

APPLICATION FOR IEC TEST REPORT

ZHEJIANG CHISAGE NEW ENERGY Client Name

TECHNOLOGY CO.,LTD.

No. 501 Fuqiang Road, Panhuo Street,

Yinzhou District, Ningbo City, Zhejiang **Address**

Province

5kWh Rack Mounted Lithium-ion Battery **Product Name**

Module

Nov. 14, 2022 Date











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TEST REPORT

IEC 62619: 2022

Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for secondary lithium cells and batteries, for use in industrial applications

Report

Compiled by (+ signature)...... Shelly Mo/ Project Engineer

Approved by (+ signature)....... Dely Yang/ Project Manager

Date of issue.....: Nov. 14, 2022

Testing laboratory

Park, Huangtian Hangcheng Street, Bao'an District, Shenzhen,

Guangdong, China

Testing location...... Shenzhen Anbotek Compliance Laboratory Limited

Client

Name...... ZHEJIANG CHISAGE NEW ENERGY TECHNOLOGY CO.,LTD.

Address...... No. 501 Fuqiang Road, Panhuo Street, Yinzhou District, Ningbo

City, Zhejiang Province

Test specification

Standard.....: IEC 62619: 2022

Test procedure Compliance with IEC 62619: 2022

Non-standard test method.....: N.A.

Test item

Description...... 5kWh Rack Mounted Lithium-ion Battery Module

Trademark.....: CHISAGE

Model and/or type reference...... CE48100-R

Manufacturer.....: Same as client

Address..... Same as client

Factory.....: Same as client

Address..... Same as client

Rating(s)...... DC 51.2V, 100Ah, 5.12kWh









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Particulars: test item vs. test requirements

Ambient temperature·····: 20°C ± 5°C.

Test case verdicts

Test case does not apply to the test object······: N (.A.)

Test item does meet the requirement P (ass)

Test item does not meet the requirement F (ail)

Testing

Date of receipt of test item ······: Oct. 21, 2022

Date(s) of performance of test Oct. 21, 2022 to Nov. 10, 2022

Tests performed (name of test and test clause):

- cl.5.2 Insulation and wiring;
- cl.7.1 Charging procedures for test purposes;
- cl.7.2.1 External short circuit (cell or cell block);
- cl.7.2.2 Impact test (cell or cell block);
- cl.7.2.3 Drop test (cell or cell block, and battery system);
- cl.7.2.3.2 Whole drop test (cell or cell block, and battery system);
- cl.7.2.3.3 Edge and corner drop test (cell or cell block, and battery system);
- cl.7.2.4 Thermal abuse (cell or cell block);
- cl.7.2.5 Overcharge test (cell or cell block);
- cl.7.2.6 Forced discharge test (cell or cell block);
- cl.7.3 Considerations for internal short-circuit;
- cl.7.3.2 Internal short-circuit test (cell);
- cl.7.3.3 Propagation test (battery system);
- cl.8.2.2 Overcharge control of voltage (battery system)
- cl.8.2.3 Overcharge control of current (battery system)
- cl.8.2.4 Overheating control(battery system)

General remarks

This test report shall not be reproduced except in full without the written approval of the testing laboratory.

The test results presented in this report are only relevant to the test sample.

"(see remark #)" refers to a remark appended to the report.

"(see appended table)" refers to a table appended to the report

Throughout this report a dot is used as the decimal separator.

The product fulfils the requirements of EN IEC 62619: 2022

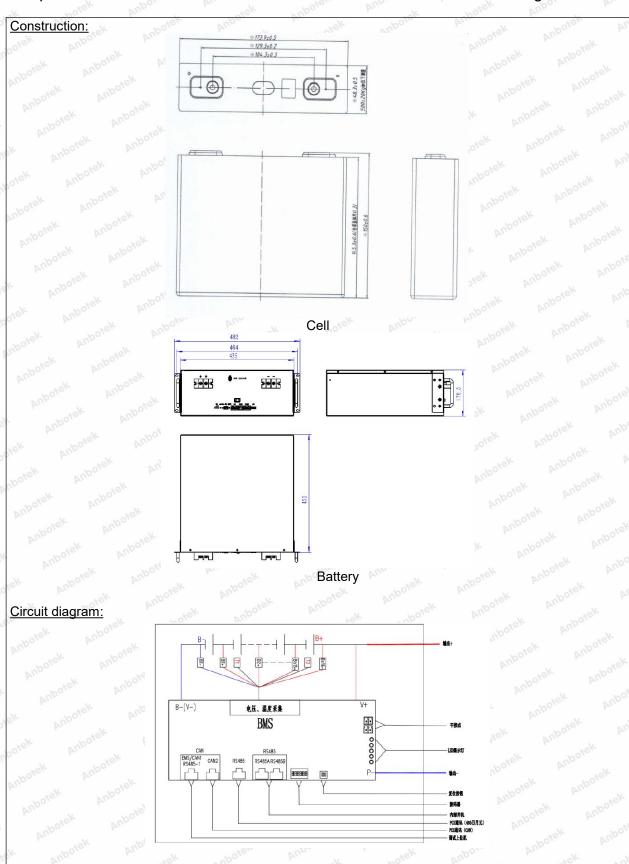


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Shenzhen Anbotek Compliance Laboratory Limited

Address:East of 4/F.,Building A, Hourui No.3 Industrial Zone, Xixiang Street, Bao'an District, Shenzhen,Guangdong,China Tel:(86) 0755–26066126 Fax:(86) 0755–26066021 Email:service@anbotek.com

Hotline 400–003–0500 www.anbotek.com.cn





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Copy of marking plate:

The artwork below may be only a draft.

5kWh Rack Mounted Lithium-ion Battery Module

CE48100-R IFpP/49/174/151/[16S]E/-20+55/80

51.2V, 100Ah, 5.12kWh

(+), (-)

ZHEJIANG CHISAGE NEW ENERGY TECHNOLOGY

CO.,LTD.

2022.10

CAUTION

- -Do not disassemble or modify
- -Do not short-circuit
- -Do not dispose in fire
- -Do not expose to high temperature







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General product information and other remarks:

This battery is constructed with sixteen lithium-ion cells (16S1P), and has overcharge, over-discharge, over current and short-circuits proof circuit.

The main features of the cell and battery are shown as below:

Product name	Cell	Battery
Model	LFP-100Ah	CE48100-R
Capacity	100Ah	100Ah
Nominal voltage	3.2V	51.2V
Nominal charge current	50A	50A
Maximum continuous charge current	50A Anborek Anborek	50A
Nominal discharge current	50A	50A
Maximum continuous discharge current	50A	50A
Maximum Charge Voltage	3.65V	58.4V
Upper limited charging voltage	3.65V	58.4V
Upper charge temperature	50°C	50°C
Lower charge temperature	0°C	0°C
Upper discharge temperature	55°C	55°C
Lower discharge temperature	-20°C	-20°C
Storage temperature range	-30°C ~45°C	-30°C ~45°C
Recommend charging method declared by the manufacturer	At constant current 50A till cell voltage reaches 3.65V, then switch to constant voltage 3.65V till charge current drops to 5.0A	At constant current 50A till cell voltage reaches 58.4V, then switch to constant voltage 58.4V till charge current drops to 5.0A
Charging procedure for internal short-circuit test	At constant current 50A till cell voltage reaches 3.65V, then switch to constant voltage 3.65V till charge current drops to 5A	tek Anbotek Anbotek
Recommend discharging method declared by the manufacturer	Discharging the cell with 50A constant current to discharge cut-off voltage 2.5V	Discharging the cell with 50A constant current to discharge cut-off voltage 40V
Nominal mass	≤2.5kg	About 50kg
External dimensions	(48.3±0.5)mm × (173.9±0.5)mm × (150±0.6)mm	(177±2)mm × (482±2)mm × (492±2)mm









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	Troportito: Toll ob oldol 17 o		0	PO. 01.	101	1 490 1 61		
eV	Anbo.	ek botek	Anbore	IEC 62619: 2022	ipotek Aupo.	A. botek	Anbore	
00	Clause	Requirement + Test	Anboten	Anbo	Result - Remark	k hotek	Verdict	

4	PARAMETER MEASUREMENT TOLERANCES		
Anbe	Parameter measurement tolerances	Anbo tek anbotek	nbor P

5	GENERAL SAFETY CONSIDERATIONS		Р
5.1	General Andrew Andrew	otek unbotek Anbo	P
potek Anbotek	Cells and batteries are safe under conditions of both intended use and reasonably foreseeable misuse:	Clause 6, Clause 7, 8.1, and 8.2. See also table 5.1 for Critical components information	otek P hin
Anbotek	Reduce the risk of injuries from moving parts	Anboret Anbo	no Piek
5.2 Anbox	Insulation and wiring	ek Anborek Anbo.	Roote
otek Ani	Adequate clearances and creepage distances between connectors and live parts at different voltages or between live parts and non-current-carrying accessible parts	ootek Anbotek Anbotek Anbotek Anbotek Anbotek	K PAND
Aupotek	Protect from hazardous live parts, including during installation	Anbotek Anbotek	Anbotek Anbotek
Anbore	The mechanical integrity of internal connections	k Anbore And	Rote!
otek And	Adequate clearances and creepage distances between connectors and live parts at different voltages or between live parts and non-current-carrying accessible parts	otek Anbotek Anbotek Anbotek Anbotek	P _{Amb} o
5.3	Venting	Anbotek A	P.
Aupo,	Pressure relief function	Aupo, W. Apotek	Aupote.
Anbord	Encapsulation used to support cells within an outer casing	tek Pupotek Vupotek	An Poren
5.4	Temperature/voltage/current management	otek anbotek Anbor	P
rek	The design prevents abnormal temperature-rise	habotek Anbotek Anbo	P
upp of Sk	Voltage, current, and temperature limits of the cells	Anbo stek Anbotek Ar	P
Anborek	Specifications and charging instructions for equipment manufacturers	Anbotek Anbotek	hupotek
5.5 Anbo	Terminal contacts of the battery pack and/or batter	ery system	Poor
rek ar	Polarity marking(s)	hotek Anbotek Anbo	P
lootek	Polarity marking not provided for keyed external connector	Anbotek Anbotek Anbo	optek P h.
Aupoter	Capability to carry the maximum anticipated current	Aupotes Aup nick	anbot P
Anbotek	External terminal contact surfaces	Anboter Anbo	nbBiek
Anboi	Terminal contacts are arranged to minimize the risk of short circuits	ek Anbotek Anbotek	Phote
5.6	Assembly of cells, modules, or battery packs into	battery systems	PAN

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	IEC 62619: 2022		
Clause	Requirement + Test	Result - Remark	Verdict
rek	Anboree And ok aborek Anbors A	otek Anbores Ans	-ak
5.6.1	General	And atek Anbotek Anb	P
Anbe	Independent control and protection method(s)	Anbo stek anbotek	nbord P
Anbore Anbore	Recommendations of cell operating limits, mounting advice, storage conditions and other design recommendations by the cell manufacturer	ek Anbotek Anbotek	Ani Pro
ootek b	Batteries designed for the selective discharge of a portion of their series connected cells	potek Anbotek Anbotel	P AT
Aupotek	Protective circuit component(s) and consideration to the end-device application	Anbotek Anbotek Anb	nboteP
5.6.2	Battery system design	Aupor Ar. Potek	AnbP
Aupore	The voltage control function	ek Anbore And botek	Root
k Anbe	Maximum charging/discharging current of the cell are not exceeded	botek Anbotek Anbotek	PAN
5.7	Operating region of lithium cells and battery system	ems for safe use	Р
Yupo, ok	The cell operating region	Anbor Ak shorek Ar	P P
Anbotek	Designation of battery system to comply with the cell operating region	k Anbotek Anbotek	Anb P
5.8	System lock (or system lock function)	tek hotek Anbore	Р
.ek	Non-resettable function to stop battery operation	ek abotek Anbote	P
upotek A	Manual with procedure for resetting of battery operation	Anbotek Anbotek Anbot	P
Anbotek	Emergency battery final discharge	upotek Anbor Ar	*/001P/
5.8 mbotek	Quality plan	k anbotek Anbote	Pote
Anbot	Manufacturing quality plan (for example: ISO9001, etc.) prepared and implemented:	otek Anbotek Anbotek	Anb Anb
yek An	The process capabilities and the process controls	abotek Anbo	^к Р »

6	TYPE TEST CONDITIONS		Р
6.1	ek General Anbound	Ant arek anbotek	Pupo Pok
6.2	Test items	Anbotek Anbotek	Pub.
kek An	Cells or batteries that are not more than six months old (See Table 1 of IEC62619)	hotek Anbotek Anbotek	E Pipot
notek	Capacity confirmation of the cells or batteries	hotek Anbotek Anbo	P
-otek	Default ambient temperature of test, 25 °C ± 5 °C	Ant Anbotek Ant	Р

7	SPECIFIC REQUIREMENTS AND TESTS	Р
7.1 Anbore	Charging procedure for test purposes	k Photek
iek Aup	The battery discharged to a specified final voltage prior to charging	otek P Anbo

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Clause	Requirement + Test	Result - Remark	Verdic
otek p	upotes Vup	notek Anbore Ans	yek .
Anbotek	The cells or batteries charged using the method specified by the manufacturer	Anbotek Anbotek Anb	nbotek
7.2 Anbotek	Reasonably foreseeable misuse		npB _(e)
7.2.1 mbotel	External short-circuit test (cell or cell block)	Tested complied.	P
k Aupo	Short circuit with total resistance of 30 m Ω \pm 10 m Ω at 25 °C \pm 5 °C	potek Anbotek Anbotel	P
ote. A	Results: no fire, no explosion	See Table 7.2.1.	rek P
7.2.2	Impact test (cell or cell block)	Tested complied.	ole P
Anbotek	Cylindrical cell, longitudinal axis impact	Aupotek Aupo, tek	N _{SK}
Anbotek	Prismatic cell, longitudinal axis and lateral axis impact	Prismatic cell.	Pho
And	Results: no fire, no explosion.	See Table 7.2.2.	ΡM
7.2.3	Drop test (cell or cell block, and battery system)	Tested complied.	P
7.2.3.1	General	Anbotes Anb	potek
7.2.3.2	Whole drop test (cell or cell block, and battery system)	Tested complied.	AnboP.k
Vunn Punn	Description of the Test Unit	Cell.	_
N Ann	Mass of the test unit (kg)	Less than 7 kg.	_
Yu,	Height of drop (m)	Moter And Otek Anbot	_
hotel	Results: no fire, no explosion	See Table 7.2.3.2.	o ^{tek} P
7.2.3.3	Edge and corner drop test (cell or cell block, and battery system)	Tested complied.	Aupo Pk
Aug	Description of the Test Unit	Battery system.	
iek Aup	Mass of the test unit (kg):	20 kg or more – less than 50 kg	_
notek p	Height of drop (m)	0.1 otek Anbores Anb	_
hotek	Results: no fire, no explosion	See Table 7.2.3.3.	R
7.2.4	Thermal abuse test (cell or cell block)	Tested complied.	P.
Ann	Results: no fire, no explosion	Ann otek Anbotek	Aubo.
7.2.5	Overcharge test (cell or cell block)	Anbotek nabotek	P _{//c}
otek Aup	For those battery systems that are provided with only a single protection for the charging voltage control	Anbotek Anbotek Anbote	_
Aupor	Results: no fire, no explosion:	See Table 7.2.5.	nbote.
7.2.6	Forced discharge test (cell or cell block)	Tested complied.	Ante
Anborek	Upper limit charge voltage of the cell:	lek Aupoter Vupp	Po
V ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	Cells connected in series in the battery system:	tek upotek Anbo	Р

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Clause	Requirement + Test	Result - Remark	Verdict
otek	upote, Vupo,	otek Anbores Amb	,eK
	Redundant or single protection for discharge voltage control provided in battery system:	Anbotek Anbotek Anb	nbotek P
Anbotek	Target Voltage:	Anbotek Anbo tek	Biek
Anbotel	Maximum discharge current of the cell, I _m :	ek Anbotek Anbo	Poor
k anbo	Discharge current for forced discharge, 1.0 lt	ntek Anbotek Anbot	P
rek .	Discharging time, t = (1 lt / l _m) x 90 (min.):	otek nabotek Anbot	P P
tek k	Results: no fire, no explosion	See Table 7.2.6.	Р
7.3	Considerations for internal short-circuit – Design	evaluation	hore P
7.3.1	General	Aupor All apotek	Auphier
7.3.2	Internal short-circuit test (cell)	Tested complied.	P. Poole
k Aupo	Samples preparation procedure:	otek Anbote Am	Panb
	In accordance with Clause A.5 and A.6 of IEC 62133-2:2017	Anbotek Anbotek Anbo	
nbotek	Tested per 7.3.2 b) in an ambient temperature of 25 °C ± 5 °C.	Anbotek Anbotek An	botek P
Anbotek	The appearance of the short-circuit location recorded by photograph or other means:	k Anbotek Anbotek	_
Hek Anbo.	The pressing was stopped - When a voltage drop of 50 mV was detected; or	Otek Wipotek Wipotek	Nanba
hotek	- The pressing force of 800 N (cylindrical cells) or 400 N (prismatic cells) was reached	400N for prismatic cells	P
Anborek	Results: no fire	See Table 7.3.2.	vapo, b _k
7.3.3	Propagation test (battery system)	Anborek Anbo.	Notek
Anbore	Method to create a thermal runaway in one cell:	See Annex B and C	N ₂₀₀
ek Ant	Results: No external fire from the battery system or no battery case rupture	See results in Table 7.3.3	k N

8	BATTERY SYSTEM SAFETY (CONSIDERING FUN	CTIONAL SAFETY)	Р
8.1 hotek	General requirements	hotek Anbote	Prek
, bu	Functional safety analysis for critical controls	ek botek Anboter	And Are
tek Ar	Conduct of a process hazard analysis for both the cell manufacturing process and the battery system manufacturing process	botek Anbotek Anbotek	P ^{nbc} Anb
Anbotek	Conduct of risk assessment and mitigation of the battery system	Anbotek Anbotek Ant	nboten
8.2	Battery management system (or battery managen	nent unit)	AnbPrek
8.2.1	Requirements for the BMS	ek Anbotes Anbo	Photel
iek an	The safety integrity level (SIL) target of the BMS	otek Anbotek Anbo	P

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Clause	Requirement + Test	Result - Remark	Verdict
work p	upoten Bug ok Potek Vupor W	otek Anboten Anti-	,ek
Anbotek	The charge control evaluated by tests in clauses 8.2.2 to 8.2.4	Anbotek Anbotek Anb	nbotek P
8.2.2	Overcharge control of voltage (battery system)	Tested complied.	Biek
Anborel	The exceeded charging voltage applied to the whole battery system	ek Anbotek Anbotek	Panbot
ootek Vi	The exceeded charging voltage applied to only a part of the battery system, such as the cell(s):	Dote And Anbotek Anbotek	PAN
hotek	Results: no fire, no explosion	See Table 8.2.2.	P
Anbotek	The BMS terminated the charging before exceeding the upper limit charging voltage	Anbotek Anbotek A	P _{ek}
8.2.3	Overcharge control of current (battery system)	Tested complied.	Roote
K Anbo	Results: no fire, no explosion	See Table 8.2.3	Pank
otek Ar	The BMS detected the overcharging current and controlled the charging to a level below the maximum charging current	Anbotek Anbotek Anbo	lek P
8.2.4	Overheating control (battery system)	Tested complied.	"R ^k
abotek	The cooling system, if provided, was disconnected	k nbotek Anbote	Pote
k Aupot	Elevated temperature for charging, 5 °C above maximum operating temperature	otek Vupotek Vupotek	P Anb
otek An	Results: no fire, no explosion:	See Table 8.2.4	e ^X P p
nbotek	The BMS detected the overheat temperature and terminated charging	Anbotek Anbotek An	ote ^K P
Anbotek	The battery system operated as designed during test	Anbotek Anbotek	Anborek

9	EMC				N	
DO.	Battery system fulfil EMC requirements of the end-	upo,	Ar. abotek	Anbote	N	74.0
apor	device application			V	Ofer	

10	INFORMATION FOR SAFETY				
Anbe An	The cell manufacturer provides information about current, voltage and temperature limits of their products	Anbotek Anbotek	Anipore		
hpotek stek	The battery system manufacturer provides information regarding how to mitigate hazards to equipment manufacturers or end-users.	Anbotek Ambotek Anbote	orek P Ani		









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el ^t	Anbore	. K. 1021 02 02 00	Anbotek	IEC 62619: 2022	ibotek Anboten	And Sofek	Anbore
003	Clause	Requirement + Test	Anborek	Aupa, Mek	Result - Remark	k Pun	Verdict

11	MARKING AND DESIGNATION (REFER TO CLAUSE 5 OF IEC 62620)			
Anbotek Anbotek	The marking items shown in Table 1 in IEC 62620 indicated on the cell, battery system or instruction manual.	Anbotek Anbotek	nbotek Anbotek	
lek Aup	Cell or battery system has clear and durable markings	potek Aupotek Aupotek	Pipos	
botek P	Cell designation	abotek Anbotes Anbo	rek N	
hotek	Battery designation	hotek Anbotek Anb	P	
Pu-	Battery structure formulation	hotek Anbotek A	Per	

6	12	PACKAGING AND TRANSPORT					
33	sk Aupor	Refer to Annex D	Panbo				

ANNEX A	OPERATING REGION OF CELLS FOR SAFE USE			
A.1	General Antibotek Antibotek	Anbo ak abotek Ar	pore F	כ
A.2	Charging conditions for safe use	Auport Aur Posek	AUP CA)
A.3 Mooto	Consideration on charging voltage	k Aupor An Polsk	D/F	Dois.
A.4	Consideration on temperature	otek Pupoter Yun	F	Anbot
A.5	High temperature range	obotek Anbote And	e ^k F	מא
A.6	Low temperature range	botek Anbores And	o'rek-F	כ
A.7	Discharging conditions for safe use	hotek Anbotes An	F	N.
A.8	Example of operating region	Ansotek Anbotek	Aupo E)

ANNEX B	NEX B PROCEDURE OF 7.3.3 PROPAGATION TEST BY LASER IRRADIATION		
B.1 An	General	abotek Anbors Arr.	K N Ant
B.2	Test conditions	Anborek Anbores Anb	otek N
B.2.1	Cell test (preliminary test)	Anbotek Anbotes Ans	N
Anborek	The cell fully charged according to the manufacturer recommended conditions:	Vupotek Vupoter	_
Aupore	Laser irradiation point on the cell:	tek Aupore Aur Potek	_
tek Anb	Output power of laser irradiation:	botek Anbote Anbote	_
potek l	Tested in an ambient temperature of 25 °C ± 5 °C	abotek Anbotes Anti	N
hotek	Repeat of cell test for 3 times	Anbotek Anbotes Anb	N
B.2.2	Battery system test (main test)	Anbotek Anbotek A	N
Anhotel Anhotel	The battery system fully charged according to the manufacturer recommended conditions	ek Anbotek Anbotek	_
lek Vup.	Target cell to be laser irradiated	ootek Anbore And	_

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Aupo,	IEC 62619: 2022	otek Aupo,	Anborek Anbore
Clause	Requirement + Test	Result - Remark	Verdict
-otek c	Inbore And Jorek Ando	otek Anbore	Alla
Anbotek	The irradiation point on the target cell same or similar as that on the cell test	Anbotek Anbote	otek v
Anbotek	Output power of laser irradiation:	K Anbotek Anb	- tek
Anbotel	Tested in an ambient temperature of 25 °C ± 5 °C	olek Aupotek b	indo N

ANNEX C	PROCEDURE OF 7.3.3 PROPAGATION TEST BY METHODS OTHER THAN LASER			
C.1	General	Anborek Anbore And	N N	
C.2	Test conditions:	Anbotek Anboten A	N	
Anbotek	The battery fully charged according to the manufacturer recommended conditions	ek Anbotek Anbotek	_	
anbo,	- Target cell forced into thermal runaway:	potek Anbore Am hotek	_	
oo ^{tek} Ar	A specially prepared sample (e.g. a heater or a hole for nail penetration provided) used for ease of testing:	Anbotek Anbotek Anbo	_	
C.3 botek	Method used for initiating the thermal runaway. 1) Heater (Heater, Burner, Laser, Inductive heating 2) Overcharge	k Aupotek Vupotek	_	
	3) Nail penetration of the cell 4) Combination of above methods 5) Other methods	Anbotek Anbotek Anbotek		

ANNEX D	ANNEX D PACKAGING AND TRANSPORT			
Aupotek Aupotek	The materials and pack design chosen in a way as to prevent the development of unintentional electrical conduction, corrosion of the terminals and ingress of environmental contaminants	otek Anbotek Anbotek Anbotek Anbotek	Anboh Anboh	
Anbotek	Regulations concerning international transport of secondary lithium batteries	Anbotek Anbotek Anbot.	otek P	





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5. A.	TABLE: List of critical c	omponents			Anboren P A
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity ¹)
Cell	JIANGSU Higee ENERGY CO., LTD.	LFP-100Ah	3.2V, 100Ah	IEC 62619: 2022	Test with appliance

1) An asterisk indicates a mark which assures the agreed level of surveillance.

7.2.1	TABL	ABLE: External short-circuit test (cell or cell block)						
Sample N	lo.	Ambient (at 25°C ± 5°C)	OCV at start of test (V dc)	Resistance of Circuit (mΩ)	Maximum Case Temperature Rise ∆T (°C)	R	esults	
C1	Pic	23.6	3.37	29.5	42.4	,eX	Papotek	
C2	3K	23.6	3.36	27.3	45.6	. o.V	Ρ ,	
C3	otek	23.6	3.38	28.4	43.2	po,	P	

Supplementary information:

Results:

No fire or Explosion

7.2.2	TAB	E: Impact test (cell or cel	l block)				Р
Sample	e No.	OC.	V at start of test,	(Vdc)		Resu	lts
rel ^k C4	nbore	An Anbotek	3.33	abotek	Aupore K	worke/P	Δ.
botek C5	Aupote.	And otek anbote	3.31	p. botek	Anborer	Anto Pk	
C6	Aupo	er And Stek Jup	3.30	k potek	Anboren	And P	rek.
C7	P.	poter Anbe	3.33 nbon	or Du	ek Anbotek	P	ate!
C8	rek	Anbotek Anbe	3.31	Ole. VIII	notek Anbote	P	Upo.
CS	rek	Anbotek Anbo.	3.33	Yupoles Yu	otek anb	otek P	Aupo
Supplem	entary i	nformation:	And	Anborek	Ando	potek	PL

A - No fire or Explosion

7.2.3.2	7.2.3.2 TABLE: Whole drop test (cell or cell block, and battery system)						
Sample N	lo.	OCV at start of test, (Vdc)	Mass, (g)	Height of drop, (m)	R	esults	
C10	.o.K	3.37	2390.30	0.1	otek	P An	pore
C11°	ak.	3.39	2394.70	0.1	hote	⊬ P	Anb
C12	hoto	3.40	2392.25	0.1	1110	o ^x P	-

Supplementary information:

Results:

No fire or Explosion



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7.2.3.2 TABLE: Edge and corner drop test (cell or cell block, and battery system)						
Sample N	ο.	OCV at start of test, (Vdc)	c) Mass, (kg) Height of drop, (m)		Results	
Anboren B1	AUD	54.62	49.85	0.01	* UKBlek	

Supplementary information:

Results:

No fire or Explosion

7.2.4	7.2.4 TABLE: Thermal abuse test (cell or cell block)						
Sample No	0.	OCV at start of test, (Vdc)	OCV at removal of thermal abuse force, (Vdc)	Results			
C13	Vup	3.37	3.30	Pootek			
C14	P	3.39	And Andrew Andrew	ek P abotek			
C15	-	3.39	3.31 And And	P P			

Supplementary information:

Results:

No fire or Explosion

7.2.5	7.2.5 TABLE: Overcharge test (cell or cell block)								
Sample No.		OCV at end of test (V dc)	Measured Maximum Charging Current (A)	Measured Maximum Charging Voltage (V dc)	Max. Cell Case Temperature, (°C)	Results			
C16	2.87	3.65	50.0	3.65	42.6	Anb Pk			
C17	2.90	3.65	50.0	3.65	41.5	Aupo P **			
C18	2.85	3.65	50.0	3.65	41.0	MA			

Supplementary information:

Results:

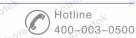
No fire or Explosion

TABLE: Forced discharge test (cell or cell block)							
lo.	OCV before applying reverse charge, (V dc)	Target Voltage (V dc)	Measured Reverse Charge Current It, (A)	Total Time for Reversed Charge Application (min)			
rek	2.86	3.65	100.0	90	Anboten	P And	
work!	2.92	3.65	100.0	90	Anbote	b bu	
Up	2.85	3.65	100.0	90	onb	P	
		OCV before applying reverse charge, (V dc) 2.86 2.92	OCV before applying reverse charge, (V dc) 2.86 2.92 3.65	OCV before applying reverse charge, (V dc) 2.86 2.92 Target Voltage (V dc) Measured Reverse Charge Current It, (A) 100.0 100.0	OCV before applying reverse charge, (V dc) 2.86 2.92 Target Voltage (V dc) Measured Reverse Charge Current It, (A) Measured Reverse Charge Charge Application (min) 90 90 90	OCV before applying reverse charge, (V dc) 2.86 2.92 Target Voltage (V dc) Total Time for Reverse Charge Current It, (A) Total Time for Reversed Charge Application (min) Res 100.0 90 90	

Supplementary information:

Results:

No fire or Explosion







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7.3.2	TABLE: Internal short-circuit test (cell)							
Sample No. OCV at start of to (V dc)		OCV at start of test, (V dc)	Particle location 1)	Maximum applied pressure, (N)	Results			
C22	An	3.39	anborek 1 Anbor	400	le.	P stek		
C23		3.39	aborek Anbor	400	potek	PAnba		
C24	ek	3.39	k abolek An	400	Anbotek	P Anber		
C25	rek	3.40	ak 1botek	400	Anbore	P Anb		
C26	_16	3.39	or 1 work	400	200	Pek I		

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

Results:

No fire or explosion

Method of cell failure 1)			Location of target cell		Area for fire	protection (m²)	
Ant		ak abotek	Aupor.	- K	work - Anbore	Augo sek	nbotak A
Sample N	Ο.	OCV of Battery System Before Test, (V dc)	Cell	of Target I Before t, (V dc)	Maximum Cell Case Temperature, (°C)	Maximum DUT Enclosure Temperature, (°C)	Results
7.3.3	TAI	BLE: Propagation	test (b	attery sys	tem)		N

Supplementary information:

- Cell can be failed through applied heat, overcharge, nail penetration or combinations of these failures or other acceptable methods. See supporting documentation for details on cell failure method
- If the battery system has no outer covering, the manufacturer is required to specify the area for fire protection.

Results:

No fire external to DUT enclosure or area for fire protection or no battery case rupture





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8.2.2 TABLE: Overcharge control of voltage (battery system)						
Sample I	No.	OCV at start of test for Cell/Cell Blocks, (V dc)	Maximum Charging Current, (A)	Max. Charging Voltage, (V dc)	Max. Voltage of Cell/Cell Blocks, (V dc)	Results
Anbo B1	, P	54.66	50.0	64.24	59.34	otek PAnbote
				Charge Volt	age Applied Batte	ry System: 1)
				Whole Part		
				V P	tek Allpote	N/A

Supplementary information:

1. The exceeded voltage can be applied to only a part of the system such as the cell(s) in the battery system per Figure 6 of IEC 62619, if it is difficult to do it in using the whole battery system.

Results:

No Fire or Explosion

8.2.3	TABLE: Overcharge control of current (battery system)								
Sample	No.	OCV at start of test, (V dc)	Max. Charging Current, (A)	Max. Charging Voltage, (V dc)	Results				
Anboten B1	AUPO	47.26	120.0	58.4	hosek P nbotek				
Supplement Results:	ik _		Anbotek Ant	otek Anbotek	Anbotek Anbote				

8.2.4	TABLE	: Overheating c	ontrol (battery	y system)				P
Mode	el No.	OCV at start(s			um Chargi urrent, A	ng		n Charging ge, V dc
anbot B	1 Anbo	52.8	31 Anbore	N. Wun	50.0	potek	Anbo 5	8.4
Maximum Specified Temperature of Battery System, °C				Maximum Measured Cell Case Temperature, °C			Results	
botek	Anbore	50.0	Anbotek	Aupo.	49.2	Pr2	pois.	P
Supplement Results:	entary info	ormation:	Anbotek	Anbore	k Aupo	'sk	Aupotek	Anbotek

Shenzhen Anbotek Compliance Laboratory Limited

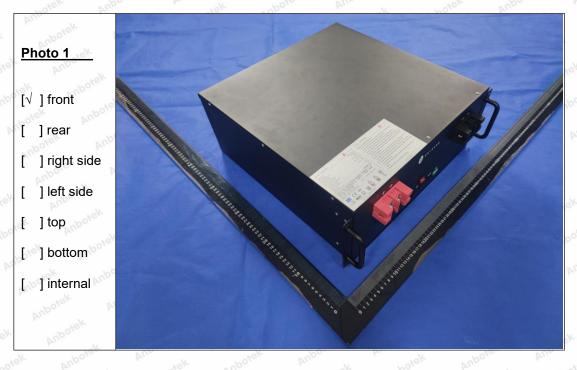
No fire or Explosion

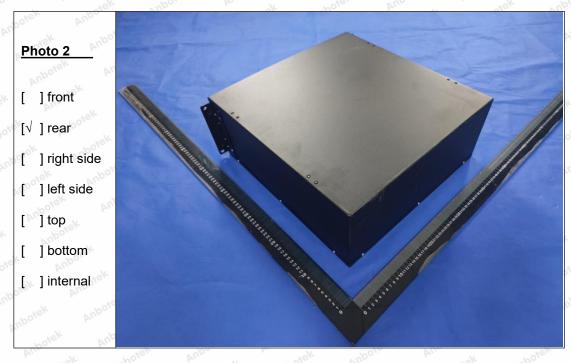
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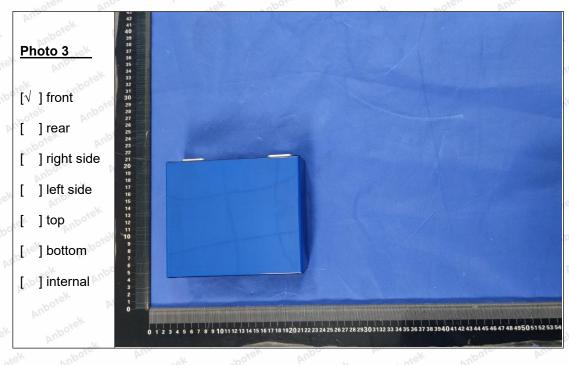


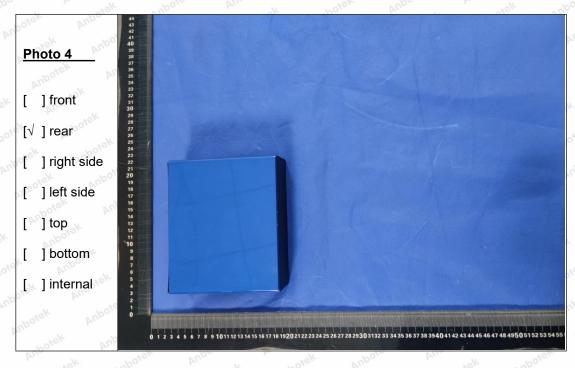






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End of the report



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