

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-PC1701

Date: 17.11.23

1. 単電池/single cell single cell battery
組電池/battery(pack) (セル構成/composition of cell : 1P3S)
2. 機種名/customer model name : AP13J4K Murata model name : LIS3117
3. 顧客名/customer : Acer
4. 定格/rated

| 項目/item | 規格値/specification | 備考/remarks |
|----------------------------------|-------------------|--|
| 公称電圧/nominal voltage | 11.4V | |
| 定格容量/rated capacity | 3720mAh | |
| ワット時定格値(Wh) /Watt-hour rating | 42.4Wh | 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) : LIS3105 (11.4V , 3720 mAh, 42.4Wh)

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 : 2013.10.21~2013.10.31(T1~T6&T7)

2014.03.17~2014.04.07 (T8)

梱包試験実施日/Tested Date for Package : 2017.10.26~2017.10.29

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%.

LIS3117/LIS3105 : $\frac{\text{ワット時定格値(Wh)}}{\text{ワット時定格値(Wh)}} = 100\%$ 、
 $\frac{\text{電圧比/Voltage Ratio}}{\text{電圧比/Voltage Ratio}} = 100\%$

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 : LIS3117

Component Cell Model : US486588H3K

| 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 |

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 : LIS3117

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

国联劝告 结果 1

Test Result of UN Recommendations Part 1

| | | | |
|------------------------|--|------------------|-----------------------|
| 机种名/Murata Model Name | LIS3105ACPG | | |
| cell使用/Cell Model Name | US486588H3K | 构成/Configuration | 1P 3S |
| 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 | 86-18068308951 |
| 试验室/Test Room | MDW国联劝告试验室 | 试验期间/Test Dates | 2013.10.21-2013.10.31 |
| 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 | | | | 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 |
|----------------|---|--------------------------------|---------|-----------|---------|---------------------------------|------------------------------------|---------------------|
| 番号 No. | 电池状态 Conditions | 试验前/Before | | 试验后/After | | | | |
| | | Mass (g) | OCV (V) | Mass (g) | OCV (V) | | | |
| 1 | 初回满充电/ First cycle, fully charged | 216.13 | 12.465 | 216.13 | 12.464 | 0.00% | 100.0% | N |
| 2 | | 215.62 | 12.469 | 215.62 | 12.468 | 0.00% | 100.0% | N |
| 3 | | 215.87 | 12.467 | 215.87 | 12.465 | 0.00% | 100.0% | N |
| 4 | | 215.93 | 12.465 | 215.92 | 12.463 | 0.00% | 100.0% | N |
| 5 | 50次循环后满充 电/ After 50 cycles, fully charged | 215.73 | 12.494 | 215.73 | 12.491 | 0.00% | 100.0% | N |
| 6 | | 215.14 | 12.494 | 215.14 | 12.476 | 0.00% | 99.9% | N |
| 7 | | 215.64 | 12.475 | 215.64 | 12.473 | 0.00% | 100.0% | N |
| 8 | | 215.47 | 12.488 | 215.47 | 12.486 | 0.00% | 100.0% | N |

| 试验名称/Test Name | | T2: 温度试验 Thermal | | | | 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 |
|----------------|---|------------------|---------|-----------|---------|---------------------------------|------------------------------------|---------------------|
| 番号 No. | 电池状态 Conditions | 试验前/Before | | 试验后/After | | | | |
| | | Mass (g) | OCV (V) | Mass (g) | OCV (V) | | | |
| 1 | 初回满充电/ First cycle, fully charged | 216.13 | 12.464 | 216.13 | 12.415 | 0.00% | 99.6% | N |
| 2 | | 215.62 | 12.468 | 215.62 | 12.437 | 0.00% | 99.8% | N |
| 3 | | 215.87 | 12.465 | 215.87 | 12.365 | 0.00% | 99.2% | N |
| 4 | | 215.92 | 12.463 | 215.92 | 12.433 | 0.00% | 99.8% | N |
| 5 | 50次循环后满充 电/ After 50 cycles, fully charged | 215.73 | 12.491 | 215.73 | 12.421 | 0.00% | 99.4% | N |
| 6 | | 215.14 | 12.476 | 215.14 | 12.451 | 0.00% | 99.8% | N |
| 7 | | 215.64 | 12.473 | 215.64 | 12.427 | 0.00% | 99.6% | N |
| 8 | | 215.47 | 12.486 | 215.47 | 12.393 | 0.00% | 99.3% | N |

| 试验名称/Test Name | | T3: 振动试验 Vibration | | | | 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 |
|----------------|---|--------------------|---------|-----------|---------|---------------------------------|------------------------------------|---------------------|
| 番号 No. | 电池状态 Conditions | 试验前/Before | | 试验后/After | | | | |
| | | Mass (g) | OCV (V) | Mass (g) | OCV (V) | | | |
| 1 | 初回满充电/ First cycle, fully charged | 216.13 | 12.415 | 216.13 | 12.412 | 0.00% | 100.0% | N |
| 2 | | 215.62 | 12.437 | 215.62 | 12.434 | 0.00% | 100.0% | N |
| 3 | | 215.87 | 12.365 | 215.87 | 12.361 | 0.00% | 100.0% | N |
| 4 | | 215.92 | 12.433 | 215.92 | 12.431 | 0.00% | 100.0% | N |
| 5 | 50次循环后满充 电/ After 50 cycles, fully charged | 215.73 | 12.421 | 215.72 | 12.418 | 0.00% | 100.0% | N |
| 6 | | 215.14 | 12.451 | 215.14 | 12.447 | 0.00% | 100.0% | N |
| 7 | | 215.64 | 12.427 | 215.63 | 12.425 | 0.00% | 100.0% | N |
| 8 | | 215.47 | 12.393 | 215.47 | 12.391 | 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 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 | 216.13 | 12.412 | 216.13 | 12.411 | 0.00% | 100.0% | N | |
| 2 | | 215.62 | 12.434 | 215.62 | 12.432 | 0.00% | 100.0% | N | |
| 3 | | 215.87 | 12.361 | 215.87 | 12.359 | 0.00% | 100.0% | N | |
| 4 | | 215.92 | 12.431 | 215.92 | 12.428 | 0.00% | 100.0% | N | |
| 5 | 50次循环后满充 电/ After 50 cycles, fully charged | 215.72 | 12.418 | 215.72 | 12.416 | 0.00% | 100.0% | N | |
| 6 | | 215.14 | 12.447 | 215.14 | 12.443 | 0.00% | 100.0% | N | |
| 7 | | 215.63 | 12.425 | 215.63 | 12.421 | 0.00% | 100.0% | N | |
| 8 | | 215.47 | 12.391 | 215.47 | 12.390 | 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 | 56.5°C | | N | 5 | 50次循环后满充 电/ After 50 cycles, fully charged | 55.7°C | | N |
| 2 | | 56.5°C | | N | 6 | | 55.3°C | | N |
| 3 | | 58.4°C | | N | 7 | | 55.3°C | | N |
| 4 | | 56.9°C | | N | 8 | | 55.4°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> | | | | | | | |

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

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国联劝告试验 结果 3

Test Result of UN Recommendations Part 3

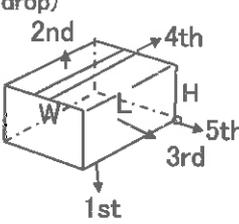
| 试验名称 /Test Name | | T8: 强制放电 Forced Discharge | | | |
|--------------------|--|---|-----------|--|---------------------|
| 番号 No. | 电池状态 Conditions | 现象确认 /Occurrence | 番号 No. | 电池状态 Conditions | 现象确认 /Occurrence |
| 1 | 初次循环 完全放电 / First cycle, fully discharged | N | 11 | 50次循环后 完全放电 / After 50 cycles, fully discharged | N |
| 2 | | N | 12 | | N |
| 3 | | N | 13 | | N |
| 4 | | N | 14 | | N |
| 5 | | N | 15 | | N |
| 6 | | N | 16 | | N |
| 7 | | N | 17 | | N |
| 8 | | N | 18 | | N |
| 9 | | N | 19 | | N |
| 10 | | N | 20 | | N |
| 现象 / Occurrence | | 起火:F <Fire> 解体:D <Disassembly> 无异常:N <No fire, No disassembly> | | | |

国連勧告試験 梱包結果

Test Result of UN Recommendations for Package

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| | | | | |
|--|--------------------------------|----------------------|-----------------------|---------------------------|
| 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 | 86-18068308951 | |
| 試験室/ Test Room | MDW国联劝告试验室 | 試験期間/ Test Dates | 2017.10.26~2017.10.29 | 試験番号/ Test No |
| 機種名/ Murata Model Name | LIS3117ACPC(SY6) | 梱包入り数/ Quantity | 30 pcs | |
| 使用セル/ Cell Model Name | US486588H3K | 構成/ Configuration | 1P3S | 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) |
| | 359 mm | 267 mm | 160 mm | 9.0 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 | 165 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.

| |
|-------|
| 総合判定 |
| 合格/OK |

社外秘 | INTERNAL
USE ONLY

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

ソニー機種名／Sony model name: _____ LIS3117ACPC(SY6)

Before



After



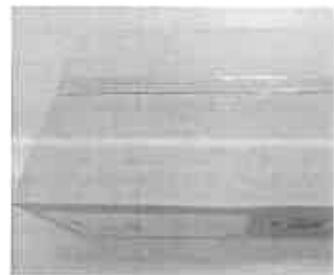
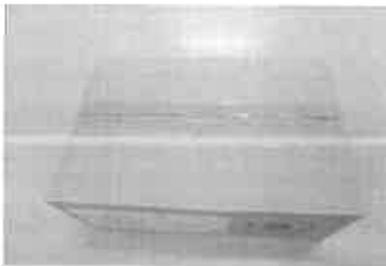
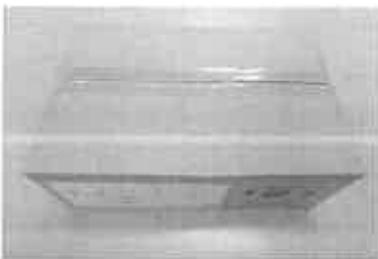


積み重ね試験写真//Stacking Test Photo

リチウムイオン電池/lithium-ion cell or battery

ソニー機種名/Sony model name: LIS3117ACPC(SY6)

Before



After

