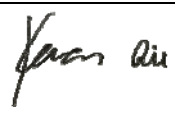
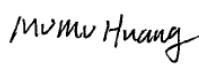




Test Report issued under the responsibility of:



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 :	S20043002401001
Date of issue :	2020-05-20
Total number of pages	23 Pages
Name of Testing Laboratory preparing the Report	Shenzhen NTEK Testing Technology Co., Ltd. Building C, Fenda Science Park, Sanwei, Xixiang, Bao'an District, Shenzhen, Guangdong, China
Applicant's name	EEMB Energy Power Co., Ltd.
Address :	Room 201 2-3, Building C, No.8-14 Jinyuan Road, Heao Community, Yuanshan Street, Longgang District, Shenzhen, P.R.China.
Test specification:	
Standard	IEC 62133-2:2017
Test procedure	CB Scheme
Non-standard test method	N/A
Test Report Form No.	IEC62133_2A
Test Report Form(s) Originator :	DEKRA
Master TRF	Dated 2017-08-10
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Test item description :	Rechargeable lithium ion Cell	
Trade Mark :	N/A	
Manufacturer	Same as applicant	
Model/Type reference :	LIR2032	
Ratings :	3.7V, 45mAh, 0.17Wh	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
<input checked="" type="checkbox"/>	CB Testing Laboratory:	Shenzhen NTEK Testing Technology Co., Ltd.
Testing location/ address :	Building C, Fenda Science Park, Sanwei, Xixiang, Bao'an District, Shenzhen, Guangdong, China	
Tested by (name, function, signature) :	Kaman Qiu / Project Handler	
Approved by (name, function, signature) ... :	Mumu Huang / Reviewer	
<input type="checkbox"/>	Testing procedure: CTF Stage 1:	
Testing location/ address :		
Tested by (name, function, signature) :		
Approved by (name, function, signature) ... :		
<input type="checkbox"/>	Testing procedure: CTF Stage 2:	
Testing location/ address :		
Tested by (name + signature) :		
Witnessed by (name, function, signature) . :		
Approved by (name, function, signature) ... :		
<input type="checkbox"/>	Testing procedure: CTF Stage 3:	
<input type="checkbox"/>	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) :		

<p>List of Attachments (including a total number of pages in each attachment): Enclosures (4 pages)</p>	
<p>Summary of testing:</p>	
<p>Tests performed (name of test and test clause): Tests are made with the number of samples specified in Table 1 of IEC 62133-2: 2017.</p> <p>Cell model: LIR2032 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. 8.2 Determination of small cells and batteries cl. D.2 Internal AC resistance for coin cells</p> <p>Cell was considered and tested, also complied with the requirements of IEC 62133-2: 2017.</p>	<p>Testing location: Shenzhen NTEK Testing Technology Co., Ltd. Building C, Fenda Science Park, Sanwei, Xixiang, Bao'an District, Shenzhen, Guangdong, China</p>
<p>Summary of compliance with National Differences (List of countries addressed): N/A</p>	
<p><input checked="" type="checkbox"/> The product fulfils the requirements of <u>EN 62133-2: 2017</u>.</p>	

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 - The cells will be used in the end product manufacturer only.

Test item particulars.....:	
Classification of installation and use.....:	N/A
Supply Connection	Supplied by flat/cap and case.
Recommend charging method declared by the manufacturer	Charge at constant current 9mA until voltage reaches 4.2V then charge at constant voltage 4.2V till charge current is 2.25mA.
Discharge current (0,2 It A)	9mA
Specified final voltage.....:	2.75V
Upper limit charging voltage per cell.....:	4.25V
Maximum charging current	45mA
Charging temperature upper limit	45°C
Charging temperature lower limit.....:	0°C
Polymer cell electrolyte type.....:	<input type="checkbox"/> gel polymer <input type="checkbox"/> solid polymer <input checked="" type="checkbox"/> 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	2020-05-06
Date (s) of performance of tests	2020-05-06 to 2020-05-15
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 <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.	
Manufacturer's Declaration per sub-clause 4.2.5 of IEC60080-02:	
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	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies)	Hubei Zhongju(EEMB)Energy Power Co., Ltd. (Slantwise Opposite the Dongfeng Primary School) Jiangxu Road, Economic Development Zone, Hanchuan, Hubei, 432300, China.

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 lithium ion Cell
Model No.	LIR2032
Cell configuration (Series, Parallel)	Not applicable
Rated capacity	45mAh
Nominal voltage	3.7V
Recommended maximum charging voltage	4.2V
Standard charging current	9mA
Maximum charging current	45mA
Discharge current (0.2 I _t A)	9mA
End-of-discharge voltage / Final voltage	2.75V
Upper limit charging voltage	4.25V
Charging temperature upper limit (T ₃)	45°C
Charging temperature lower limit (T ₂)	0°C
Discharging temperature range	-20°C to 60°C
First charging procedure (20°C±5°C)	Charge at constant current 9mA until voltage reaches 4.2V, and then charge at constant voltage 4.2V till charge current is 2.25mA.
Second charging procedure	Stored at 45°C for 1 h , then charge at constant current 45mA until voltage reaches 4.25V, then charge at constant voltage 4.25V till charge current is 0.05 I _t A (2.25mA). Stored at 0°C for 4 h , then charge at constant current 45mA until voltage reaches 4.25V, then charge at constant voltage 4.25V till charge current is 0.05 I _t A (2.25mA).
Dimension	D×H: Max. Φ20.0×3.4mm
Mass	3g

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 clearance 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

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-circuit		P
5.6	Assembly of cells into batteries	Cell only.	N/A
5.6.1	General		N/A
	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		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 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		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 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

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 the voltages of any one of the single cells or single cellblocks does not exceed the upper limit of the charging voltage, specified in Table 2, by monitoring the voltage of every single cell or the single cellblocks		N/A
	For the battery consisting of series-connected plural single cells or series-connected plural cellblocks, it is recommended that charging is stopped when the upper limit of the charging voltage is exceeded for any one of the single cells or single cellblocks by measuring the voltage of every single cell or the single cellblocks		N/A
	For batteries consisting of series-connected cells or cell blocks, nominal charge voltage not be 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 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 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 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 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

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
	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	Cell only.	N/A
	According annex F		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
	Coin cells with resistance $\leq 3 \Omega$ (measured according annex D) are tested according table 1	$< 3 \Omega$	P
	Unless otherwise specified, tests are carried out in an ambient temperature of $20 \text{ }^\circ\text{C} \pm 5 \text{ }^\circ\text{C}$		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	Cell only.	N/A
	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	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 $20 \text{ }^\circ\text{C} \pm 5 \text{ }^\circ\text{C}$, using the method declared by the manufacturer		P
	Prior to charging, the battery have been discharged at $20 \text{ }^\circ\text{C} \pm 5 \text{ }^\circ\text{C}$ 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	See general product information for detailed charging parameters.	P

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

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

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
7.3.9	Design evaluation – Forced internal short-circuit (cells)	Coin cells.	N/A
	The cells complied with national requirement for :	N/A	—
	The pressing was stopped upon:		N/A
	- A voltage drop of 50 mV has been detected; or		N/A
	- The pressing force of 800 N (cylindrical cells) or 400 N (prismatic cells) has been reached		N/A
	Results: No fire :	N/A	N/A
8	INFORMATION FOR SAFETY		P
8.1	General		P
	Manufacturers of secondary cells ensure that information is provided about current, voltage and temperature limits of their products	Specification provided.	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	Cell only.	N/A
	Systems analyses 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 provided to the end user	Considered in end product.	N/A
	Do not allow children to replace batteries without adult supervision		N/A
8.2	Small cell and battery safety information		P
	The following warning language is to be provided with the information packaged with the small cells and batteries or equipment using them:	Specification provided.	P
	- Keep small cells and batteries which are considered swallowable out of the reach of children		P
	- Swallowing may lead to burns, perforation of soft tissue, and death. Severe burns can occur within 2 h of ingestion		P
	- In case of ingestion of a cell or battery, seek medical assistance promptly		P
9	MARKING		P
9.1	Cell marking		P
	Cells marked as specified in IEC 61960, except coin cells		N/A

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
	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 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. Batteries also marked with an appropriate caution statement		N/A
	Terminals have clear polarity marking on the external surface of the battery		N/A
	Batteries with keyed external connectors designed for connection to specific end products need 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		P
	Coin cells and batteries identified as small batteries according to 8.2 include a caution statement regarding the hazards of ingestion in accordance with 8.2	Specification provided.	P
	When small cells and batteries are intended for direct sale in consumer-replaceable applications, caution for ingestion given on the immediate package		N/A
9.4	Other information		P
	Storage and disposal instructions	Specification provided.	P
	Recommended charging instructions	Specification provided.	P
10	PACKAGING AND TRANSPORT		P
	Packaging for coin cells not small enough to fit within the limits of the ingestion gauge of Figure 3		P
	The materials and packaging design are chosen so as to prevent the development of unintentional electrical conduction, corrosion of the terminals and ingress of environmental contaminants		P
ANNEX A	CHARGING AND DISCHARGING RANGE OF SECONDARY LITHIUM ION CELLS FOR SAFE USE		P
A.1	General		P

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
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
A.4.2	Recommended temperature range	0°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 is 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 0°C, low temperature range is 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

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
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
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
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ANNEX C	RECOMMENDATIONS TO THE END-USERS	N/A
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ANNEX D	MEASUREMENT OF THE INTERNAL AC RESISTANCE FOR COIN CELLS	P
D.1	General	P
D.2	Method	P
	A sample size of three coin cells is required for this measurement..... :	(See appended table D.2) P
	Coin cells with an internal resistance of less than or equal to 3 Ω are subjected to the testing according to Clause 6 and Table 1	P

IEC 62133-2			
Clause	Requirement + Test	Result - Remark	Verdict
	Coin cells with an internal resistance greater than 3 Ω require no further testing		N/A
ANNEX E	PACKAGING AND TRANSPORT		P
ANNEX F	COMPONENT STANDARDS REFERENCES		N/A

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	--	--	LiPF ₆ +EC+DMC+E MC	--	--
2. Separator	--	--	PP/PE/PP	--	--
3. Positive electrode	--	--	LiCoO ₂	--	--
4. Negative electrode	--	--	Graphite	--	--

Supplementary information:
¹⁾ Provided evidence ensures the agreed level of compliance. See OD-2039.

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	
S200430024001-001	4.2	0.009	4.181	A, B	
S200430024001-002	4.2	0.009	4.184	A, B	
S200430024001-003	4.2	0.009	4.183	A, B	
S200430024001-004	4.2	0.009	4.184	A, B	
S200430024001-005	4.2	0.009	4.184	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						
S200430024001-006	55.5	4.223	88	33.0	A	
S200430024001-007	55.5	4.220	90	30.9	A	
S200430024001-008	55.5	4.224	82	40.9	A	
S200430024001-009	55.5	4.222	86	35.5	A	
S200430024001-010	55.5	4.220	84	28.6	A	
Samples charged at charging temperature lower limit						
S200430024001-011	55.6	4.156	88	33.4	A	
S200430024001-012	55.6	4.156	89	37.6	A	
S200430024001-013	55.6	4.159	88	44.2	A	
S200430024001-014	55.6	4.157	83	44.2	A	

IEC 62133-2					
Clause	Requirement + Test			Result - Remark	Verdict
S200430024001-015	55.6	4.156	85	49.7	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					
S200430024001-029	4.220	4.219	12.997	A, B	
S200430024001-030	4.222	4.221	12.997	A, B	
S200430024001-031	4.223	4.222	12.996	A, B	
S200430024001-032	4.222	4.221	12.997	A, B	
S200430024001-033	4.222	4.221	12.997	A, B	
Samples charged at charging temperature lower limit					
S200430024001-034	4.156	4.155	12.997	A, B	
S200430024001-035	4.156	4.155	12.997	A, B	
S200430024001-036	4.158	4.157	12.997	A, B	

IEC 62133-2				
Clause	Requirement + Test		Result - Remark	Verdict
S200430024001-037	4.158	4.157	12.997	A, B
S200430024001-038	4.157	4.156	12.997	A, B
Supplementary information: A - No fire or explosion B - Others (please explain): Leakage				

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_r (A)	Lower limit discharge voltage (Vdc)	Results	
S200430024001-039	2.910	0.045	-4.25	A	
S200430024001-040	2.900	0.045	-4.25	A	
S200430024001-041	2.891	0.045	-4.25	A	
S200430024001-042	2.884	0.045	-4.25	A	
S200430024001-043	2.880	0.045	-4.25	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)					N/A
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						
Samples charged at charging temperature lower limit						

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

B - Others (please explain)

D.2	TABLE: Internal AC resistance for coin cells				P
Sample no.	Ambient T (°C)	Store time (h)	Resistance Rac (Ω)	Results ¹⁾	
S200430024001-045	22.4	2	0.483	A	
S200430024001-046	22.4	2	0.450	A	
S200430024001-047	22.4	2	0.492	A	

Supplementary information:

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

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

ENCLOSURE

Supplement ID	Description
01	Photographs
02	Dimensional drawing

ID 01: Photographs

ID 01

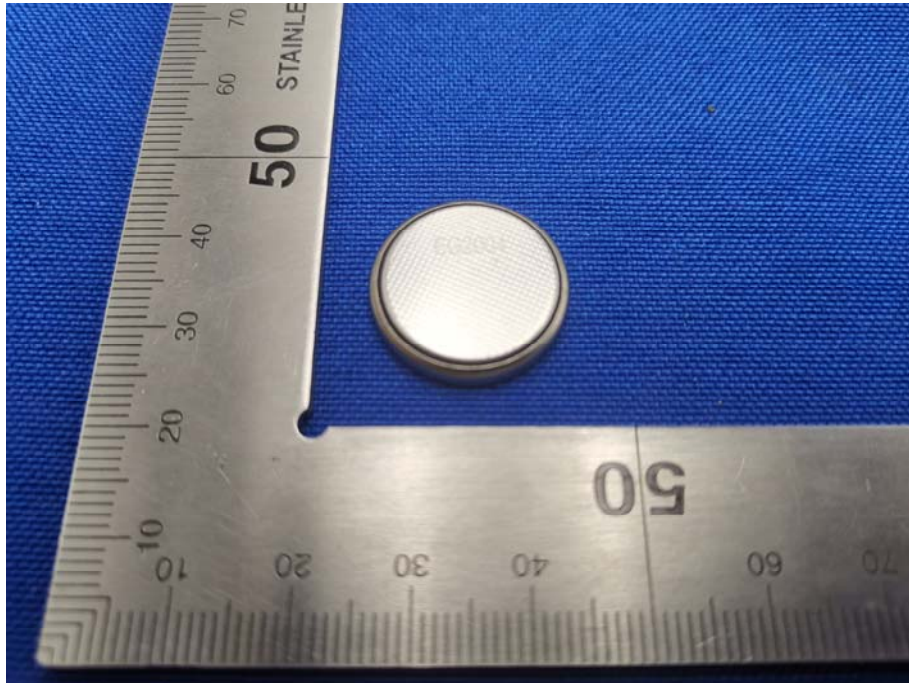


Fig.1-Front view of the cell



Fig.2-Rear view of the cell

ID 01

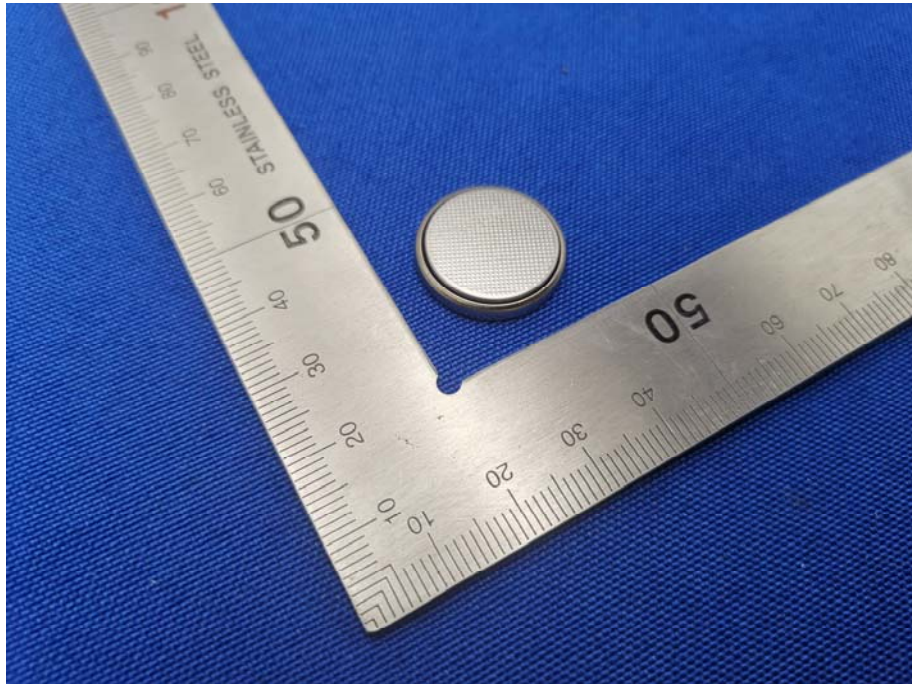
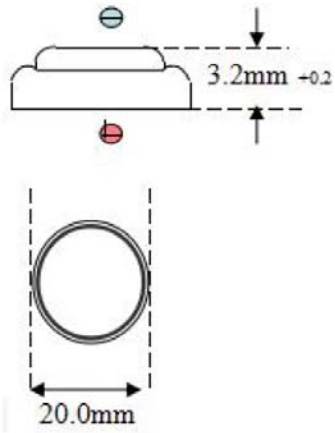


Fig.3-Side view of the cell

-End of ID 01-

ID 02: Dimensional drawing



Item 项目	Specification 规格
Diameter 直径	20.0 (Max)
Height 高	3.2+0.2

-End of ID 02-