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.....:	LTR25122201HS
Tested by(+ signature).....:	Jim Chen Test Engineer
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Approved by (+ signature).....:	Maarten Hou Designated Reviewer
Date of issue.....:	December 22, 2025
Total number of pages.....:	30 pages

Guangdong Lintek Certification Group Co., Ltd. Approved

Name of Testing Laboratory preparing the Report.....:	**Guangdong Lintek Certification Group Co., Ltd.** Room 318, No.116-2, Guanlan Road, Fucheng Street, Longhua District, Shenzhen, China
Applicant's name.....:	**Hangzhou Yihan Network Technology Co., Ltd.**
Address.....:	Unit 19A07, 18th Floor, T2 Office Tower Runao Business Centre Xiaoshan District, Hangzhou
Manufacturer's name.....:	**Hangzhou Yihan Network Technology Co., Ltd.**
Address.....:	Unit 19A07, 18th Floor, T2 Office Tower Runao Business Centre Xiaoshan District, Hangzhou
Test specification:	
Standard.....:	IEC 62133-2:2017+A1:2021
Test procedure.....:	IEC Test Report
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.....:	Lintek
Master TRF.....:	Dated 2022-07-01

Equipment Name.....:	vacuum cleaner
Model/Type reference.....:	SW-113
Manufacturer.....:	Hangzhou Yihan Network Technology Co., Ltd.
Trade Mark.....:	N/A
Rating(S).....:	11.1V, 2000mAh (22.2Wh)

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

- Pages 5 to 21 for IEC 62133-2 TRF (main report)
- Attachment 1: Product photos

Summary of testing:

The sample(s) tested complies with the requirements of IEC 62133-2:2017+A1:2021.

Tests performed (name of test and test clause):	**Testing location:**
7.1 Charging procedures for test purposes 7.2.1 Continuous charging at constant voltage (cells) 7.2.2 Case stress 7.3.1 External short-circuit (cells) 7.3.2 External short-circuit (battery) 7.3.3 Free fall 7.3.4 Thermal abuse (cell) 7.3.5 Crush (cells) 7.3.6 Over-charging of battery 7.3.7 Forced discharge (cells) 7.3.8.1 Vibration 7.3.8.2 Mechanical shock	**Guangdong Lintek Certification Group Co., Ltd.** Room 318, No.116-2, Guanlan Road, Fucheng Street, Longhua District, Shenzhen, China

Copy of marking plate:

The artwork below may be only a draft.

vacuum cleaner
Model: SW-113
Battery capacity: 11.1V, 2000mAh (22.2Wh)
Manufacturer: Hangzhou Yihan Network Technology Co., Ltd.

YYYY.MM.DD
Made in China

Data Code:
The date code consists of the following: YYYY.MM.DD
YYYY: Four digitals represent year of manufacture.
MM: Two digitals represent month of manufacture.
DD: Two digitals represent day of manufacture.

For example, “2023-02-10” means Li-ion battery was manufactured in February 10, 2023.

Notes:

- The above markings are the minimum requirements required by the safety standard as a reference marking label. For the final production samples, the additional markings which do not give rise to misunderstanding may be added.

Test item particulars ..... :	vacuum cleaner
Classification of installation and use ..... :	Class III
Supply Connection ..... :	DC port
Recommend charging method declared by the manufacturer ..... :	Battery: Charging the battery initially with constant current at 0.5C and the constant voltage at 12.6V till charge current declines to 0.05C.
Discharge current (0,2 It A) ..... :	400mA
Specified final voltage ..... :	9.0V
Upper limit charging voltage per cell ..... :	12.6V
Maximum charging current ..... :	400mAh
Charging temperature upper limit ..... :	50°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 ..... :	November 27, 2025
Date (s) of performance of tests ..... :	November 28, 2025 – December 3, 2025

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.
When determining the test conclusion, the Measurement Uncertainty of test has been considered.

Remark: This test report replaces test report No. LTR25120401HS released on December 08, 2025 as the current valid report, the original test report is void.

General product information and other remarks:

- This battery is constructed with four lithium-ion cells(1S3P) and has overcharge, over-discharge, over current and short-circuits proof circuit.
- Weight: 0.14kg
-Model Difference: N/A

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

Model	Nominal capacity	Nominal voltage	Nominal Charge Current	Nominal Discharge Current	Maximum Charge Current	Maximum Discharge Current	Maximum Charge Voltage	Final Voltage
SW-113	2000 mAh	11.1V	400mA	400mA	2000mA	2000mA	12.6V	9.0V

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

Model	Upper limit charge voltage	Taper-off current	Lower charge temperature	Upper charge temperature
HXD 18650 2000mAh	4.2V	30mAh	0°C	50°C

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**		P
	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	No externally exposed metal surfaces.	N/A
	Insulation resistance (MΩ) ..... :		—
	Internal wiring and insulation are sufficient to withstand maximum anticipated current, voltage and temperature requirements		P
	Orientation of wiring maintains adequate clearance and creepage distances between conductors		P
	Mechanical integrity of internal connections accommodates reasonably foreseeable misuse		P
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		P
	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**		P
	Batteries are designed such that abnormal temperature rise conditions are prevented		P
	Batteries are designed to be within temperature, voltage and current limits specified by the cell manufacturer		P
	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	Specification provided.	P
5.5	**Terminal contacts**		P

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Clause	Requirement + Test	Result - Remark	Verdict
	The size and shape of the terminal contacts ensure that they can carry the maximum anticipated current		P
	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-circuit		P
5.6	**Assembly of cells into batteries**		P
5.6.1	General	1S3P	P
	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		N/A
	This protection may be provided external to the battery such as within the charger or the end devices		P
	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 have 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		P
	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 added as appropriate and consideration given to the end-device application		P
	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		P

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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		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		P
	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 not be counted as an overcharge protection		P
	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		P
	It is recommended that the cells and cell blocks not discharged beyond the cell manufacturer’s specified final voltage		P
	For batteries consisting of series-connected cells or cell blocks, cell balancing circuitry incorporated into the battery management system		N/A
5.6.3	Mechanical protection for cells and components of batteries		P
	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		P
	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

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Clause	Requirement + Test	Result - Remark	Verdict
	The battery case and compartments housing cells 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 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		P
5.8	**Battery safety components**		P
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	Tests are performed according to specified in Table 1 of this standard. The samples are not more than six months old.	P
	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 cell.	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 overdischarge protection		P
	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		P
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

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
	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 have 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 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 It A, using a constant voltage charging method		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)		N/A
	Oven temperature (°C).....:	70°C	—
	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)		P
	The batteries were tested until one of the following occurred:		P
	- 24 hours elapsed; or		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- The case temperature declined by 20 % of the maximum temperature rise		P
	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 conducted on one to four (depending upon the protection circuit) of the five samples before conducting the short-circuit test		P
	A single fault applies to protective component parts such as MOSFET, fuse, thermostat or positive temperature coefficient (PTC) thermistor	Single fault applies to PTC.	P
	Results: No fire. No explosion.....:	(See appended table 7.3.2)	P
7.3.3	Free fall		P
	Results: No fire. No explosion		P
7.3.4	Thermal abuse (cells)		P
	Oven temperature (°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		P
	The supply voltage which is:		P
	- 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	12.6V used for test.	P
	- Sufficient to maintain a current of 2,0 It A throughout the duration of the test or until the supply voltage is reached		P
	Test was continued until the temperature of the outer casing:		P

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Clause	Requirement + Test	Result - Remark	Verdict
	- Reached steady state conditions (less than 10 °C change in 30-minute period); or		P
	- Returned to ambient		N/A
	Results: No fire. No explosion..... :	(See appended table 7.3.6)	P
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	(See appended table 7.3.7)	P
7.3.8	Mechanical tests (batteries)		P
7.3.8.1	Vibration		P
	Results: No fire, no explosion, no rupture, no leakage or venting. ..... :	(See appended table 7.3.8.1)	P
7.3.8.2	Mechanical shock		P
	Results: No leakage, no venting, no rupture, no explosion and no fire ..... :	(See appended table 7.3.8.2)	P
7.3.9	Design evaluation – Forced internal short-circuit (cells)		P
	The cells complied with national requirement for ..... :	France, Japan, Republic of Korea, Switzerland	—
	The pressing was stopped upon:		P
	- A voltage drop of 50 mV has been detected; or	The pressing force of 800N (cylindrical cells) has been reached.	N/A
	- The pressing force of 800 N (cylindrical cells) or 400 N (prismatic cells) has been reached	The pressing force of 800N (cylindrical cells) has been reached.	P
	Results: No fire ..... :	(See appended table 7.3.9)	P
8	**INFORMATION FOR SAFETY**		P

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
8.1	**General**		P
	Manufacturers of secondary cells ensure that information is provided about current, voltage and temperature limits of their products	Information is given in manufacturer's specifications.	P
	Manufacturers of batteries ensure that equipment manufacturers and, in the case of direct sales, end-users are provided with information to minimize and mitigate hazards	Information is given in manufacturer's specifications.	P
	Systems analyses 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 provided to the end user		N/A
	Do not allow children to replace batteries without adult supervision	Provided in the battery specification, which will be considered during the end product investigation.	P
8.2	**Small cell and battery safety information**	Not small cell and battery.	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**	The sample is battery.	N/A
	Cells 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		N/A

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
9.2	**Battery marking**		P
	Batteries marked as specified in IEC 61960, except for coin batteries	The battery is marked in according with IEC61960.	P
	Coin batteries whose external surface area is too small to accommodate the markings on the batteries show the designation and polarity	Not coin battery.	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	Key connector used.	P
9.3	**Caution for ingestion of small cells and batteries**	Not small battery.	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:		
	- Storage and disposal instructions	Information is given in manufacturer's specifications.	P
	- Recommended charging instructions	Information is given in manufacturer's specifications.	P
10	**PACKAGING AND TRANSPORT**		P
	Packaging for coin cells are not be small enough to fit within the limits of the ingestion gauge of Figure 3	Not coin cell.	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**	Max. charging voltage: 12.6V	P
A.3.1	General		P
A.3.2	Upper limit charging voltage		P

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Clause	Requirement + Test	Result - Remark	Verdict
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
A.4.2	Recommended temperature range		P
A.4.2.1	General		P
A.4.2.2	Safety consideration when a different recommended temperature range is applied		P
A.4.3	High temperature range		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	The safety of lower limit charging temperature (45°C) was considered	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		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	The safety of lower limit charging temperature (10°C) was considered	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	Final discharge voltage: 3.0V	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**		N/A
A.5.1	General		N/A
A.5.2	Insertion procedure for nickel particle to generate internal short		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
A.5.3	Disassembly of charged cell		N/A
A.5.4	Shape of nickel particle		N/A
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		N/A
A.6	**Experimental procedure of the forced internal short-circuit test**		N/A
A.6.1	Material and tools for preparation of nickel particle		N/A
A.6.2	Example of a nickel particle preparation procedure		N/A
A.6.3	Positioning (or placement) of a nickel particle		N/A
A.6.4	Damaged separator precaution		N/A
A.6.5	Caution for rewinding separator and electrode		N/A
A.6.6	Insulation film for preventing short-circuit		N/A
A.6.7	Caution when disassembling a cell		N/A
A.6.8	Protective equipment for safety		N/A
A.6.9	Caution in the case of fire during disassembling		N/A
A.6.10	Caution for the disassembling process and pressing the electrode core		N/A
A.6.11	Recommended specifications for the pressing device		N/A
ANNEX B	**RECOMMENDATIONS TO EQUIPMENT MANUFACTURERS AND BATTERY ASSEMBLERS**		P
ANNEX C	**RECOMMENDATIONS TO THE END-USERS**		P
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	(See appended table D.2)	N/A
	Coin cells with an internal resistance greater than 3 Ω require no further testing		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**
Cell#01	12.67	0.4	11.12	A, B
Cell#02	12.67	0.4	11.12	A, B
Cell#03	12.64	0.4	11.11	A, B
Cell#04	12.66	0.4	11.12	A, B
Cell#05	12.67	0.4	11.12	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 T (°C)**	**OCV before test (Vdc)**	**Resistance of circuit (mΩ)**	**Maximum case temperature rise ΔT (K)**	**Results**
Samples charged at charging temperature upper limit: 50°C					
Cell#06	55.2	12.625	83	34.5	A
Cell#07	55.2	12.644	81	34.7	A
Cell#08	55.2	12.663	81	35.5	A
Cell#09	55.2	12.654	82	34.9	A
Cell#10	55.2	12.652	82	35.0	A
Samples charged at charging temperature lower limit: 0°C					
Cell#11	55.5	12.647	81	36.4	A
Cell#12	55.5	12.645	82	35.1	A
Cell#13	55.5	12.648	81	35.7	A
Cell#14	55.5	12.647	83	35.1	A
Cell#15	55.5	12.645	82	35.4	A

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

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

7.3.2	External short-circuit (battery)					P
Sample no.	**Ambient T (°C)**	**OCV before test (Vdc)**	**Resistance of circuit (mΩ)**	**Maximum case temperature rise ΔT (K)**	**Component single fault condition**	**Results**
Battery#01	24.9	12.67	80	43.9	Pin U2(5-6)(S-C)	A
Battery#02	24.9	12.67	83	44.9	Pin U2(1-3)(S-C)	A
Battery#03	24.9	12.67	82	44.2	Pin U1(5-6)(S-C)	A
Battery#04	24.9	12.67	82	44.0	Pin U1(1-6)(S-C)	A
Battery#05	24.9	12.67	82	44.1	Normal	A

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: 50°C				
Cell#16	12.614	12.644	13.0	A
Cell#17	12.615	12.642	13.0	A
Cell#18	12.617	12.645	13.0	A
Cell#19	12.617	12.643	13.0	A
Cell#20	12.616	12.643	13.0	A
Samples charged at charging temperature lower limit: 0°C				
Cell#21	12.613	12.642	13.0	A
Cell#22	12.615	12.642	13.0	A
Cell#23	12.617	12.643	13.0	A
Cell#24	12.617	12.644	13.0	A
Cell#25	12.613	12.641	13.0	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		P
Constant charging current (A) .....:		0.2	—
Supply voltage (Vdc) .....:		5.0	—

Sample no.	OCV before charging (Vdc)	Total charging time (minute)	Maximum outer case temperature (°C)	Results
Battery#06	12.671	60	65.3	A
Battery#07	12.671	61	65.2	A
Battery#08	12.671	62	65.0	A
Battery#09	12.671	62	65.7	A
Battery#10	12.671	62	65.3	A

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
Cell#26	9.032	2.0	2.0	A
Cell#27	9.033	2.0	2.0	A
Cell#28	9.042	2.0	2.0	A
Cell#29	9.033	2.0	2.0	A
Cell#30	9.041	2.0	2.0	A

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

7.3.8.1	TABLE: Vibration				P

Sample no.	OCV before test (Vdc)	OCV after test (Vdc)	Mass before test (g)	Mass after test (g)	Results
Battery#11	12.673	12.673	135.1	135.1	A, B, C, D
Battery#12	12.673	12.673	135.3	135.3	A, B, C, D
Battery#13	12.674	12.673	135.2	135.2	A, B, C, D

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				P
Sample no.	**OCV before test (Vdc)**	**OCV after test (Vdc)**	**Mass before test (g)**	**Mass after test (g)**	**Results**
Battery#14	12.670	12.671	135.1	135.1	A, B, C, D
Battery#15	12.671	12.671	135.2	135.2	A, B, C, D
Battery#16	12.670	12.671	135.2	135.2	A, B, C, D

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					
Cell#31	50	12.63	1	800	A
Cell#32	50	12.62	1	800	A
Cell#33	50	12.61	1	800	A
Cell#34	50	12.60	1	800	A
Cell#35	50	12.62	1	800	A
Samples charged at charging temperature lower limit					
Cell#36	0	12.61	1	800	A
Cell#37	0	12.63	1	800	A
Cell#38	0	12.62	1	800	A
Cell#39	0	12.62	1	800	A
Cell#40	0	12.61	1	800	A

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

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 or explosion

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.

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

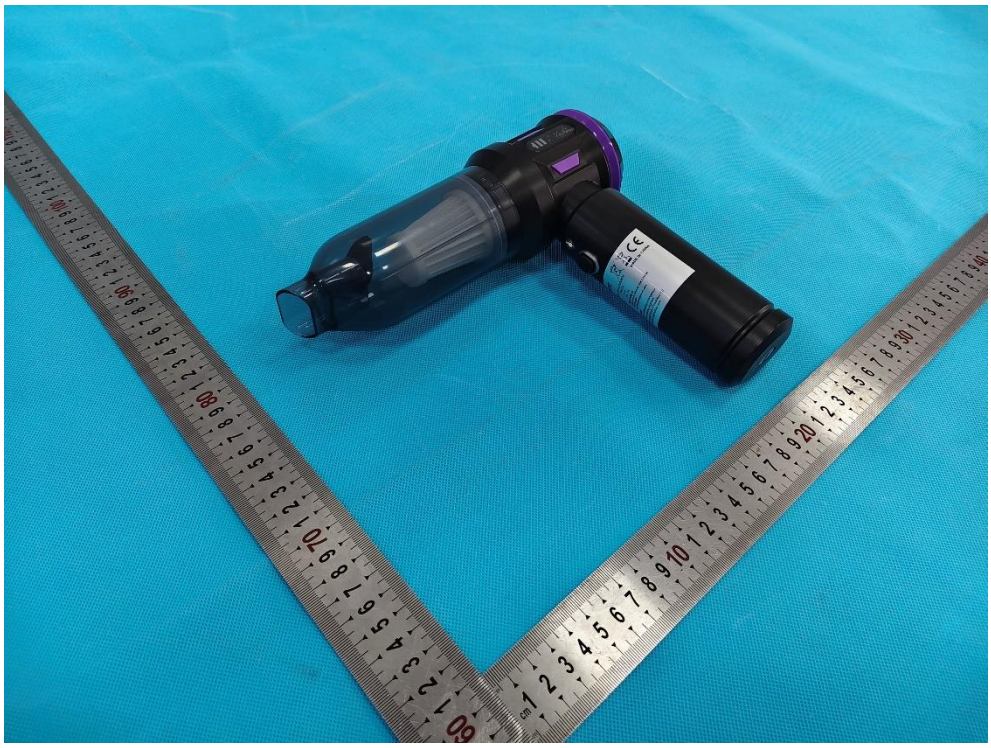
	TABLE: Critical components information				
Object/part no.	**Manufacturer/ trademark**	**Type/model**	**Technical data**	**Standard**	**Mark(s) of conformity**
Battery Cell	Hangzhou Yihan Network Technology Co., Ltd.	HXD 18650 2000mAh	3.7V, 2000mAh	IEC 62133-2	Tested with appliance
-Negative electrode	Guangdong Dongdao New Energy CO., LTD	DGAG-14	Lithium + Cobalt + Oxygen	IEC 62133-2	Tested with appliance
-Positive electrode	Ningbo Shanshan CO.，LTD	LC9000H	Lithium Cobalt Oxide	IEC 62133-2	Tested with appliance
-Separator	Huizhou Xuran New Energy CO., LTD	（7+6）um	Shutdown temperature: 130°C	IEC 62133-2	Tested with appliance
-Electrolyte	Interchangeable	Interchangeable	LiPF6	IEC 62133-2	Tested with appliance
-PTC	PANASONIC CORPORATION, PANASONIC CORPORATION OF NORTH AMERICA	ERTJZER104@*	R25: 100K Tmoa: 105°C	IEC 62133-2	Tested with appliance
Supplementary information: N/A					

Attachment 1- Product pictures

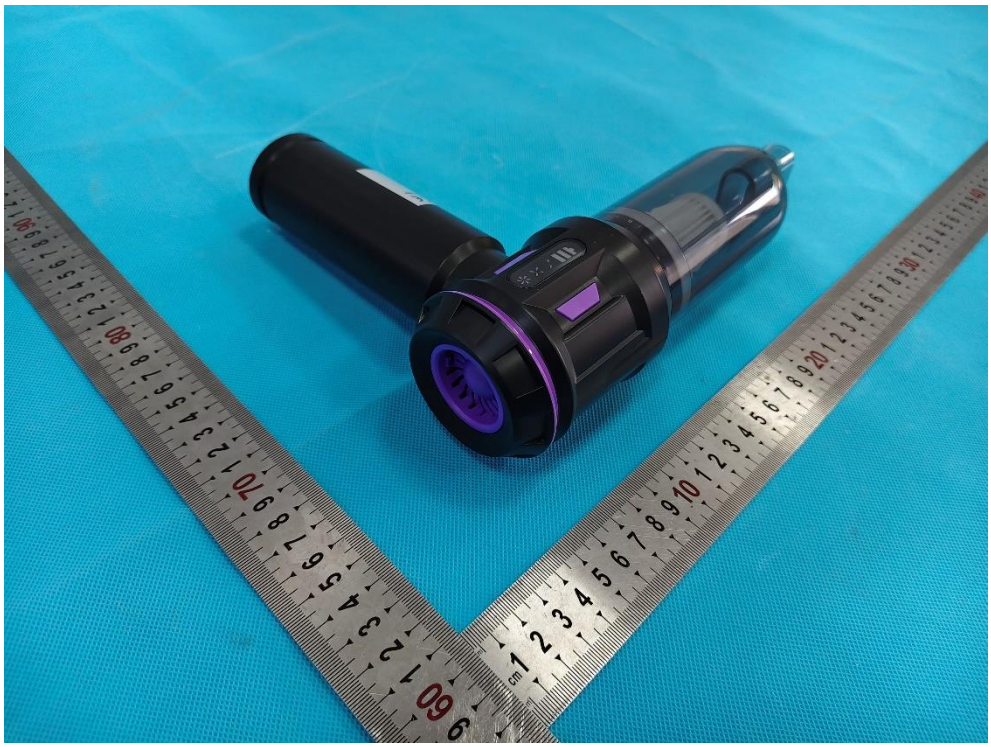
Outside view_1

Outside view_2

Attachment 1- Product pictures

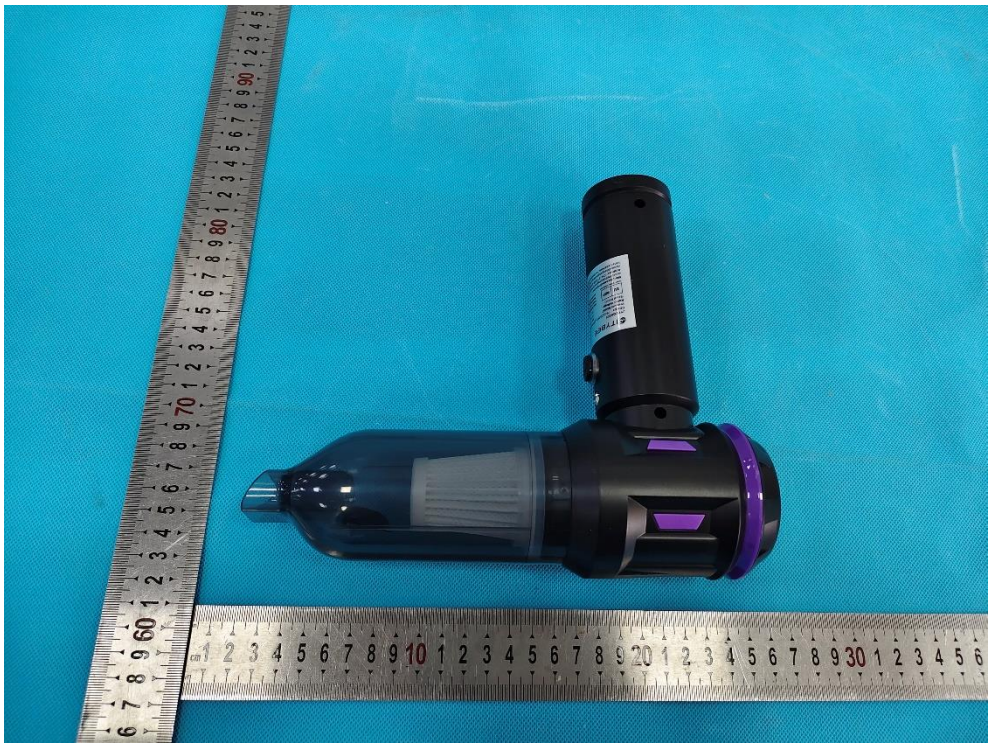


Outside view_3



Outside view_4

Attachment 1- Product pictures



Outside view_5

Outside view_6

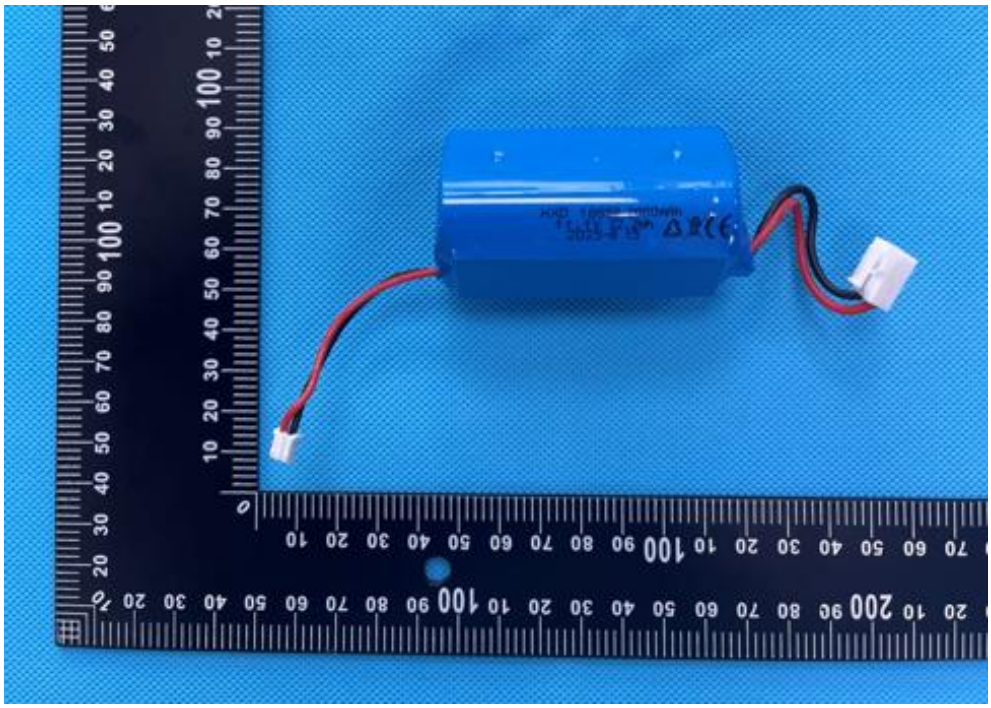
Attachment 1- Product pictures

Outside view_7

Outside view_8

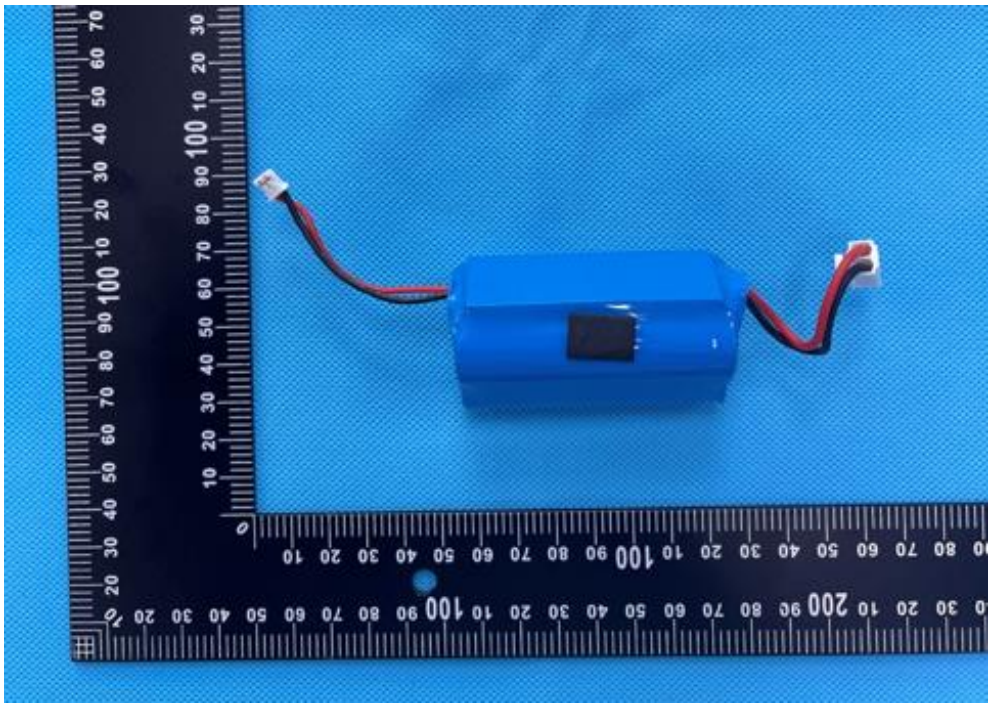
Attachment 1- Product pictures

Outside view_9



Interior view_1

Attachment 1- Product pictures

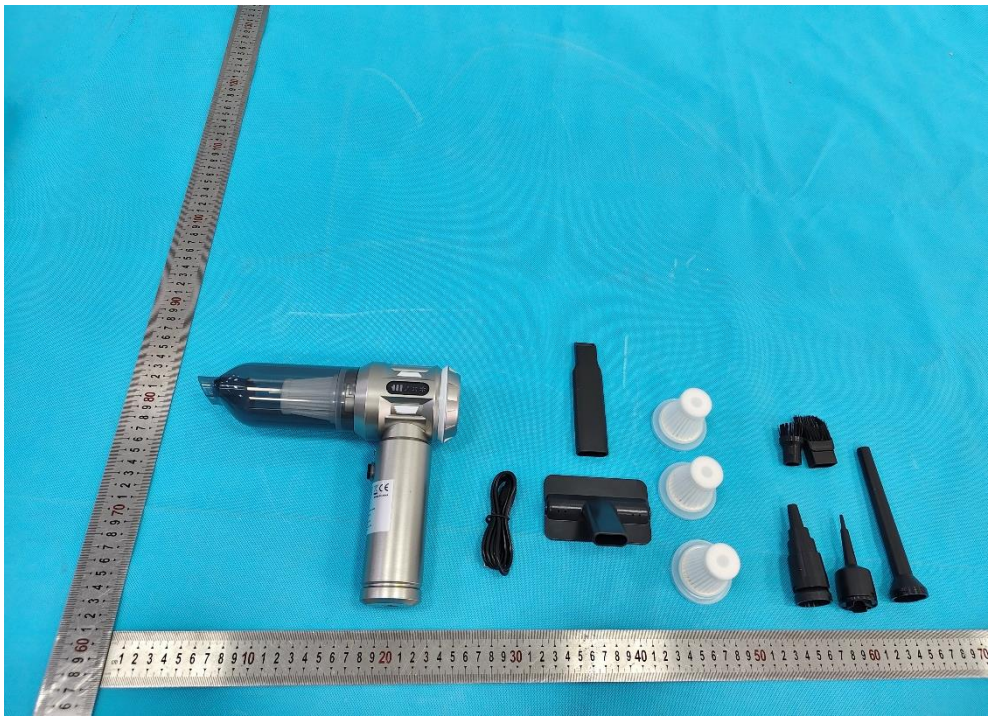


Interior view_2

Outside view_1

Attachment 1- Product pictures

Outside view_2



Outside view_3

Attachment 1- Product pictures

Outside view_4

Outside view_5

Attachment 1- Product pictures

Outside view_6

**********End of report**********