



三帕认证



中国认可
国际互认
检测
TESTING
CNAS L11167

检测报告

TEST REPORT

Name Of Sample: Lithium-ion Battery
样品名称: 锂离子电池
Model: 18650/1200mAh
型号:
Applicant: Shantoushi Dingjiayuan New Energy Co., Ltd.
申请商: 汕头市鼎佳源新能源有限公司
Report No: STDJY20201014UN01
报告编号.:

广州三帕认证技术服务有限公司

Guangzhou CP-UP Certification Technology Service Co., Ltd.



Tel: 86-020 3112 7037 Email: info@cp-up.com Website: www.cp-up.com

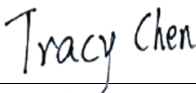


General information 基本信息		
Name of samples 样品名称	Lithium-ion Battery 锂离子电池	
Model/型号	18650/1200mAh	
Ratings/额定参数	7.4V, 1200mAh, 8.88Wh	
Trade mark/商标	N/A	
Appearance 样品外观	Prismatic, Gray 棱柱形, 灰色	
Dimensions/尺寸	18.4mm(T) × 36.8mm(W) × 68mm(H)	
Mass/质量	Approx./约 80.4 g	
Applicant 申请商	Shantoushi Dingjiayuan New Energy Co., Ltd. 汕头市鼎佳源新能源有限公司	
Applicant address 申请商地址	Chenghai District of Shantou Lotus South Town, Industrial Zone, 515800 Shantou, PEOPLE'S REPUBLIC OF CHINA 汕头市澄海区莲下镇莲南工业区	
Manufacturer 制造商	Shantoushi Dingjiayuan New Energy Co., Ltd. 汕头市鼎佳源新能源有限公司	
Manufacturer Contact information 制造商联系信息	address 地址	Chenghai District of Shantou Lotus South Town, Industrial Zone, 515800 Shantou, PEOPLE'S REPUBLIC OF CHINA 汕头市澄海区莲下镇莲南工业区
	Tel./电话	0754-85179033
	Email/邮箱	79832378@qq.com
	Web/网址	N/A
Factory 生产厂	Shantoushi Dingjiayuan New Energy Co., Ltd. 汕头市鼎佳源新能源有限公司	
Factory address 生产厂地址	Chenghai District of Shantou Lotus South Town, Industrial Zone, 515800 Shantou, PEOPLE'S REPUBLIC OF CHINA 汕头市澄海区莲下镇莲南工业区	
Receiving date 接样日期	2020.10.14	
Test date 检测起讫日期	2020.10.14~2020.10.28	
Testing Laboratory 检测单位	Guangzhou CP-UP Certification Technology Service Co., Ltd. 广州三帕认证技术服务有限公司	
Testing Laboratory information 检测单位联系信息	address 地址	No.1, Aigang 7th Lane, Yunxing Zhukeng Village, Shiqiao Street, Panyu District, Guangzhou, Guangdong China 广东省广州市番禺区市桥街云星珠坑村矮岗七巷 1 号
	Tel./电话	86-020 3112 7037
	Email/邮箱	info@cp-up.com
	Web/网址	www.cp-up.com



Test Conclusion

检测结论

Clause 条款号	Name of test 检测项目名称	Testing standard 检测标准	Test result 检测结果	Conclusion 本项结论	Remarks 备注
38.3.4.1	Altitude simulation 高度模拟	UNITED NATIONS Recommendations on the TRANSPORT OF DANGEROUS GOODS Manual of Tests and Criteria Sixth revised edition Amendment 1 (ST/SG/AC.10/11/Rev.6/ Amend.1) Section 38.3. 联合国《关于危险货物运输的 建议书试验和标准手册》第六 修订版修正 1 (ST/SG/AC.10/11/Rev.6/ Amend.1) 第 38.3 节	See Appendix 1 见附表 1	P 通过	-
38.3.4.2	Thermal test 温度试验		See Appendix 2 见附表 2	P 通过	-
38.3.4.3	Vibration 振动		See Appendix 3 见附表 3	P 通过	-
38.3.4.4	Shock 冲击		See Appendix 4 见附表 4	P 通过	-
38.3.4.5	External Short-circuit 外部短路		See Appendix 5 见附表 5	P 通过	-
38.3.4.6	Impact 撞击		See Appendix 6 见附表 6	P 通过	-
	Crush 挤压		-	N/A 不适用	-
38.3.4.7	Overcharge 过度充电		See Appendix 7 见附表 7	P 通过	-
38.3.4.8	Forced discharge 强制放电		See Appendix 8 见附表 8	P 通过	-
Test environment condition 检测环境条件		Ambient temperature: 20±5°C 环境温度: 20±5°C		Ambient humidity: <75% 环境湿度:<75%	
Test conclusion 检测结论		The sample has passed the test items of UNITED NATIONS Recommendations on the TRANSPORT OF DANGEROUS GOODS Manual of Tests and Criteria Sixth revised edition Amendment 1 (ST/SG/AC.10/11/Rev.6/ Amend.1) Section 38.3. 经检测, 该样品符合联合国《关于危险货物运输的建议书试验和标准手册》第六 修订版修正 1 (ST/SG/AC.10/11/Rev.6/ Amend.1) 第 38.3 节的要求。 Date of issue/日期: 2020.12.17			
Tested by 检测		Max Feng			
Reviewed by 审核		Tracy Chen			
Approved by 批准		Leo Zhi	 Technical director 技术负责人		





Appendix 1

附表 1

Test Items 检测项目	Altitude simulation 高度模拟						
1.1	Test procedure 检测程序						
	Test cells and batteries shall be stored at a pressure of 11.6kPa or less for at least six hour at ambient temperature (20±5°C). 试验电池和电池组应在压力等于或低于 11.6 千帕和环境温度(20 ± 5°C)下存放至少 6 小时。						
1.2	Sample status 样品状态						
	B1#~B4#, first cycle, fully charged state;B1#~B4#,第 1 个充电周期, 完全充电状态 B5#~B8#, 25th cycle, fully charged state;B5#~B8#,第 25 个充电周期, 完全充电状态						
1.3	Result 检测结果						
Sample No. 样品编号	Before 检测前		After 检测后		Mass loss 质量损失 (%)	Residual OCV 剩余电压 (%)	Observations 观察现象
	Mass 样品质量 (g)	Voltage 开路电压 (V)	Mass 样品质量 (g)	Voltage 开路电压 (V)			
B1#	80.294	8.389	80.290	8.376	0.005	99.85	O
B2#	80.358	8.389	80.355	8.378	0.004	99.87	O
B3#	80.417	8.391	80.414	8.375	0.004	99.81	O
B4#	80.313	8.389	80.309	8.378	0.005	99.87	O
B5#	80.246	8.389	80.243	8.375	0.004	99.83	O
B6#	80.413	8.390	80.410	8.378	0.004	99.86	O
B7#	80.370	8.391	80.366	8.377	0.005	99.83	O
B8#	80.285	8.391	80.281	8.378	0.005	99.85	O
Note:L-Leakage, V-Venting, D-Disassembly, R -Rupture, F-Fire, O-No leakage, no venting, no disassembly, no rupture, no fire. 注: L- 泄漏; V- 排气; D- 解体; R- 破裂; F - 起火; O- 无泄漏、无排气、无解体、无破裂、无起火。							



Appendix 2

附表 2

Test Items 检测项目	Thermal test 温度试验						
1.1	Test procedure 检测程序						
	Test cells and batteries are to be stored for at least six hours at a test temperature equal to $72\pm 2^{\circ}\text{C}$, followed by storage for at least six hours at a test temperature equal to $-40\pm 2^{\circ}\text{C}$. The maximum time interval between test temperature extremes in 30 minutes, This procedure is to be repeated until 10 total cycles are complete, after which all test cells and batteries are to be stored for 24 hours at ambient temperature ($20\pm 5^{\circ}\text{C}$). 试验电池和电池组应先在试验温度等于 $72\pm 2^{\circ}\text{C}$ 的条件下存放至少 6 小时，接着再在试验温度等于 $-40\pm 2^{\circ}\text{C}$ 的条件下存放至少 6 小时。两个极端试验温度之间的最大时间间隔为 30 分钟。此程序重复进行，共完成 10 次，接着将所有试验电池和电池组在环境温度 ($20\pm 5^{\circ}\text{C}$) 下存放 24 小时。						
1.2	Sample status 样品状态						
	B1#~B4#, first cycle, fully charged state; B1#~B4#, 第 1 个充电周期，完全充电状态 B5#~B8#, 25th cycle, fully charged state; B5#~B8#, 第 25 个充电周期，完全充电状态						
1.3	Result 检测结果						
Sample No. 样品编号	Before 检测前		After 检测后		Mass loss 质量损失 (%)	Residual OCV 剩余电压 (%)	Observation s 观察现象
	Mass 样品质量 (g)	Voltage 开路电压 (V)	Mass 样品质量 (g)	Voltage 开路电压 (V)			
B1#	80.290	8.376	80.283	8.282	0.009	98.88	O
B2#	80.355	8.378	80.349	8.286	0.007	98.90	O
B3#	80.414	8.375	80.407	8.285	0.009	98.93	O
B4#	80.309	8.378	80.302	8.284	0.009	98.88	O
B5#	80.243	8.375	80.235	8.286	0.010	98.94	O
B6#	80.410	8.378	80.404	8.285	0.007	98.89	O
B7#	80.366	8.377	80.359	8.287	0.009	98.93	O
B8#	80.281	8.378	80.274	8.284	0.009	98.88	O
Note: L-Leakage, V-Venting, D-Disassembly, R -Rupture, F-Fire, O-No leakage, no venting, no disassembly, no rupture, no fire. 注: L- 泄漏; V- 排气; D- 解体; R- 破裂; F- 起火; O- 无泄漏、无排气、无解体、无破裂、无起火。							



Appendix 3

附表 3

Test Items 检测项目	Vibration 振动						
1.1	Test procedure 检测程序						
	Cells and batteries are firmly secured to the platform of the vibration machine without distorting the cells in such a manner as to faithfully transmit the vibration, The vibration shall be a sinusoidal wave form with a logarithmic sweep between 7Hz and 200Hz and back to 7 Hz traversed in 15 minutes, This cycle shall be repeated 12 times for a total of 3 hours for each of three mutually perpendicular mounting position of the cell. One of the directions of vibration must be perpendicular to the terminal face. 电池和电池组紧固于振动机平台，但紧固程度不能造成电池变形以致不能准确传递振动。振动应是正弦波形，对数频率扫描从 7 赫兹到 200 赫兹，再回到 7 赫兹，跨度为 15 分钟。这一振动过程须对三个互相垂直的电池安装方位的每一方向重复进行 12 次，总共为时 3 小时。其中一个振动方向必须与端面垂直。						
1.2	Sample status 样品状态						
	B1#~B4#, first cycle, fully charged state; B1#~B4#, 第 1 个充电周期，完全充电状态 B5#~B8#, 25th cycle, fully charged state; B5#~B8#, 第 25 个充电周期，完全充电状态						
1.3	Result 检测结果						
Sample No. 样品编号	Before 检测前		After 检测后		Mass loss 质量损失 (%)	Residual OCV 剩余电压 (%)	Observations 观察现象
	Mass 样品质量 (g)	Voltage 开路电压 (V)	Mass 样品质量 (g)	Voltage 开路电压 (V)			
B1#	80.283	8.282	80.281	8.281	0.002	99.99	O
B2#	80.349	8.286	80.348	8.284	0.001	99.98	O
B3#	80.407	8.285	80.404	8.283	0.004	99.98	O
B4#	80.302	8.284	80.300	8.282	0.002	99.98	O
B5#	80.235	8.286	80.232	8.284	0.004	99.98	O
B6#	80.404	8.285	80.403	8.283	0.001	99.98	O
B7#	80.359	8.287	80.356	8.285	0.004	99.98	O
B8#	80.274	8.284	80.272	8.282	0.002	99.98	O
Note: L-Leakage, V-Venting, D-Disassembly, R -Rupture, F-Fire, O-No leakage, no venting, no disassembly, no rupture, no fire. 注: L- 泄漏; V- 排气; D- 解体; R- 破裂; F - 起火; O- 无泄漏、无排气、无解体、无破裂、无起火。							



Appendix 4

附表 4

Test Items 检测项目	Shock 冲击						
1.1	Test procedure 检测程序						
	Test cells and batteries shall be secured to the testing machine by means of a rigid mount which will support all mounting surfaces of each battery. Each small battery shall be subjected to a half-sine shock of peak acceleration of $150g_n$ or $g_n = \sqrt{100850 / mass}$ (Whichever is smaller) and pulse duration of 6 milliseconds. Each cell or battery shall be subjected to three shocks in the positive direction and to three shocks in the negative direction in each of three mutually perpendicular mounting positions of the cell or battery for a total of 18 shocks. 试验电池和电池组用坚固支架固定在试验机上，支架支撑着每个试验电池组的所有安装面。 小型电池组的最低限度最大加速度为 $150g_n$ 或加速度 $(g_n) = \sqrt{100850 / mass}$，取数值较小者，脉冲持续时间 6 毫秒。 每个电池或电池组须在三个互相垂的电池或电池组安装方位的正极方向经受 3 次冲击，接着负极方向经受 3 次冲击，总共经受 18 次冲击。						
1.2	Sample status 样品状态						
	B1#~B4#, first cycle, fully charged state; B1#~B4#, 第 1 个充电周期，完全充电状态 B5#~B8#, 25th cycle, fully charged state; B5#~B8#, 第 25 个充电周期，完全充电状态						
1.3	Result 检测结果						
Sample No. 样品编号	Before 检测前		After 检测后		Mass loss 质量损失 (%)	Residual OCV 剩余电压 (%)	Observations 观察现象
	Mass 样品质量 (g)	Voltage 开路电压 (V)	Mass 样品质量 (g)	Voltage 开路电压 (V)			
B1#	80.281	8.281	80.280	8.281	0.001	100.00	O
B2#	80.348	8.284	80.348	8.283	0.000	99.99	O
B3#	80.404	8.283	80.403	8.282	0.001	99.99	O
B4#	80.300	8.282	80.300	8.281	0.000	99.99	O
B5#	80.232	8.284	80.231	8.283	0.001	99.99	O
B6#	80.403	8.283	80.402	8.283	0.001	100.00	O
B7#	80.356	8.285	80.355	8.284	0.001	99.99	O
B8#	80.272	8.282	80.271	8.282	0.001	100.00	O
Note: L-Leakage, V-Venting, D-Disassembly, R-Rupture, F-Fire, O-No leakage, no venting, no disassembly, no rupture, no fire. 注: L- 泄漏; V- 排气; D- 解体; R- 破裂; F- 起火; O- 无泄漏、无排气、无解体、无破裂、无起火。							



Appendix 5

附表 5

Test Items 检测项目	External short circuit 外部短路	
1.1	Test procedure 检测程序	
	The cell or battery to be tested shall be heated for a period of time necessary to reach a homogeneous stabilized temperature of $57\pm4^{\circ}\text{C}$, measured on the external case. This period of time depends on the size of the cell or battery and should be assessed and documented. If this assessment is not feasible the exposure time shall be at least 6 hours for small cells and small batteries. then the cell or battery at $57\pm4^{\circ}\text{C}$ shall be subjected to one short circuit condition with a total external resistance of less than 0.1 ohm. This short circuit condition is continued for at least one hour after the cell or battery external case temperature has returned to $57\pm4^{\circ}\text{C}$. 对于待试电池或电池组，应加温一段必要的时间，使从外壳测量的温度达到均匀的稳定温度 $57\pm4^{\circ}\text{C}$。这段时间的长短取决于电池或电池组的大小和设计，对于这个持续时间应加以评估和记录。如无法进行这种评估，则小型电池和小型电池组的暴露时间应至少 6 小时。然后，电池或电池组应在 $57\pm4^{\circ}\text{C}$ 条件下经受总外电阻小于 0.1 欧姆的短路条件。这一短路条件应在电池或电池组外壳温度回到 $57\pm4^{\circ}\text{C}$ 后继续至少 1 小时。	
1.2	Sample status 样品状态	
	B1#~B4#, first cycle, fully charged state; B1#~B4#, 第 1 个充电周期，完全充电状态 B5#~B8#, 25th cycle, fully charged state; B5#~B8#, 第 25 个充电周期，完全充电状态	
1.3	Result 检测结果	
Sample No. 样品编号	Max. External Temperature 样品表面最高温度 ($^{\circ}\text{C}$)	Observations 观察现象
B1#	57.8	O
B2#	57.5	O
B3#	57.9	O
B4#	57.7	O
B5#	57.6	O
B6#	57.4	O
B7#	57.5	O
B8#	57.8	O
Note: D -Disassembly, R -Rupture, F-Fire, O- no disassembly, no rupture, no fire. 注：D- 解体；R- 破裂；F - 起火；O-无解体、无破裂、无起火。		



Appendix 6

附表 6

Test Items 检测项目	Impact 撞击				
1.1	Test procedure 检测程序				
	The sample cell or component cell is to be placed on a flat smooth surface. A 15.8 mm±0.1mm diameter, at least 6 cm long, or the longest dimension of the cell, whichever is greater, Type 316 stainless steel bar is to be placed across the centre of the sample. A 9.1 kg±0.1 kg mass is to be dropped from a height of 61±2.5 cm at the intersection of the bar and sample in a controlled manner using a near frictionless, vertical sliding track or channel with minimal drag on the falling mass.The vertical track or channel used to guide the falling mass shall be oriented 90 degrees from the horizontal supporting surface. The test sample is to be impacted with its longitudinal axis parallel to the flat surface and perpendicular to the longitudinal axis of the 15.8 mm±0.1mm diameter curved surface lying across the centre of the test sample. Each sample is to be subjected to only a single impact. 试样电池或元件电池放在平坦光滑的表面上。一根 316 型不锈钢棒横放在试样中心，钢棒直径 15.8 毫米±0.1 毫米，长度至少 6 厘米，或电池最长端的尺寸，取二者之长者。将一块 9.1 千克±0.1 千克的重锤从 61 ± 2.5 厘米高处跌落到钢棒和试样交叉处，使用一个几乎没有摩擦的、对落体重锤阻力最小的垂直轨道或管道加以控制。垂直轨道或管道用于引导落锤沿与水平支撑表面呈 90 度落下。接受撞击的试样，纵轴应与平坦表面平行并与横放在试样中心的直径 15.8 ± 0.1 毫米弯曲表面的纵轴垂直。每一试样只经受一次撞击。				
1.2	Sample status 样品状态				
	C1#~C5#, first cycle , 50% charged state ;C1#~C5#,第 1 个充电周期, 50% 充电状态 C6#~C10#, 25th cycle , 50% charged state ;C6#~C10#,第 25 个充电周期, 50% 充电状态				
1.3	Result 检测结果				
Sample No. 样品编号	Max. External Temperature 样品表面最高温度 (°C)	Observations 观察现象	Sample No. 样品编号	Max. External Temperature 样品表面最高温度 (°C)	Observations 观察现象
C1#	35.2	O	C6#	25.9	O
C2#	27.8	O	C7#	37.1	O
C3#	28.9	O	C8#	24.5	O
C4#	27.2	O	C9#	34.5	O
C5#	29.1	O	C10#	27.6	O
Note:D -Disassembly, F-Fire, O- no disassembly, no fire. 注：D- 解体；F - 起火；O-无解体、无起火。					



Appendix 7

附表 7

Test Items 检测项目	Overcharge 过度充电		
1.1	Test procedure 检测程序		
	The charge current shall be twice the manufacturer's recommended maximum continuous charge current. The minimum voltage of the test shall be as follows: (a) When the manufacturer's recommended charge voltage is not more than 18V, the minimum voltage of the test shall be the lesser of two times the maximum charge voltage of the or 22V (b) When the manufacturer's recommended charge voltage is more than 18V, the minimum voltage of the test shall be 1.2 times maximum charge voltage 充电电流必须是制造商建议的最大持续充电电流的两倍。试验的最小电压如下： (a) 制造商建议的充电电压不大于 18 伏时，试验的最小电压应是电池组最大充电电压的两倍或 22 伏两者中的较小者。 (b) 制造商建议的充电电压大于 18 伏时，试验的最小电压应为最大充电电压的 1.2 倍。 试验应在环境温度下进行。进行试验的时间应为 24 小时。		
1.2	Sample status 样品状态		
	B9#~B12#, first cycle, fully charged state; B9#~B12#, 第 1 个充电周期，完全充电状态 B13#~B16#, 25th cycle, fully charged state; B13#~B16#, 第 25 个充电周期，完全充电状态		
1.3	Result 检测结果		
Sample No. 样品编号	Test voltage 试验电压(V)	Test current 试验电流(mA)	Observations 观察现象
B9#	16.8	2400	O
B10#	16.8	2400	O
B11#	16.8	2400	O
B12#	16.8	2400	O
B13#	16.8	2400	O
B14#	16.8	2400	O
B15#	16.8	2400	O
B16#	16.8	2400	O
Note: D -Disassembly, F-Fire, O- no disassembly, no fire. 注： D- 解体； F - 起火； O-无解体、无起火。			



Appendix 8

附表 8

Test Items 检测项目	Forced discharge 强制放电				
1.1	Test procedure 检测程序				
	Each cell shall be forced discharged at ambient temperature by connecting it in series with a 12V D. C, power supply at an initial current equal to the maximum discharge current specified the manufacturer .The specified discharge current is to be obtained by connecting a resistive load of the appropriate size and rating in series with the test cell, Each cell shall be forced discharged for a time interval (in hours) equal to its rated capacity divided by the initial test current (in ampere). 每个电池应在环境温度下与 12 伏直流电源串联在起始电流等于制造商给定的最大放电电流的条件下强制放电。将适当大小和额定值的电阻负荷与试验电池串联，计算得出给定的放电电流。对每个电池进行强制放电，放电时间(小时)应等于其额定容量除以初始试验电流(安培)。				
1.2	Sample status 样品状态				
	C11#~C20#, first cycle , fully discharged state ;C11#~C20#,第 1 个充电周期,完全放电状态 C21#~C30#, 25th cycle , fully discharged state ;C21#~C30#,第 25 个充电周期,完全放电状态				
1.3	Result 检测结果				
Sample No. 样品编号	Maximum discharge current 最大放电电流 (mA)	Observatio ns 观察现象	Sample No. 样品编号	Maximum discharge current 最大放电电流 (mA)	Observatio ns 观察现象
C11#	1200	O	C21#	1200	O
C12#	1200	O	C22#	1200	O
C13#	1200	O	C23#	1200	O
C14#	1200	O	C24#	1200	O
C15#	1200	O	C25#	1200	O
C16#	1200	O	C26#	1200	O
C17#	1200	O	C27#	1200	O
C18#	1200	O	C28#	1200	O
C19#	1200	O	C29#	1200	O
C20#	1200	O	C30#	1200	O
Note:D -Disassembly, F-Fire, O- no disassembly, no fire. 注： D- 解体； F - 起火； O-无解体、无起火。					

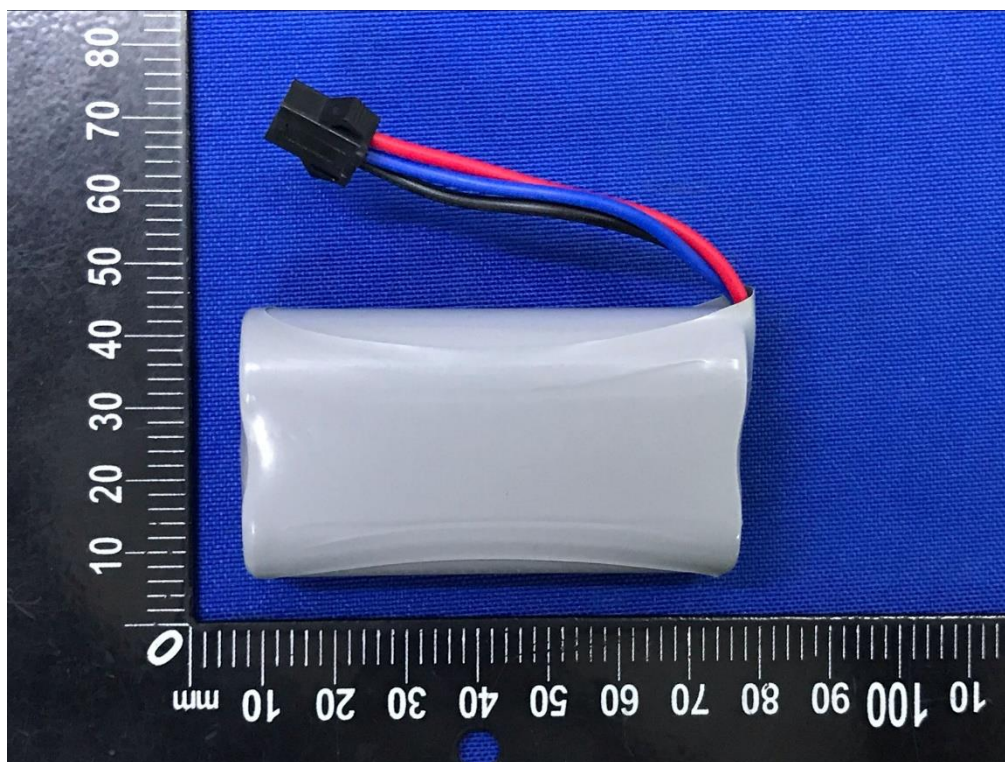


Photos

照片



电池正面

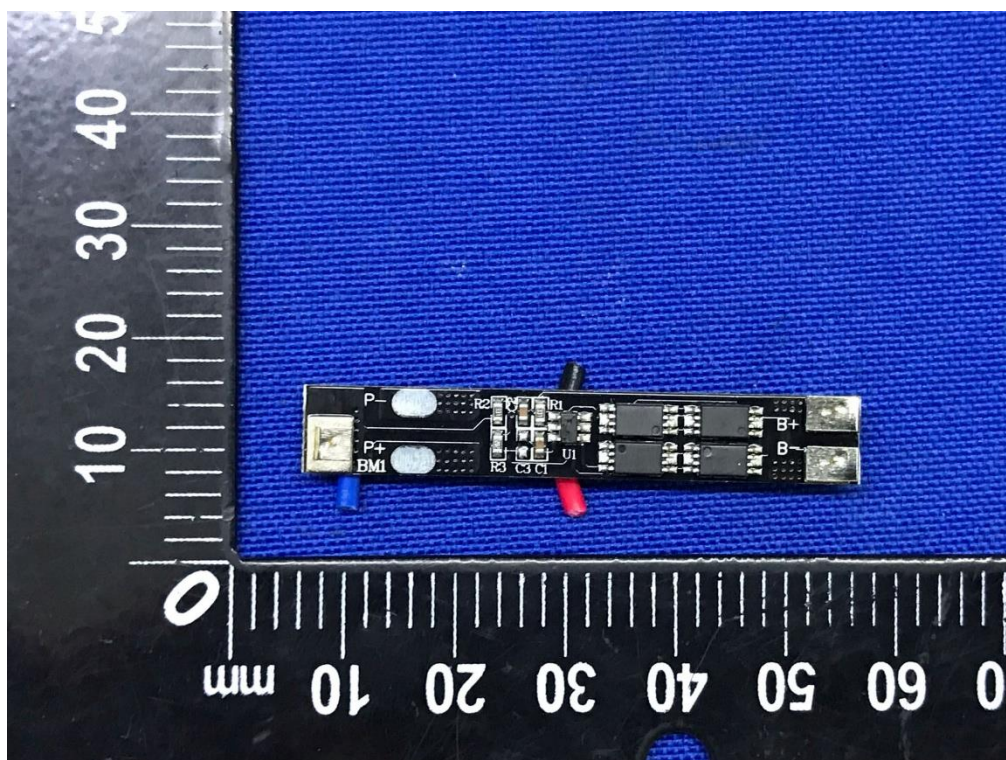


电池反面

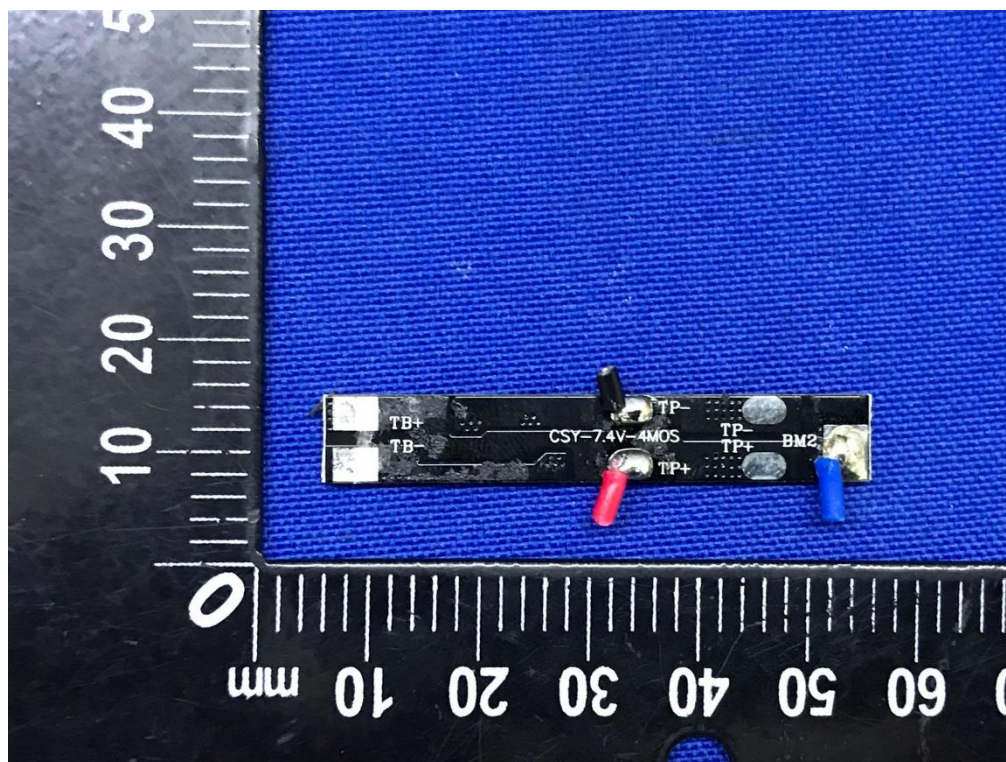


Photos

照片



PCM 正面

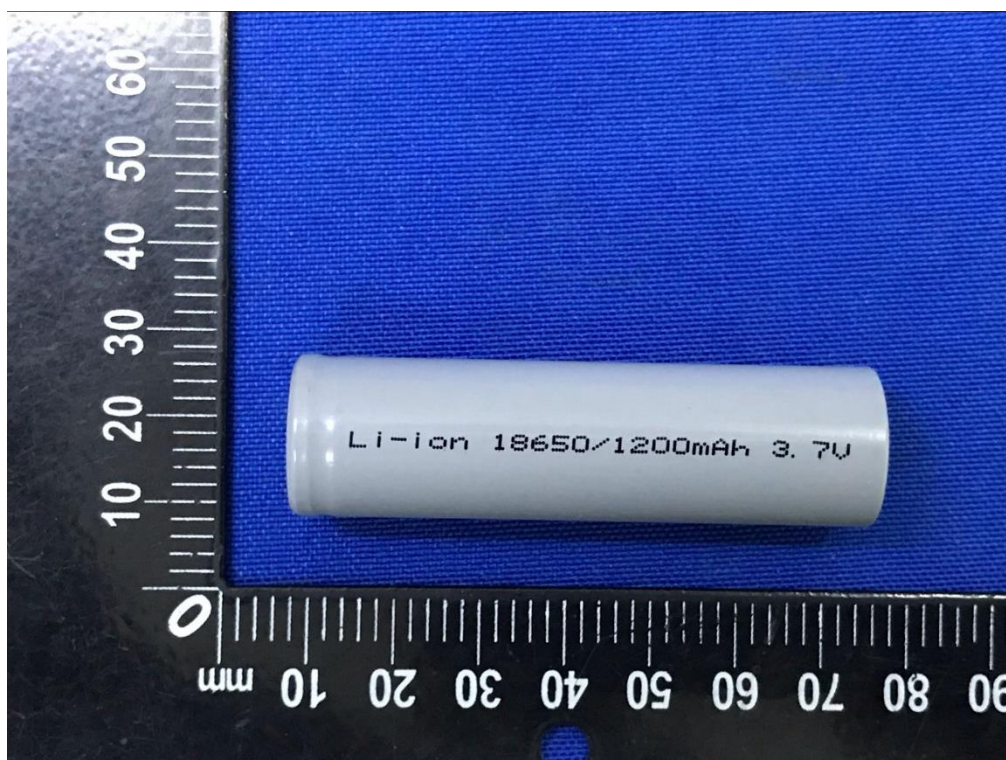


PCM 反面

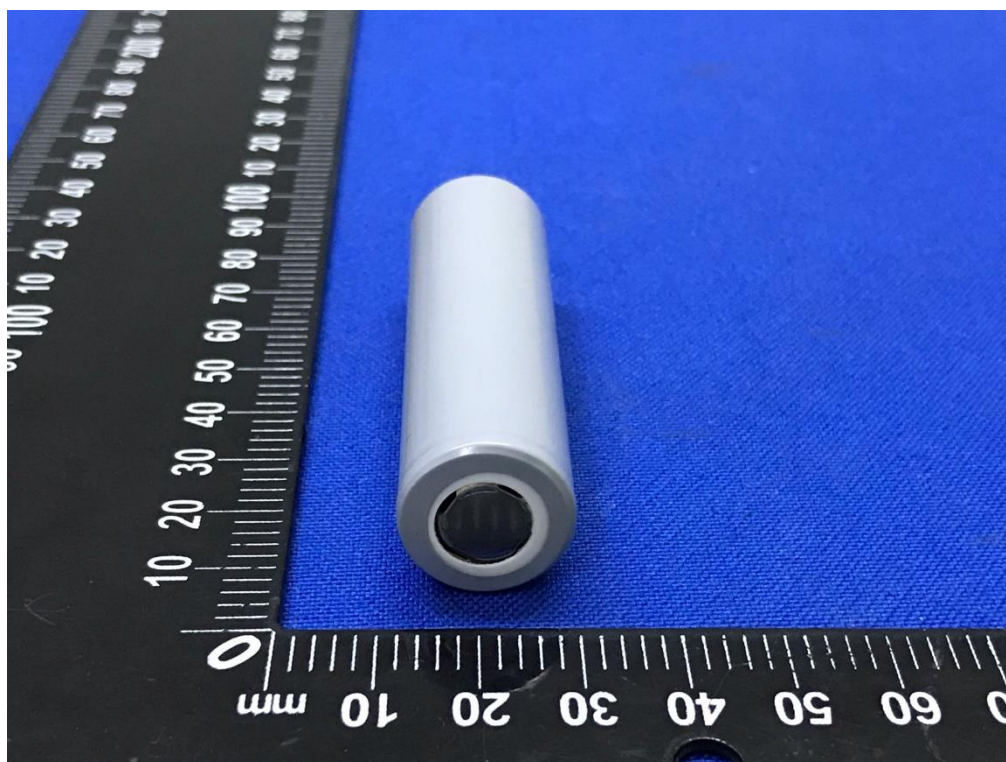


Photos

照片



电芯正面



电芯反面



注 意 事 项 Notice

1. 本报告无检测单位检测章无效。

The test report is invalid without the testing stamp of Guangzhou CP-UP Certification Technology Service Co., Ltd..

2. 未经本试验室书面同意，不得部分地复制本报告。

Nobody is allowed to photocopy or partly photocopy this test report without written permission of Guangzhou CP-UP Certification Technology Service Co., Ltd..

3. 本报告无批准人、审核人及检测人签名无效。

The test report is invalid without the signatures of Approver, Checker and Tester.

4. 本报告涂改无效。

The test report is invalid if altered.

5. 对检测报告若有异议，应于收到报告之日起十五天内向检测单位提出。

Objections to the test report must be submitted to Guangzhou CP-UP Certification Technology Service Co., Ltd. Within 15 days.

6. 本报告仅对被测样品负责。

The test report is responsible for the tested samples only.

7. 检测结论中“N/A”表示“不适用”，“P”表示“通过”，“F”表示“不通过”。

As for the test conclusion, “N/A” means “not applicable”, “P” means “pass” and “F” means “fail”.

8. 型号与额定参数来源于申请商提供的资料，若因存在真实性问题而影响检测结果的有效性，本试验室不承担任何相关责任。

The model and rated parameter is from the information provided by the applicant. Our lab shall not take any responsibility if the information is fake and exaggerated, which may influence the validity of the testing result.

--End of report--

--报告结束--