

TEST REPORT

IEC 62133: 2012 (2nd Edition)

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

Report reference No:	TCT171010B008
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Date of issue:	Sept. 28, 2017
Total number of pages:	19 Pages.
Testing laboratory	Shenzhen TCT Testing Technology Co., Ltd.
Address:	1F, Building 1, Yibaolai Industrial Park, Qiaotou Village, Fuyong Town, Baoan District, Shenzhen, Guangdong, P.R.C (518101)
Testing location:	As above
Applicant's name	
Address:	
Manufacturer's name:	
Test specification:	
Standard:	IEC 62133: 2012 (2nd Edition)
Test procedure	Type approved
Procedure deviation:	N.A.
Non-standard test method:	N.A.
	to the above client company and product model only, It may not consent of TCT Testing Technology.
(20)	

Test item description: Li-ion Battery

Trade Mark: ----

Model/type reference 350926

Ratings 3.7V, 55mAh, 0.20Wh



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Particulars: test item vs. test requirements	
Classification:	
Olassiiication	☐ Nickel Battery
Dimension:	L : 22mm
	W: 9mm
	T: 3.6mm
Shape:	⊠Prismatic
	Pouch
	☐Coin/button
(C)	☐ Cylindrical
Mass of apparatus	2.0 g
Possible test case verdicts:	
- test case does not apply to the test object:	N/A
- test object does meet the requirement:	P(ass)
- test object does not meet the requirement:	F(ail)
Testing:	
Date of receipt of test item:	Sept. 05, 2017
Date(s) of performance of test	Sept. 05, 2015– Sept. 28, 2017
General remarks:	
"(see remark #)" refers to a remark appended to the repo	ort,
"(see appended table)" refers to a table appended to the	report,
Throughout this report a comma is used as the decimal s	separator,
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 testing laboratory,
Clause numbers between brackets refer to clauses in IEC	C 62133(Optional remark).

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General product information:

The cells and batteries have been tested and evaluated according to their specified working conditions (as given below), which are provided by client;

Details information of the battery and the cell built in the battery, as following:

Product	Li-ion Battery				
Model No.	350926				
Nominal voltage	3.7V				
Rated capacity	55mAh				
Charge method	Charging the battery with 0.2C (400mA) constant current, 4.2V until current reaches 0.02C (40mA)				
Max. Charging Current	80mA				
Max. Charging voltage	4.2V				
End of discharge voltage	3.0V				
Dimension	22*9*3.6mm				
Weight	2.0g				

Tests are made with the number of batteries specified in IEC 62133 Table 1.

Tests Performed (name of test and test clause):

Tests are made with the number of samples specified in Table 2 of IEC 62133:2012(2nd Edition).

Test items:

CI.6 type test conditions

Cl.8.1 Charging procedures for test purposes

Cl.8.2.1 Continuous charging at constant voltage (cells)

CI.8.3.1 External short circuit(cell)

CI.8.3.2 External short circuit(battery)

Cl.8.3.3 Free fall

Cl.8.3.4 Thermal abuse (cells)

CI.8.3.5 Crush(cells)

CI.8.3.6 Over-charging of battery

CI.8.3.7 Forced discharge (cells)

Cl.8.3.8 Transport test

Cl.8.3.9 Forced internal short circuit (cells)

Testing Location:

Shenzhen TCT Testing Technology Co., Ltd.

1F, Building 1, Yibaolai Industrial Park, Qiaotou Village, Fuyong Town, Baoan District, Shenzhen, Guangdong, P.R.C (518101)

Test conclusion:

The Li-ion Battery submitted by SHENZHEN KINGSUN ENTERPRISES CO., LTD. are tested according to IEC 62133: 2012 (2nd Edition) 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.

The product fulfils the requirements of _EN 62133 :2013 (insert standard number and edition and delete the text in parenthesis or delete the whole sentence if not applicable)

Test result: Pass.

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Remarks: The artwork below may be only a draft. at put into market, The use of certification marks on a product;

Copy of marking plate:







IEC 62133: 2012								
Clause	Requirement – Test	Result - Remark	Verdict					
5	General safety considerations	(3)	P					
7	Cells and batteries subject to intended use be safe and continue to function in all respects	Refer to the following clauses.	Р					
	Cells and batteries subject to reasonably foreseeable misuse do not present significant hazards.	Refer to the following clauses.	Р					
5.1	General		Р					
5.2	Insulation and wiring		Р					
	–Insulation Resistance between an accessible metal case (excluding electrical contacts) and positive terminals \geq 5M $\!\Omega$.	No accessible metal case exists;	N/A					
C	Internal wiring and insulation are sufficient to withstand maximum anticipated current, voltage and temperature requirements		Р					
	Orientation of wiring maintains adequate creepage and clearance distances between conductors. Mechanical integrity of internal connections is sufficient to accommodate conditions of reasonably foreseeable misuse.		P					
5.3	Venting		Р					
	Battery cases and cells incorporate a pressure relief mechanism or are constructed so that they relieve excessive internal pressure at a value and rate that will preclude rupture, explosion and self-ignition.		Р					
	Encapsulation used to support cells within an outer casing does not cause the battery to overheat during normal operation no inhibit pressure relief.	Without encapsulation.	N/A					
5.4	Temperature/voltage/current management	(0)	Р					
	The batteries are designed such that abnormal temperature rise conditions are prevented.		Р					
	Means is provided to limit current to safe levels during charge and discharge.	5) (6	Р					
	The batteries are designed such that within temperature, voltage and current limits specified by the cell manufacturer.		Р					
)	Batteries provided with specifications and charging instructions for equipment manufacturers so that associated chargers are designed to maintain charging within the temperature, voltage and current limits specified;	See battery specifications;	P					
5.5	Terminal contacts		Р					
	Terminals have a clear polarity marking on the external surface of the battery	"+" for positive polarity and "-" for negative polarity marking on the label near the terminal	Р					

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TESTING CENTRE TECHNOLOGY IEC 62133: 2012 (2nd Edition)						
-	IEC 62133: 2012	T	1,, ,,			
Clause	Requirement – Test	Result - Remark	Verdict			
	The size and shape of the terminal contacts ensure that they can carry the maximum anticipated current.	(c ^r)	Р			
	External terminal contact surfaces are formed from conductive materials with good mechanical strength and corrosion resistance.		Р			
6	Terminal contacts are arranged to minimize the risk of short circuits.) P			
	the external connector prevents reverse polarity connections, Battery packs with keyed external connectors designed for connection to specific end products need not be marked with polarity marking;		N/A			
5.6	Assembly of cells into batteries	Only one cell.	Р			
	If there is more than one battery housed in a single					
5.6.1	battery case, cells used in the assembly of each battery have closely matched capacities, be of the same design, be of the same chemistry and be from the same manufacturer		N/A			
		attery has an independent control and				
	protection		N/A			
	Manufacturers of cells make recommendations about 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 separate circuitry to prevent the cell reversal caused by uneven discharges		N/A			
E C	Protective circuit components are added as appropriate and consideration given to the enddevice application		N/A			
	When testing a battery, the manufacturer of the battery provides a test report confirming the compliance according to this standard		N/A			
5.6.2	Design recommendation for lithium system only		Р			
(Control of the Control of the Contr	For the battery consisting of a single cell or a single cellblock: - Charging voltage of the cell does not exceed the upper limit of the charging voltage specified in		P			
	Clause 8.1.2, Table 4;					

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IEC 62133: 2012							
Clause	Requirement – Test	Result - Remark	Verdict				
)	- Charging voltage of the cell does not exceed the different upper limit of the charging voltage determined through Clause 8.1.2, NOTE 1.		N/A				
	For the battery consisting of series-connected plural single cells or series-connected plural cellblocks: - The voltages of any one of the single cells or single cellblocks does not exceed the upper limit of the charging voltage, specified in Clause 8.1.2, Table 4, by monitoring the voltage of every single cell or the single cellblocks;		N/A				
	- The voltages of any one of the single cells or single cellblocks does not exceed the different upper limit of the charging voltage, determined through Clause 8.1.2, NOTE 1, 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: - Charging is stopped when the upper limit of the charging voltage, specified in Clause 8.1.2, Table 4, 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				
	- Charging is stopped when the upper limit of the different charging voltage, determined through Clause 8.1.2, NOTE 1, 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				
5.7	Quality plan		Р				
	The manufacturer has prepared a quality plan defining the procedures for the inspection of materials, components, cells and batteries and which covers the process of producing each type of cell and battery.	The manufacturer has ISO 9001:2008 certificate and such quality plan.	Р				

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Upper limit charging voltageMaximum charging current

Charging temp. Upper limit

Charging temp. Lower limit

Specified by the manufacturer of cells

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Clause	Requirement – Test	Result - Remark	Verdict
6	Type test conditions		Р
	Tests were conducted with the number of cells or batteries as outlined in Table 2 of IEC 62133 with cells or batteries that were not more than six months old.	Tests are made with the number of batteries specified in Table 2. battery are not more than six months old.	Р
K	Unless noted otherwise in the test methods, testing was conducted in an ambient of 20°C \pm 5°C.	Tests are carried out at 20°C ± 5°C.	P
8	Specific requirements and tests		Р
8.1	Charging procedure for test purposes		Р
8.1.1	First procedure		-
(Test is carried out at 20°C±5°C. Charging method declared by the manufacturer.		Р
	Prior to charging, the battery shall have been discharged at 20 °C ± 5 °C at a constant current of 0,2 <i>I</i> t A down to a specified final voltage.		Р
8.1.2	Second procedure	$(C_{\mathcal{O}})$	-
	For clause 8.3.1, 8.3.2, 8.3.4, 8.3.5, and 8.3.9 charging procedure After stabilization for 1 to 4 hours respectively at ambient temperature of highest test temperature and lowest test temperature, as specified in Table 4		-
	cells are charged by using the upper limited charging voltage and maximum charging current, until the charging current is reduced to 0,05 <i>I</i> t A, using a constant voltage charging method.		-

4.25V/cell

2000mA

-

45℃

-5℃

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Clause	Requirement -	- Test		Re	sult - Remar	k	Verdict	
8.2	Intended use						Р	
8.2.1	Continuous cha	arging at const	ant voltage (cell	s)				Р
	Fully charged of charge as spec		ed for 7 days to nufacturer.	a				Р
(20	Results:: No fir	e, no explosion	, no leakage	KC	See	e below table;	((C)	P
Sample No.	Model	Recommen ded Charging Method, CC, CV, or CC/CV	Recommend ed Charging Voltage Vc, Vdc	Recomn ded Chargii Currer Irec, A	ng nt	OCV at Start of Test, Vdc	Results	Р
C01	350926	CC/CV	3.7	0.2		2.18	NF,NE	Р
C02	350926	CC/CV	3.7	0.2		2.19	NF,NE	P
C03	350926	CC/CV	3.7	0.2		2.18	NF,NE	Р
C04	350926	CC/CV	3.7	0.2		2.19	NF,NE	Р
C05	350926	CC/CV	3.7	0.2		2.19	NF,NE	Р

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supplementary information:

NF: No FireNE: No ExplosionNL: No Leakage

- Fire: the emission of flames from a cell or battery.
- Explosion: failure that occurs when a cell container or battery case opens violently and major components are forcibly expelled.
- Leakage: visible escape of liquid electrolyte.

Moulded case stress at high	n ambient temperature (battery)		N/A	
8.1.1, the batteries were pla temperature of 70°C ± 2°C for		N/A		
No evidence of mechanical	damage		N/A	
No physical distortion of the components.	battery case resulting in exposure	e of internal		
	Fully charged batteries acco 8.1.1, the batteries were pla temperature of 70°C ± 2°C fremoved and allowed to retu Results: no physical distortion in exposure if internal composition of the No physical distortion of the		Fully charged batteries according to the first procedure in 8.1.1, the batteries were placed in an air-circulating oven at a temperature of 70°C ± 2°C for 7 hours. Afterwards, they are removed and allowed to return to room temperature. Results: no physical distortion of the battery casing resulting in exposure if internal components. No evidence of mechanical damage No physical distortion of the battery case resulting in exposure of internal	

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Clause	ause Requirement – Test Re					Result - Remark		
8.3	Reasonably fo	oreseeable m	isuse	<u> </u>		\	ı	 Р
8.3.1	External short		1	ı	P			
	Fully charged in 8.1.2;	each cell acc	ording to the sec	ond procedure	;		į.	Р
(C)	Fully charged cells were subjected to a short circuit test at $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$.							Р
	The external r	esistance of 8	0 ± 20 m Ω .				ı	Р
			h or until the ca				ı	Р
	Results: no fir	e, no explosio	n.				ı	Р
	After the test				See below		ı	P
Sample No.	Ambient temperature (At 20°C ± 5°C)	OCV at start of test (Vdc)	Max. External Temperature (°C)	Resistance α Circuit (mΩ)		Results		Р
C06	25.0	4.20	50.4	40	30	NF,NE	ı	Р
C07	25.0	4.20	50.7	40	30	NF,NE	ı	Р
C08	25.0	4.19	55.8	40	30	NF,NE	ı	Р
C09	25.0	4.19	52.7	40	30	NF,NE		Р
C10	25.0	4.19	56.5	40	30	NF,NE) i	Р
Sample No.	Ambient temperature (At 20°C ± 5°C)	OCV at start of test (Vdc)	Max. External Temperature (°C)	Resistance of Circuit (mΩ)	10	Results	·	Р
C11	25.0	4.16	51.4	40	-2	NF,NE	I	Р
C12	25.0	4.16	53.7	40	-2	NF,NE	F	P
C13	25.0	4.17	54.8	40	-2	NF,NE	· I	P
C14	25.0	4.15	50.6	40	-2	NF,NE)	P
C15	25.0	4.17	50.9	40	-2	NF,NE		 Р

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supplementary information

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Explosion: failure that occurs when a cell container or battery case opens violently and major components are forcibly expelled.

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T.		IEC 62133	: 2012			ı
Requirement	t – Test		R	Result - Remark		Verdict
External shor	t circuit (batte		(3)		N/A	
				N/A		
, ,	\		N/A			
The external r			N/A			
temperature of	leclined by 20					N/A
battery pack sone hour afte state condition where the perbattery is below	should remain r the current r n. This typical r cell voltage (ow 0,8 V and	on test for an a eaches a low en lly refers to a con series cells only is decreasing by	dditional and steady andition by of the			N/A
Results: no fir	e, no explosio	n.				N/A
After the test		(3)	S	See below		N/A
Ambient temperature (At 55°C ± 5°C)	OCV at start of test (Vdc)	Max. External Temperature (°C)	Resistance of Circuit (mΩ)	Charging temp. Upper limit (°C)	Results	N/A
	80				60)
ÇĆ		(6))	(6)		
Ambient temperature (At 55°C ± 5°C)	OCV at start of test (Vdc)	Max. External Temperature (°C)	Resistance of Circuit (mΩ)	Charging temp. Lower limit (°C)	Results	N/A
	External shor Fully charged procedure in 8 Fully charged test at 55°C ± The external r The battery patemperature of temperature of temperature r In case of rap battery packs one hour afte state condition where the perbattery is belough. I v in a 30-Results: no fire After the test Ambient temperature (At 55°C ± 5°C) Ambient temperature (At 55°C ± 5°C)	Fully charged each battery procedure in 8.1.2; Fully charged batteries were test at 55°C ± 5°C. The external resistance of 8. The battery pack were tested temperature declined by 20 temperature rise. In case of rapid decline in substance of a state of test condition. This typical where the per cell voltage (battery is below 0,8 V and 0,1 V in a 30-minute period decline in substance (At 55°C ± S°C) Ambient temperature (At 55°C ± S°C)	External short circuit (battery) Fully charged each battery according to the procedure in 8.1.2; Fully charged batteries were subjected to a stest at 55°C ± 5°C. The external resistance of 80±20 mΩ. The battery pack were tested for 24 h or unt temperature declined by 20% of the maximultemperature rise. In case of rapid decline in short circuit curre battery pack should remain on test for an a one hour after the current reaches a low enstate condition. This typically refers to a conwhere the per cell voltage (series cells only battery is below 0,8 V and is decreasing by 0,1 V in a 30-minute period. Results: no fire, no explosion. After the test Ambient temperature (At 55°C ± 5°C) Ambient temperature (At 55°C ± 5°C)	External short circuit (battery) Fully charged each battery according to the second procedure in 8.1.2; Fully charged batteries were subjected to a short circuit test at 55°C ± 5°C. The external resistance of 80±20 mΩ. The battery pack were tested for 24 h or until the case temperature declined by 20% of the maximum temperature rise. In case of rapid decline in short circuit current, the battery pack should remain on test for an additional one hour after the current reaches a low end steady state condition. This typically refers to a condition where the per cell voltage (series cells only) of the battery is below 0,8 V and is decreasing by less than 0,1 V in a 30-minute period. Results: no fire, no explosion. After the test Ambient temperature (At 55°C ± 5°C) Ambient temperature (At 55°C ± 5°C)	External short circuit (battery) Fully charged each battery according to the second procedure in 8.1.2; Fully charged batteries were subjected to a short circuit test at 55°C ± 5°C. The external resistance of 80±20 mΩ. The battery pack were tested for 24 h or until the case temperature declined by 20% of the maximum temperature rise. In case of rapid decline in short circuit current, the battery pack should remain on test for an additional one hour after the current reaches a low end steady state condition. This typically refers to a condition where the per cell voltage (series cells only) of the battery is below 0.8 V and is decreasing by less than 0,1 V in a 30-minute period. Results: no fire, no explosion. After the test Ambient temperature (At 55°C ± 5°C) The external temperature (CCC) Max. External Temperature (CCC) External Temperature (CCC) Ambient temperature (At 55°C ± test (V/dc) External Temperature (CCC) The external Temperature (CCCC) The external Temperature (CCCC) The external Temperature (CCCC) The external Temperature (CCCC) The external Temperature (CCCCC) The external Temperature (CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	External short circuit (battery) Fully charged each battery according to the second procedure in 8.1.2; Fully charged batteries were subjected to a short circuit test at 55°C ± 5°C. The external resistance of 80±20 mΩ. The battery pack were tested for 24 h or until the case temperature declined by 20% of the maximum temperature rise. In case of rapid decline in short circuit current, the battery pack should remain on test for an additional one hour after the current reaches a low end steady state condition. This typically refers to a condition where the per cell voltage (series cells only) of the battery is below 0,8 V and is decreasing by less than 0,1 V in a 30-minute period. Results: no fire, no explosion. After the test Ambient temperature (At 55°C ± 5°C) Ambient temperature (At 55°C) Ambient temperature (At 55°C) Ambient temperature (At 55°C) Ambient temperature (At 50°C) Ambient temperature (At 50°C) Ambient temperature (At 50°C) Ambient

supplementary information

- NF: No Fire
- NE: No Explosion
- Fire: the emission of flames from a cell or battery.
- Explosion: failure that occurs when a cell container or battery case opens violently and major components are forcibly expelled.

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		IE	EC 62133: 2012			
Clause	Requirem	ent – Test	Result - Remark		Verdict	
8.3.3	Free fall				Р /	
	Ambient te	emperature of 20 $\pm 5^{\circ}\!$				Р
		Fully charged cells or batteries were dropped 3 times from a height of 1.0 m onto a concrete floor.		Three times		Р
	for a minin	est, the cell or battery shour of one hour and the shall be performed.				_
	Results: no	o fire, no explosion				Р
Samp	ole No.	C16	C17	(5)	C18	
Status NF, NE NF, N		, NE N		E		
Sample No. B11		B12	B12			
Sta	atus	NF, NE	NF, NI		NF, NI	Ē
	ntaw Lintawa	Al aux				

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8.3.4	Thermal abuse (ce	lls)				Р
	air-convention over a rate of 5°C/min ±	The oven tem 2°C/min to a ten ined at that temp	a gravity or circulating aperature was raised at apperature of 130°C ± perature for 10 minutes			P
	Results: no fire, no	explosion				Р
After the te	est (Charging temp. U	pper limit 45°C))			
Sample No.	C19	C20	C21	C22	C23	
Status	NF, NE	NF, NE	NF, NE	NF, NE	NF, NI	 E
	NF, NE est (Charging temp. L	•	·	NF, NE	NF, NI	E
	,	•	·	NF, NE	NF, NI	E (

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			20 02 100: 20:2		
Clause	Requirement – Te	est		Result - Remark	Verdict
8.3.5	Crush (cells)			(6)	Р
	procedure at the u	pper limit charg ely transferred a	and crushed between	d	Р
8	Fully charged cells surfaces with a hyd kN.		etween two flat ting a force of 13 kN ±	1	P
)	The crushing is pe		anner that will cause th	ne See below	Р
	- Once the maximu	um force has be	en applied,		Р
	- or an abrupt volta voltage has been o		-third of the original		N/A
8	initial dimension, tl	he force is relearst should be the	arred compared to the ased (whichever e indication that the		N/A
	A cylindrical or pris longitudinal axis pa apparatus.		crushed with its surfaces of the crushin	ng S	Р
	Test only the wide	side of prismation	c cells.		
	Results: no fire, no	explosion.			Р
After the te	est (Charging temp. l	Jpper limit 45°C			(6)
Sample No.	C29	C30	C31	C32	C33
Status	NF, NE	NF, NE	NF, NE	NF, NE	NF, NE
After the te	est (Charging temp. L	_ower limit -5°C) '		
Sample No.	C34	C35	C36	C37	C38
Status	NF, NE	NF, NE	NF, NE	NF, NE	NF, NE

IEC 62133: 2012

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Clause	Requirement -	Test			Result - Remar	k	Verdict
8.3.6	Over-charging of	of battery	(,C		(.c ⁽¹⁾		N/A
	The test shall be of +20 $^{\circ}$ C \pm 5		in an ambient	t temperature			N/A
	Each test batter current of 0,2 It by the manufac	A, to a final				(C	N/A
)	A discharged ba 5.0V per cell or supplied by the current of 2.0 It	not to exceed recommende	d the maximun	n voltage	f (S)		N/A
	Total Time of C the temperature state conditions period) or return	e of the outer (less than 1	casing reach 0 °C change i	es steady			N/A
100	Results: no fire,	no explosior	n.)	10		10	N/A
	After the test				No fire, no ex	plosion.	N/A
Sample no.	Model	OCV at start of test (Vdc)	Maximum Charging Current (2.0 It A)	Maximum Charging Voltage (Vdc)	Total Time of Charging (h)	temperat ure of the outer casing (°C)	Results
		(C)		ÇÖ			•)
			(ć.				

IEC 62133: 2012

supplementary information:

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- Explosion: failure that occurs when a cell container or battery case opens violently and major components are forcibly expelled.

Remark: Total time of charging \leq 0.1h means the PCB protection in a flash.

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	IEC 62133: 2012							
Clause	Requirement – Test Forced discharge (cells)			Result - Remark		Verdict		
8.3.7					(6)	Р		
	A discharged 1 It A for 90 n	cell is subjected to a revenin.	rse charge at			Р		
	Results: no fir	re, no explosion		7.		Р		
Sample no.	Model	OCV before application of reverse charge (Vdc)	Measured Re Charge It (,	Total Time for Reversed Charge Application (Min)	Results		
C39	350926	3.33	1.5		50	NF,NE		
C40	350926	3.32	1.5		50	NF,NE		
C41	350926	3.31	1.5		50	NF,NE		
C42	350926	3.32	1.5		50	NF,NE		
C43	350926	3.30	1.5		50	NF,NE		

supplementary information:

- NF: No Fire
- NE: No Explosion
- Fire: the emission of flames from a cell or battery.
- Explosion: failure that occurs when a cell container or battery case opens violently and major components are forcibly expelled.



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	IEC 62133: 2012		
Clause	Requirement – Test	Result - Remark	Verdict
8.3.8	Transport test	(3)	N/A
	Regulations concerning international transport of lithium ion batteries are based on the UN Recommendations on the Transport of Dangerous Goods. Testing requirements are defined in the UN Manual of Tests & Criteria.		N/A
	Testing laboratory		N/A
8.3.9	Design evaluation – Forced internal short circuit (cells)	(A)	Р
	The cells complied with national requirement for:	Only applicable to France, Japan, Korea and Switzerland;	
	1) Number of samples		Р
	This test shall be carried out on five secondary (rechargeable) lithium-ion cells.		Р
	2) Charging procedure		Р
	i) Conditioning charge and discharge		Р
	ii) Storage procedure		Р
	iii) Ambient temperature		Р
	iv) Charging procedure for forced internal short test		Р
1	3) Pressing the winding core with nickel particle		Р
	No fire.		Р

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			ILO OL 100. LO IL (LI	a Laidon)
		IEC 62133: 2012		
Clause	Requirement – Test		Result - Remark	Verdict

8.3.9	TABLE: Force	ed internal short circ	cuit (cells)	(.0		
Model	Chamber ambient, (°C)	OCV at start of test, (Vdc)	Particle location 1)	Maximum applied pressure, (N)	Voltage drop, (mV)	Results
350926	45	4.20	1	100	0.1	P
350926	45	4.19	1	100	0.2	Р
350926	45	4.20	1	100	0.2	Р
350926	45	4.19	2	100	0.1	Р
350926	45	4.20	2	100	0.2	Р
350926	10	4.16	1	100	0.2	Р
350926	10	4.17	1	100	0.1	Р
350926	10	4.17	1	100	0.1	Р
350926	10	4.15	2	100	0.1	Р
350926	10	4.17	2	100	0.2	Р

9	Information for safety	Р
	Information is provided to equipment manufacturers in the form of instructions to minimize and mitigate hazards associated with the cells or batteries in accordance with guidelines outlined in informative Annex B.	Р
	Information is provided to end-users in the form of instructions to minimize and mitigate hazards associated with the batteries in accordance with guidelines outlined in informative Annex C.	Р

10		Marking		Р
10.1	10.1	Cell marking	See below	Р
		Rechargeable Li or Li-ion	Li-ion	P
		Battery designation	Li-ion Battery	Р
		Polarity of terminal	On the battery	Р
		Date of manufacture	See labeling	Р
	0	Name or identification of the manufacturer or supplier	Shenzhen Yongdajia Electronics Co., Ltd	Р
		Nominal voltage(V)	3.7V	Р
		Rated Capacity (mAh)	55mAh	Р (

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		IEC 62133: 2012		,
Clause	Requirement – Test		Result - Remark	Verdict

10.2	Battery marking	(0)	N/A
	Rechargeable Li or Li-ion		N/A
	Battery designation		N/A
	Polarity of terminal		N/A
	Date of manufacture		N/A
	Name or identification of the manufacturer or supplier		N/A
	Nominal voltage(V)	(0)	N/A
	Rated Capacity (mAh)		N/A
	Caution statement		N/A
10.3	Other information		Р
)	Disposal instructions are marked on the battery or supplied in the information packaged with the battery.	See Specification book	Р
	Recommended charging instruction are marked on the battery or supplied in the information packaged with the battery.	See Specification book	Р

11	Packaging	P
	Cells or batteries were provided with packaging that was adequate to avoid mechanical damage during transport, handling and stacking. The materials and pack design was chosen to prevent the development of unintentional electrical conduction, corrosion of the terminal and ingress of moisture.	P

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Model: 350926

IEC 62133: 2012 (2nd Edition)

Photos

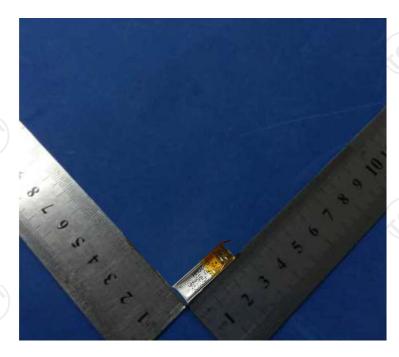


Photo 1 Over view



Photo 2 Over view *** End of Test Report ***

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