

新普科技股份有限公司
新世電子(常熟)有限公司
新普科技(重慶)有限公司
兆普電子(上海)有限公司

Control Number : SLEU1107001

UN38.3 Test Report


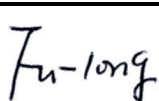

Recommendations on the TRANSPORT OF DANGEROUS GOODS

(Manual of Tests and Criteria, Fifth revised edition)

Customer : Lenovo

Model : L09M6Y02

Rating : 11.1V , 48Wh / 4400mAh

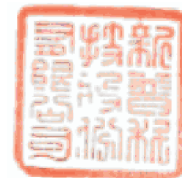
Approved By	Checked By	Prepared By
		

SIMPLO TECHNOLOGY CO., LTD.

ADD : No.471,Sec.2,Pa Teh Rd.,Hu Kou,Hsin Chu,Hsien 303 Taiwan

TEL: +886-3-5695920

FAX: +886-3-5695931



SIMPLO ELECTRONICS (Changshu) ,LTD.

ADD : No.2 Dong Nan Road,Changshu, Jingsu Province.China

TEL: +86-512-52302255

FAX: +86-512-52302277



SIMPLO ELECTRONICS (CHONGQING) ,LTD.

ADD : No.2 Zongbao Avenue, Shapingba Distnct, Chongqing, China

TEL: +86-23-61718899

FAX: +86-23-61210488



SIMPLO ELECTRONICS (SHANGHAI) ,LTD.

ADD : No.28, Sanzhuang Road., Songjiang Export Processing Zone ,Shanghai

TEL: +86-21-57748286

FAX: +86-21-57748285



本資料為新普科技股份有限公司之智慧財產權，非經本公司書面授權許可，不得透露或使用本資料，亦不得複印、複製或轉變成其它任何形式使用。
The information contained herein is the exclusive property of SIMPLO TECHNOLOGY CO., LTD, and shall not be distributed, reproduced, or disclosed in whole or in part without prior written permission.

本測試報告僅對上述測試項目有效,本報告分離使用無效

This test report is valid only to the items, Invalid for separation using.



1. Purpose of the Test :

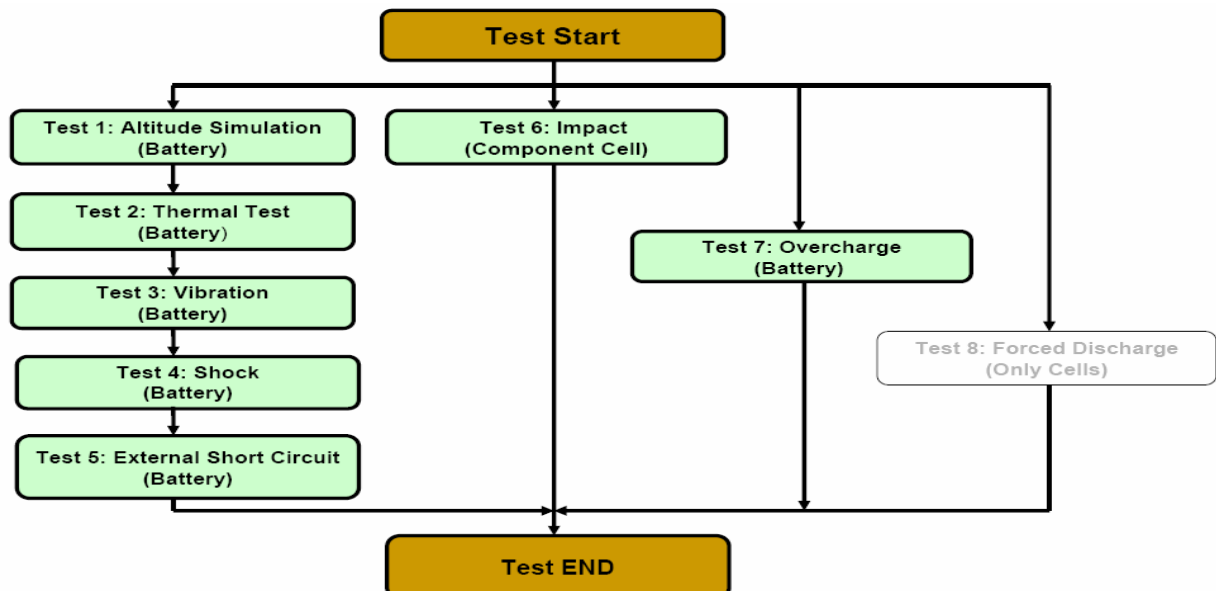
To test each cell/battery is of the type proved to meet the requirements in the Recommendations on the TRANSPORT OF DANGEROUS GOODS, Manual of Tests and Criteria, Fifth revised edition.

2. Test Quantity :

- 2.1 Four batteries, at first cycle, in fully charged states. (for T.1~T.5 test)
- 2.2 Four batteries, after fifty cycles ending in fully charged states. (for T.1~T.5 test)
- 2.3 Five component cells, at first cycle at 50% of the design rated capacity. (for T.6 test)
- 2.4 Four batteries, at first cycle, in fully charged states. (for T.7 test)
- 2.5 Four batteries, after fifty cycles ending in fully charged states. (for T.7 test)

3. Test Procedure :

- 3.1 All detail related test procedure shall be follow TRANSPORT OF DANGEROUS GOODS, Manual of Tests and Criteria, Fifth revised edition.
- 3.2 Test flow shall be follow below statement.





新普科技股份有限公司
新世電子(常熟)有限公司
新普科技(重慶)有限公司
兆普電子(上海)有限公司

Control Number : SLEU1107001

4. Test Result :

4.1 T.1 ~T.4 Test results: **Pass**

4.1.1 All batteries could meet the requirement, mass loss less than 0.1% and voltage drop less than 10% after the test.

4.1.2 No leakage, no venting, no disassembly, no rupture and no fire.

4.2 T.5 Test results: **Pass**

4.2.1 All batteries could meet the requirement, external temperature did not exceed 170°C.

4.2.2 All batteries were no disassembly, no rupture and no fire during the test and within six hours after the test.

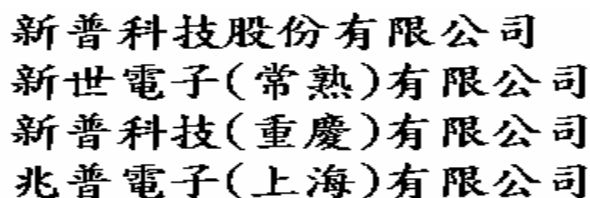
4.3 T.6 Test results: **Pass**

4.3.1 All component cells could meet the requirement, external temperature did not exceed 170°C.

4.3.2 All component cells were no disassembly and no fire during the test and within six hours after the test.

4.4 T.7 Test result: **Pass**

4.4.1 All batteries could meet no disassembly and no fire during the test and within seven days after the test.



5. Test Equipment :



Date:2011-07-07

Project No.: L09M6Y02 3S2P

Used	Instrument ID	Instrument Name	Type	Range Used	Manufacturer	Calibration Date_Last	Calibration Date_Next	Remarks
	Pretest							
V	ML-052	Learning	711	0~18V 0~8A	SMP	2011/3/11	2012/3/11	
V	ML-053	Learning	711	0~18V 0~8A	SMP	2011/3/14	2012/3/14	
V	ML-055	Learning	711	0~18V 0~8A	SMP	2011/3/14	2012/3/14	
	T.1 Altitude Simulation							
V	ML-522	Altitude		Kpa:30~90	新匠	2010/10/29	2011/10/29	
V	ML-257	Multimeter	HP 34401A	Note 1	Agilent	2011/7/4	2012/7/4	
V	ML-494	Electronic Balance	XS1220M-SCS	1-1000 gf	CHUANHUA	2010/10/29	2011/10/29	
V	ML-550	Data Logger	313	15~35 ℃; 30~80 %RH	CENTER	2010/12/21	2011/12/21	
	T.2 Thermal Test							
V	ML-018	Thermal Shock	WSF-602	T:-40 to 120℃	WIT	2010/8/31	2011/8/31	
V	ML-257	Multimeter	HP 34401A	Note 1	Agilent	2011/7/4	2012/7/4	
V	ML-494	Electronic Balance	XS1220M-SCS	1-1000 gf	CHUANHUA	2010/10/29	2011/10/29	
	T.3 Vibration							
V	ML-233	Vibration	KD-9636-EM-300F2K-30N80	F:5~2000Hz G:0.2~20G	King Design	2010/12/10	2011/12/10	
V	ML-257	Multimeter	HP 34401A	Note 1	Agilent	2011/7/4	2012/7/4	
V	ML-494	Electronic Balance	XS1220M-SCS	1-1000 gf	CHUANHUA	2010/10/29	2011/10/29	
V	ML-552	Data Logger	313	15~35 ℃; 30~80 %RH	CENTER	2010/12/21	2011/12/21	
	T.4 Shock							
V	ML-056	Shock	DP-1200-25	G:10~600G	King Design	2010/12/24	2011/12/24	
V	ML-257	Multimeter	HP 34401A	Note 1	Agilent	2011/7/4	2012/7/4	
V	ML-494	Electronic Balance	XS1220M-SCS	1-1000 gf	CHUANHUA	2010/10/29	2011/10/29	
V	ML-551	Data Logger	313	15~35 ℃; 30~80 %RH	CENTER	2010/12/21	2011/12/21	
	T.5 External Short Circuit							
V	ML-534	mΩ Hitester	3540	1mΩ ~ 30kΩ	YEOW LONG	2010/12/2	2011/12/2	
V	ML-339	Data Acquisition	MX100-E-1D	1-100 Vdc, -50 to 150℃	Yokogawa	2011/7/1	2012/7/1	
V	ML-521	Chamber	WIT IPC-1000(3F)	-20 to 150℃	WIT	2010/12/2	2011/12/2	
	T.6 Impact (Component cell)							
V	ML-340	Data Acquisition	MX100-E-1D	1-100 Vdc, -50 to 150℃	Yokogawa	2011/5/26	2012/5/26	
V	ML-076	Impact Tester			JYI SHENG	2011/3/11	2012/3/11	
	T.7 Overcharge							
V	ML-139	Power Supply	GC50-30D	0~50V 0.1~30A	LOCK	2011/3/4	2012/3/4	
V	ML-140	Power Supply	GC50-30D	0~50V 0.1~30A	LOCK	2011/3/4	2012/3/4	
V	ML-141	Power Supply	GC50-30D	0~50V 0.1~30A	LOCK	2011/3/4	2012/3/4	
V	ML-142	Power Supply	GC50-30D	0~50V 0.1~30A	LOCK	2011/3/4	2012/3/4	
V	ML-143	Power Supply	GC50-30D	0~50V 0.1~30A	LOCK	2011/3/4	2012/3/4	
V	ML-549	Data Logger	313	15~35 ℃; 30~80 %RH	CENTER	2010/12/21	2011/12/21	

Note 1: DC Voltage: 0.1-1000V; AC Voltage: 0.5-700V at 60Hz, 1kHz; Resistance: 10Ω-10MΩ; DC Current: 0.1mA-3A; AC Current: 0.01-3A at 60Hz, 0.01-1A, at 1kHz.

本測試報告僅對上述測試項目有效,本報告分離使用無效
This test report is valid only to the items, Invalid for separation using.



新普科技股份有限公司
新世電子(常熟)有限公司
新普科技(重慶)有限公司
兆普電子(上海)有限公司

Control Number : SLEU1107001

6. T.1~T.7 Detail Reports:

Control No.: SLEU-1107001

UN 38.3 Test Datasheet

Customer: Lenovo

Model name: L09M6Y02 3S2P

Test duration: 2011/06/15~2011/07/07

Reviewer: Esmond

Test Sample Identification:

Used	Sample No.	Sample State	Used	Sample No.	Sample State	Used	Sample No.	Sample State
V	01-04	1 Cycle, Fully charged	V	05-08	50 Cycle, Fully charged			25Cycle, Fully charged
V	09-12	1 Cycle, Fully charged	V	13-16	50 Cycle, Fully charged			25Cycle, Fully charged
V	01C-05C	1 Cycle, 50% charged			1 Cycle, 50% charged			

T.1 Altitude Simulation

Start time: 06 / 29 / 08 : 36
Finish time: 06 / 29 / 15 : 24

Ambient temp.: 24.5 °C

Operator: Betty

Reviewer: Esmond

Sample No.: 01					Sample No.: 05				
	Before	After	Variation	Results		Before	After	Variation	Results
Mass (g)	301.6	301.6	Mass loss % 0.00%	P	Mass (g)	301.5	301.4	Mass loss % 0.03%	P
OCV (V)	12.54	12.54	Remained OCV% 100.00%		OCV (V)	12.54	12.54	Remained OCV% 100.00%	
Sample No.: 02					Sample No.: 06				
	Before	After	Variation	Results		Before	After	Variation	Results
Mass (g)	301.6	301.6	Mass loss % 0.00%	P	Mass (g)	301.5	301.4	Mass loss % 0.03%	P
OCV (V)	12.55	12.55	Remained OCV% 100.00%		OCV (V)	12.55	12.55	Remained OCV% 100.00%	
Sample No.: 03					Sample No.: 07				
	Before	After	Variation	Results		Before	After	Variation	Results
Mass (g)	301.4	301.4	Mass loss % 0.00%	P	Mass (g)	301.6	301.6	Mass loss % 0.00%	P
OCV (V)	12.54	12.54	Remained OCV% 100.00%		OCV (V)	12.54	12.54	Remained OCV% 100.00%	
Sample No.: 04					Sample No.: 08				
	Before	After	Variation	Results		Before	After	Variation	Results
Mass (g)	301.5	301.5	Mass loss % 0.00%	P	Mass (g)	301.5	301.5	Mass loss % 0.00%	P
OCV (V)	12.54	12.54	Remained OCV% 100.00%		OCV (V)	12.54	12.53	Remained OCV% 99.92%	

T.2 Thermal Test

Start time: 06 / 29 / 15 : 43
Finish time: 07 / 05 / 11 : 27

Ambient temp.: 24.7 °C

Operator: Betty

Reviewer: Esmond

Sample No.: 01					Sample No.: 05						
	Before	After	Variation		Results		Before	After	Variation		Results
Mass (g)	301.6	301.5	Mass loss %	0.03%	P	Mass (g)	301.4	301.3	Mass loss %	0.03%	P
OCV (V)	12.54	12.32	Remained OCV%	98.27%		OCV (V)	12.54	12.31	Remained OCV%	98.20%	
Sample No.: 02					Sample No.: 06						
	Before	After	Variation		Results		Before	After	Variation		Results
Mass (g)	301.6	301.6	Mass loss %	0.00%	P	Mass (g)	301.4	301.3	Mass loss %	0.03%	P
OCV (V)	12.55	12.37	Remained OCV%	98.57%		OCV (V)	12.55	12.34	Remained OCV%	98.33%	
Sample No.: 03					Sample No.: 07						
	Before	After	Variation		Results		Before	After	Variation		Results
Mass (g)	301.4	301.3	Mass loss %	0.03%	P	Mass (g)	301.6	301.5	Mass loss %	0.03%	P
OCV (V)	12.54	12.36	Remained OCV%	98.56%		OCV (V)	12.54	12.32	Remained OCV%	98.27%	
Sample No.: 04					Sample No.: 08						
	Before	After	Variation		Results		Before	After	Variation		Results
Mass (g)	301.5	301.5	Mass loss %	0.00%	P	Mass (g)	301.5	301.4	Mass loss %	0.03%	P
OCV (V)	12.54	12.33	Remained OCV%	98.33%		OCV (V)	12.53	12.31	Remained OCV%	98.22%	

T.3 Vibration

Start time: 07 / 05 / 11 : 52
Finish time: 07 / 06 / 11 : 16

Ambient temp.: 24.1 °C

Operator: Betty

Reviewer: Esmond

Sample No.: 01					Sample No.: 05				
	Before	After	Variation	Results		Before	After	Variation	Results
Mass (g)	301.5	301.4	Mass loss % 0.03%		Mass (g)	301.3	301.2	Mass loss % 0.03%	
OCV (V)	12.32	12.31	Remained OCV% 99.92%		OCV (V)	12.31	12.31	Remained OCV% 100.00%	
Sample No.: 02					Sample No.: 06				
	Before	After	Variation	Results		Before	After	Variation	Results
Mass (g)	301.6	301.5	Mass loss % 0.03%		Mass (g)	301.3	301.3	Mass loss % 0.00%	
OCV (V)	12.37	12.37	Remained OCV% 100.00%		OCV (V)	12.34	12.34	Remained OCV% 100.00%	
Sample No.: 03					Sample No.: 07				
	Before	After	Variation	Results		Before	After	Variation	Results
Mass (g)	301.3	301.3	Mass loss % 0.00%		Mass (g)	301.5	301.4	Mass loss % 0.03%	
OCV (V)	12.36	12.36	Remained OCV% 100.00%		OCV (V)	12.32	12.31	Remained OCV% 99.92%	
Sample No.: 04					Sample No.: 08				
	Before	After	Variation	Results		Before	After	Variation	Results
Mass (g)	301.5	301.4	Mass loss % 0.03%		Mass (g)	301.4	301.4	Mass loss % 0.00%	
OCV (V)	12.33	12.32	Remained OCV% 99.92%		OCV (V)	12.31	12.31	Remained OCV% 100.00%	

本資料為新普科技股份有限公司之智慧財產權，非經本公司書面授權許可，不得透露或使用本資料，亦不得複印、複製或轉變成其它任何形式使用。
The information contained herein is the exclusive property of SIMPLO TECHNOLOGY CO., LTD, and shall not be distributed, reproduced, or disclosed in whole or in part without prior written permission.

本測試報告僅對上述測試項目有效，本報告分離使用無效

This test report is valid only to the items, Invalid for separation using.



新普科技股份有限公司
新世電子(常熟)有限公司
新普科技(重慶)有限公司
兆普電子(上海)有限公司

Control Number : SLEU1107001

T.4 Shock		Start time: 07 / 06 / 13 : 16 Finish time: 07 / 06 / 14 : 43				Ambient temp.: 24.8 ℃		Operator: Betty		Reviewer: Esmond	
Sample No.: 01						Sample No.: 05					
	Before	After	Variation		Results		Before	After	Variation		Results
Mass (g)	301.4	301.4	Mass loss %	0.00%	P	Mass (g)	301.2	301.2	Mass loss %	0.00%	P
OCV (V)	12.31	12.31	Remained OCV%	100.00%		OCV (V)	12.31	12.31	Remained OCV%	100.00%	
Sample No.: 02						Sample No.: 06					
	Before	After	Variation		Results		Before	After	Variation		Results
Mass (g)	301.5	301.5	Mass loss %	0.00%	P	Mass (g)	301.3	301.2	Mass loss %	0.03%	P
OCV (V)	12.37	12.36	Remained OCV%	99.92%		OCV (V)	12.34	12.34	Remained OCV%	100.00%	
Sample No.: 03						Sample No.: 07					
	Before	After	Variation		Results		Before	After	Variation		Results
Mass (g)	301.3	301.2	Mass loss %	0.03%	P	Mass (g)	301.4	301.3	Mass loss %	0.03%	P
OCV (V)	12.36	12.35	Remained OCV%	99.92%		OCV (V)	12.31	12.30	Remained OCV%	99.92%	
Sample No.: 04						Sample No.: 08					
	Before	After	Variation		Results		Before	After	Variation		Results
Mass (g)	301.4	301.4	Mass loss %	0.00%	P	Mass (g)	301.4	301.3	Mass loss %	0.03%	P
OCV (V)	12.32	12.32	Remained OCV%	100.00%		OCV (V)	12.31	12.31	Remained OCV%	100.00%	

T.5 External Short Circuit			Start time: 07/ 06 / 16 : 27		Ambient temp.: 24.3 ℃		Operator: Betty		Reviewer: Esmond							
			Finish time: 07/ 07 / 08 : 13													
	Sample No.: 01		Sample No.: 02		Sample No.: 03		Sample No.: 04		Sample No.: 05		Sample No.: 06		Sample No.: 07		Sample No.: 08	
Resistance (<100mΩ)	56.7		58.9		59.4		53.4		54.7		55.6		56.9		53.7	
OCV before test/ after short circuit(V)	12.31	0.00	12.36	0.00	12.35	0.00	12.32	0.00	12.31	0.00	12.34	0.00	12.30	0.00	12.31	0.00
Max Temp. (< 170℃)	55.1		55.1		55.2		55.1		55.0		55.1		55.1		55.1	
Results	P		P		P		P		P		P		P		P	

T.6 Impact (Component cell)		Start time: 07 / 04 / 15 : 17	Ambient temp.: 25.7 ℃	Operator: Betty	Reviewer: Esmond
		Finish time: 07 / 05 / 08 : 42			
	Sample No.: 01C	Sample No.: 02C	Sample No.: 03C	Sample No.: 04C	Sample No.: 05C
OCV before test(V)	3.60	3.61	3.61	3.60	3.61
Max Temp. (< 170℃)	93.4	92.8	99.3	95.7	94.6
Results	P	P	P	P	P
	Sample No.: 06C	Sample No.: 07C	Sample No.: 08C	Sample No.: 09C	Sample No.: 10C
OCV before test(V)					
Max Temp. (< 170℃)					
Results					

T.7 Overcharge		Start time: 06 / 29 / 10 : 34		Ambient temp.: 24.2 ℃		Operator: Betty		Reviewer: Esmond	
		Finish time: 07 / 07 / 15 : 21							
	Sample No.: 09	Sample No.: 10	Sample No.: 11	Sample No.: 12	Sample No.: 13	Sample No.: 14	Sample No.: 15	Sample No.: 16	
OCV before test(V)	12.54	12.55	12.54	12.54	12.54	12.55	12.54	12.54	
Results	P	P	P	P	P	P	P	P	

本資料為新普科技股份有限公司之智慧財產權，非經本公司書面授權許可，不得透露或使用本資料，亦不得複印、複製或轉變成其它任何形式使用。
The information contained herein is the exclusive property of SIMPLO TECHNOLOGY CO., LTD, and shall not be distributed, reproduced, or disclosed in whole or in part without prior written permission.

本測試報告僅對上述測試項目有效,本報告分離使用無效
This test report is valid only to the items, Invalid for separation using.



新普科技股份有限公司
新世電子(常熟)有限公司
新普科技(重慶)有限公司
兆普電子(上海)有限公司

Control Number : SLEU1107001

7. Equipment for Test:

Life cycles (10h,500h)



Test 1: Altitude Test



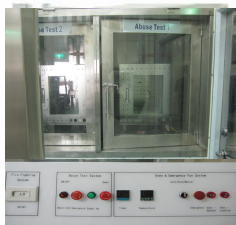
Test 2: Thermal Test



Test 6: Impact Test



Test 5: External Short Test



Test 4: Shock Test



Test 3: Vibration Test



Test 7 overcharge Test

