

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 P2655C
3.7V, 5500mAh, 20.35Wh

Sample name : Protected Li-ion Rechargeable Battery P2655C
3.7V, 5500mAh, 20.35Wh

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 P2655C 3.7V, 5500mAh, 20.35Wh			
	英文 English	Protected Li-ion Rechargeable Battery P2655C 3.7V, 5500mAh, 20.35Wh			
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 $\Phi 26.3 \times 70.3\text{mm}$ Black cylindrical battery, size $\Phi 26.3 \times 70.3\text{mm}$				
样品接收日期 Accepted date	2019-08-28	测试起讫日期 Test date	2019-08-29 ~ 2019-09-09		
测试项目 Test items	高度模拟、温度试验、振动、冲击、外部短路、重物冲击、过度充电、强制放电 Altitude simulation, Thermal test, Vibration, Shock, External short circuit, Impact, Overcharge, Forced discharge.				
测试结论 Conclusion	<p>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。</p> <p>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</p> <p style="text-align: right;">签发日期(Issue date): 2020-04-13</p>				
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	重物冲击 Impact	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				
		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
样品编号 Sample No.	样品状态 Sample status	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	99.653	4.200	99.642	4.198	0.011	99.95	O
02	首次循环,完全充电 1st CYC, Fully Charged	99.955	4.199	99.941	4.195	0.014	99.90	O
03	首次循环,完全充电 1st CYC, Fully Charged	99.258	4.200	99.246	4.197	0.012	99.93	O
04	首次循环,完全充电 1st CYC, Fully Charged	99.358	4.197	99.347	4.193	0.011	99.90	O
05	首次循环,完全充电 1st CYC, Fully Charged	99.273	4.200	99.261	4.196	0.012	99.90	O
06	第 25 个循环,完全充电 25th CYC, Fully Charged	99.314	4.200	99.304	4.198	0.010	99.95	O
07	第 25 个循环,完全充电 25th CYC, Fully Charged	99.249	4.200	99.239	4.199	0.010	99.98	O
08	第 25 个循环,完全充电 25th CYC, Fully Charged	99.631	4.200	99.623	4.195	0.008	99.88	O
09	第 25 个循环,完全充电 25th CYC, Fully Charged	99.584	4.200	99.573	4.193	0.011	99.83	O
10	第 25 个循环,完全充电 25th CYC, Fully Charged	99.674	4.200	99.660	4.198	0.014	99.95	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	99.642	4.198	99.620	4.144	0.022	98.71	O
02	首次循环,完全充电 1st CYC, Fully Charged	99.941	4.195	99.924	4.127	0.017	98.38	O
03	首次循环,完全充电 1st CYC, Fully Charged	99.246	4.197	99.238	4.139	0.008	98.62	O
04	首次循环,完全充电 1st CYC, Fully Charged	99.347	4.193	99.335	4.131	0.012	98.52	O
05	首次循环,完全充电 1st CYC, Fully Charged	99.261	4.196	99.243	4.132	0.018	98.47	O
06	第 25 个循环,完全充电 25th CYC, Fully Charged	99.304	4.198	99.291	4.127	0.013	98.31	O
07	第 25 个循环,完全充电 25th CYC, Fully Charged	99.239	4.199	99.226	4.125	0.013	98.24	O
08	第 25 个循环,完全充电 25th CYC, Fully Charged	99.623	4.195	99.618	4.147	0.005	98.86	O
09	第 25 个循环,完全充电 25th CYC, Fully Charged	99.573	4.193	99.559	4.139	0.014	98.71	O
10	第 25 个循环,完全充电 25th CYC, Fully Charged	99.660	4.198	99.589	4.134	0.071	98.48	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	99.620	4.144	99.610	4.140	0.010	99.90	O
02	首次循环,完全充电 1st CYC, Fully Charged	99.924	4.127	99.920	4.125	0.004	99.95	O
03	首次循环,完全充电 1st CYC, Fully Charged	99.238	4.139	99.230	4.135	0.008	99.90	O
04	首次循环,完全充电 1st CYC, Fully Charged	99.335	4.131	99.330	4.130	0.005	99.98	O
05	首次循环,完全充电 1st CYC, Fully Charged	99.243	4.132	99.240	4.130	0.003	99.95	O
06	第 25 个循环,完全充电 25th CYC, Fully Charged	99.291	4.127	99.290	4.123	0.001	99.90	O
07	第 25 个循环,完全充电 25th CYC, Fully Charged	99.226	4.125	99.220	4.120	0.006	99.88	O
08	第 25 个循环,完全充电 25th CYC, Fully Charged	99.618	4.147	99.615	4.139	0.003	99.81	O
09	第 25 个循环,完全充电 25th CYC, Fully Charged	99.559	4.139	99.553	4.135	0.006	99.90	O
10	第 25 个循环,完全充电 25th CYC, Fully Charged	99.589	4.134	99.585	4.131	0.004	99.93	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	99.610	4.140	99.602	4.138	0.008	99.95	O
02	首次循环,完全充电 1st CYC, Fully Charged	99.920	4.125	99.915	4.123	0.005	99.95	O
03	首次循环,完全充电 1st CYC, Fully Charged	99.230	4.135	99.228	4.134	0.002	99.98	O
04	首次循环,完全充电 1st CYC, Fully Charged	99.330	4.130	99.323	4.127	0.007	99.93	O
05	首次循环,完全充电 1st CYC, Fully Charged	99.240	4.130	99.235	4.128	0.005	99.95	O
06	第 25 个循环,完全充电 25th CYC, Fully Charged	99.290	4.123	99.284	4.120	0.006	99.93	O
07	第 25 个循环,完全充电 25th CYC, Fully Charged	99.220	4.120	99.220	4.119	0.000	99.98	O
08	第 25 个循环,完全充电 25th CYC, Fully Charged	99.615	4.139	99.610	4.137	0.005	99.95	O
09	第 25 个循环,完全充电 25th CYC, Fully Charged	99.553	4.135	99.548	4.130	0.005	99.88	O
10	第 25 个循环,完全充电 25th CYC, Fully Charged	99.585	4.131	99.582	4.130	0.003	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	55.9	O	/
02	首次循环,完全充电 1st CYC, Fully Charged	55.1	O	/
03	首次循环,完全充电 1st CYC, Fully Charged	55.1	O	/
04	首次循环,完全充电 1st CYC, Fully Charged	55.9	O	/
05	首次循环,完全充电 1st CYC, Fully Charged	55.3	O	/
06	第 25 个循环,完全充电 25th CYC, Fully Charged	56.6	O	/
07	第 25 个循环,完全充电 25th CYC, Fully Charged	55.5	O	/
08	第 25 个循环,完全充电 25th CYC, Fully Charged	56.1	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	55.4	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	重物冲击 Impact	
样品编号 Sample No.	样品状态 Sample status	样品表面最高温度 Max. External Temperature (°C)	测试结果 Test result	备注 Remark
11	首次循环, 50%充电 1st CYC, 50% Charged	22.5	O	/
12	首次循环, 50%充电 1st CYC, 50% Charged	26.2	O	/
13	首次循环, 50%充电 1st CYC, 50% Charged	25.8	O	/
14	首次循环, 50%充电 1st CYC, 50% Charged	23.1	O	/
15	首次循环, 50%充电 1st CYC, 50% Charged	23.9	O	/
16	第 25 次循环, 50%充电 25th CYC, 50% Charged	24.6	O	
17	第 25 次循环, 50%充电 25th CYC, 50% Charged	23.9	O	
18	第 25 次循环, 50%充电 25th CYC, 50% Charged	22.7	O	
19	第 25 次循环, 50%充电 25th CYC, 50% Charged	24.8	O	
20	第 25 次循环, 50%充电 25th CYC, 50% Charged	25.2	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

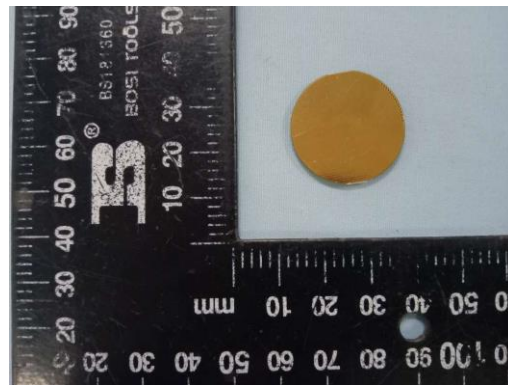
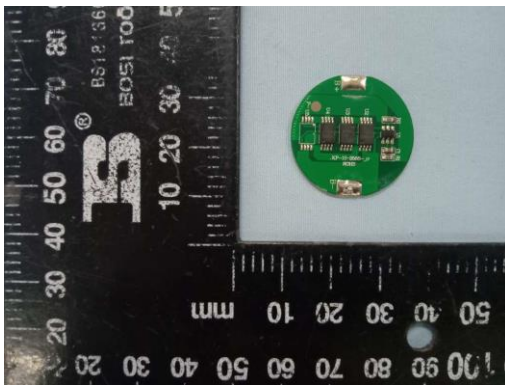
序号 No.	7	测试项目名称 Name of Test Items	过度充电 Overcharge
样品编号 Sample No.	样品状态 Sample status	测试结果 Test result	备注 Remark
21	首次循环,完全充电 1st CYC, Fully Charged	O	/
22	首次循环,完全充电 1st CYC, Fully Charged	O	/
23	首次循环,完全充电 1st CYC, Fully Charged	O	/
24	首次循环,完全充电 1st CYC, Fully Charged	O	/
25	第 25 个循环,完全充电 25th CYC, Fully 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 ====