

UN38.3 测试报告

UN38.3 Test Report

样品名称：带保护锂离子可充电电池 P1850C3
3.7V, 2300mAh, 8.51Wh

Sample name : Protected Li-ion Rechargeable Battery P1850C3
3.7V, 2300mAh, 8.51Wh

委托单位：深圳领跑能源科技有限公司

Consignor : KEEPOWER TECHNOLOGY CO., LIMITED.

深圳信特斯检测技术有限公司
Shenzhen SEM Test Technology Co., Ltd.



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样品名称 Sample name	中文 Chinese	带保护锂离子可充电电池 P1850C3 3.7V, 2300mAh, 8.51Wh			
	英文 English	Protected Li-ion Rechargeable Battery P1850C3 3.7V, 2300mAh, 8.51Wh			
样品编号 Sample No.	01~48				
委托单位 Consignor	深圳领跑能源科技有限公司 KEEPOWER TECHNOLOGY CO., LIMITED.				
生产单位 Manufacturer	深圳领跑能源科技有限公司 KEEPOWER TECHNOLOGY CO., LIMITED.				
测试方法和判定标准 Test method and criterion	联合国《关于危险货物运输的建议书 实验和标准手册》 ST/SG/AC.10/11/Rev.6/Amendment.1, 38.3 UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS" Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6/Amendment.1, 38.3				
样品外观 Appearance	黑色圆柱形电池, 尺寸 $\Phi 18.7 \times 52.7 \text{mm}$ Black cylindrical battery, size $\Phi 18.7 \times 52.7 \text{mm}$				
样品接收日期 Accepted date	2021-03-20	测试起讫日期 Test date	2021-03-20 ~ 2021-04-05		
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《关于危险货物运输的建议书 实验和标准手册》 ST/SG/AC.10/11/Rev.6/Amendment.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/Amendment.1, 38.3 签发日期(Issue date): 2021-04-08				
备注 Comments	/				
编制 Compiler:		审核 Checker:		批准 Approver:	



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《关于危险货物运输的建议书 实验和标准手册》UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6/Amendment.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	联合国《关于危险货物运输的建议书 实验和标准手册》UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6/Amendment.1, 38.3 试验 T.2 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 实验和标准手册》UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6/Amendment.1, 38.3 试验 T.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 实验和标准手册》UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6/Amendment.1, 38.3 试验 T.4 Test T.4	见附表 4 See Appendix 4	合格 Passed	/	
5	外部短路 External short-circuit	联合国《关于危险货物运输的建议书 实验和标准手册》UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6/Amendment.1, 38.3 试验 T.5 Test T.5	见附表 5 See Appendix 5	合格 Passed	/	
6	挤压 Crush	联合国《关于危险货物运输的建议书 实验和标准手册》UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6/Amendment.1, 38.3 试验 T.6 Test T.6	见附表 6 See Appendix 6	合格 Passed	/	
7	过度充电 Overcharge	联合国《关于危险货物运输的建议书 实验和标准手册》UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6/Amendment.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 Forced discharge	联合国《关于危险货物运输的建议书 实验和标准手册》UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6/Amendment.1, 38.3 试验 T.8 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%				
分包测试情况 Subcontracted test condition		测试项目 Test items	/			
		分包实验室 Subcontracted Laboratory	名称 Name	/	邮编 Post code	/
			地址 Address	/	电话 Tel	/



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.	样品状态 Sample status	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)			
01	首次循环,完全充电 1st CYC, Fully Charged	37.435	4.189	37.430	4.185	0.008	99.90	O
02	首次循环,完全充电 1st CYC, Fully Charged	37.439	4.191	37.488	4.187	0.002	99.90	O
03	首次循环,完全充电 1st CYC, Fully Charged	37.452	4.188	37.479	4.183	0.006	99.88	O
04	首次循环,完全充电 1st CYC, Fully Charged	37.321	4.180	37.306	4.176	0.011	99.90	O
05	首次循环,完全充电 1st CYC, Fully Charged	37.626	4.190	37.644	4.187	0.004	99.93	O
06	第 25 个循环,完全充电 25th CYC, Fully Charged	37.486	4.189	37.481	4.186	0.011	99.93	O
07	第 25 个循环,完全充电 25th CYC, Fully Charged	37.659	4.191	37.645	4.188	0.008	99.93	O
08	第 25 个循环,完全充电 25th CYC, Fully Charged	37.455	4.190	37.451	4.187	0.008	99.93	O
09	第 25 个循环,完全充电 25th CYC, Fully Charged	37.524	4.189	37.550	4.185	0.008	99.90	O
10	第 25 个循环,完全充电 25th CYC, Fully Charged	37.623	4.189	37.600	4.184	0.006	99.88	O
以下空白								
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.	样品状态 Sample status	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)			
01	首次循环,完全充电 1st CYC, Fully Charged	37.430	4.185	37.428	4.109	0.004	98.18	O
02	首次循环,完全充电 1st CYC, Fully Charged	37.488	4.187	37.487	4.108	0.002	98.11	O
03	首次循环,完全充电 1st CYC, Fully Charged	37.479	4.183	37.478	4.104	0.002	98.11	O
04	首次循环,完全充电 1st CYC, Fully Charged	37.306	4.176	37.305	4.109	0.002	98.40	O
05	首次循环,完全充电 1st CYC, Fully Charged	37.624	4.187	37.622	4.111	0.004	98.18	O
06	第 25 个循环,完全充电 25th CYC, Fully Charged	37.481	4.186	37.481	4.109	0.000	98.16	O
07	第 25 个循环,完全充电 25th CYC, Fully Charged	37.645	4.188	37.643	4.109	0.004	98.11	O
08	第 25 个循环,完全充电 25th CYC, Fully Charged	37.451	4.187	37.450	4.112	0.002	98.21	O
09	第 25 个循环,完全充电 25th CYC, Fully Charged	37.550	4.185	37.547	4.110	0.006	98.21	O
10	第 25 个循环,完全充电 25th CYC, Fully Charged	37.600	4.184	37.593	4.111	0.015	98.26	O
以下空白								
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.	样品状态 Sample status	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)			
01	首次循环,完全充电 1st CYC, Fully Charged	37.428	4.109	37.428	4.108	0.000	99.98	O
02	首次循环,完全充电 1st CYC, Fully Charged	37.487	4.108	37.486	4.108	0.002	100.00	O
03	首次循环,完全充电 1st CYC, Fully Charged	37.478	4.104	37.478	4.104	0.000	100.00	O
04	首次循环,完全充电 1st CYC, Fully Charged	37.305	4.109	37.305	4.108	0.000	99.98	O
05	首次循环,完全充电 1st CYC, Fully Charged	37.622	4.111	37.621	4.111	0.002	100.00	O
06	第 25 个循环,完全充电 25th CYC, Fully Charged	37.481	4.109	37.481	4.108	0.000	99.98	O
07	第 25 个循环,完全充电 25th CYC, Fully Charged	37.643	4.109	37.643	4.109	0.000	100.00	O
08	第 25 个循环,完全充电 25th CYC, Fully Charged	37.450	4.112	37.449	4.111	0.002	99.98	O
09	第 25 个循环,完全充电 25th CYC, Fully Charged	37.547	4.110	37.547	4.110	0.000	100.00	O
10	第 25 个循环,完全充电 25th CYC, Fully Charged	37.593	4.111	37.593	4.111	0.000	100.00	O
以下空白								
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.	样品状态 Sample status	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)			
01	首次循环,完全充电 1st CYC, Fully Charged	37.428	4.108	37.427	4.108	0.002	100.00	O
02	首次循环,完全充电 1st CYC, Fully Charged	37.486	4.108	37.486	4.107	0.000	99.98	O
03	首次循环,完全充电 1st CYC, Fully Charged	37.478	4.104	37.478	4.104	0.000	100.00	O
04	首次循环,完全充电 1st CYC, Fully Charged	37.305	4.108	37.304	4.108	0.002	100.00	O
05	首次循环,完全充电 1st CYC, Fully Charged	37.621	4.111	37.621	4.110	0.000	99.98	O
06	第 25 个循环,完全充电 25th CYC, Fully Charged	37.481	4.108	37.480	4.108	0.002	100.00	O
07	第 25 个循环,完全充电 25th CYC, Fully Charged	37.643	4.109	37.643	4.109	0.000	100.00	O
08	第 25 个循环,完全充电 25th CYC, Fully Charged	37.449	4.111	37.448	4.110	0.002	99.98	O
09	第 25 个循环,完全充电 25th CYC, Fully Charged	37.547	4.110	37.547	4.110	0.000	100.00	O
10	第 25 个循环,完全充电 25th CYC, Fully Charged	37.593	4.111	37.593	4.110	0.000	99.98	O
以下空白								
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.	样品状态 Sample status	样品表面最高温度 Max. External Temperature (°C)	测试结果 Test result	备注 Remark	
01	首次循环,完全充电 1st CYC, Fully Charged	56.1	O	/	
02	首次循环,完全充电 1st CYC, Fully Charged	55.9	O	/	
03	首次循环,完全充电 1st CYC, Fully Charged	55.9	O	/	
04	首次循环,完全充电 1st CYC, Fully Charged	56.0	O	/	
05	首次循环,完全充电 1st CYC, Fully Charged	55.8	O	/	
06	第 25 个循环,完全充电 25th CYC, Fully Charged	55.7	O	/	
07	第 25 个循环,完全充电 25th CYC, Fully Charged	55.7	O	/	
08	第 25 个循环,完全充电 25th CYC, Fully Charged	55.9	O	/	
09	第 25 个循环,完全充电 25th CYC, Fully Charged	55.8	O	/	
10	第 25 个循环,完全充电 25th CYC, Fully Charged	55.9	O	/	
以下空白					
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.	样品状态 Sample status	样品表面最高温度 Max. External Temperature (°C)	测试结果 Test result	备注 Remark
11	首次循环, 50%充电 1st CYC, 50% Charged	75.7	O	/
12	首次循环, 50%充电 1st CYC, 50% Charged	76.2	O	/
13	首次循环, 50%充电 1st CYC, 50% Charged	79.2	O	/
14	首次循环, 50%充电 1st CYC, 50% Charged	70.2	O	/
15	首次循环, 50%充电 1st CYC, 50% Charged	72.4	O	/
16	第 25 次循环, 50%充电 25th CYC, 50% Charged	75.7	O	
17	第 25 次循环, 50%充电 25th CYC, 50% Charged	76.2	O	
18	第 25 次循环, 50%充电 25th CYC, 50% Charged	79.2	O	
19	第 25 次循环, 50%充电 25th CYC, 50% Charged	70.2	O	
20	第 25 次循环, 50%充电 25th CYC, 50% Charged	72.4	O	
以下空白				
注: D-解体; F-起火; O-无解体、无起火。 Note: D-Disassembly, F-Fire, O-No disassembly & no fire				



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.	样品状态 Sample status	测试结果 Test result	备注 Remark
29	首次循环, 完全放电 1st CYC, Fully Discharged	O	/
30	首次循环, 完全放电 1st CYC, Fully Discharged	O	/
31	首次循环, 完全放电 1st CYC, Fully Discharged	O	/
32	首次循环, 完全放电 1st CYC, Fully Discharged	O	/
33	首次循环, 完全放电 1st CYC, Fully Discharged	O	/
34	首次循环, 完全放电 1st CYC, Fully Discharged	O	/
35	首次循环, 完全放电 1st CYC, Fully Discharged	O	/
36	首次循环, 完全放电 1st CYC, Fully Discharged	O	/
37	首次循环, 完全放电 1st CYC, Fully Discharged	O	/
38	首次循环, 完全放电 1st CYC, Fully Discharged	O	/
39	第 25 次循环, 完全放电 25th CYC, Fully Discharged	O	/
40	第 25 次循环, 完全放电 25th CYC, Fully Discharged	O	/
41	第 25 次循环, 完全放电 25th CYC, Fully Discharged	O	/
42	第 25 次循环, 完全放电 25th CYC, Fully Discharged	O	/
43	第 25 次循环, 完全放电 25th CYC, Fully Discharged	O	/
44	第 25 次循环, 完全放电 25th CYC, Fully Discharged	O	/
45	第 25 次循环, 完全放电 25th CYC, Fully Discharged	O	/
46	第 25 次循环, 完全放电 25th CYC, Fully Discharged	O	/
47	第 25 次循环, 完全放电 25th CYC, Fully Discharged	O	/
48	第 25 次循环, 完全放电 25th CYC, Fully Discharged	O	/
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**



===== 报告结束End of Report =====