Test Report

No.: SZXEC23003173101_1 **Date:** Mar 15, 2024

Client Name:

Client Address:

Sample Name:	Cell
Model No.:	IMR18650-1800mAh
Client Ref. Information:	Series model:14500-300/14500-400/14500-500/14500-600/ 18650-800/18650-1200/18650-1300/18650-1500/18650-2000/18650-2200/18650-2500/18650-2600/18650-3000
Sample Type:	Portable non-zinc-air button cell

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

THIS REPORT IS TO SUPERSEDE TEST REPORT NO.SZXEC23003173101, DATE: Dec 27, 2023.

SGS Job No.:	SZP23-032628
Sample Receiving Date:	Dec 15, 2023
Testing Period:	Dec 15, 2023 ~ Dec 22, 2023
Test Requested:	Select 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).

Test Requirement	Conclusion
Annex I of Regulation (EU) 2023/1542– Heavy Metals Content in batteries and waste batteries	Pass

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

Ford Shi
Approved Signatory

scan to see the report
FE8D49F2

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch Testing Center Chemical Laboratory

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Test Result(s):

Test Part Description：

SN ID	Sample No.	SGS Sample ID	Description
SN1	A	SZX23-0031731-0001	"Cell"

Remarks:

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

Annex I of Regulation (EU) 2023/1542– Heavy Metals Content in batteries and waste batteries

Test Method: SGS In House Method, analysis was performed by ICP-OES or AAS or Hg-analyzer.

Test Item(s)	Limit	Unit(s)	MDL	A
Lead(Pb)	0.01	%	0.0010	ND
Cadmium(Cd)	0.002	%	0.0010	ND
Mercury(Hg)	0.0005	%	0.0001	ND
Conclusion				**Pass**

Notes:

Column 1 Designation of the substance or group of substances	Column 2 Conditions of restriction
1. Mercury CAS No 7439-97-6 EC No 231-106-7 and its compounds	Batteries, whether or not incorporated into appliances, light means of transport or other vehicles, shall not contain more than 0,0005 % of mercury (expressed as mercury metal) by weight
2. Cadmium CAS No 7440-43-9 EC No 231-152-8 and its compounds	Portable batteries, whether or not incorporated into appliances, light means of transport or other vehicles, shall not contain more than 0,002 % of cadmium (expressed as cadmium metal) by weight
3. Lead CAS No 7439-92-1 EC No 231-100-4 and its compounds	1. From 18 August 2024, portable batteries, whether or not incorporated into appliances, shall not contain more than 0,01 % of lead (expressed as lead metal) by weight. 2. The restriction set out in point 1 shall not apply to portable zinc-air button cells until 18 August 2028.

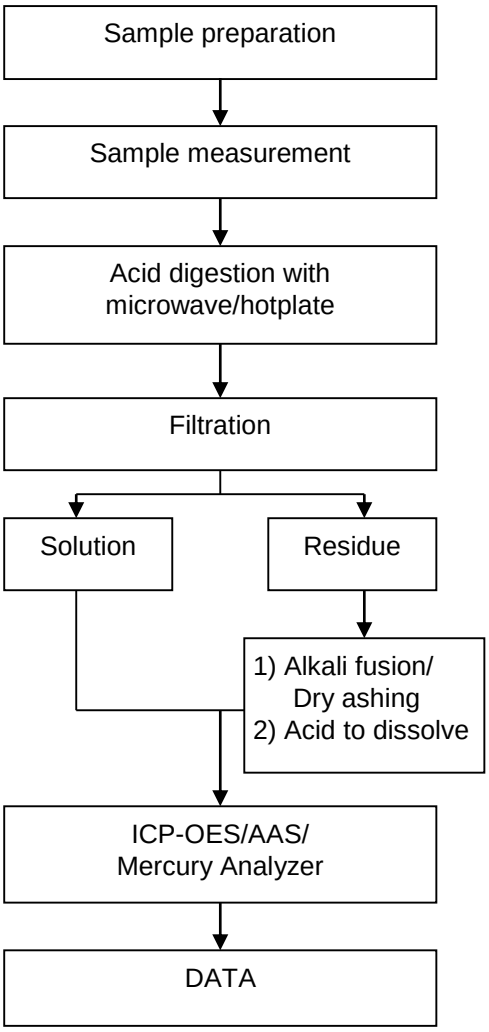
Remark: This report updates Client Ref.Info.
Unless otherwise stated, the decision rule for conformity reporting is based on Binary Statement for Simple Acceptance Rule (*w*=0) stated in ILAC-G8:09/2019.

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ATTACHMENTS

Battery Testing Flow Chart



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Sample Photo:



SZX23-0031731-0001

SGS authenticate the photo on original report only

*** End of Report ***

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Test Report issued under the responsibility of:

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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. ..... :	**CN22QTEM 003**
Date of issue ..... :	2024-08-21
Total number of pages ..... :	6 pages
Name of Testing Laboratory preparing the Report ..... :	Guangzhou MCM Certification & Testing Co., Ltd.
Applicant's name ..... :	
Address ..... :	
Test specification:	
Standard ..... :	IEC 62133-2:2017, IEC 62133-2:2017/AMD1:2021
Test procedure ..... :	CB Scheme
Non-standard test method ..... :	N/A
TRF template used ..... :	IECEE OD-2020-F1:2021, Ed.1.4
Test Report Form No. ..... :	IEC62133_2C
Test Report Form(s) Originator .... :	DEKRA Certification B.V.
Master TRF ..... :	Dated 2022-07-01

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This report is not valid as a CB Test Report unless signed by an approved IECEE Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

General disclaimer:

The test results presented in this report relate only to the object tested.
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Test item description ..... :	Cylindrical Lithium-ion Rechargeable Cell
Trade Mark(s) ..... :	N/A
Manufacturer ..... :	Same as applicant
Model/Type reference ..... :	IMR18650-3000mAh; IMR18650-2600mAh; IMR18650-2500mAh; IMR18650-2200mAh; IMR18650-2000mAh; IMR18650-1800mAh; IMR18650-1500mAh; IMR18650-1200mAh; IMR18650-800mAh
Ratings ..... :	3.7V, 3000mAh, 11.1Wh; 3.7V, 2600mAh, 9.62Wh; 3.7V, 2500mAh, 9.25Wh; 3.7V, 2200mAh, 8.14Wh; 3.7V, 2000mAh, 7.4Wh; 3.7V, 1800mAh, 6.66Wh; 3.7V, 1500mAh, 5.55Wh; 3.7V, 1200mAh, 4.44Wh; 3.7V, 800mAh, 2.96Wh

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):

☒	**CB Testing Laboratory:**	Guangzhou MCM Certification & Testing Co., Ltd.	
Testing location/ address ..... :		Room 101 to 116 & 216, Building 2 (Office Building and Workshop)No. 45 Zhong Er Section of Shiguang Road, Zhongcun Street, Panyu District, Guangzhou City, Guangdong Province, China	
Tested by (name, function, signature) ..... :		Owen Huang (Engineer)	Owen Huang
Approved by (name, function, signature) .. :		Liang Hongcheng (Reviewer)	Liangzhongcheng
☐	**Testing procedure: CTF Stage 1:**		
Testing location/ address ..... :			
Tested by (name, function, signature) ..... :			
Approved by (name, function, signature) .. :			
☐	**Testing procedure: CTF Stage 2:**		
Testing location/ address ..... :			
Tested by (name + signature) ..... :			
Witnessed by (name, function, signature) . :			
Approved by (name, function, signature) .. :			
☐	**Testing procedure: CTF Stage 3:**		
☐	**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 (5 pages)

See original report CN22QTEM 001 and CN22QTEM 002.

Summary of testing:

Tests performed (name of test and test clause):	**Testing location:**
N/A	N/A

Summary of compliance with National Differences (List of countries addressed):

KR

KR=Republic of Korea

☒ **The product fulfils the requirements of EN 62133-2:2017, EN 62133-2:2017/A1:2021, SASO-IEC-62133-2.**

Use of uncertainty of measurement for decisions on conformity (decision rule):

☒ No decision rule is specified by the IEC standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty ("simple acceptance" decision rule, previously known as "accuracy method").

☐ Other: N/A (to be specified, for example when required by the standard or client, or if national accreditation requirements apply)

Information on uncertainty of measurement:

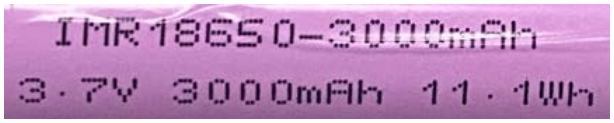
The uncertainties of measurement are calculated by the laboratory based on application of criteria given by OD-5014 for test equipment and application of test methods, decision sheets and operational procedures of IECEE.

IEC Guide 115 provides guidance on the application of measurement uncertainty principles and applying the decision rule when reporting test results within IECEE scheme, noting that the reporting of the measurement uncertainty for measurements is not necessary unless required by the test standard or customer.

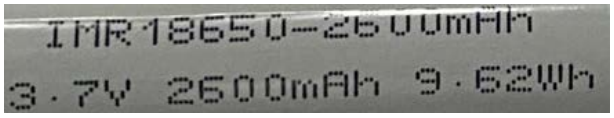
Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.

Copy of marking plate:

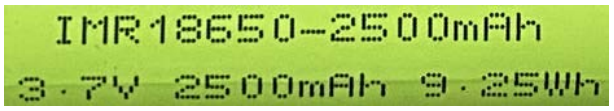
The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.



Model: IMR18650-3000mAh



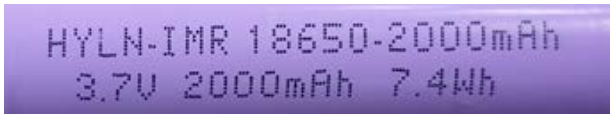
Model: IMR18650-2600mAh



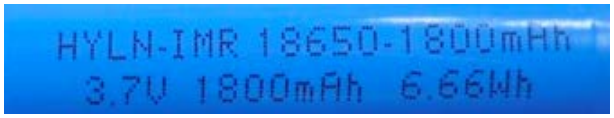
Model: IMR18650-2500mAh



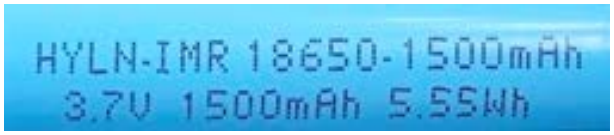
Model: IMR18650-2200mAh



Model: IMR18650-2000mAh



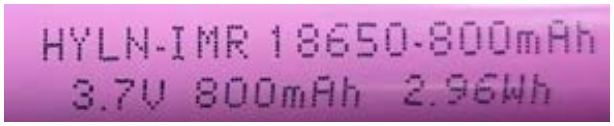
Model: IMR18650-1800mAh



Model: IMR18650-1500mAh



Model: IMR18650-1200mAh



Model: IMR18650-800mAh

Remark: The agreement about marking plate between battery pack manufacturer and cell factory provided.

Test item particulars.....:	
Classification of installation and use.....:	To be defined in final product
Supply Connection.....:	DC terminal
Recommend charging method declared by the manufacturer.....:	Charging the cell with 0.2C constant current until 4.2V, then constant voltage until charge current reduces to 0.02C at ambient 20°C±5°C.
Discharge current (0,2 It A).....:	3000mAh: 600mA; 2600mAh: 520mA; 2500mAh: 500mA; 2200mAh: 440mA; 2000mAh: 400mA; 1800mAh: 360mA; 1500mAh: 300mA; 1200mAh: 240mA; 800mAh: 160mA
Specified final voltage.....:	3.0V
Upper limit charging voltage per cell.....:	4.2V
Maximum charging current.....:	3000mAh: 1500mA; 2600mAh: 1300mA; 2500mAh: 1250mA; 2200mAh: 1100mA; 2000mAh: 1000mA; 1800mAh: 900mA; 1500mAh: 750mA; 1200mAh: 600mA; 800mAh: 400mA
Charging temperature upper limit.....:	45°C
Charging temperature lower limit.....:	0°C
Polymer cell electrolyte type.....:	☐ gel polymer ☐ solid polymer ☒ N/A
Possible test case verdicts:	
- test case does not apply to the test object.....:	N/A
- test object does meet the requirement.....:	P (Pass)
- test object does not meet the requirement.....:	F (Fail)
Testing.....:	
Date of receipt of test item .....:	N/A
Date (s) of performance of tests.....:	N/A
General remarks:	
"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report. **Throughout this report a ☐ comma / ☒ point is used as the decimal separator.**	
Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided ..... :	☐ **Yes** ☒ **Not applicable**
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies) ..... :	Same as applicant

General product information and other remarks:

This test report shall be read in conjunction with the original report CN22QTEM 001, CN22QTEM 002.

Description of change(s):

1. Changed the Copy of marking plate of the cell (Model: IMR18650-2000mAh, IMR18650-1800mAh, IMR18650-1500mAh, IMR18650-1200mAh, IMR18650-800mAh), Details see page 4 and attachment 1.

For the above described change(s) the following was considered to be necessary:

Change	Testing	Comments	Result
1	N/A	No safety impact, no further testing considered as necessary.	P

History of amendments and modifications:

Ref. No. CN22QTEM 001, dated 2022-07-14 (original test report)

Ref. No. CN22QTEM 002, dated 2023-08-16 (1st amendment)

Ref. No. CN22QTEM 003, dated 2024-08-21 (1st modification)

-- End of Report --

Attachment 1 Photo Documentation

Product: Cylindrical Lithium-ion Rechargeable Cell

Type Designation: IMR18650-2000mAh; IMR18650-1800mAh; IMR18650-1500mAh; IMR18650-1200mAh; IMR18650-800mAh



Figure 1 Front view of cell (Model: IMR18650-2000mAh)

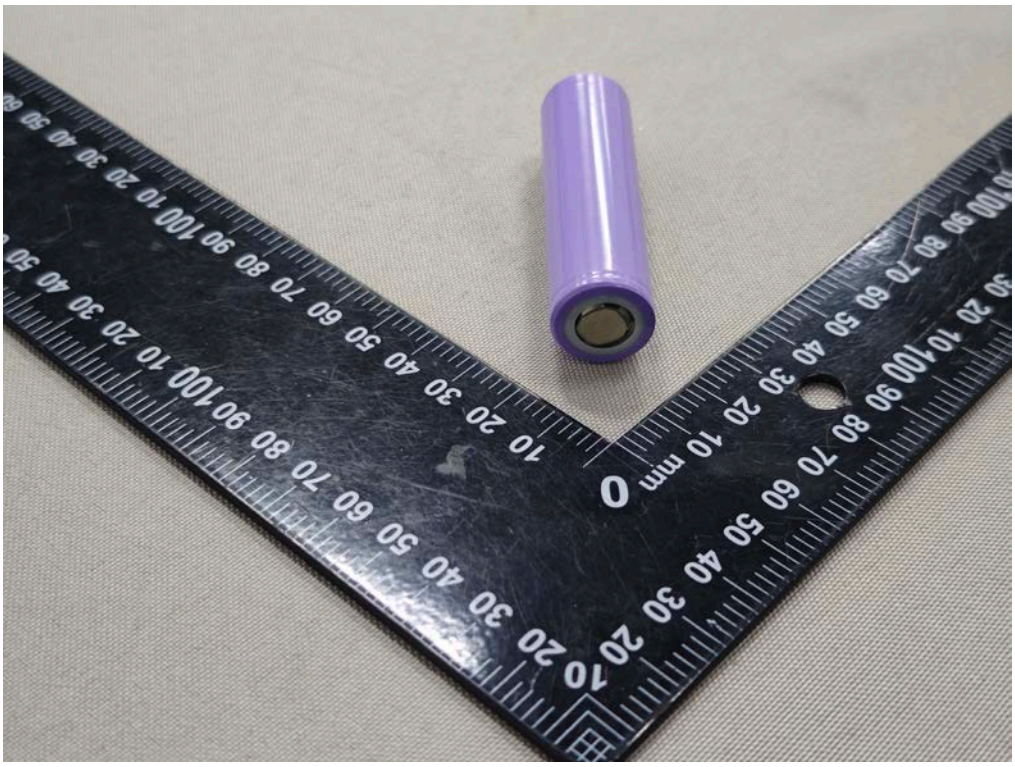


Figure 2 Side view of cell (Model: IMR18650-2000mAh)

Attachment 1 Photo Documentation

Product: Cylindrical Lithium-ion Rechargeable Cell

Type Designation: IMR18650-2000mAh; IMR18650-1800mAh; IMR18650-1500mAh; IMR18650-1200mAh; IMR18650-800mAh



Figure 3 Front view of cell (Model: IMR18650-1800mAh)

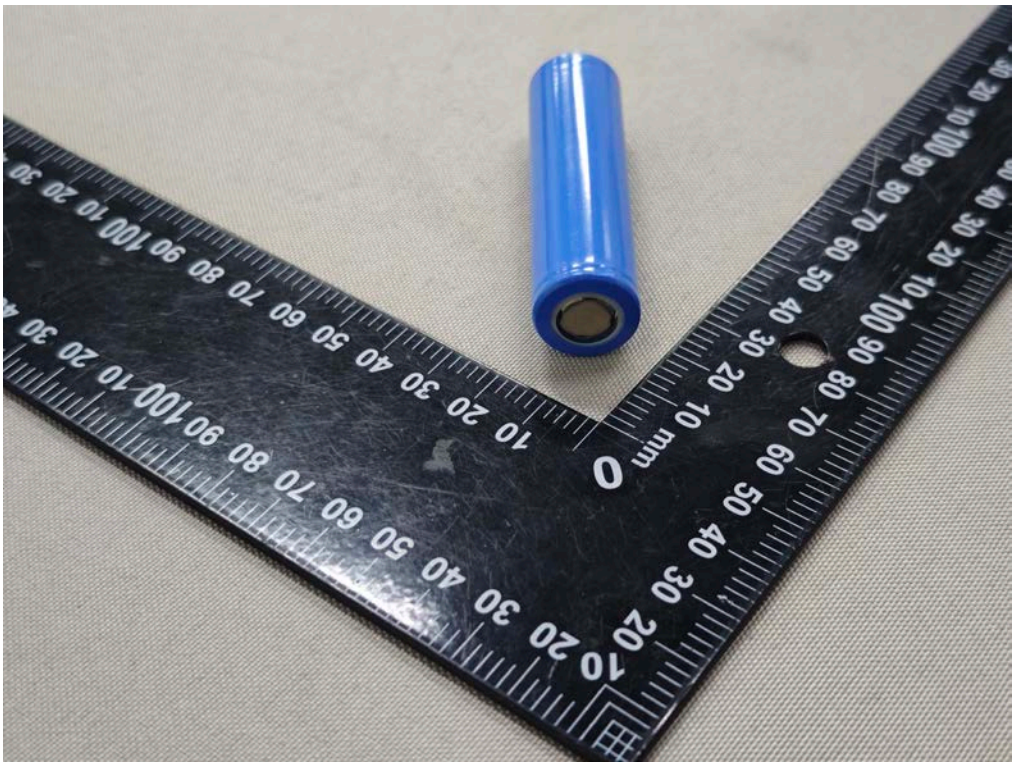


Figure 4 Side view of cell (Model: IMR18650-1800mAh)

Attachment 1 Photo Documentation

Product: Cylindrical Lithium-ion Rechargeable Cell

Type Designation: IMR18650-2000mAh; IMR18650-1800mAh; IMR18650-1500mAh; IMR18650-1200mAh; IMR18650-800mAh



Figure 5 Front view of cell (Model: IMR18650-1500mAh)

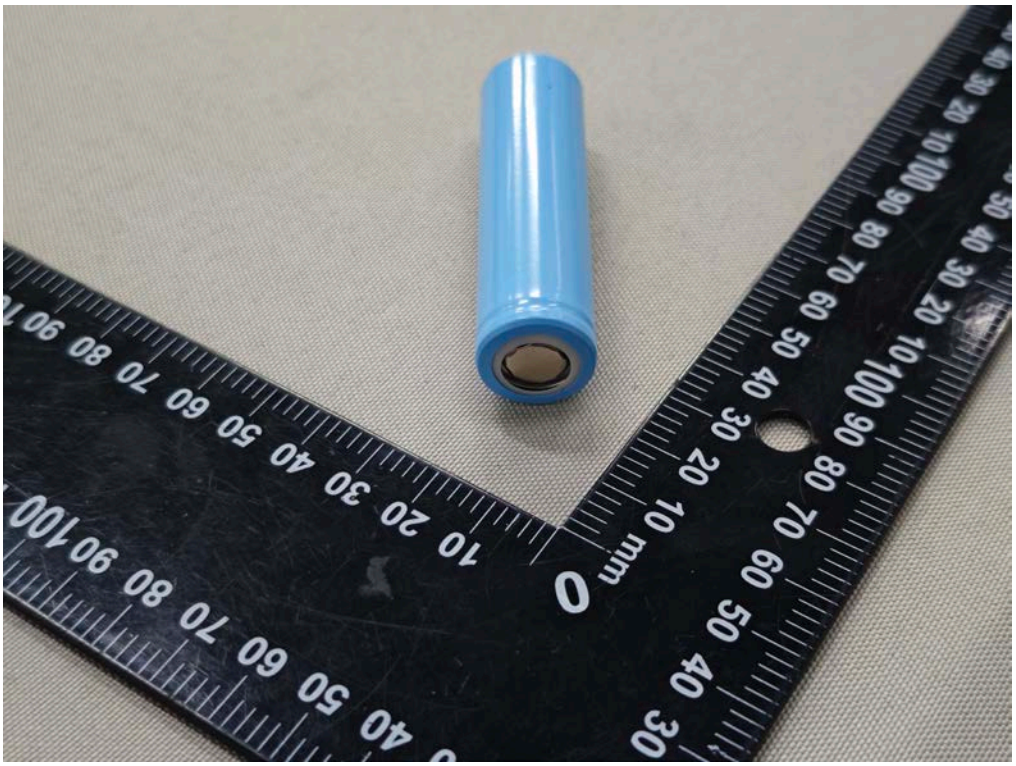


Figure 6 Side view of cell (Model: IMR18650-1500mAh)

Product: Cylindrical Lithium-ion Rechargeable Cell

Type Designation: IMR18650-2000mAh; IMR18650-1800mAh; IMR18650-1500mAh; IMR18650-1200mAh; IMR18650-800mAh



Figure 7 Front view of cell (Model: IMR18650-1200mAh)

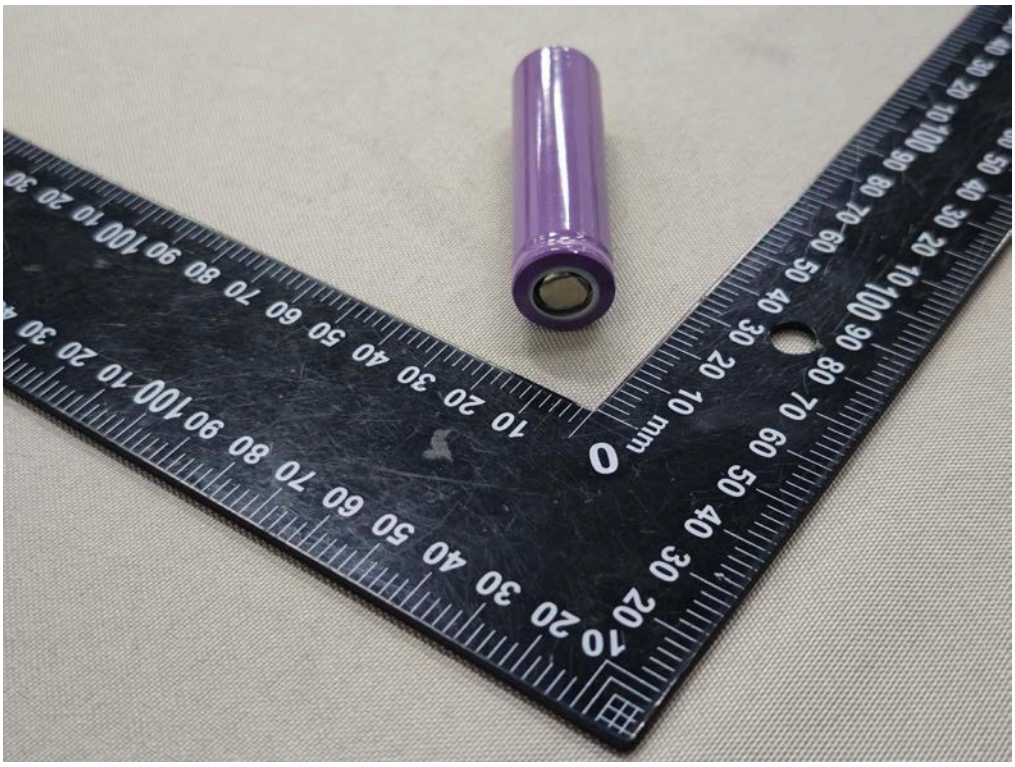


Figure 8 Side view of cell (Model: IMR18650-1200mAh)

Attachment 1 Photo Documentation

Product: Cylindrical Lithium-ion Rechargeable Cell

Type Designation: IMR18650-2000mAh; IMR18650-1800mAh; IMR18650-1500mAh; IMR18650-1200mAh; IMR18650-800mAh



Figure 9 Front view of cell (Model: IMR18650-800mAh)

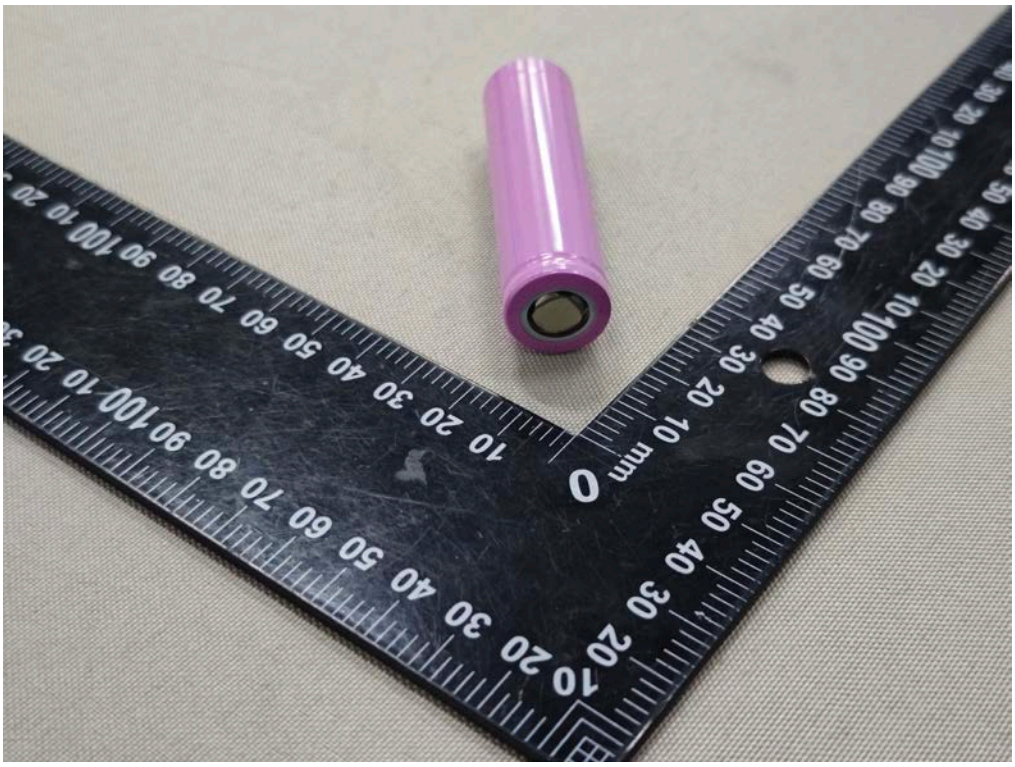


Figure 10 Side view of cell (Model: IMR18650-800mAh)