



LG Chem, Ltd.
128, Yeoui-daero, Yeongdeungpo-gu,
Seoul, Korea

Certification & Evaluation Team
Tel: 82-42-870-6195, Fax: 82-42-863-0182
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CERTIFICATE OF COMPLIANCE

The following product has been evaluated according to the 5th revised edition Amendment2 of the UN Manual of Tests and Criteria.

We, LG Chem. Ltd hereby certify that this battery meets the requirements of the regulation for transportation of lithium-ion cells and batteries and single cell batteries.




<input type="checkbox"/> Lithium-ion cell <input type="checkbox"/> Lithium-ion battery <input checked="" type="checkbox"/> Lithium-ion single cell battery	
Model name	FT40
Cell Model name	ICP404981L1
Nominal voltage	3.8 V
Electric power capacity	8.5 Wh

Conducted By: Dae Ho Nam

Manager
Certification & Evaluation
LG Chem. Ltd
E-mail: kkammy@lgchem.com

Reviewed By: Byung Soo Kim

General Manager
Certification & Evaluation
LG Chem. Ltd
E-mail: bskim@lgchem.com

문서번호	QAE-EF02-140618-PKFT40	
Prepared	남익현	
	장승현	
Reviewed	남대호	
	우민제	
Approved	김병수	

SolutionPartner

UN Test Report

- FT40(Min.8.5Wh, 3.8V) -

목 차

1. UN Transportation Regulation Test
2. Test Procedure
3. Test Result
4. Sample Image

2014. 06. 18



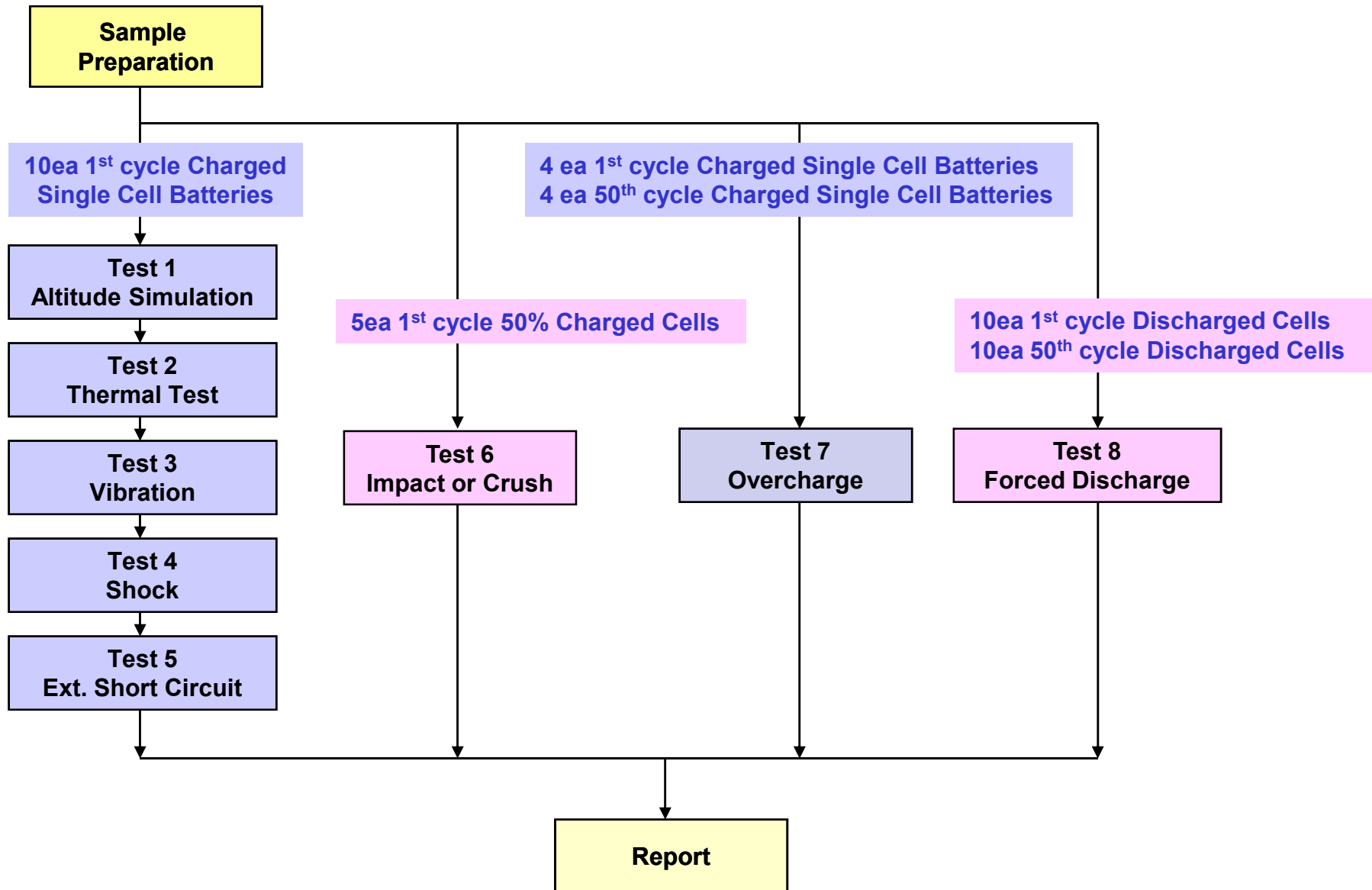
1. UN Transportation Regulation Test

Test	Condition	Requirements	
Test 1. Altitude Simulation	Storing at (low pressure)11.6kPa for 6hr at 20+/-5℃	- Measuring mass before/ after each test (If $M < 1g$, less than 0.5%, If $1g \leq M \leq 75g$, less than 0.2%, If $M > 75g$, less than 0.1%) - Measuring voltage before/ after each test (more than 90%) - No leakage, no venting, no disassembly, no rupture, no fire	
Test 2. Thermal Test	[72±2℃,6hr ↔ -40 ± 2℃,6hr,interval max. 30min] x 10cycle Storing at 20±5℃ for 24h		
Test 3. Vibration	[7Hz↔200Hz↔7Hz, in 15min] x 12 times x 3 direction 1) sinusoidal waveform with a logarithmic sweep 2) 7Hz 18Hz (maintaining 1gn) app. 50Hz (until 8gn) 200Hz (maintaining 8gn), 1.6mm total excursion		
Test 4. Shock	Half sine shock (peak acceleration : 150gn, pulse duration : 6msec) x 6 (±x, y, z), direction x 3 cycle		
Test 5. External Short Circuit	100mΩ ext. short-circuit at 55±2℃ 1hr continue after returning at 55±2℃		- No disassembly, no rupture, no fire within 6 hours after the test - Temp. monitoring (max. 170℃)
Test 6. Impact for cylindrical cells (> 18mm diameter)	Φ=15.8mm bar, 9.1kg mass, 61±2.5cm height		- No disassembly, no fire within 6 hours after the test - Temp. monitoring (max. 170℃)
Test 6. Crush for cylindrical cells (≤ 18mm diameter) for prismatic, pouch, coin/button cells	Crushing rate :1.5cm/s, until 13kN±0.78kN or 100mV drop or 50% deformation		
Test 7. Overcharge	Current = Manufacturer's recommended max. continuous charge current X 2 Voltage 1.If charge voltage ≤ 18V, V (min.) = 2 x (max. charge voltage) or V (min.) = 22V. 2.If charge voltage > 18V, V (min.) = 1.2 x (max. charge voltage)		- No disassembly, no fire within 7 days after the test
Test 8. Forced Discharge	Discharge at max. discharge current (with 12V DC power supply), Duration time = rated capacity/initial test current		

* Tests through T1-T5 shall be conducted in sequence with the same samples.

* We declare that the above-mentioned test is the result of being checked according to UN Test (Manual of Test and Criteria ST/SG/AC.10/11/Rev.5/Amd.2)

2. Test Procedure



3-1. T1-T4 Test Result

Before			Altitude (T1)					Thermal (T2)					Vibration (T3)					Shock (T4)				
NO.	OCV	Mass	OCV	Mass	Residual OCV(%)	Mass Loss(%)	Result	OCV	Mass	Residual OCV(%)	Mass Loss(%)	Result	OCV	Mass	Residual OCV(%)	Mass Loss(%)	Result	OCV	Mass	Residual OCV(%)	Mass Loss(%)	Result

A. 1st cycle fully charged state

1	4.322	38.525	4.321	38.524	99.99	0.002	Pass	4.267	38.524	98.75	0.000	Pass	4.267	38.522	100.00	0.006	Pass	4.267	38.522	99.99	0.001	Pass
2	4.321	38.527	4.320	38.523	99.98	0.010	Pass	4.269	38.518	98.82	0.013	Pass	4.268	38.517	99.97	0.004	Pass	4.268	38.515	99.99	0.004	Pass
3	4.321	38.528	4.320	38.523	99.97	0.012	Pass	4.267	38.521	98.78	0.007	Pass	4.266	38.520	99.98	0.003	Pass	4.265	38.519	99.99	0.001	Pass
4	4.321	38.522	4.320	38.519	99.99	0.007	Pass	4.262	38.517	98.65	0.005	Pass	4.262	38.517	99.99	0.002	Pass	4.261	38.516	99.98	0.002	Pass
5	4.322	38.524	4.321	38.523	99.98	0.003	Pass	4.267	38.522	98.75	0.003	Pass	4.267	38.519	99.99	0.008	Pass	4.266	38.516	99.99	0.006	Pass
6	4.322	38.528	4.322	38.525	99.99	0.008	Pass	4.266	38.524	98.72	0.003	Pass	4.265	38.522	99.97	0.005	Pass	4.265	38.519	100.00	0.007	Pass
7	4.321	38.523	4.321	38.522	99.99	0.003	Pass	4.263	38.521	98.66	0.001	Pass	4.263	38.519	99.99	0.007	Pass	4.261	38.519	99.96	0.000	Pass
8	4.322	38.522	4.321	38.519	99.97	0.007	Pass	4.269	38.519	98.81	0.001	Pass	4.268	38.519	99.96	0.001	Pass	4.266	38.516	99.96	0.006	Pass
9	4.322	38.523	4.321	38.523	99.97	0.001	Pass	4.270	38.522	98.81	0.001	Pass	4.269	38.521	100.00	0.003	Pass	4.268	38.519	99.97	0.005	Pass
10	4.322	38.528	4.321	38.523	99.99	0.012	Pass	4.270	38.520	98.81	0.010	Pass	4.270	38.518	100.00	0.003	Pass	4.268	38.518	99.96	0.001	Pass
Ave.	4.322	38.525	4.321	38.522	99.98	0.006	-	4.267	38.521	98.76	0.004	-	4.266	38.519	99.99	0.004	-	4.266	38.518	99.98	0.003	-

Requirement	<ul style="list-style-type: none"> - Measuring mass before/after each test (If $M > 75g$, less than 0.1%, $1g \leq M \leq 75$, less than 0.2%, $M < 1g$, less than 0.5%) - Measuring voltage before/after each test (more than 90%, only charged samples) - No leakage, no venting, no disassembly, no rupture, no fire
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3-2. T5/T7 Test Result

EXT.Short Circuit (T5)			
NO.	Initial OCV(V)	Max. Temp (°C)	Result

A. 1st cycle fully charged state

1	4.267	70.86	Pass
2	4.268	81.41	Pass
3	4.265	80.31	Pass
4	4.261	67.16	Pass
5	4.266	69.66	Pass
6	4.265	71.46	Pass
7	4.261	81.17	Pass
8	4.266	74.80	Pass
9	4.268	65.53	Pass
10	4.268	77.22	Pass
MAX.	4.268	81.41	-

Test Condition
- 100mΩ ext. short-circuit at 55±2°C

Requirement
- Temperature < 170 (°C) - No disassembly, no rupture, no fire within 6 hours after the test

Over Charge (T7)				
	NO.	Initial OCV(V)	Max. Temp (°C)	Result

A. 1st cycle fully state

Charge	11	4.322	23.04	Pass
	12	4.322	23.21	Pass
	13	4.322	22.65	Pass
	14	4.322	22.66	Pass
	MAX.	4.322	23.21	-

Test Condition
- Max. Charge Current : 2310mA - CC/CV 2I _{max} (4620mA) 8.7V cut-off 24Hr

Over Charge (T7)				
	NO.	Initial OCV(V)	Max. Temp (°C)	Result

B. 50th cycle fully state

Charge	15	4.321	22.80	Pass
	16	4.320	22.92	Pass
	17	4.321	22.64	Pass
	18	4.321	22.92	Pass
	MAX.	4.321	22.92	-

Requirement
- No disassembly, no fire within 7 day after the test

3-3. T6/T8 Test Result (ICP404981L1)

Crush (T6)				
Direction	NO.	Initial OCV(V)	Max. Temp (°C)	Result
A. 1st cycle 50% charged state				
Flat	C-1	3.857	23.40	Pass
	C-2	3.855	24.00	Pass
	C-3	3.859	23.50	Pass
	C-4	3.861	23.80	Pass
	C-5	3.857	24.20	Pass
MAX.		3.861	24.20	-

Test Condition
- Crushing rate :1.5cm/s, until 13kN±0.78kN or 100mV drop or 50% deformation

Requirement
- Temperature ≤ 170 (°C)
- No disassembly, no fire within 6 hours after the test

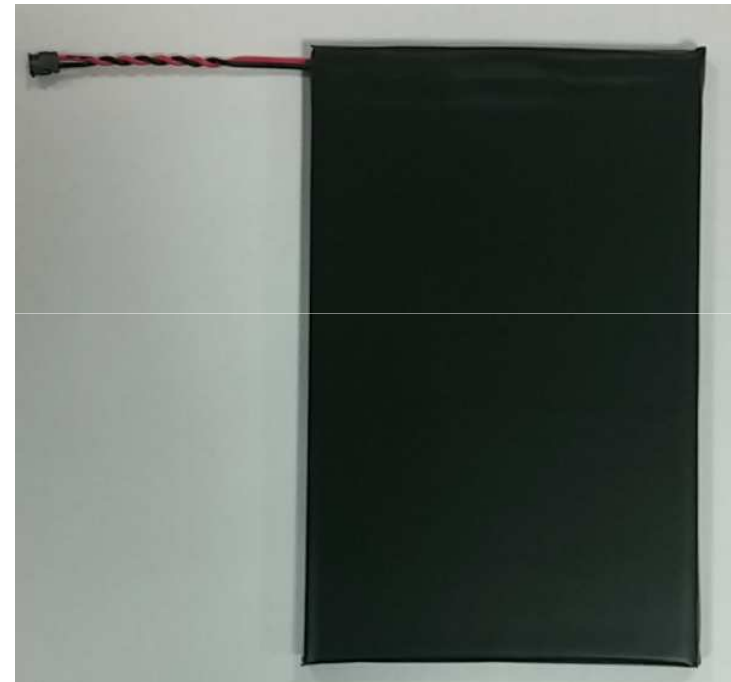
Forced Discharge (T8)				
NO.	Initial OCV(V)	Max. Temp (°C)	Result	
A. 1st cycle fully Discharged state				
C-6	3.329	79.92	Pass	
C-7	3.330	87.88	Pass	
C-8	3.328	65.57	Pass	
C-9	3.330	80.70	Pass	
C-10	3.341	81.30	Pass	
C-11	3.332	77.48	Pass	
C-12	3.331	78.31	Pass	
C-13	3.326	74.98	Pass	
C-14	3.325	67.44	Pass	
C-15	3.321	76.24	Pass	
MAX.		3.341	87.88	-

B. 50th cycle fully discharged state				
C-16	3.480	82.54	Pass	
C-17	3.491	90.38	Pass	
C-18	3.482	68.07	Pass	
C-19	3.460	79.98	Pass	
C-20	3.458	77.48	Pass	
C-21	3.476	68.07	Pass	
C-22	3.475	83.20	Pass	
C-23	3.459	83.80	Pass	
C-24	3.460	79.98	Pass	
C-25	3.458	90.50	Pass	
MAX.		3.491	90.50	-

Test Condition
- Discharge at max. discharge current (with 12V DC power supply) : 2310mA Duration time: rated capacity (60.0min)

Requirement
- No disassembly, no fire within 7 days after the test

4. Sample Image





LG Chem, Ltd.
128, Yeoui-daero, Yeongdeungpo-gu,
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<input type="checkbox"/> Lithium-ion cell <input type="checkbox"/> Lithium-ion battery <input checked="" type="checkbox"/> Lithium-ion single cell battery	
Model name	FT40
Cell Model name	ICP404981L1
Nominal voltage	3.8 V
Electric power capacity	8.5 Wh

Conducted By: Dae Ho Nam

Manager
Certification & Evaluation
LG Chem. Ltd
E-mail: kkammy@lgchem.com

Reviewed By: Byung Soo Kim

General Manager
Certification & Evaluation
LG Chem. Ltd
E-mail: bskim@lgchem.com

문서번호	QAE-EF02-140618-PKFT40	
Prepared	남익현	
	장승현	
Reviewed	남대호	
	우민제	
Approved	김병수	

SolutionPartner

UN Test Report

- FT40(Min.8.5Wh, 3.8V) -

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 **LG Chem**

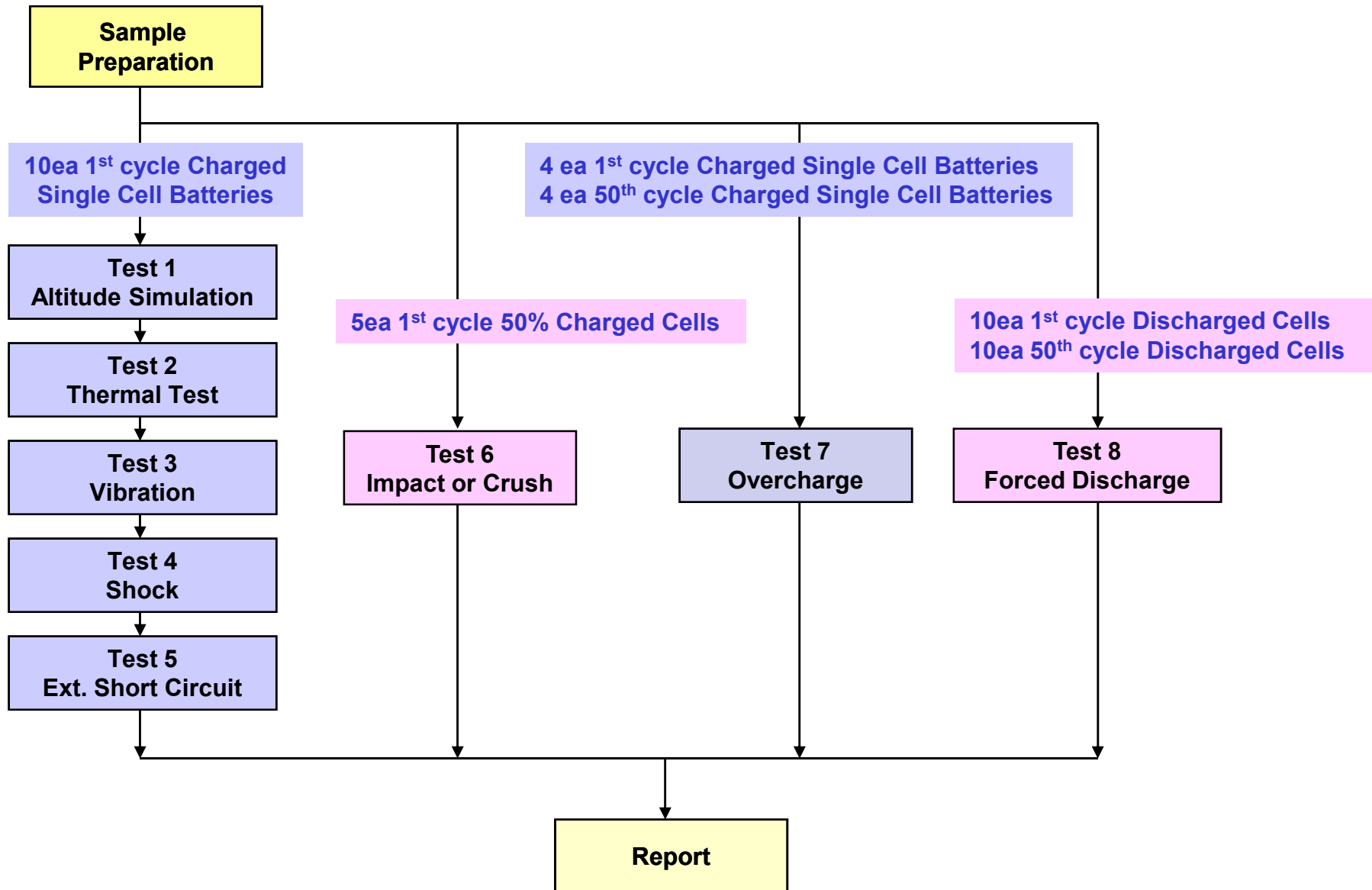
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Test 2. Thermal Test	[72±2℃,6hr ↔ -40 ± 2℃,6hr,interval max. 30min] x 10cycle Storing at 20±5℃ for 24h		
Test 3. Vibration	[7Hz↔200Hz↔7Hz, in 15min] x 12 times x 3 direction 1) sinusoidal waveform with a logarithmic sweep 2) 7Hz 18Hz (maintaining 1gn) app. 50Hz (until 8gn) 200Hz (maintaining 8gn), 1.6mm total excursion		
Test 4. Shock	Half sine shock (peak acceleration : 150gn, pulse duration : 6msec) x 6 (±x, y, z), direction x 3 cycle		
Test 5. External Short Circuit	100mΩ ext. short-circuit at 55±2℃ 1hr continue after returning at 55±2℃		- No disassembly, no rupture, no fire within 6 hours after the test - Temp. monitoring (max. 170℃)
Test 6. Impact for cylindrical cells (> 18mm diameter)	Φ=15.8mm bar, 9.1kg mass, 61±2.5cm height		- No disassembly, no fire within 6 hours after the test - Temp. monitoring (max. 170℃)
Test 6. Crush for cylindrical cells (≤ 18mm diameter) for prismatic, pouch, coin/button cells	Crushing rate :1.5cm/s, until 13kN±0.78kN or 100mV drop or 50% deformation		
Test 7. Overcharge	Current = Manufacturer's recommended max. continuous charge current X 2 Voltage 1.If charge voltage ≤ 18V, V (min.) = 2 x (max. charge voltage) or V (min.) = 22V. 2.If charge voltage > 18V, V (min.) = 1.2 x (max. charge voltage)		- No disassembly, no fire within 7 days after the test
Test 8. Forced Discharge	Discharge at max. discharge current (with 12V DC power supply), Duration time = rated capacity/initial test current		

* Tests through T1-T5 shall be conducted in sequence with the same samples.

* We declare that the above-mentioned test is the result of being checked according to UN Test (Manual of Test and Criteria ST/SG/AC.10/11/Rev.5/Amd.2)

2. Test Procedure



3-1. T1-T4 Test Result

Before			Altitude (T1)					Thermal (T2)					Vibration (T3)					Shock (T4)				
NO.	OCV	Mass	OCV	Mass	Residual OCV(%)	Mass Loss(%)	Result	OCV	Mass	Residual OCV(%)	Mass Loss(%)	Result	OCV	Mass	Residual OCV(%)	Mass Loss(%)	Result	OCV	Mass	Residual OCV(%)	Mass Loss(%)	Result

A. 1st cycle fully charged state

1	4.322	38.525	4.321	38.524	99.99	0.002	Pass	4.267	38.524	98.75	0.000	Pass	4.267	38.522	100.00	0.006	Pass	4.267	38.522	99.99	0.001	Pass
2	4.321	38.527	4.320	38.523	99.98	0.010	Pass	4.269	38.518	98.82	0.013	Pass	4.268	38.517	99.97	0.004	Pass	4.268	38.515	99.99	0.004	Pass
3	4.321	38.528	4.320	38.523	99.97	0.012	Pass	4.267	38.521	98.78	0.007	Pass	4.266	38.520	99.98	0.003	Pass	4.265	38.519	99.99	0.001	Pass
4	4.321	38.522	4.320	38.519	99.99	0.007	Pass	4.262	38.517	98.65	0.005	Pass	4.262	38.517	99.99	0.002	Pass	4.261	38.516	99.98	0.002	Pass
5	4.322	38.524	4.321	38.523	99.98	0.003	Pass	4.267	38.522	98.75	0.003	Pass	4.267	38.519	99.99	0.008	Pass	4.266	38.516	99.99	0.006	Pass
6	4.322	38.528	4.322	38.525	99.99	0.008	Pass	4.266	38.524	98.72	0.003	Pass	4.265	38.522	99.97	0.005	Pass	4.265	38.519	100.00	0.007	Pass
7	4.321	38.523	4.321	38.522	99.99	0.003	Pass	4.263	38.521	98.66	0.001	Pass	4.263	38.519	99.99	0.007	Pass	4.261	38.519	99.96	0.000	Pass
8	4.322	38.522	4.321	38.519	99.97	0.007	Pass	4.269	38.519	98.81	0.001	Pass	4.268	38.519	99.96	0.001	Pass	4.266	38.516	99.96	0.006	Pass
9	4.322	38.523	4.321	38.523	99.97	0.001	Pass	4.270	38.522	98.81	0.001	Pass	4.269	38.521	100.00	0.003	Pass	4.268	38.519	99.97	0.005	Pass
10	4.322	38.528	4.321	38.523	99.99	0.012	Pass	4.270	38.520	98.81	0.010	Pass	4.270	38.518	100.00	0.003	Pass	4.268	38.518	99.96	0.001	Pass
Ave.	4.322	38.525	4.321	38.522	99.98	0.006	-	4.267	38.521	98.76	0.004	-	4.266	38.519	99.99	0.004	-	4.266	38.518	99.98	0.003	-

Requirement	<ul style="list-style-type: none"> - Measuring mass before/after each test (If $M > 75g$, less than 0.1%, $1g \leq M \leq 75$, less than 0.2%, $M < 1g$, less than 0.5%) - Measuring voltage before/after each test (more than 90%, only charged samples) - No leakage, no venting, no disassembly, no rupture, no fire
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3-2. T5/T7 Test Result

EXT.Short Circuit (T5)			
NO.	Initial OCV(V)	Max. Temp (°C)	Result

A. 1st cycle fully charged state

1	4.267	70.86	Pass
2	4.268	81.41	Pass
3	4.265	80.31	Pass
4	4.261	67.16	Pass
5	4.266	69.66	Pass
6	4.265	71.46	Pass
7	4.261	81.17	Pass
8	4.266	74.80	Pass
9	4.268	65.53	Pass
10	4.268	77.22	Pass
MAX.	4.268	81.41	-

Test Condition
- 100mΩ ext. short-circuit at 55±2°C

Requirement
- Temperature < 170 (°C) - No disassembly, no rupture, no fire within 6 hours after the test

Over Charge (T7)				
	NO.	Initial OCV(V)	Max. Temp (°C)	Result

A. 1st cycle fully state

Charge	11	4.322	23.04	Pass
	12	4.322	23.21	Pass
	13	4.322	22.65	Pass
	14	4.322	22.66	Pass
	MAX.	4.322	23.21	-

Test Condition
- Max. Charge Current : 2310mA - CC/CV 2I _{max} (4620mA) 8.7V cut-off 24Hr

Over Charge (T7)				
	NO.	Initial OCV(V)	Max. Temp (°C)	Result

B. 50th cycle fully state

Charge	15	4.321	22.80	Pass
	16	4.320	22.92	Pass
	17	4.321	22.64	Pass
	18	4.321	22.92	Pass
	MAX.	4.321	22.92	-

Requirement
- No disassembly, no fire within 7 day after the test

3-3. T6/T8 Test Result (ICP404981L1)

Crush (T6)				
Direction	NO.	Initial OCV(V)	Max. Temp (°C)	Result
A. 1st cycle 50% charged state				
Flat	C-1	3.857	23.40	Pass
	C-2	3.855	24.00	Pass
	C-3	3.859	23.50	Pass
	C-4	3.861	23.80	Pass
	C-5	3.857	24.20	Pass
MAX.		3.861	24.20	-

Test Condition
- Crushing rate :1.5cm/s, until 13kN±0.78kN or 100mV drop or 50% deformation

Requirement
- Temperature ≤ 170 (°C)
- No disassembly, no fire within 6 hours after the test

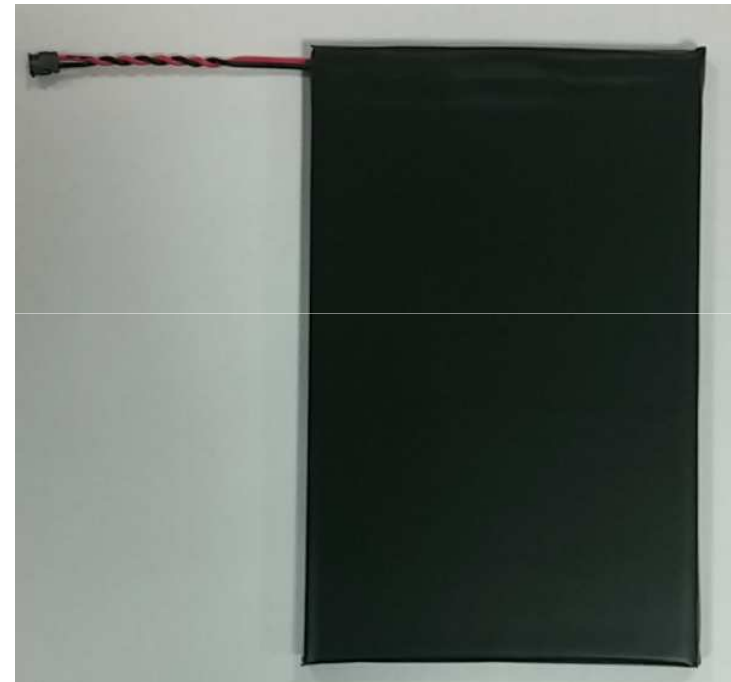
Forced Discharge (T8)				
NO.	Initial OCV(V)	Max. Temp (°C)	Result	
A. 1st cycle fully Discharged state				
C-6	3.329	79.92	Pass	
C-7	3.330	87.88	Pass	
C-8	3.328	65.57	Pass	
C-9	3.330	80.70	Pass	
C-10	3.341	81.30	Pass	
C-11	3.332	77.48	Pass	
C-12	3.331	78.31	Pass	
C-13	3.326	74.98	Pass	
C-14	3.325	67.44	Pass	
C-15	3.321	76.24	Pass	
MAX.		3.341	87.88	-

B. 50th cycle fully discharged state				
C-16	3.480	82.54	Pass	
C-17	3.491	90.38	Pass	
C-18	3.482	68.07	Pass	
C-19	3.460	79.98	Pass	
C-20	3.458	77.48	Pass	
C-21	3.476	68.07	Pass	
C-22	3.475	83.20	Pass	
C-23	3.459	83.80	Pass	
C-24	3.460	79.98	Pass	
C-25	3.458	90.50	Pass	
MAX.		3.491	90.50	-

Test Condition
- Discharge at max. discharge current (with 12V DC power supply) : 2310mA Duration time: rated capacity (60.0min)

Requirement
- No disassembly, no fire within 7 days after the test

4. Sample Image



SEW



Sony Electronics (Wuxi) Co., Ltd.

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

Phone: 86-510-8523-9120 / Fax: 86-510-8523-8505

リチウムイオン電池認証書

Lithium-ion rechargeable (polymer) cell or battery Certification

No: SEW-CB1472

Date:2014/08/05

1. 単電池 / single cell single cell battery
 組電池 / battery(pack) (セル構成 / composition of cell : 1P1S)
2. 機種名 / customer model name : _____ Sony model name : US434980H2
3. 顧客名 / customer : Motorola
4. 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	-	単電池は対象外
T8	強制放電 / Forced discharge	OK	組電池は対象外

試験実施日 / Tested Date : 2014/06/26~2014/07/11

梱包試験実施日 / Tested Date for Package : 2014/07/29~2014/08/01

5. 定格 / rated

項目 / item	規格値 / specification	備考 / remarks
公称電圧 / nominal voltage	3.8 V	
定格容量 / rated capacity	2370 mAh	
ワート時定格値(Wh) / Watt-hour rating	9.01 Wh	単電池 ≤ 20Wh 組電池 ≤ 100Wh cells ≤ 20Wh batteries ≤ 100Wh

上記テスト結果は国連勧告試験(UN Manual of Tests and Criteria 5th revised edition Amendment 1, 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, Sony Electronics (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, 5th revised edition Amendment 1, Part III, sub-section 38.3.

Weiwei Tang / Senior Manager
Quality Assurance Department
Sony Electronics (Wuxi) Co., Ltd.

品保-報告-038(6)



国連勧告試験 結果 1

Test Result of UN Recommendations Part 1

機種名 / Sony Model Name	US434980H2		
試験場所 / Test Company	ソニーエナジー・デバイス 株式会社 郡山事業所		
住所 / Address	〒963-0531 福島県郡山市日和田町高倉下杉下1-1	電話 / Tel.	+81-24-958-3811
試験室 / Test Room	安全性試験室 / 野外試験室	試験期間 / Test Dates	2014/06/26 ~ 2014/07/11
判定基準 / Criterion	UN Manual of Tests and Criteria 5th revised edition Amendment 1, Part III, sub-section 38.3		

試験名称 / Test Name		T1:高度シミュレーション試験 Altitude Simulation						
番号 No.	サンプル状態 Conditions	試験前 / Before		試験後 / After		質量減少率 / Mass Loss <0.2%以下>	OCV維持率 / Residual OCV (90%以上)	現象確認 / Occurrence
		mass (g)	OCV (V)	mass (g)	OCV (V)			
1	初回サイクル 満充電 / First cycle, Fully charged	39.09	4.342	39.09	4.333	0.00	99.8	N
2		39.15	4.343	39.15	4.334	0.00	99.8	N
3		39.10	4.342	39.11	4.333	-0.03	99.8	N
4		39.10	4.342	39.10	4.334	0.00	99.8	N
5		39.09	4.342	39.09	4.333	0.00	99.8	N
6		39.07	4.341	39.08	4.332	-0.03	99.8	N
7		39.11	4.343	39.11	4.334	0.00	99.8	N
8		39.14	4.342	39.14	4.333	0.00	99.8	N
9		39.09	4.343	39.09	4.334	0.00	99.8	N
10		39.05	4.342	39.05	4.332	0.00	99.8	N

試験名称 / Test Name		T2:温度試験 Thermal						
番号 No.	サンプル状態 Conditions	試験前 / Before		試験後 / After		質量減少率 / Mass Loss <0.2%以下>	OCV維持率 / Residual OCV (90%以上)	現象確認 / Occurrence
		mass (g)	OCV (V)	mass (g)	OCV (V)			
1	初回サイクル 満充電 / First cycle, Fully charged	39.09	4.333	39.09	4.238	0.00	97.8	N
2		39.15	4.334	39.15	4.238	0.00	97.8	N
3		39.11	4.333	39.11	4.241	0.00	97.9	N
4		39.10	4.334	39.10	4.240	0.00	97.8	N
5		39.09	4.333	39.09	4.240	0.00	97.9	N
6		39.08	4.332	39.08	4.234	0.00	97.7	N
7		39.11	4.334	39.11	4.239	0.00	97.8	N
8		39.14	4.333	39.14	4.239	0.00	97.8	N
9		39.09	4.334	39.09	4.239	0.00	97.8	N
10		39.05	4.332	39.05	4.230	0.00	97.6	N

試験名称 / Test Name		T3:振動試験 Vibration						
番号 No.	サンプル状態 Conditions	試験前 / Before		試験後 / After		質量減少率 / Mass Loss <0.2%以下>	OCV維持率 / Residual OCV (90%以上)	現象確認 / Occurrence
		mass (g)	OCV (V)	mass (g)	OCV (V)			
1	初回サイクル 満充電 / First cycle, Fully charged	39.09	4.238	39.09	4.224	0.00	99.7	N
2		39.15	4.238	39.15	4.223	0.00	99.6	N
3		39.11	4.241	39.11	4.230	0.00	99.7	N
4		39.10	4.240	39.10	4.225	0.00	99.6	N
5		39.09	4.240	39.09	4.227	0.00	99.7	N
6		39.08	4.234	39.08	4.219	0.00	99.6	N
7		39.11	4.239	39.11	4.227	0.00	99.7	N
8		39.14	4.239	39.14	4.224	0.00	99.6	N
9		39.09	4.239	39.09	4.225	0.00	99.7	N
10		39.05	4.230	39.05	4.210	0.00	99.5	N

質量減少率 / Mass Loss (%)	<input type="checkbox"/> 電池質量 < 1g: 0.5%以下 <input checked="" type="checkbox"/> 1g ≤ 電池質量 ≤ 75g: 0.2%以下 <input type="checkbox"/> 75g < 電池質量 : 0.1%以下		
現象 / Occurrence	破断: R <Rupture> 発火: F <Fire> 破裂: D <Disassembly> 弁作動: V <Venting> 漏液: L <Leakage> 異常なし: N <No rupture, No fire, No disassembly, No venting, No leakage>		

国連勧告試験 結果 2

Test Result of UN Recommendations Part 2

試験名称/Test Name		T4:衝撃試験 Shock						
番号 No.	サンプル状態 Conditions	試験前/Before		試験後/After		質量減少率 / Mass Loss <0.2%以下>	OCV維持率/ Residual OCV (90%以上)	現象確認/ Occurrence
		Mass (g)	OCV (V)	Mass (g)	OCV (V)			
1	初回サイクル 満充電 / First cycle, Fully charged	39.09	4.224	39.09	4.218	0.00	99.9	N
2		39.15	4.223	39.15	4.218	0.00	99.9	N
3		39.11	4.230	39.11	4.226	0.00	99.9	N
4		39.10	4.225	39.10	4.219	0.00	99.9	N
5		39.09	4.227	39.09	4.220	0.00	99.8	N
6		39.08	4.219	39.08	4.212	0.00	99.8	N
7		39.11	4.227	39.11	4.222	0.00	99.9	N
8		39.14	4.224	39.14	4.217	0.00	99.8	N
9		39.09	4.225	39.09	4.220	0.00	99.9	N
10		39.05	4.210	39.05	4.202	0.00	99.8	N
質量減少率 / Mass Loss (%)		<input type="checkbox"/> 電池質量 < 1g: 0.5%以下 <input checked="" type="checkbox"/> 1g ≤ 電池質量 ≤ 75g: 0.2%以下 <input type="checkbox"/> 75g < 電池質量 : 0.1%以下						
現象 / Occurrence		破断: R <Rupture> 発火: F <Fire> 破裂: D <Disassembly> 弁作動: V <Venting> 漏液: L <Leakage> 異常なし: N <No rupture, No fire, No disassembly, No venting, No leakage>						

試験名称/Test Name		T5:外部短絡試験 External Short Circuit		試験名称/Test Name		T6:圧壊 Crush	
番号 No.	サンプル状態 Conditions	最大表面温度 /Max. Surface Temperature	現象確認 /Occurrence	番号 No.	サンプル状態 Conditions	最大表面温度 /Max. Surface Temperature	現象確認 /Occurrence
1	初回サイクル 満充電 / First cycle, Fully charged	76.5	N	1	初回サイクル 50%充電 / First cycle, 50% charged	170°C以下	N
2		104.1	N	2		170°C以下	N
3		100.6	N	3		170°C以下	N
4		119.9	N	4		170°C以下	N
5		64.3	N	5		170°C以下	N
6		83.7	N	/			
7		106.5	N				
8		121.1	N				
9		124.1	N				
10		106.1	N				
現象 / Occurrence		破断: R <Rupture> 発火: F <Fire> 破裂: D <Disassembly> 異常なし: N <No rupture, No fire, No disassembly>		現象 / Occurrence		発火: F <Fire> 破裂: D <Disassembly> 異常なし: N <No fire, No disassembly>	

試験名称 /Test Name	T7: 過充電 Overcharge	試験名称/Test Name	T8: 強制放電 Forced Discharge				
対象外 / Not Applicable		番号 No.	サンプル状態 Conditions	現象確認 /Occurrence	番号 No.	サンプル状態 Conditions	現象確認 /Occurrence
		1	初回サイクル 完全放電 / First cycle, fully discharged	N	11	50回サイクル 完全放電 / 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		
現象 / Occurrence		発火: F <Fire> 破裂: D <Disassembly> 異常なし: N <No fire, No disassembly>					

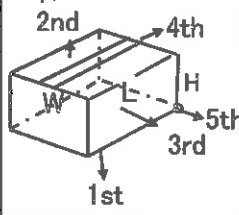


国連勧告試験 梱包結果

Test Result of UN Recommendations for Package

No : SEW-CB1472
DATE 2014.8.5
PAGE 4 of 4 Page

試験場所/ Test Company	索尼电子(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	SEW国联劝告試験室	試験期間/ Test Dates	2014.7.29-2014.8.1	試験番号/ Test N
機種名/ Sony Model Name	US434980H2	梱包入り数/ /Quantity	180 pcs	
使用セル/ Cell Model Name	US434980H2	構成/ Configuration	1P1S	梱包製造所/ Package Factor
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	10.0 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 damege 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 damege 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 damege 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 damege 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 damege 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	185 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	試供品は漏洩があってはならない。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 / Senior Manager
Quality Assurance Department
Sony Electronics(Wuxi) Co.,LTD
品保-P检-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

ソニー機種名／Sony model name: US434980H2

Before



After



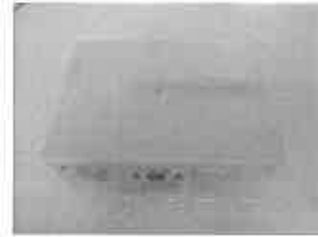
秘 | CONFIDENTIAL

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: US434980H2

Before



After



SEW



Sony Electronics (Wuxi) Co., Ltd.

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

Phone: 86-510-8523-9120 / Fax: 86-510-8523-8505

リチウムイオン電池認証書

Lithium-ion rechargeable (polymer) cell or battery Certification

No: SEW-CB1472

Date:2014/08/05

1. 単電池 / single cell single cell battery
 組電池 / battery(pack) (セル構成 / composition of cell : 1P1S)
2. 機種名 / customer model name : _____ Sony model name : US434980H2
3. 顧客名 / customer : Motorola
4. 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	-	単電池は対象外
T8	強制放電 / Forced discharge	OK	組電池は対象外

試験実施日 / Tested Date : 2014/06/26~2014/07/11

梱包試験実施日 / Tested Date for Package : 2014/07/29~2014/08/01

5. 定格 / rated

項目 / item	規格値 / specification	備考 / remarks
公称電圧 / nominal voltage	3.8 V	
定格容量 / rated capacity	2370 mAh	
ワート時定格値(Wh) / Watt-hour rating	9.01 Wh	単電池 ≤ 20Wh 組電池 ≤ 100Wh cells ≤ 20Wh batteries ≤ 100Wh

上記テスト結果は国連勧告試験(UN Manual of Tests and Criteria 5th revised edition Amendment 1, 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, Sony Electronics (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, 5th revised edition Amendment 1, Part III, sub-section 38.3.

Weiwei Tang / Senior Manager
Quality Assurance Department
Sony Electronics (Wuxi) Co., Ltd.

品保-報告-038(6)



国連勧告試験 結果 1

Test Result of UN Recommendations Part 1

機種名 / Sony Model Name	US434980H2		
試験場所 / Test Company	ソニーエナジー・デバイス 株式会社 郡山事業所		
住所 / Address	〒963-0531 福島県郡山市日和田町高倉下杉下1-1	電話 / Tel.	+81-24-958-3811
試験室 / Test Room	安全性試験室 / 野外試験室	試験期間 / Test Dates	2014/06/26 ~ 2014/07/11
判定基準 / Criterion	UN Manual of Tests and Criteria 5th revised edition Amendment 1, Part III, sub-section 38.3		

試験名称 / Test Name		T1:高度シミュレーション試験 Altitude Simulation						
番号 No.	サンプル状態 Conditions	試験前 / Before		試験後 / After		質量減少率 / Mass Loss <0.2%以下>	OCV維持率 / Residual OCV (90%以上)	現象確認 / Occurrence
		mass (g)	OCV (V)	mass (g)	OCV (V)			
1	初回サイクル満充電 / First cycle, Fully charged	39.09	4.342	39.09	4.333	0.00	99.8	N
2		39.15	4.343	39.15	4.334	0.00	99.8	N
3		39.10	4.342	39.11	4.333	-0.03	99.8	N
4		39.10	4.342	39.10	4.334	0.00	99.8	N
5		39.09	4.342	39.09	4.333	0.00	99.8	N
6		39.07	4.341	39.08	4.332	-0.03	99.8	N
7		39.11	4.343	39.11	4.334	0.00	99.8	N
8		39.14	4.342	39.14	4.333	0.00	99.8	N
9		39.09	4.343	39.09	4.334	0.00	99.8	N
10		39.05	4.342	39.05	4.332	0.00	99.8	N

試験名称 / Test Name		T2:温度試験 Thermal						
番号 No.	サンプル状態 Conditions	試験前 / Before		試験後 / After		質量減少率 / Mass Loss <0.2%以下>	OCV維持率 / Residual OCV (90%以上)	現象確認 / Occurrence
		mass (g)	OCV (V)	mass (g)	OCV (V)			
1	初回サイクル満充電 / First cycle, Fully charged	39.09	4.333	39.09	4.238	0.00	97.8	N
2		39.15	4.334	39.15	4.238	0.00	97.8	N
3		39.11	4.333	39.11	4.241	0.00	97.9	N
4		39.10	4.334	39.10	4.240	0.00	97.8	N
5		39.09	4.333	39.09	4.240	0.00	97.9	N
6		39.08	4.332	39.08	4.234	0.00	97.7	N
7		39.11	4.334	39.11	4.239	0.00	97.8	N
8		39.14	4.333	39.14	4.239	0.00	97.8	N
9		39.09	4.334	39.09	4.239	0.00	97.8	N
10		39.05	4.332	39.05	4.230	0.00	97.6	N

試験名称 / Test Name		T3:振動試験 Vibration						
番号 No.	サンプル状態 Conditions	試験前 / Before		試験後 / After		質量減少率 / Mass Loss <0.2%以下>	OCV維持率 / Residual OCV (90%以上)	現象確認 / Occurrence
		mass (g)	OCV (V)	mass (g)	OCV (V)			
1	初回サイクル満充電 / First cycle, Fully charged	39.09	4.238	39.09	4.224	0.00	99.7	N
2		39.15	4.238	39.15	4.223	0.00	99.6	N
3		39.11	4.241	39.11	4.230	0.00	99.7	N
4		39.10	4.240	39.10	4.225	0.00	99.6	N
5		39.09	4.240	39.09	4.227	0.00	99.7	N
6		39.08	4.234	39.08	4.219	0.00	99.6	N
7		39.11	4.239	39.11	4.227	0.00	99.7	N
8		39.14	4.239	39.14	4.224	0.00	99.6	N
9		39.09	4.239	39.09	4.225	0.00	99.7	N
10		39.05	4.230	39.05	4.210	0.00	99.5	N

質量減少率 / Mass Loss (%)	<input type="checkbox"/> 電池質量 < 1g: 0.5%以下 <input checked="" type="checkbox"/> 1g ≤ 電池質量 ≤ 75g: 0.2%以下 <input type="checkbox"/> 75g < 電池質量 : 0.1%以下		
現象 / Occurrence	破断: R <Rupture> 発火: F <Fire> 破裂: D <Disassembly> 弁作動: V <Venting> 漏液: L <Leakage> 異常なし: N <No rupture, No fire, No disassembly, No venting, No leakage>		

国連勧告試験 結果 2

Test Result of UN Recommendations Part 2

試験名称/Test Name		T4:衝撃試験 Shock						
番号 No.	サンプル状態 Conditions	試験前/Before		試験後/After		質量減少率 / Mass Loss <0.2%以下>	OCV維持率/ Residual OCV (90%以上)	現象確認/ Occurrence
		Mass (g)	OCV (V)	Mass (g)	OCV (V)			
1	初回サイクル 満充電 / First cycle, Fully charged	39.09	4.224	39.09	4.218	0.00	99.9	N
2		39.15	4.223	39.15	4.218	0.00	99.9	N
3		39.11	4.230	39.11	4.226	0.00	99.9	N
4		39.10	4.225	39.10	4.219	0.00	99.9	N
5		39.09	4.227	39.09	4.220	0.00	99.8	N
6		39.08	4.219	39.08	4.212	0.00	99.8	N
7		39.11	4.227	39.11	4.222	0.00	99.9	N
8		39.14	4.224	39.14	4.217	0.00	99.8	N
9		39.09	4.225	39.09	4.220	0.00	99.9	N
10		39.05	4.210	39.05	4.202	0.00	99.8	N
質量減少率 / Mass Loss (%)		<input type="checkbox"/> 電池質量 < 1g: 0.5%以下 <input checked="" type="checkbox"/> 1g ≤ 電池質量 ≤ 75g: 0.2%以下 <input type="checkbox"/> 75g < 電池質量 : 0.1%以下						
現象 / Occurrence		破断: R <Rupture> 発火: F <Fire> 破裂: D <Disassembly> 弁作動: V <Venting> 漏液: L <Leakage> 異常なし: N <No rupture, No fire, No disassembly, No venting, No leakage>						

試験名称/Test Name		T5:外部短絡試験 External Short Circuit		試験名称/Test Name		T6:圧壊 Crush	
番号 No.	サンプル状態 Conditions	最大表面温度 /Max. Surface Temperature	現象確認 /Occurrence	番号 No.	サンプル状態 Conditions	最大表面温度 /Max. Surface Temperature	現象確認 /Occurrence
1	初回サイクル 満充電 / First cycle, Fully charged	76.5	N	1	初回サイクル 50%充電 / First cycle, 50% charged	170℃以下	N
2		104.1	N	2		170℃以下	N
3		100.6	N	3		170℃以下	N
4		119.9	N	4		170℃以下	N
5		64.3	N	5		170℃以下	N
6		83.7	N	/			
7		106.5	N				
8		121.1	N				
9		124.1	N				
10		106.1	N				
現象 / Occurrence		破断: R <Rupture> 発火: F <Fire> 破裂: D <Disassembly> 異常なし: N <No rupture, No fire, No disassembly>		現象 / Occurrence		発火: F <Fire> 破裂: D <Disassembly> 異常なし: N <No fire, No disassembly>	

試験名称 /Test Name		T7: 過充電 Overcharge		試験名称/Test Name		T8: 強制放電 Forced Discharge		
番号 No.	サンプル状態 Conditions	現象確認 /Occurrence	番号 No.	サンプル状態 Conditions	現象確認 /Occurrence	番号 No.	サンプル状態 Conditions	現象確認 /Occurrence
対象外 / Not Applicable		1	初回サイクル 完全放電 / First cycle, fully discharged	N	50回サイクル 完全放電 / After 50 cycles, fully discharged	11		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
現象 / Occurrence		発火: F <Fire> 破裂: D <Disassembly> 異常なし: N <No fire, No disassembly>						

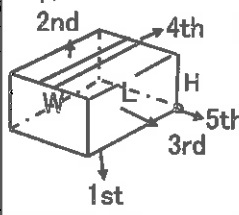


国連勧告試験 梱包結果

Test Result of UN Recommendations for Package

No : SEW-CB1472
DATE 2014.8.5
PAGE 4 of 4 Page

試験場所/ Test Company	索尼电子(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	SEW国联劝告试验室	試験期間/ Test Dates	2014.7.29-2014.8.1	試験番号/ Test N
機種名/ Sony Model Name	US434980H2	梱包入り数/ /Quantity	180 pcs	
使用セル/ Cell Model Name	US434980H2	構成/ Configuration	1P1S	梱包製造所/ Package Factor
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	10.0 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 damege 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 damege 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 damege 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 damege 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 damege 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	185 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	試供品は漏洩があってはならない。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 / Senior Manager
 Quality Assurance Department
 Sony Electronics(Wuxi) Co.,LTD
 品保-P检-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

ソニー機種名／Sony model name: US434980H2

Before



After



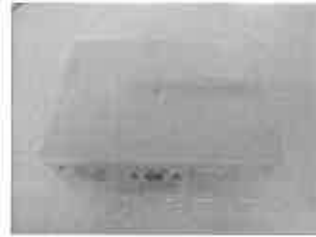
秘 | CONFIDENTIAL

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: US434980H2

Before



After

