TEST REPORT

Report No.:	P24071003201
Product:	Rechargeable Li-ion Cell
Model No.:	18650 2000mAh
Applicant:	Jiangxi Canhui New Energy Science And Technology Co., Ltd
Address:	Guangchang Industrial Park, Fuzhou City, Jiangxi Province, P.R.China
Issued by:	Shenzhen NTEK New Energy Technology Co., Ltd.
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Shenzhen NTEK New Energy Technology Co., Ltd.

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

Report Number. .....:	P24071003201
Date of issue .....:	2024-08-08
Total number of pages.....:	23 pages
Name of Testing Laboratory preparing the Report.....:	**Shenzhen NTEK New Energy Technology Co., Ltd.** **Room 101, Building C, Fenda Hi-Tech Park, Sanwei Community, Hangcheng Subdistrict, Bao'an District, Shenzhen, Guangdong, China.**
Applicant's name.....:	Jiangxi Canhui New Energy Science And Technology Co., Ltd
Address .....:	Guangchang Industrial Park, Fuzhou City, Jiangxi Province, P.R.China
Test specification:	
Standard .....:	IEC 62133-2:2017, IEC 62133-2:2017/AMD1:2021
Test procedure.....:	Test Report
Non-standard test method.....:	N/A
TRF template used .....:	IECEE OD-2020-F1:2021, Ed.1.4
Test Report Form No.....:	IEC62133_2B
Test Report Form(s) Originator.....:	DEKRA Certification B.V.
Master TRF.....:	Dated 2021-08-31

This report is not valid as a CB Test Report unless signed by an approved IECEE Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

General disclaimer:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing NCB. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

Test item description ..... :	Rechargeable Li-ion Cell
Trade Mark(s)..... :	N/A
Manufacturer ..... :	Same as applicant
Model/Type reference ..... :	18650 2000mAh
Ratings ..... :	3.7V, 2000mAh, 7.4Wh

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):

☒	**Testing Laboratory:**	Shenzhen NTEK New Energy Technology Co., Ltd.	
Testing location/ address.....:		Room 101, Building C, Fenda Hi-Tech Park, Sanwei Community, Hangcheng Subdistrict, Bao'an District, Shenzhen, Guangdong, China	
Tested by (name, function, signature).....:		Jony j Huang / Project Handler	Jony j Huang
Approved by (name, function, signature)...:		Jesse Zhang / Reviewer	Jesse Zhang

Shenzhen NTEK New Energy Technology Co., Ltd. NTEK Report Seal

List of Attachments (including a total number of pages in each attachment):

Enclosure (4 pages)

Summary of testing:

Tests performed (name of test and test clause):	**Testing location:**
Cell model: 18650 2000mAh cl. 7.2.1 Continuous charging at constant voltage (cells) cl. 7.3.1 External short circuit (cell) cl. 7.3.3 Free fall cl. 7.3.4 Thermal abuse (cells) cl. 7.3.5 Crush (cells) cl. 7.3.7 Forced discharge (cells) cl. 7.3.9 Forced internal short-circuit (cells) cl. 8.2 Determination of small cells and batteries Cell was considered and tested, also complied with the requirements of IEC 62133-2:2017, IEC 62133-2:2017/AMD1:2021.	Shenzhen NTEK New Energy Technology Co., Ltd. Room 101, Building C, Fenda Hi-Tech Park, Sanwei Community, Hangcheng Subdistrict, Bao'an District, Shenzhen, Guangdong, China.

☒ **The product fulfils the requirements of EN 62133-2:2017, EN 62133-2:2017/A1:2021.**

Use of uncertainty of measurement for decisions on conformity (decision rule) :

☒ No decision rule is specified by the IEC standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty ("simple acceptance" decision rule, previously known as "accuracy method").

☐ Other:… (to be specified, for example when required by the standard or client, or if national accreditation requirements apply)

Information on uncertainty of measurement:

The uncertainties of measurement are calculated by the laboratory based on application of criteria given by OD-5014 for test equipment and application of test methods, decision sheets and operational procedures of IECEE.

IEC Guide 115 provides guidance on the application of measurement uncertainty principles and applying the decision rule when reporting test results within IECEE scheme, noting that the reporting of the measurement uncertainty for measurements is not necessary unless required by the test standard or customer.

Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.

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.

N/A - By agreement between the cell manufacturer and the battery and end product manufacturer, cells used in the assembly of a battery need not be marked.

Test item particulars..... :	
Classification of installation and use..... :	Built-in application
Supply Connection..... :	Supplied by cap and base
Recommend charging method declared by the manufacturer..... :	Charge at constant current 400mA until voltage reaches 4.2V, and then charge at constant voltage 4.2V till charge current is 40mA.
Discharge current (0,2 It A) ..... :	400mA
Specified final voltage..... :	2.75V
Upper limit charging voltage per cell..... :	4.25V
Maximum charging current..... :	1000mA
Charging temperature upper limit..... :	45°C
Charging temperature lower limit..... :	10°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 ..... :	2024-07-22
Date (s) of performance of tests..... :	2024-07-22 to 2024-08-02

General remarks:

"(See Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

Throughout this report a ☐ comma / ☒ point is used as the decimal separator.

Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided ..... :	☐ **Yes** ☒ **Not applicable**

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies) ..... : Same as applicant

General product information and other remarks:

1. The sample is cell and used in portable applications.
2. Additionally, detailed information of the cell, as following:

Product name	Rechargeable Li-ion Cell
Model No.	18650 2000mAh
Cell configuration (Series, Parallel)	Not applicable
Rated capacity	2000mAh
Nominal voltage	3.7V
Recommended charging voltage	4.2V
Standard charging current	400mA
Maximum charging current	1000mA
Discharge current (0.2 It A)	400mA
End-of-discharge voltage / Final voltage	2.75V
Lower limit discharge voltage	2.75V
Upper limit charging voltage	4.25V
Charging temperature upper limit	45°C
Charging temperature lower limit	10°C
Discharging temperature range	-20°C to 60°C

3. Charging produce for tests, as following:

First charging procedure (20°C±5°C)	Charge at constant current 400mA until voltage reaches 4.2V, and then charge at constant voltage 4.2V till charge current is 40mA.
Second charging procedure	Stored at 10°C or 45°C for 1-4 h, then charge at constant current 1000mA until voltage reaches 4.25V, then charge at constant voltage 4.25V till charge current is 0.05 It A (100mA).

The final evaluation of the cell must be conducted in the end product for which the cell will be used.

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Clause	Requirement + Test	Result - Remark	Verdict

4	**PARAMETER MEASUREMENT TOLERANCES**		**P**
	Parameter measurement tolerances		P

5	**GENERAL SAFETY CONSIDERATIONS**		**P**
5.1	**General**		P
	Cells and batteries so designed and constructed that they are safe under conditions of both intended use and reasonably foreseeable misuse		P
5.2	**Insulation and wiring**	Cell only.	N/A
	The insulation resistance between the positive terminal and externally exposed metal surfaces of the battery (excluding electrical contact surfaces) is not less than 5 MΩ		N/A
	Insulation resistance (MΩ) ..... :	N/A	—
	Internal wiring and insulation are sufficient to withstand maximum anticipated current, voltage and temperature requirements		N/A
	Orientation of wiring maintains adequate clearances and creepage distances between conductors		N/A
	Mechanical integrity of internal connections accommodates reasonably foreseeable misuse		N/A
5.3	**Venting**		P
	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	Pressure relief mechanism employed.	P
	Encapsulation used to support cells within an outer casing does not cause the battery to overheat during normal operation nor inhibit pressure relief	Cell only.	N/A
5.4	**Temperature, voltage and current management**	Cell only.	N/A
	Batteries are designed such that abnormal temperature rise conditions are prevented		N/A
	Batteries are designed to be within temperature, voltage and current limits specified by the cell manufacturer		N/A
	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		N/A
5.5	**Terminal contacts**		P
	The size and shape of the terminal contacts ensure that they can carry the maximum anticipated current		P

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Clause	Requirement + Test	Result - Remark	Verdict
	External terminal contact surfaces are formed from conductive materials with good mechanical strength and corrosion resistance		P
	Terminal contacts are arranged to minimize the risk of short circuits		P
5.6	**Assembly of cells into batteries**	Cell only.	N/A
5.6.1	General		N/A
	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		N/A
	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		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		N/A
	Manufacturers of cells specify current, voltage and temperature limits so that the battery manufacturer/designer may ensure proper design and assembly		N/A
	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		N/A
	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		N/A
5.6.2	Design recommendation		N/A
	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		N/A
	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

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Clause	Requirement + Test	Result - Remark	Verdict
	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		N/A
	For batteries consisting of series-connected cells or cell blocks, nominal charge voltage are not counted as an overcharge protection		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		N/A
	It is recommended that the cells and cell blocks are not discharged beyond the cell manufacturer's specified final voltage		N/A
	For batteries consisting of series-connected cells or cell blocks, cell balancing circuitry are incorporated into the battery management system		N/A
5.6.3	Mechanical protection for cells and components of batteries		N/A
	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		N/A
	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		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		N/A
	For batteries intended for building into a portable end product, testing with the battery installed within the end product is considered when conducting mechanical tests		N/A
5.7	**Quality plan**		P
	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.	P
5.8	**Battery safety components**		N/A

6	**TYPE TEST AND SAMPLE SIZE**		**P**
	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		P

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Clause	Requirement + Test	Result - Remark	Verdict
	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	Not coin cells.	N/A
	Unless otherwise specified, tests are carried out in an ambient temperature of 20 °C ± 5 °C		P
	The safety analysis of 5.6.1 identify those components of the protection circuit that are critical for short-circuit, overcharge and over discharge protection	Cell only.	N/A
	When conducting the short-circuit test, consideration 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	Cell only.	N/A
7	**SPECIFIC REQUIREMENTS AND TESTS**		**P**
7.1	**Charging procedure for test purposes**		P
7.1.1	First procedure		P
	This charging procedure applies to subclauses other than those specified in 7.1.2		P
	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		P
	Prior to charging, the battery has been discharged at 20 °C ± 5 °C at a constant current of 0,2 It A down to a specified final voltage		P
7.1.2	Second procedure		P
	This charging procedure applies only to 7.3.1, 7.3.4, 7.3.5, and 7.3.9		P
	After stabilization for 1 h to 4 h, at an ambient temperature of the highest test temperature and the lowest test temperature, respectively, 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 It A, using a constant current to constant voltage charging method	See general product information for detailed charging parameters.	P
7.2	**Intended use**		P
7.2.1	Continuous charging at constant voltage (cells)		P
	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		P
	Results: no fire, no explosion, no leakage.....:	(See appended table 7.2.1)	P
7.2.2	Case stress at high ambient temperature (battery)	Cell only.	N/A
	Oven temperature (°C).....:	N/A	—

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Clause	Requirement + Test	Result - Remark	Verdict
	Results: no physical distortion of the battery case resulting in exposure of internal protective components and cells		N/A
7.3	**Reasonably foreseeable misuse**		P
7.3.1	External short-circuit (cell)		P
	The cells were tested until one of the following occurred:		P
	- 24 hours elapsed; or		N/A
	- The case temperature declined by 20 % of the maximum temperature rise		P
	Results: no fire, no explosion ..... :	(See appended table 7.3.1)	P
7.3.2	External short-circuit (battery)	Cell only.	N/A
	The batteries were tested until one of the following occurred:		N/A
	- 24 hours elapsed; or		N/A
	- The case temperature declined by 20 % of the maximum temperature rise		N/A
	In case of rapid decline in short circuit current, the battery pack remained on test for an additional one hour after the current reached a low end steady state condition		N/A
	A single fault in the discharge protection circuit is conducted on one to four (depending upon the protection circuit) of the five samples before conducting the short-circuit test		N/A
	A single fault applies to protective component parts such as MOSFET (metal oxide semiconductor field-effect transistor), fuse, thermostat or positive temperature coefficient (PTC) thermistor		N/A
	Results: no fire, no explosion ..... :	(See appended table 7.3.2)	N/A
7.3.3	Free fall		P
	Results: no fire, no explosion		P
7.3.4	Thermal abuse (cells)		P
	Oven temperature (°C) ..... :	130°C	—
	Results: no fire, no explosion		P
7.3.5	Crush (cells)		P
	The crushing force was released upon:		P
	- The maximum force of 13 kN ± 0,78 kN has been applied; or		P
	- An abrupt voltage drop of one-third of the original voltage has been obtained		N/A
	Results: no fire, no explosion ..... :	(See appended table 7.3.5)	P
7.3.6	Over-charging of battery	Cell only.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	The supply voltage which is:		N/A
	- 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		N/A
	- 1,2 times the upper limit charging voltage resented in Table A.1 per cell for series connected multi-cell batteries, and		N/A
	- Sufficient to maintain a current of 2,0 It A throughout the duration of the test or until the supply voltage is reached		N/A
	Test was continued until the temperature of the outer casing:		N/A
	- Reached steady state conditions (less than 10 °C change in 30-minute period); or		N/A
	- Returned to ambient		N/A
	Results: no fire, no explosion ..... :	(See appended table 7.3.6)	N/A
7.3.7	Forced discharge (cells)		P
	Discharge a single cell to the lower limit discharge voltage specified by the cell manufacturer		P
	The discharged cell is then subjected to a forced discharge at 1 It A to the negative value of the upper limit charging voltage		P
	- 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		P
	Results: no fire, no explosion ..... :	(See appended table 7.3.7)	P
7.3.8	Mechanical tests (batteries)	Cell only.	N/A
7.3.8.1	Vibration		N/A
	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		N/A
	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)		P
	The cells complied with national requirement for ..... :	France, Japan, Korea, Switzerland	—
	The pressing was stopped upon:		P
	- A voltage drop of 50 mV has been detected; or		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- The pressing force of 800 N (cylindrical cells) or 400 N (prismatic cells) has been reached	The pressing of 10 cells was stopped upon the force of 800N has been reached.	P
	Results: no fire ..... :	(See appended table 7.3.9)	P
8	**INFORMATION FOR SAFETY**		**P**
8.1	**General**		P
	Manufacturers of secondary cells provides information about current, voltage and temperature limits of their products	Information provided in specification.	P
	Manufacturers of batteries provides information regarding how to minimize and mitigate hazards to equipment manufacturers or end-users	Cell only.	N/A
	Systems analyses are performed by device manufacturers to ensure that a particular battery design prevents hazards from occurring during use of a product	Considered in end product.	N/A
	As appropriate, any information relating to hazard avoidance resulting from a system analysis is provided to the end user	Considered in end product.	N/A
8.2	**Small cell and battery safety information**		N/A
	The following warning language is to be provided with the information packaged with the small cells and batteries or equipment using them:		N/A
	- Keep small cells and batteries which are considered swallowable out of the reach of children		N/A
	- Swallowing may lead to burns, perforation of soft tissue, and death. Severe burns can occur within 2 h of ingestion		N/A
	- In case of ingestion of a cell or battery, seek medical assistance promptly		N/A
9	**MARKING**		**P**
9.1	**Cell marking**		P
	Cells are marked as specified in IEC 61960, except coin cells		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		P
9.2	**Battery marking**	Cell only.	N/A
	Batteries are marked as specified in IEC 61960, except for coin batteries		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Coin batteries whose external surface area is too small to accommodate the markings on the batteries show the designation and polarity		N/A
	Batteries are marked with an appropriate caution statement		N/A
	- Terminals have clear polarity marking on the external surface of the battery, or		N/A
	- Not be marked with polarity markings if the design of the external connector prevents reverse polarity connections		N/A
9.3	**Caution for ingestion of small cells and batteries**		N/A
	Coin cells and batteries identified as small batteries include a caution statement regarding the hazards of ingestion in accordance with 8.2	Not coin cells.	N/A
	Small cells and batteries are intended for direct sale in consumer-replaceable applications, caution for ingestion is given on the immediate package	The cells are not intended for direct sale in consumer-replaceable applications.	N/A
9.4	**Other information**		P
	The following information are marked on or supplied with the battery:		P
	- Storage and disposal instructions	Information provided in specification.	P
	- Recommended charging instructions	Information provided in specification.	P
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	Not coin cells.	N/A
ANNEX A	**CHARGING AND DISCHARGING RANGE OF SECONDARY LITHIUM ION CELLS FOR SAFE USE**		**P**
A.1	**General**		P
A.2	**Safety of lithium ion secondary battery**		P
A.3	**Consideration on charging voltage**		P
A.3.1	General		P
A.3.2	Upper limit charging voltage	4.25V	P
A.3.2.1	General		P
A.3.2.2	Explanation of safety viewpoint		N/A
A.3.2.3	Safety requirements, when different upper limit charging voltage is applied		N/A
A.4	**Consideration of temperature and charging current**		P
A.4.1	General		P

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Clause	Requirement + Test	Result - Remark	Verdict
A.4.2	Recommended temperature range	10°C to 45°C declared by the cell's manufacturer.	P
A.4.2.1	General		P
A.4.2.2	Safety consideration when a different recommended temperature range is applied		N/A
A.4.3	High temperature range	T_3 is 45°C, high temperature range does not defined by the manufacturer.	N/A
A.4.3.1	General		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/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	T_2 is 10°C, low temperature range does not defined by the manufacturer.	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		P
A.4.6	Consideration of discharge		P
A.4.6.1	General		P
A.4.6.2	Final discharge voltage and explanation of safety viewpoint		P
A.4.6.3	Discharge current and temperature range		P
A.4.6.4	Scope of application of the discharging current		P
A.5	**Sample preparation**		P
A.5.1	General		P
A.5.2	Insertion procedure for nickel particle to generate internal short		P
A.5.3	Disassembly of charged cell		P
A.5.4	Shape of nickel particle		P
A.5.5	Insertion of nickel particle in cylindrical cell		P
A.5.5.1	Insertion of nickel particle in winding core		P
A.5.5.2	Marking the position of the nickel particle on both ends of the winding core of the separator		P
A.5.6	Insertion of nickel particle in prismatic cell		N/A

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
A.6	**Experimental procedure of the forced internal short-circuit test**		P
A.6.1	Material and tools for preparation of nickel particle		P
A.6.2	Example of a nickel particle preparation procedure		P
A.6.3	Positioning (or placement) of a nickel particle		P
A.6.4	Damaged separator precaution		P
A.6.5	Caution for rewinding separator and electrode		P
A.6.6	Insulation film for preventing short-circuit		P
A.6.7	Caution when disassembling a cell		P
A.6.8	Protective equipment for safety		P
A.6.9	Caution in the case of fire during disassembling		P
A.6.10	Caution for the disassembling process and pressing the electrode core		P
A.6.11	Recommended specifications for the pressing device		P
ANNEX B	**RECOMMENDATIONS TO EQUIPMENT MANUFACTURERS AND BATTERY ASSEMBLERS**		**P**
ANNEX C	**RECOMMENDATIONS TO THE END-USERS**		**N/A**
ANNEX D	**MEASUREMENT OF THE INTERNAL AC RESISTANCE FOR COIN CELLS**		**N/A**
D.1	**General**		N/A
D.2	**Method**		N/A
	A sample size of three coin cells is required for this measurement		N/A
	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**		**P**
ANNEX F	**COMPONENT STANDARDS REFERENCES**		**N/A**

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

7.2.1	TABLE: Continuous charging at constant voltage (cells)			P
Sample No.	**Recommended charging voltage Vc (Vdc)**	**Recommended charging current I_{rec} (A)**	**OCV before test (Vdc)**	**Results**
NE240709114002-001	4.2	0.4	4.175	A, B
NE240709114002-002	4.2	0.4	4.176	A, B
NE240709114002-003	4.2	0.4	4.181	A, B
NE240709114002-004	4.2	0.4	4.175	A, B
NE240709114002-005	4.2	0.4	4.179	A, B

Supplementary information:

A - No fire or explosion

B - No leakage

C - Others (please explain)

7.3.1	TABLE: External short circuit (cell)				P
Sample No.	**Ambient (°C)**	**OCV at start of test (Vdc)**	**Resistance of circuit (mΩ)**	**Maximum case temperature rise ΔT (K)**	**Results**
Samples charged at charging temperature upper limit					
NE240709114002-006	55.5	4.201	81	25.4	A
NE240709114002-007	55.5	4.203	85	26.0	A
NE240709114002-008	55.5	4.201	89	22.6	A
NE240709114002-009	55.5	4.205	84	26.0	A
NE240709114002-010	55.5	4.207	82	25.2	A
Samples charged at charging temperature lower limit					
NE240709114002-011	55.7	4.176	85	23.8	A
NE240709114002-012	55.7	4.175	81	27.9	A
NE240709114002-013	55.7	4.175	89	21.6	A
NE240709114002-014	55.7	4.171	88	29.3	A

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

NE240709114002-015	55.7	4.179	84	24.1	A

Supplementary information:
A - No fire or explosion
B - Others (please explain)

7.3.2	TABLE: External short circuit (battery)					N/A
Sample No.	**Ambient T (°C)**	**OCV before test (Vdc)**	**Resistance of circuit (mΩ)**	**Maximum case temperature rise ΔT (K)**	**Component single fault condition**	**Results**

Supplementary information:
A - No fire or explosion
B - Others (please explain)

7.3.5	TABLE: Crush (cells)			P
Sample No.	**OCV before test (Vdc)**	**OCV at removal of crushing force (Vdc)**	**Maximum force applied to the cell during crush (kN)**	**Results**
Samples charged at charging temperature upper limit				
NE240709114002-029	4.201	4.200	12.995	A
NE240709114002-030	4.205	4.204	12.994	A
NE240709114002-031	4.205	4.204	12.995	A
NE240709114002-032	4.207	4.206	12.995	A
NE240709114002-033	4.203	4.202	12.995	A
Samples charged at charging temperature lower limit				
NE240709114002-034	4.176	4.175	12.994	A
NE240709114002-035	4.171	4.170	12.995	A
NE240709114002-036	4.171	4.170	12.995	A
NE240709114002-037	4.173	4.172	12.995	A

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

NE240709114002-038	4.175	4.174	12.995	A

Supplementary information:
A - No fire or explosion
B - Others (please explain)

7.3.6	TABLE: Over-charging of battery	N/A
Constant charging current (A) .....:		—
Supply voltage (Vdc) .....:		—

Sample No.	OCV before charging (Vdc)	Total charging time (minute)	Maximum outer case temperature (°C)	Results

Supplementary information:
A - No fire or explosion
B - Others (please explain)

7.3.7	TABLE: Forced discharge (cells)	P

Sample No.	OCV before application of reverse charge (Vdc)	Measured reverse charge I_t (A)	Lower limit discharge voltage (Vdc)	Results
NE240709114002-039	3.011	2	2.75	A
NE240709114002-040	3.045	2	2.75	A
NE240709114002-041	3.019	2	2.75	A
NE240709114002-042	3.025	2	2.75	A
NE240709114002-043	3.056	2	2.75	A

Supplementary information:
A - No fire or explosion
B - Others (please explain)

7.3.8.1	TABLE: Vibration	N/A

Sample No.	OCV before test (Vdc)	OCV after test (Vdc)	Mass before test (g)	Mass after test (g)	Results

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

Supplementary information:

A - No fire or explosion

B - No rupture

C - No leakage

D - No venting

E - Others (please explain)

7.3.8.2	TABLE: Mechanical shock				N/A
Sample No.	**OCV before test (Vdc)**	**OCV after test (Vdc)**	**Mass before test (g)**	**Mass after test (g)**	**Results**

Supplementary information:

A - No fire or explosion

B - No rupture

C - No leakage

D - No venting

E - Others (please explain)

7.3.9	TABLE: Forced internal short circuit (cells)				P
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					
NE240709114002-044	45	4.204	1	800	A
NE240709114002-045	45	4.201	1	800	A
NE240709114002-046	45	4.201	1	800	A
NE240709114002-047	45	4.205	1	800	A
NE240709114002-048	45	4.207	1	800	A
Samples charged at charging temperature lower limit					
NE240709114002-049	10	4.172	1	800	A
NE240709114002-050	10	4.171	1	800	A
NE240709114002-051	10	4.171	1	800	A

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

NE240709114002-052	10	4.175	1	800	A
NE240709114002-053	10	4.179	1	800	A

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.

A - No fire

B - Others (please explain)

D.2	TABLE: Internal AC resistance for coin cells			N/A
Sample no.	**Ambient T (°C)**	**Store time (h)**	**Resistance Rac (Ω)**	**Results [1)]**

Supplementary information:

[1)] Coin cells with an internal resistance less than or equal to 3 Ω, see test result on corresponding tables according to Clause 6 and Table 1.

A - Coin cells with internal resistance less than 3 Ω

B - Coin cells with internal resistance equal to 3 Ω

C - Coin cells with internal resistance greater than 3 Ω

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

	TABLE: Critical components information				P
Object / part No.	**Manufacturer/ trademark**	**Type / model**	**Technical data**	**Standard**	**Mark(s) of conformity[1)]**
1. Electrolyte	Shanshan Advanced Materials (Quzhou) Co., Ltd.	SS-18072	$LiPF_6$+DMC+EMC +EC	--	--
2. Separator	Dongguan Huashi Lithium Energy New Energy Technology Co. , Ltd.	66.5*(9+3)μm	PP+PE+PP, Shutdown temperature: 140°C	--	--
3. Negative electrode	Ganzhou Ruifute Technology Co., Ltd.	AGF-1B	Carbon	--	--
4. Positive electrode	LEYOU NEW ENERGY MATERIALS (WUXI) CO., LTD.	E0211C	$LiNi_{0.8}Co_{0.1}Mn_{0.1}O_2$	--	--
5. Can	Xinxiang Xinglong Machinofacture Co., Ltd	68.3mm*18.1 mm	Thickness: 0.22mm, stainless steel	--	--
6. PTC	Shanghai Lan'an Polymer Electronics Co., LTD	Φ16.3*10.0*0.3mm	V_{max}: 15.0V_{DC}, I_{max}: 40.0A_{DC}, I_H: 3.5A, I_T: 7.0A	--	--
Supplementary information: [1)] Provided evidence ensures the agreed level of compliance. See OD-2039.					

-End of Test Report-

Important Notice

1. The test report is invalid without the Report Seal of NTEK and Paging seal of NTEK.

2. Nobody is allowed to photocopy or partly photocopy this test report without written permission of NTEK.

3. The test report is invalid without the signatures of Approver and Testing engineer.

4. The report is invalid when anything of following happens – illegal transfer, reproduce, embezzlement, imposture, modification or tampering in any media form.

5. Objections to the test report must be submitted to NTEK within 15 days.

6. The test report is valid for the tested samples only.

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ENCLOSURE

Supplement ID	Description
01	Photographs
02	Dimensional drawing

ID 01: Photographs

ID 01

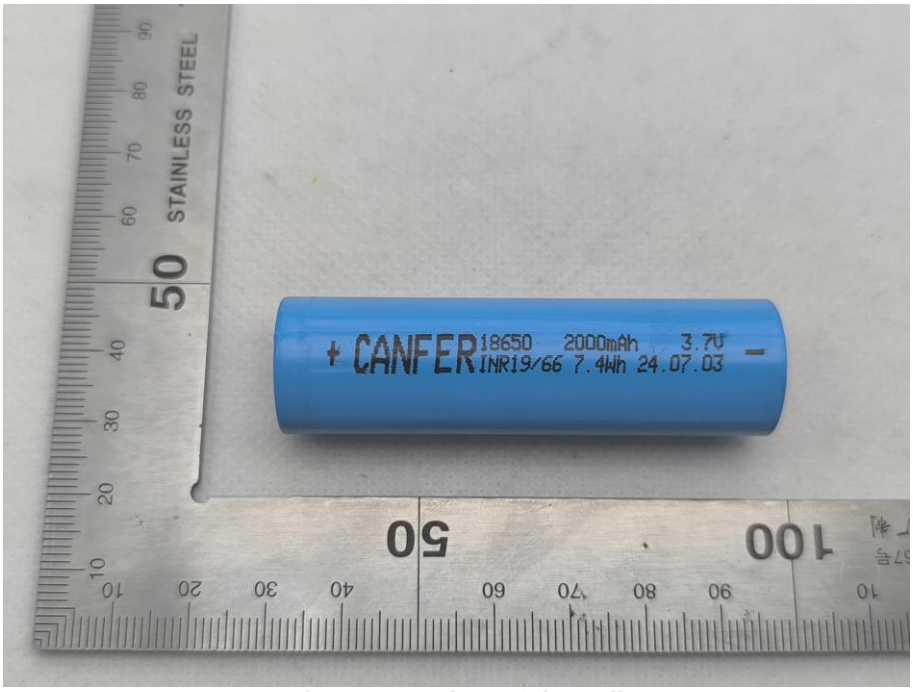


Fig.1-Front view of the cell

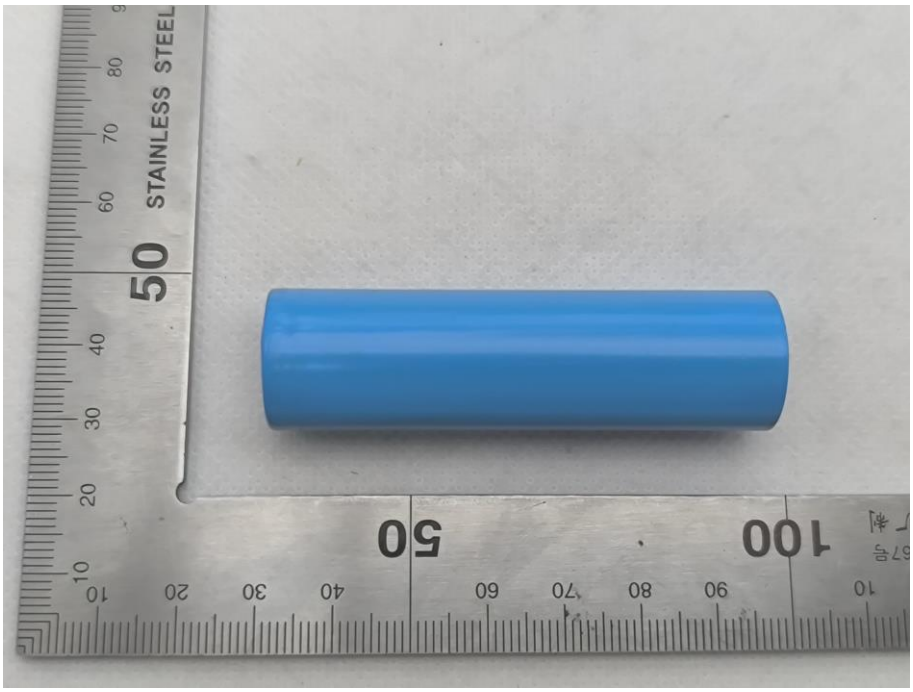


Fig.2-Rear view of the cell

ID 01

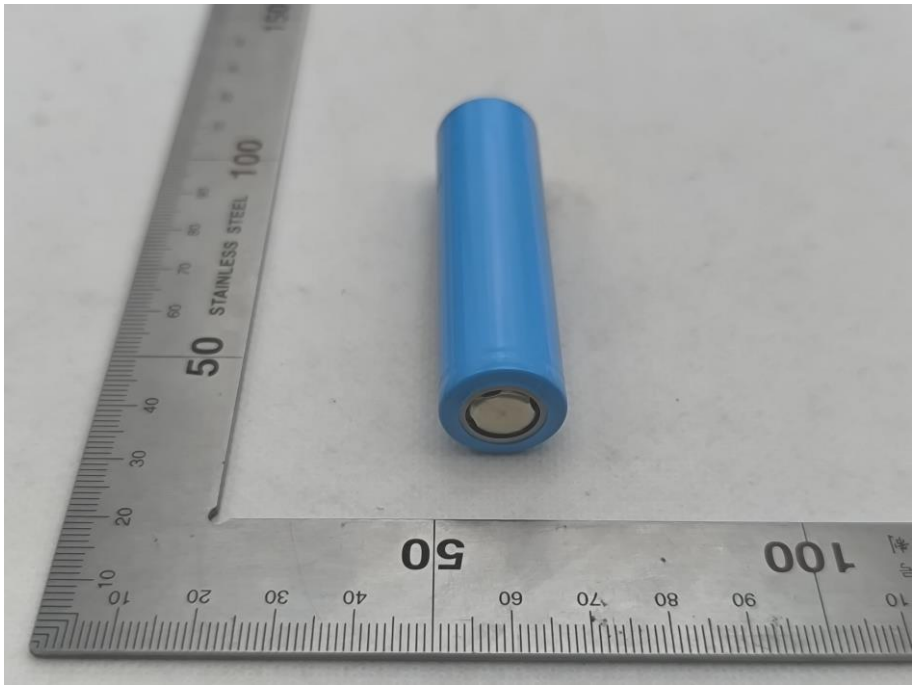


Fig.3-Top view of the cell

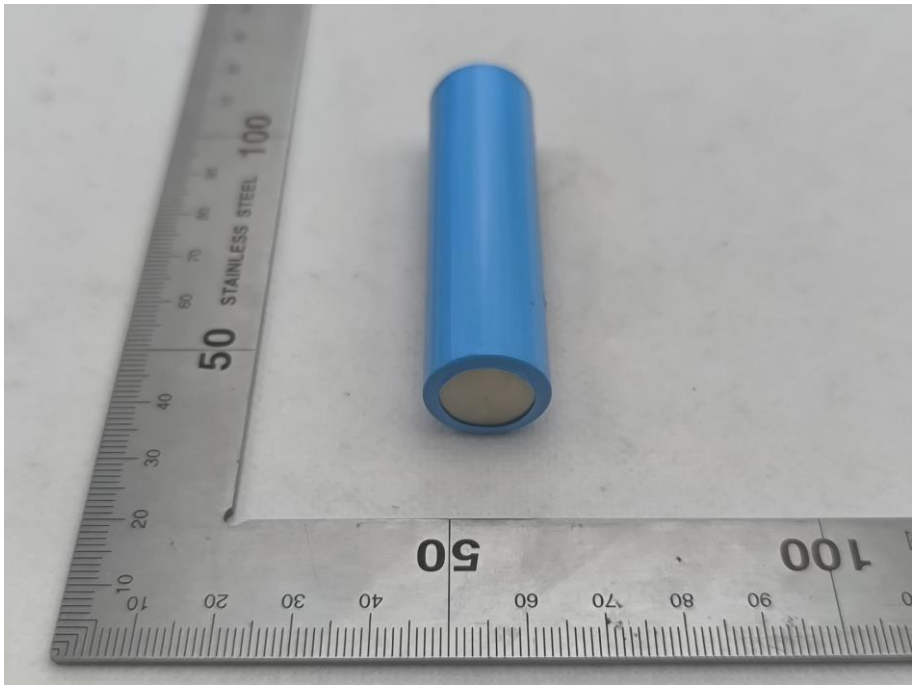
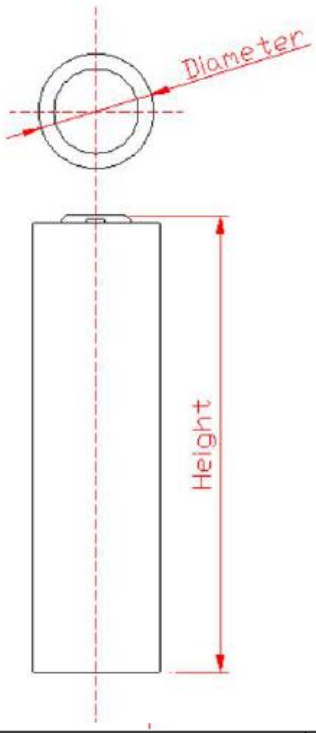


Fig.4-Bottom view of the cell

-End of ID 01-

ID 02: Dimensional drawing



NO	Items	Units: mm
1	diameter/直径(D)	18.3±0.3
2	Height/高度(H)	65.0±0.5

Unit: mm

-End of ID 02-