于危险货物运输的建议书试验和标准手册》ST/SG/AC.10/11/Rev.6/Amend.1 38.3 标准要求。The tested samples meet the requirements of test items of the UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS" Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6/Amend.1 38.3
备注 Remark	/
签名 Signature 职务 Title	王寅 副总工程师 Vice chief engineer 签发日期 Issued date 2020-08-18

-验证码:284477-

报告结束

中国认可
检测
TESTING
CNAS L0748

170014233963

NO.1120060550

检 测 报 告

Test Report

样品名称：	可充电锂离子电池 18650-4000mAh 3.7V 4000mAh 14.8Wh
Name of Sample:	Rechargeable Li-ion Battery 18650-4000mAh 3.7V 4000mAh 14.8Wh
委托单位:	宁波绿能锂电池科技有限公司
Consignor:	Ningbo Lvneng Lithium Battery Technology Co., Ltd.

上海化工院检测有限公司

Shanghai Research Institute of Chemical Industry Testing Co., Ltd.

上海化工院检测有限公司
检 测 报 告

Shanghai Research Institute of Chemical Industry Testing Co., Ltd. Test Report

NO. 1120060550

样品名称 Name of Sample	中文 Chinese	可充电锂离子电池 18650-4000mAh 3.7V 4000mAh 14.8Wh	
	英文 English	Rechargeable Li-ion Battery 18650-4000mAh 3.7V 4000mAh 14.8Wh	
样品编号 Sample No.	1120060550		
委托单位 Consignor	宁波绿能锂电池科技有限公司 Ningbo Lvneng Lithium Battery Technology Co., Ltd.		
生产单位 Manufacturer	宁波绿能锂电池科技有限公司 Ningbo Lvneng Lithium Battery Technology Co., Ltd.		
检测方法 Test method	联合国《关于危险货物运输的建议书 试验和标准手册》 ST/SG/AC.10/11/Rev.6 Amend.1 38.3 UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS" Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 Amend.1 Section 38.3		
判定标准 Criterion	联合国《关于危险货物运输的建议书 试验和标准手册》 ST/SG/AC.10/11/Rev.6 Amend.1 38.3 UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS" Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 Amend.1 Section 38.3		
样品外观 Appearance	蓝色 塑料薄膜外壳 Blue Plastic film shell		
样品接受日期 Accepted Date	2020-06-30	检测起迄日期 Test Date	2020-07-02 ~ 2020-08-03
检测项目 Test Items	高度模拟;热测试;振动;冲击;外短路;撞击;过充电;强制放电 Altitude simulation, Thermal test, Vibration, Shock, External short circuit, Impact, Overcharge, Forced discharge		
检测结论 Conclusion	经检测，该样品符合联合国《关于危险货物运输的建议书 试验和标准手册》ST/SG/AC.10/11/Rev.6 Amend.1 38.3标准要求。 The sample has passed the test items of UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS" Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 Amend.1 38.3 生效日期(Date)： 2020-08-03		
备注 Comment	可充电锂电池组Rechargeable Lithium Battery./		
委托单位地址 Consignor Address	/	邮政编码 Post Code	/

批准 Approver: 王宾

审核 Checker: 陈建峰

编制 Compiler: 周媛

职务 Title: 副总工程师(Vice chief engineer)

序号 No.	检测项目名称 Name of Test Items	标准要求或标准条款号 Standard requirement or The Clause Number of Standard	检测结果 Test Result	本项结论 Conclusion	备注 Remark
1	高度模拟 Altitude simulation	联合国《关于危险货物运输的建议书 试验和标准手册》ST/SG/AC.10/11/Rev.6 Amend.1 38.3 试验T.1 UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 Amend.1 Section 38.3 Test T.1	见附表 1 See Appendix 1	合格 Passed	/
2	热测试 Thermal test	联合国《关于危险货物运输的建议书 试验和标准手册》ST/SG/AC.10/11/Rev.6 Amend.1 38.3 试验T.2 UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 Amend.1 Section 38.3 Test T.2	见附表 2 See Appendix 2	合格 Passed	/
3	振动 Vibration	联合国《关于危险货物运输的建议书 试验和标准手册》ST/SG/AC.10/11/Rev.6 Amend.1 38.3 试验T.3 UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 Amend.1 Section 38.3 Test T.3	见附表 3 See Appendix 3	合格 Passed	/
4	冲击 Shock	联合国《关于危险货物运输的建议书 试验和标准手册》ST/SG/AC.10/11/Rev.6 Amend.1 38.3 试验T.4 UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 Amend.1 Section 38.3 Test T.4	见附表 4 See Appendix 4	合格 Passed	/
5	外短路 External short circuit	联合国《关于危险货物运输的建议书 试验和标准手册》ST/SG/AC.10/11/Rev.6 Amend.1 38.3 试验T.5 UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 Amend.1 Section 38.3 Test T.5	见附表 5 See Appendix 5	合格 Passed	/
6	撞击 Impact	联合国《关于危险货物运输的建议书 试验和标准手册》ST/SG/AC.10/11/Rev.6 Amend.1 38.3 试验T.6 UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 Amend.1 Section 38.3 Test T.6	见附表 6 See Appendix 6	合格 Passed	/
7	过充电 Overcharge	联合国《关于危险货物运输的建议书 试验和标准手册》ST/SG/AC.10/11/Rev.6 Amend.1 38.3 试验T.7 UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 Amend.1 Section 38.3 Test T.7	见附表 7 See Appendix 7	合格 Passed	/
8	强制放电 Forced discharge	联合国《关于危险货物运输的建议书 试验和标准手册》ST/SG/AC.10/11/Rev.6 Amend.1 38.3 试验T.8 UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 Amend.1 Section 38.3 Test T.8	见附表 8 See Appendix 8	合格 Passed	/

检测环境条件 Test Environment Condition	环境温度:22℃-25℃;环境湿度:/% Ambient temperature:22℃-25℃;Ambient humidity:/%				
分包检验情况 Subcontracted Test Condition	检测项目 Test Item	/			
	分包实验室 Subcontracted Laboratory	名称 Name	/	邮编 Post Code	/
		地址 Address	/	电话 Tel	/

上海化工院检测有限公司
检 测 报 告－附表 1

SRICI Testing Co.， Ltd. Test Report—Appendix 1 NO. 1120060550

序号 No.	1	检测项目名称 Name of Test Items		高度模拟 Altitude simulation				
样品编号 Sample No.	样品状态 Sample Status	试验前 Before		试验后 After		质量损失 Mass Loss /%	剩余电压 Residual OCV /%	其他现象 Other Event
		质量 Mass /g	开路电压 OCV /V	质量 Mass /g	开路电压 OCV /V			
001	1CYC完全充电 1CYC Fully charged	90.6020	4.18	90.6017	4.18	0.00	100.00	O
002	1CYC完全充电 1CYC Fully charged	90.7565	4.18	90.7577	4.18	0.00	100.00	O
003	1CYC完全充电 1CYC Fully charged	90.7441	4.18	90.7454	4.18	0.00	100.00	O
004	1CYC完全充电 1CYC Fully charged	90.8386	4.18	90.8405	4.18	0.00	100.00	O
005	25CYC完全充电 25CYC Fully charged	90.5876	4.18	90.5882	4.18	0.00	100.00	O
006	25CYC完全充电 25CYC Fully charged	90.4054	4.18	90.4071	4.18	0.00	100.00	O
007	25CYC完全充电 25CYC Fully charged	90.5036	4.18	90.5053	4.18	0.00	100.00	O
008	25CYC完全充电 25CYC Fully charged	90.5426	4.17	90.5441	4.17	0.00	100.00	O
以下空白	This space intentionally left blank							

备注：L-泄漏 V-漏气 D-解体 R-破裂 F-起火 O-无泄漏、无漏气、无解体、无破裂、无起火。
Note: L-Leakage V-Venting D-Disassembly R-Rupture F-Fire O-No Leakage,No Venting, No Disassembly,No Rupture & No Fire.

上海化工院检测有限公司
检 测 报 告－附表 2

SRICI Testing Co.， Ltd. Test Report—Appendix 2 NO. 1120060550

序号 No.	2	检测项目名称 Name of Test Items		热测试 Thermal test				
样品编号 Sample No.	样品状态 Sample Status	试验前 Before		试验后 After		质量损失 Mass Loss /%	剩余电压 Residual OCV /%	其他现象 Other Event
		质量 Mass /g	开路电压 OCV /V	质量 Mass /g	开路电压 OCV /V			
001	1CYC完全充电 1CYC Fully charged	90.6017	4.18	90.6123	4.07	0.00	97.37	O
002	1CYC完全充电 1CYC Fully charged	90.7577	4.18	90.7719	4.01	0.00	95.93	O
003	1CYC完全充电 1CYC Fully charged	90.7454	4.18	90.7547	3.96	0.00	94.74	O
004	1CYC完全充电 1CYC Fully charged	90.8405	4.18	90.8510	4.10	0.00	98.09	O
005	25CYC完全充电 25CYC Fully charged	90.5882	4.18	90.6041	3.97	0.00	94.98	O
006	25CYC完全充电 25CYC Fully charged	90.4071	4.18	90.4161	4.03	0.00	96.41	O
007	25CYC完全充电 25CYC Fully charged	90.5053	4.18	90.5137	4.03	0.00	96.41	O
008	25CYC完全充电 25CYC Fully charged	90.5441	4.17	90.5529	3.95	0.00	94.72	O
以下空白	This space intentionally left blank							

备注：L-泄漏 V-漏气 D-解体 R-破裂 F-起火 O-无泄漏、无漏气、无解体、无破裂、无起火。
Note: L-Leakage V-Venting D-Disassembly R-Rupture F-Fire O-No Leakage,No Venting, No Disassembly,No Rupture & No Fire.

上海化工院检测有限公司
检 测 报 告－附表 3

SRICI Testing Co.， Ltd. Test Report—Appendix 3 NO. 1120060550

序号 No.	3	检测项目名称 Name of Test Items		振动 Vibration				
样品编号 Sample No.	样品状态 Sample Status	试验前 Before		试验后 After		质量损失 Mass Loss /%	剩余电压 Residual OCV /%	其他现象 Other Event
		质量 Mass /g	开路电压 OCV /V	质量 Mass /g	开路电压 OCV /V			
001	1CYC完全充电 1CYC Fully charged	90.6123	4.07	90.6102	3.89	0.00	95.58	O
002	1CYC完全充电 1CYC Fully charged	90.7719	4.01	90.7673	3.75	0.01	93.52	O
003	1CYC完全充电 1CYC Fully charged	90.7547	3.96	90.7542	3.68	0.00	92.93	O
004	1CYC完全充电 1CYC Fully charged	90.8510	4.10	90.8478	3.95	0.00	96.34	O
005	25CYC完全充电 25CYC Fully charged	90.6041	3.97	90.5964	3.72	0.01	93.70	O
006	25CYC完全充电 25CYC Fully charged	90.4161	4.03	90.4153	3.79	0.00	94.04	O
007	25CYC完全充电 25CYC Fully charged	90.5137	4.03	90.5132	3.81	0.00	94.54	O
008	25CYC完全充电 25CYC Fully charged	90.5529	3.95	90.5519	3.68	0.00	93.16	O
以下空白	This space intentionally left blank							

备注：L-泄漏 V-漏气 D-解体 R-破裂 F-起火 O-无泄漏、无漏气、无解体、无破裂、无起火。
Note: L-Leakage V-Venting D-Disassembly R-Rupture F-Fire O-No Leakage,No Venting, No Disassembly,No Rupture & No Fire.

上海化工院检测有限公司
检 测 报 告 - 附表 4

SRICI Testing Co., Ltd. Test Report — Appendix 4 NO. 1120060550

序号 No.	4	检测项目名称 Name of Test Items		冲击 Shock				
样品编号 Sample No.	样品状态 Sample Status	试验前 Before		试验后 After		质量损失 Mass Loss /%	剩余电压 Residual OCV /%	其他现象 Other Event
		质量 Mass /g	开路电压 OCV /V	质量 Mass /g	开路电压 OCV /V			
001	1CYC完全充电 1CYC Fully charged	90.6102	3.89	90.5919	3.88	0.02	99.74	O
002	1CYC完全充电 1CYC Fully charged	90.7673	3.75	90.7536	3.74	0.02	99.73	O
003	1CYC完全充电 1CYC Fully charged	90.7542	3.68	90.7397	3.67	0.02	99.73	O
004	1CYC完全充电 1CYC Fully charged	90.8478	3.95	90.8329	3.95	0.02	100.00	O
005	25CYC完全充电 25CYC Fully charged	90.5964	3.72	90.5804	3.71	0.02	99.73	O
006	25CYC完全充电 25CYC Fully charged	90.4153	3.79	90.4013	3.78	0.02	99.74	O
007	25CYC完全充电 25CYC Fully charged	90.5132	3.81	90.4992	3.80	0.02	99.74	O
008	25CYC完全充电 25CYC Fully charged	90.5519	3.68	90.5382	3.68	0.02	100.00	O
以下空白	This space intentionally left blank							

备注：L-泄漏 V-漏气 D-解体 R-破裂 F-起火 O-无泄漏、无漏气、无解体、无破裂、无起火。

Note: L-Leakage V-Venting D-Disassembly R-Rupture F-Fire O-No Leakage,No Venting, No Disassembly,No Rupture & No Fire.

上海化工院检测有限公司
检 测 报 告－附表 5

SRICI Testing Co.， Ltd. Test Report—Appendix 5 NO. 1120060550

序号 No.	5	检测项目名称 Name of Test Items	外短路 External short circuit
样品编号 Sample No.	样品状态 Sample Status	样品表面最高温度 Max. External Temperature /℃	其他现象 Other Event
001	1CYC完全充电 1CYC Fully charged	58.1	O
002	1CYC完全充电 1CYC Fully charged	58.6	O
003	1CYC完全充电 1CYC Fully charged	59.1	O
004	1CYC完全充电 1CYC Fully charged	59.6	O
005	25CYC完全充电 25CYC Fully charged	59.7	O
006	25CYC完全充电 25CYC Fully charged	58.5	O
007	25CYC完全充电 25CYC Fully charged	58.7	O
008	25CYC完全充电 25CYC Fully charged	58.7	O
以下空白	This space intentionally left blank		

备注：D-解体 R-破裂 F-起火 O-无解体、无起火、无破裂。

Note: D-Disassembly R-Ruptur F-Fire O-No Disassembly,No Fire & No Rupture.

序号 No.	6	检测项目名称 Name of Test Items	撞击 Impact
样品编号 Sample No.	样品状态 Sample Status	样品表面最高温度 Max. External Temperature /℃	其他现象 Other Event
009	1CYC 50%容量 1CYC 50% Capacity	74.5	O
010	1CYC 50%容量 1CYC 50% Capacity	30.8	O
011	1CYC 50%容量 1CYC 50% Capacity	46.3	O
012	1CYC 50%容量 1CYC 50% Capacity	22.7	O
013	1CYC 50%容量 1CYC 50% Capacity	22.2	O
014	25CYC 50%容量 25CYC 50% Capacity	119.0	O
015	25CYC 50%容量 25CYC 50% Capacity	113.8	O
016	25CYC 50%容量 25CYC 50% Capacity	22.9	O
017	25CYC 50%容量 25CYC 50% Capacity	85.4	O
018	25CYC 50%容量 25CYC 50% Capacity	22.7	O
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备注：D-解体 F-起火 O-无解体、无起火。
Note: D-Disassembly F-Fire O-No Disassembly & No Fire.

序号 No.	7	检测项目名称 Name of Test Items	过充电 Overcharge
样品编号 Sample No.	样品状态 Sample Status	其他现象 Other Event	
019	1CYC完全充电 1CYC Fully charged	O	
020	1CYC完全充电 1CYC Fully charged	O	
021	1CYC完全充电 1CYC Fully charged	O	
022	1CYC完全充电 1CYC Fully charged	O	
023	25CYC完全充电 25CYC Fully charged	O	
024	25CYC完全充电 25CYC Fully charged	O	
025	25CYC完全充电 25CYC Fully charged	O	
026	25CYC完全充电 25CYC Fully charged	O	
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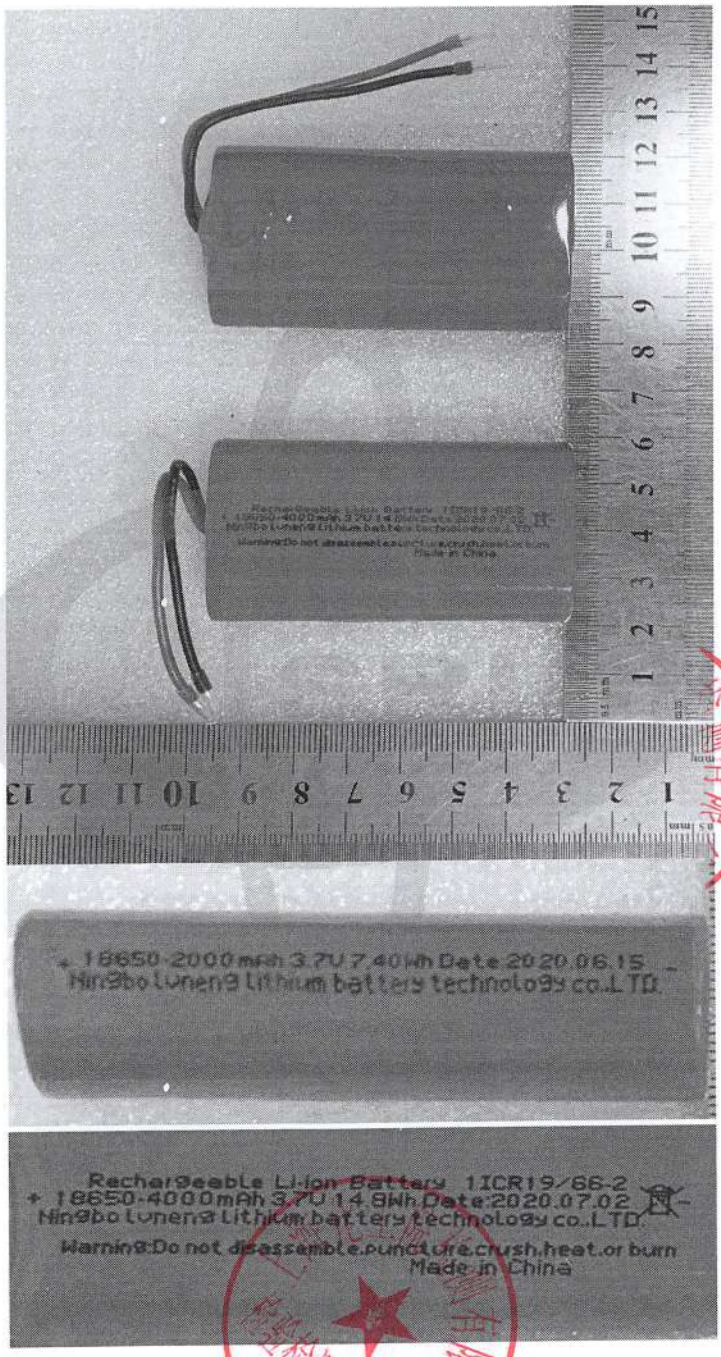
备注：D-解体 F-起火 O-无解体、无起火。
Note: D-Disassembly F-Fire O-No Disassembly & No Fire.

序号 No.	8	检测项目名称 Name of Test Items	强制放电 Forced discharge
样品编号 Sample No.	样品状态 Sample Status	其他现象 Other Event	
027	1CYC完全放电 1CYC Fully discharged	O	
028	1CYC完全放电 1CYC Fully discharged	O	
029	1CYC完全放电 1CYC Fully discharged	O	
030	1CYC完全放电 1CYC Fully discharged	O	
031	1CYC完全放电 1CYC Fully discharged	O	
032	1CYC完全放电 1CYC Fully discharged	O	
033	1CYC完全放电 1CYC Fully discharged	O	
034	1CYC完全放电 1CYC Fully discharged	O	
035	1CYC完全放电 1CYC Fully discharged	O	
036	1CYC完全放电 1CYC Fully discharged	O	
037	25CYC完全放电 25CYC Fully discharged	O	
038	25CYC完全放电 25CYC Fully discharged	O	
039	25CYC完全放电 25CYC Fully discharged	O	
040	25CYC完全放电 25CYC Fully discharged	O	
041	25CYC完全放电 25CYC Fully discharged	O	
042	25CYC完全放电 25CYC Fully discharged	O	
043	25CYC完全放电 25CYC Fully discharged	O	
044	25CYC完全放电 25CYC Fully discharged	O	
045	25CYC完全放电 25CYC Fully discharged	O	
046	25CYC完全放电 25CYC Fully discharged	O	

备注：D-解体 F-起火 O-无解体、无起火。
Note: D-Disassembly F-Fire O-No Disassembly & No Fire.


+ 18650-2000mAh 3.7V 7.40Wh Date:2020.06.15
Ningbo Lunen9 Lithium battery technology co.,LTD.
Recharg9eable Li-ion Battery 1ICR19/66-2
+ 18650-4000mAh 3.7V 14.8Wh Date:2020.07.02
Ningbo Lunen9 Lithium battery technology co.,LTD.
Warnin9:Do not disassemble.puncture.crush.heat.or burn
Made in China

报告结束