

中国认可 国际互认 检测 TESTING CNAS L6478



TEST REPORT

Reference No	WTF17F1194900C
Applicant	Mid Ocean Brands B.V.
Address	Unit 201 2/F., Laford Centre, 838 Lai Chi Kok Road, Cheung Sha Wan, Kowloon, Hong Kong.
Manufacturer	114889
Sample Name	5000mAh power bank
Model No	MO9209
Test Requested	Directive 2006/66/EC and its Article 4 amendment of Directive 2013/56/EU-Heavy Metals Content in Batteries and Accumulators
Test Method	With reference to IEC 62321-5:2013 & IEC 62321-4:2013, analysis was performed by ICP-OES
Date of Receipt Sample	2017-11-10
Date of Test	2017-11-10 to 2017-11-16
Date of Issue	2017-11-27
Test Result	Please refer to next page (s)
Test Conclusion	The submitted battery sample does not exceed the limit mentioned in Directive 2006/66/EC and its Article 4 amendment of Directive 2013/56/EU.

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

Prepared By: Waltek Services (Foshan) Co., Ltd. Address: No. 13-19, 2/F, 2nd Building, Sunlink International Machinery City, Chencun Town, Shunde District, Foshan, Guangdong, China Tel :+86-757-23811398 Fax:+86-757-23811381

Compiled by:

Swing.Liang / Project Engineer

pproved hang no.zhang/Lab Manager

Page 1 of 3



Test Results:

Task Ham(s)	Test Resu	Test Result	Inter Manual		
Test Item(s)	Unit	No.1	MDL	Maximum Allowable Limit	
Lead (Pb)	~ % ~	ND ND	0.0002	See comment if > 0.004	
Cadmium (Cd)	%	ND ND	0.0002	0.002	
Mercury (Hg)	%	ND	0.0002	0.0005	

Specimen Description:

No.1: Battery

Note:

(1) ND = Not Detected or lower than method detection limit

- (2) MDL = Method Detection Limit
- (3) % = percentage by weight

Comment:

(1) Marking requirement:

According to Directive 2006/66/EC, all batteries, accumulators and battery packs shall be appropriately marked with the symbol as below:



Covered area on battery, accumulator or battery pack:

- Cylindrical cells: 1.5 % of surface area (maximum 5×5 cm);
- Others: 3 % of surface area of the largest side (maximum 5 × 5 cm)
- When the size of the battery, accumulator or battery pack is such that the symbol would be smaller

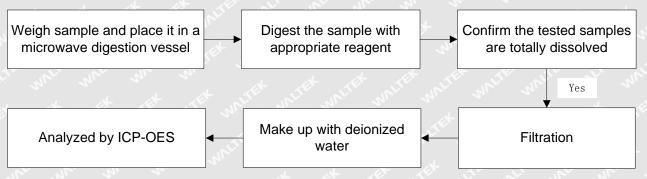
than 0.5×0.5 cm, a symbol at least 1×1 cm shall be printed on the packaging.

Symbols shall be printed visibly, legibly and indelibly

(2) When the sample consists lead exceeding 0.004%, the product is to be labeled with heavy metal content with the requirements as below:

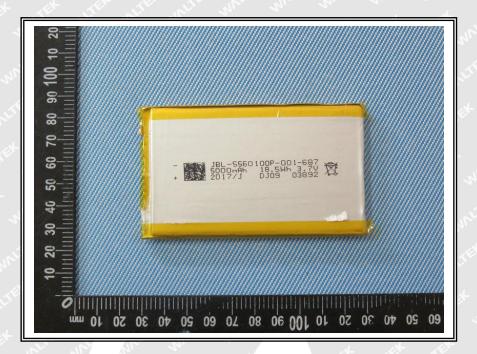
- Mark with the chemical symbol for the metal concerned: Pb
- Print beneath the symbol
- Cover an area of at least ¼ of the size of the symbol







Sample Photo:



===== End of Report =====





TEST REPORT

Reference No.	WTF17S1194905S
Applicant :	Mid Ocean Brands B.V.
Address	Unit 201 2/F.,Laford Centre, 838 Lai Chi Kok Road, Cheung Sha Wan, Kowloon, Hong Kong.
Manufacturer	
Address	
Product	Rechargeable Li-ion Polymer Cell
Model(s)	5560100P
Brand Name	N/A
Total pages	21 pages and 1 pages of photo.
Standards	🖾 IEC 62133: 2012
Date of Receipt sample	2017-11-14
Date of Test	2017-11-14 to 2017-11-29
Date of Issue	2017-12-08
Test Result	Pass

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

Prepared By: Waltek Services (Shenzhen) Co., Ltd.

Address: 1/F, Fukangtai Building, West Baima Rd., Songgang Street, Bao'an District, Shenzhen Guangdong, China Tel:+86-755-83551033 Fax:+86-755-83552400

Compiled by:

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Sandy Li / Project Engineer

Approved by:



Philo Zhong / Manager

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Page 1 of 22



Summary of testing:	
Tests performed (name of test and test clause): □ <tr< th=""><th>Testing location: Waltek Services (Shenzhen) Co., Ltd. 1/F, Fukangtai Building, West Baima Rd., Songgang Street, Baoan District, Shenzhen Guangdong, China</th></tr<>	Testing location: Waltek Services (Shenzhen) Co., Ltd. 1/F, Fukangtai Building, West Baima Rd., Songgang Street, Baoan District, Shenzhen Guangdong, China
Summary of compliance with National Differenc List of countries addressed:	est white white white white white



Test item particulars:	Tet stet stret with mile wait wat
Classification of installation and use	. To be defined in final product
Supply connection	Didn't be provided
Recommend charging method declaired by the manufacturer	Charge at constant current 1000mA(0.2C) until voltage reaches 4.2V, then charge at constant voltage 4.2V till charge current reduce to 100mA(0.02C).
Discharge current (0,2 It A)	1000mA
Specified final voltage:	3.0V
Chemistry :	nickel systems
Recommend of charging limit for lithium system	
Upper limit charging voltage per cell:	4.25V
Maximum charging current	Cell:5000mA
Charging temperature upper limit	45°C
Charging temperature lower limit	10 °C
Polymer cell electrolyte type	☐ gel polymer ☐ solid ⊠N/A
Possible test case verdicts:	with white white white white white
- 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	MIT AT MAL MAN MAN W
Date of receipt of test item	in the state state when
Date (s) of performance of tests	There was and when and was an
General remarks:	the at let get get whet whe
The test results presented in this report relate only to This report shall not be reproduced, except in full, with "(See Enclosure #)" refers to additional information a "(See appended table)" refers to a table appended to	nout the written approval of the Issuing testing laboratory. appended to the report.
Throughout this report a comma / point is u	used as the decimal separator.
Name and address of factory (ies)	: Same as manufacturer



General product information:

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

Details information of the cell as following:

Product	Cell	Battery
Model	5560100P	MALL WALL - MALL WIT
Nominal voltage	3.7Vd.c.	white white white white w
Rated capacity	5000mAh	the state of the state
Charge method	CC/CV	ver out out on on
Charge temp. range	0℃~45℃	LET MITER WALTER WALTER WALTE
Std. charge current	1000mA	h at the tak stat
Max. charge current	2500mA	white white white white
Max. discharge current	2500mA	white white white white w
Upper limit charge voltage	4.25V	at the test of a
Discharge Cut-off voltage	3.0V	the water water water water
Dimension	MAX.100.5mm×60.0mm×5.5mm	et outet anitet and en and
Weight	Approx 78.21g	the state state
Shape	Prismatic	wints wint wint wint

Page 5 of 22



Circuit diagram:

N/A

PCB BOM LIST:

No.	Item	Description	Quantity	Manufacturer
	at the set	allet mitter walter.	White - White	mu m

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.

-	Rechargeable Polymer Li-ion Cell 5560100P ICP6/60/101 3.7V, 5000mAh, 18.5Wh	Ŕ
+	YYMMDD	

Remark: "YYMMDD" represents the date of manufacture, "YY" represents year, "MM" represents month, "DD" represents day.

Page 6 of 22



IEC 62133: 2012

Clause	Requirement + Test	Result - Remark	Verdict
4	Parameter measurement tolerances	THE STREE MUST WATTE WATT	P
det .	Parameter measurement tolerances	All control and measure values	. P

were within the tolerances.

5	General safety considerations		
5.1	General	Considered	P
5.2	Insulation and wiring	See below.	P.S
Whitek w	The insulation resistance between the positive terminal and externally exposed metal surfaces of the battery (excluding electrical contact surfaces) is not less than 5 M Ω	white white shife whi	N/A
All I	Insulation resistance (MΩ)	at at set set	NITE-
et watte	Internal wiring and insulation are sufficient to withstand maximum anticipated current, voltage and temperature requirements	when when where the	P P
MUTER	Orientation of wiring maintains adequate creepage and clearance distances between conductors	THE THE STILL ON	Set Pri
Jet	Mechanical integrity of internal connections accommodates reasonably foreseeable misuse	it it it it	P
5.3	Venting	ATT WALL WALL WALL	P
ret whi	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	Tex would would would be	P
Whitek.	Encapsulation used to support cells within an outer casing does not cause the battery to overheat during normal operation nor inhibit pressure relief	white white white white	N/A
5.4	Temperature/voltage/current management		N/A
ine wi	Batteries are designed such that abnormal temperature rise conditions are prevented	No of the source of the	N/A
NNLT NNLT	Batteries are designed to be within temperature, voltage and current limits specified by the cell manufacturer	TEX WALTER WALTER WALTER	N/A
Multer W	Batteries are 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	whitek whitek whitek white	N/A
5.5	Terminal contacts	See below.	P
t d	Terminals have a clear polarity marking on the external surface of the battery	Red wire (+) Black wire(-)	Р

Page 7 of 22



	IEC 62133: 2	012
2	1. 15	Result

Clause	Requirement + Test	Result - Remark	Verdict
WALLEK W	The size and shape of the terminal contacts ensure that they can carry the maximum anticipated current	Maximum anticipated current can be carried.	P
EX MITE	External terminal contact surfaces are formed from conductive materials with good mechanical strength and corrosion resistance	Contact surfaces are conductive with good mechanical strength and corrosion resistance.	P
MALTER	Terminal contacts are arranged to minimize the risk of short circuits	Suitable arrangement of terminals to prevent short circuit.	P.S.
5.6	Assembly of cells into batteries	t t B	- Pot
5.6.1	If there is more than one battery housed in a single 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	white white white white	N/A
white	Each battery has an independent control and protection	whilet while white wh	N/A
Whitek w	Manufacturers of cells make recommendations about current, voltage and temperature limits so that the battery manufacturer/designer may ensure proper design and assembly	whitek whitek whitek white	N/A
et muite	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	Tet white white white	N/A
WALTER	Protective circuit components are added as appropriate and consideration given to the end- device application	would would would would all	N/A
NALI W	When testing a battery, the manufacturer of the battery provides a test report confirming the compliance according to this standard	weiter and the second second	N/A
5.6.2	Design recommendation for lithium systems only	an and and and	м ^р Р ^л
WALTER V	 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 Clause 8.1.2, Table 4; or 	Set whitet whitet whitet w	P
ntiet on	- Charging voltage of the cell does not exceed the different upper limit of the charging voltage determined through Clause 8.1.2, NOTE 1.	Whitek whitek whitek white	N/A

Page 8 of 22



t st	IEC 62133: 2012	a at the st	et 11 5
Clause	Requirement + Test	Result - Remark	Verdict
uniter on	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; or	Matter Matter Matter	N/A
WALTER .	- 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	Montreet wontreet wontreet	N/A
set yunit	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; or	WAL WALTER WALTER WAL	N/A
auntite w	- 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	Intret whitek white	N/A
5.7	Quality plan	at at at	P .
whitek	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	A SULLEY SULLEY SULLEY	P.S

6	Type test conditions		P
LTL M	Tests were made with the number of cells or batteries specified in Table 1 for nickel-cadmium and nickel-metal hydride systems and Table 2 for lithium systems, using cells or batteries that are not more than six months old	Tests are performed according to specified in Table 2 of the standard. The samples are not more than 6 months old.	Ρ
white	Unless noted otherwise in the test methods, testing was conducted in an ambient of $20^{\circ}C \pm 5^{\circ}C$.	The tests are conducted in an ambient of 20 °C \pm 5°C.	P

7 🔊	Specific requirements and tests (nickel systems)		~ ¹ N/A
7.1	Charging procedure for test purposes	Lithium system.	N/A
7.2	Intended use	The water water water water	N/A
7.2.1	Continuous low-rate charging (cells)	i i it it it	</td
- ne	Results: No fire. No explosion	(See Table 7.2.1)	N/A

Page 9 of 22



Clause	Requirement + Test	Result - Remark	Verdict
7.2.2	Vibration	ALLER ALLE MALLE	N/A
dt .	Results: No fire. No explosion. No leakage	(See Table 7.2.2)	N/A
7.2.3	Moulded case stress at high ambient temperature	street intre white w	N/A
A .10	Oven temperature (°C):		ot de .
when	Results: No physical distortion of the battery casing resulting in exposure if internal components	TET WALTE WALT WAL	N/A
7.2.4	Temperature cycling	t . It when the wine	N/A
A	Results: No fire. No explosion. No leakage.	In In	N/A
7.3 📣	Reasonably foreseeable misuse	Tet Aller Alle	N/A
7.3.1	Incorrect installation cell	app. 20 2	N/A
yuni X yunifek	The test was carried out using: - Four fully charged cells of the same brand, type, size and age connected in series, with one of them reversed; or	attet white white white	N/A
đ	- A stabilized dc power supply.	the second second	N/A
in any	Results: No fire. No explosion	(See Table 7.3.1)	N/A
7.3.2	External short circuit	the state	N/A
et wr	The cells or batteries were tested until one of the following occurred: - 24 hours elapsed; or	at at at	N/A
. It	- The case temperature declined by 20% of the maximum temperature rise	when when when	N/A
m	Results: No fire. No explosion	(See Table 7.3.2)	N/A
7.3.3	Free fall	the start of	N/A
n n	Results: No fire. No explosion.	inter in which a	N/A
7.3.4	Mechanical shock (crash hazard)	Le X At	N/A
- an	Results: No fire. No explosion. No leakage.	r	N/A
7.3.5	Thermal abuse	1 1 1 1 5	Ň/A
-2m	Oven temperature (°C):	it wath wat wat	1
. Jiet	Results: No fire. No explosion.	et .et .et	N/A
7.3.6	Crushing of cells	white white white	N/A
NITET WA	The crushing force was released upon: - The maximum force of $13kN \pm 1kN$ has been applied; or	whitek whitek whitek w	N/A
. when	- An abrupt voltage drop of one-third of the original voltage has been obtained	LIFE INLIFE MALTER WA	N/A

Page 10 of 22



IEC 62133: 2012				
Clause	Requirement + Test	Result - Remark	Verdict	
NALIEK V	The cell is prismatic type and a second set of samples was tested, rotated 90° around longitudinal axis compared to the first set	WALLEY WALLEY WALLEY W	N/A	
2 m	Results: No fire. No explosion	(See Table 7.3.6)	N/A	
7.3.7	Low pressure	A A A A	N/A	
24	Chamber pressure (kPa)	The water water water	24 -24	
Set	Results: No fire. No explosion. No leakage.	h at at at	N/A	
7.3.8	Overcharge	ment ment ments	N/A	
J.F. I	Results: No fire. No explosion	(See Table 7.3.8)	N/A	
7.3.9	Forced discharge	More when when we	N/A	
Set No	Results: No fire. No explosion:	(See Table 7.3.9)	N/A	

8 50	Specific requirements and tests (lithium systems	s) A A A	P
8.1	Charging procedures for test purposes	Considered	Р
8.1.1	First procedure: This charging procedure applied to tests other than those specified in 8.1.2	Considered	P
8.1.2	Second procedure: This charging procedure applied to the tests of 8.3.1, 8.3.2, 8.3.4, 8.3.5, and 8.3.9	Considered	P
watter	If a cell's specified upper and/or lower charging temperature exceeds values for the upper and/or lower limit test temperatures of Table 4, the cells were charged at the specified values plus 5 °C for the upper limit and minus 5 °C for the lower limit	Charge temperature 0-45°C declared. Testing temperature: -5-45°C	Ρ
mere w	A valid rationale was provided to ensure the safety of the cell (see Figure A.1):	wet and wouth wouth	ч Р
A MALIEN	For a different upper limit charging voltage (i.e. other than for lithium cobalt oxide systems at 4.25 V), the applied upper limit charging voltage and upper limit charging temperatures were adjusted accordingly	Lithium cobalt oxide systems The upper limit charging voltage is 4.25V during test.	N/A
WALTER V	A valid rationale was provided to ensure the safety of the cell (see Figure A.1)	The state water whi	N/A
8.2	Intended use	See below	P
8.2.1 🔊	Continuous charging at constant voltage (cells)	Considered	JAN P
ex unit	Results: No fire, no explosion, no leakage: :	No fire, no explosion, no leakage (See Table 8.2.1)	P
8.2.2	Moulded case stress at high ambient temperature (battery)	a at the tet	N/A
-2m	Oven temperature (°C):	which which which will	Za.

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Page 11 of 22



Nº A	IEC 62133: 2012	the state of the second	en an
Clause	Requirement + Test	Result - Remark	Verdic
NALLE W	Results: No physical distortion of the battery casing resulting in exposure if internal components	WALTER WALTER WALTER WALT	N/A
8.3	Reasonably foreseeable misuse	See below	P
8.3.1	External short circuit (cell)	Considered	Р
white tex	The cells were tested until one of the following occurred: - 24 hours elapsed; or	Tet waitet waitet waite	N/A
white w	- The case temperature declined by 20% of the maximum temperature rise	Considered	Р
intit with	Results: No fire, no explosion:	No fire. No explosion (See Table 8.3.1)	SUN P
8.3.2	External short circuit (battery)	set set whet whet	N/A
* white	The cells were tested until one of the following occurred: - 24 hours elapsed; or	where white white w	N/A
NALIEK W	- The case temperature declined by 20% of the maximum temperature rise	Tet whet white whi	N/A
uret whi	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	Tet whitet whitet white	N/A
white	Results: No fire, no explosion:	No fire. No explosion (See Table 8.3.2)	N/A
8.3.3	Free fall	3 sets of cells were tested	P.℃
de la	Results: No fire, no explosion.	No fire, no explosion.	Р
8.3.4	Thermal abuse (cells)	Considered	P
TEX MIT	The cells were held at $130^{\circ}C \pm 2^{\circ}C$ for: - 10 minutes; or	Considered	P
* Jet	- 30 minutes for large cells (gross mass of more than 500 g as defined in IEC 62281)	the sure of the	N/A
whitek a	Oven temperature (°C) :	The oven temperature was raised at a rate of 5°C/min \pm 2°C/min to a temperature of 130°C \pm 2°C.	54
NITER IN	Gross mass of cell (g)	78.21g	NITE
	Results: No fire, no explosion.	No fire, no explosion	Р
8.3.5	Crush (cells)	Considered	P
t stat	The crushing force was released upon: - The maximum force of 13 kN \pm 1 kN has been	Considered	P.

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applied; or

Page 12 of 22



	IEC 62133: 2012		
Clause	Requirement + Test	Result - Remark	Verdic
WALLEY V	- An abrupt voltage drop of one-third of the original voltage has been obtained; or	WHITE WALLEY WALTER WALT	N/A
The way	- 10% of deformation has occurred compared to the initial dimension	NITER WALTER WAITER WALTER	N/A
et white	Results: No fire, no explosion:	No fire, no explosion (See Table 8.3.5)	Pop
8.3.6	Over-charging of battery	that the	√ N/A≤
whitek w	Test was continued until the temperature of the outer casing: - Reached steady state conditions (less than 10°C change in 30-minute period); or	White white white and	N/A
10t 3	- Returned to ambient	at at at at	N/A
*	Results: No fire, no explosion:	No fire, no explosion (See Table 8.3.6)	N/A
8.3.7	Forced discharge (cells)	white white whe w	Р
Stek	Results: No fire. No explosion:	(See Table 8.3.7)	e Pse
8.3.8	Transport tests	Intite water water water	N/A
NUTER W	Manufacturer's documentation provided to show compliance with UN Recommendations on Transport of Dangerous Goods	No Provided	N/A
8.3.9	Design evaluation – Forced internal short circuit (cells)	The applicant declares that this battery isn't to be sold in France, Japan, Republic of Korea and Switzerland.	N/A
-24	The cells complied with national requirement for	white white white will	2
WALTER W	The pressing was stopped upon: - A voltage drop of 50 mV has been detected; or	ment summer and	N/A
LIEK MAL	- The pressing force of 800 N (cylindrical cells) or 400 N (prismatic cells) has been reached	- A ret winter	N/A
+ 10	Results: No fire:	(See Table 8.3.9)	N/A
9		with matter mater white	P
3	Information for safety		P
	The manufacturer of secondary cells ensures that information is provided about current, voltage and	NUTER NUTE WALL WAL	Р

whit is	information is provided about current, voltage and temperature limits of their products.	white white white whi	Р	
nt wn	The manufacturer of batteries ensures that equipment manufacturers and, in the case of direct sales, end-users are provided with information to minimize and mitigate hazards.	white white white white	N/A	

Page 13 of 22



	IEC 62133: 2012		
Clause	Requirement + Test	Result - Remark	Verdict
WALLER WAL	Systems analyses performed by device manufacturers to ensure that a particular battery design prevents hazards from occurring during use of a product	yourset white white	N/A
EK WALTE	As appropriate, information relating to hazard avoidance resulting from a system analysis is provided to the end user	NIEK INTEK INTEK INTE	N/A

10	Marking		Р
10.1	Cell marking		- P¢*
1	Cells marked as specified in the applicable cell standards: IEC 61951-1, IEC 61951-2 or IEC 61960.	Please see page 5	Р
10.2	Battery marking	ret the wife wife	N/A
t white	Batteries marked in accordance with the requirements for the cells from which they are assembled.	whitet whitet whitet w	N/A
MALTER	Batteries marked with an appropriate caution statement.	THE NUTER MUTER MAIL	N/A
10.3	Other information	See below.	P
11 W	Storage and disposal instructions marked on or supplied with the battery.	Information for safety mentioned in manufacturer's specification.	Р
NITER	Recommended charging instructions marked on or supplied with the battery.	Information for safety mentioned in manufacturer's specification.	P P

11	Packaging		Р	
LIEK W	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.	Considered.	uni P	2 20 4

Page 14 of 22



IEC	621	33:	20 ⁻	12
ILC.	021	55.	20	. 2

Clause	Requirement + Test	Result - Remark	Verdict
Annex A	Charging range of secondary lithium ion cells fo	or safe use	P
A.1	General	The Age of	P
A.2	Safety of lithium-ion secondary battery	LIEF NUTE MUTER N	N ¹ N ¹ P 1
A.3	Consideration on charging voltage		A P
A.3.1	General	TEL INTER WATER WAT	P."
A.3.2	Upper limit charging voltage	, i at a	P S
A.3.2.1	General	UNITE WALT WAT	N P
A.3.2.2	Explanation of safety viewpoint	A A A	P
A.3.2.3	Safety requirements, when different upper limit charging voltage is applied	white white where	N/A
A.4	Consideration of temperature and charging current	TEL MITE MALT M	N P V
A.4.1	General		t AP
A.4.2	Recommended temperature range	white white white	St P
A.4.2.1	General	the state	P P
A.4.2.2	Safety consideration when a different recommended temperature range is applied	mer main white	Р
A.4.3	High temperature range	LIER MITE WALTE W	N/A -
A.4.3.1	General	t t	N/A
A.4.3.2	Explanation of safety viewpoint	TEL INTE WHIT WA	N/A
A.4.3.3	Safety considerations when specifying charging conditions in high temperature range	at the street mill	N/A
A.4.3.4	Safety consideration when specifying new upper limit in high temperature range	with the state	N/A
A.4.4	Low temperature range	10th Salt	P
A.4.4.1	General		JIE NUP
A.4.4.2	Explanation of safety viewpoint	20 M m n	Р
A.4.4.3	Safety considerations, when specifying charging conditions in low temperature range	set white white whi	P
A.4.4.4	Safety considerations when specifying a new lower limit in the low temperature range	whitek whitek whitek	UNI CL UPIT
۹.4.5	Scope of the application of charging current	a de de	P ⁺
A.5	Sample preparation	INTE WALL WALLY	N/A
4.5.1 <i>"</i>	General	a at at	N/A
4.5.2	Insertion procedure for nickel particle to generate internal short	the works work with	N/A

Page 15 of 22

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IEC 62133: 2012					
Clause	Requirement + Test	Result - Remark	Verdict		
WALTER W	The insertion procedure carried out at 20°C±5°C and under -25 °C of dew point	Notifet white water	N/A		
A.5.3	Disassembly of charged cell	Let Jet Jet	N/A		
A.5.4	Shape of nickel particle	sur me me	N/A		
A.5.5	Insertion of nickel particle to cylindrical cell	tet the with m	N/A		
A.5.5.1	Insertion of nickel particle to winding core	te the the second	N/A		
A.5.5.2	Mark the position of nickel particle on the both end of winding core of the separator	IT WALTER WALTER WALT	N/A		
A.5.6	Insertion of nickel particle to prismatic cell	t at at at	N/A		



T.	ABLE: Critical comp	onents informa	tion	LIV . NALL	P
Object/part no.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity ¹
Wire	JIANGXI JBLP NEW ENERGY TECHNOLOGY CO.,LTD	22#AWG	22AWG 3A	whitek whi	et whitet w
Cell	JIANGXI JBLP ENERGY TECHNOLOGY CO.,LTD	5560100P	3.7V 5000mAh	ex muret	white white
- Electrolyte	Anhui Xingli new energy Co., Ltd.	XL292A	LiPF6+DEC+EMC+EC,14. 02g		Tet Set
- Separator	Shenzhen Ding Tai Cheung Amperex Technology Limited	Wet diaphragm	0.012mm*96mm	NALL NUT	- white
- Positive electrode	Dry high school	QY901+QY10 3	QY901 gram capacity is 154 mAh/g, QY103 gram capacity is 108 mAh/g	- would	UNLIE WALT
- Negative electrode	Shenzhen City Rui Fute Technology Co. Ltd.	RFT-013	Gram capacity 350 mAh/g		et suret
-Positive electrode tab	Shenzhen Hengke Technology Co. Ltd.	Aluminium pole ear	4mm*0.08mm	un un	whitek whi
-Negative electrode tab	Shenzhen Hengke Technology Co. Ltd.	Nickel pole ear	4mm*0.08mm	et whitet	whitek white
-Aluminium plastic film	Shenzhen outstanding new material technology Co., Ltd.	100 - 100 - 100	Thickness: 0.113mm	whitek w	At MALTER M



7.2.1	1 TABLE: Continuous low rate charge (cells)					
Mode	el Recommer chargin method, (CV, or CC	g charging CC, voltage V _c ,	Recommended charging current I _{rec} , (A)	OCV at start of test, (Vdc)	Results	
. 4 <u>n</u> .			Tet- street	INLIE MALTE	Were and	
A - No fire	entary information e or explosion s (please explain)	n: B - Fire	wiret minet on	C - Explosion	set waited w	

7.2.2	TABLE: Vibratio	n ret ret outer institutions while which when when			
Model		OCV at start of test, (Vdc)	Results	NITER.	
h. 2		- ret ret nuter unit white	me me the	20.	
Suppler	nentary informatio	n: which which is the set	At let 5th	J.T.	
A - No fi	re or explosion	B - No leakage	C - Leakage		
D - Fire	t starts	E - Explosion	F - Others (please expla	ain)	

7.3.1	TABLE: Incorre	which we at	
June .	Model	OCV of reversed cell, (Vdc)	Results
	1 - 1 5	17 ⁴ 17 52 00	and the second s
Suppler	mentary informatio	n:	white white white white w
A - No fi	re or explosion	B - Fire	C - Explosion

A - No fire or explosion D - Others (please explain)

7.3.2 **TABLE: External short circuit** N/A Model Ambient (at OCV at start of **Resistance of** Maximum case Results $20^{\circ}C \pm 5^{\circ}C$ or test, (Vdc) circuit, (\land) temperature rise ⊗T, (°C) 55°C ± 5°C) -------------Supplementary information:

B - Fire A - No fire or explosion

C - Explosion

D - Others (please explain)

7.3.6 TABLE: Crus	hall mill when a		N/A
Model	OCV at start of test, (Vdc)	OCV at removal of crushing force, (Vdc)	Results
Mr Mr Mr M		The state with a	The way with a
Supplementary informat	ion: Jet and all	me me me	s at the
A - No fire or explosion D - Others (please explain	B - Fire)	C - Explosion	



7.3.8	TAB	LE: Overcharge			N/A
Model	5et	OCV prior to charging, (Vdc)	Maximum charge current, (A)	Time for charging, (hours)	Results
	4	at the state	JEL JULL WA	m m. m.	7 4
Supplemen	ntary	information:	111	t 15 15 5	A ILLE MILLE
A - No fire o D - Others (eret which which	C - Explosion	

7.3.9	TABLE: Fo	orced discharge (c	ells)	A A A	
Мо	del	OCV before application of reverse charge, (Vdc)	Measured reverse charge I _t , (A)	Time for reversed charge, (minutes)	Results
1.00	at she s	NUTE NOUL WAL	10 10	1 74 10	10t - 50t
Supplem	entary inform	nation:	at when we	TE JALL MAL V	the star star
A - No fire	or explosion	B - Fire		C - Explosion	
D - Others	s (please expla	ain)	the State	malle under und	me me

Page 19 of 22

4.20		4.169	A B
4.20	1	1.2	
		4.175	AB
4.20	1 m 1 m	4.178	A B
4.20	+ Jet 1 Jet NJE	4.174	AB
4.20	- 1 · · ·	4.188	AB
ne me m		No 15 1	nt yn 1et 11e
1	tion:	tion: B - No leakage C - Lea	tion: B - No leakage C - Leakage

(#6) (#7)	24.5	d at charging tem 4.185	perature upper li	rise ⊗T, (°C)	
(#6) (#7)	24.5				5 S
10. ·		7.100	0.086	65.6	AE
(24.5	4.183	0.086	72.5	ΑE
(#8)	- 24.5	4.188	0.086	76.1	ΑE
(#9)	24.5	4.180	0.086	78.4	AE
(#10)	24.5	4.184	0.086	66.9	ΑE
Nº S	Samples charge	d at charging tem	perature lower li	mit (-5°C)	LIE WAL
(#11)	24.5	4.068	0.086	85.9	AE
(#12)	24.5	4.070	0.086	84.7	AE
(#13)	24.5	4.066	0.086	86.9	ΑE
(#14)	24.5	4.061	0.086	88.1	A E
(#15)	24.5	4.065	0.086	90.1	ΑE
ry inforn	nation:	s it it	JE JE	untre white of	in m
xplosion		C – Explosion		Set Set S	
() () () () () () () () () () () () () (#10) (#11) (#12) (#13) (#14) (#14) (#15) (#15) (ry inform (xplosion	#10) 24.5 Samples charge #11) 24.5 #12) 24.5 #13) 24.5 #14) 24.5 #15) 24.5 ry information: B – Fire	#10) 24.5 4.184 Samples charged at charging tem #11) 24.5 4.068 #12) 24.5 4.070 #13) 24.5 4.066 #14) 24.5 4.061 #15) 24.5 4.065	#10) 24.5 4.184 0.086 Samples charged at charging temperature lower li #11) 24.5 4.068 0.086 #12) 24.5 4.070 0.086 #13) 24.5 4.066 0.086 #14) 24.5 4.061 0.086 #15) 24.5 4.065 0.086 ry information: D – The temperature	#10) 24.5 4.184 0.086 66.9 Samples charged at charging temperature lower limit (-5°C) #11) 24.5 4.068 0.086 85.9 #12) 24.5 4.070 0.086 84.7 #13) 24.5 4.066 0.086 86.9 #14) 24.5 4.061 0.086 88.1 #15) 24.5 4.065 0.086 90.1 ry information: xplosion B – Fire C – Explosion D – The test was completed at the set was com

Page 20 of 22



8.3.2	TABLE	E: External short c	ircuit (battery)			N/A
UNLIFEK N	Model	Ambient, (°C)	OCV at start of test, (Vdc)	Resistance of circuit, (∧)	Maximum case temperature rise ⊗ T, (°C)	Results
Set .	JEX MI	Samples charg	ged at charging to	emperature upp	er limit (°C)	et tet
24	``	1 - 1	1+ - 1+	NUTE NULL W	L. m. m.	24
اک م	et intre-	Samples charg	ged at charging t	emperature low	er limit (°C)	. STER .
20		A.	st at a	Mr. Strand	- Mr - Mr	20 - 20 -

Supplementary information:

A – No fire or no explosion B – Fire C – Explosion D – The test was completed after 24 h

E – The test was completed after the cell casing declines by 20% of the maximum temperature rise

F - 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.

G – 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.

3.3.5	TABLE: Cr	ush(Cell)				P
NUNLITER N	Model	OCV at start of test, (Vdc)	OCV at removal of crushing force, (Vdc)	Width/ diameter of cell before crush, (mm)	Required deformation for crush, (mm)	Results
s 1	ج S	amples charged at c	harging tempe	erature upper I	imit (45°C)	4 . A
5560	100P (#29)	4.188	4.187			A
5560	100P (#30)	4.185	4.184	en - m		А
5560	100P (#31)	4.184	4.182	Jet - Jet	NUTET- NUTE	A M
5560	100P (#32)	4.188	4.187	2 <u>77</u>		A
5560	100P (#33)	4.183	4.182		ATT ATTACK	A
de s	st S	amples charged at	charging temp	erature lower l	imit (-5°C)	at at
5560	100P (#34)	4.072	4.071		and the second	Ă
5560	100P (#35)	4.074	4.073			A
5560	100P (#36)	4.070	4.069	NUTER- NUTER	min-me	1 A 1
5560	100P (#37)	4.069	4.068		1 - 1	A
5560	100P (#38)	4.071	4.070	Jer alle	Up 200 V	A A
Supplem	entary inform	ation:	m. m.		at at	10 50
A - No fir	e or explosion	B - Fire		C - Exp	losion	
D - Other	s (please expla	in) number wat				



8.3.6	TABLE: Ove	TABLE: Over-charging of battery						
Constar	nt charging curr	ent (A)		-2m		s - s		
Supply	voltage (Vdc)			- Jet	NUTER MUTER MALLE V	ne ner		
Model				tance of uit, (^) Maximum outer casing temperature, (°C)		Results		
Suppler	mentary informa	ation:	set on	int whit	t set ret of	white and		
A - No fi	re or explosion	B - Fire		C ·	- Explosion			
D - Othe	ers (please explai	n) 1 1 1 1						

Model	OCV before application of reverse charge, (Vdc)	Measured Reverse charge I _t , (A)	Time for reversed charge, (minutes)	Results	
5560100P (#39)	3.415	5	90	2 m A 2 m	
5560100P (#40)	3.430	5	90	A A	
5560100P (#41)	3.391	5	90	А	
5560100P (#42)	3.365	5	90	A A	
5560100P (#43)	3.372	5	90	A	

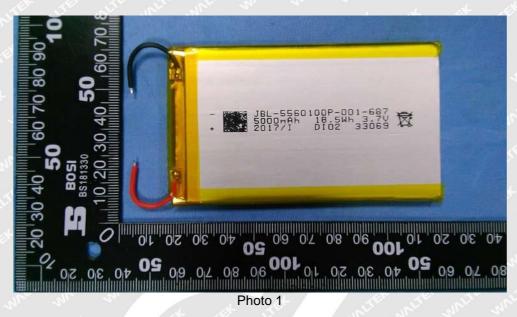
D - Others	(please explain)

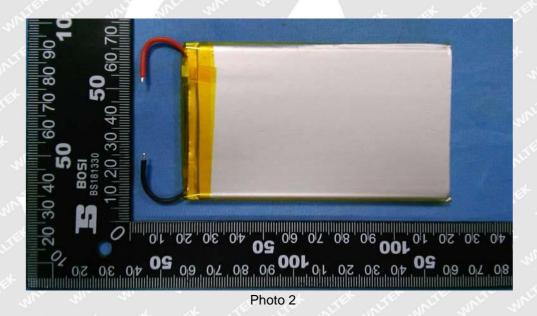
8.3.9	TABLE:	Forced internal	short circuit (cells	s) an an		N/A
Мо	lei	Chamber ambient, (°C)	OCV at start of test, (Vdc)	Particle location ¹⁾	Maximum applied pressure, (N)	Results
- m-	. 3			LIE .	- m	- m
Supplem	entary info	ormation:	me me m		1 A 10	t set
1) Identify	one of the					
	particle inse	erted between po	sitive and negative	(active material)) coated area.	
1: Nickel			ositive and negative ositive aluminium foi	•		ed area.

Page 22 of 22

\bigotimes

Attachment 1 Photo Documentation





===== End of Report ======