

UN38.3 测试报告

UN38.3 Test Report

样品名称 : 锂离子聚合物电池
3.7V 1200mAh 4.44Wh

Sample name : Li-ion Polymer Battery
3.7V 1200mAh 4.44Wh

型号 Model : 603450

委托单位 : 深圳市万造科技有限公司

Consignor : Shenzhen Wonzer Technology Co.,Ltd.



东莞市中认联科检测技术有限公司
Dongguan ZRLK Testing Technology Co., Ltd.





编号 No.: DSP24110289-2

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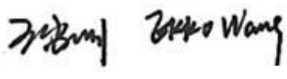



编号 No.: DSP24110289-2

样品描述及说明 General product information			
样品类型(是否可充电) Sample Type(Rechargeable or not)	<input checked="" type="checkbox"/> 是/Yes	<input type="checkbox"/> 否/No	
样品信息 Sample information:			
产品名称 Product Name	锂离子聚合物电池 Li-ion Polymer Battery	型号 Model	603450
商标 Trade mark	无 N/A	样品编号 Sample No.	B1#~B18# C1#~C30#
标称电压 Nominal Voltage	3.7V	额定容量 Rated Capacity	1200mAh
额定能量 Rated Energy	4.44Wh	充电截止电压 Charge Cut-off Voltage	4.2V
最大充电电流 Max. Charging Current	1200mA	标准充电电流 Standard Charging Current	600mA
充电截止电流 Charge Cut-off Current	60mA	放电终止电压 Discharge Cut-off Voltage	2.5V
最大放电电流 Max. Discharging Current	1200mA	标准放电电流 Standard Discharging Current	600mA
形状 Shape	棱柱形 Prismatic	尺寸 Size	53.3*34.0*5.9mm
样品质量 Sample Mass	21.0g	串并联方式 Connection composition of series-parallel	1S1P
电芯信息 Cell information:			
电芯型号 Cell Model	603450	标称电压 Nominal Voltage	3.7V
额定容量 Rated Capacity	1200mAh	最大放电电流 Max. Discharging Current	1200mA



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样品接收日期 Accepted date	2024-10-16	测试起始日期 Test date	2024-10-16 ~ 2024-11-08
测试方法 和判定标准 Test method and criterion	联合国《试验和标准手册》(第7版 修订1) 38.3 节 UN "Manual of Tests and Criteria" ST/SG/AC.10/11/Rev.7/Amend.1/Subsection 38.3		
测试项目 Test items	高度模拟、温度试验、振动、冲击、外部短路、挤压、过度充电、强制放电 Altitude simulation, Thermal test, Vibration, Shock, External short circuit, Crush, Overcharge, Forced discharge.		
测试结论 Conclusion	经测试, 该样品符合联合国《试验和标准手册》ST/SG/AC.10/11/Rev.7/Amend.1, 38.3 标准要求。 The sample has passed the test items of UNITED NATIONS "Manual of Tests and Criteria" ST/SG/AC.10/11/Rev.7/Amend.1, 38.3. 签发日期(Issue date): 2024-11-08		
备注 Remark	--		
主检(职位) Tested by: (Position)	黄嘉杰 Vincent Huang (Test Engineer)		东莞市中认联科检测技术有限公司 Dongguan ZRLK Testing Technology Co., Ltd.
审核(职位) Checker: (Position)	王盛明 Ekko Wang (Item Engineer)		
批准(职位) Approver: (Position)	马孝琴 Ailis Ma (Approved by)		



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序号 No.	测试项目名称 Name of test	标准要求或标准条款号 Standard requirement or the clause number of standard	测试结果 Test result	本项结论 Test conclusion	备注 Remarks
1	高度模拟 Altitude simulation	联合国《试验和标准手册》(第7版 修订 1) 38.3 节试验 T.1 UN "Manual of Tests and Criteria" ST/SG/AC.10/11/Rev.7/Amend.1/Subsecti on 38.3 Test T.1	见附表 1 See Appendix 1	合格 Passed	/
2	温度试验 Thermal test	联合国《试验和标准手册》(第7版 修订 1) 38.3 节试验 T.2 UN "Manual of Tests and Criteria" ST/SG/AC.10/11/Rev.7/Amend.1/Subsecti on 38.3 Test T.2	见附表 2 See Appendix 2	合格 Passed	/
3	振动 Vibration	联合国《试验和标准手册》(第7版 修订 1) 38.3 节试验 T.3 UN "Manual of Tests and Criteria" ST/SG/AC.10/11/Rev.7/Amend.1/Subsecti on 38.3 Test T.3	见附表 3 See Appendix 3	合格 Passed	/
4	冲击 Shock	联合国《试验和标准手册》(第7版 修订 1) 38.3 节试验 T.4 UN "Manual of Tests and Criteria" ST/SG/AC.10/11/Rev.7/Amend.1/Subsecti on 38.3 Test T.4	见附表 4 See Appendix 4	合格 Passed	/
5	外部短路 External short-circuit	联合国《试验和标准手册》(第7版 修订 1) 38.3 节试验 T.5 UN "Manual of Tests and Criteria" ST/SG/AC.10/11/Rev.7/Amend.1/Subsecti on 38.3 Test T.5	见附表 5 See Appendix 5	合格 Passed	/
6	挤压 Crush	联合国《试验和标准手册》(第7版 修订 1) 38.3 节试验 T.6 UN "Manual of Tests and Criteria" ST/SG/AC.10/11/Rev.7/Amend.1/Subsecti on 38.3 Test T.6	见附表 6 See Appendix 6	合格 Passed	/
7	过度充电 Overcharge	联合国《试验和标准手册》(第7版 修订 1) 38.3 节试验 T.7 UN "Manual of Tests and Criteria" ST/SG/AC.10/11/Rev.7/Amend.1/Subsecti on 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《试验和标准手册》(第7版 修订 1) 38.3 节试验 T.8 UN "Manual of Tests and Criteria" ST/SG/AC.10/11/Rev.7/Amend.1/Subsecti on 38.3 Test T.8	见附表 8 See Appendix 8	合格 Passed	/
测试环境条件 Test environment condition		环境温度: 20℃ - 25℃; 环境湿度: 45% - 75% Ambient temperature: 20℃ - 25℃, Ambient humidity: 45% - 75%			

Procedure 说明

Tests T.1 to T.5 shall be conducted in sequence on the same cell or battery. Tests T.6 and T.8 shall be conducted using not otherwise tested cells. Test T.7 may be conducted using undamaged batteries previously used in tests T.1 to T.5 for purposes of testing on cycled batteries.

用相同的电芯或电池按照顺序进行试验 T.1 至 T.5。试验 T.6 至 T.8 用没有进行其他试验的电芯。试验 T7 可以使用原先在试验 T1 至 T5 中使用过的未损坏的电池进行，以便测试交替充电放电的电池。

Single cell batteries of B1#~B5#, B11#~B14# are full charged after one cycle;

Single cell batteries of B6#~B10#, B15#~B18# are full charged after twenty-five cycles;

Rechargeable cells of C1#~C5# are 50% charged after one cycle;

Rechargeable cells of C6#~C10# are 50% charged after twenty-five cycles;

Rechargeable cells of C11#~C20# are full discharged after one cycle;

Rechargeable cells of C21#~C30# are full discharged after twenty-five cycles;

Test environment condition: ambient temperature: 15-25℃, ambient humidity: 40-70%

单电芯电池 B1#~B5#, B11#~B14#为 1 次循环满电状态;

单电芯电池 B6#~B10#, B15#~B18#为 25 次循环满电状态;

可充电电芯 C1#~C5#为 1 次循环后 50%充电状态;

可充电电芯 C6#~C10#为 25 次循环后 50%充电状态;

可充电电芯 C11#~C20#为 1 次循环完全放电状态;

可充电电芯 C21#~C30#为 25 次循环完全放电状态;

试验环境条件: 环境温度: 15-25℃, 环境湿度: 40-70%



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附表 1
Appendix 1

序号 No.	1	测试项目名称 Name of Test Items	高度模拟 Altitude simulation				
样品编号 Sample No.	测试前 Before		测试后 After		质量损失 Mass loss (%)	剩余电压 Residual OCV (%)	测试结果 Test result
	电池质量 m ₁ (g)	开路电压 V ₁ (V)	电池质量 m ₂ (g)	开路电压 V ₂ (V)			
B01	20.9542	4.188	20.9533	4.186	0.00	100.0	O
B02	20.9442	4.189	20.9424	4.189	0.01	100.0	O
B03	20.9872	4.187	20.9868	4.187	0.00	100.0	O
B04	20.9425	4.186	20.9405	4.185	0.01	100.0	O
B05	20.9236	4.191	20.9216	4.187	0.01	99.9	O
B06	20.9725	4.185	20.9706	4.183	0.01	100.0	O
B07	20.8450	4.185	20.8437	4.182	0.01	99.9	O
B08	20.9307	4.187	20.9296	4.187	0.01	100.0	O
B09	20.9041	4.186	20.9028	4.186	0.01	100.0	O
B10	20.9850	4.185	20.9839	4.182	0.01	99.9	O
No. B01-B05: 编号 B01-B05:	At first cycle, in fully charged states 第 1 个充电周期, 完全充电状态						
No. B06-B10: 编号 B06-B10:	After 25 cycles ending in fully charged states 第 25 个充电周期, 完全充电状态						
注: L-泄露; V-排气; D-解体; R-破裂; F-起火; O-无泄露、无排气、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							

附表 2
 Appendix 2

序号 No.	2	测试项目名称 Name of Test Items	温度试验 Thermal test				
样品编号 Sample No.	测试前 Before		测试后 After		质量损失 Mass loss (%)	剩余电压 Residual OCV (%)	测试结果 Test result
	电池质量 m ₁ (g)	开路电压 V ₁ (V)	电池质量 m ₂ (g)	开路电压 V ₂ (V)			
B01	20.9533	4.186	20.9386	4.129	0.07	98.6	O
B02	20.9424	4.189	20.9277	4.134	0.07	98.7	O
B03	20.9868	4.187	20.9736	4.123	0.06	98.5	O
B04	20.9405	4.185	20.9246	4.123	0.08	98.5	O
B05	20.9216	4.187	20.9057	4.130	0.08	98.6	O
B06	20.9706	4.183	20.9540	4.119	0.08	98.5	O
B07	20.8437	4.182	20.8288	4.116	0.07	98.4	O
B08	20.9296	4.187	20.9167	4.124	0.06	98.5	O
B09	20.9028	4.186	20.8876	4.131	0.07	98.7	O
B10	20.9839	4.182	20.9680	4.116	0.08	98.4	O
No. B01-B05: 编号 B01-B05:	At first cycle, in fully charged states 第 1 个充电周期, 完全充电状态						
No. B06-B10: 编号 B06-B10:	After 25 cycles ending in fully charged states 第 25 个充电周期, 完全充电状态						
注: L-泄露; V-排气; D-解体; R-破裂; F-起火; O-无泄露、无排气、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							

附表 3
 Appendix 3

序号 No.	3	测试项目名称 Name of Test Items	振动 Vibration				
样品编号 Sample No.	测试前 Before		测试后 After		质量损失 Mass loss (%)	剩余电压 Residual OCV (%)	测试结果 Test result
	电池质量 m ₁ (g)	开路电压 V ₁ (V)	电池质量 m ₂ (g)	开路电压 V ₂ (V)			
B01	20.9386	4.129	20.9327	4.121	0.03	99.8	O
B02	20.9277	4.134	20.9232	4.126	0.02	99.8	O
B03	20.9736	4.123	20.9682	4.115	0.03	99.8	O
B04	20.9246	4.123	20.9189	4.118	0.03	99.9	O
B05	20.9057	4.130	20.8995	4.123	0.03	99.8	O
B06	20.9540	4.119	20.9497	4.114	0.02	99.9	O
B07	20.8288	4.116	20.8243	4.110	0.02	99.9	O
B08	20.9167	4.124	20.9115	4.119	0.03	99.9	O
B09	20.8876	4.131	20.8814	4.125	0.03	99.9	O
B10	20.9680	4.116	20.9622	4.110	0.03	99.9	O
No. B01-B05: 编号 B01-B05:	At first cycle, in fully charged states 第 1 个充电周期, 完全充电状态						
No. B06-B10: 编号 B06-B10:	After 25 cycles ending in fully charged states 第 25 个充电周期, 完全充电状态						
注: L-泄露; V-排气; D-解体; R-破裂; F-起火; O-无泄露、无排气、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							

附表 4
 Appendix 4

序号 No.	4	测试项目名称 Name of Test Items	冲击 Shock				
样品编号 Sample No.	测试前 Before		测试后 After		质量损失 Mass loss (%)	剩余电压 Residual OCV (%)	测试结果 Test result
	电池质量 m ₁ (g)	开路电压 V ₁ (V)	电池质量 m ₂ (g)	开路电压 V ₂ (V)			
B01	20.9327	4.121	20.9306	4.117	0.01	99.9	O
B02	20.9232	4.126	20.9211	4.122	0.01	99.9	O
B03	20.9682	4.115	20.9661	4.111	0.01	99.9	O
B04	20.9189	4.118	20.9168	4.114	0.01	99.9	O
B05	20.8995	4.123	20.8974	4.119	0.01	99.9	O
B06	20.9497	4.114	20.9476	4.110	0.01	99.9	O
B07	20.8243	4.110	20.8222	4.106	0.01	99.9	O
B08	20.9115	4.119	20.9094	4.115	0.01	99.9	O
B09	20.8814	4.125	20.8793	4.121	0.01	99.9	O
B10	20.9622	4.110	20.9601	4.106	0.01	99.9	O
No. B01-B05: 编号 B01-B05:	At first cycle, in fully charged states 第 1 个充电周期, 完全充电状态						
No. B06-B10: 编号 B06-B10:	After 25 cycles ending in fully charged states 第 25 个充电周期, 完全充电状态						
注: L-泄露; V-排气; D-解体; R-破裂; F-起火; O-无泄露、无排气、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							

附表 5
 Appendix 5

序号 No.	5	测试项目名称 Name of Test Items	外部短路 External short circuit	
样品编号 Sample No.		样品表面最高温度 Max. External Temperature (°C)	测试结果 Test result	备注 Remark
B01		58.4	O	/
B02		58.2	O	/
B03		57.9	O	/
B04		58.7	O	/
B05		58.7	O	/
B06		58.5	O	/
B07		58.3	O	/
B08		58.0	O	/
B09		57.9	O	/
B10		57.8	O	/
No. B01-B05: 编号 B01-B05:	At first cycle, in fully charged states 第 1 个充电周期, 完全充电状态			
No. B06-B10: 编号 B06-B10:	After 25 cycles ending in fully charged states 第 25 个充电周期, 完全充电状态			
注: D-解体; R-破裂; F-起火; O-无解体、无破裂、无起火。 Note: D-Disassembly, R-Rupture, F-Fire, O-No disassembly, no rupture & no fire				

附表 6
 Appendix 6

序号 No.	6	测试项目名称 Name of Test Items	挤压 Crush		
样品编号 Sample No.		样品表面最高温度 Max. External Temperature (°C)	测试结果 Test result	备注 Remark	
C01		22.6	O	/	
C02		22.4	O	/	
C03		22.9	O	/	
C04		22.3	O	/	
C05		23.1	O	/	
C06		22.6	O	/	
C07		22.4	O	/	
C08		23.0	O	/	
C09		23.2	O	/	
C10		22.3	O	/	
No. C01-C05: 编号 C01-C05:	At first cycle at 50% of the design rated capacity 第 1 个充放电周期 50%设计额定容量状态				
No. C06-C10: 编号 C06-C10:	After 25 cycle at 50% of the design rated capacity 第 25 个充放电周期 50%设计额定容量状态				
注: D-解体; R-破裂; F-起火; O-无解体、无破裂、无起火。 Note: D-Disassembly, R-Rupture, F-Fire, O-No disassembly, no rupture & no fire					



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附表 7
Appendix 7

序号 No.	7	测试项目名称 Name of Test Items	过度充电 Overcharge
样品编号 Sample No		测试结果 Test result	备注 Remark
B11		O	/
B12		O	/
B13		O	/
B14		O	/
B15		O	/
B16		O	/
B17		O	/
B18		O	/
No. B11-B14: 编号 B11-B14:	At first cycle, in fully charged states 第 1 个充电周期, 完全充电状态		
No. B15-B18: 编号 B15-B18:	After 25 cycles ending in fully charged states 第 25 个充电周期, 完全充电状态		
注: D-解体; F-起火; O-无解体、无起火。 Note: D-Disassembly, F-Fire, O-No disassembly & no fire			

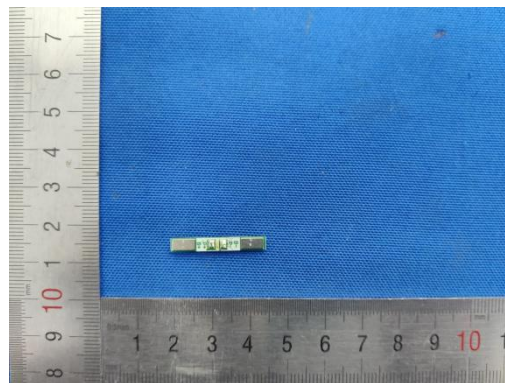
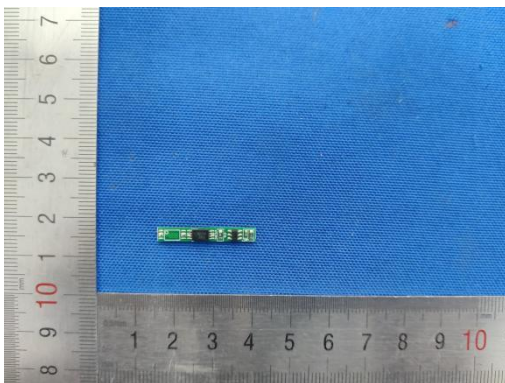
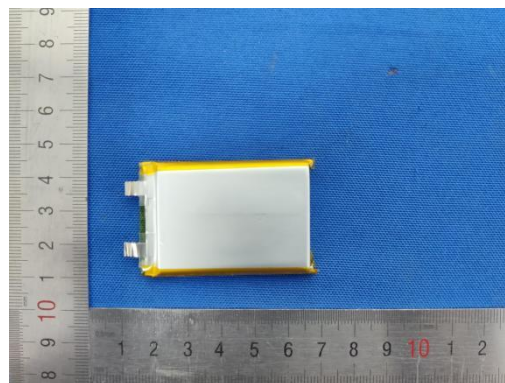
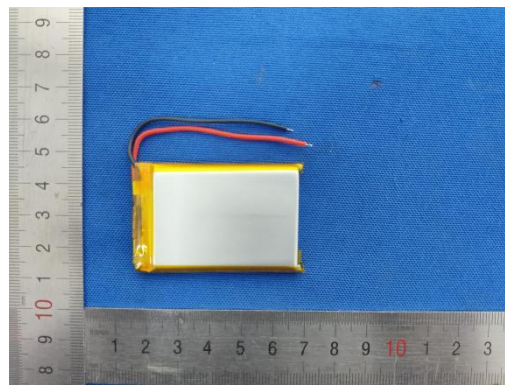
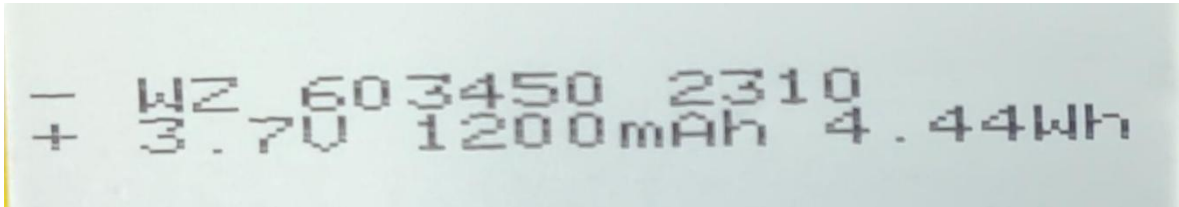


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附表 8
Appendix 8

序号 No.	8	测试项目名称 Name of Test Items	强制放电 Forced discharge
样品编号 Sample No		测试结果 Test result	备注 Remark
C11		O	/
C12		O	/
C13		O	/
C14		O	/
C15		O	/
C16		O	/
C17		O	/
C18		O	/
C19		O	/
C20		O	/
C21		O	/
C22		O	/
C23		O	/
C24		O	/
C25		O	/
C26		O	/
C27		O	/
C28		O	/
C29		O	/
C30		O	/
No. C11-C20: 编号 C11-C20:		At first cycle in fully discharged states 第 1 个充放电周期, 完全放电状态	
No. C21-C30: 编号 C21-C30:		After 25 cycles ending in fully discharged states 第 25 个充放电周期, 完全放电状态	
注: D-解体; F-起火; O-无解体、无起火。 Note: D-Disassembly, F-Fire, O-No disassembly & no fire			

样品照片 Sample photo



***** The end *****



注意事项 Important Notice

1. 本报告无 ZRLK 盖章无效。
The test report is invalid without the official stamp of ZRLK.
2. 未经本实验室书面同意，不得复制或部分地复制本报告。
Nobody is allowed to photocopy or partly photocopy this report without written permission of ZRLK.
3. 本报告无批准人、审核人及编制人签名无效。
The test report is invalid without the signatures of Approver, Checker and Compiler.
4. 客户必须如实提供样品及资料，并保证申报品名和样品以及运输货物相同，否则本检测单位不承担任何相关责任。
The client should provide samples and relevant data, at the same time, they should guarantee the consistence of the product's name the declared, the samples they provided and the goods to be transported. Otherwise we will not bear any relevant responsibilities.
5. 本报告涂改无效。
The test report is invalid if altered.
6. 对检验报告若有异议，应于收到报告之日起十五天内向检验单位提出。
Objection to the test report must be submitted to ZRLK within 15 days.
7. 本报告仅对送检样品负责。
The test report is valid for the tested samples only.
8. 任何情况下检测单位的赔偿责任都不会超过检测单位就本次检测所收取的检测费用。
ZRLK's liability under no circumstance will exceed the testing fee received from applicant for test conducted hereof this testing report.
9. 本报告中的中文内容仅供参考。
The Chinese contents in this report are only for reference.
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