

Test Report

No. SZXEC2201624201

Date: 27 May 2022

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Client Name : DONGGUAN GUANTE ELECTRONICS TECHNOLOGY CO.,LTD.

Client Address : ENGTAI BUILDING,MIDDLE ROAD OF DONGCHENG,GUANCHENG DISTRICT,DONGGUAN CITY

Sample Name : 18650 2200mah 3.7V
 Model No. : 18650 2200mAh3.7V
 Client Ref. Info. : 18650 1200mAh 18650 1500mAh 18650 1800mAh
 18650 2000mAh 18650 2200mAh 18650 2600mAh
 18650 3200mAh 18650 3600mAh 18650 4000mAh
 18650 4400mAh 18650 5400mAh 18650 6000mAh
 Client Ref. Info. : 18650 6600mAh 18650 7200mAh 18650 7800mAh
 18650 8800mAh

The above sample(s) and information were provided by the client.

SGS Job No. : RP22-012303 - SZ
 Date of Sample Received : 23 May 2022
 Testing Period : 23 May 2022 - 27 May 2022
 Test Requested : Selected test(s) as requested by the client.
 Test Method(s) : Please refer to next page(s).
 Test Result(s) : Please refer to next page(s).
 Result Summary :

Test Requested	Conclusion
European Directive 2006/66/EC and its Article 4 amendment of Directive 2013/56/EU- Heavy Metals Content in Batteries and Accumulators	PASS

Signed for and on behalf of
 SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

Andy

Andy Ni
 Approved Signatory



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Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

Room 101-901, Plant 4 & Room 101, Plant 2 & Room 101, Plant 3 & Room 301-501, Plant 3, Jianghao (Bantian) Industrial Plant Area, No. 430, Jihua Road, Bantian Community, Bantian Street, Longgang District, Shenzhen, Guangdong, China 518129 www.sgs.com
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Test Result(s) :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	SZX22-016242.001	"18650 2200mah 3.7V"

Remarks :

- (1) 1 mg/kg = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected (< MDL)
- (4) "-" = Not Regulated

European Directive 2006/66/EC and its Article 4 amendment of Directive 2013/56/EU- Heavy Metals Content in Batteries and Accumulators

Test Method : Acid digestion method, analysis was performed by ICP-OES or AAS or Hg-analyzer.

Test Item(s)	Limit	Unit	MDL	001
Cadmium (Cd)	0.0020	%(w/w)	0.0010	ND
Lead (Pb)	-	%(w/w)	0.0010	ND
Mercury (Hg)	0.0005	%(w/w)	0.0001	ND
Comment	Pass			

Notes :

- (1) Results shown are of total weight of the battery sample.
 - (2) According to the European Directive 2006/66/EC and its Article 4 amendment of Directive 2013/56/EU, all types of battery shall include the chemical symbol Lead when containing more than 0.004% of Pb.
- Unless otherwise stated, the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule ($w=0$) stated in ILAC-G8:09/2019.



Ref. Certif. No.

SG PSB-BT-01751M1

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT
(IECEE) CB SCHEME

CB TEST CERTIFICATE


Product	Batteries Rechargeable Lithium Cell
Name and address of the applicant	Dongguan Guante Electronics Technology Co.,Ltd Hengtai building Middle road of dongcheng,Guancheng district 523000 Dongguan city PEOPLE'S REPUBLIC OF CHINA
Name and address of the manufacturer	Dongguan Guante Electronics Technology Co.,Ltd Hengtai building, Middle road of dongcheng,Guancheng district, 523000 Dongguan city, PEOPLE'S REPUBLIC OF CHINA
Name and address of the factory	Dongguan Guante Electronics Technology Co.,Ltd Hengtai building, Middle road of dongcheng,Guancheng district, 523000 Dongguan city, PEOPLE'S REPUBLIC OF CHINA
Ratings and principal characteristics	Rated voltage: 3.7V d.c. Rated capacity: 2200mAh
Model/type Ref.	GT18650-2200mAh
Additional information (if necessary)	Certificate SG PSB-BT-01751 issued on 2020-04-22 is replaced by this version due to technical changes.
A sample of the product was tested and found to be in conformity with as shown in the Test Report Ref. No. which forms part of this certificate	IEC 62133-2:2017 083-19105301-100

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This CB Test Certificate is issued by the National Certification Body

CBS 105761 0003 Rev. 01



Date, 2021-03-31


(Bin Li)

TÜV SÜD PSB Pte Ltd 15 International Business Park TÜV SÜD @ IBP Singapore 609937



PSB Singapore

	Test Report issued under the responsibility of: NCB TÜV SÜD PSB Pte Ltd. 1 Science Park Drive, 118221 Singapore Singapore	
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: 083-19105301-000 Date of issue: 2020-04-20 Total number of pages: 21 pages		
Name of Testing Laboratory preparing the Report: TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch		
Applicant's name: Dongguan Guante Electronics Technology Co.,Ltd Address: Hengtai building, Middle road of dongcheng, Guancheng district, 523000 Dongguan city, PEOPLE'S REPUBLIC OF 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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General disclaimer: The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.		

Test item description	Rechargeable Lithium Cell	
Trade Mark	N/A	
Manufacturer	Dongguan Guante Electronics Technology Co.,Ltd Hengtai building, Middle road of dongcheng, Guancheng district, 523000 Dongguan city, PEOPLE'S REPUBLIC OF CHINA	
Model/Type reference	GT18650-2200mAh	
Ratings	3.7V d.c. / 2200mAh	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
<input checked="" type="checkbox"/>	Testing Laboratory:	TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
Testing location/ address		No. 1999, Duhui Road, Shanghai, 201108, P. R. China
Tested by (name, function, signature)		Xu Wei (Project Handler)
Approved by (name, function, signature) ..		Zhu Chenghong (Project 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) :		

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

Attachment 1: Photo documentation (2 pages)

Summary of testing:**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.

7.2.1 continuous charging at constant voltage (cell)

7.3.1 external short-circuit (cell)

7.3.3 free fall

7.3.4 thermal abuse (cell)

7.3.5 crush (cell)

7.3.7 forced discharge (cell)

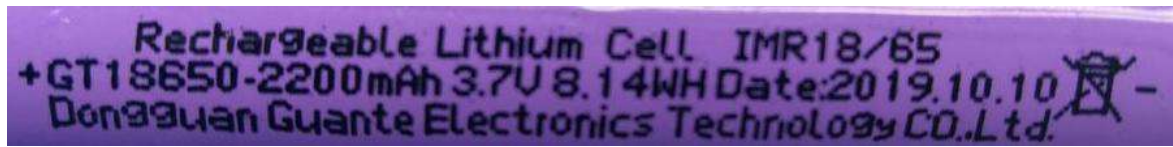
The samples comply with the requirement of IEC 62133-2: 2017

Testing location:No. 1999, Duhui Road, Shanghai, 201108,
P. R. China**Summary of compliance with National Differences (List of countries addressed):**

EN Group differences are considered. National differences are not considered.

The product fulfils the requirements of EN 62133-2: 2017

Copy of marking plate:



Rechargeable Lithium Cell IMR18/65
+GT18650-2200mAh 3.7V 8.14WH Date:2019.10.10
Dongguan Guante Electronics Technology CO.,Ltd.

Test item particulars	
Classification of installation and use..... : N/A	
Supply Connection : Supplied by positive cap and negative can	
Recommend charging method declared by the manufacturer..... : CC/CV	
Discharge current (0,2 It A)..... : 440mA	
Specified final voltage..... : 2.75V	
Upper limit charging voltage per cell..... : 4.25V	
Maximum charging current..... : 1100mA	
Charging temperature upper limit..... : 45°C	
Charging temperature lower limit : 10°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..... : 2019-12-20	
Date (s) of performance of tests : 2019-12-22 to 2020-01-13	
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 IEC62133:	
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)..... : Dongguan Guante Electronics Technology Co.,Ltd Hengtai building, Middle road of dongcheng, Guancheng district, 523000 Dongguan city, PEOPLE'S REPUBLIC OF CHINA	

General product information and other remarks: The Rechargeable Lithium Cell GT18650-2200mAh is used for portable applications.		
Product technical data		
Type	<input checked="" type="checkbox"/> Cell	<input type="checkbox"/> Battery
Model	GT18650-2200mAh	-
Nominal voltage(V)	3.7V	-
Rate capacity(mAh)	2200mAh	-
Recommended maximum charge voltage by	4.2V	-
Upper limited charging voltage(V)	4.25V	-
Maximum charge current(mA)	1100mA	-
Charging temperature(°C)	10-45°C	-
First charging procedure (20°C ± 5°C)	Charge at constant current 1100mA until the voltage reaches 4.2V, then charge at 4.2V till charge current is 22mA	-
Second charging procedure	Store at 10°C / 45°C for 1-4h, then charge at constant current 1100mA until the voltage reaches 4.25V, then charge at 4.25V till charge current is 110mA	-
Discharge current 0.2It(mA)	440mA	-
Final voltage(V)	2.75V	-
Dimensions(mm)	Max.18.40mm(D) x 65.15mm(L)	-
Weight (g)	Approx. 43g	-

4	PARAMETER MEASUREMENT TOLERANCES	P
	Parameter measurement tolerances	P
5	GENERAL SAFETY CONSIDERATIONS	P
5.1	General	P
	Cells and batteries so designed and constructed that they are safe under conditions of both intended use and reasonably foreseeable misuse	P
5.2	Insulation and wiring	P
	The insulation resistance between the positive terminal and externally exposed metal surfaces of the battery (excluding electrical contact surfaces) is not less than 5 MΩ	N/A
	Insulation resistance (MΩ) :	—
	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	P
5.3	Venting	P
	Battery cases and cells incorporate a pressure relief mechanism or are constructed so that they relieve excessive internal pressure at a value and rate that will preclude rupture, explosion and self-ignition	P
	Encapsulation used to support cells within an outer casing does not cause the battery to overheat during normal operation nor inhibit pressure relief	N/A
5.4	Temperature, voltage and current management	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	N/A
	The size and shape of the terminal contacts ensure that they can carry the maximum anticipated current	N/A
	External terminal contact surfaces are formed from conductive materials with good mechanical strength and corrosion resistance	N/A

	Terminal contacts are arranged to minimize the risk of short-circuit		N/A
5.6	Assembly of cells into batteries		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
	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
	The manufacturer prepares and implements a quality plan that defines procedures for the inspection of materials, components, cells and batteries and which covers the whole process of producing each type of cell or battery		P
5.8	Battery safety components		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		N/A
	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		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		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		P
7.2	Intended use		P
7.2.1	Continuous charging at constant voltage (cells)		P
	Fully charged cells are subjected for 7 days to a charge using the charging method for current and standard voltage specified by the cell manufacturer		P
	Results: No fire. No explosion. No leakage : (See appended table 7.2.1)		P
7.2.2	Case stress at high ambient temperature (battery)		N/A
	Oven temperature ($^{\circ}\text{C}$) : —		—

	Results: No physical distortion of the battery case resulting in exposure of internal protective components and cells		N/A
7.3	Reasonably foreseeable misuse		P
7.3.1	External short-circuit (cell)		P
	The cells were tested until one of the following occurred:		P
	- 24 hours elapsed; or		N/A
	- The case temperature declined by 20 % of the maximum temperature rise		P
	Results: No fire. No explosion: (See appended table 7.3.1)		P
7.3.2	External short-circuit (battery)		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: (See appended table 7.3.2)		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°C ± 2°C		—
	Results: No fire. No explosion		P
7.3.5	Crush (cells)		P
	The crushing force was released upon:		P
	- The maximum force of 13 kN ± 0,78 kN has been applied; or		P
	- An abrupt voltage drop of one-third of the original voltage has been obtained		N/A
	Results: No fire. No explosion: (See appended table 7.3.5)		P
7.3.6	Over-charging of battery		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 presented 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	(See appended table 7.3.6)	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)		N/A
7.3.8.1	Vibration		N/A
	Results: No fire, no explosion, no rupture, no leakage or venting.	(See appended table 7.3.8.1)	N/A
7.3.8.2	Mechanical shock		N/A
	Results: No leakage, no venting, no rupture, no explosion and no fire.....	(See appended table 7.3.8.2)	N/A
7.3.9	Design evaluation – Forced internal short-circuit (cells)		N/A
	The cells complied with national requirement for :	France, Japan, Korea, Switzerland	—
	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.....	(See appended table 7.3.9)	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		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		N/A
	Systems analyses performed by device manufacturers to ensure that a particular battery design prevents hazards from occurring during use of a product		N/A
	As appropriate, any information relating to hazard avoidance resulting from a system analysis provided to the end user		N/A
	Do not allow children to replace batteries without adult supervision		P
8.2	Small cell and battery safety information		N/A
	The following warning language is to be provided with the information packaged with the small cells and batteries or equipment using them:		N/A
	- Keep small cells and batteries which are considered swallowable out of the reach of children		N/A
	- Swallowing may lead to burns, perforation of soft tissue, and death. Severe burns can occur within 2 h of ingestion		N/A
	- In case of ingestion of a cell or battery, seek medical assistance promptly		N/A

9	MARKING		P
9.1	Cell marking		P
	Cells marked as specified in IEC 61960, except coin cells		P
	Coin cells whose external surface area is too small to accommodate the markings on the cells show the designation and polarity		N/A
	By agreement between the cell manufacturer and the battery and/or end product manufacturer, component cells used in the manufacture of a battery need not be marked		N/A
9.2	Battery marking		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		N/A
	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		N/A
	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		N/A
	Storage and disposal instructions		N/A
	Recommended charging instructions		N/A

10	PACKAGING AND TRANSPORT		P
	Packaging for coin cells not small enough to fit within the limits of the ingestion gauge of Figure 3		N/A
	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
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		P
A.3.2.1	General		P
A.3.2.2	Explanation of safety viewpoint		P
A.3.2.3	Safety requirements, when different upper limit charging voltage is applied		N/A
A.4	Consideration of temperature and charging current		P
A.4.1	General		P
A.4.2	Recommended temperature range		P
A.4.2.1	General		P

A.4.2.2	Safety consideration when a different recommended temperature range is applied		P
A.4.3	High temperature range		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		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
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	N/A
D.1	General	N/A
D.2	Method	N/A
	A sample size of three coin cells is required for this measurement	(See appended table D.2) N/A
	Coin cells with an internal resistance of less than or equal to 3 Ω are subjected to the testing according to Clause 6 and Table 1	N/A
	Coin cells with an internal resistance greater than 3 Ω require no further testing	N/A

ANNEX E	PACKAGING AND TRANSPORT	N/A
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ANNEX F	COMPONENT STANDARDS REFERENCES	N/A
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TABLE: Critical components information						P
Object / part No.	Manufacturer / trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾	
1. Electrolyte	Sinochem Blue Sky Group Co. LTD	ZP5	LiPF6	-	-	
2. Separator	Shenzhen Xinminzhi New Energy Co. LTD	PE	0.016mm × 61mm	-	-	
3. Positive electrode	Shandong Qianyun Gaoke New Material Co. LTD	SDQY-A01	Li(NiCoMn)O ₂ , 5um × 10um	-	-	
4. Negative electrode	Jiangxi Shengchuang Innovation Energy Technology Co. LTD	SC-102	Graphite, 7um × 13um	-	-	
5. Positive electrode tap	Foshan haofengtai hardware Co. LTD	-	Aluminium belt, 0.016mm × 528mm	-	-	
6. Negative electrode tap	Shenzhen woyuan new energy Co. LTD	-	Nickel belt, 0.08mm × 485mm	-	-	
7. Aluminium plastic film	Zhongshan Nan Su Packaging Products Co. LTD	-	Nylon, PP, Aluminium, thickness: 100µm	-	-	
8. CID	Ganzhou Zhonghan New Energy Co. LTD	-	2.5MPa	-	-	
9. Can	Taixing Yuefeng Electronic Technology Co. LTD	-	Steel, thickness: 0.22mm	-	-	
Supplementary information:						
¹⁾ Provided evidence ensures the agreed level of compliance. See OD-CB2039.						

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	
GT18650-2200mAh	4.2	1.1	4.174	No fire or explosion, No leakage	
GT18650-2200mAh	4.2	1.1	4.174	No fire or explosion, No leakage	
GT18650-2200mAh	4.2	1.1	4.174	No fire or explosion, No leakage	
GT18650-2200mAh	4.2	1.1	4.174	No fire or explosion, No leakage	
GT18650-2200mAh	4.2	1.1	4.173	No fire or explosion, No leakage	
Supplementary information: - No fire or explosion - No leakage - Others (please explain)					
7.3.1	TABLE: External short-circuit (cell)				P
Sample no.	Ambient T (°C)	OCV before test (Vdc)	Resistance of circuit (mW)	Maximum case temperature rise DT (K)	Results
Samples charged at charging temperature upper limit					
GT18650-2200mAh	55.0	4.141	86	63.5	No fire or explosion
GT18650-2200mAh	55.1	4.141	86	64.5	No fire or explosion
GT18650-2200mAh	55.0	4.144	86	64.2	No fire or explosion
GT18650-2200mAh	56.5	4.142	86	62.3	No fire or explosion
GT18650-2200mAh	55.2	4.142	86	66.6	No fire or explosion
Samples charged at charging temperature lower limit					
GT18650-2200mAh	55.1	4.170	86	66.8	No fire or explosion
GT18650-2200mAh	55.1	4.153	86	64.3	No fire or explosion
GT18650-2200mAh	55.2	4.172	86	65.2	No fire or explosion
GT18650-2200mAh	55.7	4.159	86	68.0	No fire or explosion
GT18650-2200mAh	55.1	4.152	86	67.2	No fire or explosion
Supplementary information: - No fire or explosion - 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 (mW)	Maximum case temperature rise DT (K)	Component single fault condition	Results
Supplementary information: - No fire or explosion - 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					
GT18650-2200mAh	4.221	4.221	13	No fire or explosion	
GT18650-2200mAh	4.215	4.215	13	No fire or explosion	
GT18650-2200mAh	4.220	4.220	13	No fire or explosion	
GT18650-2200mAh	4.218	4.218	13	No fire or explosion	
GT18650-2200mAh	4.208	4.208	13	No fire or explosion	
Samples charged at charging temperature lower limit					
GT18650-2200mAh	4.171	4.170	13	No fire or explosion	
GT18650-2200mAh	4.151	4.151	13	No fire or explosion	
GT18650-2200mAh	4.168	4.168	13	No fire or explosion	
GT18650-2200mAh	4.153	4.153	13	No fire or explosion	
GT18650-2200mAh	4.155	4.155	13	No fire or explosion	
Supplementary information:					
- No fire or explosion					
- Others (please explain)					

7.3.6	TABLE: Over-charging of battery				N/A
Constant charging current (A)				¾	
Supply voltage (Vdc)				¾	
Sample no.	OCV before charging (Vdc)	Total charging time (minute)	Maximum outer case temperature (°C)	Results	
Supplementary information:					
- No fire or explosion					
- 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	
GT18650-2200mAh	3.294	2.2	2.75	No fire or explosion	
GT18650-2200mAh	3.287	2.2	2.75	No fire or explosion	
GT18650-2200mAh	3.289	2.2	2.75	No fire or explosion	
GT18650-2200mAh	3.288	2.2	2.75	No fire or explosion	
GT18650-2200mAh	3.297	2.2	2.75	No fire or explosion	
Supplementary information:					
- No fire or explosion					
- 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	
Supplementary information:						
A - No fire or explosion						
B - No rupture						
C - No leakage						
D - No venting						
- 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 - 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						
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. - No fire or explosion - Others (please explain)						
D.2	TABLE: Internal AC resistance for coin cells				N/A	
Sample no.	Ambient T (°C)	Store time (h)	Resistance Rac (W)	Results ¹⁾		
Supplementary information: ¹⁾ Coin cells with internal resistance less than or equal to 3 W, see test result on corresponding tables						



货物运输条件鉴定书

Certification for Safe Transport of Chemical Goods

锂电池类货物

样品名称： 锂离子可充电芯 GT18650-2200mAh 3.7V 8.14Wh

Sample name: Lithium-ion Rechargeable Cell GT18650-2200mAh 3.7V 8.14Wh

委托单位： 东莞市莞特电子科技有限公司
Dongguan Guante Electronics Technology Co., Ltd.

生产单位： 东莞市莞特电子科技有限公司
Dongguan Guante Electronics Technology Co., Ltd.



上海化工院检测有限公司
SHANGHAI INSTITUTE OF CHEMICAL INDUSTRY TESTING CO.,LTD.



声 明 Statement

1. 鉴定书无上海化工院检测有限公司检验检测专用章、二维码无效。
The certification is invalid if it is not affixed the dedicated inspection and testing seal of Shanghai Institute of Chemical Industry Testing Co., Ltd. and QR Code on it.
2. 鉴定书复印件无效。
Copies of the certification are invalid.
3. 鉴定书无主检、审核、批准签字无效。
The certification is invalid without the signatures of appraiser, checker and approver.
4. 鉴定书涂改无效。
The certification is invalid if it is forged or altered.
5. 本鉴定书不涉及样品的成分鉴别，委托单位必须保证提供给本公司的样品与实际的出运货物相一致且相关成分等资料真实完整，由于样品与委托信息的真实性所带来的法律责任和其他后果均由委托单位自行承担。
The certification does not involve ingredient analysis of the sample. It is the client's responsibility to guarantee that samples provided for appraisal are consistent with the goods to be transported and that relevant information and documents (eg: information on ingredients) submitted are authentic and complete. Otherwise, the client shall bear any legal liability and other possible consequence arising from the authenticity of samples and information provided.
6. 本鉴定书的鉴定结论仅适用于最终收到的样品。
The conclusion of this certification only applies to the final sample as received.
7. 本鉴定书当年有效，铁路运输方式除外。特殊情况参见鉴定书备注。
The certification is valid in the year subscribed on it except when transported by rail. Please refer to the comment of certification on special occasion.
8. 本鉴定书不考虑国家及经营人差异。
The certification takes no account of the State and Operator Variations.
9. 货物的运输方式应与鉴定结论中的运输方式相一致。不同的运输方式，鉴定结果可能会有差异。
The transportation mode of the goods shall be consistent with that in the appraisal conclusion. Different transportation modes may lead to different appraisal results.
10. 鉴定书真伪性可登入本公司网站 www.ghs.cn 或扫描鉴定书中二维码进行查询。
The authenticity of the certification can be verified by our website(www.ghs.cn) or the QR code in the certification.
11. 送检申请可登入本公司网站 www.ghs.cn 进行网上委托。
The application of the certification can be done via our website: www.ghs.cn.

地址：上海市光复西路2779号接待大厅

Address: Reception Hall, Shanghai Institute of Chemical Industry Co., Ltd, No.2779
West Guangfu Road, Shanghai, China.

邮编(Post code): 200062

电话(Tel): (008621)31765555

邮箱(Email): center@ghs.cn

网址(Website): www.ghs.cn

货物运输条件鉴定书

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样品名称 Sample Name	中文 Chinese	锂离子可充电芯 GT18650-2200mAh 3.7V 8.14Wh		
	英文 English	Lithium-ion Rechargeable Cell GT18650-2200mAh 3.7V 8.14Wh		
委托单位 Consignor		东莞市莞特电子科技有限公司 Dongguan Guante Electronics Technology Co., Ltd.		
生产单位 Manufacturer		东莞市莞特电子科技有限公司 Dongguan Guante Electronics Technology Co., Ltd.		
检验方法、程序 Inspection method and procedure		国际海事组织《国际海运危险货物规则》(2020版) IMO International Maritime Dangerous Goods Code (2020 Edition)		
样品外观 Sample appearance		紫色 圆柱型塑料薄膜外壳 violet cylinder plastics film shell		
包装件信息 Package information		重量≤30kg. weight≤30kg.		
序号 NO.	电池种类 Battery type	型号 Model	容量Capacity /锂含量Li content	放置方式 Placement
1	可充电锂离子电池芯 Rechargeable Li-ion cell	GT18650-2200mAh	2200mAh 8.14Wh	电池单独运输 Battery only
鉴定结论 IDENTIFICATION CONCLUSION		1. 危险性识别 (Hazards identification) 锂离子电池。 Lithium ion battery.		
		2. 海运按照国际海事组织《国际海运危险货物规则》办理的类项 (Suggestion according to IMO IMDG Code) 根据特殊规定188, 该物品不受IMO IMDG Code其他条款限制。 The article is not subject to other provisions of IMO IMDG Code according to special provision 188.		
		3. 包装要求 (Packaging requirements) 无。 None.		
		检验日期: 2023-03-10 签发日期: 2023-03-10 生效日期: 2023-03-10 Inspection Date: Issue Date: Effective Date:		
备注 Comment				

批准
Approver: 王宗

审核
Checker: 董学胜


主检
Appraiser: 孙清



货物运输条件鉴定书
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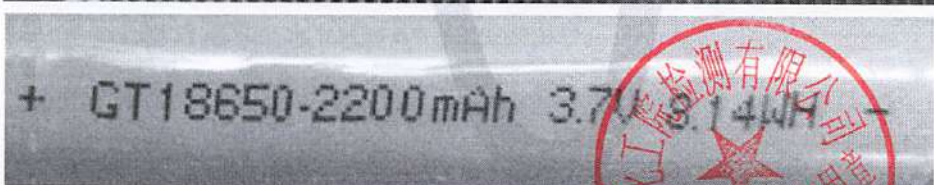
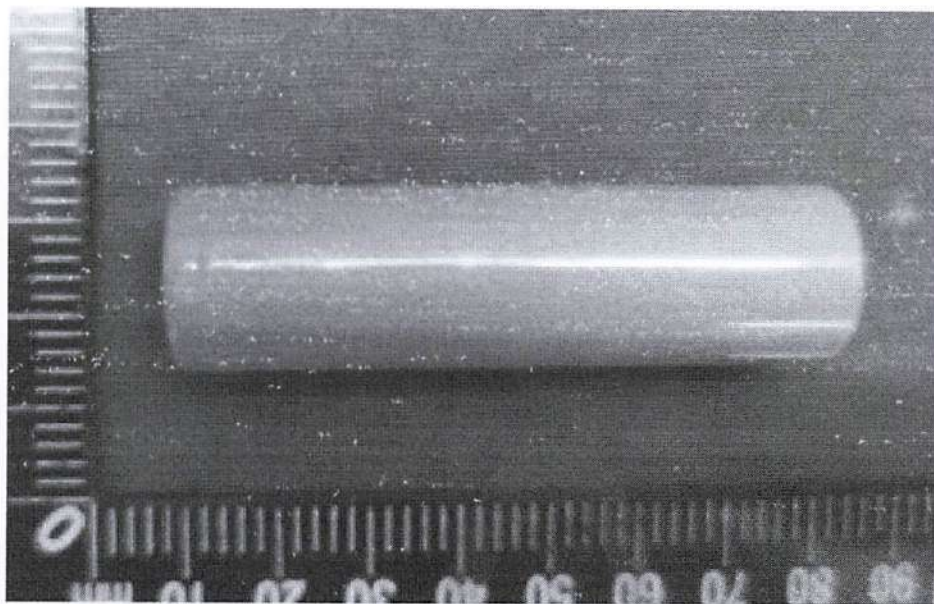
序号 No.	检验结果及其他事项 Inspection results and other things
1	<p>本报告所述锂电池按照《国际海运危险货物规则》(2020版) 2.9.4.5规定的质量管理体系进行制造。 Lithium cells and batteries listed in this report were manufactured under the quality management program described in IMDG CODE 2020 EDITION 2.9.4.5.</p>
2	<p>本报告所述锂电池已通过联合国《试验和标准手册》第III部分38.3小节相应测试要求。 包装件能够承受1.2m跌落试验。 Lithium cells and batteries listed in this report are of the types proved to meet the requirements of each applicable test in the UN Manual of Tests and Criteria, Part III, sub-section 38.3. The package has passed the 1.2m drop test. UN38.3试验概要编号 The UN38.3 Test Summary No. (s) 811900100550343 详细信息请扫描右侧二维码。 Please scan the QR code on the right for more information.</p> 
3	<p>锂电池完全封装在内包装内, 位于坚固的外包装中。 Lithium cells and batteries are packed in inner packagings that completely enclose the cell or battery and placed in a strong outer packaging.</p>
4	<p>电池具有适当的防短路措施。 Cells and batteries are properly protected to prevent short circuits.</p>
5	<p>每个包装件必须标示恰当的锂电池标记。 装有锂电池的包装件, 符合国际民航组织《危险物品安全航空运输技术细则》第4部分第11章的包装说明965或968第IB部分规定的, 黏贴5.2.1.10(锂电池标记)和5.2.2.2所示的9A型标签, 应视为符合本特殊规定188的规定。 Each package shall be marked with the appropriate lithium battery mark. Packages containing lithium batteries packed in conformity with the provisions of part 4, chapter 11, packing instructions 965 or 968, section IB of the ICAO Technical Instructions for the Safe Transport of Dangerous Goods by air that bear the mark as shown in 5.2.1.10(lithium battery mark) and the label shown 5.2.2.2, Model No. 9A shall be deemed to meet the provisions of this special provision 188.</p>
6	/
7	/
-验证码:850425-	

货物运输条件鉴定书

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NO. 212300125686802

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报告结束



三帕认证
CPUP TECHNOLOGY&SERVICE



真伪查询

Safety Data Sheet

安全技术说明书

Sample Name: Rechargeable Li-ion Battery
样品名称: 可充电锂离子电池

Model: 18650-2200mAh
型号:

Applicant: Dongguan Guante Electronics Technology Co., Ltd.
申请商: 东莞市莞特电子科技有限公司

Report No.: DGGT20221208SDS07
报告编号:

Category: SDS
报告类别:

广州三帕认证技术服务有限公司

Guangzhou CPUP Certification Technology Service Co., Ltd.



Guangzhou CPUP Certification Technology Service Co., Ltd.

Room C101/C102/C103/C104, No.9, Hengji Road, Yunxing Zhukeng, Shiqiao Street, Panyu District, Guangzhou, Guangdong, China
Tel:+86 020-31127037 E-mail:info@cp-up.com <http://www.cp-up.com>



Report No.: DGGT20221208SDS07

Section 1 - Chemical and Company Identification

第一部分-化学品及企业标识

Sample Name 样品名称	Rechargeable Li-ion Battery 可充电锂离子电池
Model/型号	18650-2200mAh
Ratings/额定参数	3.7V 2200mAh 8.14Wh
Applicant 申请商	Dongguan Guante Electronics Technology Co.,Ltd. 东莞市莞特电子科技有限公司
Applicant address 申请商地址	Room405, Hengtai building, Middle road of dongcheng, Guancheng district, Dongguan city 东莞市莞城区东城中路恒泰大厦 405 室
Manufacturer 制造商	Dongguan Guante Electronics Technology Co.,Ltd. 东莞市莞特电子科技有限公司
Manufacturer Contact information 制造商联系信息	address 地址 Room405, Hengtai building, Middle road of dongcheng, Guancheng district, Dongguan city 东莞市莞城区东城中路恒泰大厦 405 室
	Tel./应急电话 0769-23102849
	Email/邮箱 guantecell@vip.163.com

Section 2 - Hazards Identification

第二部分-危险性概述

Hazards Identification: 危险性描述

Not dangerous with normal use. Do not dismantle, open or shred the battery ingredients contained within or their ingredients products could be harmful.

正常使用没有危险，不能拆解、打开或分解电池，里面的材料或成分是有害的。

Primary Route (s) of Exposure: 接触途径

inhalation, ingestion, Skin contact and Eye contact.

吸入、食入、皮肤接触、眼睛接触。

Potential Health Effects: 潜在健康影响

inhalation: Vapors or mists from a ruptured battery may cause respiratory irritation.

吸入: 破裂的电池散发出来的气雾会引起呼吸道刺激。

Ingestion: The battery ingredients contained within or their ingredients products can cause serious chemical burns of mouth, esophagus, and gastrointestinal tract.

食入: 电池的组成成分或原料可以导致嘴，食道和胃肠道的严重化学烧伤。

Skin: Skin contact with contents of an open battery can cause severe irritation or burns to the skin.

皮肤: 皮肤接触到电池的內部化学材料可能会导致严重的刺激或烧伤皮肤。

Eye: Eye contact with contents of an open battery can cause severe irritation or burns to the eye.

眼睛: 眼睛接触到电池的內部化学材料可能会导致严重的刺激或烧伤眼睛。



Section 3- Composition/Information on Ingredients

第三部分-成分/组成信息

Chemical Name 化学名称	CAS Number CAS 号 (化学文摘索引登记号)	Concentration or concentration ranges (%) 浓度或浓度范围(%)
Lithium Cobalt Oxide	12190-79-3	35.05
Graphite powder	7782-42-5	15.98
Carbon black	1333-86-4	0.79
Hexafluoropropylene-vinylidene fluoride copolymer	9011-17-0	9.87
Dimethyl carbonate	616-38-6	4.38
Ethyl methyl carbonate	623-53-0	2.29
Lithium hexafluorophosphate	21324-40-3	2.95
Ethylene carbonate(EC)	96-49-1	6.34
Diethyl carbonate(DEC)	105-58-8	2.76
Propylene carbonate(PC)	108-32-7	1.11
Copper	7440-50-8	8.39
Styrene-butadiene rubber(SBR)	61789-96-6	0.71
Aluminium	7429-90-5	9.38

Note: CAS number is Chemical Abstract Service Registry Number.

注意: CAS 号是化学文摘服务注册号。

N/A=Not apply.

N/A=不适用

Section 4- First Aid Measure

第四部分-急救措施

Inhalation 吸入	Remove source of contamination or move victim to fresh air. Obtain medical advice. 移除污染源或者将受害者移至新鲜空气处。寻求医生建议。
Ingestion 食入	Please rinse mouth thoroughly with water, induce vomiting under the guidance of professional personage. Please seek medical treatment in time. 立即用清水漱口, 在专业人士的指导下催吐, 速就医。
Skin contact 皮肤接触	Remove contaminated clothes and rinse skin with plenty of water or shower for 15 minutes. Get medical aid. 脱下已污染衣服, 用大量的水冲洗至少 15 分钟, 速就医。
Eye contact 眼睛接触	Irrigate with flowing water for 15 minutes. If irritation persists, consult a physician. 用流动水冲洗 15 分钟, 如刺激持续发生, 请求助于医生。



Section 5- Fire Fighting Measures

第五部分-消防措施

Characteristics of Hazard 危险特性	Toxic fumes, gases or vapors may evolve on burning. 火灾时可释放有害浓烟、气体或者蒸汽。
Hazardous Combustion Products 燃烧产生的危险物品	Carbon monoxide, carbon dioxide, lithium oxide fumes and so on. 一氧化碳, 二氧化碳, 锂氧化物烟气等。
Fire-extinguishing Methods and Extinguishing Media 灭火方法及灭火剂	Please use water, dry sand and other proper fire extinguishing media. 请使用水, 干沙等合适的灭火介质。
Attention in Fire-extinguishing 灭火注意事项	The firemen should put on antigas masks and full fire-fighting suits. 消防人员须佩戴防毒面具、穿全身消防服。

Section 6- Accidental Release Measure

第六部分-泄漏应急处理

Personal Precautions, protective equipment, and emergency procedures 个人预防措施、防护装备和应急程序	Restrict access to area until completion of clean-up. Do not touch the spilled material. Wear adequate personal protective equipment as indicated in Section 8. 限制区域, 直到完成清理工作。请勿触摸泄漏的材料。穿戴适当的个人防护设备, 如第 8 部分所示。
Environmental Precautions 环境保护措施	Prevent material from contaminating soil and from entering sewers or waterways. 防止物质污染土壤和进入下水道或水道。
Methods and materials for Containment 方法和材料控制	Stop the leak if safe to do so. Contain the spilled liquid with dry sand or earth. Clean up spills immediately. 出于安全, 阻止泄漏, 可以用干沙或沙土来遏制液体泄露, 立即清理泄漏。
Methods and materials for cleaning up 清理的方法和材料	Absorb spilled material with an inert absorbent (dry sand or earth). Scoop contaminated absorbent into an acceptable waste container. Collect all contaminated absorbent and dispose of according to directions in Section 13. Scrub the area with detergent and water, collect all contaminated wash water for proper disposal. 用惰性吸收剂(干沙或沙土)吸收溢出的材料。污染物转移到可吸收废物的容器。收集所有受污染的吸收剂和根据第 13 部分的指令处置。用洗涤剂和水清洁污染区域, 收集所有受污染的洗涤水进行适当处置。

Section 7- Handling and Storage

第七部分-操作处置与储存

Handling 操作	Don't handling the batteries in manner that allows terminals to short circuit. Do not open, disassemble, crush or burn battery. 不要以让接头短路的方式对电池进行操作。不要打开, 分解, 挤压或燃烧电池。
Storage 储存	if the battery is subject to storage for such a long term as more than 3 months, it is recommended to recharge the battery periodically.



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	<p>如果电池长期存放超过 3 个月, 建议定期对电池充电。</p> <p>Long period storage: 25±5°C, 60±25%R.H</p> <p>长期存储: 25±5°C,相对湿度 60±25%</p> <p>Do not storage the battery haphazardly in a box or drawer where they may short-circuit each other or be short-circuited by other metal objects.</p> <p>不要将电池随意丢在盒子或抽屉里, 以免电池之间或电池与其他金属物质发生短路。</p> <p>Keep out of reach of children.</p> <p>储存在小孩接触不到的地方。</p> <p>Do not expose the battery to heat or fire. Avoid storage in direct sunlight.</p> <p>不要将电池暴露在火源和热源附近, 避免在阳光直射下存储。</p> <p>Do not store together with oxidizing and acidic materials.</p> <p>不要与氧化和酸性物质存储在一起。</p>
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Section 8 - Exposure Controls/Personal Protection

第八部分-接触控制和个体防护

Engineering Controls 工程控制	<p>No engineering controls are required for handling batteries that have not been damaged. Personal protective equipments for damaged batteries should include chemical resistant gloves and safety glasses.</p> <p>操作未破损的电池, 没有工程控制要求。对于破损的电池, 个人防护用品应包括化学品防护手套和安全眼镜。</p>
Personal Protective Equipment 个人防护设备	<p>Respiratory Protection: in case of battery venting, provide as much ventilation as possible. Avoid confined areas with venting cell cores. Respiratory Protection is not necessary under conditions of normal use. Not necessary under conditions of normal use.</p> <p>呼吸保护: 当电池排气阀打开时, 应尽量使通风设备开至最大, 避免将打开排气阀的电芯局限在某一狭窄空间内。正常操作条件下, 呼吸保护是不必要的。正常使用条件下不必考虑。</p> <p>Protective Gloves: Not necessary under conditions of normal use.</p> <p>防护手套: 正常使用条件下不必考虑。</p> <p>Other Protective Clothing or Equipment: Not necessary under conditions of normal use.</p> <p>其他防护服装或设备: 正常使用条件下不必考虑。</p> <p>Personal Protection is recommended for venting battery: Respiratory Protection, Protective Gloves, Protective Clothing and safety glass with side shields.</p> <p>当电池排气阀打开时, 应做好个人防护。呼吸防护, 防护手套, 防护服装和有护边的安全玻璃罩都是要准备的。</p>

Section 9- Physical and Chemical Properties

第九部分-理化特性

Appearance: Blue

外观颜色: 蓝色

Physical state: Solid

物理状态: 固体

Form: Cylindrical



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形状: 圆柱形

Melting Point °C: >300°C

熔点°C: >300°C

Odor: Odorless

气味: 无气味

Solubility: Partial soluble in water

溶解度: 部分溶于水

Section 10 - Stability and Reactivity

第十部分-稳定性和反应性

Stability 稳定性	Stable under normal temperatures and pressures. 常温常压下稳定。
Conditions to Avoid 应避免的条件	Heat above 70°C or Incinerate, Deform, Mutilate, Crush, Disassemble, Overcharge, Short circuit, Expose over a long period to humid conditions. 加热 70°C 以上或焚烧、变形、毁坏、粉碎、拆卸、过充电、短路，长时间暴露在潮湿的条件下。
Hazardous Decomposition Products 危害分解物	Toxic Fumes, and may form peroxides. 有毒烟雾，并可能形成过氧化物。
Possibility of Hazardous Reaction 危险反应的可能性	If leaked, forbidden to contact with strong oxidizers, mineral acids, strong alkalis, halogenated hydrocarbons. 如果发生泄露，避免与强氧化剂，无机酸，强碱，卤代烃接触。

Section 11 - Toxicological Information

第十一部分-毒理学信息

Irritation 刺激	In the event of exposure to internal contents, vapor fumes may be very irritating to the eyes and skin. 内部物质暴露的情况下，蒸汽烟雾可能对眼睛和皮肤产生刺激性。
Sensitization 致敏	Not applicable. 不适用
Reproductive Toxicity 再生毒性	Not applicable. 不适用
Toxicologically Synergistic Materials 协同材料毒理学	Not applicable. 不适用

Section 12-Ecological Information

第十二部分-生态学信息

General note 通用信息	Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system. 不允许未稀释或大量的产品到达地下水、水道或污水系统。
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Anticipated behavior of a chemical product in environment/possible environmental impact/ ecotoxicity 化学产品对环境/可能的环境预期的行为的一种生态毒性	Not applicable. 不适用
Mobility in soil 土壤中移动性	Not applicable. 不适用
Persistence and Degradability 持久性和降解性	Not applicable. 不适用

Section 13 - Disposal Considerations

第十三部分-废弃处置

Waste Treatment 废弃处置方法	Recycle or dispose of in accordance with government, state & local regulations. 建议遵照国家和地方法规处置或再利用。
Attention for Waste Treatment 废弃注意事项	Deserted batteries couldn't be treated as ordinary trash. Couldn't be thrown into fire or placed in high temperature. Couldn't be dissected, pierced, crushed or treated similarly. Best way is recycling. 废电池不能被当做普通垃圾。不能扔进火中或置于高温下。不能解体，刺穿，破碎或类似的处理。最好的办法是回收利用。

Section 14 - Transport Information

第十四部分-运输信息

The battery shall be passed the test items of the UNITED NATIONS "Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria" section 38.3 and meet the requirements of UNITED NATIONS "Recommendations on the Transport of Dangerous Goods, model Regulations "

该电池必须通过联合国《关于危险货物运输的建议书 试验和标准手册》第 38.3 章节的测试项目和满足联合国《关于危险货物运输的建议书 规章范本》的要求。

The battery shall be protected so as to prevent short circuits. This includes protection against contact with conductive materials within the same packaging that could lead to short circuit;
该电池必须做好防短路保护。包括防止与同一封装内的导电材料接触可能导致的短路。

The packaging shall be adequate to avoid mechanical damage during transport, handling and stacking.
包装应足以避免在运输，处理和堆放期间的机械损坏。

The package must be handled with care and that a flammability hazard exists if the package is damaged. 包装必须小心处理，如果包装损坏，存在易燃危险。

With regard to transport, the following regulations are cited and considered:
关于运输，引用和考虑了以下法规：

- The international Civil Aviation Organization (ICAO) Technical Instructions.
-国际民用航空组织(ICAO)技术细则。
- The international Air transport Association (IATA) Dangerous Goods Regulations.
-国际航空运输协会(IATA)危险物品规则。



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The battery can be shipped by air in according to PACKING INSTRUCTION 965 Section IB, or PACKING INSTRUCTION 966~967 Section II of the 2023 IATA Dangerous Goods regulations 64th Edition.

该电池可以根据 2023 年 IATA 危险物品规则第 64 版包装指令 965 第 IB 部分或包装指令 966~967 第 II 部分运输。

UN number: UN3480 or UN3481;

UN 编号: UN3480 或 UN3481;

UN Proper shipping name/Description (technical name): Lithium ion batteries or Lithium ion batteries packed with equipment or Lithium ion batteries contained in equipment;

UN 合适的运输名称/描述(技术名称): 锂离子电池或锂离子电池与设备包装在一起或锂离子电池内置于设备中;

UN Classification (Transport hazard class): Class 9 (PI965 Section IB) or Not applicable (PI966~967 Section II)

UN 分类(运输危险类别): 9 类危险品(包装指令 965 第 IB 部分)或者不适用(包装指令 966~967 第 II 部分)

UN Packing Group: Not applicable.

UN 包装类别: 不适用

-The international Maritime Dangerous Goods (IMDG) Code.

-国际海运危险货物(IMDG)规则。

UN number: UN3480 or UN3481;

UN 编号: UN3480 或 UN3481;

UN Proper shipping name/Description (technical name): Lithium ion batteries or Lithium ion batteries packed with equipment or Lithium ion batteries contained in equipment;

UN 合适的运输名称/描述(技术名称): 锂离子电池或锂离子电池与设备包装在一起或锂离子电池内置于设备中;

UN Classification (Transport hazard class): Not applicable.

UN 分类(运输危险类别): 不适用

UN Packing Group: Not applicable

UN 包装类别: 不适用

The battery is not restricted according to IMO IMDG Code (inc. Amendment 40-20) Special Provision 188.

海运按照国际海事组织《国际海运危险货物规则》(40-20 版)特殊规定 188 不受限制。

Section 15 - Regulatory Information

第十五部分-法规信息

International Civil Aviation Organization (ICAO) Technical Instructions

ICAO 国际民用航空组织(ICAO)技术细则:

1.Unless be exempted according to ICAO TI, the lithium ion cell/batteries (UN 3480, PI 965) and lithium metal cell/batteries (UN 3090, PI 968) are forbidden for carriage on passenger aircraft.

除非依据《技术细则》的相关要求取得豁免,单独包装的锂离子电池(芯)(UN 3480,PI 965)和锂金属电池(芯)(UN 3090, PI 968)货物禁止使用客机运输。

2.Unless be approved according to ICAO TI, Lithium ion cells/batteries (UN 3480, PI 965) must be offered for transport at a state of charge (SoC) not exceeding 30% of their rated design capacity.

除非依据《技术细则》的相关要求取得特别批准,按照包装说明 965 要求运输的锂离子电池(芯)货物,交运时锂离子电池(芯)的荷电状态不得超过其额定容量的 30%。





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Section 16 - Additional Information

第十六部分-附加信息

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Other Information 其他信息:

The information above is believed to be accurate and represents the best information currently available to us. However, we makes no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. Although reasonable precautions have been taken in the preparation of the data contained herein, it is offered solely for your information, consideration and investigation. This safety data sheet provides guidelines for the safe handling and use of this product; it does not and cannot advise on all possible situations, therefore, your specific use of this product should be evaluated to determine if additional precautions are required.

在我们看来上面的信息是准确的,这是我们目前能提供的最佳的信息。但是,对于这些信息,我们不对商品的性能做任何明示的或者暗示的保证,我们也不对使用这些信息造成的后果担负任何责任。用户应当自己调查研究后决定这些信息是否适用于他们的特定用途。尽管在该文档里提出了合理的预警,但是这仅仅只是给您做参考、考量和调查。这份安全技术说明书提供了安全处理和使用该产品的指南,但是它没有,也不能对所有可能发生的情景提出建议,所以您需要根据您对该产品的特定使用情况来决定是否需要其他的预防措施。

--End of report--

--报告结束--





中国认可
检测
TESTING
CNAS L0748



170014233963



NO.1119070207

检测报告

Test Report

样品名称：可充电锂离子电池 GT18650-2200mAh 3.7V 8.14Wh

Name of Sample: Lithium-ion Rechargeable Cell GT18650-2200mAh
3.7V 8.14Wh

委托单位：东莞市莞特电子科技有限公司

Consignor: Dongguan Guante Electronics Technology Co., Ltd.



上海化工院检测有限公司

Shanghai Research Institute of Chemical Industry Testing Co., Ltd.

上海化工院检测有限公司 检测报告

Shanghai Research Institute of Chemical Industry
Testing Co., Ltd. Test Report

NO. 1119070207

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样品名称 Name of Sample	中文 Chinese	可充电锂离子电芯 GT18650-2200mAh 3.7V 8.14Wh			
	英文 English	Lithium-ion Rechargeable Cell GT18650-2200mAh 3.7V 8.14Wh			
样品编号 Sample No.	1119070207				
委托单位 Consignor	东莞市莞特电子科技有限公司 Dongguan Guante Electronics Technology Co., Ltd.				
生产单位 Manufacturer	东莞市莞特电子科技有限公司 Dongguan Guante Electronics Technology Co., Ltd.				
检测方法 Test method	联合国《关于危险货物运输的建议书 试验和标准手册》 ST/SG/AC.10/11/Rev.6 Amend.1 38.3 UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS" Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 Amend.1 Section 38.3				
判定标准 Criterion	联合国《关于危险货物运输的建议书 试验和标准手册》 ST/SG/AC.10/11/Rev.6 Amend.1 38.3 UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS" Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 Amend.1 Section 38.3				
样品外观 Appearance	紫色圆柱型塑料薄膜外壳 Violet Cylinder plastics film shell				
样品接受日期 Accepted Date	2019-07-12	检测起迄日期 Test Date	2019-07-17 ~ 2019-08-24		
检测项目 Test Items	高度模拟; 热测试; 振动; 冲击; 外短路; 撞击; 强制放电 Altitude simulation, Thermal test, Vibration, Shock, External short circuit, Impact, Forced discharge				
检测结论 Conclusion	经检验, 该样品符合联合国《关于危险货物运输的建议书 试验和标准手册》 ST/SG/AC.10/11/Rev.6 Amend.1 38.3标准要求。 The sample has passed the test items of UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS" Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 Amend.1 38.3 生效日期(Date): 2019-08-27				
备注 Comment	可充电锂电池芯Rechargeable Lithium Cell./				
委托单位地址 Consignor Address	/		邮政编码 Post Code /		

批准
Approver: 王军
职务
Title: 副总工程师(Vice chief engineer)

审核
Checker: 陈建峰

编制
Compiler: 傅佳



上海化工院检测有限公司

检 测 报 告

Shanghai Research Institute of Chemical Industry
Testing Co., Ltd. Test Report

NO. 1119070207

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序号 No.	检测项目名称 Name of Test Items	标准要求或标准条款号 Standard requirement or The Clause Number of Standard	检测结果 Test Result	本项结论 Conclusion	备注 Remark
1	高度模拟 Altitude simulation	联合国《关于危险货物运输的建议书 试验和标准手册》ST/SG/AC.10/11/Rev.6 Amend.1 38.3 试验T.1 UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 Amend.1 Section 38.3 Test T.1	见附表 1 See Appendix 1	合格 Passed	/
2	热测试 Thermal test	联合国《关于危险货物运输的建议书 试验和标准手册》ST/SG/AC.10/11/Rev.6 Amend.1 38.3 试验T.2 UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 Amend.1 Section 38.3 Test T.2	见附表 2 See Appendix 2	合格 Passed	/
3	振动 Vibration	联合国《关于危险货物运输的建议书 试验和标准手册》ST/SG/AC.10/11/Rev.6 Amend.1 38.3 试验T.3 UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 Amend.1 Section 38.3 Test T.3	见附表 3 See Appendix 3	合格 Passed	/
4	冲击 Shock	联合国《关于危险货物运输的建议书 试验和标准手册》ST/SG/AC.10/11/Rev.6 Amend.1 38.3 试验T.4 UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 Amend.1 Section 38.3 Test T.4	见附表 4 See Appendix 4	合格 Passed	/
5	外短路 External short circuit	联合国《关于危险货物运输的建议书 试验和标准手册》ST/SG/AC.10/11/Rev.6 Amend.1 38.3 试验T.5 UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 Amend.1 Section 38.3 Test T.5	见附表 5 See Appendix 5	合格 Passed	/
6	撞击 Impact	联合国《关于危险货物运输的建议书 试验和标准手册》ST/SG/AC.10/11/Rev.6 Amend.1 38.3 试验T.6 UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 Amend.1 Section 38.3 Test T.6	见附表 6 See Appendix 6	合格 Passed	/
7	强制放电 Forced discharge	联合国《关于危险货物运输的建议书 试验和标准手册》ST/SG/AC.10/11/Rev.6 Amend.1 38.3 试验T.8 UN Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 Amend.1 Section 38.3 Test T.8	见附表 7 See Appendix 7	合格 Passed	/
8	以下空白	This space intentionally left blank			
检测环境条件 Test Environment Condition		环境温度:21℃-25℃;环境湿度:/% Ambient temperature:21℃-25℃;Ambient humidity:/%			
分包检验情况 Subcontracted Test Condition		检测项目 Test Item	/		
		分包实验室 Subcontracted Laboratory	名称 Name	/	邮编 Post Code
			地址 Address	/	电话 Tel

[illegible]

[illegible]

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备注: L-泄漏 V-漏气 D-解体 R-破裂 F-起火 O-无泄漏、无漏气、无解体、无破裂、无起火。
Note: L-Leakage V-Venting D-Disassembly R-Rupture F-Fire O-No Leakage, No Venting,
No Disassembly, No Rupture & No Fire.

SRICI Testing Co., Ltd. Test Report—Appendix

NO. 1119070207

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[illegible]

SRICI Testing Co., Ltd. Test Report—Appendix 5 NO. 1119070207

[illegible]

SRICI Testing Co., Ltd. Test Report—Appendix 6

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备注: D-解体 F-起火 O-无解体、无起火。
Note: D-Disassembly F-Fire O-No Disassembly & No Fire.

上海化工院检测有限公司
检测报告-附表 7

SRICI Testing Co., Ltd. Test Report—Appendix 7 NO. 1119070207

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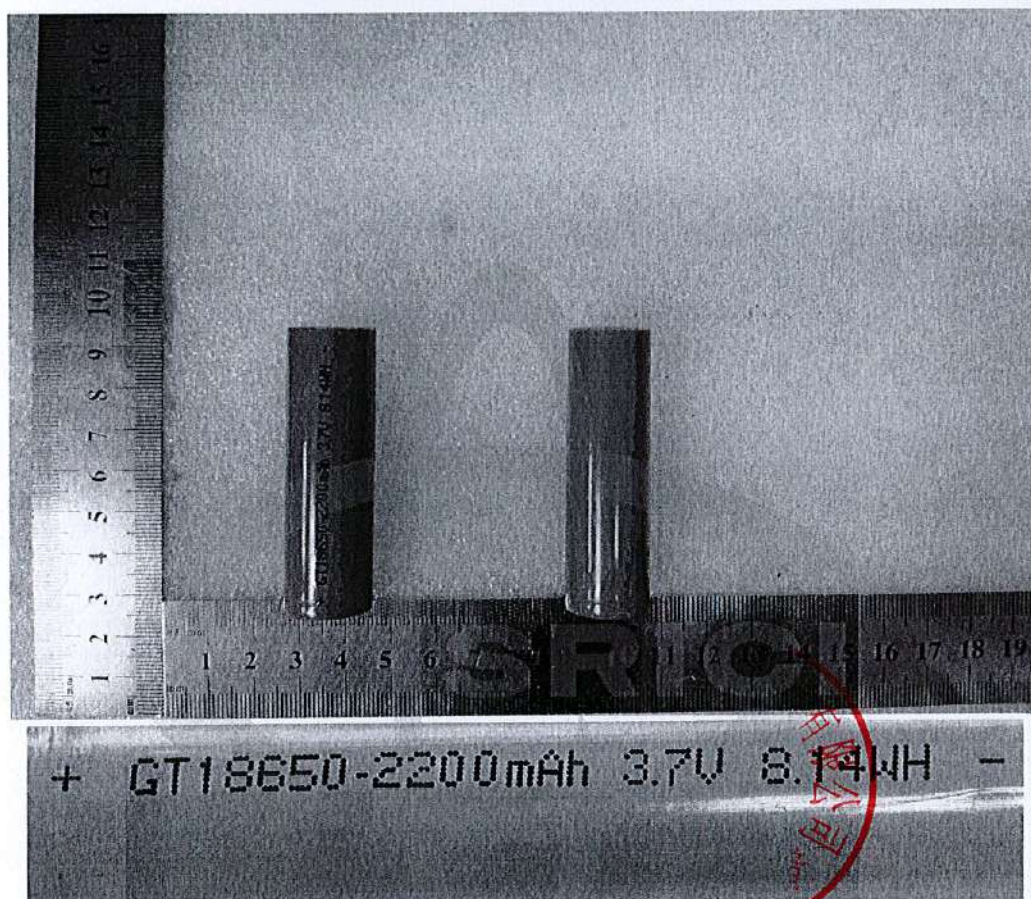
序号 No.	7	检测项目名称 Name of Test Items	强制放电 Forced discharge
样品编号 Sample No.	样品状态 Sample Status	其他现象 Other Event	
021	1CYC完全放电 1CYC Fully discharged	O	
022	1CYC完全放电 1CYC Fully discharged	O	
023	1CYC完全放电 1CYC Fully discharged	O	
024	1CYC完全放电 1CYC Fully discharged	O	
025	1CYC完全放电 1CYC Fully discharged	O	
026	1CYC完全放电 1CYC Fully discharged	O	
027	1CYC完全放电 1CYC Fully discharged	O	
028	1CYC完全放电 1CYC Fully discharged	O	
029	1CYC完全放电 1CYC Fully discharged	O	
030	1CYC完全放电 1CYC Fully discharged	O	
031	25CYC完全放电 25CYC Fully discharged	O	
032	25CYC完全放电 25CYC Fully discharged	O	
033	25CYC完全放电 25CYC Fully discharged	O	
034	25CYC完全放电 25CYC Fully discharged	O	
035	25CYC完全放电 25CYC Fully discharged	O	
036	25CYC完全放电 25CYC Fully discharged	O	
037	25CYC完全放电 25CYC Fully discharged	O	
038	25CYC完全放电 25CYC Fully discharged	O	
039	25CYC完全放电 25CYC Fully discharged	O	
040	25CYC完全放电 25CYC Fully discharged	O	

备注：D-解体 F-起火 O-无解体、无起火。
Note: D-Disassembly F-Fire O-No Disassembly & No Fire.

上海化工院检测有限公司
检测报告-附图

SRICI Testing Co., Ltd. Test Report—Appendix NO. 1119070207

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报告结束





UN38.3 试验概要

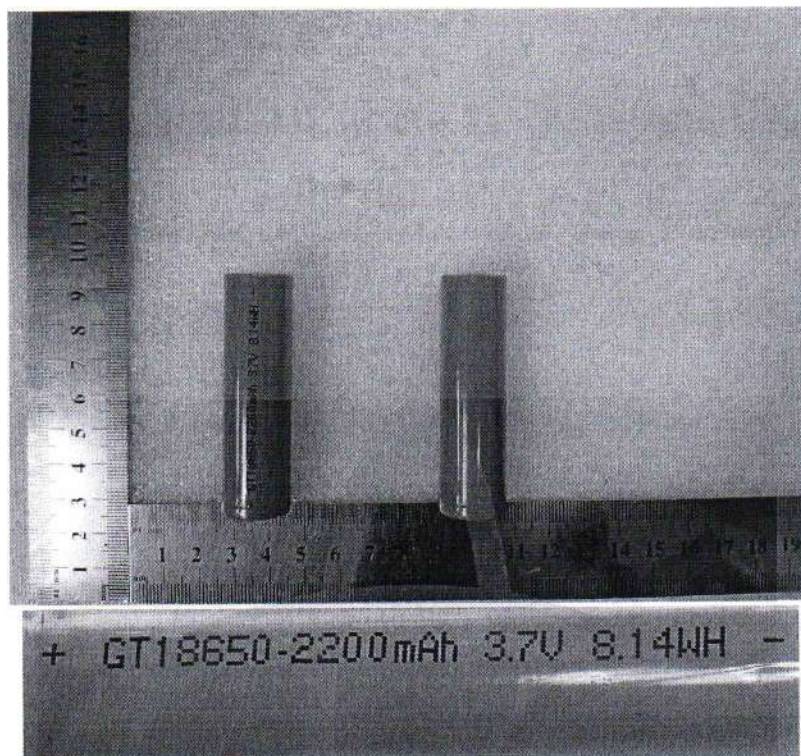
UN38.3 Test Summary

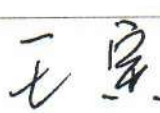



单位信息 Company information			
委托单位 Consignor	东莞市莞特电子科技有限公司 DONGGUAN GUANTE ELECTRONICS TECHNOLOGY CO.,LTD. 东莞市莞城区东城中路恒泰大厦 405 室 Room405,Hengtai building ,Middle road of dongcheng,Guancheng district,Dongguan city 076923102849 GUANTECELL@163.com www.guante-cell.com		
生产单位 Manufacturer	东莞市莞特电子科技有限公司 DONGGUAN GUANTE ELECTRONICS TECHNOLOGY CO.,LTD. 东莞市莞城区东城中路恒泰大厦 405 室 Room405,Hengtai building ,Middle road of dongcheng,Guancheng district,Dongguan city 076923102849 GUANTECELL@163.com www.guante-cell.com		
测试单位 Test lab	上海化工院检测有限公司 Shanghai Research Institute of Chemical Industry Testing Co., Ltd. 中国.上海.普陀区云岭东路 345 号, 200062 No.345 East Yunling Road, Putuo, Shanghai, China 200062 86-21-31765555 battery@ghs.cn www.ghs.cn		
电池信息 Battery information			
名称 Name	可充电锂离子电芯 Lithium-ion Rechargeable Cell	品牌 Brand	/
型号 Type	GT18650-2200mAh	原始测试型号 Original tested type	/
标称电压(V) Nominal voltage	3.7	容量/能量 Capacity/energy	2200mAh 8.14Wh
描述 Description	可充电锂离子电池芯 Rechargeable Li-ion cell	锂含量(g) Li content	/
质量(kg) Mass	0.046	外观 Appearance	紫色圆柱型塑料薄膜外壳 Violet cylinder plastics film shell
测试信息 Test information			
原报告编号 Original test report No.	1119070207	测试报告日期 Date of test report	2019-08-27
测试标准 Test standard	联合国《关于危险货物运输的建议书 试验和标准手册》第 38.3 章 UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS" Manual of Tests and Criteria 38.3 ST/SG/AC.10/11/Rev.6/Amend.1		
T.1 高度模拟 Altitude simulation	合格 Passed	T.2 温度测试 Thermal test	合格 Passed
T.3 振动测试 Vibration	合格 Passed	T.4 冲击测试 Shock	合格 Passed
T.5 外部短路 External short circuit	合格 Passed	T.6 撞击 Impact	合格 Passed
T.7 过度充电 Overcharge	/	T.8 强制放电 Forced discharge	合格 Passed
38.3.3 (f)	/	38.3.3 (g)	/



样品图片 Sample Picture



结论 Conclusion	测试样品符合联合国《关于危险货物运输的建议书试验和标准手册》ST/SG/AC.10/11/Rev.6/Amend.1 38.3 标准要求。The tested samples meet the requirements of test items of the UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS" Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6/Amend.1 38.3		
备注 Remark	/		
签名 Signature 职务 Title	 王寅 副总工程师 Vice chief engineer	签发日期 Issued date	 2019-12-14

-验证码:671067-

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