Test Report

Applicant :

Address :

Manufacturer :

Address :

The following sample(s) was /were submitted and identified on behalf of the clients as:

Sample Name	:	Polymer Li-ion Cell
Trade Name	:	
Sample Model	:	1260110-10000mAh (Additional models are on the next page)
Sample Received Date	:	Nov. 26, 2024
Testing Period	:	Nov. 28, 2024 To Dec. 20, 2024
Test Requested	:	With reference to Regulation (EU) 2023/1542 concerning batteries and waste batteries
Test Method	:	Please refer to next page(s).
Test Result	:	Please refer to next page(s).
Conclusion	:	**PASS** (Based on test results)

Signed for and on behalf of

Guangdong KEYS Testing Technology Co., Ltd.

Tony Qian/Approved Signatory

Additional Models : 146074-10000mAh,146074-9500mAh,146074-8000mAh,1264130-10000mAh, 126280-10000mAh,126280-9300mAh,1260115-10000mAh,1260110-10000mAh, 1260110-9500mAh,1260110-9200mAh,1260110-9000mAh,1260110-8000mAh, 1260110-7000mAh,1260100-10000mAh,1260100-9000mAh,126090,124065, 123790-5000mAh,123790-4000mAh,1165110,1160110,1160100-10000mAh, 1160100-9000mAh,115570,115555,114371-4000mAh,114371-4500mAh, 114371-5000mAh,114273,114190,1064130,106168,1060110,1055125, 105573,105570,105568-5000mAh,105568-4000mAh,105555,105080, 104050-2500mAh,104050-2600mAh,104040,103665,103655,103450-2000mAh, 103450-1800mAh,103040-1200mAh,103040-1000mAh,103040-800mAh,9873129, 974058,9565125,956090,955570,955565-5000mAh,955565-4000mAh, 954292-5000mAh,954292-4000mAh,9373129-10000mAh,9373129-9500mAh, 9373129-9000mAh,9265115-10000mAh,9265115-9000mAh,9265115-8000mAh, 9260110,9065115,9060100,906090,903659,8961118-10000mAh, 8961118-9000mAh,8870129,805080,804050,803450,803540,803160,785767-5000mAh, 785767-4800mAh,7565121-7000mAh,7565121-8000mAh,755590,755060, 735590-4000mAh,735590-4200mAh,735590-3800mAh,735486,714359, 706075,695464,683982,676074,656090,656090,655063,654060,646380, 645464,635486,626090-5000mAh,626090-4000mAh,625885,6060110, 6060100,606090,606078-4800mAh,606078-4400mAh,605483,585575-2900mAh, 585575-2500mAh,565872-3000mAh,565872-3200mAh,565872-3380mAh, 553580,525778,525777-3500mAh,525777-3400mAh,525777-2500mAh, 525777-3200mAh,523759,523450,506758,505573,505060,503759,474854,454261, 433759,426389,3858131,385576,347095,337093,327090,317090,30100129, 30100134,30100100,307090,2880159

Sample Description:

No.	Name
1	Battery

1. Batteries Directive 2023/1542/EU

Test Result:

Test Item(s)	Unit	Test Method	Result	MDL	Limit
Cadmium(Cd)	mg/kg	EPA 3052:1996, ICP-AES	N.D.	2	20
Mercury(Hg)	mg/kg	EPA 3052:1996, ICP-AES	N.D.	2	5
Lead(Pb)	mg/kg	EPA 3052:1996, ICP-AES	N.D.	2	100

Note: 1. mg/kg= ppm;

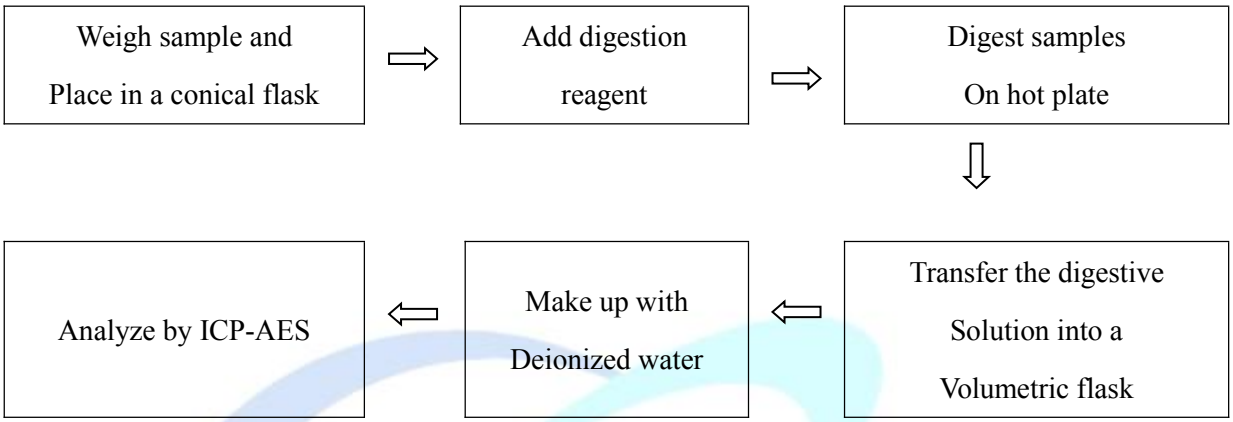
2. N.D.=Not Detected(<MDL);

3. MDL =Method Detection Limit.

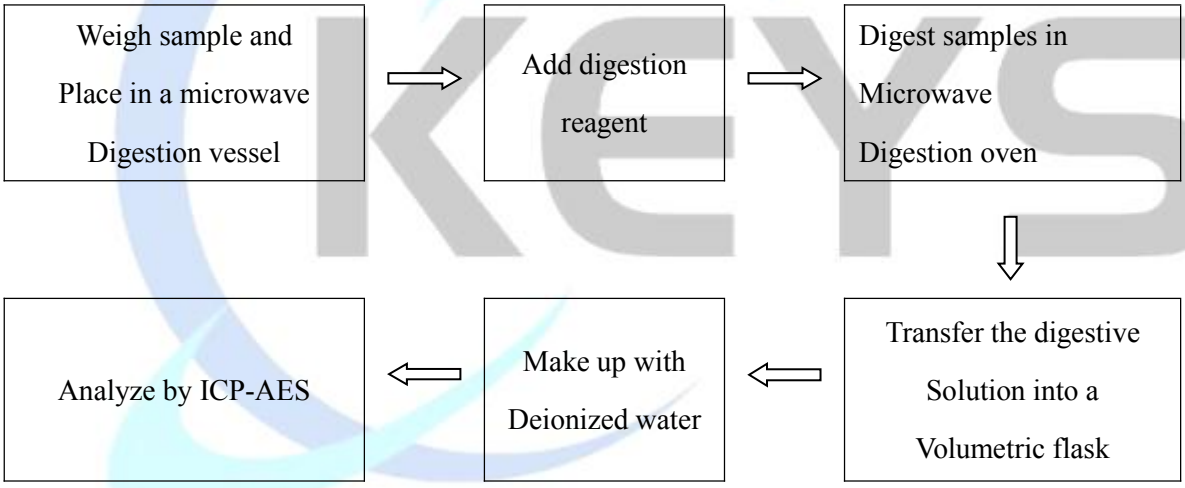
4. Batteries, accumulators and button cells containing more than 0.0005 % mercury, more than 0.002 % cadmium or more than 0.01 % lead, shall be marked with the chemical symbol for the metal concerned: Hg, Cd or Pb.

Test Process:

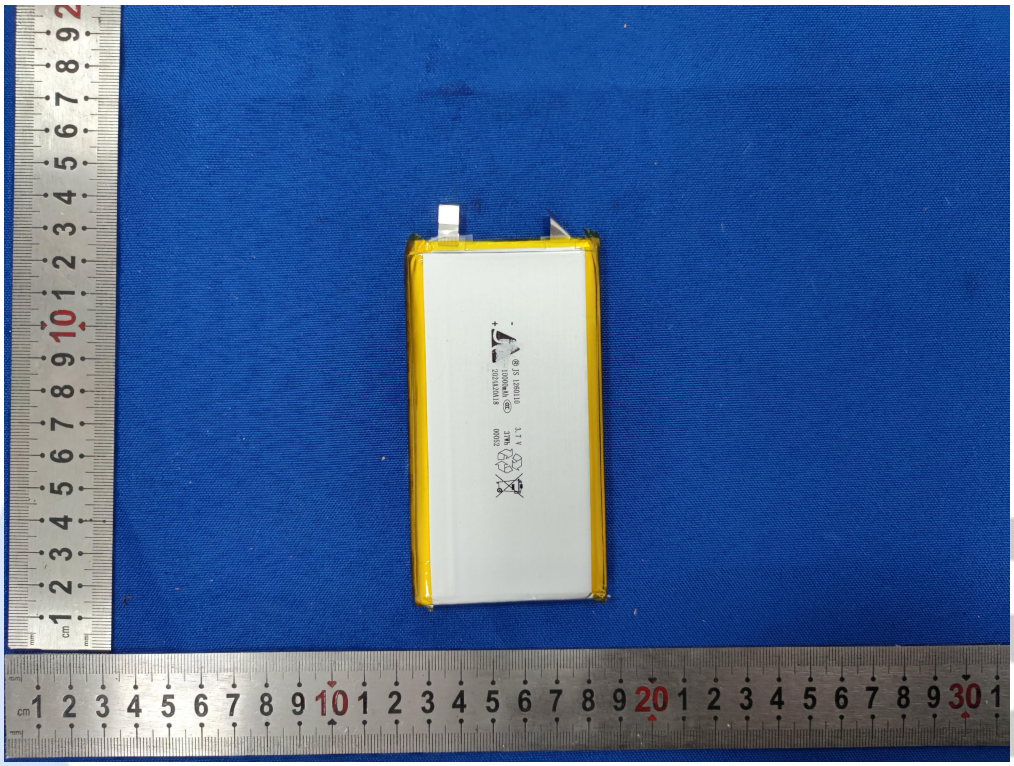
1. Test for Cd/Pb Contents



2. Test for Hg Contents



Sample Photo:



*** End of Report ***

Guangdong KEYS Testing Technology Co., Ltd.
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Test Report issued under the responsibility of:

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. ..... :	P23062805901
Date of issue ..... :	2025-09-05
Total number of pages ..... :	26 pages
Name of Testing Laboratory preparing the Report ..... :	Shenzhen NTEK New Energy Technology Co., Ltd. Building C, Fenda Science Park, Sanwei Community, Hangcheng Street, Bao'an District Shenzhen China
Applicant's name ..... :	
Address ..... :	
Test specification:	
Standard ..... :	IEC 62133-2:2017, IEC 62133-2:2017/AMD1:2021
Test procedure ..... :	CB Scheme
Non-standard test method ..... :	N/A
TRF template used ..... :	IECEE OD-2020-F1:2021, Ed.1.4
Test Report Form No. ..... :	IEC62133_2C
Test Report Form(s) Originator .... :	DEKRA Certification B.V.
Master TRF ..... :	Dated 2022-07-01

If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.

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..... :	Polymer Li-ion Cell
Trade Mark(s) ..... :	
Manufacturer ..... :	Same as the applicant
Model/Type reference..... :	126280
Ratings..... :	3.85V, 10000mAh, 38.5Wh

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

☒	**CB Testing Laboratory:**	Shenzhen NTEK New Energy Technology Co., Ltd.	
Testing location/ address ..... :		Building C, Fenda Science Park, Sanwei Community, Hangcheng Street, Bao'an District Shenzhen China	
Tested by (name, function, signature)..... :		Jony j Huang / Project Handler	Jony j Huang
Approved by (name, function, signature) .. :		Jesse Zhang / Reviewer	Jesse Zhang
☐	**Testing procedure: CTF Stage 1:**		
Testing location/ address ..... :			
Tested by (name, function, signature)..... :			
Approved by (name, function, signature) .. :			
☐	**Testing procedure: CTF Stage 2:**		
Testing location/ address ..... :			
Tested by (name + signature)..... :			
Witnessed by (name, function, signature) . :			
Approved by (name, function, signature) .. :			
☐	**Testing procedure: CTF Stage 3:**		
☐	**Testing procedure: CTF Stage 4:**		
Testing location/ address ..... :			
Tested by (name, function, signature)..... :			
Witnessed by (name, function, signature) . :			
Approved by (name, function, signature) .. :			
Supervised by (name, function, signature) :			

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

Enclosures (3 pages)

National Differences (3 pages)

Summary of testing:

Tests performed (name of test and test clause):	**Testing location:**
Cell model: 126280 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. ☒ Building C, Fenda Science Park, Sanwei Community, Hangcheng Street, Bao'an District Shenzhen China ☐ Building D, Huashengtai Technology Building, No. 36, Hangkong Road, Hangcheng Street, Bao'an District, Shenzhen China

Summary of compliance with National Differences (List of countries addressed):

EU Group* Korea

* = No National or Group Differences declared

☒ **The product fulfils the requirements of EN 62133-2:2017, EN 62133-2:2017/A1:2021, KC62133-2(2020-07)**

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 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 electrode tab
Recommend charging method declared by the manufacturer ..... :	Charge at constant current 5000mA until voltage reaches 4.4V, and then charge at constant voltage 4.4V till charge current is 200mA.
Discharge current (0,2 lt A) ..... :	2000mA
Specified final voltage..... :	3.0V
Upper limit charging voltage per cell..... :	0°C to 10°C: 4.2V 10°C to 55°C: 4.4V
Maximum charging current ..... :	0°C to 10°C: 2000mA 10°C to 20°C: 5000mA 20°C to 45°C: 10000mA 45°C to 55°C: 5000mA
Charging temperature upper limit ..... :	55°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 .....:	2025-07-24
Date (s) of performance of tests .....:	2025-07-24 to 2025-09-04

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 the 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	Polymer Li-ion Cell
Model No.	126280
Cell configuration (Series, Parallel)	Not applicable
Rated capacity	10000mAh
Nominal voltage	3.85V
Recommended charging voltage	4.4V
Standard charging current	5000mA
Maximum charging current	0°C to 10°C: 2000mA 10°C to 20°C: 5000mA 20°C to 45°C: 10000mA 45°C to 55°C: 5000mA
Discharge current (0.2 It A)	2000mA
Maximum Discharge current	10000mA
End-of-discharge voltage / Final voltage	3.0V
Lower limit discharge voltage	3.0V
Upper limit charging voltage	0°C to 10°C: 4.2V 10°C to 55°C: 4.4V
Charging temperature upper limit	55°C
Charging temperature lower limit	0°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 5000mA until voltage reaches 4.4V, and then charge at constant voltage 4.4V till charge current is 200mA.
Second charging procedure	Stored at 0°C for 1-4 h, then charge at constant current 2000mA until voltage reaches 4.2V, then charge at constant voltage 4.2V till charge current is 0.05 It A (500mA). Stored at 10°C or 55°C for 1-4 h, then charge at constant current 5000mA until voltage reaches 4.4V, then charge at constant voltage 4.4V till charge current is 0.05 It A (500mA). Stored at 20°C or 45°C for 1-4 h, then charge at constant current 10000mA until voltage reaches 4.4V, then charge at constant voltage 4.4V till charge current is 0.05 It A (500mA).

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

IEC 62133-2			
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 is incorporated in cells so that they can relieve excessive internal pressure.	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

IEC 62133-2			
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

IEC 62133-2			
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

IEC 62133-2			
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	—

IEC 62133-2			
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 ..... :	N/A	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	—
	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

IEC 62133-2			
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 ..... :	N/A	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. ..... :	N/A	N/A
7.3.8.2	Mechanical shock		N/A
	Results: no leakage, no venting, no rupture, no explosion and no fire ..... :	N/A	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

IEC 62133-2			
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 25 cells was stopped upon the force of 400N 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
	Do not allow children to replace batteries without adult supervision	Cell only.	N/A
8.2	**Small cell and battery safety information**	Not small cell.	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

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Batteries are marked as specified in IEC 61960, except for coin batteries		N/A
	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**	Not small cells.	N/A
	Coin cells and batteries identified as small batteries include a caution statement regarding the hazards of ingestion in accordance with 8.2		N/A
	Small cells and batteries are intended for direct sale in consumer-replaceable applications, caution for ingestion is given on the immediate package		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	0°C to 10°C: 4.2V 10°C to 55°C: 4.4V	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

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
A.4	**Consideration of temperature and charging current**		P
A.4.1	General		P
A.4.2	Recommended temperature range	20°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	45°C to 55°C declared by the cell's manufacturer.	P
A.4.3.1	General		P
A.4.3.2	Explanation of safety viewpoint		P
A.4.3.3	Safety considerations when specifying charging conditions in the high temperature range		P
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°C to 20°C declared by the cell's manufacturer.	P
A.4.4.1	General		P
A.4.4.2	Explanation of safety viewpoint		P
A.4.4.3	Safety considerations, when specifying charging conditions in the low temperature range		P
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		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

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
A.5.6	Insertion of nickel particle in prismatic cell		P
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**
NE230627229002-001	4.4	5	4.371	A, B
NE230627229002-002	4.4	5	4.370	A, B
NE230627229002-003	4.4	5	4.370	A, B
NE230627229002-004	4.4	5	4.368	A, B
NE230627229002-005	4.4	5	4.372	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: 55°C					
NE230627229002-006	57.5	4.304	82	54.5	A, B
NE230627229002-007	57.5	4.301	81	57.1	A, B
NE230627229002-008	57.5	4.305	89	51.2	A, B
NE230627229002-009	57.5	4.304	78	53.0	A, B
NE230627229002-010	57.5	4.307	84	49.0	A, B
Samples charged at charging temperature upper limit: 45°C					
NE230627229002-011	56.0	4.325	87	54.5	A, B
NE230627229002-012	56.0	4.323	85	58.9	A, B
NE230627229002-013	56.0	4.322	88	51.4	A, B
NE230627229002-014	56.0	4.323	81	56.2	A, B

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

NE230627229002-015	56.0	4.325	78	49.3	A, B
Samples charged at charging temperature lower limit: 20°C					
NE230627229002-016	56.1	4.290	84	51.6	A, B
NE230627229002-017	56.1	4.291	89	60.2	A, B
NE230627229002-018	56.1	4.291	89	56.0	A, B
NE230627229002-019	56.1	4.291	91	63.3	A, B
NE230627229002-020	56.1	4.290	80	53.7	A, B
Samples charged at charging temperature lower limit: 10°C					
NE230627229002-021	57.3	4.285	84	58.8	A, B
NE230627229002-022	57.3	4.281	81	62.9	A, B
NE230627229002-023	57.3	4.283	88	53.7	A, B
NE230627229002-024	57.3	4.281	86	64.6	A, B
NE230627229002-025	57.3	4.289	89	50.6	A, B
Samples charged at charging temperature lower limit: 0°C					
NE230627229002-026	57.2	4.104	82	55.4	A, B
NE230627229002-027	57.2	4.103	85	55.8	A, B
NE230627229002-028	57.2	4.098	81	63.5	A, B
NE230627229002-029	57.2	4.103	76	67.6	A, B
NE230627229002-030	57.2	4.107	88	66.1	A, B

Supplementary information:

A - No fire or explosion

B - Others (please explain): Bulge

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

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: 55°C				
NE230627229002-059	4.302	4.301	12.993	A
NE230627229002-060	4.310	4.309	12.993	A
NE230627229002-061	4.311	4.310	12.993	A
NE230627229002-062	4.309	4.308	12.993	A
NE230627229002-063	4.303	4.302	12.993	A
Samples charged at charging temperature upper limit: 45°C				
NE230627229002-064	4.322	4.321	12.992	A
NE230627229002-065	4.325	4.324	12.993	A
NE230627229002-066	4.322	4.321	12.993	A
NE230627229002-067	4.327	4.326	12.993	A
NE230627229002-068	4.321	4.320	12.993	A
Samples charged at charging temperature lower limit: 20°C				
NE230627229002-069	4.291	4.290	12.992	A

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

NE230627229002-070	4.295	4.294	12.993	A
NE230627229002-071	4.291	4.290	12.992	A
NE230627229002-072	4.298	4.297	12.993	A
NE230627229002-073	4.292	4.291	12.993	A
Samples charged at charging temperature lower limit: 10°C				
NE230627229002-074	4.285	4.284	12.993	A
NE230627229002-075	4.284	4.283	12.993	A
NE230627229002-076	4.281	4.280	12.993	A
NE230627229002-077	4.281	4.280	12.993	A
NE230627229002-078	4.289	4.288	12.993	A
Samples charged at charging temperature lower limit: 0°C				
NE230627229002-079	4.108	4.107	12.993	A
NE230627229002-080	4.105	4.104	12.993	A
NE230627229002-081	4.105	4.104	12.993	A
NE230627229002-082	4.107	4.106	12.993	A
NE230627229002-083	4.101	4.100	12.993	A

Supplementary information:

A - No fire or explosion

B - Others (please explain)

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

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
NE230627229002-084	3.345	10	3.0	A, B
NE230627229002-085	3.376	10	3.0	A, B
NE230627229002-086	3.392	10	3.0	A, B
NE230627229002-087	3.371	10	3.0	A, B
NE230627229002-088	3.386	10	3.0	A, B

Supplementary information:

A - No fire or explosion

B - Others (please explain): Bulge

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: 55°C					
NE230627229002-089	55	4.302	1	400	A
NE230627229002-090	55	4.307	1	400	A
NE230627229002-091	55	4.305	1	400	A
NE230627229002-092	55	4.305	1	400	A
NE230627229002-093	55	4.301	1	400	A
Samples charged at charging temperature upper limit: 45°C					
NE230627229002-094	45	4.321	1	400	A
NE230627229002-095	45	4.327	1	400	A
NE230627229002-096	45	4.325	1	400	A
NE230627229002-097	45	4.323	1	400	A

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

NE2306272290 02-098	45	4.326	1	400	A
Samples charged at charging temperature lower limit: 20°C					
NE2306272290 02-099	20	4.292	1	400	A
NE2306272290 02-100	20	4.295	1	400	A
NE2306272290 02-101	20	4.293	1	400	A
NE2306272290 02-102	20	4.293	1	400	A
NE2306272290 02-103	20	4.295	1	400	A
Samples charged at charging temperature lower limit: 10°C					
NE2306272290 02-104	10	4.285	1	400	A
NE2306272290 02-105	10	4.281	1	400	A
NE2306272290 02-106	10	4.283	1	400	A
NE2306272290 02-107	10	4.283	1	400	A
NE2306272290 02-108	10	4.289	1	400	A
Samples charged at charging temperature lower limit: 0°C					
NE2306272290 02-109	0	4.101	1	400	A
NE2306272290 02-110	0	4.109	1	400	A
NE2306272290 02-111	0	4.104	1	400	A
NE2306272290 02-112	0	4.105	1	400	A
NE2306272290 02-113	0	4.102	1	400	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)

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

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	Dongguan Shanshan Battery Material Co., Ltd	SS-GDJT010	$LiPF_6$, EC, DEC	--	--
2. Separator	Shenzhen Dingtaixiang New Energy Technology Co., Ltd	14+2+1	PE+Al_2O_3	--	--
3. Positive electrode	Jiangmen Kanhoo Industry Co., Ltd	TE613DE	$LiNi_{0.6}Mn_{0.1}Co_{0.3}O_2$	--	--
4. Negative electrode	Ganzhou RFT Technology Co., Ltd	AGL-1	Graphite	--	--
Supplementary information: 1) Provided evidence ensures the agreed level of compliance. See OD-2039.					

ENCLOSURE

Supplement ID	Description
01	Photographs
02	Dimensional drawing

ID 01: Photographs

ID 01

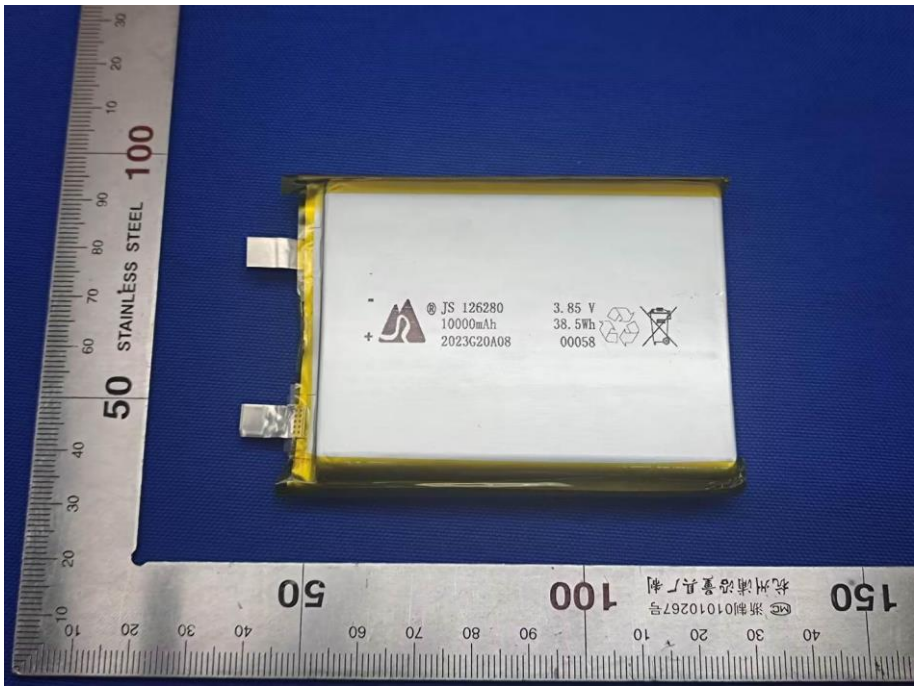


Fig.1-Front view of the cell

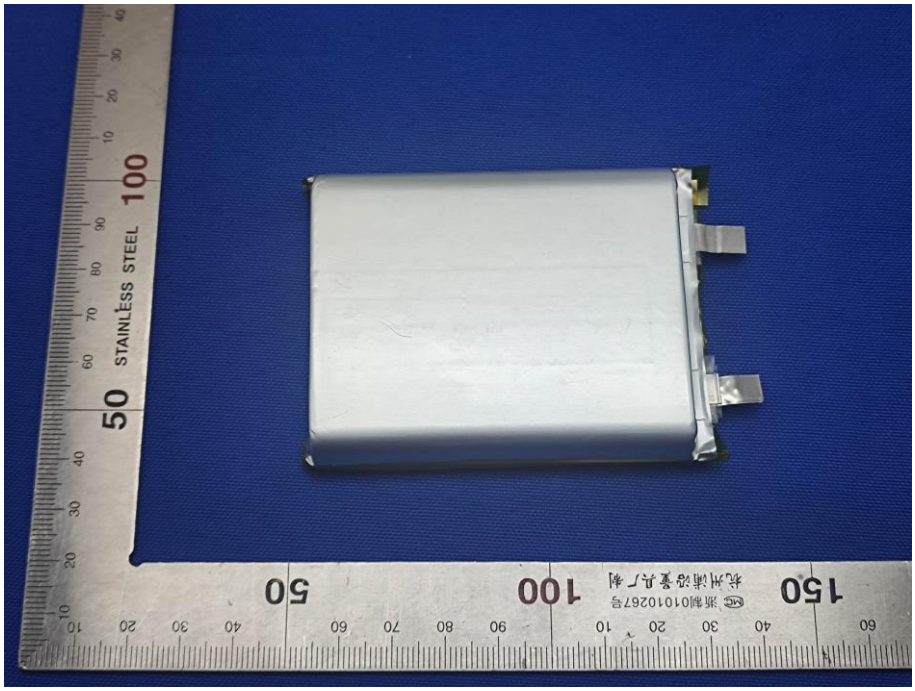
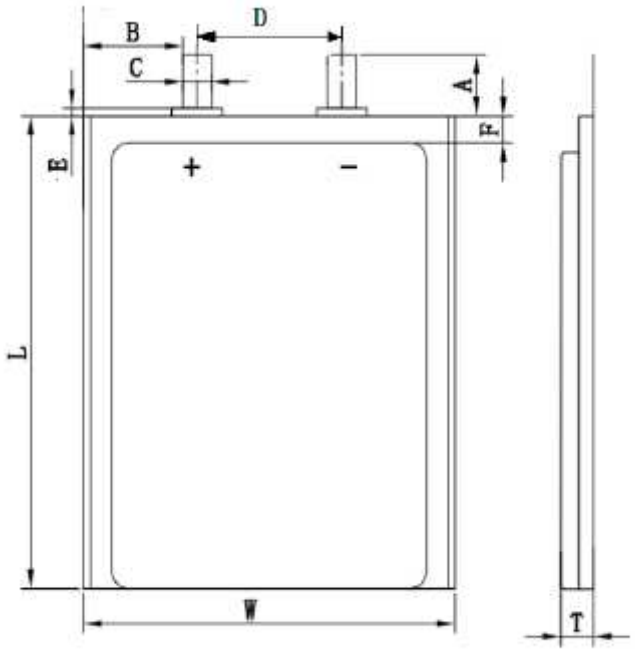


Fig.2-Rear view of the cell

-End of ID 01-

ID 02: Dimensional drawing



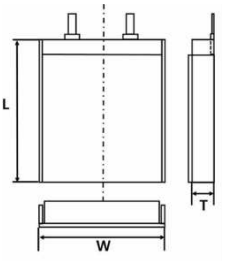
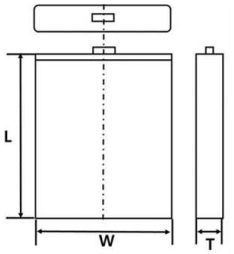
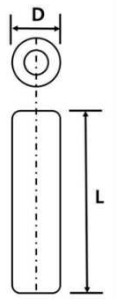
Items	Description	Dimension and Spec
T	电芯厚度	12.0mm Max
W	电芯宽度	62.0mm Max
L	电芯长度	80.5mm Max

Cell (unit: mm)

-End of ID 02-

ATTACHMENT to IEC62133_2C			
Clause	Requirement + Test	Result - Remark	Verdict
ATTACHMENT TO TEST REPORT **IEC 62133-2** **(Republic of Korea) NATIONAL DIFFERENCES** (Secondary cells and batteries containing alkaline or other non-acid electrolytes - Safety requirements for portable sealed secondary lithium cells, and for batteries made from them, for use in portable applications - Part 2: Lithium systems)			
Differences according to ..... :	National standard KC62133-2(2020-07)		
TRF template used:..... :	IECEE OD-2020-F3:2022, Ed. 1.2		
Attachment Form No. ..... : **Attachment Originator**..... : **Master Attachment**..... :	KR_ND_IEC62133_2C KTR 2025-08-02		
Copyright © 2022 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.			
	National Differences		P
7.3.6	**Over-charging of battery**		N/A
(Revision)	***[Add the bolded text]*** b) Test The test shall be carried out in an ambient temperature of 20 °C ± 5 °C. Each test battery shall be discharged at a constant current of 0,2 I_t A, to a final discharge voltage specified by the manufacturer. Sample batteries shall then be charged at a constant current of 2,0 I_t A, using a supply voltage which is: • 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 • 1,2 times the upper limit charging voltage presented in Table A.1 per cell for series connected multi-cell batteries, and • sufficient to maintain a current of 2,0 I_t A throughout the duration of the test or until the supply voltage is reached. • **In case the charging voltage specified by the manufacturer is higher than the overcharge test voltage, the maximum charging voltage specified by manufacturer should be applied with 2.**0 I_t A**,** **(e.g., quick charging power bank, etc.)**		N/A

ATTACHMENT to IEC62133_2C			
Clause	Requirement + Test	Result - Remark	Verdict
	[Replace to the following statement] c) Acceptance criteria Filling beyond the manufacturer's specified limits should not result in ignition or explosion		N/A
Annex G	**Definition for shape and materials of outer case for cell**		—
(Addition)	G.1 General Annex G provides definitions for shape and materials of outer case for cell G.2 Shape of outer case for cell G 2.1 Cylindrical cell Cell with a cylindrical shape in which the overall height is equal to or greater than diameter. G 2.2 Prismatic cell Cell having the shape of a parallelepiped whose faces are rectangular G.3 Materials of outer case for cell G.3.1 Soft case Non-metallic outer case or container for cell G.3.2 Hard case Metallic outer case or container for cell.	(Shape of outer cases) ☐ Cylindrical ■ Prismatic (Materials of outer cases) ☐ Hard ■ Soft	—
Annex H	**Calculation method of the volumetric energy density for cell**		—
(Addition)	Annex H provide a calculation method of the volumetric energy density for cell in use of smart phone, tablet, notebook. H.1 General Unless otherwise stated in the Annex E, the dimensions for calculation are based on these for cell before shipment and the volumetric energy density shall be calculated with a maximum values specified by manufacturer. If the specification for cell can't be provided a dimension for calculation, the manufacturer's other documentation shall be provided to demonstrate compliance for its calculation.	642.8Wh / L	—

ATTACHMENT to IEC62133_2C			
Clause	Requirement + Test	Result - Remark	Verdict
	H.2 Calculation Method  L : Length (max.) of cell (including terrace) W : Width (max.) of cell T : Thickness (max.) when shipping charge (For reference, Please Exclude the dimension of any tape that Is attached to cell) $Volumetric\ energy\ density\ (Wh/L) = \frac{Nominal\ voltage\ (V) \times Rated\ capacity\ (Ah)}{Length\ (L) \times Width\ (W) \times Thickness\ (T)}$ [H.1 – Prismatic cell using soft case]  L : Length (max.) of cell W : Width (max.) of cell T : Thickness when shipping charge (For reference, Please Exclude the dimension of any tape that Is attached to cell) $Volumetric\ energy\ density\ (Wh/L) = \frac{Nominal\ voltage\ (V) \times Rated\ capacity\ (Ah)}{Length\ (L) \times Width\ (W) \times Thickness\ (T)}$ [H.2 – Prismatic cell using hard case]  D : Diameter (max.) of cell L : Length (max.) of cell (According to shape of cell at shipping, The dimension of tube for cell may be included In overall dimension of cell) $Volumetric\ energy\ density\ (Wh/L) = \frac{Nominal\ voltage\ (V) \times Rated\ capacity\ (Ah)}{3.14159 \times \frac{Diameter\ (D)^2}{4} \times Length(L)}$ [H.3 – Cylindrical cell using hard case]		—