

TR001655

吴江出入境检验检疫局综合技术服务中心

电池产品检测实验室

Battery product test lab

检测报告

TEST REPORT

产品名称(**Product Name**): 12V35s (ALM000001-01)Battery Modules (PSL
000002)

商 标(**Brand**): NEC

型号规格(**Model**): PSL 000002

委托单位(**Entrusting party**): NEC Energy Solutions, Inc.

检测日期(**Test Duration**): 2019.03.21-2019.05.13

检测报告

UN Manual of Test and Criteria, Part III, sub-section 38.3

检测负责人(tester)：堵凡俊 职务(Position)：检测工程师 签名：

审 核(Checker)：王彩娟 职务：技术负责人 签名：

签 发(Issuer)：王彩娟 职务：技术负责人 签名：

签发日期(Issue date)：2019.05.14

检测环境温度/湿度(test ambient temperature/humidity)：(20 ~ 25) °C/——

检测地点(test position)：苏州市吴江区龙字湾路 58 号

联系地址(address)：苏州市吴江区龙字湾路 58 号 邮 编：215200

联系电话(Tel)：0512-63983398 传 真(fax)：0512-63983398

委托单位(Entrusting party)：NEC Energy Solutions, Inc. 法检(oblige)

委托(delegate)

地 址(Address)：苏州工业园区新平街 388 号

试验标准(Test standard)：联合国《关于危险货物运输建议书 试验和标准手册》

第 6 版 (勘误 1) 第 38.3 节(United Nations Recommendations on the Transport of dangerous goods test and Standard manual 6 Edition (Errata 1) 38.3 Section)

非标准方法：——

制 造 商 (Manufacturer)：飞旭电子 (苏州) 有限公司(AsteelFlash)

地 址：——

抽送样单位(sample delivery unit)：NEC Energy Solutions, Inc.

接样日期(Sample arrive date)：2019.02.12

试验结论 (test result) : 符合 UN 38.3 的要求(Compliance to UN38.3)

不符合 UN 38.3 的要求

备注说明(Notes) :

1. 收到样品共计 8 颗电池组，委托单位声明该 8 颗电池组先进行 T.7 过充电测试，再进行 T.1~T.5 测试。(As the requirement from client, the 8 battery pack samples, go through first T.7(overcharge) test, then T.1(vacuum simulation)~ T.5 (external short circuit) test.)

2. 依照标准要求，该样品进行 T.4 机械冲击测试项目的峰值加速度为 150g_n，脉冲持续时间 6ms。

(In accordance with the standard requirements, the sample is carried out T.4 the peak acceleration of the mechanical Impact test item is 150g_N, Pulse duration 6ms)

3. 依照标准要求，该电池组内部组成元件电池芯为直径 26mm 圆柱形电池芯，故挤压测试 (T.6) 不适用于该电池芯。

(In accordance with the standard requirements, the sample is diameter 26mm cylindrical battery cells, so the extrusion test (T.6) does not apply to the battery cells).

4. 委托单位声明该电池组元件电池芯和报告编号为 20190201 电池组的元件电池芯相同。故本报告附件 1 引用报告编号为 20190201 的 T.6 重物撞击和 T.8 强制放电的测试数据。

(The entrusting party declared the battery cells is same with the battery cells in the test report 20190201, so the appendix-1 quotes the test data of T.6 and T.8 in the test report-20190201)

5. 本报告须与编号为 20190201 的报告一起使用

(This test report need to be used with the test report-20190201 together.)

检测使用仪器设备及编号(test equipment and serial number)：

仪器设备名称(equipment name)	编号(s/n)	仪器设备名称	编号
真空干燥箱	HJ05A04		
温湿度计	YB10B10		
快速温变箱	HJ10D08		
振动试验台	JX12C05		
冲击试验台	JX12C06		
电子秤	DZ06A09		
毫伏表	YB05A01		
高温短路箱	ZZ11D16		
安全项目综合测试仪	ZZ10D14		

声 明：Declaration:

1. 未经本实验室书面批准，不得部分复制本报告，除非全部复制。

Do not partially reproduce this report without the written approval of this laboratory unless all copies are made.

2. 检测结果仅对所检样品有效。

The test results are only valid for the sample being examined.

3. 对检测结果有异议者，请于收到报告之后十日内向本实验室提出书面申诉。

For those who disagree with the test results, please submit a written complaint to the lab within 10 days after the receipt of the report.

4. 受检样品务必在收到检测报告一个月内领取，逾期本实验室将自行处理。

Samples must be brought back within one month of receipt of the test report, overdue this laboratory will handle itself

5. 仅当标注资质认定标志时，本报告出具的数据、结果对社会具有证明作用，否则，仅供委托方内部质控使用。

Only when marking the qualification mark, the data and results provided by this report have a proof effect on society, otherwise, it is only used for the internal quality control of the entrusting party.

6. 本实验室不对客户提供信息的真实性负责。

This lab is not responsible for the authenticity of information provided by customer.

判定用语说明(Judgement Words explanation)：

(1) 合格 (pass)：测试样品符合标准要求。(Compliance to the test standards.)

(2) 不合格(fail)：测试样品不符合标准要求。(not compliance to the test standards)

(3) 不适用(NA)：该试验项目不适用于样品(this test step is not suitable

for the samples)

(4) ——：未进行该项目试验(didn't perform this test step)。

样品描述(Samples description)：顶端面为蓝色，其他面为黑色的锂离子电池组，标称电压为 13.2V，额定容量为 35Ah，额定瓦时数为 462Wh，详见照片。

(Lithium battery module with blue top cover and black bottom cover, nominal voltage is 13.2V, rated capacity is 35Ah, rated energy is 462wh, see picture for details.)

样品数量/状态(Sample quantity and status)：收到样品为 8 颗电池组和 1 颗电池芯，其中 4 颗电池组为 1 次充放电循环后满电，4 颗电池组为 50 次充放电循环后满电，1 颗电池芯仅供拍照留档使用。

(8 pcs of battery modules and 1 pcs of battery cell. Among the battery modules, 4 pcs were performed 1 cycle of discharge/charge with 100%SOC and stayed at 100%SOC). Another 4 pcs were performed 50 cycles of discharge/change with 100%SOC and stayed at 100%SOC, the cell is just for taking picture)

样品照片(sample picture)：



锂离子电池组 PSL000002 (13.2V 35Ah 462Wh) 报告编号 20190203
(Lithium battery module PSL000002(13.2V 35Ah 462Wh), Test report: 20190203)



锂离子电池组内部组成元件电池芯 ANR26650M1-B (2.5Ah), 报告编号 20190203
the cell in the Lithium battery module ANR26650M1-B(2.5Ah), test report 20190203



锂离子电池组 PSL000003 (13.2V 35Ah 462Wh) 报告编号 20190201
Lithium battery module PSL000003(13.2V 35Ah 462Wh) test report: 20190201



锂离子电池组内部组成元件电池芯 ANR26650M1-B (2.5Ah) , 报告编号 20190201
The cell in the Lithium battery module ANR26650M1-B(2.5Ah), test report 20190201

UN Manual of Test and Criteria, Part III, sub-section 38.3			
条款 NO.	试验项目和要求 Tests Item and Requirement	试验结果 Result	判定 Conclusion

	本型号与——型号的差异情况,如存在如下(a)、(b)、(c)的情况,应被视为不同型号分别进行测试。 <i>The difference between this type and the tested type: ——, Cells or batteries which differ from a tested type by as follows, shall be considered a new type and shall be subjected to the required tests.</i>	——	——
-38.3.2.2	(a) 阴极、阳极或电解液有按重量超过 0.1 克或 20% 的变化 (以较大者为准); <i>For primary cells and batteries, a change of more than 0.1 g or 20% by mass, whichever is greater, to the cathode, to the anode, or to the electrolyte;</i>	——	——
	(b) 对于充电电池和电池组, 瓦特-小时的改变超过 20%, 或电压增加超过 20%; <i>(b) For rechargeable cells and batteries, a change in nominal energy in Watt-hours of more than 20% or an increase in nominal voltage of more than 20%; or</i>	——	——
	(c) 有会显著影响试验结果的变化。 <i>A change that would lead to failure of any of the tests,</i>	——	——
-38.3.4.1	高度模拟 (Altitude simulation)		合格 Pass
	无质量损失 (no mass loss)	$\leq 0.017\%$	合格 Pass
	无渗漏 (no leakage)	无渗漏 no leakage	合格 Pass
	无排气 (no venting)	无排气 no venting	合格 Pass
	无解体 (no disassembly)	无解体 no disassembly	合格 Pass
	无破裂 (no rupture)	无破裂 no rupture	合格 Pass
	无燃烧 (no fire)	无燃烧 no fire	合格 Pass
	试验后的开路电压不小于其在进行这一试验前电压的 90% <i>the open circuit voltage of each test cell or battery after testing is not less than 90% of its voltage immediately prior to this procedure</i>	$\geq 99.98\%$	合格 Pass

UN Manual of Test and Criteria, Part III, sub-section 38.3			
条款 NO.	试验项目和要求 Tests Item and Requirement	试验结果 Result	判定 Conclusion
-38.3.4.2	温度试验 (Thermal test)		合格 Pass
	无质量损失 (no mass loss)	≤0%	合格 Pass
	无渗漏 (no leakage)	无渗漏 no leakage	合格 Pass
	无排气 (no venting)	无排气 no venting	合格 Pass
	无解体 (no disassembly)	无解体 no disassembly	合格 Pass
	无破裂 (no rupture)	无破裂 no rupture	合格 Pass
	无燃烧 (no fire)	无燃烧 no fire	合格 Pass
	试验后的开路电压不小于其在进行这一试验前电压的90% the open circuit voltage of each test cell or battery after testing is not less than 90% of its voltage immediately prior to this procedure	≥99.95%	合格 Pass
-38.3.4.3	振动 (Vibration)		合格 Pass
	无质量损失 (no mass loss)	≤0.033%	合格 Pass
	无渗漏 (no leakage)	无渗漏 no leakage	合格 Pass
	无排气 (no venting)	无排气 no venting	合格 Pass
	无解体 (no disassembly)	无解体 no disassembly	合格 Pass
	无破裂 (no rupture)	无破裂 no rupture	合格 Pass
	无燃烧 (no fire)	无燃烧 no fire	合格 Pass
	试验后的开路电压不小于其在进行这一试验前电压的90% the open circuit voltage of each test cell or battery after testing is not less than 90% of its voltage immediately prior to this procedure	≥99.95%	合格 Pass
-38.3.4.4	冲击 (Shock)		合格 Pass
	无质量损失 (no mass loss)	≤0.017%	合格 Pass
	无渗漏 (no leakage)	无渗漏 no leakage	合格 Pass

UN Manual of Test and Criteria, Part III, sub-section 38.3			
条款 NO.	试验项目和要求 Tests Item and Requirement	试验结果 Result	判定 Conclusion

	无排气 (no venting)	无排气 no venting	合格 Pass
	无解体 (no disassembly)	无解体 no disassembly	合格 Pass
	无破裂 (no rupture)	无破裂 no rupture	合格 Pass
	无燃烧 (no fire)	无燃烧 no fire	合格 Pass
	试验后的开路电压不小于其在进行这一试验前电压的90% the open circuit voltage of each test cell or battery after testing is not less than 90% of its voltage immediately prior to this procedure	≥99.89%	合格 Pass
-38.3.4.5	外短路 (External short circuit)		合格 Pass
	外壳温度不超过 170 °C their external temperature does not exceed 170 °C	≤55 °C	合格 Pass
	--进行这一试验后 6 个小时内 within six hours of this test		
	无解体 (no disassembly)	无解体 no disassembly	合格 Pass
	无破裂 (no rupture)	无破裂 no rupture	合格 Pass
	无燃烧 (no fire)	无燃烧 no fire	合格 Pass
-38.3.4.7	过度充电 (Overcharge)		合格 Pass
	--进行试验 7 天内 within seven days of the test		
	无解体 (no disassembly)	无解体 no disassembly	合格 Pass
	无燃烧 (no fire)	无燃烧 no fire	合格 Pass

-----报告结束(End of the Report)-----

附件 1(Appendix-1)：12V35i HP CANBus (ALM000005-01)Battery Modules (PSL 000003)
 (报告编号 20190201)锂离子电池组内部组成元件电池芯重物撞击(T.6)和强制放电(T.8)
 测试结果：Test report20190201 the cell T.6 and T.8 test result

UN Manual of Test and Criteria, Part III, sub-section 38.3			
条款 NO.	试验项目和要求 Tests Item and Requirement	试验结果 Result	判定 Conclusion
-38.3.4.6	撞击 (Impact) / 挤压 (Crush)		合格 Pass
-38.3.4.6.2	撞击 (Impact)		合格 Pass
	外壳温度不超过 170 °C their external temperature does not exceed 170 °C	≤20.2°C	合格 Pass
	--进行这一试验后 6 个小时内 within six hours of this test		
	无解体 (no disassembly)	无解体 no disassembly	合格 Pass
	无燃烧 (no fire)	无燃烧 no fire	合格 Pass
-38.3.4.6.3	挤压 (Crush)		不适用 NA
	外壳温度不超过 170 °C their external temperature does not exceed 170 °C		
	--进行这一试验后 6 个小时内 within six hours of this test		
	无解体 (no disassembly)		
	无燃烧 (no fire)		
-38.3.4.8	强制放电 (Forced discharge)		合格 Pass
	--进行试验 7 天内 within seven days of the test		
	无解体 (no disassembly)	无解体 no disassembly	合格 Pass
	无燃烧 (no fire)	无燃烧 no fire	合格 Pass

附件 1 结束(End of the Annex 1)