Report No.: TSZ23090156-P01-R01 Page 1 of 3

Test Report

The following sample(s) and sample information was/were submitted and identified by/on the behalf of the client

Sample Name	:	Lithium-ion battery
Model/P.O. No.		401012-30mAh/ 400909-25mAh/ 400911-28mAh/ 401012-35mAh/ 450909-30mAh/ 450911-33mAh/ 701116-80mAh/ 380909-25mAh/ 501012-45mAh/ 501012-40mAh/ 902030-500mAh/ 601530-250mAh/ 701525-240mAh/ 401030-90mAh/ 402030-150mAh/ 502030-200mAh/ 602030-300mAh/ 602040-350mAh/ 701230-230mAh/601230-180mAh
Manufacturer	5.0	7200 3
Received Date	:	Sep 11, 2023
Test Period	:	Sep 11, 2023~Sep 14, 2023
Test Requested	ź	Regulation (EU) 2023/1542

Conclusion			7iae
- Lead(Pb), Cadmium(Cd), Mercu	ry(Hg)	长 湖	PASS

For Further Details, Please Refer To the Following Page(s)

Approved by:

Date: Sep 14, 2023

Report Seal . So (02-01)

Add: Building 1/4, No.2, Jinlong Road, Longgang District, Shenzhen, Guangdong, China.

Tel: 0755-89457984

E-mail: tsjc@tiansu.org

Post Code: 518116 Website: www.tiansu.org Report No.: TSZ23090156-P01-R01

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Test Methods

man -	Test Items	Test Method	Equipment
A	Lead(Pb), Cadmium(Cd)	IEC 62321-5:2013	ICP-OES
	Mercury(Hg)	IEC 62321-4:2013+AMD1:2017	ICP-OES

Test Results

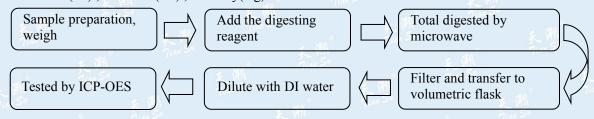
Test components	Test Item(s)	MDL (%)	Result(s) (%)	Limit (%)
	Lead(Pb)	0.0005	N.D.	0.0100
Lithium-ion battery	Cadmium(Cd)	0.0005	N.D.	0.0020
	Mercury(Hg)	0.0001	N.D.	0.0005

Note:

- N.D.=Not Detected (<MDL); MDL=method detection limit.
 - According to regulation (EU) 2023/1542, All batteries containing more than 0.002 % cadmium or more than 0.004 % lead, shall be marked with the chemical symbol for the metal concerned: Cd or Pb.
- The relevant chemical symbol indicating the heavy metal content shall be printed beneath the separate collection symbol and shall cover an area of at least one-quarter the size of that symbol.

Test Process:

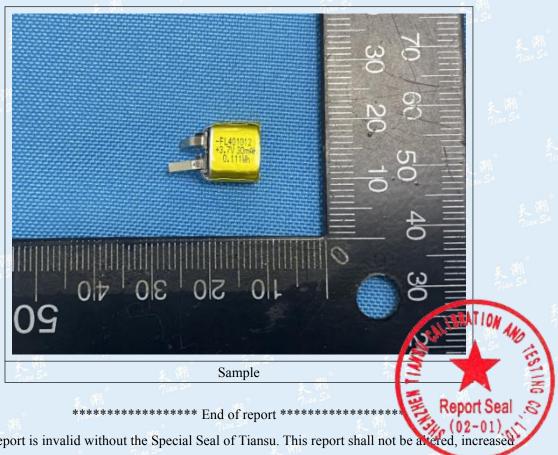
Test Lead(Pb) ,Cadmium(Cd) , Mercury(Hg) concentration:





Report No. : TSZ23090156-P01-R01 Page 3 of 3

Photo of the sample



This report is invalid without the Special Seal of Tiansu. This report shall not be attered, increased

or deleted. The results shown in this report refer only to the sample(s) tested.







Battery Test Report

Report No.: LA2023B0860001

Samples Polymer lithium-ion rechargeable Cell Model FL400909 **Applicant** Issue Date 2023-07-21



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Shenzhen Lionaces Technology Co., Ltd.



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Report No.: LA2023B0860001

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IEC 62133-2:2017, IEC 62133-2:2017/AMD1:2021

Secondary cells and batteries containing alkaline or other non-acid electrolytes - Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications - Part 2: Lithium systems

	Section 1		
Report Reference No:		10NACE SCES	
Tested by (+ signature)	Yanyun Xie	Xie Yanyun	
Reviewed by (+ signature):	Ming Zhu	Thehaving	
Approved by (+signature):	Rick Liu	Xie Yanyun Zhahnoning Likhi	
Date of issue:	2023-07-21	ONACES	
Contents::	Total 25 pages.		
Testing laboratory	LION	LION	10
Name:	Shenzhen Lionaces Techi	nology Co., Ltd.	
Address:	301, Building B6, Junfeng Community, Fuhai Street,	Industrial Zone, Yonghe Road, Heping Baoan, Shenzhen, Guangdong, China	
Testing location:	Same as above.		
Applicant Name: Address			
Manufacturer		ANACE TES	4
Name:			
Address:			
Test specification	- 1	LIUI	
Standard:	IEC 62133-2:2017, IEC 6	2133-2:2017/AMD1:2021	
Test procedure:	Type test		
Procedure deviation::	N/A		
Non-standard test method::	N/A		
Test Report Form/blank test report		LIONA	
Test Report Form No:	IEC62133_2B		
Test Report Form(s) Originator:	Lionaces		
Master TRF::	Dated 2022-07		
10	V NA	2005 AV 2	101

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Report No.: LA2023B0860001

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Test item					
Product designation			Polymer lithium-ic	on rechargeable Cell	
Brand name			N/A		
Test model	4110	:	FL400909		
Rating(s)		:	3.7V, 25mAh, 0.0	925Wh	
Test item particulars	IONA	3		IONAC	OCES.
Classification of installation	n and use	:	N/A		
Supply connection			DC electrode tab		
Recommend charging me manufacturer				nt current 5mA until the at 4.2V till charge cur °C.	
Discharge current(0.2 <i>l</i> _t A).		JON'	5mA		
Specified final voltage		:	3.0V		
Chemistry		:5	☐ nickel systems		
Recommend of charging	limit for lithium syster	n			
Upper limit charging volta	ge per cell	:	4.2V		
Maximum charging currer	nt	:	12.5mA		
Charging temperature upp	per limit	:	45°C		
Charging temperature low	ver limit		0°C		
Polymer cell electrolyte ty	pe	:	☐ gel polymer	☐ solid polymer	⊠ N/A
Test case verdicts	NACE			LIO	ACES ACES
Test case does not apply	to the test object		N (/A)		
Test item does meet the r	equirement	:	P (ass)		
Test item does not meet t	he requirement	:	F (ail)		
Testing	ION	100		LION	ACES.
Date of receipt of test iten	n	:	2023-07-05		
Date(s) of performance of	f test		2023-07-05 to 202	23-07-19	
Attachment	ES		2.	IONALL	IOCES.
Attachment A		:	Photos of product	4	LION
General remarks This report shall not be re The test results presented "(See remark #)" refers to "(See appended table)" re Throughout this report a p The product fulfills the 2017, EN 62133-2:2017/A	d in this report relate a remark appended efers to a table appen point is used as the d e requirements of IEC	only t to the nded t ecima	o the item tested. e report. to the report. al separator.	proval of the testing lab	ACES
Report Revise Record:	IONACE		- 15 PM	Liber	NACES
Report Version	Revise Time	1	Issued Date	Valid Version	Notes
V1.0	5 1	10	2023-07-21	Valid	Original report
2,100	- 25			2 1314	- VE-

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General product information

Cell
FL400909
25mAh
3.7V
5mA
5mA
12.5mA
25mA
4.2V
3.0V

Copy of marking plate

This is reference label, final label should be including the content of it.

 Red(+)
 Black (-)

 Lithium Ion Cell
 FL400909

 3.7V, 25mAh, 0.0925Wh
 ICP5/10/10

 Made in China
 Date: YYMMDD

Warning: Risk of Fire and Burns. Follow Manufacturer's Instructions.

Caution for ingestion of small batteries

Shenzhan Lionaces Technology Co., Ltd.

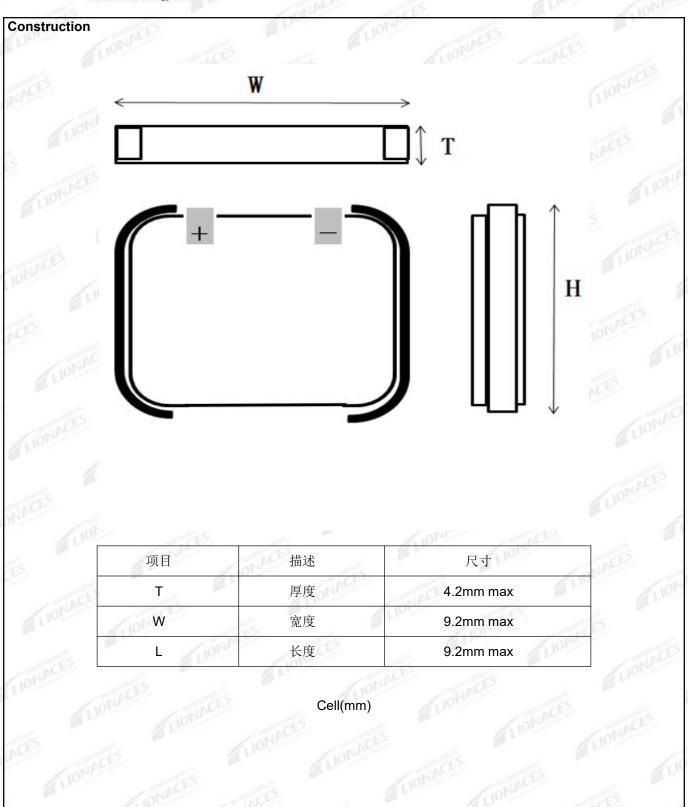
- Keep small cells and batteries which are considered swallowable out of the reach of children.
- Swallowing may lead to burns, perforation of soft tissue, and death. Severe burns can occur within 2 h of ingestion.
- In case of ingestion of a cell or battery, seek medical assistance promptly.

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Report No.: LA2023B0860001

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	2.00	CONTRACTOR OF THE PROPERTY OF	25 1 15
	IEC 62133-2:2017, IEC 62133-2	:2017/AMD1:2021	
Clause	Requirement – Test	Result – Remark	Verdict
4	Parameter measurement tolerances		ACP
DIVAL	Parameter measurement tolerances	Comply with relevant requirements.	P

5	General safety considerations	HONAC	Р
5.1	General	20	P
1101	Cells and batteries so designed and constructed that they are safe under conditions of both intended use and reasonably foreseeable misuse	LIONACES	Р
5.2	Insulation and wiring	OES THE	IO P
ION	The insulation resistance between the positive terminal and externally exposed metal surfaces of the battery (excluding electrical contact surfaces) is not less than $5\ M\Omega$	No metal case exists.	N/A
	Insulation resistance (MΩ)	MACES	_
TI.	Internal wiring and insulation are sufficient to withstand maximum anticipated current, voltage and temperature requirements	LIONACES	Р
LIONA	Orientation of wiring maintains adequate clearance and creepage distances between conductors	JACES SIACES	P
	Mechanical integrity of internal connections accommodates reasonably foreseeable misuse	LIONACES	P
5.3	Venting	THE STATE OF THE S	Р
ES.	Battery cases and cells incorporate a pressure relief mechanism or are constructed so that they relieve excessive internal pressure at a value and rate that will preclude rupture, explosion and self-ignition	Venting mechanism exists on the narrow side of pouch cell.	P
1101	Encapsulation used to support cells within an outer casing does not cause the battery to overheat during normal operation nor inhibit pressure relief	JONACES NACES	N/A
5.4	Temperature, voltage and current management	Cell only.	N/A
LION	Batteries are designed such that abnormal temperature rise conditions are prevented	HONACES	N/A
ACES	Batteries are designed to be within temperature, voltage and current limits specified by the cell manufacturer	HONAC	N/A
5	Batteries are provided with specifications and charging instructions for equipment manufacturers so that specified chargers are designed to maintain charging within the temperature, voltage and current limits specified	LIONACES	N/A

The results strong rule for 30 days only. The document is issued by Lionace it cannot be report refer only to the sample(s) tested unless otherwise stated and the sample(s) are retained for 30 days only. The document is issued by Lionace it cannot be report duced except in full with our prior written permission. The document is available on request and the brief information for its validation can the website, http://www.lionaces.com



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	24	276 OV	1019
	IEC 62133-2:2017, IEC 62133-2		1
Clause	Requirement – Test	Result – Remark	Verdict
5.5	Terminal contacts	100	ACP
N	The size and shape of the terminal contacts ensure that they can carry the maximum anticipated current	Complied. DC electrode tab.	Р
	External terminal contact surfaces are formed from conductive materials with good mechanical strength and corrosion resistance	LIONAL	Р
LION	Terminal contacts are arranged to minimize the risk of short-circuit	ONACES	Р
5.6	Assembly of cells into batteries	Cell only.	N/A
5.6.1	General	02	N/A
ACES	Each battery have an independent control and protection for current, voltage, temperature and any other parameter required for safety and to maintain the cells within their operating region	LIONACES	N/A
10	This protection may be provided external to the battery such as within the charger or the end devices	LIONACES	N/A
LIONA	If protection is external to the battery, the manufacturer of the battery provide this safety relevant information to the external device manufacturer for implementation	JACES LIONACES	N/A
NACES	If there is more than one battery housed in a single battery case, each battery have protective circuitry that can maintain the cells within their operating regions	S LIONAL ILI	N/A
ES	Manufacturers of cells specify current, voltage and temperature limits so that the battery manufacturer/ designer may ensure proper design and assembly	LIONAL	N/A
LIO	Batteries that are designed for the selective discharge of a portion of their series connected cells incorporate circuitry to prevent operation of cells outside the limits specified by the cell manufacturer	IONACES LIONACES	N/A
LIONAC	Protective circuit components added as appropriate and consideration given to the end-device application	LIONACES	N/A
ACES	The manufacturer of the battery provide a safety analysis of the battery safety circuitry with a test report including a fault analysis of the protection circuit under both charging and discharging conditions confirming the compliance	LIONACES	N/A
5.6.2	Design recommendation	HONAL	N/A
1014	For the battery consisting of a single cell or a single cellblock, it is recommended that the charging voltage	MACES	N/A

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Clause	Poquiroment Tost	2017/AMD1:2021 Result – Remark	Verdict
Clause	Requirement – Test	Result – Remark	verdic
NACES.	of the cell does not exceed the upper limit of the charging voltage specified in Table 2	and the same	LIOTACE
	For the battery consisting of series-connected plural single cells or series-connected plural cellblocks, it is recommended that the voltages of any one of the single cells or single cellblocks does not exceed the upper limit of the charging voltage, specified in Table 2, by monitoring the voltage of every single cell or the single cellblocks	ONACES LIONACES	N/A
JONACES	For the battery consisting of series-connected plural single cells or series-connected plural cellblocks, it is recommended that charging is stopped when the upper limit of the charging voltage is exceeded for any one of the single cells or single cellblocks by measuring the voltage of every single cell or the single cellblocks	LIONACES LIONACES	N/A
all a	For batteries consisting of series-connected cells or cell blocks, nominal charge voltage not be counted as an overcharge protection	LIONACES	N/A
LIONA	For batteries consisting of series-connected cells or cell blocks, cells have closely matched capacities, be of the same design, be of the same chemistry and be from the same manufacturer	JACES ONACES	N/A
IACES	It is recommended that the cells and cell blocks not discharged beyond the cell manufacturer's specified final voltage	LIONAC	N/A
	For batteries consisting of series-connected cells or cell blocks, cell balancing circuitry incorporated into the battery management system	LIONACES	N/A
5.6.3	Mechanical protection for cells and components of batteries	NACES (N/A
LIO	Mechanical protection for cells, cell connections and control circuits within the battery provided to prevent damage as a result of intended use and reasonably foreseeable misuse	CES LIONACES LION	N/A
LIU	The mechanical protection can be provided by the battery case or it can be provided by the end product enclosure for those batteries intended for building into an end product	LIONACES	N/A
61	The battery case and compartments housing cells designed to accommodate cell dimensional tolerances during charging and discharging as recommended by the cell manufacturer	LIONACES	N/A
	For batteries intended for building into a portable end	-65	N/A

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	IEC 62133-2:2017, IEC 62133-2	:2017/AMD1:2021	
Clause	Requirement – Test	Result – Remark	Verdict
MACES	end product considered when conducting mechanical tests	THE THE	ACES
5.7	Quality plan	IONACL	P 🥼
5	The manufacturer prepares and implements a quality plan that defines procedures for the inspection of materials, components, cells and batteries and which covers the whole process of producing each type of cell or battery	Complied.	5 P
5.8	Battery safety components	Cell only.	N/A
	According annex F	75 (LIO)	N/A

6	Type test and sample size		P
ACES	Tests are made with the number of cells or batteries specified in Table 1 using cells or batteries that are not more than six months old	INVACES LIONE	P
6	The internal resistance of coin cells are measured in accordance with Annex D. Coin cells with internal resistance less than or equal to 3 Ω are tested in accordance with Table 1	Prismatic cell	N/A
110	Unless otherwise specified, tests are carried out in an ambient temperature of 20 °C ± 5 °C	Tests are carried out at 20°C ± 5°C.	Р
NACES	The safety analysis of 5.6.1 identify those components of the protection circuit that are critical for short-circuit, overcharge and overdischarge protection	S LIONACES LICES	N/A
ES.	When conducting the short-circuit test, consideration given to the simulation of any single fault condition that is likely to occur in the protecting circuit that would affect the short-circuit test	INACES LIONACE	N/A

7	Specific requirements and tests		PCE
7.1	Charging procedure for test purposes	CES TES	P
7.1.1	First procedure	LION	Р
SES.	This charging procedure applies to subclauses other than those specified in 7.1.2	Lion	ACEP
5	Unless otherwise stated in this document, the charging procedure for test purposes is carried out in an ambient temperature of 20 °C ± 5 °C, using the method declared by the manufacturer	See page 3.	P
600	Prior to charging, the battery have been discharged at 20 °C ± 5 °C at a constant current of 0,2 It A down to	See page 3.	P

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	IFO 00400 0 0047, IFO 00400 0	.0047/AMD4.0004	E. 101
	IEC 62133-2:2017, IEC 62133-2		
Clause	Requirement – Test	Result – Remark	Verdict
-65	a specified final voltage		ACE
7.1.2	Second procedure	TO LIVE	P
1	This charging procedure applies only to 7.3.1, 7.3.4, 7.3.5, and 7.3.9	LIONACES	P
LION	After stabilization for 1 h and 4 h, respectively, at ambient temperature of highest test temperature and lowest test temperature, as specified in Table 2, cells are charged by using the upper limit charging voltage and maximum charging current, until the charging current is reduced to 0,05 lt A, using a constant voltage charging method	ONACES LIONACES	PLION
7.2	Intended use	ACES S	Р
7.2.1	Continuous charging at constant voltage (cells)	LIONACE	P
ACES	Fully charged cells are subjected for 7 days to a charge using the charging method for current and standard voltage specified by the cell manufacturer	Tested complied.	P
a Li	Results: No fire. No explosion. No leakage:	(See appended table 7.2.1)	Р
7.2.2	Case stress at high ambient temperature (battery)	Cell only.	N/A
LIO	Oven temperature (°C):	ONACL	_
INCES.	Results: No physical distortion of the battery case resulting in exposure of internal protective components and cells	5 LIONACE LI	N/A
7.3	Reasonably foreseeable misuse	anacts see ES	P
7.3.1	External short-circuit (cell)	Tested complied.	5 P
15	The cells were tested until one of the following occurred:	LIONA	P
LION	- 24 hours elapsed; or	JOHN ACES	N/A
	- The case temperature declined by 20 % of the maximum temperature rise	LIONACE	P
IONAL	Results: No fire. No explosion:	(See appended table 7.3.1)	Р
7.3.2	External short-circuit (battery)	Cell only	N/A
ACES	The batteries were tested until one of the following occurred:	Lion	N/A
1	- 24 hours elapsed; or	NACES TO SES	N/A
, gr	- The case temperature declined by 20 % of the maximum temperature rise	LIONALES	N/A
AVIO	In case of rapid decline in short circuit current, the battery pack remained on test for an additional one	MACES	N/A

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	IFC 60422 0:2047 IFC 62422 0	·2047/AND4·2024	× 101
Claves	IEC 62133-2:2017, IEC 62133-2	1	Vandiat
Clause	Requirement – Test hour after the current reached a low end steady state	Result – Remark	Verdict
NACES.	condition	(10	AL
3	A single fault in the discharge protection circuit conducted on one to four (depending upon the protection circuit) of the five samples before conducting the short-circuit test	LIONACES	N/A
LION	A single fault applies to protective component parts such as MOSFET, fuse, thermostat or positive temperature coefficient (PTC) thermistor	ONACES	N/A
	Results: No fire. No explosion:	(See appended table 7.3.2)	N/A
7.3.3	Free fall	Co.	Р
10.	Results: No fire. No explosion	No fire. No explosion	Р
7.3.4	Thermal abuse (cells)	Lion	S P
ACE	Oven temperature (°C):	130°C	-/.
1	Results: No fire. No explosion	No fire. No explosion	Р
7.3.5	Crush (cells)	Tested complied.	Р
	The crushing force was released upon:	Lion	P
LIONA	- The maximum force of 13 kN \pm 0,78 kN has been applied; or	JACIS JONACES	N/A
-CS	- An abrupt voltage drop of one-third of the original voltage has been obtained	S LIONACE	NACES
NAC	Results: No fire. No explosion:	(See appended table 7.3.5)	Р
7.3.6	Over-charging of battery	Cell only.	N/A
15	The supply voltage which is:	ONAC	2 -
LION	- 1,4 times the upper limit charging voltage presented in Table A.1 (but not to exceed 6,0 V) for single cell/cell block batteries or	IONACES INACES	N/A
ONACI	- 1,2 times the upper limit charging voltage resented in Table A.1 per cell for series connected multi-cell batteries, and	CES LIONAL	N/A
D.	- Sufficient to maintain a current of 2,0 It A throughout the duration of the test or until the supply voltage is reached	LIONACES	N/A
ACE	Test was continued until the temperature of the outer casing:	anacts as	N/A
, a	- Reached steady state conditions (less than 10 °C change in 30-minute period); or	LIONAL	N/A
	- Returned to ambient	SIACES	N/A
110NF	Results: No fire. No explosion:	(See appended table 7.3.6)	N/A

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	IEC 62133-2:2017, IEC 62133-2:	.2017/AIVID 1.2021	
Clause	Requirement – Test	Result – Remark	Verdict
7.3.7	Forced discharge (cells)	Tested complied.	ACP
NAL	Discharge a single cell to the lower limit discharge voltage specified by the cell manufacturer	HONACES	Р
3	The discharged cell is then subjected to a forced discharge at 1 It A to the negative value of the upper limit charging voltage	HONACI	P
LION	- The discharge voltage reaches the negative value of upper limit charging voltage within the testing duration. The voltage is maintained at the negative value of the upper limit charging voltage by reducing the current for the remainder of the testing duration	CES LIONACES	N/A
ION	- The discharge voltage does not reach the negative value of upper limit charging voltage within the testing duration. The test is terminated at the end of the testing duration	LIONACES	P
	Results: No fire. No explosion:	(See appended table 7.3.7)	Р
7.3.8	Mechanical tests (batteries)	Cell only	N/A
7.3.8.1	Vibration	LIONAL	N/A
LIONA	Results: No fire, no explosion, no rupture, no leakage or venting:	(See appended table 7.3.8.1)	N/A
7.3.8.2	Mechanical shock	LION	N/A
NACES	Results: No leakage, no venting, no rupture, no explosion and no fire:	(See appended table 7.3.8.2)	N/A
7.3.9	Design evaluation – Forced internal short-circuit (cells)	LIONACES	P
65	The cells complied with national requirement for:	France, Japan, Korea, Switzerland	S
	The pressing was stopped upon:	IACES.	P
110	- A voltage drop of 50 mV has been detected; or	101 ACES	Р
200	- The pressing force of 800 N (cylindrical cells) or 400 N (prismatic cells) has been reached	400N	P
IONAL	Results: No fire:	(See appended table 7.3.9)	Р

8	Information for safety		ACEP
8.1	General	and the same of th	P
5	Manufacturers of secondary cells provides information about current, voltage and temperature limits of their products	Information for safety mentioned in manufacturer's specifications.	Р
- 03	Manufacturers of batteries provides information regarding how to minimize and mitigate hazards to	Information for safety mentioned in manufacturer's specifications.	LPN

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Shenzhen Lionaces Technology Co., Ltd.

Report No.: LA2023B0860001

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	IEC 62133-2:2017, IEC 62133-2	Z017/AWID1.Z021	
Clause	Requirement – Test	Result – Remark	Verdict
196	equipment manufacturers or end-users	The same of the sa	ACES
NACL	Systems analyses performed by device manufacturers to ensure that a particular battery design prevents hazards from occurring during use of a product	LIONACES	N/A
5 1101	As appropriate, any information relating to hazard avoidance resulting from a system analysis provided to the end user	ONACES	N/A
8.2	Small cell and battery safety information	Small cell.	Р
IONACE	The following warning language is to be provided with the information packaged with the small cells and batteries or equipment using them:	CES LINES	IO PC
and the	- Keep small cells and batteries which are considered swallowable out of the reach of children	LIONACE	P
ACL	- Swallowing may lead to burns, perforation of soft tissue, and death. Severe burns can occur within 2 h of ingestion	LIONACES	Pu
	- In case of ingestion of a cell or battery, seek medical assistance promptly	LIONACE	Р

9	Marking		Р
9.1	Cell marking	LIONAL CONTRACTOR	NAP
NACES	Cells marked as specified in IEC 61960, except coin cells	The final product is cell.	Р
ES	Coin cells whose external surface area is too small to accommodate the markings on the cells show the designation and polarity	LIONACI	Р
LIC	By agreement between the cell manufacturer and the battery and/or end product manufacturer, component cells used in the manufacture of a battery need not be marked	IONACES LIONACES	N/A
9.2	Battery marking	Cell only	N/A
Do	Batteries marked as specified in IEC 61960, except for coin batteries	LIONACE	N/A
CES	Coin batteries whose external surface area is too small to accommodate the markings on the batteries show the designation and polarity. Batteries also marked with an appropriate caution statement	LIONACES LION	N/A
	Batteries are marked with an appropriate caution statement	LIONACES	N/A
1	- Terminals have clear polarity marking on the	MACCO	N/A

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Clause	Requirement – Test	Result – Remark	Verdict
2000	external surface of the battery, or	ELIO .	ACES
NACL	- Not be marked with polarity markings if the design of the external connector prevents reverse polarity connections	LIONACES	N/A
9.3	Caution for ingestion of small cells and batteries	Not consumer replaceable	N/A
1.101	Coin cells and batteries identified as small batteries according to 8.2 include a caution statement regarding the hazards of ingestion in accordance with 8.2	ONACES	N/A
TONACE	When small cells and batteries are intended for direct sale in consumer-replaceable applications, caution for ingestion given on the immediate package	LIONACES LION	N/A
9.4	Other information	LION	CES P
ACE	The following information are marked on or supplied with the battery:	INNACES LION	Pu
61	Storage and disposal instructions	ONACES	Р
	Recommended charging instructions	HONO	Р

- and	CLS LION DOCKS	LION
10	Packaging and transport	N/A
200	Packaging for coin cells not small enough to fit within the limits of the ingestion gauge of Figure 3	N/A

Annex A	Charging and discharging range of secondary lith	ium ion cells for safe use	Р
A.1	General	ON TO	Р
A.2	Safety of lithium ion secondary battery	CCS BLO	Pior
A.3	Consideration on charging voltage	101 ACES	Р
A.3.1	General	Charging voltage is 4.2V	Р
A.3.2	Upper limit charging voltage	4.2V	PCF
A.3.2.1	General	NACE .	Р
A.3.2.2	Explanation of safety viewpoint	4.2V applied.	N/A
A.3.2.3	Safety requirements, when different upper limit charging voltage is applied	Lion	N/A
A.4	Consideration of temperature and charging current	LIONACES	P
A.4.1	General	JONACE	Р
A.4.2	Recommended temperature range	Charging temperature declared by client is: 0-45°C.	P

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Clause	Dequirement Test	Decult Demark	Verdict
	Requirement – Test	Result – Remark	
A.4.2.1	General	100	ACP
A.4.2.2	Safety consideration when a different recommended temperature range is applied	HONACES	Р
A.4.3	High temperature range	Not higher than the temperature range specified in this standard.	N/A
A.4.3.1	General	TES.	N/A
A.4.3.2	Explanation of safety viewpoint	ONACES	N/A
A.4.3.3	Safety considerations when specifying charging conditions in the high temperature range	LIONACES	N/A
A.4.3.4	Safety considerations when specifying a new upper limit in the high temperature range	NACES	N/A
A.4.4	Low temperature range	Charging low temperature declared by client is: 0°C.	P
A.4.4.1	General	THE LIE	P
A.4.4.2	Explanation of safety viewpoint	1101	Р
A.4.4.3	Safety considerations, when specifying charging conditions in the low temperature range	LIONACE	Р
A.4.4.4	Safety considerations when specifying a new lower limit in the low temperature range	-5°C applied.	Р
A.4.5	Scope of the application of charging current	NACES	P ₅
A.4.6	Consideration of discharge	5.	Р
A.4.6.1	General	ACCS.	Р
A.4.6.2	Final discharge voltage and explanation of safety viewpoint	LIONACE	Р
A.4.6.3	Discharge current and temperature range	1101	Р
A.4.6.4	Scope of application of the discharging current	IONAL	Р
A.5	Sample preparation	HONAL	Р
A.5.1	General		PC
A.5.2	Insertion procedure for nickel particle to generate internal short	ONACES	Р
A.5.3	Disassembly of charged cell	IONACE	P
A.5.4	Shape of nickel particle	Lion	Р
A.5.5	Insertion of nickel particle in cylindrical cell	ACES	N/A
A.5.5.1	Insertion of nickel particle in winding core	LIONAC	N/A
A.5.5.2	Marking the position of the nickel particle on both ends of the winding core of the separator	LIONACE	N/A
A.5.6	Insertion of nickel particle in prismatic cell	DIVES	Р

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	IEC 62133-2:2017, IEC 62133-2	2:2017/AMD1:2021		
Clause	Requirement – Test	Result – Remark	Verdic	
A.6	Experimental procedure of the forced internal short-circuit test	Lior	ACP	
A.6.1	Material and tools for preparation of nickel particle	TONAL	P	
A.6.2	Example of a nickel particle preparation procedure	IONACE	§ P	
A.6.3	Positioning (or placement) of a nickel particle	Lion	Р	
A.6.4	Damaged separator precaution	NACES	P	
A.6.5	Caution for rewinding separator and electrode	HONAL	Р	
A.6.6	Insulation film for preventing short-circuit	IONAL	P	
A.6.7	Caution when disassembling a cell	CE (I	Р	
A.6.8	Protective equipment for safety	NACES ES	Р	
A.6.9	Caution in the case of fire during disassembling	LIONA	s P	
A.6.10	Caution for the disassembling process and pressing the electrode core	TION	P	
A.6.11	Recommended specifications for the pressing device	LIONACES	Р	

Annex B Recommendations to equipment manufacturers and battery assemblers N/A	Annex B	Recommendations to equipment manufacturers and battery assemblers	N/A
---	---------	---	-----

Annex C	Recommendations to the end-users	N/A
---------	----------------------------------	-----

Annex D	Measurement of the internal ac resistance for coin cells				
D.1	General	LION	N/A		
D.2	Method	11010	N/A		
LION	A sample size of three coin cells is required for this measurement	(See appended table D.2)	N/A		
IONACE	Coin cells with an internal resistance of less than or equal to 3 Ω are subjected to the testing according to Clause 6 and Table 1	CES LIONA	N/A		
D.	Coin cells with an internal resistance greater than 3 Ω require no further testing	LIONAL	N/A		

Annex E	Packaging and transport	N/A
---------	-------------------------	-----

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	Table: Cri	itical components	s information		Р
Object/part no.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity
Cell		FL400909	3.7V, 25mAh, 0.0925Wh	IEC 62133- 2:2017/AM D1:2021	Tested with appliance
Positive electrode	Jiangmen Keheng Industrial Co., LTD	LCO-103	LiCoO ₂ , Dimensions: 240mm*29mm*0.138mm Specific capacity: 142mAh/g	- BU	5.
Negative electrode	Shenzhen Liyuan New Energy Technology Co., LTD	LY-960	Material: Graphite Dimensions: 261 mm *29 mm* 0.105mm Specific capacity: 355mAh/g	LIONA	LIONAS
Electrolyte	Zhuhai light rui new material	GR-B670	Composition: LiPF6+EC+DMC+EMC Conductivity: 8.5S/cm	ONE	IONACES
Separator	Shenzhen Shunjia Energy Co., Ltd	16µm	PP&PE&PP Dimensions: 604mm*31mm*0.016mm Shut down temperature: 130°C	LION	NCES ION

Supplementary information:

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1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.

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7.2.1	Table:	ble: Continuous charging at constant voltage (cells)					
Samp	ole no.	Recommended charging voltage Vc (Vdc)	Recommended charging current I _{rec} (A)	OCV before test (Vdc)	Results		
CO	001	4.2	0.005	4.176	S P		
CO	002	4.2	0.005	4.179	P		
CO	003	4.2	0.005	4.181	Р		
CO	004	4.2	0.005	4.182	Р		
CO	005	4.2	0.005	4.178	EP		

Supplementary information:

- No fire or explosionNo leakage

7.3.1	Tab	e: External short-ci	rcuit (cell)			P
Sample r	10.	Ambient T (°C)	OCV before test (Vdc)	Resistance of circuit (mΩ)	Maximum case temperature rise ΔT (°C)	Results
TO ES		Samples charg	ed at charging t	emperature uppe	er limit: 45°C	1
C006		55.4	4.173	83.2	103.3	P
C007	HON	55.4	4.176	78.6	110.1	P P
C008		55.4	4.178	81.4	108.3	Pont
C009	OCE S	55.4	4.170	81.9	110.7	Р
C010		55.4	4.174	79.7	106.8	Р
		Samples charç	ged at charging	temperature lowe	er limit: -5°C	NACES
C011		55.1	4.134	83.2	111.1	Р
C012		55.1	4.138	78.6	109.2	Р
C013	all.	55.1	4.146	81.4	110.8	ACP
C014		55.1	4.133	81.9	107.7	P
C015	Later Company	55.1	4.141	79.7	104.9	Р

No fire or explosion

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7.3.2	Table: External s	short-circuit (ba	attery)			N/A
Sample no	Ambient T (°C)	OCV before test (Vdc)	Resistance of circuit (mΩ)	Maximum case temperature rise ∆T (°C)	Component single fault condition	Results
Tru-	LION	- CES		W	IONAL	DCE5
and the		LION	MACES	2	LIO	
ONACL			Lio	NACES	-000	41
D	INNACL	65	21	210	NAC	5
	10	01/2	265		ONA	

' .3.5	Table: C	Crush (cells)			Р	
Sample no.		OCV before test (Vdc)	OCV at removal of crushing force (Vdc)	Maximum force applied to the cell during crush (kN)	Results	
The	100	Samples charged at o	charging temperature (upper limit: 45°C	ACES	
C	016	4.172	2.920	6.05	P	
C	017	4.177	2.923	5.11	Paul	
С	018	4.174	2.921	6.92	P P	
C	019	4.179	2.925	5.76	P	
C	020	4.173	2.921	5.46	P	
2110	NAC	Samples charged at	charging temperature	lower limit: -5°C		
C	021	4.138	2.896	4.83	Pos	
C	022	4.144	2.900	5.26	10NP	
C	023	4.145	2.901	5.00	Р	
C	024	4.139	2.897	6.08	ESP	
C	025	4.140	2.898	5.87	Р	
	entary info	rmation:	LIONACES	NACES	LION	

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7.3.6	Table	Over-charging of battery						
Constan	t chargin	g current (A)	:	249	LION			
Supply v	oltage (V	dc)	VACES	_				
Sample no. OCV before charging (Vdc)			otal charging time (minute) Maximum outer case temperature rise △T					
-	E5	The same	LIONA		65		1	
1100	- 177	CES		LIONA	NACES		W.	
	LION	IONACE			Lion	ACES		
255		1	NACE	CES	Lin		TION	
AL	- ACE	. a	1	ION	25			

7.3.7	Table	e: Forced discharge (cell	ls)		P
Sample	no.	OCV before application of reverse charge (Vdc)	Measured reverse charge I _t (A)	Lower limit discharge voltage (Vdc)	Results
C02	6	3.336	0.025	-4.2	P
C02	7	3.331	0.025	-4.2	P 🔊
C02	8	3.335	0.025	-4.2	ACES P
C02	9	3.333	0.025	-4.2	Pion
C03	0	3.337	0.025	-4.2	Р

Sample no.	OCV before test (Vdc)	OCV after test (Vdc)	Mass before test (g)	Mass after test (g)	Results
765	LION	JONACL	and the second	ar.	18
A STATE OF THE PARTY OF THE PAR	65	8	TONAC	oCES .	Lio
IONA	- ACES	0	No.	OP.	5

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Sample	no.	OCV before test (Vdc)	OCV after test (Vdc)	Mass before test (g)	Mass after test (g)	Results
	Lanes.	2.	1101	MACES	CCS	LION
		765	211		Carried States	
110-		TONA	- 100 G	91.	ONACE	65

7.3.9	Tabl	e: Forced internal s	short circuit (cells			Р
Sample no.		Chamber ambient T (°C)	OCV before test (Vdc)	Particle location ¹⁾	Maximum applied pressure (N)	Results
11	ON	Samples charç	ged at charging to	emperature upp	er limit 45°C	
C031		45	4.171	1	400	PACE
C032	65	45	4.177	1	101.2	P
C033		45	4.174	11000	93.7	Р
C034	6	45	4.176	2	97.5	MACP
C035		45	4.179	2	115.0	Р
ONE	-	Samples char	ged at charging t	emperature low	er limit -5°C	21
C036	HON	-5	4.139	1	99.4	6 P
C037		-5	4.138	1	106.1	Pon
C038	ACE5	-5	4.140	INAL 1	400	Р
C039	Are	-5	4.137	2 101	87.2	Р
C040		-5	4.141	2	400	PO

Supplementary information:

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¹⁾ Identify one of the following:

^{1:} Nickel particle inserted between positive and negative (active material) coated area.

^{2:} Nickel particle inserted between positive aluminium foil and negative active material coated area.



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0.2	Table: I	nternal AC resistance f	or coin cells		N/A
Samı	ple no.	Ambient T (°C)	Store time (h)	Resistance Rac (Ω)	Results 1
	and to	1100	NACES	-65	LION
600	IACL	CE5	110	INPA	
The same	61	101		IONAL	- CES

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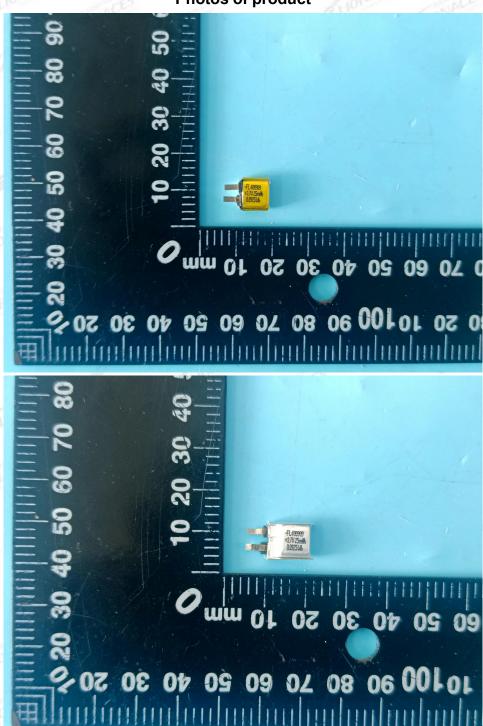
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¹⁾ Coin cells with internal resistance less than or equal to 3Ω , see test result on corresponding tables



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Attachment A Photos of product



Front view of cell

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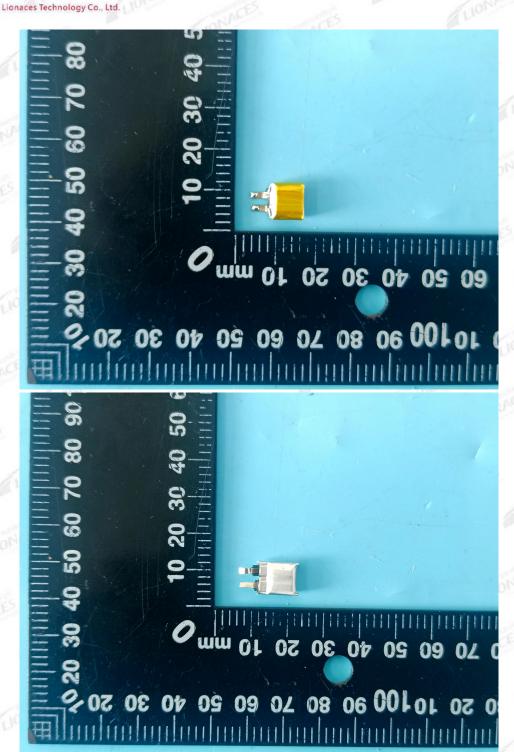
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Back view of cell

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Test Equipment

Name	Model specifications	Device Number	Calibration validity	Using (√)
High-performance battery detection system	CT-4008-5V6A-S1	LA-BT-E070	2023-12-06	√ 6
Digital temperature recorder	GL240	LA-BT-E096	2024-03-16	7
Battery short circuit tester	GX-055-B50	LA-BT-E097	2024-03-16	V
Drop test system	FH-03	LA-BT-E010	2023-12-06	JONA
Battery thermal shock test box	GX-3020-B	LA-BT-E085	2023-12-06	1
Battery crush test instrument	GX-5067-CSM	LA-BT-E084	2023-12-06	1
Battery forced internal testing machine	FH-07	LA-BT-E006	2023-12-06	V
DC power supply	UTP1306S	LA-BT-E079 LA-BT-E080 LA-BT-E081 LA-BT-E082 LA-BT-E083	2023-12-06	
Gauge	H:57.1*h:25.4*R:31.7mm	LA-BT-E077	2023-12-08	1
	High-performance battery detection system Digital temperature recorder Battery short circuit tester Drop test system Battery thermal shock test box Battery crush test instrument Battery forced internal testing machine DC power supply	High-performance battery detection system Digital temperature recorder Battery short circuit tester Drop test system FH-03 Battery thermal shock test box Battery crush test instrument Battery forced internal testing machine CT-4008-5V6A-S1 CT-4008-5V6A	High-performance battery detection system CT-4008-5V6A-S1 LA-BT-E070 Digital temperature recorder GL240 LA-BT-E096 Battery short circuit tester GX-055-B50 LA-BT-E097 Drop test system FH-03 LA-BT-E010 Battery thermal shock test box GX-3020-B LA-BT-E085 Battery crush test instrument GX-5067-CSM LA-BT-E084 Battery forced internal testing machine DC power supply UTP1306S LA-BT-E081 LA-BT-E082 LA-BT-E083	Name Model specifications Number validity High-performance battery detection system CT-4008-5V6A-S1 LA-BT-E070 2023-12-06 Digital temperature recorder GL240 LA-BT-E096 2024-03-16 Battery short circuit tester GX-055-B50 LA-BT-E097 2024-03-16 Drop test system FH-03 LA-BT-E010 2023-12-06 Battery thermal shock test box GX-3020-B LA-BT-E085 2023-12-06 Battery crush test instrument GX-5067-CSM LA-BT-E084 2023-12-06 Battery forced internal testing machine FH-07 LA-BT-E006 2023-12-06 DC power supply UTP1306S LA-BT-E080 LA-BT-E081 LA-BT-E082 LA-BT-E082 LA-BT-E083 2023-12-06

----END OF REPORT----

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IEC 62133-2 TEST REPORT

For

Rechargeable Li-ion Battery

Model: 502030

Prepared for:

Prepared by: Shenzhen NCT Testing Technology Co., Ltd.

B2A101/B2A201/B2A202, Fuqiao 6th Area, Xintian, Fuhai Subdistrict,

Bao'an District, Shenzhen, Guangdong, China

TEL: +86-755-23218380

Report Number: NCT24041060I1-1

Date of Test: 2024-10-02 to 2024-10-16

Date of Issue: 2024-10-17

Tested By: Miller Cas

Miller Gao

Reviewed By:

Miya Li

Approved By:

ronz la

Boris Lin

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TEST REPORT IEC 62133-2

Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications-

Part 2: Lithium systems

Date of issue: 2024-10-17

Total number of pages...... 27 pages

Applicant's name Same as the applicant

Address Same as the applicant

Test specification:

Standard.....: IEC 62133-2:2017+AMD1:2021

Test procedure: Test Report

Non-standard test method: N/A

Test item description Rechargeable Li-ion Battery

Trade Mark N/A

Manufacturer..... Same as applicant

Address Same as applicant

Model/Type reference: 502030

Ratings 3.7V, 200mAh, 0.74Wh



Report No.: NCT24041060I1-1

Testing procedure and testing location:

Testing Laboratory:

Testing location/ address...... Shenzhen NCT Testing Technology Co., Ltd.

B2A101/B2A201/B2A202, Fuqiao 6th Area, Xintian, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China

List of Attachments:

Appendix 1: 3 pages of Photo Documentation

Summary of testing:

Tests performed (name of test and test clause):

cl.5.6.2 Design recommendation;

cl.7.1 Charging procedure for test purposes (for Cells and Batteries);

cl.7.2.1 Continuous charging at constant voltage (cells);

cl.7.3.1 External short circuit (cells);

cl.7.3.2 External short circuit (batteries);

cl.7.3.3 Free fall (cells and batteries);

cl.7.3.4 Thermal abuse (cells);

cl.7.3.5 Crush (cells);

cl.7.3.6 Over-charging of battery;

cl.7.3.7 Forced discharge (cells);

cl.7.3.8 Mechanical tests (batteries);

cl.7.3.9 Design evaluation – Forced internal short circuit (cells)

cl.8.2 Small cell and battery safety information

Tests are made with the number of cells and batteries specified in IEC 62133-2: 2017 +AMD1:2021 Table 1.

Testing location:

Shenzhen NCT Testing Technology Co., Ltd. B2A101/B2A201/B2A202, Fuqiao 6th Area, Xintian, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China

Summary of compliance with National Differences

N/A

The product fulfils the requirements of EN 62133-2: 2017+A1:2021

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Copy of marking plate

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

Rechargeable Li-ion Battery

Model: 502030 (1INP5/20/30)

Rated: 3.7V, 200mAh, 0.74Wh

Red wire: + Black wire: -

YYYYMM

Manufacturer date: YYMMDD

"YY" means year, "MM" means month, "DD" means day.

Information for safety mentioned on equipment's package

 $Potential for fire\ or\ burning. Do\ not\ disassemble, puncture, crush, heat\ or\ burn.$

Use only with specified charger.

Keep small cells and batteries which are considered swallowable out of the reach of children.

Swallowing may lead to burns, perforation of soft tissue, and death. Severe burns can occur within 2h of ingestion.

In case of ingestion of a cell or battery, seek medical assistance promptly.

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Technology Report No.: NCT24041060I1-1

Test item particulars:	
Classification of installation and use:	To be defined in final product
Supply connection:	Lead wire
Recommend charging method declared by the manufacturer:	Charging the battery with 100mA constant current until 4.2V, then constant voltage until charge current reduces to 4mA at ambient 20°C±5°C.
Discharge current (0,2 lt A):	40mA
Specified final voltage:	2.75V
Upper limit charging voltage per cell:	4.2V
Maximum charging current	300mA
Charging temperature upper limit	45°C
Charging temperature lower limit:	0°C
Polymer cell electrolyte type::	□gel polymer □solid polymer ⊠N/A
Possible test case verdicts:	
- test case does not apply to the test object:	N/A
- test object does meet the requirement:	P (Pass)
- test object does not meet the requirement::	F (Fail)
Testing:	
Date of receipt of test item:	2024-09-30
Date (s) of performance of tests:	2024-10-02 to 2024-10-16
General remarks:	
The test results presented in this report relate only to the This report shall not be reproduced, except in full, witho laboratory. "(See Enclosure #)" refers to additional information apple "(See appended table)" refers to a table appended to the Throughout this report a comma / point is use	ut the written approval of the Issuing testing pended to the report. e report.
Name and address of factory (ies):	Same as applicant

Report No.: NCT24041060I1-1

General product information:

This battery is constructed with one lithium-ion cell and has overcharge, over-discharge, over current and short-circuits proof circuit.

The main features of the battery pack are shown as below (clause 7.1.1):

Model (Battery)	Nominal capacity	Nominal voltage	Nominal Charge Current	Nominal Discharge Current	Maximum Charge Current	Maximum Discharge Current	Maximum Charge Voltage	Cut-off Voltage
502030	200mAh	3.7V	100mA	100mA	300mA	300mA	4.20V	2.75V

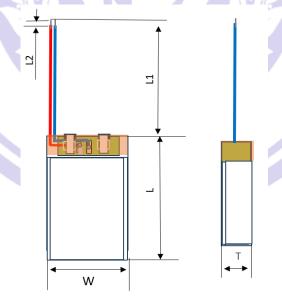
The main features of the cell in the battery pack are shown as below (clause 7.1.1):

Model (Cell)	Nominal capacity	Nominal voltage	Nominal Charge Current	Nominal Discharge Current	Maximum Charge Current	Maximum Discharge Current		Cut-off Voltage
502030	200mAh	3.7V	100mA	100mA	300mA	300mA	4.20V	2.75V

The main features of the cell in the battery pack are shown as below (clause 7.1.2):

Model (Cell)	Upper limit charge voltage	Taper-off current	Lower charge temperature	Upper charge temperature
502030	4.25V	10mA	0°C	45°C

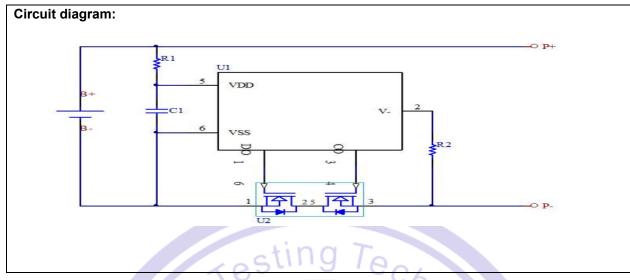
Construction:



T: max 5.2mm, W: max 20.2mm, L: max 32.5mm Battery

Hot line: 400-8868-419 Tel:(86-755)23218380 http://www.ncttesting.cn Add: B2A101/B2A201/B2A202, Fuqiao 6th Area, Xintian, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China









Report No.: NCT24041060I1-1

Clause	Requirement + Test	Result - Remark	Verdict
4	PARAMETER MEASUREMENT TOLERANCES		Р
	Parameter measurement tolerances		Р

5	GENERAL SAFETY CONSIDERATIONS		Р
5.1	General		Р
	Cells and batteries so designed and constructed that they are safe under conditions of both intended use and reasonably foreseeable misuse		Р
5.2	Insulation and wiring		Р
	The insulation resistance between the positive terminal and externally exposed metal surfaces of the battery (excluding electrical contact surfaces) is not less than 5 $\text{M}\Omega$	No metal surface exists.	N/A
	Insulation resistance (MΩ):	170	_
	Internal wiring and insulation are sufficient to withstand maximum anticipated current, voltage and temperature requirements	0	Р
	Orientation of wiring maintains adequate clearances and creepage distances between conductors	30 2	Р
	Mechanical integrity of internal connections accommodates reasonably foreseeable misuse		Р
5.3	Venting		Р
	Battery cases and cells incorporate a pressure relief mechanism or are constructed so that they relieve excessive internal pressure at a value and rate that will preclude rupture, explosion and self-ignition	Venting mechanism exists on narrow side of the pouch cell.	Р
	Encapsulation used to support cells within an outer casing does not cause the battery to overheat during normal operation nor inhibit pressure relief		N/A
5.4	Temperature, voltage and current management		Р
	Batteries are designed such that abnormal temperature rise conditions are prevented	Overcharge, overdischarge, over current and short-circuit proof circuit used in this battery. See tests of clause 7.	Р
	Batteries are designed to be within temperature, voltage and current limits specified by the cell manufacturer	See above.	Р
	Batteries are provided with specifications and charging instructions for equipment manufacturers so that specified chargers are designed to maintain charging within the temperature, voltage and current limits specified	The charging limits specified in the manufacturer's specification.	Р



	IEC 62133-2	Report No., NC12404	
Clause	Requirement + Test	Result - Remark	Verdict
5.5	Terminal contacts		Р
	The size and shape of the terminal contacts ensure that they can carry the maximum anticipated current		Р
	External terminal contact surfaces are formed from conductive materials with good mechanical strength and corrosion resistance		Р
	Terminal contacts are arranged to minimize the risk of short circuits		Р
5.6	Assembly of cells into batteries		Р
5.6.1	General		Р
	Each battery has an independent control and protection for current, voltage, temperature and any other parameter required for safety and to maintain the cells within their operating region	Protective circuit equipped on battery.	Р
	This protection may be provided external to the battery such as within the charger or the end devices		N/A
	If protection is external to the battery, the manufacturer of the battery provide this safety relevant information to the external device manufacturer for implementation	2	N/A
	If there is more than one battery housed in a single battery case, each battery has protective circuitry that can maintain the cells within their operating regions	0:	N/A
	Manufacturers of cells specify current, voltage and temperature limits so that the battery manufacturer/designer may ensure proper design and assembly	Current, voltage and temperature limits specified by cell manufacturer.	Р
	Batteries that are designed for the selective discharge of a portion of their series connected cells incorporate circuitry to prevent operation of cells outside the limits specified by the cell manufacturer		N/A
	Protective circuit components are added as appropriate and consideration given to the end-device application		Р
	The manufacturer of the battery provide a safety analysis of the battery safety circuitry with a test report including a fault analysis of the protection circuit under both charging and discharging conditions confirming the compliance	Safety analysis report provided by manufacturer.	Р
5.6.2	Design recommendation		Р



	IEC 62133-2		
Clause	Requirement + Test	Result - Remark	Verdict
	For the battery consisting of a single cell or a single cellblock, it is recommended that the charging voltage of the cell does not exceed the upper limit of the charging voltage specified in Table 2	Single cell battery, Max. Charging voltage of cell: 4.2V, not exceed 4.2V specified in Clause 7.1.2, Table 2.	Р
	For the battery consisting of series-connected plural single cells or series-connected plural cellblocks, it is recommended that the voltages of any one of the single cells or single cellblocks does not exceed the upper limit of the charging voltage, specified in Table 2, by monitoring the voltage of every single cell or the single cellblocks		N/A
	For the battery consisting of series-connected plural single cells or series-connected plural cellblocks, it is recommended that charging is stopped when the upper limit of the charging voltage is exceeded for any one of the single cells or single cellblocks by measuring the voltage of every single cell or the single cellblocks	Chno.	N/A
	For batteries consisting of series-connected cells or cell blocks, nominal charge voltage are not counted as an overcharge protection	9	N/A
	For batteries consisting of series-connected cells or cell blocks, cells have closely matched capacities, be of the same design, be of the same chemistry and be from the same manufacturer	Co	N/A
	It is recommended that the cells and cell blocks are not discharged beyond the cell manufacturer's specified final voltage	Final voltage of cell: 2.75V, not exceed the final voltage specified by cell manufacturer.	Р
	For batteries consisting of series-connected cells or cell blocks, cell balancing circuitry are incorporated into the battery management system	X .2	N/A
5.6.3	Mechanical protection for cells and components of batteries	7	Р
	Mechanical protection for cells, cell connections and control circuits within the battery are provided to prevent damage as a result of intended use and reasonably foreseeable misuse	Mechanical protection for cell connections and control circuits provided.	Р
	The mechanical protection can be provided by the battery case or it can be provided by the end product enclosure for those batteries intended for building into an end product	Build-in batteries, mechanical protection for battery should be provided by end product.	N/A
	The battery case and compartments housing cells are designed to accommodate cell dimensional tolerances during charging and discharging as recommended by the cell manufacturer	To be evaluated in final system.	N/A



Report No.: NCT24041060I1-1 IEC 62133-2 Requirement + Test Result - Remark Verdict Clause For batteries intended for building into a portable end N/A product, testing with the battery installed within the end product is considered when conducting mechanical tests 5.7 **Quality plan** Ρ The manufacturer prepares and implements a quality Ρ Complied. plan that defines procedures for the inspection of Quality plan certificate materials, components, cells and batteries and which covers the whole process of producing each type of cell or battery 5.8 **Battery safety components** See TABLE: Critical N/A components information 6 TYPE TEST AND SAMPLE SIZE Ρ Tests are made with the number of cells or batteries Р specified in Table 1 using cells or batteries that are not more than six months old The internal resistance of coin cells are measured in Not coin cells N/A accordance with Annex D. Coin cells with internal resistance less than or equal to 3 Ω are tested in accordance with Table 1 Unless otherwise specified, tests are carried out in Ρ an ambient temperature of 20 °C ± 5 °C The safety analysis of 5.6.1 identify those Ρ components of the protection circuit that are critical for short-circuit, overcharge and over discharge protection When conducting the short-circuit test, consideration See clause 7.3.2. Р is given to the simulation of any single fault condition that is likely to occur in the protecting circuit that would affect the short-circuit test SPECIFIC REQUIREMENTS AND TESTS Ρ 7.1 Ρ Charging procedure for test purposes 7.1.1 First procedure Ρ This charging procedure applies to subclauses other Ρ than those specified in 7.1.2 Unless otherwise stated in this document, the See page 4. Ρ charging procedure for test purposes is carried out in an ambient temperature of 20 °C ± 5 °C, using the method declared by the manufacturer Prior to charging, the battery has been discharged at See page 4. Ρ 20 °C ± 5 °C at a constant current of 0,2 It A down to a specified final voltage



Report No.: NCT24041060I1-1 IEC 62133-2 Requirement + Test Result - Remark Verdict Clause 7.1.2 Second procedure Ρ This charging procedure applies only to 7.3.1, 7.3.4, Ρ 7.3.5. and 7.3.9 Ρ After stabilization for 1 h to 4 h, at an ambient Charge temperature range: temperature of the highest test temperature and the 0-45°C declared. lowest test temperature, respectively, as specified in 0°C used for lower limit tests. Table 2, cells are charged by using the upper limit 45°C used for upper limit tests. charging voltage and maximum charging current, until the charging current is reduced to 0.05 lt A. using a constant current to constant voltage charging method 7.2 Intended use Ρ 7.2.1 Continuous charging at constant voltage (cells) Ρ Charging for 7 days with Ρ Fully charged cells are subjected for 7 days to a charge using the charging method for current and 100mA. standard voltage specified by the cell manufacturer Results: no fire, no explosion, no leakage....: (See appended table 7.2.1) Ρ 7.2.2 Case stress at high ambient temperature (battery) N/A Oven temperature (°C)..... 70.4 Results: no physical distortion of the battery case N/A resulting in exposure of internal protective components and cells Р 7.3 Reasonably foreseeable misuse 7.3.1 Tested complied. Р External short-circuit (cell) Ρ The cells were tested until one of the following occurred: - 24 hours elapsed; or N/A - The case temperature declined by 20 % of the Ρ maximum temperature rise Results: no fire, no explosion....: (See appended table 7.3.1) Ρ 7.3.2 Tested complied. Ρ External short-circuit (battery) The batteries were tested until one of the following Ρ occurred: - 24 hours elapsed; or N/A Р - The case temperature declined by 20 % of the maximum temperature rise In case of rapid decline in short circuit current, the Р battery pack remained on test for an additional one

hour after the current reached a low end steady state

condition



7.3.7

Forced discharge (cells)

Report No.: NCT24041060I1-1 IEC 62133-2 Requirement + Test Result - Remark Verdict Clause A single fault in the discharge protection circuit is Single fault conducted on three Ρ conducted on one to four (depending upon the samples. protection circuit) of the five samples before conducting the short-circuit test A single fault applies to protective component parts Single fault applies on Ρ such as MOSFET (metal oxide semiconductor field-MOSFET (U2). effect transistor), fuse, thermostat or positive temperature coefficient (PTC) thermistor Results: no fire. no explosion....: (See appended table 7.3.2) Ρ 7.3.3 Ρ Free fall Tested complied. Results: no fire, no explosion No fire. No explosion Ρ Р 7.3.4 Tested complied. Thermal abuse (cells) 130°C Oven temperature (°C).....: Results: no fire, no explosion No fire. No explosion Ρ 7.3.5 Ρ Crush (cells) Tested complied. The crushing force was released upon: Ρ Р - The maximum force of 13 kN \pm 0,78 kN has been applied; or - An abrupt voltage drop of one-third of the original N/A voltage has been obtained Results: no fire, no explosion.....: (See appended table 7.3.5) Ρ 7.3.6 Over-charging of battery Tested complied. Ρ Ρ The supply voltage which is: - 1,4 times the upper limit charging voltage presented 5.95V applied. Ρ in Table A.1 (but not to exceed 6,0 V) for single cell/cell block batteries or - 1,2 times the upper limit charging voltage resented N/A in Table A.1 per cell for series connected multi-cell batteries, and - Sufficient to maintain a current of 2.0 It A Ρ throughout the duration of the test or until the supply voltage is reached Test was continued until the temperature of the outer Ρ casing: Р - Reached steady state conditions (less than 10 °C change in 30-minute period); or - Returned to ambient N/A Results: no fire, no explosion....: (See appended table 7.3.6) Ρ

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Tested complied.

Ρ



	IEC 62133-2	Report No.: NO 1240	
Clause	Requirement + Test	Result - Remark	Verdict
	Discharge a single cell to the lower limit discharge voltage specified by the cell manufacturer		Р
	The discharged cell is then subjected to a forced discharge at 1 lt A to the negative value of the upper limit charging voltage		Р
	- The discharge voltage reaches the negative value of upper limit charging voltage within the testing duration. The voltage is maintained at the negative value of the upper limit charging voltage by reducing the current for the remainder of the testing duration		N/A
	- The discharge voltage does not reach the negative value of upper limit charging voltage within the testing duration. The test is terminated at the end of the testing duration	C/	Р
	Results: no fire, no explosion:	(See appended table 7.3.7)	Р
7.3.8	Mechanical tests (batteries)	0	Р
7.3.8.1	Vibration	Tested complied.	Р
	Results: no fire, no explosion, no rupture, no leakage or venting:	(See appended table 7.3.8.1)	Р
7.3.8.2	Mechanical shock	Tested complied.	Р
	Results: no leakage, no venting, no rupture, no explosion and no fire:	(See appended table 7.3.8.2)	Р
7.3.9	Design evaluation – Forced internal short-circuit (cells)	Tested complied.	Р
	The cells complied with national requirement for:	France, Japan, Republic of Korea, Switzerland	_
	The pressing was stopped upon:		Р
	- A voltage drop of 50 mV has been detected; or	1	N/A
	- The pressing force of 800 N (cylindrical cells) or 400 N (prismatic cells) has been reached	400N for prismatic cells.	Р
	Results: no fire	(See appended table 7.3.9)	Р



			1100011110111101210	
		IEC 62133-2		
Clause	Requirement + Test		Result - Remark	Verdict

8	INFORMATION FOR SAFETY		Р
8.1	General		Р
	Manufacturers of secondary cells provides information about current, voltage and temperature limits of their products	Information for safety mentioned in manufacturer's specifications.	Р
	Manufacturers of batteries provides information regarding how to minimize and mitigate hazards to equipment manufacturers or end-users	Information for safety mentioned in manufacturer's specifications.	Р
	Systems analyses are performed by device manufacturers to ensure that a particular battery design prevents hazards from occurring during use of a product		N/A
	As appropriate, any information relating to hazard avoidance resulting from a system analysis is provided to the end user	Chn	N/A
	Do not allow children to replace batteries without adult supervision	6	Р
8.2	Small cell and battery safety information	Small cells and batteries.	Р
	The following warning language is to be provided with the information packaged with the small cells and batteries or equipment using them:	Information for safety mentioned on equipment's package.	Р
	- Keep small cells and batteries which are considered swallowable out of the reach of children		Р
	- Swallowing may lead to burns, perforation of soft tissue, and death. Severe burns can occur within 2 h of ingestion	5	Р
	In case of ingestion of a cell or battery, seek medical assistance promptly		Р

9	MARKING		Р
9.1	Cell marking		N/A
	Cells are marked as specified in IEC 61960, except coin cells	The final product is battery.	N/A
	Coin cells whose external surface area is too small to accommodate the markings on the cells show the designation and polarity		N/A
	By agreement between the cell manufacturer and the battery and/or end product manufacturer, component cells used in the manufacture of a battery need not be marked		N/A
9.2	Battery marking		Р



Report No.: NCT24041060I1-1 IEC 62133-2 Requirement + Test Result - Remark Verdict Clause Batteries are marked as specified in IEC 61960, The battery is marked in Ρ except for coin batteries accordance with IEC 61960, also see copy of marking plate. Coin batteries whose external surface area is too Not coin battery. N/A small to accommodate the markings on the batteries show the designation and polarity Batteries are marked with an appropriate caution Ρ statement - Terminals have clear polarity marking on the The "Red wire: +" and "Black Ρ wire: -" polarity explicitly external surface of the battery, or marked on surface of the battery. - Not be marked with polarity markings if the design N/A of the external connector prevents reverse polarity connections N/A 9.3 Caution for ingestion of small cells and batteries Coin cells and batteries identified as small batteries Not coin cells N/A include a caution statement regarding the hazards of ingestion in accordance with 8.2 Small cells and batteries are intended for direct sale Not intended for direct sale. N/A in consumer-replaceable applications, caution for ingestion is given on the immediate package 9.4 Ρ Other information The following information are marked on or supplied Ρ with the battery: - Storage and disposal instructions Information for storage and Ρ disposal instructions mentioned in manufacturer's specifications. - Recommended charging instructions Information for recommended Ρ charging instructions mentioned in manufacturer's specifications.

10	PACKAGING AND TRANSPORT	N/A
	Packaging for coin cells are not be small enough to fit within the limits of the ingestion gauge of Figure 3	N/A

ANNEX A	CHARGING AND DISCHARGING RANGE OF SEC CELLS FOR SAFE USE	ONDARY LITHIUM ION	Р
A.1	General		Р
A.2	Safety of lithium ion secondary battery	Complied.	Р



	IEC 62133-2		
Clause	Requirement + Test	Result - Remark	Verdict
A 2	Consideration on absenting voltage	Complied	Р
A.3 A.3.1	Consideration on charging voltage	Complied.	P
	General	4.05) /	
A.3.2	Upper limit charging voltage	4.25V applied.	Р
A.3.2.1	General		P
A.3.2.2	Explanation of safety viewpoint		Р
A.3.2.3	Safety requirements, when different upper limit charging voltage is applied	4.25V applied.	Р
A.4	Consideration of temperature and charging current		Р
A.4.1	General		Р
A.4.2	Recommended temperature range	Charging temperature range declared by client is: 0-45°C	Р
A.4.2.1	General	170	Р
A.4.2.2	Safety consideration when a different recommended temperature range is applied		N/A
A.4.3	High temperature range	310 0	N/A
A.4.3.1	General	ZV ~	N/A
A.4.3.2	Explanation of safety viewpoint		N/A
A.4.3.3	Safety considerations when specifying charging conditions in the high temperature range	N/ P	N/A
A.4.3.4	Safety considerations when specifying a new upper limit in the high temperature range		N/A
A.4.4	Low temperature range	0	N/A
A.4.4.1	General		N/A
A.4.4.2	Explanation of safety viewpoint	. ?	N/A
A.4.4.3	Safety considerations, when specifying charging conditions in the low temperature range		N/A
A.4.4.4	Safety considerations when specifying a new lower limit in the low temperature range		N/A
A.4.5	Scope of the application of charging current		Р
A.4.6	Consideration of discharge		Р
A.4.6.1	General		Р
A.4.6.2	Final discharge voltage and explanation of safety viewpoint	Cell specified final voltage 2.75V, not exceed 2.75V specified by cell manufacturer.	Р
A.4.6.3	Discharge current and temperature range		Р
A.4.6.4	Scope of application of the discharging current		Р

	IEC 62133-2	·	
Clause	Requirement + Test	Result - Remark	Verdict
A.5	Sample preparation		Р
A.5.1	General		Р
A.5.2	Insertion procedure for nickel particle to generate internal short		Р
A.5.3	Disassembly of charged cell		Р
A.5.4	Shape of nickel particle		Р
A.5.5	Insertion of nickel particle in cylindrical cell		N/A
A.5.5.1	Insertion of nickel particle in winding core		N/A
A.5.5.2	Marking the position of the nickel particle on both ends of the winding core of the separator		N/A
A.5.6	Insertion of nickel particle in prismatic cell	0.4	Р
A.6	Experimental procedure of the forced internal short-circuit test	277	Р
A.6.1	Material and tools for preparation of nickel particle		Р
A.6.2	Example of a nickel particle preparation procedure		Р
A.6.3	Positioning (or placement) of a nickel particle	3/1/2	Р
A.6.4	Damaged separator precaution		Р
A.6.5	Caution for rewinding separator and electrode		Р
A.6.6	Insulation film for preventing short-circuit		Р
A.6.7	Caution when disassembling a cell	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Р
A.6.8	Protective equipment for safety		Р
A.6.9	Caution in the case of fire during disassembling	V/2 0 /	Р
A.6.10	Caution for the disassembling process and pressing the electrode core		Р
			+

ANNEX B	RECOMMENDATIONS TO EQUIPMENT MANUFACTURERS AND BATTERY	N/A
	ASSEMBLERS	

Р

Recommended specifications for the pressing

A.6.11

device

ANNEX C RECOMMENDATIONS TO THE END-USERS N/

ANNEX D	MEASUREMENT OF THE INTERNAL AC RESISTANCE FOR COIN CELLS					
D.1	General	Not coin cells.	N/A			
D.2	Method		N/A			
	A sample size of three coin cells is required for this measurement		N/A			

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	0 ,	Neport No No 1240	1-1100011-1					
IEC 62133-2								
Clause	Requirement + Test	Result - Remark	Verdict					
			•					
	Coin cells with an internal resistance greater than 3 Ω require no further testing	(See appended table D.2)	N/A					
	Coin cells with an internal resistance less than or equal to 3 Ω are subjected to the testing according to Clause 6 and Table 1		N/A					

ANNEX E	PACKAGING AND TRANSPORT	N/A
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ANNEX F	COMPONENT STANDARDS REFERENCES	N/A
---------	--------------------------------	-----







5.1 - 5.6	TABLE: Critical components information						
Object/part no.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity		
-Lead wire	DONGGUAN WENCHANG ELECTRONIC PRODUCTS CO.,LTD	3302	30AWG, 105°C, 30Vac	UL 758	UL E214500		
-Lead wire (Alternative)	Interchangeable	Interchange able	30AWG, 105°C, 30Vac	UL 758	UL approved		
PCB	Shenzhen Assunny Precision Circuit Scien-Tech Co., LTD	sting	V-0, 130 °C	UL 796	UL E248037		
PCB (Alternative)	Interchangeable	Interchange able	V-0, 130°C	UL 796	UL approved		
Protective IC (U1)	Shenzhen Developer Microelectronics CO., LTD	DW01	Over-charge detection Voltage: 4.28±0.05V, Over-discharge detection Voltage: 2.40±0.1V	N 0	Tested with appliance		
MOSFET (U2)	Shenzhen Developer Microelectronics CO., LTD	8205A	V _{DS} =20V, V _{GS} =±12V, I _D = 5A	C 0 .,	Tested with appliance		
Cell		502030	3.7V, 200mAh	IEC 62133-2: 2017, IEC 62133-2: 2017/AMD1: 2021	Tested with appliance		
-Positive electrode	Ningxia Sinochem Lithium battery Material Co., LTD	Z10C	LiNi _{0.5} Co _{0.2} Mn _{0.3} O ₂				
-Negative electrode	Ganzhou Ruifute Technology Co., LTD	AGF-7	Graphite				
-Separator	Huizhou Yusheng Technology Co., LTD	PE14	PE, Shutdown temperature: 130°C, Thickness: 14µm				
-Electrolyte	Xiamen First energy technology Co., LTD	SN3225M1	LiPF ₆ +EC+EMC+DM C, H ₂ O<20ppm, HF<50ppm				
Supplementary in							

7.2.1	TABLE:	BLE: Continuous charging at constant voltage (cells)							
Sample no.		Recommended charging voltage Vc (Vdc)	Recommended charging current I _{rec} (A)	OCV before test(Vdc)	Resi	ults			
Cell #	# 1	4.20	0.10	4.19	Р				
Cell #	‡ 2	4.20	0.10	4.18	Р				
Cell #	‡ 3	4.20	0.10	4.18	Р				
Cell #4		4.20	0.10	0.10 4.18					
Cell #5		4.20	0.10	4.19	Р				

Supplementary information:

- No fire or explosion
- No leakage

					A		
7.3.1	TAB	ΓABLE: External short-circuit (cell)					
Sample no.		Ambient T (°C)	OCV before test (Vdc)	Resistance of circuit (mΩ)	Maximum case temperature rise ∆T (°C)	Results	
		Samples charg	ed at charging te	emperature upper	limit (45°C)		
Cell #1		55.6	4.21	91.2	112.6	Р	
Cell #2	2	55.6	4.21	90.9	113.8	Р	
Cell #3	3	55.6	4.20	89.6	115.1	Р	
Cell #4	\blacksquare	55.6	4.21	92.0	110.7	Р	
Cell #5	5	55.6	4.20	88.8	114.5	Р	
		Samples charg	ged at charging t	emperature lowe	r limit (0°C)		
Cell #6	3	55.5	4.16	87.9	116.9	Р	
Cell #7	7	55.5	4.16	91.2	118.0	Р	
Cell #8	}	55.5	4.17	90.7	119.1	Р	
Cell #9)	55.5	4.16	88.8	117.8	Р	
Cell #1	0	55.5	4.17	89.6	121.4	Р	

Supplementary information:

- No fire or explosion

7.3.2	TABLE: External short-circuit (battery)								
Sample no.	Ambient T (°C)	OCV before test (Vdc)	Resistance of circuit (mΩ)	Maximum case temperature rise ∆T (°C)	Component single fault condition	Results			
Battery #1	23.6	4.19	91.2	119.2	Short Circuit MOSFET (U2)	Р			
Battery #2	23.6	4.18	90.8	115.3	Short Circuit MOSFET (U2)	Р			
Battery #3	23.6	4.19	87.9	117.6	Short Circuit MOSFET (U2)	Р			
Battery #4	23.6	4.19	88.6	23.7	1	Р			
Battery #5	23.6	4.18	92.3	23.9	/	Р			

Supplementary information:

- No fire or explosion

3.5	TABLE: Crush (cells)						
Sample no.		OCV before test (Vdc)	OCV at removal of crushing force (Vdc)	crushing force applied to the cell			
		Samples charged at c	harging temperature ι	upper limit (45°C)			
Cell #	# 1	4.21	4.20	13.02	Р		
Cell #	# 2	4.20	4.20	12.98	P		
Cell #	# 3	4.20	4.20	13.00	Р		
Cell #4		4.21	4.20	13.01	Р		
Cell #	# 5	4.20	4.20	12.99	Р		
		Samples charged at c	harging temperature I	ower limit (10°C)			
Cell #	/ 6	4.16	4.16	13.02	Р		
Cell #	‡ 7	4.16	4.16	12.99	Р		
Cell #	# 8	4.17	4.16	13.01	Р		
Cell #	# 9	4.17	4.17	13.00	Р		
Cell #	10	4.17	4.16	12.97	Р		

Supplementary information:

- No fire or explosion



7.3.6	TABL	BLE: Over-charging of battery							
Constant charging current (A) 0.40							_		
Supply volt	age (V	dc)	:		5.95		_		
Sample	e no. OCV before charging		Re	esults					
Battery	#1	3.04	73	3.0 23.6			Р		
Battery	#2	3.03	73	3.0	25.9		Р		
Battery	#3	3.04	73	3.0	26.1		Р		
Battery	#4	3.03	73.0		73.0		28.3		Р
Battery	#5	3.04	73	73.0 29.4			Р		
Supplemen	tary in	formation:	tino	TT					

- No fire or explosion

7.3.7	TABLE: Forced discharge (cells)							
Sample no.		арр	CV before lication of charge (Vdc)	Measured reverse charge It (A)	Lower discharge (Vo	e voltage	Res	ults
Cell #	1	h	3.03	0.20	2.7	75	P	1
Cell #2	2	N	3.04	0.20	2.7	75	Р	1
Cell #3	3		3.03	0.20	2.7	75	Р	1
Cell #4	1	0	3.03	0.20	2.7	75	Р	1
Cell #	5	5	3.04	0.20	2.	75	/// P	ı

Supplementary information:

- No fire or explosion

7.3.8.1	TABLE: Vibration							
Sample no	o. OCV before test (Vdc)	OCV after test (Vdc)	Mass before test (g)	Mass after test(g)	Results			
Battery #1	4.18	4.18	5.415	5.415	Р			
Battery #2	4.19	4.18	5.404	5.404	Р			
Battery #3	4.19	4.19	5.349	5.349	Р			

Supplementary information:

- No fire or explosion
- No rupture
- No leakage
- No venting

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7.3.8.2	TABLE: Mechanical shock					
Sample no.		OCV before test (Vdc)	OCV after test (Vdc)	Mass before test (g)	Mass after test(g)	Results
Battery #1		4.19	4.18	5.211	5.211	Р
Battery #2		4.19	4.19	5.358	5.358	Р
Battery #3	3	4.18	4.18	5.504	5.504	Р

Supplementary information:

- No fire or explosion
- No rupture
- No leakage
- No venting

			~ 11111				
7.3.9	TAB	LE: Forced interna	Р)			
Sample no.		Chamber ambient T (°C)	OCV before test (Vdc)	Particle location ¹⁾	Maximum applied pressure (N)	Results	;
Samples charged at charging temperature upper limit (45°C)							
Cell #1		45	4.21	1	400	Р	
Cell #2		O 45	4.20	1	400	Р	
Cell #3		45	4.20	1	400	Р	
Cell #4		45	4.21	1	400	Р	
Cell #5	М	45	4.21		400	Р	
Samples charged at charging temperature lower limit (0°C)							
Cell #6		0	4.16	18 10/	400	Р	
Cell #7	7	0	4.17	1/	400	Р	
Cell #8		0	4.16	* 1	400	Р	
Cell #9		0	4.17	1	400	Р	
Cell #10)	0	4.16	1	400	Р	

Supplementary information:

¹⁾Identify one of the following:

^{1:} Nickel particle inserted between positive and negative (active material) coated area.

^{2:} Nickel particle inserted between positive aluminium foil and negative active material coated area.

⁻ No fire or explosion



D.2	TABLE:	N/A				
Sample no.		Ambient T (°C)	Store time (h)	Resistance Rac (Ω)	Results 1)	

Supplementary information:

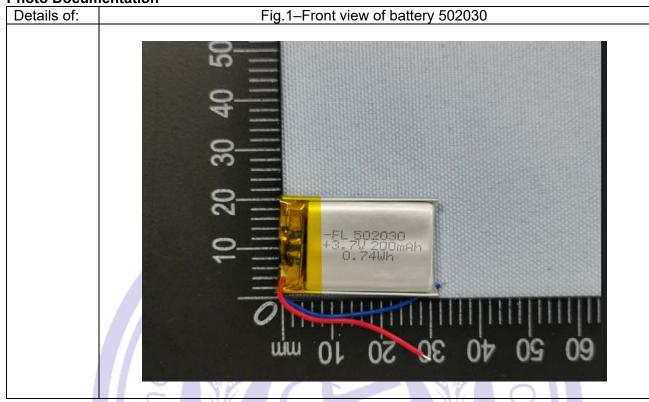
¹⁾ Coin cells with internal resistance less than or equal to 3 Ω , see test result on corresponding tables

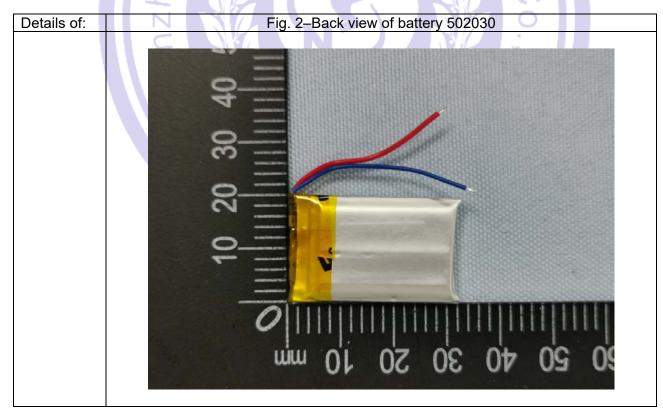




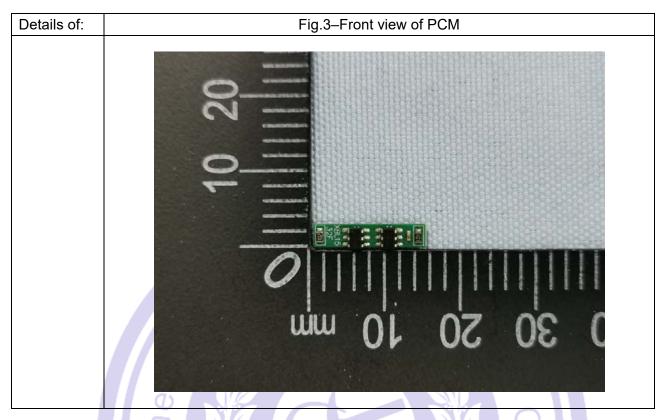


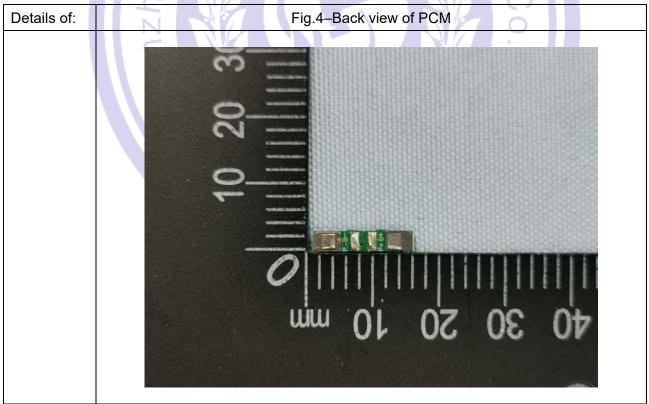
Photo Documentation



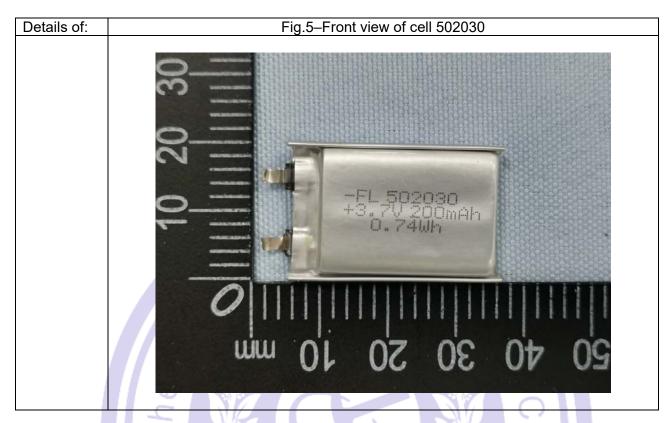


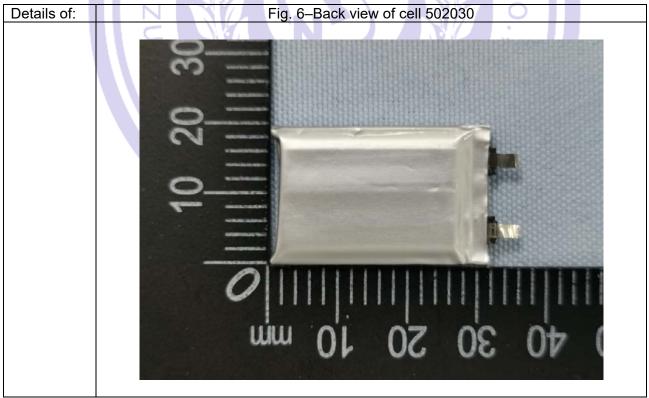












---End of Test Report---

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