



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 P2140R
3.7V, 4000mAh, 14.8Wh

Sample name : Protected Li-ion Rechargeable Battery P2140R
3.7V, 4000mAh, 14.8Wh

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.



备注：报告未经本公司的书面批准不得部分复制，检验检测结果仅对测试样品负责。报告经涂改、增删、无批准人签字或未加盖本司检验检测专用章无效。报告未加盖资质认定标志章，则仅用于科研、教学、内部质量控制等活动，不可用作向社会各界出具具有证明作用数据的用途。

Remarks: The results shown in this test report refer only to the sample(s) tested; this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver. If the report is not stamped with the accreditation recognized seal, it will only be used for scientific research, education, and internal quality control activities, and is not used for the purpose of issuing supporting data to the society.

深圳信特斯检测技术有限公司
Shenzhen SEM Test Technology Co., Ltd.
广东省深圳市宝安区 70 区留仙二路鸿威工业园厂房 1 栋 101(A 栋厂房)一楼

Tel: +86-0755-33663308
Fax: +86-0755-33663309
Web: www.semtest.com.cn
Email: admin@semtest.com.cn



样品名称 Sample name	中文 Chinese	带保护锂离子可充电电池 P2140R 3.7V, 4000mAh, 14.8Wh			
	英文 English	Protected Li-ion Rechargeable Battery P2140R 3.7V, 4000mAh, 14.8Wh			
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 KEEPPower TECHNOLOGY CO., LIMITED.				
生产单位 Manufacturer	深圳领跑能源科技有限公司 KEEPPower 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 $\Phi 21.5 \times 74.5\text{mm}$ Black cylindrical battery, size $\Phi 21.5 \times 74.5\text{mm}$				
样品接收日期 Accepted date	2020-06-01	测试起讫日期 Test date	2020-06-10 ~ 2020-06-15		
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): 2020-06-16				
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	70.086	4.190	70.085	4.185	0.002	99.88	O
02	首次循环,完全充电 1st CYC, Fully Charged	70.080	4.190	70.078	4.187	0.004	99.93	O
03	首次循环,完全充电 1st CYC, Fully Charged	70.053	4.190	70.051	4.183	0.004	99.83	O
04	首次循环,完全充电 1st CYC, Fully Charged	70.071	4.190	70.069	4.182	0.004	99.81	O
05	首次循环,完全充电 1st CYC, Fully Charged	70.041	4.194	70.041	4.190	0.000	99.90	O
06	第 25 个循环,完全充电 25th CYC, Fully Charged	70.056	4.197	70.055	4.191	0.002	99.86	O
07	第 25 个循环,完全充电 25th CYC, Fully Charged	70.024	4.194	70.023	4.189	0.002	99.88	O
08	第 25 个循环,完全充电 25th CYC, Fully Charged	70.024	4.190	70.023	4.185	0.002	99.88	O
09	第 25 个循环,完全充电 25th CYC, Fully Charged	70.070	4.195	70.069	4.191	0.002	99.90	O
10	第 25 个循环,完全充电 25th CYC, Fully Charged	70.012	4.197	70.010	4.192	0.004	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	70.085	4.185	70.082	4.110	0.007	98.21	O
02	首次循环,完全充电 1st CYC, Fully Charged	70.078	4.187	70.076	4.112	0.004	98.21	O
03	首次循环,完全充电 1st CYC, Fully Charged	70.051	4.183	70.050	4.109	0.002	98.23	O
04	首次循环,完全充电 1st CYC, Fully Charged	70.069	4.182	70.068	4.108	0.002	98.23	O
05	首次循环,完全充电 1st CYC, Fully Charged	70.041	4.190	70.040	4.115	0.002	98.21	O
06	第 25 个循环,完全充电 25th CYC, Fully Charged	70.055	4.191	70.054	4.112	0.002	98.12	O
07	第 25 个循环,完全充电 25th CYC, Fully Charged	70.023	4.189	70.022	4.110	0.002	98.11	O
08	第 25 个循环,完全充电 25th CYC, Fully Charged	70.023	4.185	70.022	4.112	0.002	98.26	O
09	第 25 个循环,完全充电 25th CYC, Fully Charged	70.069	4.191	70.068	4.112	0.002	98.12	O
10	第 25 个循环,完全充电 25th CYC, Fully Charged	70.010	4.192	70.008	4.109	0.004	98.02	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	70.082	4.110	70.081	4.110	0.002	100.00	O
02	首次循环,完全充电 1st CYC, Fully Charged	70.076	4.112	70.076	4.111	0.000	99.98	O
03	首次循环,完全充电 1st CYC, Fully Charged	70.050	4.109	70.050	4.109	0.000	100.00	O
04	首次循环,完全充电 1st CYC, Fully Charged	70.068	4.108	70.067	4.108	0.002	100.00	O
05	首次循环,完全充电 1st CYC, Fully Charged	70.040	4.115	70.040	4.114	0.000	99.98	O
06	第 25 个循环,完全充电 25th CYC, Fully Charged	70.054	4.112	70.053	4.112	0.002	100.00	O
07	第 25 个循环,完全充电 25th CYC, Fully Charged	70.022	4.110	70.022	4.110	0.000	100.00	O
08	第 25 个循环,完全充电 25th CYC, Fully Charged	70.022	4.112	70.022	4.111	0.000	99.98	O
09	第 25 个循环,完全充电 25th CYC, Fully Charged	70.068	4.112	70.067	4.112	0.002	100.00	O
10	第 25 个循环,完全充电 25th CYC, Fully Charged	70.008	4.109	70.008	4.109	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	70.081	4.110	70.081	4.109	0.000	99.98	O
02	首次循环,完全充电 1st CYC, Fully Charged	70.076	4.111	70.075	4.111	0.002	100.00	O
03	首次循环,完全充电 1st CYC, Fully Charged	70.050	4.109	70.050	4.109	0.000	100.00	O
04	首次循环,完全充电 1st CYC, Fully Charged	70.067	4.108	70.067	4.107	0.000	99.98	O
05	首次循环,完全充电 1st CYC, Fully Charged	70.040	4.114	70.039	4.114	0.002	100.00	O
06	第 25 个循环,完全充电 25th CYC, Fully Charged	70.053	4.112	70.053	4.111	0.000	99.98	O
07	第 25 个循环,完全充电 25th CYC, Fully Charged	70.022	4.110	70.021	4.110	0.002	100.00	O
08	第 25 个循环,完全充电 25th CYC, Fully Charged	70.022	4.111	70.022	4.111	0.000	100.00	O
09	第 25 个循环,完全充电 25th CYC, Fully Charged	70.067	4.112	70.067	4.111	0.000	99.98	O
10	第 25 个循环,完全充电 25th CYC, Fully Charged	70.008	4.109	70.007	4.109	0.002	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 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	51.9	O	/	
02	首次循环,完全充电 1st CYC, Fully Charged	51.4	O	/	
03	首次循环,完全充电 1st CYC, Fully Charged	51.6	O	/	
04	首次循环,完全充电 1st CYC, Fully Charged	51.8	O	/	
05	首次循环,完全充电 1st CYC, Fully Charged	51.8	O	/	
06	第 25 个循环,完全充电 25th CYC, Fully Charged	51.1	O	/	
07	第 25 个循环,完全充电 25th CYC, Fully Charged	51.0	O	/	
08	第 25 个循环,完全充电 25th CYC, Fully Charged	51.8	O	/	
09	第 25 个循环,完全充电 25th CYC, Fully Charged	51.6	O	/	
10	第 25 个循环,完全充电 25th CYC, Fully Charged	51.9	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	75.6	O	/	
12	首次循环, 50%充电 1st CYC, 50% Charged	75.5	O	/	
13	首次循环, 50%充电 1st CYC, 50% Charged	73.0	O	/	
14	首次循环, 50%充电 1st CYC, 50% Charged	75.6	O	/	
15	首次循环, 50%充电 1st CYC, 50% Charged	75.8	O	/	
16	第 25 次循环, 50%充电 25th CYC, 50% Charged	75.6	O		
17	第 25 次循环, 50%充电 25th CYC, 50% Charged	75.6	O		
18	第 25 次循环, 50%充电 25th CYC, 50% Charged	73.5	O		
19	第 25 次循环, 50%充电 25th CYC, 50% Charged	75.6	O		
20	第 25 次循环, 50%充电 25th CYC, 50% Charged	75.9	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 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.	样品状态 Sample status	测试结果 Test result	备注 Remark
21	首次循环,完全充电 1st CYC, Fully Charged	O	/
22	首次循环,完全充电 1st CYC, Fully Charged	O	/
23	首次循环,完全充电 1st CYC, Fully Charged	O	/
24	首次循环,完全充电 1st CYC, Fully Charged	O	/
25	第 25 个循环,完全充电 25th CYC, Fully Charged	O	/
26	第 25 个循环,完全充电 25th CYC, Fully Charged	O	/
27	第 25 个循环,完全充电 25th CYC, Fully Charged	O	/
28	第 25 个循环,完全充电 25th CYC, Fully Charged	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 =====