TEST REPORT
IEC 60086-4
Primary batteries
Part 4: Safety of lithium batteries

Report Number. ..... :	SHES260500859401
Date of issue..... :	2026-05-20
Total number of pages	17 Pages
Applicant's name..... :	Suzhou Xinlvzhou Electronics Co., Ltd.
Address ..... :	No.158 Shanji Road, Xiangcheng District, Suzhou, Jiangsu, China
Test specification:	
Standard ..... :	IEC 60086-4: 2019 (Fifth Edition)
Test procedure ..... :	Commission testing according to the requirements of Applicant.
Non-standard test method…….. :	N/A
Test Report Form No..... :	EEC_IEC 60086_4 A
Test Report Form(s) Originator ..... :	SGS-CSTC
Master TRF..... :	Dated 2021-01
Test item description .....:	Lithium Battery
Trade Mark ..... :	--
Manufacturer ..... :	Same as applicant
Model/Type reference ..... :	CR2025
Ratings ..... :	Rated Voltage: 3,0 V

Testing procedure and testing location:			
☒	**Testing Laboratory:**	SGS-CSTC Standards Technical Shanghai) Services Co., Ltd.	
Testing location/ address .....:		588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China	
Tested by (name + signature) .....:		Junhao Lu JJ Yang/ Project Engineer	Junhao Lu JJ Yang
Approved by (name + signature) .....:		Bruce Wu / Reviewer	Bruce Wu
☐	**Testing procedure: TMP**	N/A	
Testing location/ address .....:			
Tested by (name + signature) .....:			
Approved by (name + signature) .....:			
☐	**Testing procedure: WMT**	N/A	
Testing location/ address .....:			
Tested by (name + signature) .....:			
Witnessed by (name + signature) ....:			
Approved by (name + signature) .....:			
☐	**Testing procedure: SMT**	N/A	
Testing location/ address .....:			
Tested by (name + signature) .....:			
Approved by (name + signature) .....:			
Supervised by (name + signature) ..:			

List of Attachments:

Attachment 1: Photos.

Summary of testing:

Test were arranged according to IEC 60086-4: 2019 and EN IEC 60086-4:2019.

No decision rule is specified by 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.)

Remark:

1. The samples were subjected to full tests as far as applicable.

Tests performed (name of test and test clause):	**Testing location:**
☒6.4.1 Altitude ☒6.4.2 Thermal cycling ☒6.4.3 Vibration ☒6.4.4 Shock ☒6.5.1 External short-circuit ☐6.5.2 Impact ☒6.5.3 Crush ☒6.5.4 Forced discharge ☒6.5.5 Abnormal charging ☒6.5.6 Free fall ☒6.5.7 Thermal abuse ☐6.5.8 Incorrect installation ☐6.5.9 Overdischarge	SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. 588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China

Summary of compliance with National Differences

List of countries addressed: none.

Copy of marking plate

Test item particulars.....	--
Classification of installation and use	--
Supply Connection.....	--
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.....	2026-05-14
Date (s) of performance of tests.....	Original: 2022-03-24 to 2022-05-23

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.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Manufacturer's Declaration:

The application for obtaining a 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) ..... :	Changzhou Jintan Chaochuang Battery Co., Ltd. Xiyang Village, Maolu Town, Jintan District, Changzhou, Jiangsu, China

General product information:

Product description:	Lithium Battery
Model:	CR2025
Rated voltage:	3,0 V
Rated capacity	150 mAh
Abnormal charge current:	15 mA
Max. continuous discharge current:	300 mA

The original Test Report No. SHES220300527502, dated 2024-03-20, was modified on 2026-05-15 to include the following changes:

1. Updated the issue date.

After comparison, no test was considered necessary.

Test report No. SHES220300527502, date 2024-03-20 is not valid and replaced by Test Report Ref. No. SHES260500859401, dated 2026-05-15.

IEC 60086-4			
Clause	Requirement + Test	Result - Remark	Verdict
4	**Requirements for safety**		**P**
4.1	Design consideration		P
	a) Abnormal temperature rise above the critical value		P
	b) Control of temperature increases in the battery		P
	c) Lithium cells and batteries shall be designed to relieve excessive internal pressure or to preclude a violent rupture under conditions of transport, intended use and reasonably foreseeable misuse.	Seal the seam around the aluminium case as the venting mechanism.	P
4.2	Quality plan		--
	The manufacturer shall prepare a quality plan defining the procedures for the inspection of materials, components, cells and batteries during the course of manufacture, to be applied to the total process of producing a specific type of battery.		P
5	**Sampling**		**P**
5.1	General		P
5.2	Test samples		P
6	**Testing and requirements**		**P**
6.1	General		P
6.1.1	Test application		P
	s: cell or single cell battery ……..:	Single cell battery	P
	m: multi cell battery ……..:	--	N/A
6.1.3	Ambient temperature .....:	20 °C ± 5 °C.	P
6.1.4	Parameter measurement tolerances		P
6.1.5	Predischarge		P
6.1.6	Additional cells		P
6.2	Evaluation of test criteria		P
6.2.1	Short-circuit		P
6.2.2	Excessive temperature rise		P
6.2.3	Leakage		P
6.2.4	Mass loss		P
6.2.5	Venting		P
6.2.6	Fire		P
6.2.7	Rupture		P
6.2.8	Explosion		P

IEC 60086-4			
Clause	Requirement + Test	Result - Remark	Verdict
6.3	Tests and requirements – Overview		P
6.4	Tests for intended use See the standard		P
6.4.1	Test A: Altitude ……..……..……..:	See Table 6.4.1	P
6.4.2	Test B: Thermal cycling .....……..……..:	See Table 6.4.2	P
6.4.3	Test C: Vibration ……..……..……..:	See Table 6.4.3	P
6.4.4	Test D: Shock ……..……..……..:	See Table 6.4.4	P
6.5	Tests for reasonably foreseeable misuse		P
6.5.1	Test E: External short-circuit ……..……..:	See Table 6.5.1	P
6.5.2	Test F: Impact ……..……..……..:	--	N/A
6.5.3	Test G: Crush ……..……..……..:	See Table 1 and 6.4.1 – 6.5.3	P
6.5.4	Test H: Forced discharge ...……..……..:	See Table 1 and 6.4.1 – 6.5.3	P
6.5.5	Test I: Abnormal charging ……..……..……..:	See Table 1 and 6.4.1 – 6.5.3	P
6.5.6	Test J: Free fall ……..……..:	See Table 1 and 6.4.1 – 6.5.3	P
6.5.7	Test K: Thermal abuse ……..……..:	See Table 1 and 6.4.1 – 6.5.3	P
6.5.8	Test L: Incorrect installation ……..……..:	See Table 1 and 6.4.1 – 6.5.3	N/A
6.5.9	Test M: Overdischarge ……..……..:	See Table 1 and 6.4.1 – 6.5.3	N/A
6.6	Information to be given in the relevant specification		P
	a) Prediscarge current specified by the manufacturer ……..……..:		P
	b) Declaration whether the impact test or the crush test is more appropriate to simulate an internal short-circuit condition …..……..……..:	Crush test	P
	c) Maximum continuous discharge current specified by the manufacturer for test H; …..……..: NOTE 1 Forced discharge of a cell can occur when it is connected in series with other cells and when it is not protected with a bypass diode. Where applicable, this should be reflected by the specification. and	The maximum continuous discharge current is 300mA	P
	d) Abnormal charging current declared by the manufacturer for test I …..……..……..: NOTE 2 Abnormal charging of a cell can occur when it is connected in series with other cells and one cell is reversed or when it is connected in parallel with a power supply and the protective devices do not operate correctly. Where applicable, this should be reflected by the specification.	The abnormal charging current is 15mA	P
7	**Information for safety**		Not checked
8	**Instructions for use**		Not checked

IEC 60086-4			
Clause	Requirement + Test	Result - Remark	Verdict
9	**Marking**		Not checked
Annex A	**Guidelines for the achievement of safety of lithium batteries**		Not checked
Annex B	**Guidelines for designers of equipment using lithium batteries**		Not checked
Annex C	**Additional information on display and storage**		Not checked
Annex D	**Safety pictograms**		Not checked
Annex E	**Child resistant packaging of coin cells**		Not checked
Annex F	**Use of the KEEP OUT OF REACH OF CHILDREN safety sign**		Not checked

IEC 60086-4					
Clause	Requirement + Test			Result - Remark	Verdict
	TABLE 1 and 6.4.1 – 6.5.3				P
Tests A-E	Cells and single cell batteries (10 samples to be tested)	Undischarged	10	Tests A-D: NL, NV, NC, NR, NE, NF Test E: NT, NR, NE, NF	P
		Fully discharged	10	Tests A-D: NL, NV, NC, NR, NE, NF Test E: NT, NR, NE, NF	P
	Multi cell batteries (4 samples to be tested)	Undischarged	4		N/A
		Fully discharged	4		N/A
Test F or G	Cells and single cell batteries	Undischarged	5 (Button and cylindrical) 10 (Prismatic)	Test G: NT, NE, NF	P
		Fully discharged	5 (Button and cylindrical) 10 (Prismatic)	Test G: NT, NE, NF	P
	Multi cell batteries	Undischarged	No Battery tests required but the component cells shall have passed the test		N/A
		Fully discharged			N/A
Test H	Cells and single cell batteries	Undischarged	N/A		N/A
		Fully discharged	10	Test H: NE, NF	P
	Multi cell batteries	Undischarged	No Battery tests required but the component cells shall have passed the test		N/A
		Fully discharged			N/A
Test I to K	Cells and single cell batteries	Undischarged	5	Test I: NE, NF Test J: NV, NE, NF Test K: NE, NF	P
		Fully discharged	N/A		N/A
	Multi cell batteries	Undischarged	5		N/A
		Fully discharged	N/A		N/A
Test L	Cells and single cell batteries	Undischarged	5 (+15)	NE, NF	N/A
		Fully discharged	N/A		N/A

IEC 60086-4					
Clause	Requirement + Test			Result - Remark	Verdict
	Multi cell batteries	Undischarged	N/A		N/A
		Fully discharged	N/A		N/A
Test M	Cells and single cell batteries	Undischarged	50% prediscarged	NE, NF	N/A
		Fully discharged	75% predischarged	NE, NF	N/A
	Multi cell batteries	Undischarged	N/A		N/A
		Fully discharged	N/A		N/A

Test A	TABLE6.4.1 Altitude				
Sample No.	Sample Status[1)]	OCV/V Before Test	OCV/V After Test	Residual OCV /%	Result
#1	1	3,349	3,349	100,00	P
#2	1	3,343	3,342	99,97	P
#3	1	3,404	3,404	100,00	P
#4	1	3,400	3,400	100,00	P
#5	1	3,397	3,396	99,97	P
#6	1	3,347	3,347	100,00	P
#7	1	3,380	3,380	100,00	P
#8	1	3,393	3,393	100,00	P
#9	1	3,348	3,346	99,94	P
#10	1	3,355	3,355	100,00	P
#11	2	3,020	3,020	100,00	P
#12	2	3,024	3,024	100,00	P
#13	2	3,021	3,020	99,97	P
#14	2	3,025	3,025	100,00	P
#15	2	3,031	3,031	100,00	P
#16	2	3,020	3,020	100,00	P
#17	2	3,026	3,026	100,00	P
#18	2	3,024	3,024	100,00	P
#19	2	3,027	3,027	100,00	P
#20	2	3,024	3,024	100,00	P
Remark: 1- Undischarged; 2- Fully discharged. No leakage, no venting, no short-circuit, no rupture, no explosion and no fire during this test.					

Test B	TABLE6.4.2 Thermal cycling				
Sample No.	Sample Status[1)]	OCV/V Before Test	OCV/V After Test	Residual OCV /%	Result
#1	1	3,349	3,347	99,94	P
#2	1	3,342	3,339	99,91	P
#3	1	3,404	3,400	99,88	P
#4	1	3,400	3,397	99,91	P
#5	1	3,396	3,394	99,94	P
#6	1	3,347	3,344	99,91	P
#7	1	3,380	3,379	99,97	P
#8	1	3,393	3,392	99,97	P
#9	1	3,346	3,343	99,91	P
#10	1	3,355	3,352	99,91	P
#11	2	3,020	3,017	99,91	P
#12	2	3,024	3,022	99,94	P
#13	2	3,020	3,020	100,00	P
#14	2	3,025	3,024	99,97	P
#15	2	3,031	3,029	99,94	P
#16	2	3,020	3,018	99,94	P
#17	2	3,026	3,025	99,97	P
#18	2	3,024	3,024	100,00	P
#19	2	3,027	3,026	99,97	P
#20	2	3,024	3,023	99,97	P
Remark: 1- Undischarged; 2- Fully discharged. No leakage, no venting, no short-circuit, no rupture, no explosion and no fire during this test.					

Test C	TABLE6.4.3 Vibration				
Sample No.	Sample Status[1)]	OCV/V Before Test	OCV/V After Test	Residual OCV /%	Result
#1	1	3,347	3,347	99,97	P
#2	1	3,339	3,337	99,94	P
#3	1	3,400	3,399	99,97	P
#4	1	3,397	3,396	99,97	P
#5	1	3,394	3,392	99,94	P
#6	1	3,344	3,343	99,97	P
#7	1	3,379	3,379	100.00	P
#8	1	3,392	3,391	99,97	P
#9	1	3,343	3,342	99,97	P
#10	1	3,352	3,350	99,94	P
#11	2	3,017	3,016	99,97	P
#12	2	3,022	3,022	100.00	P
#13	2	3,020	3,020	100.00	P
#14	2	3,024	3,023	99,97	P
#15	2	3,029	3,029	100.00	P
#16	2	3,018	3,018	100.00	P
#17	2	3,025	3,024	99,97	P
#18	2	3,024	3,024	100.00	P
#19	2	3,026	3,024	99,94	P
#20	2	3,023	3,022	99,97	P
Remark: 1- Undischarged; 2- Fully discharged. No leakage, no venting, no short-circuit, no rupture, no explosion and no fire during this test.					

Test D	TABLE6.4.4 Shock				
Sample No.	Sample Status[1)]	OCV/V Before Test	OCV/V After Test	Residual OCV /%	Result
#1	1	3,347	3,347	100,00	P
#2	1	3,337	3,337	100,00	P
#3	1	3,399	3,399	100,00	P
#4	1	3,396	3,396	100,00	P
#5	1	3,392	3,392	100,00	P
#6	1	3,343	3,343	100,00	P
#7	1	3,379	3,378	99,97	P
#8	1	3,391	3,391	100,00	P
#9	1	3,342	3,342	100,00	P
#10	1	3,350	3,350	100,00	P
#11	2	3,016	3,016	100,00	P
#12	2	3,022	3,022	100,00	P
#13	2	3,020	3,020	100,00	P
#14	2	3,023	3,022	99,97	P
#15	2	3,029	3,028	99,97	P
#16	2	3,018	3,018	100,00	P
#17	2	3,024	3,024	100,00	P
#18	2	3,024	3,024	100,00	P
#19	2	3,024	3,023	99,97	P
#20	2	3,022	3,022	100,00	P
Remark: 1- Undischarged; 2- Fully discharged. No leakage, no venting, no short-circuit, no rupture, no explosion and no fire during this test.					

Test E	TABLE6.5.1 External Short Circuit Test					P
Sample No.	Sample Status[1)]	Ambient (55°C ± 5°C)	OCV at start of test, Vdc	Resistance of Circuit, Ω	Maximum Case Temperature, °C	Results
#1	1	52,8	3,347	76	1,2	P
#2	1	52,8	3,337	72	1,0	P
#3	1	52,8	3,399	64	1,3	P
#4	1	52,8	3,396	72	1,1	P
#5	1	52,8	3,392	68	1,2	P
#6	1	53,1	3,343	76	1,0	P
#7	1	53,1	3,378	72	1,4	P
#8	1	53,1	3,391	64	1,0	P
#9	1	53,1	3,342	72	0,9	P
#10	1	53,1	3,350	68	0,9	P
#11	2	54,7	3,016	76	0,5	P
#12	2	54,7	3,022	72	0,4	P
#13	2	54,7	3,020	64	0,4	P
#14	2	54,7	3,022	72	0,5	P
#15	2	54,7	3,028	68	0,3	P
#16	2	54,9	3,018	76	0,2	P
#17	2	54,9	3,024	72	0,4	P
#18	2	54,9	3,024	64	0,5	P
#19	2	54,9	3,023	72	0,6	P
#20	2	54,9	3,022	68	0,4	P
Requirements: There shall be no excessive temperature rise, no rupture, no explosion and no fire during this test and within the 6 h of observation. 1- Undischarged; 2- Fully discharged.						

Test F	TABLE6.5.2 Impact				N/A
Sample No.	Sample Status[1)]	Ambient temperature	OCV at start of test, Vdc	Maximum Case Temperature Rise ΔT, °C	Results
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Test G	TABLE6.5.3 Crush				P
Sample No.	Sample Status[1)]	Ambient temperature	OCV at start of test, Vdc	Maximum Case Temperature, °C	Results
#21	1	21,1	3,350	1,3	P
#22	1	21,1	3,352	1,0	P
#23	1	21,1	3,347	0,8	P
#24	1	21,1	3,355	1,4	P
#25	1	21,1	3,344	1,6	P
#26	2	21,1	3,032	1,2	P
#27	2	21,1	3,022	1,3	P
#28	2	21,1	3,024	1,1	P
#29	2	21,1	3,026	1,2	P
#30	2	21,1	3,025	1,0	P
Requirements: There shall be no excessive temperature rise, no rupture, no explosion and no fire during this test and within the 6 h of observation. 1- Undischarged;					

2- Fully discharged.

Test H	TABLE6.5.4 Forced discharged			P
Sample No.	Sample Status[1)]	Ambient temperature	OCV at start of test, Vdc	Results
#31	2	20,9	3,024	P
#32	2	20,9	3,030	P
#33	2	20,9	3,028	P
#34	2	20,9	3,020	P
#35	2	20,9	3,027	P
#36	2	20,9	3,026	P
#37	2	20,9	3,020	P
#38	2	20,9	3,018	P
#39	2	20,9	3,024	P
#40	2	20,9	3,023	P

Requirements:
There shall be no explosion and no fire during this test and within 7 days after the test.
1- Undischarged;
2- Fully discharged.

Test I	TABLE6.5.5 Abnormal charging			P
Sample No.	Sample Status[1)]	Ambient temperature	OCV at start of test, Vdc	Results
#41	1	20,5	3,351	P
#42	1	20,5	3,350	P
#43	1	20,5	3,342	P
#44	1	20,5	3,348	P
#45	1	20,5	3,353	P

Requirements:
There shall be no explosion and no fire during this test.
1- Undischarged;
2- Fully discharged.

Test J	TABLE6.5.6 Free fall			P
Sample No.	Sample Status[1)]	Ambient temperature	OCV at start of test, Vdc	Results
#46	1	20,8	3,369	P
#47	1	20,8	3,396	P
#48	1	20,8	3,365	P
#49	1	20,8	3,406	P
#50	1	20,8	3,401	P

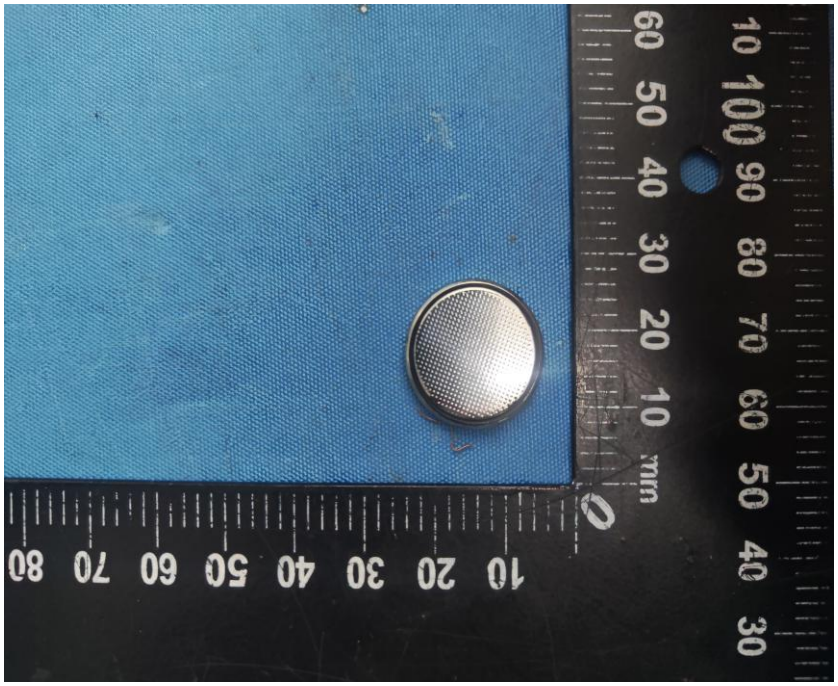
Requirements:
There shall be no venting, no explosion and no fire during this test and within the 1 h of observation.
1- Undischarged;
2- Fully discharged.

Test K	TABLE6.5.7 Thermal abuse			P
Sample No.	Sample Status[1)]	Ambient temperature	OCV at start of test, Vdc	Results
#51	1	20,9	3,349	P
#52	1	20,9	3,350	P
#53	1	20,9	3,355	P
#54	1	20,9	3,351	P
#55	1	20,9	3,350	P
Requirements: There shall be no explosion and no fire during this test. 1- Undischarged; 2- Fully discharged.				

Test L	TABLE6.5.8 Incorrect installation			N/A
Sample No.	Sample Status[1)]	Ambient temperature	OCV at start of test, Vdc	Results
-	-	-	-	-
Requirements: There shall be no explosion and no fire during this test. 1- Undischarged; 2- Fully discharged.				

Test M	TABLE6.5.9 Overdischarged			N/A
Sample No.	Sample Status[1)]	Ambient temperature	OCV at start of test, Vdc	Results
-	-	-	-	-
Requirements: There shall be no explosion and no fire during this test. 1- 50 % predischarged; 2- 75 % predischarged.				

Attachment 1: Photos



---End Report---