扫微信二维码
关注谱尼测试

Pony Testing International Group

报告编号(Report ID): MNI8LFPX92967721

UN38.3 测试报告
UN38.3 Test Report

Sample Description & Model	Lithium polymer battery 103240 3.7V 1300mAh (3.7V 1300mAh 4.81Wh)
Applicant	Shenzhen Transtar Electronic Technology Co., LTD
Manufacturer	Shenzhen Transtar Electronic Technology Co., LTD

PONY 谱尼测试
Pony Testing International Group

声 明
Statement

1. 本报告仅对委托方所送样品负责。
The report is responsible for the provided sample only.

2. 本报告页面所使用“PONY”、“谱尼”字样为本单位的注册商标，其受《中华人民共和国商标法》保护，任何未经本单位授权的擅自使用和仿冒、伪造、变造“PONY”、“谱尼”商标均为违法侵权行为，本单位将依法追究其法律责任。
The pattern and characters of "PONY" and "谱尼" used in this report are protected by the trademark law of the People's Republic of China.Any unauthorized usage, counterfeit, forgery and alteration of trademarks of "PONY" and "谱尼" are the violations of the law. The PONY has the right to pursueall legal liabilities of the subject of the delict.

3. 委托方必须如实提供样品及资料，并保证申报品名和样品以及运输货物相同，否则本单位不承担任何相关责任。
The applicant shall provide accurately and truly the sample and the description of the sample, shall guarantee the declared sample's name to match with the sample and transport of goods. Otherwise PONY will not bear any relevant responsibility.

4. 本报告经审核人、批准人签字并加盖印章后生效。
This report shall become effective as soon as it reviewed by the checker and signed by the approver and stamped.

5. 委托方对报告数据如有异议，请于报告完成之日起十五日内向本单位书面提出复测申请，同时附上报告原件并预付复测费。
If the applicant has any objection about the results of the report, shall provide a written re-test application and simutenously attach the original report and pay the retest fees in advance within fifteen days since the approval date of the report.

6. 不可重复性或不能进行复测的实验，不进行复测，委托方放弃异议权利。
Tests that can not be repeated and tested shall not be perform the retest, the applicant shall abandon the right of any objection.

7. 本报告全部或部分复制、私自转让、盗用、冒用、涂改或以其它任何形式篡改的均属无效，本单位将对上述行为严究其相应的法律责任。
The report can not be copied in whole or part, the copied version is invalid. The certificate is invalid in case of illegal transfer, reproduction, embezzlement, imposture, modification or any altering. PONY shall investigate the applicant's legal liability accordingly.

8. 本报告不考虑国家及经营人差异。
The certificate/report takes no account of the differences of countries and applicants.

9. 本报告中的运输方式应与货物的运输方式相一致，不同的运输方式，结果可能会有差异。
The transport means of goods should be as the same as that declared in the report, as in case of different transport means of goods the results may be different.

▲防伪说明：

(1)报告编号是唯一的；

(2)报告采用特制防伪纸张印制，纸张表面带有“PONY”防伪纹路，该防伪纹路不支持复印，即复制件不会带有“PONY”防伪纹路；

(3)报告采用的防伪纸张内部亦加带有高科技“PONY”防伪水印，只有在验钞机等紫外线照射下方可显出无色荧光防伪字样；

(4)报告所盖防伪骑缝章中的一部分加盖于本单位的留底报告上，报告与本单位留底报告的骑缝章应拼合完整无缺。

扫微信二维码
关注谱尼测试

www.ponytest.com Hotline 400-819-5688

北京实验室：(010)83055000
上海实验室：(021)64851999
青岛实验室：(0532)88706866
深圳实验室：(0755)26050909
天津实验室：(022)27360730
苏州实验室：(0512)62997900
长春实验室：(0431)85150908
大连实验室：(0411)87336618
哈尔滨实验室：(0451)58627755
郑州实验室：(0371)69350670
新疆实验室：(0991)6684186
石家庄实验室：(0311)85376660
西安实验室：(029)89608785
呼和浩特实验室：(0471)3450025
杭州实验室：(0571)87219096
宁波实验室：(0574)87736499
武汉实验室：(027)83997127
合肥实验室：(0551)63843474
广州实验室：(020)89224310
厦门实验室：(0592)5568048
成都实验室：(028)87702708

Pony Testing International Group

I、SAMPLE DESCRIPTION

Sample description		Lithium polymer battery		Sample model	103240 3.7V 1300mAh
Applicant		Shenzhen Transtar Electronic Technology Co., LTD			
Manufacturer	Name	Shenzhen Transtar Electronic Technology Co., LTD			
	Address	6th floor, Building 2, yihua industrial park, xili daxing, nanshan district, shenzhen			
	Tel	+86-755-25883986			
	E-mail	willbatteries@hotmail.com		Web	www.chinabatteries.com
Nominal voltage		3.7V	Rated capacity	1300mAh	Limited charge voltage 4.20V
Charge current		650mA	Maximum continuous charge current	1300mA	End charge current 13mA
Cut-off voltage		2.75V	Maximum discharge current	1300mA	Mass 23g
Cell number		1PCS	Cell model	103240	Cell capacity 1300mAh
Manufacturer of cell		Shenzhen Transtar Electronic Technology Co., LTD			
Electrochemistry System		Li-Co			
Entrust date		2019-06-28		Finished date	2019-07-12

II、TEST METHOD

UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS" Manual of Tests and Criteria (ST/SG/AC.10/11/Rev.6/Amend.1), Part III sub-section.

III、TEST ITEM & CONCLUSION

ITEM	SAMPLE NUMBER	STANDARD	CONCLUSION
Altitude simulation	N1~N5 C1~C5	UN38.3 ST/SG/AC.10/11/Rev.6/ Amend.1	PASS
Thermal test			PASS
Vibration			PASS
Shock			PASS
External short circuit			PASS
Crush	N6~N10 C6~C10		PASS
Overcharge	N11~N14 C11~C14		PASS
Forced discharge	N15~N24 C15~C24		PASS

The Samples has passed the test items of UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS" Manual of Tests and Criteria (ST/SG/AC.10/11/Rev.6/ Amend.1), Part III sub-section.

Appraiser: zhou xiang zhu Checker: Jinshifang Approver:

Issue Date: July 12, 2019

Notes:

N1~N5, N11~N14: Cells at first cycle in fully charged states;

N6~N10: Cells at first cycle at 50% of the design rated capacity;

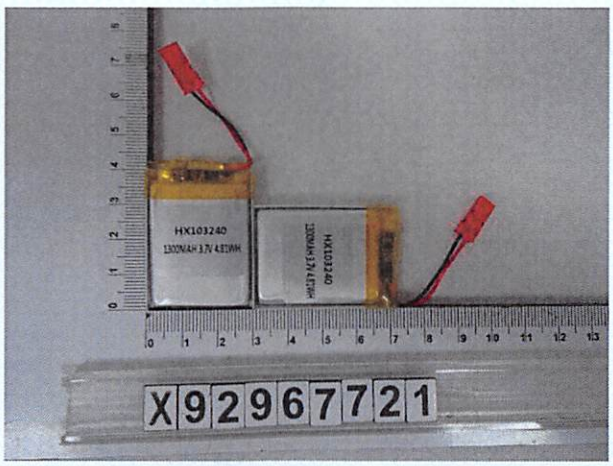
N15~N24: Cells at first cycle in fully discharged states;

C1~C5, C11~ C14: Cells after 25 cycles ending in fully charged states;

C6~C10: Cells after 25 cycles at 50% of the design rated capacity;

C15~C24: Cells after 25 cycles ending in fully discharged states.

IV、PHOTO OF THE SAMPLE



Authenticate the photo on original report only

V、TEST METHOD

Tests T.1 to T.5 shall be conducted in sequence on the same cell or battery. Tests T.6 and T.8 shall be conducted using not otherwise tested cells or batteries. Test T.7 may be conducted using undamaged batteries previously used in tests T.1 to T.5 for purposes of testing on cycled batteries.

In order to quantify the mass loss, the following procedure is provided:

$$Mass\ loss(\%) = (M_1-M_2) / M_1 \times 100$$

Where M_1 is the mass before the test and M_2 is the mass after the test. When mass loss does not exceed the values in Table below, it shall be considered as "no mass loss".

Mass M of cell or battery	Mass loss limit
M＜1g	0.5%
1g≤M≤75g	0.2%
M＞75g	0.1%

T.1 Altitude simulation

Test cells and batteries shall be stored at a pressure of 11.6 kPa or less for at least six hours at ambient temperature (20 ± 5 °C).

Cells and batteries meet this requirement if there is no leakage, no venting, no disassembly, no rupture and no fire and if the open circuit voltage of each test cell or battery after testing is not less than 90% of its voltage immediately prior to this procedure. The requirement relating to voltage is not applicable to test cells and batteries at fully discharged states.

T.2 Thermal test

Test cells and batteries are to be stored for at least six hours at a test temperature equal to 72 ± 2 °C, followed by storage for at least six hours at a test temperature equal to - 40 ± 2 °C. The maximum time interval between test temperature extremes is 30 minutes. This procedure is to be repeated until 10 total cycles are complete, after which all test cells and batteries are to be stored for 24 hours at ambient temperature (20 ± 5 °C). For large cells and batteries the duration of exposure to the test temperature extremes should be at least 12 hours.

Cells and batteries meet this requirement if there is no leakage, no venting, no disassembly, no rupture and no fire and if the open circuit voltage of each test cell or battery after testing is not less than 90% of its voltage immediately prior to this procedure. The requirement relating to voltage is not applicable to test cells and batteries at fully discharged states.

T.3 Vibration

Cells and batteries are firmly secured to the platform of the vibration machine without distorting the cells in such a manner as to faithfully transmit the vibration. The vibration shall be a sinusoidal waveform with a logarithmic sweep between 7 Hz and 200 Hz and back to 7 Hz traversed in 15 minutes. This cycle shall be repeated 12 times for a total of 3 hours for each of three mutually perpendicular mounting positions of the cell. One of the directions of vibration must be perpendicular to the terminal face.

The logarithmic frequency sweep shall differ for cells and batteries with a gross mass of not more than 12 kg (cells and small batteries), and for batteries with a gross mass of more than 12 kg (large batteries).

For cells and small batteries: from 7 Hz a peak acceleration of 1 g_n is maintained until 18 Hz is reached. The amplitude is then maintained at 0.8 mm (1.6 mm total excursion) and the frequency increased until a peak acceleration of 8 g_n occurs (approximately 50 Hz).

A peak acceleration of 8 g_n is then maintained until the frequency is increased to 200 Hz.

For large batteries: from 7 Hz to a peak acceleration of 1 g_n is maintained until 18 Hz is reached. The amplitude is then maintained at 0.8 mm (1.6 mm total excursion) and the frequency increased until a peak acceleration of 2 g_n occurs (approximately 25 Hz). A peak acceleration of 2 g_n is then maintained until the frequency is increased to 200 Hz.

Cells and batteries meet this requirement if there is no leakage, no venting, no disassembly, no rupture and no fire during the test and after the test and if the open circuit voltage of each test cell or battery after testing in its perpendicular mounting position is not less than 90% of its voltage immediately prior to this procedure. The requirement relating to voltage is not applicable to test cells and batteries at fully discharged states.

T.4 Shock

Test cells and batteries shall be secured to the testing machine by means of a rigid mount which will support all mounting surfaces of each test battery.

Each cell shall be subjected to a half-sine shock of peak acceleration of 150 g_n and pulse duration of 6 milliseconds. Alternatively, large cells may be subjected to a half-sine shock of peak acceleration of 50 g_n and pulse duration of 11 milliseconds.

Each battery shall be subjected to a half-sine shock of peak acceleration depending on the mass of the battery. The pulse duration shall be 6 millisecondsfor small batteries and 11 milliseconds for large batteries. The formulas below are provided to calculate the appropriate minimum peak accelerations.

Battery	Minimum peak acceleration	Pulse duration
Small batteries	150 g_n or result of formula Acceleration(g_n)= $\sqrt{\left(\frac{100850}{mass*}\right)}$ Whichever is smaller	6 ms
Large batteries	50 g_n or result of formula Acceleration(g_n)= $\sqrt{\left(\frac{30000}{mass*}\right)}$ Whichever is smaller	11 ms

* Mass is expressed in kilograms.

Each cell or battery shall be subjected to three shocks in the positive direction and to three shocks in the negative direction in each of three mutually perpendicular mounting positions of the cell or battery for a total of 18 shocks.

Cells and batteries meet this requirement if there is no leakage, no venting, no disassembly, no rupture and no fire and if the open circuit voltage of each test cell or battery after testing is not less than 90% of its voltage immediately prior to this procedure. The requirement relating to voltage is not applicable to test cells and batteries at fully discharged states.

T.5 External short circuit

The cell or battery to be tested shall be shall be heated for a period of time necessary to reach a homogeneous stabilized temperature of 57±4℃, measured on the external case. This period of time depends on the size and design of the cell or battery and should be assessed and documented. If this assessment is not feasible, the exposure time shall be at least 6 hours for small cells and small batteries, and 12 hours for large cells and large batteries. Then the cell or battery at 57±4℃ shall be subjected to one short circuit condition with a total external resistance of less than 0.1 ohm. This short circuit condition is continued for at least one hour after the cell or battery external case temperature has returned to 57±4℃, or in the case of the large batteries, has decreased by half of the maximum temperature increase observed during the test and remains below that value. The short circuit and cooling down phases shall be conducted at least at ambient temperature.

Cells and batteries meet this requirement if their external temperature does not exceed 170 °C and there is no disassembly, no rupture and no fire during the test and within six hours after the test.

T.6 Impact / Crush

Impact (applicable to cylindrical cells not less than 18 mm in diameter)

The test sample cell or component cell is to be placed on a flat smooth surface. A 15.8 mm ± 0.1mm diameter, at least 6 cm long, or the longest dimension of the cell, whichever is greater, Type 316 stainless steel bar is to be placed across the centre of the sample. A 9.1 kg ± 0.1 kg mass is to be dropped from a height of 61 ± 2.5 cm at the intersection of the bar and sample in a controlled manner using a near frictionless, vertical sliding track or channel with minimal drag on the falling mass. The vertical track or channel used to guide the falling mass shall be oriented 90 degrees from the horizontal supporting surface.

The test sample is to be impacted with its longitudinal axis parallel to the flat surface and perpendicular to the longitudinal axis of the 15.8 mm ± 0.1mm diameter curved surface lying across the centre of the test sample. Each sample is to be subjected to only a single impact.

Crush (applicable to prismatic, pouch, coin/button cells and cylindrical cells less than 18 mm in diameter)

A cell or component cell is to be crushed between two flat surfaces. The crushing is to be gradual with a speed of approximately 1.5 cm/s at the first point of contact. The crushing is to be continued until the first of the three options below is reached.

(a) The applied force reaches 13 kN ± 0.78 kN;

(b) The voltage of the cell drops by at least 100 mV; or

(c) The cell is deformed by 50% or more of its original thickness.

Once the maximum pressure has been obtained, the voltage drops by 100 mV or more, or the cell is deformed by at least 50% of its original thickness, the pressure shall be released.

A prismatic or pouch cell shall be crushed by applying the force to the widest side. A button/coin cell shall be crushed by applying the force on its flat surfaces. For cylindrical cells, the crush force shall be applied perpendicular to the longitudinal axis.

Each test cell or component cell is to be subjected to one crush only. The test sample shall be observed for a further 6 h. The test shall be conducted using test cells or component cells that have not previously been subjected to other tests.

Cells and component cells meet this requirement if their external temperature does not exceed 170 °C and there is no disassembly and no fire during the test and within six hours after this test.

T.7 Overcharge

The charge current shall be twice the manufacturer's recommended maximum continuous charge current. The minimum voltage of the test shall be as follows:

(a) When the manufacturer's recommended charge voltage is not more than 18V, the minimum voltage of the test shall be the lesser of two times the maximum charge voltage of the battery or 22V.

(b) When the manufacturer's recommended charge voltage is more than 18V, the minimum voltage of the test shall be 1.2 times the maximum charge voltage.

Tests are to be conducted at ambient temperature; the duration of the test shall be 24 hours.

Rechargeable batteries meet this requirement if there is no disassembly and no fire during the test and within seven days after the test.

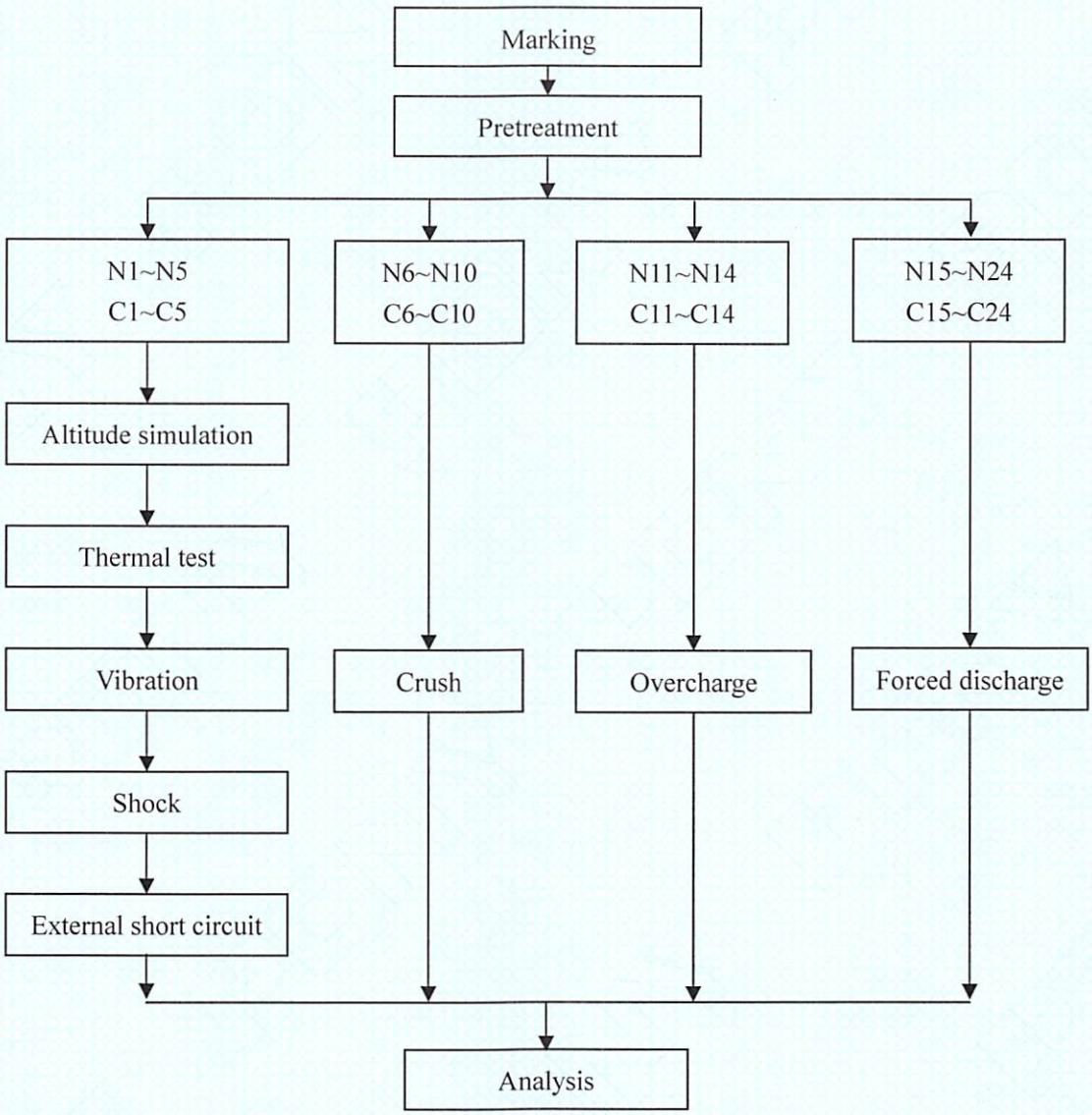
T.8 Forced discharge

Each cell shall be forced discharged at ambient temperature by connecting it in series with a 12V D.C. power supply at an initial current equal to the maximum discharge current specified by the manufacturer.

The specified discharge current is to be obtained by connecting a resistive load of the appropriate size and rating in series with the test cell. Each cell shall be forced discharged for a time interval (in hours) equal to its rated capacity divided by the initial test current (in ampere).

Primary or rechargeable cells meet this requirement if there is no disassembly and no fire during the test and within seven days after the test.

VI、TEST PROCEDURE



VII、TEST APPARATUS

IE-0121 High precision battery test system
IE-0434 Vacuum drying oven
IE-0090 Multimeter
IE-0824 Tableland air pressure gauge
IE-0259 Electronic balance
IE-0219 Rapid temperature change test chamber
IE-0503 Electric vibration test system
IE-0185 The digital thermometer (TC)
IE-0198 Battery crush testing machine
IE-0511 Programmable DC power source
IE-0281 Temperature controlled short circuit testing machine
IE-0287 Vertical impact crash test platform

VIII、DATA

1. Altitude simulation

No.	Pre-test		After test		Mass loss (%)	Voltage loss (%)	Whether leakage, venting, disassembly, rupture, fire (Y/N)
	Mass (g)	Voltage (V)	Mass (g)	Voltage (V)			
N1	22.308	4.170	22.307	4.162	0.004	0.192	N
N2	22.689	4.172	22.688	4.167	0.004	0.120	N
N3	22.731	4.172	22.731	4.166	0.000	0.144	N
N4	22.588	4.170	22.587	4.161	0.004	0.216	N
N5	22.451	4.174	22.450	4.168	0.004	0.144	N
C1	22.500	4.171	22.497	4.166	0.013	0.120	N
C2	22.596	4.174	22.596	4.169	0.000	0.120	N
C3	22.620	4.172	22.618	4.166	0.009	0.144	N
C4	22.534	4.173	22.534	4.167	0.000	0.144	N
C5	22.457	4.171	22.455	4.162	0.009	0.216	N

2. Thermal test

No.	Pre-test		After test		Mass loss (%)	Voltage loss (%)	Whether leakage, venting, disassembly, rupture, fire (Y/N)
	Mass (g)	Voltage (V)	Mass (g)	Voltage (V)			
N1	22.307	4.162	22.307	4.119	0.000	1.033	N
N2	22.688	4.167	22.686	4.121	0.009	1.104	N
N3	22.731	4.166	22.730	4.123	0.004	1.032	N
N4	22.587	4.161	22.585	4.122	0.009	0.937	N
N5	22.450	4.168	22.449	4.120	0.004	1.152	N
C1	22.497	4.166	22.496	4.122	0.004	1.056	N
C2	22.596	4.169	22.593	4.124	0.013	1.079	N
C3	22.618	4.166	22.617	4.122	0.004	1.056	N
C4	22.534	4.167	22.533	4.119	0.004	1.152	N
C5	22.455	4.162	22.454	4.109	0.004	1.273	N

3. Vibration

No.	Pre-test		After test		Mass loss (%)	Voltage loss (%)	Whether leakage, venting, disassembly, rupture, fire (Y/N)
	Mass (g)	Voltage (V)	Mass (g)	Voltage (V)			
N1	22.307	4.119	22.306	4.118	0.004	0.024	N
N2	22.686	4.121	22.686	4.121	0.000	0.000	N
N3	22.730	4.123	22.728	4.121	0.009	0.049	N
N4	22.585	4.122	22.581	4.120	0.018	0.049	N
N5	22.449	4.120	22.447	4.119	0.009	0.024	N
C1	22.496	4.122	22.492	4.120	0.018	0.049	N
C2	22.593	4.124	22.591	4.123	0.009	0.024	N
C3	22.617	4.122	22.614	4.121	0.013	0.024	N
C4	22.533	4.119	22.531	4.117	0.009	0.049	N
C5	22.454	4.109	22.452	4.107	0.009	0.049	N

4. Shock

No.	Pre-test		After test		Mass loss (%)	Voltage loss (%)	Whether leakage, venting, disassembly, rupture, fire (Y/N)
	Mass (g)	Voltage (V)	Mass (g)	Voltage (V)			
N1	22.306	4.118	22.306	4.118	0.000	0.000	N
N2	22.686	4.121	22.686	4.120	0.000	0.024	N
N3	22.728	4.121	22.726	4.121	0.009	0.000	N
N4	22.581	4.120	22.581	4.120	0.000	0.000	N
N5	22.447	4.119	22.447	4.119	0.000	0.000	N
C1	22.492	4.120	22.492	4.120	0.000	0.000	N
C2	22.591	4.123	22.591	4.122	0.000	0.024	N
C3	22.614	4.121	22.612	4.121	0.009	0.000	N
C4	22.531	4.117	22.531	4.117	0.000	0.000	N
C5	22.452	4.107	22.452	4.107	0.000	0.000	N

5. External short circuit

No.	Peak temperature (℃)	Whether disassembly, rupture, fire (Y/N)
N1	57.6	N
N2	57.4	N
N3	57.4	N
N4	57.3	N
N5	57.6	N
C1	57.8	N
C2	57.4	N
C3	57.7	N
C4	57.5	N
C5	57.6	N

6. Crush

No.	Peak temperature (℃)	Whether disassembly, fire (Y/N)
N6	23.4	N
N7	23.6	N
N8	23.7	N
N9	23.5	N
N10	23.8	N
C6	23.9	N
C7	23.7	N
C8	23.5	N
C9	23.6	N
C10	23.8	N

7. Overcharge

No.	Whether disassembly, fire (Y/N)
N11	N
N12	N
N13	N
N14	N
C11	N
C12	N
C13	N
C14	N

8. Forced discharge

No.	Whether disassembly, fire (Y/N)
N15	N
N16	N
N17	N
N18	N
N19	N
N20	N
N21	N
N22	N
N23	N
N24	N
C15	N
C16	N
C17	N
C18	N
C19	N
C20	N
C21	N
C22	N
C23	N
C24	N

*** End of report ***