



中国认可
国际互认
检测
TESTING
CNAS L3572


REPORT No.: SZ23020306D01

UN38.3 测试报告

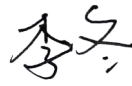
UN38.3 Test Report

申请商 : 烟台艾睿光电科技有限公司
APPLICANT : IRay Technology Co., Ltd.
产品名称 : 可充电锂离子电池
PRODUCT NAME : Rechargeable Li-ion Battery
型号/MODEL NAME : JQ033-23L
商标/TRADE NAME : N/A
品牌/BRAND NAME : N/A
额定值/RATING : 3.7 V, 3600 mAh, 13.32 Wh
接收日期 : 2023-03-03
RECEIPT DATE : 2023-03-03
测试日期 : 2023-03-03 to 2023-03-27
TEST DATE : 2023-03-03 to 2023-03-27
签发日期 : 2023-03-31
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MORLAB

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测试报告声明

Test Report Declaration

申请商/Applicant	烟台艾睿光电科技有限公司 IRay Technology Co., Ltd.	
申请商地址 Applicant Address	山东省烟台市贵阳大街11号 11Guiyang Street, Yantai Economic and Technological Development Area, Yantai, Shandong, P.R.China	
产品名称/ Product Name	可充电锂离子电池 Rechargeable Li-ion Battery	
型号/ Model Name	JQ033-23L	
额定值/ Rating	3.7 V, 3600 mAh, 13.32 Wh	
制造商信息 Manufacturer information	制造商 Manufacturer	津衢新能源（浙江）股份有限公司 Jinqu New Energy (Zhejiang) Co., Ltd.
	制造商地址 Manufacturer Address	浙江省嘉兴市嘉善县魏塘街道振华路68号4幢2-3楼 2-3 / F, building 4, No. 68, Zhenhua Road, Weitang Street, Jiashan County, Jiaxing City, Zhejiang Province, China
工厂信息 Factory information	工厂 Factory	津衢新能源（浙江）股份有限公司 Jinqu New Energy (Zhejiang) Co., Ltd.
	工厂地址 Factory Address	浙江省嘉兴市嘉善县魏塘街道振华路68号4幢2-3楼 2-3 / F, building 4, No. 68, Zhenhua Road, Weitang Street, Jiashan County, Jiaxing City, Zhejiang Province, China
尺寸/Size	50×34×24mm	
电池信息 Battery information	内含电芯数量/Cells number	2pcs(1S2P)
	电芯型号/Cell model	HD103450AR
	物理特性/Physical description	棱形固体/ Prismatic solid
检验方法及判定标准 Test Method and Criterion	联合国《关于危险货物运输的建议书试验和标准手册》第七版修正1第38.3节 UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS, Manual of Tests and Criteria" ST/SG/AC.10/11/Rev.7/Amend.1, section 38.3	
测试项目 Test Items	高度模拟试验；温度试验；振动试验；冲击试验；外短路试验；挤压试验；过充电试验； 强制放电 Altitude simulation, Thermal test, Vibration, Shock, External short circuit, Crush, Overcharge, Force discharge	
测试结论 Conclusion	受检样品通过 UN 38.3 各项检测，检测结果合格 The sample has passed the test items of UN38.3	
备注/ Remarks	测试结果为临限值时，我司将出具测量不确定度,并依据 95%的置信区间，给出判定结果。 When the test result is a critical value, we will use the measurement uncertainty give the judgment result based on the 95% Confidence intervals.	



深圳市摩尔环宇通信技术有限公司检验报告

Shenzhen Morlab Communications Technology Co., Ltd. Test Report

序号 No.	检验项目名称 Name of test items	标准要求或标准款号 Standard Requirement or the Clause Number of Standard	检测结果 Test Result	本项结论 Test Conclusion	备注 Remarks
1	高度模拟试验 Altitude simulation	联合国《关于危险货物运输的建议书 试验和标准手册》(以下简称:试验和标准手册) UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.7/Amend.1, 38.3 试验 T.1 Test T.1	见附表 1 See Appendix 1	合格 Passed	/
2	温度试验 Thermal Test	试验和标准手册 UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.7/Amend.1, 38.3 试验 T.2 Test T.2	见附表 2 See Appendix 2	合格 Passed	/
3	振动试验 Vibration	试验和标准手册 UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.7/Amend.1, 38.3 试验 T.3 Test T.3	见附表 3 See Appendix 3	合格 Passed	/
4	冲击试验 Shock	试验和标准手册 UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.7/Amend.1, 38.3 试验 T.4 Test T.4	见附表 4 See Appendix 4	合格 Passed	/
5	外短路试验 External short circuit	试验和标准手册 UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.7/Amend.1, 38.3 试验 T.5 Test T.5	见附表 5 See Appendix 5	合格 Passed	/
6	挤压试验 Crush	试验和标准手册 UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.7/Amend.1, 38.3 试验 T.6 Test T.6	见附表 6 See Appendix 6	合格 Passed	/
7	过充电试验 Overcharge	试验和标准手册 UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.7/Amend.1, 38.3 试验 T.7 Test T.7	见附表 7 See Appendix 7	合格 Passed	/
8	强制放电 Force discharge	试验和标准手册 UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.7/Amend.1, 38.3 试验 T.8 Test T.8	见附表 8 See Appendix 8	合格 Passed	/
检验环境条件 Test Environment Condition		环境温度: 15~25°C Ambient Temperature: 15~25°C			



变更记录 Change History		
版本 Version	日期 Date	变更原因 Reason for change
1.0	2023-03-31	初版 First edition



检验报告-附件 1

Test Report-Appendix 1

序号 No.	1	检测项目名称 Name of test items		高度模拟试验 Altitude simulation				
		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
样品 编号 Sample No.	样品状态 Sample Status	质量 Weight/g	开路 电压 OCV/V	质量 Weight/g	开路 电压 OCV/V			
1	首次充满 Fully charged at first cycle	76.0094	4.175	76.0086	4.172	0.0011	99.93	○
2	首次充满 Fully charged at first cycle	75.8291	4.174	75.8283	4.171	0.0011	99.93	○
3	首次充满 Fully charged at first cycle	76.2095	4.175	76.2088	4.171	0.0009	99.90	○
4	首次充满 Fully charged at first cycle	76.1203	4.173	76.1196	4.170	0.0009	99.93	○
5	25 次循环后充满 Fully charged after 25 cycles	76.0026	4.174	76.0019	4.171	0.0009	99.93	○
6	25 次循环后充满 Fully charged after 25 cycles	75.8842	4.174	75.8833	4.170	0.0012	99.90	○
7	25 次循环后充满 Fully charged after 25 cycles	76.1715	4.175	76.1707	4.172	0.0011	99.93	○
8	25 次循环后充满 Fully charged after 25 cycles	76.3442	4.173	76.3434	4.170	0.0010	99.93	○

备注: L-漏液, V-漏气, D-解体, R-破裂, F-起火, O-无漏液, 无解体, 无破裂, 无起火;
Remark: L-Leakage, V-Venting, D-Disassembly, R-Rupture, F-Fire, O-No Leakage, No Venting, No Disassembly, No Rupture, No Fire



检验报告-附件 2

Test Report-Appendix 2

序号 No.	2	检测项目名称 Name of test items		温度试验 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 Weight/g	开路 电压 OCV/V	质量 Weight/g	开路 电压 OCV/V			
1	首次充满 Fully charged at first cycle	76.0086	4.172	76.0011	4.129	0.0099	98.97	O
2	首次充满 Fully charged at first cycle	75.8283	4.171	75.8200	4.127	0.0109	98.95	O
3	首次充满 Fully charged at first cycle	76.2088	4.171	76.2013	4.127	0.0098	98.95	O
4	首次充满 Fully charged at first cycle	76.1196	4.170	76.1122	4.128	0.0097	98.99	O
5	25次循环后充满 Fully charged after 25 cycles	76.0019	4.171	75.9945	4.129	0.0097	98.99	O
6	25次循环后充满 Fully charged after 25 cycles	75.8833	4.170	75.8758	4.129	0.0099	99.02	O
7	25次循环后充满 Fully charged after 25 cycles	76.1707	4.172	76.1633	4.128	0.0097	98.95	O
8	25次循环后充满 Fully charged after 25 cycles	76.3434	4.170	76.3361	4.127	0.0096	98.97	O

备注: L-漏液, V-漏气, D-解体, R-破裂, F-起火, O-无漏液, 无解体, 无破裂, 无起火;
Remark: L-Leakage, V-Venting, D-Disassembly, R-Rupture, F-Fire, O-No Leakage, No Venting, No Disassembly, No Rupture, No Fire



检验报告-附件 3

Test Report-Appendix 3

序号 No.	3	检测项目名称 Name of test items		振动试验 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 Weight/g	开路 电压 OCV/V	质量 Weight/g	开路 电压 OCV/V			
1	首次充满 Fully charged at first cycle	76.0011	4.129	76.0000	4.127	0.0014	99.95	O
2	首次充满 Fully charged at first cycle	75.8200	4.127	75.8190	4.125	0.0013	99.95	O
3	首次充满 Fully charged at first cycle	76.2013	4.127	76.2003	4.125	0.0013	99.95	O
4	首次充满 Fully charged at first cycle	76.1122	4.128	76.1111	4.126	0.0014	99.95	O
5	25次循环后充满 Fully charged after 25 cycles	75.9945	4.129	75.9934	4.126	0.0014	99.93	O
6	25次循环后充满 Fully charged after 25 cycles	75.8758	4.129	75.8748	4.126	0.0013	99.93	O
7	25次循环后充满 Fully charged after 25 cycles	76.1633	4.128	76.1623	4.125	0.0013	99.93	O
8	25次循环后充满 Fully charged after 25 cycles	76.3361	4.127	76.3351	4.124	0.0013	99.93	O

备注: L-漏液, V-漏气, D-解体, R-破裂, F-起火, O-无漏液, 无解体, 无破裂, 无起火;
Remark: L-Leakage, V-Venting, D-Disassembly, R-Rupture, F-Fire, O-No Leakage, No Venting, No Disassembly, No Rupture, No Fire



检验报告-附件 4

Test Report-Appendix 4

序号 No.	4	检测项目名称 Name of test items		冲击试验 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 Weight/g	开路 电压 OCV/V	质量 Weight/g	开路 电压 OCV/V			
1	首次充满 Fully charged at first cycle	76.0000	4.127	75.9992	4.125	0.0011	99.95	O
2	首次充满 Fully charged at first cycle	75.8190	4.125	75.8183	4.124	0.0009	99.98	O
3	首次充满 Fully charged at first cycle	76.2003	4.125	76.1996	4.124	0.0009	99.98	O
4	首次充满 Fully charged at first cycle	76.1111	4.126	76.1103	4.125	0.0011	99.98	O
5	25 次循环后充满 Fully charged after 25 cycles	75.9934	4.126	75.9926	4.124	0.0011	99.95	O
6	25 次循环后充满 Fully charged after 25 cycles	75.8748	4.126	75.8741	4.125	0.0009	99.98	O
7	25 次循环后充满 Fully charged after 25 cycles	76.1623	4.125	76.1615	4.123	0.0011	99.95	O
8	25 次循环后充满 Fully charged after 25 cycles	76.3351	4.124	76.3344	4.123	0.0009	99.98	O

备注: L-漏液, V-漏气, D-解体, R-破裂, F-起火, O-无漏液, 无解体, 无破裂, 无起火;
Remark: L-Leakage, V-Venting, D-Disassembly, R-Rupture, F-Fire, O-No Leakage, No Venting, No Disassembly, No Rupture, No Fire



检验报告-附件 5

Test Report-Appendix 5

序号 No.	5	检测项目名称 Name of test items	外短路试验 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 Test Items / °C	其他现象 Other Event
1	首次充满 Fully charged at first cycle	56.1	O
2	首次充满 Fully charged at first cycle	57.1	O
3	首次充满 Fully charged at first cycle	57.2	O
4	首次充满 Fully charged at first cycle	56.3	O
5	25 次循环后充满 Fully charged after 25 cycles	57.2	O
6	25 次循环后充满 Fully charged after 25 cycles	57.7	O
7	25 次循环后充满 Fully charged after 25 cycles	57.5	O
8	25 次循环后充满 Fully charged after 25 cycles	57.0	O

备注: D-解体, R-破裂, F-起火, O-无解体, 无破裂, 无起火;
Remark: D-Disassembly, R-Rupture, F-Fire, O-No Disassembly, No Rupture, No Fire



检验报告-附件 6

Test Report-Appendix 6

序号 No.	6	检测项目名称 Name of test items	挤压试验 Crush
样品编号 Sample No.	样品状态 Sample status	样品表面最高温度 Max. External Test Items/ °C	其他现象 Other Event
9	首次 50%容量 50% of capacity at first cycle	22.9	O
10	首次 50%容量 50% of capacity at first cycle	23.0	O
11	首次 50%容量 50% of capacity at first cycle	23.1	O
12	首次 50%容量 50% of capacity at first cycle	23.2	O
13	首次 50%容量 50% of capacity at first cycle	23.0	O
14	25 次循环后 50%容量 50% of capacity after25 cycles	23.0	O
15	25 次循环后 50%容量 50% of capacity after25 cycles	22.9	O
16	25 次循环后 50%容量 50% of capacity after25 cycles	22.9	O
17	25 次循环后 50%容量 50% of capacity after25 cycles	22.8	O
18	25 次循环后 50%容量 50% of capacity after25 cycles	22.9	O

备注: D-解体, F-起火, O-无解体, 无起火;
Remark: D-Disassembly, F-Fire, O-No Disassembly, No Fire



检验报告-附件 7

Test Report-Appendix 7

序号 No.	7	检测项目名称 Name of test items	过充电试验 Overcharge
样品编号 Sample No.	样品状态 Sample status	其他现象 Other Event	
19	首次充满 Fully charged at first cycle		O
20	首次充满 Fully charged at first cycle		O
21	首次充满 Fully charged at first cycle		O
22	首次充满 Fully charged at first cycle		O
23	25 次循环后充满 Fully charged after 25 cycles		O
24	25 次循环后充满 Fully charged after 25 cycles		O
25	25 次循环后充满 Fully charged after 25 cycles		O
26	25 次循环后充满 Fully charged after 25 cycles		O

备注: D-解体, F-起火, O-无解体, 无起火;
Remark: D-Disassembly, F-Fire, O-No Disassembly, No Fire



检验报告-附件 8

Test Report-Appendix 8

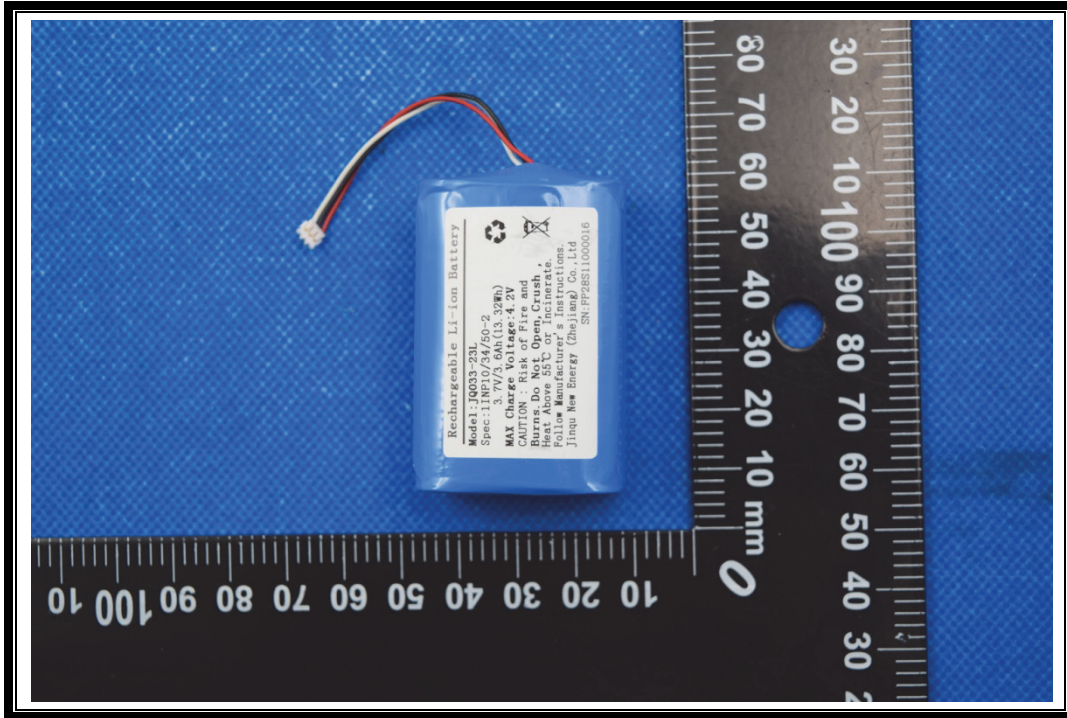
序号 No.	8	检测项目名称 Name of test items	强制放电 Force discharge
样品编号 Sample No.	样品状态 Sample status	放电时间 (H) Discharge time	其他现象 Other Event
27	首次完全放电 Fully discharged at first cycle	1	○
28	首次完全放电 Fully discharged at first cycle	1	○
29	首次完全放电 Fully discharged at first cycle	1	○
30	首次完全放电 Fully discharged at first cycle	1	○
31	首次完全放电 Fully discharged at first cycle	1	○
32	首次完全放电 Fully discharged at first cycle	1	○
33	首次完全放电 Fully discharged at first cycle	1	○
34	首次完全放电 Fully discharged at first cycle	1	○
35	首次完全放电 Fully discharged at first cycle	1	○
36	首次完全放电 Fully discharged at first cycle	1	○
37	25 次循环后完全放电 Fully discharged after 25 cycles	1	○
38	25 次循环后完全放电 Fully discharged after 25 cycles	1	○



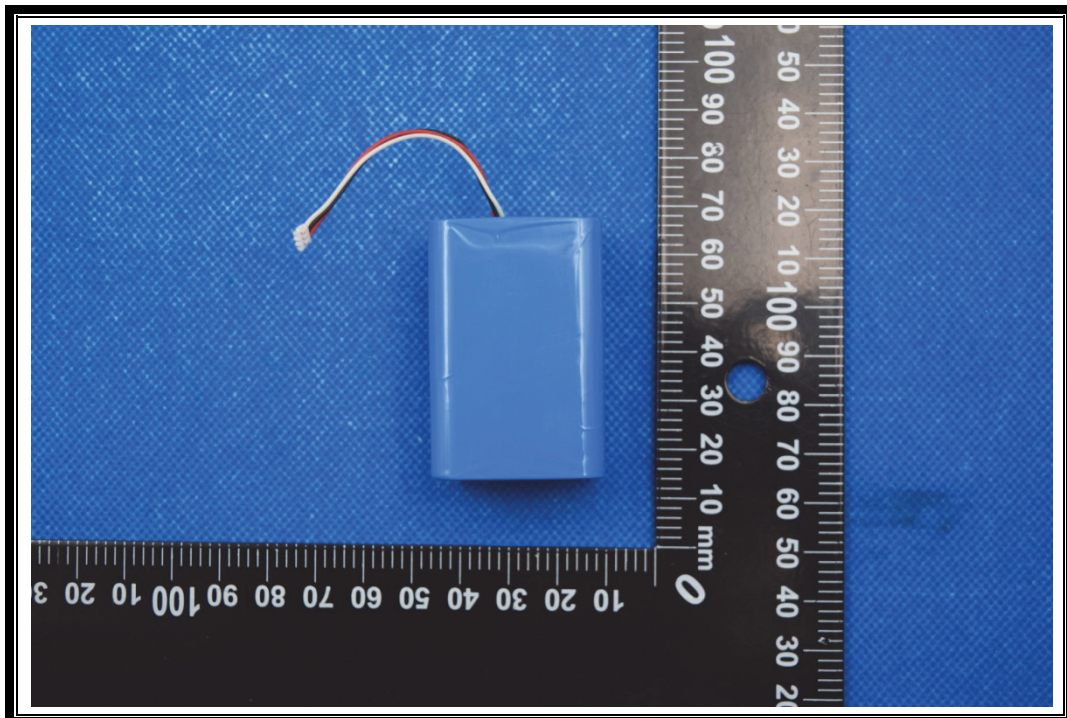
39	25 次循环后完全放电 Fully discharged after 25 cycles	1	O
40	25 次循环后完全放电 Fully discharged after 25 cycles	1	O
41	25 次循环后完全放电 Fully discharged after 25 cycles	1	O
42	25 次循环后完全放电 Fully discharged after 25 cycles	1	O
43	25 次循环后完全放电 Fully discharged after 25 cycles	1	O
44	25 次循环后完全放电 Fully discharged after 25 cycles	1	O
45	25 次循环后完全放电 Fully discharged after 25 cycles	1	O
46	25 次循环后完全放电 Fully discharged after 25 cycles	1	O
备注: D-解体, F-起火, O-无解体, 无起火; Remark: D-Disassembly, F-Fire, O-No Disassembly, No Fire 最大放电电流/ Max Continuous Discharge Current: <u>1800</u> mA			

样品图片 Photographs of the EUT

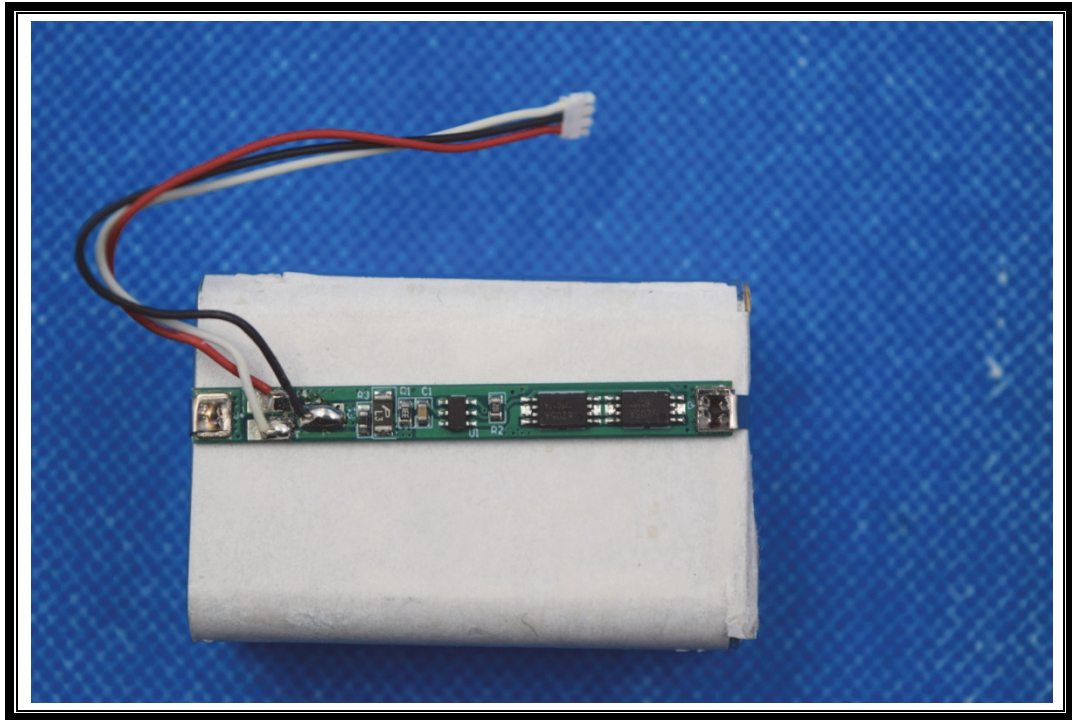
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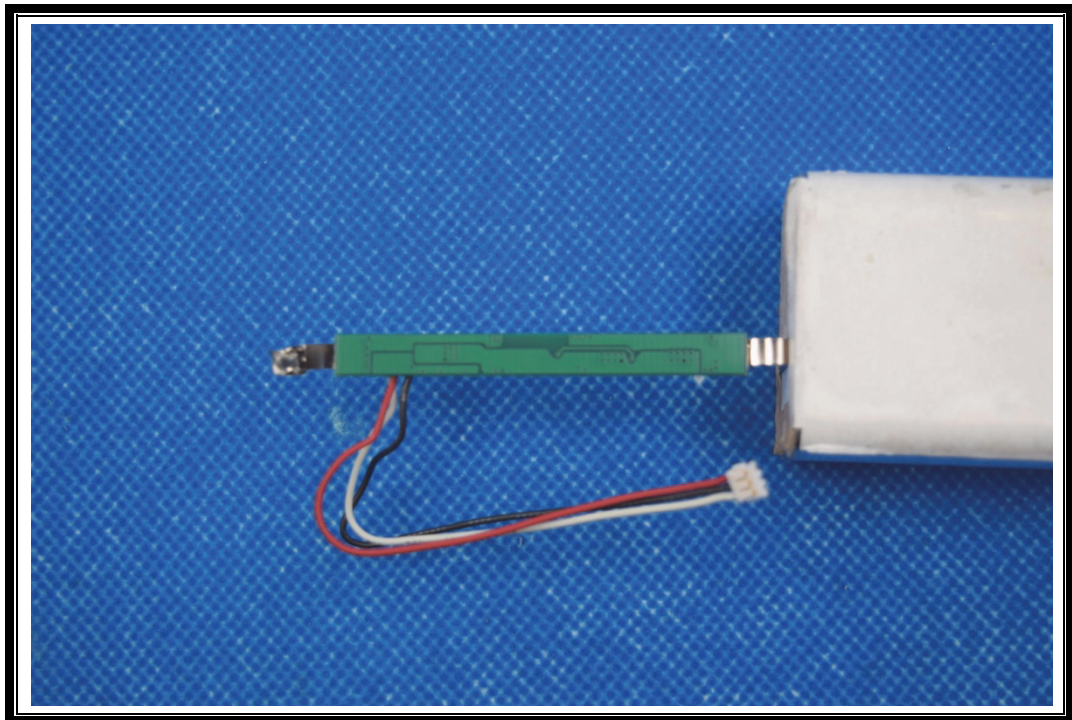
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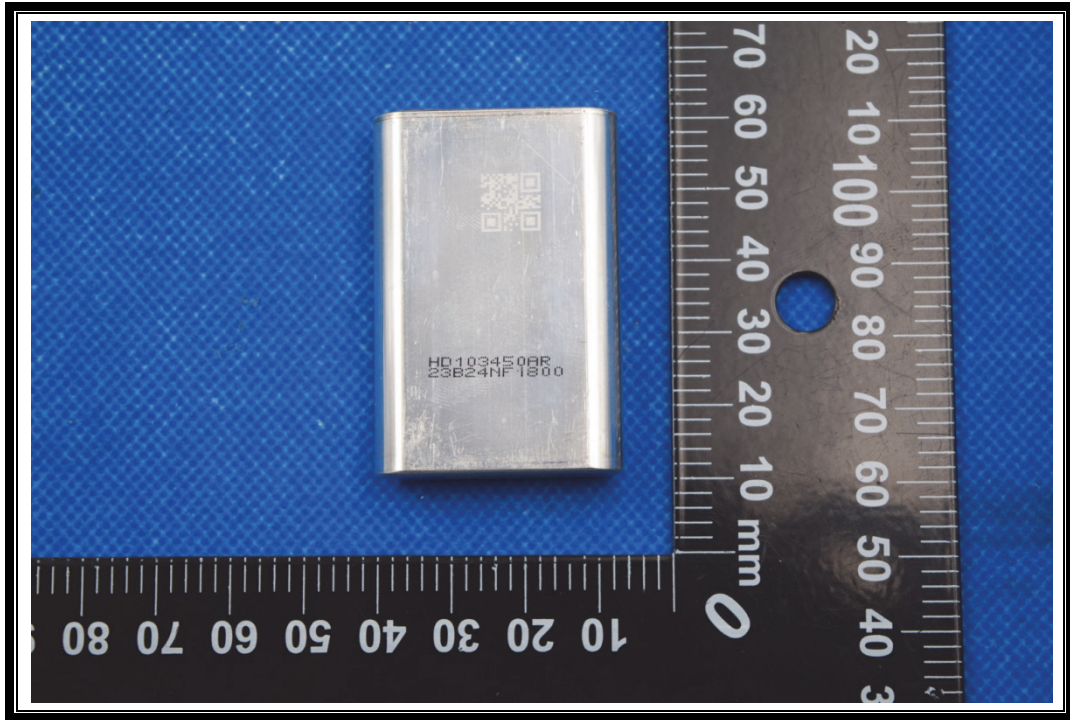
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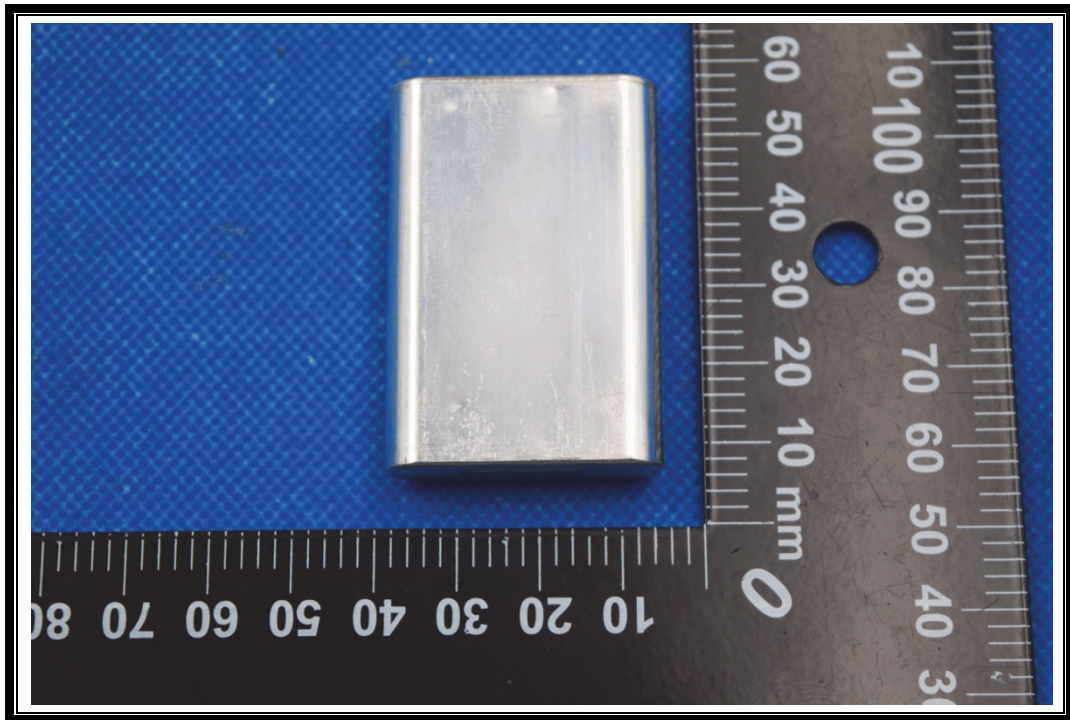
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5



6





仪器设备清单/ List of test equipment used:

条款 Clause	仪器设备名称 equipment	型号 model	系列号 Serial No.	厂商 Manufacturer	校准日期 Calibration date	失效日期 Expiration date
样品预处理 Sample pretreatment	高性能电池检测系统 High-performance battery detection system	CT-4008-5V 6A-S1	T1806-167 542~T1806 -167548	newaretechnology	2022-07-06	2023-07-05
	电子天平 Electronic scale	JM-B30002	370	Zhuji Chaoze Weighing	2022-10-10	2023-10-09
	数据采集仪 Data recorder apparatus (Temperature and Voltage recorder)	GM90PS	S5C08022	YOKOGAWA	2022-10-10	2023-10-09
高度模拟试验 Altitude simulation	低气压箱 Vacuum chamber	CHKX-125	110711	gzgongwen	2023-02-09	2024-02-08
	电子天平 Electronic scale	JM-B30002	370	Zhuji Chaoze Weighing	2022-10-10	2023-10-09
	数据采集仪 Data recorder apparatus (Temperature and Voltage recorder)	GM90PS	S5C08022	YOKOGAWA	2022-10-10	2023-10-09
温度试验 Thermal Test	快速温变箱 Rapid temperature change box	QW1070P6 W15	12174318	ESPEC	2023-02-09	2024-02-08
	电子天平 Electronic scale	JM-B30002	370	Zhuji Chaoze Weighing	2022-10-10	2023-10-09
	数据采集仪 Data recorder apparatus (Temperature and Voltage recorder)	GM90PS	S5C08022	YOKOGAWA	2022-10-10	2023-10-09



振动试验 Vibration	振动试验台 Vibration test bench	ES-30-370	D1203045	donglingtech	2022-10-10	2023-10-09
	电子天平 Electronic scale	JM-B30002	370	Zhuji Chaoze Weighing	2022-10-10	2023-10-09
	数据采集仪 Data recorder apparatus (Temperature and Voltage recorder)	GM90PS	S5C08022	YOKOGAWA	2022-10-10	2023-10-09
冲击试验 Shock	冲击碰撞试验台 Shock Test System	SY11-50	5120315/J1 20315	donglingtech	2023-02-09	2024-02-08
	电子天平 Electronic scale	JM-B30002	370	Zhuji Chaoze Weighing	2022-10-10	2023-10-09
	数据采集仪 Data recorder apparatus (Temperature and Voltage recorder)	GM90PS	S5C08022	YOKOGAWA	2022-10-10	2023-10-09
外短路试验 External short circuit	防爆温箱 explosion-proof oven	DE207C	A08351	Chongqing Hanba	2022-06-02	2023-06-01
	微电阻测试仪 Milliohm-meter	TOS8010	TM200445	TOSSTAR	2023-02-09	2024-02-08
	短路器 Short circuit	MORLAB-B 01	/	/	2022-09-30	2023-03-29
	数据采集仪 Data recorder apparatus (Temperature and Voltage recorder)	GM90PS	S5C08022	YOKOGAWA	2022-10-10	2023-10-09



☑ 挤压试验 Crush ☐ 撞击试验 Impact	☑ 挤压试验机 Crush Apparatus	BE-6045-2T	2018111300 1	DongGuan Bell	2022-10-10	2023-10-09
	☐ 电池冲击试验机 Battery impact Apparatus	BE-5066	2008091034 6	DongGuan Bell	2023-02-21	2024-02-20
	数据采集仪 Data recorder apparatus (Temperature and Voltage recorder)	GM90PS	S5C08022	YOKOGAWA	2022-10-10	2023-10-09
过充电试验 Overcharge	电池充放电系统 Battery Testing System	BTS-30V20 A-8CH	19ME19040 8006	BETTATEQ	2022-07-06	2023-07-05
	防爆温箱 explosion-proof oven	DE207C	A08351	Chongqing Hanba	2022-06-02	2023-06-01
	数据采集仪 Data recorder apparatus (Temperature and Voltage recorder)	GM90PS	S5C08022	YOKOGAWA	2022-10-10	2023-10-09
强制放电 Force discharge	直流电源 DC power supply	KXN-6050D	18K6050D0 40094	zhaoxinpowe r	2022-10-10	2023-10-09
	电子负载 Electronic load	IT8512A+	8021430107 37010063	ITECH	2022-07-06	2023-07-05
	数据采集仪 Data recorder apparatus (Temperature and Voltage recorder)	GM90PS	S5C08022	YOKOGAWA	2022-10-10	2023-10-09



注意事项

1. 报告无检测单位印章无效。
2. 报告无编制人、签发人签名无效。
3. 报告涂改无效。
4. 对检测报告若有异议，请于收到报告之日起十五日内向检测单位提出。
5. “P”表示“试验结果符合要求”，“F”表示“试验结果不符合要求”，“N/A”表示“要求不适用于该产品”，“/”表示“未检测”。
6. “*”表示该项目不在 CNAS 认可范围内。
7. 相关项目未取得资质认定，仅作为科研、教学或内部质量控制之用。

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