

Test Report**Report No.:** SHES240500953301**Date:** 2024-06-19

Applicant: SUZHOU XINLVZHOU ELECTRONICS CO., LTD.
SHANJI ROAD 158, XIANGCHENG DISTRICT, SUZHOU, JIANGSU, CHINA.

Manufacturer: SUZHOU XINLVZHOU ELECTRONICS CO., LTD.
SHANJI ROAD 158, XIANGCHENG DISTRICT, SUZHOU, JIANGSU, CHINA.

Factory: SUZHOU XINLVZHOU ELECTRONICS CO., LTD.
SHANJI ROAD 158, XIANGCHENG DISTRICT, SUZHOU, JIANGSU, CHINA.

Testing Laboratory: SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.
Address: 588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China

Test object / Model: Primary battery / 6F22

Test specifications / IEC 60086-5: 2021 / EN IEC 60086-5: 2021
Test standard:

Purpose of examination: Test according to the test specification.

Test result: See below pages.

Remark: None



Bruce Wu
Project Reviewer
Safety Laboratory



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Sr. Project Engineer

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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.

1. Function / Description:

Primary battery

2. Ratings:

Model:	6F22
Trademark:	warriors
Rated Voltage:	9 V

3. Test:

Possible test case verdicts:

- test case does not apply to the test object:	N/A (Not Applicable)
- test object does meet the requirement:	P (Pass)
- test object does not meet the requirement:	F (Fail)

The tests were done in the Electrical Safety Laboratory of SGS-CSTC in Shanghai.

Test item was received on 2024-05-13.

Tests were performed from 2024-05-13 to 2024-06-17.

Marking plate



Test result:

4	Requirements for safety		P
4.1	Design		P
4.1.1	General		P
	Batteries shall be so designed that they do not present a safety hazard under conditions of normal (intended) use.		P
4.1.2	Venting		P
	All batteries shall incorporate a pressure relief feature or shall be so constructed that they will relieve excessive internal pressure at a value and rate which will preclude explosion		P
	The battery case material and/or its final assembly shall be so designed that, in the event of one or more cells venting, the battery case does not present a hazard in its own right		P
4.2	Quality plan		P
	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	Provided declaration	P

5	Sampling		P
5.1	General		P
	Samples should be drawn from production lots in accordance with accepted statistical methods and shall meet the requirements specified for dimensions and open circuit voltage set forth in IEC 60086-2.		P
5.2	Sampling for type approval	See Table 5.2	P
	The number of samples drawn for type approval is given in below,		P
	Open circuit voltage (n = 70) Dimensions (n = 70)		P
	Intended use A Partial use (n = 5) B-1 Transportation-shock (n = 5) B-2 Transportation-vibration (n = 5) C Climatic (n = 5)		P

	Reasonably foreseeable A misuse D Incorrect installation (n = 20) E External short circuit (n = 5) F Overdischarge (n = 20) G Free fall (n = 5)	D and F are not required.	P
5.3	Validity of testing		P
	Cells or batteries with aqueous electrolyte shall be subjected to the tests, as required in this document.		P
	Testing remains valid until a design change or requirement revision has been made. Retesting is required when:		N/A
	a) a battery specification changes by more than 0,1 g or 20 % mass, whichever is greater, for the cathode, anode or electrolyte;		N/A
	b) a battery specification change would lead to a failure of any of the tests;		N/A
	c) there is an addition of new tests or requirements;		N/A
	d) there is a requirement change that would lead to a failure of any of the tests.		N/A

6	Testing and requirements		P
6.1	General		P
6.1.1	Applicable safety tests		P
	Applicable safety tests are shown in Table 1.		P
	The tests described in Tables 2 and 6 are intended to simulate conditions which the battery is likely to encounter during intended use and reasonably foreseeable misuse.	6F22	P
6.1.2	Cautionary notice		P
6.1.3	Ambient temperature		P
	Unless otherwise specified, these tests shall be carried out at (20 ± 5) °C		P
6.2	Evaluation of test criteria		P
6.2.1	Explosion		P
	An explosion is considered to have occurred when there is an instantaneous release wherein solid matter from any part of the battery is propelled to a distance greater than 25 cm away from the battery.		P
6.2.2	Fire		P
	A fire is considered to have occurred if flames are emitted from a test cell or battery.		P
6.2.3	Leakage		P

	Leakage is considered to have occurred if there is an unplanned escape of electrolyte from a cell or battery.		P
6.2.4	Venting		P
	Venting is considered to have occurred if there is a release of excessive internal pressure from a cell or battery in a manner intended by design to preclude explosion.		P
6.3	Intended use		P
6.3.1	Intended use tests and requirements		P
6.3.2	Intended use test procedures		P
6.3.2.1	Test A – Storage after partial use		P
	An undischarged battery is discharged under an application or service output test condition, with the load defined in IEC 60086-2 resulting in the longest test duration until the service life falls by 50 % of the highest minimum average duration (MAD) value, followed by storage at $(45 \pm 2) ^\circ\text{C}$ for 30 days	Discharge load: 270Ω Discharge time: 3,5h	P
	Results: no leakage, no fire and no explosion..... :	See Table 6.3.2.1	P
6.3.2.2	Test B-1 – Transportation-shock		P
	The shock test shall be carried out under the conditions defined in Table 3 and the sequence in Table 4		P
	Results: no leakage, no fire and no explosion..... :	See Table 6.3.2.2	P
6.3.2.3	Test B-2 – Transportation-vibration		P
	The vibration test shall be carried out under the following test conditions and the sequence in Table 5		P
	Results: no leakage, no fire and no explosion..... :	See Table 6.3.2.3	P
6.3.2.4	Test C – Climatic-temperature cycling		P
	Temperature cycling procedure (see 1) to 7) and/or Figure 2)		P
	Result: no fire and no explosion :	See Table 6.3.2.4	P
6.4	Reasonably foreseeable misuse		P
6.4.1	Reasonably foreseeable misuse tests and requirements		P
6.4.2	Reasonably foreseeable misuse test procedures		P
6.4.2.1	Test D – Incorrect installation (four batteries in series)		N/A
	The circuit were complete for - 24 hours elapsed, or		N/A
	- until the battery case temperature has returned to ambient		N/A

	Results: no fire and no explosion	See Table 6.4.2.1	N/A
6.4.2.2	Test E – External short circuit		P
	The circuit were complete for - 24 hours elapsed, or		N/A
	- until the battery case temperature has returned to ambient		P
	Results: no fire and no explosion	See Table 6.4.2.2	P
6.4.2.3	Test F – Overdischarge		N/A
	Results: no fire and no explosion		N/A
6.4.2.4	Test G – Free fall test		P
	Results: no fire and no explosion	See Table 6.4.2.4	P

7	Information for safety	Relevant document was not provided.	Not checked
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8	Instructions for use	Relevant document was not provided.	Not checked
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9	Marking		P
9.1	General batteries		P
	With the exception of small batteries (see 9.2), each battery shall be marked with the following information		P
	a) designation, IEC or common.....	6F22	P
	b) expiration of a recommended usage period or year and month or week of manufacture.....		P
	c) polarity of the positive (+) terminal		P
	d) nominal voltage		P
	e) name or trade mark of the manufacturer or supplier.....	warriors	P
	f) cautionary advice		P
9.2	Swallowable button cells		N/A
	a) designation, IEC or common.....		N/A
	b) expiration of a recommended usage period or year and month or week of manufacture.....		N/A
	c) polarity of the positive (+) terminal		N/A
	d) nominal voltage		N/A
	e) name or trade mark of the manufacturer or supplier.....		N/A
	f) cautionary advice		N/A

	g) Caution for ingestion of swallowable batteries, see also 7.1 c) and Annex D	Should be given on the immediate packaging instead of on the battery.	N/A
	h) Child resistant packaging		N/A
9.3	Safety pictograms		N/A
	Safety pictograms that could be considered for use as an alternative to written cautionary advice are provided in Annex C.		N/A

Annex A	Additional information on display and storage	Relevant document was not provided.	Not checked
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Annex B	Battery compartment design guidelines	Relevant document was not provided.	Not checked
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Annex C	Safety pictograms	Relevant document was not provided.	Not checked
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Annex D	Use of the KEEP OUT OF REACH OF CHILDREN safety sign	Relevant document was not provided.	Not checked
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Annex E	Child resistant packaging	Relevant document was not provided.	Not checked
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6.3.2.1	TABLE: Test A – Storage after partial use					P
Model, Sample number	OCV at start of test (Vdc)	Lowest resistive load (Ω)	MAD (h)	Storage temperature (45 $\pm$ 5 °C)	Results	
Cell (#C1)	10,18	270	3,5	45	P	
Cell (#C2)	10,19	270	3,5	45	P	
Cell (#C3)	10,08	270	3,5	45	P	
Cell (#C4)	10,20	270	3,5	45	P	
Cell (#C5)	10,12	270	3,5	45	P	
Supplementary information:						
- No fire - No explosion - No leakage						

6.3.2.2	TABLE: Test B-1 – Transportation-shock			P
Model, Sample number	Ambient (20 $\pm$ 5 °C)	OCV at start of test (Vdc)	Results	
Cell (#C6)	22,3	10,14	P	
Cell (#C7)	22,3	10,17	P	
Cell (#C8)	22,3	10,17	P	
Cell (#C9)	22,3	10,12	P	
Cell (#C10)	22,3	10,08	P	
Supplementary information:				
- No fire - No explosion - No leakage				

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6.3.2.3	TABLE: Test B-2 – Transportation-Vibration			P
Model, Sample number	Ambient (20 ± 5 °C)	OCV at start of test (Vdc)	Results	
Cell (#C11)	20,7	10,15	P	
Cell (#C12)	20,7	10,17	P	
Cell (#C13)	20,7	10,11	P	
Cell (#C14)	20,7	10,09	P	
Cell (#C15)	20,7	10,17	P	
Supplementary information:				
- No fire				
- No explosion				
- No leakage				

6.3.2.4	TABLE: Test C – Climatic-temperature cycling		P
Model, Sample number		OCV at start of test (Vdc)	Results
Cell (#C16)		10,18	P
Cell (#C17)		10,19	P
Cell (#C18)		10,12	P
Cell (#C19)		10,19	P
Cell (#C20)		10,05	P
Supplementary information:			
- No fire			
- No explosion			

6.4.2.1	TABLE: Test D – Incorrect installation					N/A
Model, Sample number	Ambient (20 ± 5 °C)	OCV of reversed battery (Vdc)	Resistance of circuitry (Ω)	Maximum case temperature (°C)	Results	
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Supplementary information:						
- No fire						
- No explosion						

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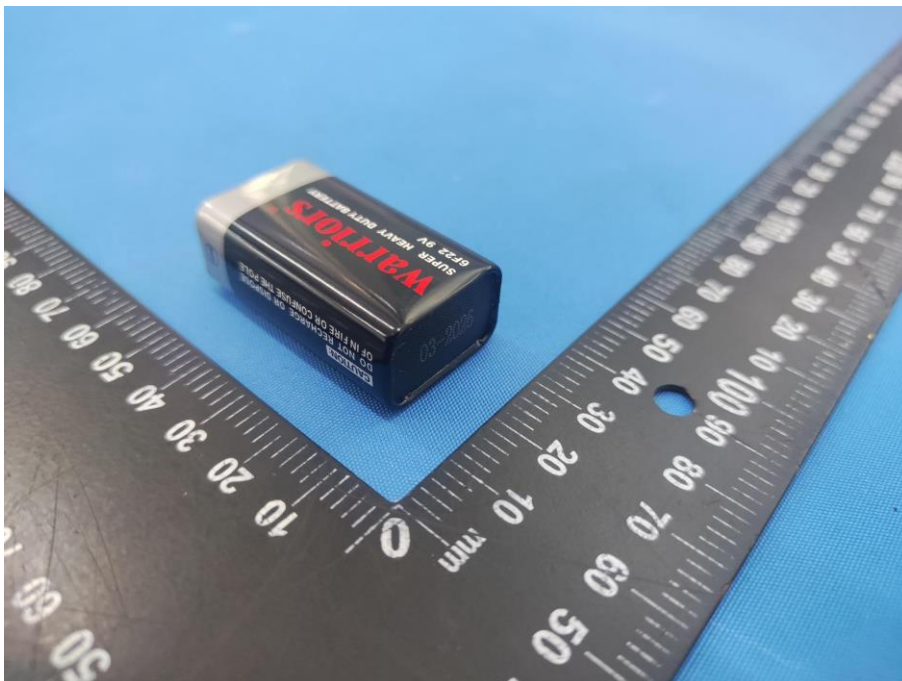
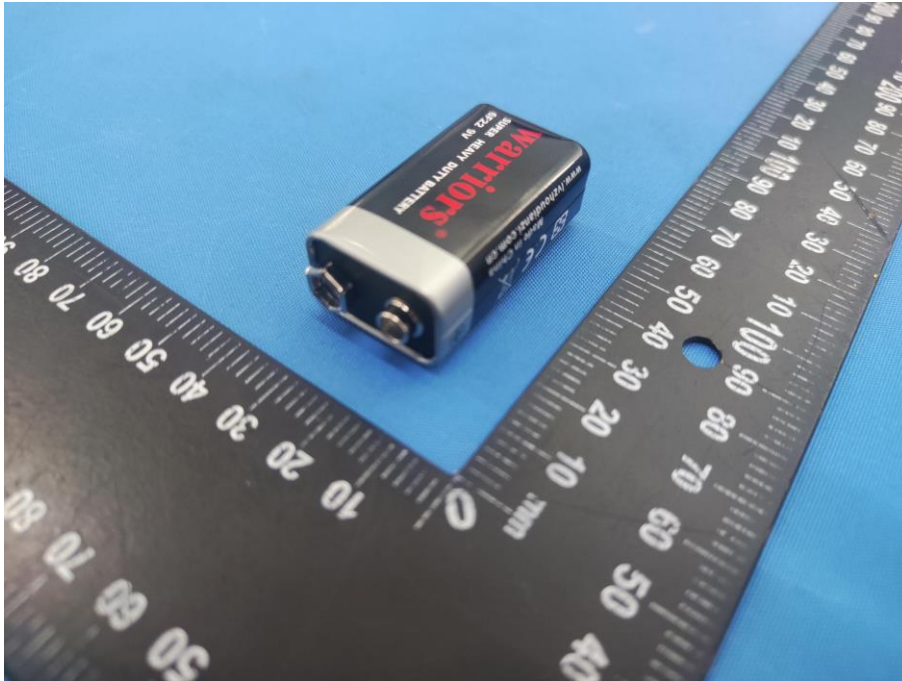
Date: 2024-06-19

6.4.2.2	TABLE: Test E – External short circuit					P
Model, Sample number	Ambient (20 ± 5 °C)	OCV of reversed cell (Vdc)	Resistance of circuitry (Ω)	Maximum case temperature (°C)	Results	
Cell (#C21)	22,2	10,18	0,079	29,5	P	
Cell (#C22)	21,8	10,18	0,079	27,5	P	
Cell (#C23)	22,1	10,11	0,084	28,0	P	
Cell (#C24)	21,9	10,19	0,079	26,5	P	
Cell (#C25)	21,6	10,10	0,079	30,0	P	
Supplementary information:						
- No fire						
- No explosion						

6.4.2.3	TABLE: Test F – Overdischarge					N/A
Model, Sample number	Ambient (20 ± 5 °C)	OCV at start of test (Vdc)	Highest MAD (h)	R1 (Ω)	Results	
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Supplementary information:						
- No fire						
- No explosion						

6.4.2.4	TABLE: Test G – Free fall test				P
Model, Sample number	Ambient (20 ± 5 °C)	OCV at start of test (Vdc)	Results		
Cell (#C26)	22,5	10,19	P		
Cell (#C27)	22,5	10,18	P		
Cell (#C28)	22,5	10,12	P		
Cell (#C29)	22,5	10,09	P		
Cell (#C30)	22,5	10,18	P		
Supplementary information:					
- No fire					
- No explosion					

Photo documentation



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