

Control NO: LE-CU-15-07-026

UN38.3 Test Report

Recommendations on the TRANSPORT OF DANGEROUS GOODS

(Manual of Tests and Criteria, Fifth revised edition, Amend 1)

Customer: Lenovo Model: L15M6P11

Rating: 11.4V, 50Wh, 4390mAh Test duration: 2015/6/29~2015/7/23

Approved By	Checked By	Prepared By		
Winel their	Winel These	Happy-6in.		

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 Distnet, Chongqing, China

TEL: +86-23-61718899 FAX: +86-23-61210488

HUAPU TECHNOLOGY (Changshu) CO.,LTD.

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

TEL: +86-512-52302255 FAX: +86-512-52302277











Control NO: LE-CU-15-07-026

1. Purpose of the Test:

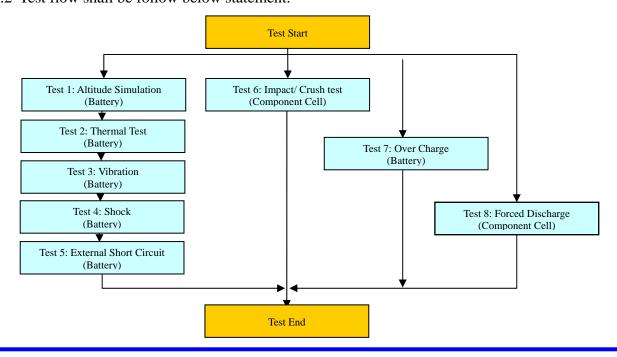
To test each cell/battery is of the type proved to meet the requirements in the Recommendations on the TRANSPORT OF DANGEROUS GOODS, Manual of Tests and Criteria, Fifth revised edition, Amend 1.

2. Test Quantity:

- 2.1 Four batteries, at first cycle, in fully charged states. (T.1~T.5 test only)
- 2.2 Four batteries, after fifty cycles ending in fully charged states. (T.1~T.5 test only)
- 2.3 Five component cells, at first cycle at 50% of the design rated capacity. (T.6 test only)
- 2.4 Four batteries, at first cycle, in fully charged states. (T.7 test only)
- 2.5 Four batteries, after fifty cycles ending in fully charged states. (T.7 test only)
- 2.6 Ten component cells, at first cycle in fully discharge states. (T.8 test only)
- 2.7 Ten component cells, after fifty cycles ending in fully discharged states. (T.8 test only)

3. Test procedure:

- 3.1 All detail related test procedure shall be follow Standard Operation Procedure of SMP subjected CW01-5916 Rev.4 issue documentation.
- 3.2 Test flow shall be follow below statement.





Control NO: LE-CU-15-07-026

4. Test Result:

4.1 T.1 ~T.4 Test result: Passed

- 4.1.1 All batteries could meet the requirement, mass loss was less than 0.1% and residual OCV not less than 90% after the test.
- 4.1.2 No leakage, no venting, no disassembly, no rupture and no fire.

4.2 T.5 Test result: Passed

- 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 result: Passed

- 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: Passed

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

4.5 T.8 Test result: Passed

All component cells could meet the requirement, no disassembly and no fire during the test and within seven days after the test.

Conclusion: The samples had passed the test items of UN38.3.



Control NO: LE-CU-15-07-026

5. Test Equipment:

SME 新世也于(常熱)有限公司

Revised date: 20 15 /6/2 1 Page:1

Date:2015/6/29~2015/7/23

			hu, Jingsu Province.(China			Date:2015/6/29~	2015/7/23	
EL: (0512-52302255	FAX: 0512-5230:	2277	Tent lunts		Mbdel name:	L15M6P11		
	Huselm was and	Discolurium med		Test Insti	rum ents Reference List		1	Calibratian I	
Jsed	Instrument ID(New) Pretest	Instrument ID(Old)	Instrument Name	Туре	Range Used	Manufacturer	CalibrationDate ⊥ast	Calibration Date Next	Remarks
	EE01-CA-l00002	C602MD0/S0096	715 learning機	新普科技	18V/8A	新普科技	2014/12/30	20 15/12/29	
٧	EE03-CA-I00018	C602MD0/S0107	720 learning機	新普科技	Chang:18V/17A Dischange:16V/18A	新普科技	20 15 /03 /09	20 16/03/08	
	EE01-CA-I00003	C602MD0/S0099	715 learning機	新普科技	18V/8A	新普科技	20 15 /03 /09	20 16/03/08	
	EE01-CA-I00005	C602MD0/S0098	715 learning機	新普科技	18V/8A	新普科技	20 15 /04/08	2016/04/07	
	EE03-CA-I00020		720 learning機	新普科技	Chang:18V/17A Dischange:16V/18A	新普科技	2014/10/21	20 15/10/20	
		l,							
٧	Low Pressure Te EC15-CA-E00003		01414	SVT-110	Kees O - 99 Kee	HSIN JIANG	2014100100	20 15/09/07	
	EA02-CA-I00003	C602MD0/J0293	Altitude mΩ Hitester	3561	Kpa: 0 ~ 99 Kpa	HIOKI	20 14/09/08 20 14/9/17	20 15/9/16	
			Bectronic Balance		R:-10~310mΩ V:-20~20V				
	EF03-CA-I00001		dectronic balance	XS1220M-SCS	1220g±0.001g T:-10°C~70°C	CHENGZHUN	2014/10/21	2015/10/20	
٧	ED01-CA-l00007	C602MD0/T0412	Thermo Meter	TA218	RH: 25%~98%	KTJ	2014/8/27	20 15/8/26	
	Thermal Test								
٧	EC29-CA-E00002		Thermal Shock	TSK-A4C-150	T:-65°C to 150°C	KSON	20 15 /06/08	2016/06/07	
٧	EA02-CA-I00002	C602MD0/I0293	mΩ Hitester	3561	R:-10~310mΩ V:-20~20V	HIOKI	2014/9/17	2015/9/16	
٧	EF03-CA-I00001	C602IVD0/C0604	Bectronic Balance	XS1220M-SCS	1220g±0.001g	CHENGZHUN	2014/10/21	2015/10/20	
٧	ED01-CA-I00007	C602MD0/T0412	Thermo Meter	TA218	T:-10℃~70℃ RH:25%~98%	ктј	2014/8/27	20 15/8/26	
_	Vibration Test								
	EC08-CA-E00001	C602MD0/0197	Vibration	EM-200F2K-25N50	F:3~2000Hz G:0.2~55G	King Design	20 15 /3/1 1	2016/3/10	
	EC08-CA-E00002	C602MD0/0052	Vibration	EM-200F2K-25N50	F:3~2000Hz G:0.2~55G	King Design	2014/9/24	20 15/9/23	
٧	EA02-CA-I00002	C602MD0/I0293	mΩ Hitester	3561	R:-10~310mΩ V:-20~20V	нюкі	2014/9/17	20 15/9/16	
	EF03-CA-I00001		Bectronic Balance	XS1220M-SCS	1220a±0.001a	CHENGZHUN	2014/10/21	20 15/10/20	
		00021000700004	Destrome Darance	XO122VIVIOUO	122 0920.00 19	OHEROZHOR	2014/10/21	20 107 10720	
	Shock Test								
	EC17-CA-E00001		Shock	HS 15/45	G:10~2000G	Lansmont	2014/09/08	20 15/09/07	
	EA02-CA-I00002 EF03-CA-I00001	C602MD0/I0293	mΩ Hitester Bectronic Balance	3561 XS1220M-SCS	R:-10~310mΩ V:-20~20V	HIOKI CHENGZHUN	2014/9/17 2014/10/21	20 15/9/16	
			Dectronic balance	A81220WF8U8	1220g±0.001g	CHENGZHUN	20 14) 10) 2 1	20 15) 10/20	
	External Short C								
٧	EA02-CA-I00002	C602MD0/I0293	mΩ Hitester	3561	R:-10~310mΩ V:-20~20V	HIOKI	2014/9/17	20 15/9/16	
٧	EA09-CA-I00004	C602MD0/0207	Data logger	34970A	V: 0~ 300 V, T: -150 °C~1200 °C	Agilent	20 14/09/17	20 15/09/16	
٧	EC26-CA-I00023	C602MD0/0518	chamber	WIT TH-2P-E	-40°C to 150°C	WIT	2014/08/11	20 15/08/10	
V	ED01-CA-l00007	C602MD0/T0412	Thermo Meter	TA218	T:-10°C~70°C RH:25%~98%	KTJ	2014/8/27	2015/8/26	
	Impact Test/Curs	h Test							
	EC17-CA-I00001	C602MD0/1204	Impact test	100-372	H:60~80cm	JYI SHENG	2014/9/17	20 15/9/16	
٧	EC23-CA-E00001	C602MD0/0743	Cursh Test	BE-6047	1.0KN~15.0KN	BELL	20 14/09/08	20 15/09/07	
٧	EA09-CA-I00005	C602MD0/0588	Data logger	34970A	V: 0~ 300 V, T: -150 °C~1200 °C	Agilent	20 14/09/17	20 15/09/16	
v	ED01-CA-l00010	C602MD0/T0581	Thermo Meter	TA218	T:-10℃~70℃ RH:25%~98%	ктј	2015/6/21	20 16/6/20	
	Overcharge Test								
		C602MD0/P0779		DS6024	0~60V 0~24A	MOTECH	20 15 /03/11	2016/03/10	
		C602MD0/P0777		DS6024	0~60V 0~24A	MOTECH	20 15 /03/11	20 16/03/10	
		C602MD0/P0775	11.7	DS6024	0~60V 0~24A	MOTECH	20 15 /03/11	2016/03/10	
٧	EA06-CA-E00004	C602MD0/P0781	Power Supply	DS6024	0~60V 0~24A	MOTECH	20 15 /03/11	20 16/03/10	
٧	ED01-CA-l00007	C602MD0/T0412	Thermo Meter	TA218	T:-10℃~70℃ RH:25%~98%	ктј	2014/8/27	20 15/8/26	
	Froced Discharg	e Test							
	EA06-CA-I00004		Power Supply	E3633A	0~8V,20A/0~20V,10A	AGILENT	2014/9/17	20 15/9/16	
	EA06-CA-I00016	1	Power Supply	E3633A	0~8V,20A/0~20V,10A	AGILENT	20 15 /5/9	20 16/5/8	
		C602MD0/P0481	Power Supply	E3633A	0~8V,20A/0~20V,10A	AGILENT	20 15 /5/9	20 16/5/8	
	EA05-CA-I00006	1	Bectronic LOAD	3311D	60V/60A, 300W	PRODIGIT	20 15 /05/11	2016/5/10	
	EA05-CA-I00009	1	Bectronic LOAD	3311F	60V/60A, 300W	PRODIGIT	20 15 /05/11	2016/5/10	
	EA05-CA-I00008	C602MD0/L0402	Bectronic LOAD	3311F	60V/60A, 300W	PRODIGIT	20 14/08/13	20 15/08/12	
<u> </u>		1		1	1	1			

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.

Note 1: DC Voltage: 0.1-1000V; AC Voltage: 0.5-700V at 60Hz, 1kHz; Resistance: 100-10MQ; DC current: 0.1mA-3A; AC current: 0.01mA-3A at 60Hz, 0.01mA-1A, at 1kHz



Control NO: LE-CU-15-07-026

6. T.1~T8 detail reports:

Control No.:LE-CU-15-07-028

UN 38.3 Test Datasheet

Customer: Lenovo

Model Name:L15M6P11

Test Duration: 2015/6/29~2015/7/23

Reviewer: Wind_Zhao

			Battery			Component Cell			
Used	d Sample No. Sample State Use		Used	Sample No.	Sample State	Used	Sample No.	Sample State	
٧	1~4	1 Cycle, Fully charged	٧	5~8	50 Cycle, Fully charged	٧	10~50	1 Cycle, 50% charged	
٧	9~12	1 Cycle, Fully charged	٧	13~16	50 Cycle , Fully charged	٧	6C~15C	1 Cycle, 0% charged	
		25 Cycle, Fully charged			25 Cycle , Fully charged	٧	160~250	50 Cycle, 0% charged	

T.1 Altitud	de Simulation		Start time:2015/7/ Finsh time:2015/7			Ambie	nt temp.: 22.7	ፘ	Operator:	Нарру_С	ш
		Sample	: No.: 01				Sample No.: 02				
	Before	After	Variation	1	Results		Before	After	Variation		Results
Mass(g)	237.64	237.63	Massioss%	0.00%		Mass (g)	236.98	236.97	Massloss %	0.00%	ь
0CV (V)	12.964	12.952	Residual OCV %	99.91%	r	OCV(V)	12.954	12.943	Residual 0 CV %	99.92%	r
		Sample	No.: 03			Sample No.: 04					
	Before	After	Variation	1	Results		Before	After	Variation		Results
Mass(g)	237.76	237.76	Massioss%	0.00%	_	Mass (g)	237.35	237.34	Massloss %	0.00%	Р
0CV (V)	12.935	12.923	Residual OCV %	99.91%	۲ ·	0CV(V)		12.945	Residual 0 CV %	99.88%	P
		Sample	No.: 05				•	Sample	No.: 06	'	
	Before	After	Variation	1	Results		Before	After	Variation		Results
Mass(g)	237.25	237.25	Massioss%	0.00%	,	Mass (g)	237.74	237.73	Massloss %	0.00%	ь
0CV (V)	12.957	12.942	Residual OCV %	99.88%	r	OCV(V)		12.949	Residual 0 CV %	99.90%	r
		Sample	No.: 07					Sample	No.: 08		
	Before	After	Variation	1	Results		Before	After	Variation		Results
Mass(g)	237.16	237.15	Massioss%	0.00%	ь	Mass (g)	237.51	237.51	Massloss %	0.00%	ь
000000	12.956	12 942	Residual 00V %	99.8986	1 ^r	00000		12 929	Residual 0.07 %	99.8884	r

T.2 Therm	al Test		Start time:2015/7/ Finsh time:2015/7/			Ambie	nt temp.: 23.4	t	Operator: Happy_(3u
		Sample	No.: 01					Sample	No.: 02	
	Before	After	Variation	ì	Results		Before	After	Variation	Results
Mass(g)	237.63	237.63	Massioss %	0.00%	ь	Mass (g)	236.97	236.97	Massloss% 0.00%	р
OCV (V)	12.952	12.792	Residual OCV %	Residual OCV % 98.76%		οςν(ν)	12.943	12.787	Residual OCV % 98,79%	1 r
		Sample	No.: 03			Sample No.: 04				
	Before	After	Variation	1	Results		Before	After	Variation	Results
Mass(g)	237.76	237.75	Massioss %	0.00%	ь	Mass (g)	237.34	237.34	Massioss% 0.00%	р
0CV (V)	12.923	12.764	Residual OCV %	98.77%	г	0CV(V)	12.945	12.786	Residual OCV % 98.77%	
		Sample	No.: 05					Sample	: No.: 06	
	Before	After	Variation	1	Results		Before	After	Variation	Results
Mass(g)	237.25	237.25	Massioss %	0.00%	В	Mass (g)	237.73	237.73	Massloss% 0,00%	ь
0CV (V)	12.942	12.781	Residual OCV %	98.76%	ľ	0CV(V)	12.949	12.785	Residual 0 CV % 98.73%	· ·
		Sample	No.: 07					Sample	: No.: 08	
	Before	After	Variation	1	Results		Before	After	Variation	Results
Mass(g)	237.15	237.15	Massioss%	0.00%	D	Mass (g)	237.51	237.50	Massioss% 0.00%	Р
OCV (V)	12.942	12.780	Residual OCV %	98.75%	r	OCV(V)	12.929	12.766	Residual 0 CV % 98.74%]

T.3 Vibra	tion		Start time:2015/7/ Finsh time:2015/7			Ambier	nt temp.: 23.3	ฮ	Operator: Happy	.Gu	
		Sample	No.: 01				Sample No.: 02				
	Before	After	Variation	ì	Results		Before	After	Variation	Results	
Mass(g)	237.63	237.62	Massioss %	0.00%	В	Mass (g)	236.97	236.96	Massloss% 0,00%	Р	
OCV (V)	12.792	12.776	Residual OCV %	99.87%		OCV(V)	12.787	12.775	Residual 0 CV % 99,91%	T	
		Sample	No.: 03					Sample	No.: 04		
	Before After Variation Results						Before	After	Variation	Results	
Mass(g)	237.75	237.74	Massioss %	0.00%	В	Mass (g)	237.34	237.33	Massloss% 0.00%	Р	
00V (V)	12.764	12.747	Residual OCV %	99.87%	r	OCV(V)	12.786	12.772	Residual 0 CV % 99,89%	7 '	
		Sample	No.: 05			Sample No.: 06					
	Before	After	Variation	1	Results		Before	After	Variation	Results	
Mass(g)	237.25	237.24	Massioss%	0.00%	В	Mass (g)	237.73	237.73	Massloss% 0.00%	Р	
OCV(V)	12.781	12.770	Residual OCV %	99.91%	r	οςνινι	12.785	12.767	Residual 0 CV % 99,86%		
		Sample	No.: 07					Sample	: No.: 08		
	Before	After	Variation	1	Results		Before	After	Variation	Results	
Mass(g)	237.15	237.14	Massioss%	0.00%	ь	Mass (g)	237.50	237.50	Massioss% 0.00%	Р	
0CV (V)	12.780	12.767	Residual OCV %	99.90%	r	OCV(V)	12.766	12.752	Residual 0 CV % 99.89%		

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.



Control NO: LE-CU-15-07-026

Operator: Happy_Gu

T.4 Shock			Start time:2015/7/ Finsh time:2015/7			Ambier	t temp.: 24.1	t	Operator: Happy_0	iu i
		Sample	e No.: 01					Sample	e No.: 02	
	Before	After	Variation	1	Results		Before	After	Variation	Results
Mass(g)	237.62	237.61	Massioss%	0.00%	Р	Mass (g)	236.96	236.96	Massloss % 0.00%	ь
0CV (V)	12.776	12.764	Residual OCV %	99.91%			12.775	12.763	Residual 0 CV % 99.91%	
		Sample	e No.: 03					Sample	e No.: 04	
	Before	After	Variation	1	Results		Before	After	Variation	Results
Mass(g)	237.74	237.74	Massioss%	0.00%	Р	Mass (g)	237.33	237.33	Massloss % 0.00%	Р
0CV (V)	12.747	12.730	Residual OCV %	99.87%	r	OCV(V)	12.772	12.758	Residual 0 CV % 99.89%	_ '
		Sample	e No.: 05					Sample	e No.: 06	
	Before	After	Variation	1	Results		Before	After	Variation	Results
Mass(g)	23724	23724	Massioss%	0.00%	Р	Mass (g)	237.73	237.72	Massioss % 0.00%	ь
00V (V)	12.770	12.759	Residual OCV %	99.91%	г	OCV(V)	12.767	12.756	Residual 0 CV % 99.91%	
		Sample	e No.: 07					Sample	e No.: 08	
	Before	After	Variation	1	Results		Before	After	Variation	Results
Mass(g)	237.14	237.14	Massioss%	0.00%	Р	Mass (g)	237.50	237.49	Massloss% 0.00%	
OCA (A)	12.767	12.754	Residual OCV %	99.90%	г	ocytyt	12.752	12.737	Residual 0 CV % 99,88%	'

T.5 External Short Circuit Start time:2015/7/21 13:50 Ambient temp.: 23.4 C Operator: Happy_Gu

	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)	55	9.7	56	:4	55	5.8	57	2	56	8.3	56	.2	56	9.5	58	3.4
0 CV before test/ after short circuit(V)	12.764	0.000	12.763	0.000	12.730	0.000	12.758	0.000	12.759	000.0	12.756	000.0	12.754	0.000	12.737	0.000
Max Temp. (< 170 ℃)	54	1.8	55	i.1	55	5.2	54	1.8	54	1.9	55	5	55	ai	55	52
Results		P	1	,		Р		•		P		,		•		Р

Ambientitemp.: 23.7 ℃

T.6 Impact / Crush (Component Cell) Start time:2015 // // 08:30 Finsh time:2015 // // 18:40

☐ Impact-Cylindrical cells greater than 20mm in diameter
☐ Crush- Prismatic, pouch, coin/button cells and cylindrical cells not more than 20mm in diameter

Clasti- Histilat	ordani i manato , padon, con edata i cela ana cylinarca cela not more tinar zonim micalaneter												
	Sample No.: 01C	Sample No.: 02C	Sample No.: 03 C	Sample No.: 04C	Sample No.: 05C								
OCV before test(V)	3.811	3809	3.802	3.804	3 801								
Max Temp. (< 170 ℃)	30.5	29.7	31.3	30.8	31.1								
Reculte	P	P	P	P	P								

| Start time:2015#/#410:20 | Finsh time:2015#/#313:10 | Ambient temp.: 23.7 | C | Operator: Happy_Gu

	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)	12.971	12.952	12.962	12.954	12.948	12.952	12.963	12.961
Results	Р	Р	Р	P	P	P	P	Р

T.8 Forced Discharge (Component Cell)
Start time:2015#/#4 08:30
Finsh time:2015#/#23 13:30
Ambient temp.: 24.0 to Operator: Happy_Gu

	Sample No.: 06C	Sample No.: 07C	Sample No.: 08 C	Sample No.: 09 C	Sample No.: 10C
0CV before test(V)	3.381	3.382	3.387	3.382	3 411
Results	P	P	P	Р	P
	Sample No.: 11C	Sample No.: 12C	Sample No.: 13 C	Sample No.: 14C	Sample No.: 15C
0CV before test(V)	3.378	3.367	3.388	3.371	3 407
Results	P	P	Р	Р	P
	Sample No.: 16C	Sample No.: 17C	Sample No.: 18 C	Sample No.: 19 C	Sample No.: 20C
0CV before test(V)	3.391	3.391	3.397	3.409	3 412
Results	Р	P	Р	Р	Р
	Sample No.: 21C	Sample No.: 22C	Sample No.: 23 C	Sample No.: 240	Sample No.: 25C
0CV before test(V)	3.389	3.388	3.384	3.402	3.381
Results	Р	Р	Р	Р	Р

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

Page 6 of 7



Control NO: LE-CU-15-07-026

7. Test sample:



