



检测报告 TEST REPORT

NAME OF SAMPLE: Rechargeable Li-ion Polymer Battery

产品名称:聚合物锂离子电池组

CLIENT: SUNWODA Electronic Co., Ltd

委托单位: 欣旺达电子股份有限公司

CLASSIFICATION OF TEST: Commission test

检测类别:委托测试





Shenzhen Precise Testing Technology Co., Ltd

Report No.: S-21010251A0 Page 2 of 15

Applicant information				
Name of samples:	申请资料 Rechargeable Li-ion Polymer Battery			
样品名称:	聚合物锂离子电池组			
Type/ Model: 型号规格:	BLP861 7.74V 2200mAh 17.02Wh(Rated) 2250mAh 17.41Wh(Typ.)			
Lithium content:: 锂含量:				
Trade mark: 商标:				
Commission by: 委托单位:	SUNWODA Electronic Co., Ltd 欣旺达电子股份有限公司			
Commissioner address: 委托单位地址:	Floor 1,A,B,D District of Floor 2 and Floor 3 to 9 of Comprehensive Building, No.2 Yihe Road, Shilong Community, Shiyan Street, Bao'an District, Shenzhen City, Guangdong Province, P.R. China /中国广东省深圳市宝安区石岩街道石龙社区颐和路2号综合楼1楼、2楼A-B区、2楼D区-9楼			
Manufacturer: 生产单位:	Shenzhen Sunwoda Intelligence Technology Co., Ltd. First Branch 深圳欣旺达智能科技有限公司第一分公司			
Manufacturer address: 生产单位地址:	Floor 1&5 of Building B, Floor 1 to 5 of Building C, TongFuKang, Changcheng Road. Shuitian Community, Shiyan Street, Bao'an District, Shenzhen City, Guangdong Province, P.R. China / 深圳市宝安区石岩街道水田社区长城路同富康水田工业区B栋厂房一层、五层、C栋1-5层			
Appearance: 样品外观颜色:	Black 黑色			
Sample status: 样品状态:	Good 完好			
Quantity of sample: 样品数量:	46pcs			
Sample identification: 样品标识序号:	b1# ~b16# c1# ~c30#			
Receiving date: 接样日期:	2021-01-27			
Testing date: 测试日期:	2021-01-27			
Completing date: 测试完成日期:	2021-02-08			
Conclusion/结论:	18 THE DIE 2			

Conclusion/结论:

The submitted samples comply with the requirements of UNITED NATIONS Section 38.3 of The Sixth revised Edition Amendment 1 of The Recommendations on the Transport of Dangerous Goods, Manual of Test and Criteria(ST/SG/AC.10/11/Rev.6/Amend.1/Section 38.3)

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第38.3节的要求。

Seal/报告专用章!

Date of issue: 2021-02-20

Prepared by: 报告编写:

Reviewed by: 报告审核:

: \$1364E

Approved by: 报告批准.



Shenzhen Precise Testing Technology Co., Ltd

Report No.: S-21010251A0

Page 3 of 15

Noport No.	Test Conclusion测试结论					
No. 序号	Name of test 测试项目名称	Test result 测试结果	Conclusion 本项结论			
1	Altitude simulation 高度模拟	See Appendix 1	Р			
2	Thermal test 温度测试	See Appendix 2	Р			
3	Vibration 振动	See Appendix 3	Р			
4	Shock 冲击	See Appendix 4	Р			
5	External Short-circuit 外部短路	See Appendix 5	Р			
6	Crush 挤压	See Appendix 6	Р			
ŭ	Impact 撞击	See Appendix 6	N/A			
7	Overcharge 过度充电	See Appendix 7	Р			
8	Forced discharge 强制放电	See Appendix 8	Р			



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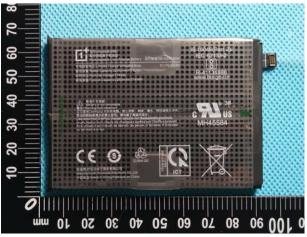
Report No.: S-21010251A0 Page 4 of 15

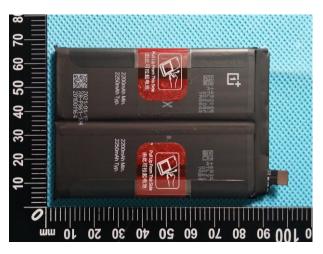
Photos of samples and markings

样品及标识照片

Battery(BLP861 7.74V 2200mAh 17.02Wh(Rated) 2250mAh 17.41Wh(Typ.))









Report No.: S-21010251A0

深圳普瑞赛思检测技术有限公司

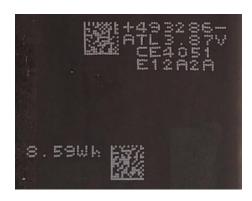
Shenzhen Precise Testing Technology Co., Ltd

Photos of samples and markings

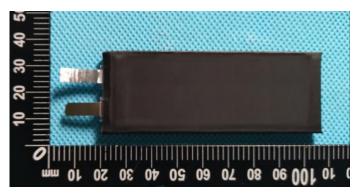
Page 5 of 15

样品及标识照片

CELL(493286 3.87V 2220mAh 8.59Wh)









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Page 6 of 15

Report No.: S-21010251A0

		Appendix 1				
		附表 1				
Test Items 测试项目	Altitude simulation					
1.1	高度模拟 Test procedure 测试步骤					
	ambient temperature (20±	hall be stored at a pressure -5℃). 温度(20±5℃)下,储存在小于				
1.2	Sample status 样品状态					
	b1# ~ b4#, at first cycle in fully charged states; b5# ~ b8#, after 25 cycles ending in fully charged stares. b1# ~ b4#, 在第一个循环完全充电; b5# ~ b8#, 在第25个循环完全充电。					
1.3	Result 测试结果					
Sample No.	Before Test测试前	After Test测试后	Mass loss 质量损失	Residual OCV	Test result	

Sample No.	Before Test测试前		After Te		Mass loss 质量损失	Residual OCV 剩会中口	Test result
样品编号	Mass 样品质量 (g)	Voltage 开路电压 (V)	Mass 样品质量 (g)	Voltage 开路电压 (V)	(%)	剩余电压 (≥90%)	测试结果
b1#	64.010	8.879	64.010	8.819	0.000	99.32	0
b2#	63.848	8.878	63.848	8.818	0.000	99.32	0
b3#	64.087	8.885	64.086	8.820	0.002	99.27	0
b4#	63.958	8.878	63.958	8.818	0.000	99.32	0
b5#	64.054	8.876	64.054	8.814	0.000	99.30	0
b6#	64.142	8.879	64.142	8.852	0.000	99.70	0
b7#	64.113	8.881	64.112	8.818	0.002	99.29	0
b8#	64.112	8.879	64.112	8.816	0.000	99.29	0

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。



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Page 7 of 15

Report No.: S-21010251A0

Report No.: 5-21010251A0 Page 7 of 15							
	Appendix 2						
	附表 2						
Test Items 测试项目	Thermal test 温度测试	t					
1.1	Test proced 测试步骤	lure					
Test cells and batteries are to be stored for at least six hours at a test temperature equal to 72±2℃, followed by storage for at least six hours at a test temperature equal to -40±2℃, 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±5℃). 将电芯和电池在温度为72±2℃的条件下贮存不少于6个小时,然后,在温度-40±2℃条件下贮存不少于6个小时,两个温度间的间隔最长为30min,重复操作上述步骤直到10次,然后,将其在环境温度为20±5℃的条件下放置24个小时。							
1.2	Sample star 样品状态	tus					
	stares.	-	, ,		# ~ b8#, after 25 cyc 王第 25 个循环完全充	•	ly charged
1.3	Result 测试结果						
Sample No. 样品编号	Before Te Mass 样品质量 (g)	voltage 开路电压 (V)	After Te Mass 样品质量 (g)	st测试后 Voltage 开路电压 (V)	Mass loss 质量损失 (%)	Residual OCV 剩余电压 (≥90%)	Test result 测试结果
b1#	64.010	8.819	64.001	8.702	0.014	98.67	0
b2#	63.848	8.818	63.837	8.697	0.017	98.63	0
b3#	64.086	8.820	64.076	8.699	0.016	98.63	0
b4#	63.958	8.818	63.950	8.652	0.013	98.12	0
b5#	64.054	8.814	64.043	8.679	0.017	98.47	0
b6#	64.142	8.852	64.130	8.699	0.019	98.27	0
b7#	64.112	8.818	64.101	8.697	0.017	98.63	0
b8#	64.112	8.816	64.103	8.695	0.014	98.63	0

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。



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Report No.: S-21010251A0 Page 8 of 15

•		Appendix 3			
		附表 3			
Test Items 测试项目	Vibration 振动				
1.1	Test procedure 测试步骤				
	cells in such a manner as wave form with a logarithminutes, This cycle shall perpendicular mounting p 将电芯和电池牢固地安装	在振动台的台面上,然后 'Hz为一个循环,一个循环持	oration, The vibration nd 200 Hz and back total of 3 hours for ea 开始振动。振动以正	shall be a sinuto 7 Hz travers ach of three must raw	usoidal ed in 15 utually 7Hz增加至
1.2	Sample status 样品状态				
	stares.	fully charged states; b5#~ 完全充电; b5#~b8#,在第	•		charged
1.3	Result 测试结果				
0 1 11	Before Test测试前	After Test测试后	Mass loss	Residual	Test

Sample No. 样品编号	Before Te Mass 样品质量 (g)	est测试前 Voltage 开路电压 (V)	After Te Mass 样品质量 (g)	vst测试后 Voltage 开路电压 (V)	Mass loss 质量损失 (%)	Residual OCV 剩余电压 (≥90%)	Test result 测试结果
b1#	64.001	8.702	64.000	8.700	0.002	99.98	0
b2#	63.837	8.697	63.837	8.696	0.000	99.99	0
b3#	64.076	8.699	64.075	8.698	0.002	99.99	0
b4#	63.950	8.652	63.950	8.651	0.000	99.99	0
b5#	64.043	8.679	64.042	8.678	0.002	99.99	0
b6#	64.130	8.699	64.130	8.698	0.000	99.99	0
b7#	64.101	8.697	64.101	8.696	0.000	99.99	0
b8#	64.103	8.695	64.102	8.694	0.002	99.99	0

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。



b4#

b5#

b6#

b7#

b8#

63.950

64.042

64.130

64.101

64.102

8.651

8.678

8.698

8.696

8.694

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Page 9 of 15

Report No.: S-21010251A0

Пороло	140 0-21010231		Anne	endix 4			
				表 4			
Test Items 测试项目	Shock 冲击			<u> Т</u>			
1.1	Test proced 测试步骤	ure					
	Test cells and batteries shall be secured to the testing machine, and each cell shall be subjected to a half-sine shock of peak acceleration of $150g_n$ and pulse duration of 6 milliseconds. Large cells may be subjected to a half-sine shock of peak acceleration of $50g_n$ and pulse duration of 11 milliseconds. Small batteries shall be subjected to a half-sine shock of peak acceleration of $150g_n$ (or Acceleration(g_n)= $\sqrt{\frac{100850}{mass}}$, which is smaller) and pulse duration of 6 milliseconds, large batteries						
	shall be subjected to a half-sine of peak acceleration of $50g_n$ (or Acceleration(g_n)= $\sqrt{\frac{30000}{mass}}$, which is smaller)and pulse duration of 11 milliseconds. Each cell or battery shall be subjected to three shocks in the positive direction followed by three shocks in the negative direction of three mutually perpendicular mounting positions of the cell or battery for a total of 18 shocks						
	以稳固的托架固定住每个电芯和电池样品的全部配件表面。对每个电芯以峰值为150gn的半正弦的加速度撞击,脉冲持续6毫秒,大型电芯须经受最大加速度50gn和脉冲持续时间11毫秒的半正弦波冲击。对每个电池以峰值为150gn(或与《100890》中的较小值)的半正弦的加速度撞击,脉冲持续6毫秒,大型						
	个电池或电池				和脉冲持续时间 11 E方向经受三次冲击,		
1.2	Sample state 样品状态	us					
	b1# ~ b4#, at first cycle in fully charged states; b5# ~ b8#, after 25 cycles ending in fully charged stares. b1# ~ b4#, 在第一个循环完全充电; b5# ~ b8#, 在第25个循环完全充电。						
1.3	Result 测试结果						
Sample No.	Before Te	est测试前	After Tes	st测试后	Mass loss	Residual	Test
样品编号	Mass 样品质量 (g)	Voltage 开路电压 (V)	Mass 样品质量 (g)	Voltage 开路电压 (V)	质量损失 (%)	OCV 剩余电压 (≥90%)	result 测试结果
b1#	64.000	8.700	64.000	8.700	0.000	100.00	0
b2#	63.837	8.696	63.837	8.696	0.000	100.00	0
b3#	64.075	8.698	64.075	8.697	0.000	99.99	0
		·					

Note: L-Leakage, V-Venting, D-Disassembly, R-Rupture, F-Fire, O-No leakage, no venting, no disassembly, no rupture, no fire.

8.651

8.678

8.698

8.696

8.694

0.000

0.000

0.000

0.002

0.000

100.00

100.00

100.00

100.00

100.00

0

0

0

0

0

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。

63.950

64.042

64.130

64.100

64.102



Shenzhen Precise Testing Technology Co., Ltd

Report No.: S-21010251A0 Page 10 of 15

	Append		
		5	
Test Items 测试项目	External short circuit 外部短路		
1.1	Test procedure 测试步骤		
	The cell or battery to be tested shall be te temperature reaches 57±4℃ and then the condition with a total external resistance condition is continued for at least one hou has returned to 57±4℃, the cell or battery to be concluded. 保持试验环境温度稳定在57±4℃,以使电下,将其正负极用小于0.1欧姆的线路短接小时以上,对电芯或电池必须进一步观察6	e cell or battery shall be subject of less than 0.1 ohm at 57±4°C rafter the cell or battery exter must be observed for a further contained by the contained b	cted to a short circuit , This short circuit nal case temperature er six hour for the test ±4℃,然后,在此温度
1.2	Sample status 样品状态		
	b1# ~ b4#, at first cycle in fully charged st charged stares. b1# ~ b4#,在第一个循环完全充电;b5#	•	5 ,
1.3	Result 测试结果		
Sample No. 样品编号	Max. External Temperature 样品表面最高温度 (℃)	Test result 测试结果	Remark 备注
b1#	58.5	0	/
b2#	57.8	0	/
b3#	56.4	0	/
b4#	58.5	0	/
b5#	58.2	0	/
b6#	57.3	0	/
b7#	56.8	0	/
b8#	57.8	0	/

Note: $\bf D$ –Disassembly, $\bf R$ –Rupture, $\bf F$ –Fire, $\bf OT$ –Over Temperature, $\bf O$ –no disassembly, no rupture, no fire, no Over temperature

注: D- 解体; R- 破裂; F- 起火; OT- 超过170℃; O- 无解体、无破裂、无起火、不超过170℃



Shenzhen Precise Testing Technology Co., Ltd

Report No.: S-21010251A0 Page 11 of 15

	Appendix 6					
Took House	附表 6					
Test Items	Crush 挤压/Impact 撞击					
测试项目						
1.1	Test procedure					
	测试步骤					
	☑ Crush 挤压					
	A cell or component cell is to be crushed between two flat surfaces. The crushing is					
	to be gradual with a speed of approximately 1.5 cm/s at the first point of contact. The					
	crushing is to be continued until the first of the three options below is reached.					
	(a) The applied force reaches 13kN±0.78kN;					
	(b) The voltage of the cell drops by at least 100 mV; or					
	(c) The cell is deformed by 50% or more of its original thickness.					
	Once the maximum pressure has been obtained, the voltage drops by 100mV or					
	more, or the cell is deformed by at least 50% of its original thickness, the pressure					
	shall be released.					
	电池芯或组成电池芯在两个平面间挤压。挤压在第一个接触点以约1.5cm/s 的速度慢慢					
	进行,直到下面三个选项之一达到为止:					
	(a)作用力达到 13kN±0.78kN;					
	(b)电池芯电压降至少达到100mV;					
	(c)电池厚度和最初比较变形至少50%。					
	一旦达到最大压力,电压降超过100 mV或者电池芯变形超过50%,压力应该解除。					
	□ Impact 撞击					
	(applicable to cylindrical cells not less than 18mm in diameter)					
	The sample cell or component cell is to be placed on a flat smooth surface. A 15.8					
	mm \pm 0.1 mm 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 \pm 0.1 kg mass is to be dropped from a height of 61 \pm 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 \pm 0.1 mm diameter curved					
	surface lying across the centre of the test sample. Each sample is to be subjected to					



Shenzhen Precise Testing Technology Co., Ltd

Report No.: S-21010251A0 Page 12 of 15

Appendix 6						
附表 6						
Test Items	Crush 挤压/Impact 撞击					
测试项目						
	only a single impact.					
	Cells and component cells meet thi	s requirement if their externa	al temperature does			
	not exceed 170°C and there is no o	lisassembly and no fire durin	ng the test and within			
	six hours after this test.					
	(适用于直径不小于18毫米的圆柱形电池)将电池或元件电池样品平放在一个平面上,其纵轴平行于测试台面年,将一直径为15.8mm±0.1 mm的316型不锈钢棒横放在电池中心位置。然后,将一质量为9.1kg±0.1kg的物体从61±2.5 cm的高度落向样品。样品在进行试验时,其外表温度应不超过170℃。且试验结束后6个小时之内,样品应无解体、无起火现象发生。					
1.2	Sample status					
	样品状态		0,11 10,11 6, 05			
	c1# ~ c5#, at first cycle at 50% of the design rated capacity; c6# ~ c10#, after 25 cycles ending at 50% of the design rated capacity. c1# ~ c5#, 在第一个循环50%的额定容量; c6# ~ c10#, 在第25个循环50%的额定容量。					
1.3	Result					
	测试结果		_			
Sample No.	Max. External Temperature	Test result	Remark			
样品编号 	样品表面最高温度(℃)	测试结果	备注			
c1#	23.4	0	/			
c2#	23.2	0	/			
c3#	23.2	0	/			
c4#	23.3	0	/			
c5#	23.5	0	/			
c6#	23.3	0	/			
c7#	23.2 O /					
c8#	23.4 O /					
c9#	23.3	0	/			
c10#	23.3	0	/			

Note: ${\bf D}$ -Disassembly, ${\bf R}$ -Rupture, ${\bf F}$ -Fire, ${\bf OT}$ -Over Temperature, ${\bf O}$ - no disassembly, no fire, no Over temperature

注: D- 解体; R- 破裂; F- 起火; OT- 超过170℃; O-无解体、无起火、不超过170℃



Shenzhen Precise Testing Technology Co., Ltd

Report No.: S-21010251A0 Page 13 of 15

	Appendix 7				
	附表 7				
Test Items 测试项目	Overcharge 过度充电				
1.1	Test procedure 测试步骤				
	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, whichever is less. When the manufacturer's recommended charge voltage is more than 18V, the charging voltage of the test shall be 1.2 times maximum charge voltage. The charging current is 2 times of the maximum charging current recommended by the manufacturer。 如果厂家推荐的充电电压不超过18V,本测试的最小充电电压应该是两倍的厂家标定最大充电电压或者是22V,取其中较小者。如果厂家推荐的充电电压超过18V,充电电压应该为 1.2倍的厂家标定最大充电电压。充电电流为厂家推荐的最大充电电流2倍。				
1.2	Sample status 样品状态				
	b9# ~ b12#, at first cycle in fully charged charged states. b9# ~ b12#, 在第一个循环完全充电; b1				
1.3	Result 测试结果				
Sample No. 样品编号	Voltage Before test(V) 测试前开路电压(V)	Test result 测试结果	Remark 备注		
b9#	8.876	O	/		
b10#	8.878	O	/		
b11#	8.877	0	1		
b12#	8.876	0	/		
b13#	8.879	0	/		
b14#	8.876	0	/		
b15#	8.877	0	/		
b16#	8.877	0	/		

Note: **D** -Disassembly, **F**-Fire, **O**- no disassembly, no fire.

注: D- 解体; F - 起火; O-无解体、无起火。



Shenzhen Precise Testing Technology Co., Ltd

Report No.: S-21010251A0 Page 14 of 15

Appendix 8					
附表 8					
Test Items 测试项目	Forced discharge 强制放电				
1.1	Test procedure 测试步骤				
	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). 在20±5℃的环境温度下,将单个电芯连接在12V的直流电源上进行强制放电,此直流电源提供每个电芯初始电流为制造厂指定的最大放电电流,放电时间为额定容量除以初始电流。				
1.2	Sample status 样品状态				
	c11#~c20#, at first cycle in fully discharged states; c21#~c30#, after 25 cycles ending in fully discharged states. c11#~c20#, 在第一个循环完全放电; c21#~c30#, 在第25个循环完全放电。				
1.3	Result 测试结果				
Sample No. 样品编号	Voltage Before test 测试前开路电压 (V)	Test result 测试结果	Sample No. 样品编号	Voltage Before test 测试前开路电压 (V)	Test result 测试结果
c11#	3.308	0	c21#	3.310	0
c12#	3.312	0	c22#	3.302	0
c13#	3.310	0	c23#	3.310	0
c14#	3.307	0	c24#	3.314	0
c15#	3.306	0	c25#	3.312	0
c16#	3.307	0	c26#	3.308	0
c17#	3.310	0	c27#	3.310	0
c18#	3.305	0	c28#	3.313	0
c19#	3.312	0	c29#	3.311	0
c20#	3.309	0	c30#	3.311	0

Note: **D** -Disassembly, **F**-Fire, **O**- no disassembly, no fire.

注: D- 解体; F - 起火; O-无解体、无起火。



Shenzhen Precise Testing Technology Co., Ltd

Report No.: S-21010251A0

注意事项

Page 15 of 15

Important Information

1. 本报告无批准人签名和"报告专用章"无效。

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 The results shown in the report only apply to the sample(s) as tested.
- 6. 本检测结果中"N/A"表示"不适用","P"表示"通过","F"表示"不通过"。 As for the test result "N/A" means "Not Applicable", "P" means "Pass" and "F" means "Fail".

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