

Murata Energy Device Wuxi Co., Ltd.

No.27, Changjiang Road, New District, Wuxi, Jiangsu Province, 214028 P.R.C

Phone: 86-510-8523-9120

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リチウムイオン電池認証書 (類似機種用)  
Lithium-ion cell or battery(polymer) cell or battery  
Certification for Similar Models

No: MDW-PC1805

Date:2018/03/03

1. 単電池/single cell single cell battery  
組電池/battery(pack) (セル構成/composition of cell : 1S2P )
2. 機種名/customer model name : L12N2P01 Murata model name : LIS2200
3. 顧客名/customer : Lenovo
4. 定格/rated

項目/item	規格値/specification	備考/remarks
公称電圧/nominal voltage	3.75V	
定格容量/rated capacity	6.7Ah	
ワット時定格値(Wh) /Watt-hour rating	25Wh	単電池/cells ≤20Wh 組電池/batteries ≤100Wh

## 5. 類似機種及び試験結果/Similar Model and Test Result

1) 類似機種名/Similar Model (Murata model name) :

2) 試験結果/Test Result

国連勧告テスト結果/Test results of the UN Recommendations on the Transport of Dangerous Goods

国連勧告テスト及び判定基準 (38.3 リチウム電池)		テスト結果/ test results	備考/remarks
NO	テスト項目 test item		
T1	高度シミュレーション/Altitude simulation	OK	
T2	温度試験/Thermal test	OK	
T3	振動/Vibration	OK	
T4	衝撃/Shock	OK	
T5	外部短絡/External short circuit	OK	
T6	衝突 (Impact) /圧壊 (Crush)	OK	
T7	過充電/Overcharge	OK	single cell は対象外
T8	強制放電/Forced discharge	OK	

試験実施日/Tested Date : 2012/02/02~2012/02/10

梱包試験実施日/Tested Date for Package : 2013/02/21~2013/02/24

上記テスト結果は国連勧告試験(UN Manual of Tests and Criteria 6th, Part III, sub-section 38.3)に従い確認した結果であることを証明いたします。

We, Murata Energy Device Wuxi Co., Ltd., hereby certify that above results are confirmed in accordance with the Manual of Tests and Criteria of the UN Recommendations on the Transport of Dangerous Goods, 6th, Part III, sub-section 38.3.

3) 類似機種とのワット時定格値(Wh)、電圧比率/Ratios for Watt-hour, Voltage 類似機種に対して、ワット時定格値(Wh)の変化が20%以内、且つ電圧の増加が20%以内であることを証明します。

We certify the change of the subject model to the similar model is in Watt-hour rating of less than 20% and the increase in voltage of less than 20%.

LIS2200/LIS2191: エネルギー量 (Wh) 比/Watt-hour Ratio=113%、

電圧比/Voltage Ratio=101%

Weiwei Tang / Manager  
CS·Quality Assurance Department  
Murata Energy Device Wuxi Co., Ltd.

A : Checklist for Judging New Type Cell or not

When there is no change in all items, it is NOT considered to be a New Type Cell.

(Change ⇒ ○、 No change ⇒ -)

Battery Pack Model : LIS2200

Component Cell Model : US3183A2K7S

Check item	The element which is given influence	Presence of change
Safety parts and mechanical components	Are the safety parts and mechanical components of this cell the same as those of the test completion cell?	-
Cathode material system	Is cathode material system of this cell the same as that of the test completion cell?	-
Anode material system	Is anode material system of this cell the same as that of the test completion cell?	-
Electrolyte material system	Is electrolyte material system of this cell the same as that of the test completion cell?	-
Mass of cathode material	Is mass difference of the design center of each cell concerning cathode less than 20%?	-
Mass of anode material	Is mass difference of the design center of each cell concerning anode less than 20%?	-
Mass of electrolyte	Is mass difference of the design center of each cell concerning electrolyte less than 20%?	-
Judgment result	New Type or not	Not new

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Phone: 86-510-8523-9120

B : Checklist for Judging New Type Battery or not

Confirmation of presence of change in "The element which is given influence"

(Change ⇒ ○、 No change ⇒ -)

When there is no change in all items, it is NOT considered to be a New Type Battery.

Battery Pack Model : LIS2200

Test Item (Function)	The element which is given influence	Presence of change
T1 : Altitude Simulation (Decompression load)	<ul style="list-style-type: none"> <li>• Crimped part, Gasket (Cell)</li> <li>• Gas Release Vent, Cell Case (Cell)</li> <li>• Pack (Plastic) Case</li> <li>• Holding Member (Insulator, Insulation Tape, Both Sides Tape)</li> <li>• Coating materials</li> </ul>	-
T2 : Thermal Shock (Repetition of high temp. and low temp.)	<ul style="list-style-type: none"> <li>• Crimped part, Gasket (Cell)</li> <li>• Gas Release Vent, Cell Case (Cell)</li> <li>• Finished state of Wound Electrodes (Cell)</li> <li>• Pack (Plastic) Case</li> <li>• Holding Member (Insulator, Insulation Tape, Both Sides Tape)</li> <li>• Coating materials</li> </ul>	-
T3 : Vibration (Vibration load)	<ul style="list-style-type: none"> <li>• Finished state of Wound Electrodes (Cell)</li> <li>• Electric wiring member</li> <li>• Electronic Parts on a circuit board</li> <li>• Cell Holding Member (Adhesive, Both Sides Tape, Lib of Plastic Case)</li> </ul>	-
T4 : Shock (Shock load)	<ul style="list-style-type: none"> <li>• Wiring Member</li> <li>• Electronic Parts on a circuit board</li> <li>• Cell Holding Member (Adhesive, Both Sides Tape, Lib of Plastic Case)</li> <li>• Finished state of Wound Electrodes (Cell)</li> </ul>	-
T5 : External Short Circuit (Short current)	<ul style="list-style-type: none"> <li>• Over-voltage Protection</li> <li>• Current Control Device</li> <li>• Safety Device of cell (Cell)</li> <li>• Lead Tab</li> </ul>	-
T6(Cell) : Impact / Crush (Crash load)	<ul style="list-style-type: none"> <li>• Separator (Cell)</li> <li>• Insulation State in a cell (Cell)</li> </ul>	-
T7(Pack) : Overcharge (Charge load)	<ul style="list-style-type: none"> <li>• Overcharge Protection</li> <li>• Thermal Device</li> <li>• Safety Device of cell (Cell)</li> </ul>	-
T8(Cell) : Forced Discharge (Over discharge load)	<ul style="list-style-type: none"> <li>• Finished state of Wound Electrodes (Cell)</li> </ul>	-
Judgment result	New Type or not	Not new



No: MDW-PC1805

## 国联劝告 结果 1

DATE: 2018/03/03

## Test Result of UN Recommendations Part 1

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机种名/Murata Model Nam	LIS2191MCP(SY6)		
cell使用/Cell Model Name	US3083A2K5S	构成/Configuration	2P 1S
试验场所/Test Company	村田新能源(无锡)有限公司		
地址/Address	中国江苏省无锡市新区长江路27号	电话/Tel	86-0510-85239269
试验室/Test Room	MDW国联劝告试验室	试验期间/Test Dates	2012.02.02~2012.02.11
判定基准/Criterion	UN Manual of Tests and Criteria Rev5, Part III, sub-section 38.3		

试验名称/Test Name		T1: 高度模拟试验 Altitude Simulation						
番号 No.	电池状态 Conditions	试验前/Before		试验后/After		质量减少率/ Mass Loss (0.1%以下)	OCV维持率/ Residual OCV (90%以上)	现象确认/ Occurrence
		Mass(g)	OCV (V)	Mass(g)	OCV (V)			
1	初回满充电/ First cycle, fully charged	124.62	4.191	124.62	4.187	0.00	99.9	N
2		124.33	4.193	124.33	4.186	0.00	99.8	N
3		124.83	4.187	124.83	4.180	0.00	99.8	N
4		124.63	4.192	124.63	4.184	0.00	99.8	N
5	50次循环后满充电/ After 50 cycles, fully charged	124.78	4.168	124.78	4.158	0.00	99.8	N
6		124.87	4.166	124.87	4.156	0.00	99.8	N
7		124.63	4.168	124.63	4.157	0.00	99.7	N
8		124.65	4.167	124.65	4.157	0.00	99.8	N

试验名称/Test Name		T2: 温度试验 Thermal						
番号 No.	电池状态 Conditions	试验前/Before		试验后/After		质量减少率/ Mass Loss (0.1%以下)	OCV维持率/ Residual OCV (90%以上)	现象确认/ Occurrence
		Mass(g)	OCV (V)	Mass(g)	OCV (V)			
1	初回满充电/ First cycle, fully charged	124.62	4.187	124.62	4.139	0.00	98.9	N
2		124.33	4.186	124.33	4.137	0.00	98.8	N
3		124.83	4.180	124.83	4.135	0.00	98.9	N
4		124.63	4.184	124.63	4.137	0.00	98.9	N
5	50次循环后满充电/ After 50 cycles, fully charged	124.78	4.158	124.78	4.125	0.00	99.2	N
6		124.87	4.156	124.87	4.122	0.00	99.2	N
7		124.63	4.157	124.63	4.122	0.00	99.2	N
8		124.65	4.157	124.65	4.123	0.00	99.2	N

试验名称/Test Name		T3: 振动试验 Vibration						
番号 No.	电池状态 Conditions	试验前/Before		试验后/After		质量减少率/ Mass Loss (0.1%以下)	OCV维持率/ Residual OCV (90%以上)	现象确认/ Occurrence
		Mass(g)	OCV (V)	Mass(g)	OCV (V)			
1	初回满充电/ First cycle, fully charged	124.62	4.139	124.62	4.140	0.00	100.0	N
2		124.33	4.137	124.33	4.138	0.00	100.0	N
3		124.83	4.135	124.83	4.136	0.00	100.0	N
4		124.63	4.137	124.63	4.138	0.00	100.0	N
5	50次循环后满充电/ After 50 cycles, fully charged	124.78	4.125	124.78	4.126	0.00	100.0	N
6		124.87	4.122	124.87	4.123	0.00	100.0	N
7		124.63	4.122	124.63	4.122	0.00	100.0	N
8		124.65	4.123	124.65	4.124	0.00	100.0	N

* 质量减少率/ Mass Loss (%)	<input type="checkbox"/> 电池质量 ≤ 1g: 0.5%以下 <input type="checkbox"/> 1g < 电池质量 ≤ 5g: 0.2%以下 <input checked="" type="checkbox"/> 5g < 电池质量: 0.1%以下
现象/Occurrence	破裂:R <Rupture>    燃烧:F <Fire>    解体:D <Disassembly>    排气:V <Venting> 渗漏:L <Leakage>    无异常:N <No rupture, No fire, No disassembly, No venting, No leakage>

国联劝告试验 结果 2

Test Result of UN Recommendations Part 2

试验名称/Test Name		T4: 冲击试验 Shock						
番号 No.	电池状态 Conditions	试验前/Before		试验后/After		质量减少率/ Mass Loss (0.1%以下)	OCV维持率/ Residual OCV (90%以上)	现象确认/ Occurrence
		Mass(g)	OCV (V)	Mass(g)	OCV (V)			
1	初回满充电/ First cycle, fully charged	124.62	4.140	124.62	4.140	0.00	100.0	N
2		124.33	4.138	124.33	4.138	0.00	100.0	N
3		124.83	4.136	124.83	4.136	0.00	100.0	N
4		124.63	4.138	124.63	4.138	0.00	100.0	N
5	50次循环后满充 电/ After 50 cycles, fully charged	124.78	4.126	124.78	4.126	0.00	100.0	N
6		124.87	4.123	124.87	4.123	0.00	100.0	N
7		124.63	4.122	124.63	4.122	0.00	100.0	N
8		124.65	4.124	124.65	4.124	0.00	100.0	N

\* 质量减少率/  
Mass Loss (%)

电池质量 ≤ 1g: 0.5%以下     1g < 电池质量 ≤ 5g: 0.2%以下     5g < 电池质量 : 0.1%以下

现象/Occurrence

破裂:R <Rupture> 燃烧:F <Fire> 解体:D <Disassembly> 排气:V <Venting>  
 渗漏:L <Leakage> 无异常:N <No rupture, No fire, No disassembly, No venting, No leakage>

试验名称/Test Name		T5: 外短路试验 External Short Circuit					
番号 No.	电池状态 Conditions	最大表面温度/Max. Surface Temperature (°C) 170°C	现象确认/ Occurrence	番号 No.	电池状态 Conditions	最大表面温度/Max. Surface Temperature (°C) 170°C	现象确认/ Occurrence
1	初回满充电/ First cycle, fully charged	55.2°C	N	5	50次循环后满充 电/ After 50 cycles, fully charged	55.5°C	N
2		55.7°C	N	6		56.0°C	N
3		54.8°C	N	7		54.8°C	N
4		55.0°C	N	8		55.6°C	N

现象/Occurrence

破裂:R <Rupture> 燃烧:F <Fire> 解体:D <Disassembly>  
 无异常:N <No rupture, No fire, No disassembly>

试验名称/Test Name		T6: 撞击试验 Impact					
番号 No.	电池状态 Conditions	最大表面温度/Max. Surface Temperature (°C) 170°C	现象确认/ Occurrence	番号 No.	电池状态 Conditions	最大表面温度/Max. Surface Temperature (°C) 170°C	现象确认/ Occurrence
1	初回 50%充电 (平面方向)/ First cycle, 50% charged (wide surface)	160°C以下*	N	6	初回50%充电 <长侧面方向>/ First cycle, 50% charged (narrow surface)	160°C以下*	N
2		160°C以下*	N	7		160°C以下*	N
3		160°C以下*	N	8		160°C以下*	N
4		160°C以下*	N	9		160°C以下*	N
5		160°C以下*	N	10		160°C以下*	N

现象/Occurrence

燃烧:F <Fire> 解体:D <Disassembly> 无异常:N <No fire, No disassembly>

试验名称/Test Name		T7: 过充电试验 Overcharge					
番号 No.	电池状态 Conditions	现象确认/Occurrence		番号 No.	电池状态 Conditions	现象确认/Occurrence	
1	初回满充电/ First cycle, fully charged	N		5	50次循环后 满充电/ After 50 cycles, fully charged	N	
2		N		6		N	
3		N		7		N	
4		N		8		N	

现象/Occurrence

燃烧:F <Fire> 解体:D <Disassembly> 无异常:N <No fire, No disassembly>

试验名称/Test Name		T8: 强制放电 Forced Discharge			
对象外/Not Applicable					

\* Temperature Measurement by Thermolabel  
 品保-P检-010(3)

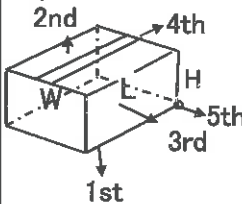


# 国連勧告試験 梱包結果

Test Result of UN Recommendations for Package

No : MDW-PC1805  
DATE : 2018.03.03  
PAGE : 6 of 6 Page

試験場所/ Test Company	村田新能源(无锡)有限公司			
住所/ Address	中国江苏省无锡市新区长江路27号		電話/ Tel	86-510-85239269
試験室/ Test Room	MDW国联劝告試験室	試験期間/ Test Dates	2013.2.21-2.13.2.24	試験番号/ Test No
機種名/ Murata Model Name	LIS2200LVPC		梱包入り数/ Quantity	40 pcs
使用セル/ Cell Model Name	US3183A2K7S	構成/ Configuration	2P1S	梱包製造所/ Package Factory
包装等級/ Packing Group	等級 II /Packing Group Number II			
寸法・質量 / Dimensions and Gross Weight	長辺/Length (L)	短辺 /Wide (W)	高さ/Height (H)	質量 /Gross Weight (kg)
	400 mm	300 mm	160 mm	8.0 kg

■ 落下試験/Drop Test			
試験設備	HORAD PD-315		
試験条件/ Test condition	落下高さ /Drop height	1.2m	試験結果 /Occurrence
落下姿勢(方向) / Five (one for each drop) 	1回目の落下試験	底面を水平に/ flat on the bottom	著しい破損なし/No Leakage, No damage liable to affect safety during
	2回目の落下試験	天面を水平に / flat on the top	著しい破損なし/No Leakage, No damage liable to affect safety during
	3回目の落下試験	長側面を水平に/ flat on the long side	著しい破損なし/No Leakage, No damage liable to affect safety during
	4回目の落下試験	短側面を水平に/ flat on the short side	著しい破損なし/No Leakage, No damage liable to affect safety during
	5回目の落下試験	コーナー(角)※/ on a corner	著しい破損なし/No Leakage, No damage liable to affect safety during
※コーナー: 容器が最も破損を受ける方向を選択			
判定基準/ Criterion	外装容器及び袋の場合、外装容器の最も外側の層に輸送中の安全を脅かすようないかなる破損が生じてはならない。		判定/ Judgment
			合格/OK

■ 積み重ね試験/Stacking Test			
試験条件/Test condition	No	試験結果 /Occurrence	
試験荷重値/Weight Load	145 kg	1	漏洩・破損・歪みなし/No leakage, No distortion, No deterioration
		2	漏洩・破損・歪みなし/No leakage, No distortion, No deterioration
		3	漏洩・破損・歪みなし/No leakage, No distortion, No deterioration
判定基準/ Criterion	試供品は漏洩があつてはならない。試供品は、輸送の安全性を損なうような劣化、又はその強度を減じたり、又は輸送物の積み重ねを不安定にするような歪みが生じてはならない。		判定/ Judgment
			合格/OK

  
  
 Weiwei Tang / Manager  
 CS・Quality Assurance Department  
 Murata Energy Device Wuxi Co., Ltd.  
 品保-P検-022(3)

総合判定
合格/OK



## 1. 2m落下試験写真／1. 2mDrop Test Photo

リチウムイオン電池／lithium-ion cell or battery

ムラタ機種名／Murata model name:            LIS2200LVPC

### Before



### After





積み重ね試験写真 // Stacking Test Photo

リチウムイオン電池 / lithium-ion cell or battery

ムラタ機種名 / Murata model name:            LIS2200LVPC

Before



After

