



Test Report issued under the responsibility of:



TEST REPORT IEC 62619 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 Number	BSYH-ESH-P25070970
Date of issue.....	2025-09-01
Total number of pages	25 Pages
Name of Testing Laboratory preparing the Report.....	LCIE CHINA COMPANY LIMITED Building 4, No. 518, Xin Zhuan Road, CaoHejing Songjiang High-Tech Park, Shanghai P.R.C (201612)
Applicant's name	Guoke Energy (CHUZHOU) Co., Ltd.
Address	Intersection of Renhe Road and QuanWushan Avenue, Dingcheng Economic Development Zone, Dingyuan County, Chuzhou City, Anhui Province (Plant)
Test specification:	
Standard	IEC 62619:2022
Test procedure	CB Scheme
Non-standard test method	N/A
TRF template used	IECEE OD-2020-F1:2022, Ed.1.5
Test Report Form No.....	IEC62619B
Test Report Form(s) Originator	UL Solutions (Demko)
Master TRF	Dated 2023-02-24
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Test item description..... :	Rechargeable Li-ion Cell	
Trademark(s)..... :	--	
Manufacturer..... :	Same as applicant	
Model/Type reference..... :	NP71173207-280	
Ratings..... :	3,2V, 280Ah, 896Wh	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
☒	CB Testing Laboratory:	LCIE CHINA COMPANY LIMITED
Testing location/ address.....:		Building 4, No. 518, Xin Zhuan Road, CaoHejing Songjiang High-Tech Park, Shanghai P.R.C (201612)
Tested by (name, function, signature).....:		Alter Qiu (Project Manager) <i>Thresh Dong</i>
Approved by (name, function, signature)....:		Robin Wu (Project Reviewer) <i>Amy Dong</i>
☐	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 (Pictures for product): Pages 23 to Page 24 total of 2 pages Attachment 2 (Pictures for internal short-circuit test): Pages 25 total of 1 page	
Summary of testing:	
Tests performed (name of test, test clause and date test performed): - 5.9 Quality plan - 7.2.1 External short-circuit test (cell or cell block) - 7.2.2 Impact test (cell or cell block) - 7.2.3 Drop test (cell or cell block) - 7.2.4 Thermal abuse test (cell or cell block) - 7.2.5 Overcharge test (cell or cell block) - 7.2.6 Forced discharge test (cell or cell block) - 7.3.2 Internal short-circuit test (cell) The samples comply with the requirement of IEC 62619: 2022.	Testing location: (CBTL, SPTL, CTF, Subcontractor) LCIE CHINA COMPANY LIMITED Building 4, No. 518, Xin Zhuan Road, CaoHejing Songjiang High-Tech Park, Shanghai P.R.C (201612) 7.3.2 Internal short-circuit test (cell) is subcontracted to Shenzhen Tiansu Calibration and Testing Co., Ltd. No.2, Jinlong Avenue, Longgang District, Shenzhen, Guangdong, China
Summary of compliance with National Differences (List of countries addressed): N/A ☒ The product fulfils the requirements of <u>EN IEC 62619: 2022.</u>	

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: ... (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.

+ Product Name: Rechargeable Li-ion Cell
Manufacturer: Guoke Energy (CHUZHOU) Co., Ltd.
Model Name: NP71173207-280 IFpP/73/175/208/M/-20+60/90
Ratings: 3.2V, 280Ah, 896Wh
YYYYMMDD0001 Made in China
Recommended Charge: 140A CC charge to 3.65V, then CV (constant voltage 3.65V) charge till charge current decline to 14A
- Caution: Risk of Fire and Burns.
Follow Manufacturer's Instructions

Remark:

1: The date code "YYYYMMDD0001"

1.1: YYYY stands for year.

1.2: MM stands for month.

1.3: DD stands for date.

1.4: 0001 represents the flow code.

Test item particulars: --	
Classification of installation and use: --	
Supply Connection: DC terminal:	
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 : 2025-07-11	
Date (s) of performance of tests : 2025-07-23 to 2025-09-03	
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. ☐ This Test Report Form contains requirements according to IEC/ISO Standard dated and includes Corrigendum dated (Note: The above text maybe removed if not applicable)	
Manufacturer's Declaration per sub-clause 4.2.5 of IEC 60060-2:	
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:

The Rechargeable Li-ion Cell NP71173207-280 is used in industrial application, which consists of two cell cores, with winding structure.

The main features of the battery are shown as below:

Product name	Rechargeable Li-ion Cell
Model Name	NP71173207-280
Rated capacity (Ah)	280
Nominal voltage (V)	3,65
Standard Charge Current (A)	140
Standard Discharge Current (A)	140
Maximum continuous charge current (A)	280
Maximum continuous discharge current (A)	280
Charge temperature Range (°C)	0 to 60
Discharge temperature Range (°C)	-30 to 60
Standard Charge Voltage (V)	3,65
Upper limit Charging Voltage (V)	3,65
End-of-discharge Voltage (V)	2,5V
Weight (kg)	5,4±0,3
Recommend charging method declared by the manufacturer	Charging the cell with 140A constant current until to 3,65V, then constant voltage 3,65V until charging current reduces to 14A.
Charging procedure for internal short-circuit test	Charging the cell with 140A constant current until to 3,65V, then constant voltage 3,65V until charging current reduces to 14A.

IEC 62619			
Clause	Requirement + Test	Result - Remark	Verdict
4	PARAMETER MEASUREMENT TOLERANCES		P
	Parameter measurement tolerances		P

5	GENERAL SAFETY CONSIDERATIONS		P
5.1	General		P
	Cells and batteries are safe under conditions of both intended use and reasonably foreseeable misuse...:	Clause 6 and Clause 7 for cell. See also table 5.1 for Critical components information.	P
	Reduce the risk of injuries from moving parts		N/A
5.2	Insulation and wiring		N/A
	Voltage, current, altitude, and humidity requirements	Wiring not used.	N/A
	Adequate clearances and creepage distances between connectors and live parts at different voltages or between live parts and non-current-carrying accessible parts		N/A
	Protect from hazardous live parts, including during installation		N/A
	The mechanical integrity of internal connections		N/A
5.3	Venting		P
	Pressure relief function		P
	Encapsulation used to support cells within an outer casing		N/A
5.4	Temperature/voltage/current management		N/A
	The design prevents abnormal temperature-rise	Cell only.	N/A
	Voltage, current, and temperature limits of the cells		N/A
	Specifications and charging instructions for equipment manufacturers		N/A
5.5	Terminal contacts of the battery pack and/or battery system		N/A
	Polarity marking(s)	Cell only.	N/A
	Polarity marking not provided for keyed external connector		N/A
	Capability to carry the maximum anticipated current		N/A
	External terminal contact surfaces		N/A
	Terminal contacts are arranged to minimize the risk of short circuits		N/A
5.6	Assembly of cells, modules, or battery packs into battery systems		N/A
5.6.1	General	Cell only.	N/A
	Independent control and protection method(s)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Recommendations of cell operating limits, mounting advice, storage conditions and other design recommendations by the cell manufacturer		N/A
	Batteries designed for the selective discharge of a portion of their series connected cells		N/A
	Protective circuit component(s) and consideration to the end-device application		N/A
5.6.2	Battery system design	Cell only.	N/A
	The voltage control function		N/A
	Maximum charging/discharging current of the cell are not exceeded		N/A
5.7	Operating region of lithium cells and battery systems for safe use		P
	The cell operating region.....:	See page 7	P
	Designation of battery system to comply with the cell operating region	Cell only.	N/A
5.8	System lock (or system lock function)		N/A
	Non-resettable function to stop battery operation	Cell only.	N/A
	Manual with procedure for resetting of battery operation		N/A
	Emergency battery final discharge		N/A
5.9	Quality plan		P
	Manufacturing quality plan (for example: ISO9001, etc.) prepared and implemented.....:	ISO 9001: 2015 certificate provided.	P
	The process capabilities and the process controls		P

6	TYPE TEST CONDITIONS		P
6.1	General		P
6.2	Test items		P
	Cells or batteries that are not more than six months old (See Table 1 of IEC 62619)		P
	Capacity confirmation of the cells or batteries		P
	Default ambient temperature of test, 25 °C ± 5 °C		P

7	SPECIFIC REQUIREMENTS AND TESTS		P
7.1	Charging procedure for test purposes		P
	The battery discharged to a specified final voltage prior to charging		P

IEC 62619			
Clause	Requirement + Test	Result - Remark	Verdict
	The cells or batteries charged using the method specified by the manufacturer	140A CC charge to 3,65V, then CV (constant voltage 3,65V) charge till charge current decline to 14A	P
7.2	Reasonably foreseeable misuse		P
7.2.1	External short-circuit test (cell or cell block)		P
	Short circuit with total resistance of $30\text{ m}\Omega \pm 10\text{ m}\Omega$ at $25\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$		P
	Results: no fire, no explosion	See Table 7.2.1.	P
7.2.2	Impact test (cell or cell block)		P
	Cylindrical cell, longitudinal axis impact		N/A
	Prismatic cell, longitudinal axis and lateral axis impact		P
	Results: no fire, no explosion.		P
7.2.3	Drop test (cell or cell block, and battery system)		P
7.2.3.1	General		P
7.2.3.2	Whole drop test (cell or cell block, and battery system)		P
	Description of the Test Unit.....	Prismatic cell.	—
	Mass of the test unit (kg).....	Q24N08: 5,504kg, Q24N09: 5,494kg, Q24N10: 5,504kg	—
	Height of drop (m).....	1,0	—
	Results: no fire, no explosion		P
7.2.3.3	Edge and corner drop test (cell or cell block, and battery system)		N/A
	Description of the Test Unit.....		—
	Mass of the test unit (kg).....		—
	Height of drop (m).....		—
	Results: no fire, no explosion		N/A
7.2.4	Thermal abuse test (cell or cell block)		P
	Results: no fire, no explosion		P
7.2.5	Overcharge test (cell or cell block)		P
	For those battery systems that are provided with only a single protection for the charging voltage control		—
	Results: no fire, no explosion	See Table 7.2.5.	P
7.2.6	Forced discharge test (cell or cell block)		P
	Cells connected in series in the battery system.....		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Redundant or single protection for discharge voltage control provided in battery system		N/A
	Target Voltage.....	-3,65V	P
	Maximum discharge current of the cell, I_m	280A	P
	Discharge current for forced discharge, 1.0 I_t	280A	P
	Discharging time, $t = (1 I_t / I_m) \times 90$ (min.).....	90min	P
	Results: no fire, no explosion	See Table 7.2.6.	P
7.3	Considerations for internal short-circuit – Design evaluation		P
7.3.1	General		P
7.3.2	Internal short-circuit test (cell)		P
	Samples preparation procedure: In accordance with Clause A.5 and A.6 of IEC 62133-2:2017		P
	Tested per 7.3.2 b) in an ambient temperature of $25^\circ\text{C} \pm 5^\circ\text{C}$.		P
	The appearance of the short-circuit location recorded by photograph or other means.....	See Attachment 2 (Pictures for internal short-circuit test) on page 24.	—
	The pressing was stopped - When a voltage drop of 50 mV was detected; or		N/A
	- The pressing force of 800 N (cylindrical cells) or 400 N (prismatic cells) was reached	400N	P
	Results: no fire	See Table 7.3.2.	P
7.3.3	Propagation test (battery system)		N/A
	Method to create a thermal runaway in one cell ...		N/A
	Results: No external fire from the battery system, no battery case rupture.....	See Table 7.3.3.	N/A

8	BATTERY SYSTEM SAFETY (CONSIDERING FUNCTIONAL SAFETY)		N/A
8.1	General requirements		N/A
	Functional safety analysis for critical controls		N/A
	Conduct of a process hazard analysis for both the cell manufacturing process and the battery system manufacturing process		N/A
	Conduct of risk assessment and mitigation of the battery system		N/A
8.2	Battery management system (or battery management unit)		N/A
8.2.1	Requirements for the BMS		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	The safety integrity level (SIL) target of the BMS		N/A
	The charge control evaluated by tests in clauses 8.2.2 to 8.2.4		N/A
8.2.2	Overcharge control of voltage (battery system)	Cell only.	N/A
	The exceeded charging voltage applied to the whole battery system		N/A
	The exceeded charging voltage applied to only a part of the battery system, such as the cell(s) :		N/A
	Results: no fire, no explosion :	See Table 8.2.2	N/A
	The BMS terminated the charging before exceeding the upper limit charging voltage		N/A
8.2.3	Overcharge control of current (battery system)	Cell only.	N/A
	Results: no fire, no explosion :	See Table 8.2.3	N/A
	The BMS detected the overcharging current and controlled the charging to a level below the maximum charging current		N/A
8.2.4	Overheating control (battery system)	Cell only.	N/A
	The cooling system, if provided, was disconnected		N/A
	Elevated temperature for charging, 5 °C above maximum operating temperature..... :		N/A
	Results: no fire, no explosion :	See Table 8.2.4	N/A
	The BMS detected the overheat temperature and terminated charging		N/A
	The battery system operated as designed during test		N/A

9	EMC		N/A
	Battery system fulfil EMC requirements of the end-device application..... :	See Table 9 [] See attachment [XX] for detail EMC report [] Intended for to be tested in the end use application [include specific application]	N/A

10	INFORMATION FOR SAFETY		P
	The cell manufacturer provides information about current, voltage and temperature limits of their products		P
	The battery system manufacturer provides information regarding how to mitigate hazards to equipment manufacturers or end-users.	Cell only.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

11	MARKING AND DESIGNATION (REFER TO CLAUSE 5 OF IEC 62620)		P
	The marking items shown in Table 1 in IEC 62620 indicated on the cell, battery system or instruction manual.		P
	Cell or battery system has clear and durable markings		P
	Cell designation	IFpP/73/175/208/M/-20+60/90	P
	Battery designation	Cell only.	N/A
	Battery structure formulation		N/A

12	PACKAGING AND TRANSPORT		P
	Refer to Annex D		P

ANNEX A	OPERATING REGION OF CELLS FOR SAFE USE		P
A.1	General		P
A.2	Charging conditions for safe use		P
A.3	Consideration on charging voltage		P
A.4	Consideration on temperature		P
A.5	High temperature range		P
A.6	Low temperature range		P
A.7	Discharging conditions for safe use		P
A.8	Example of operating region		P

ANNEX B	PROCEDURE OF 7.3.3 PROPAGATION TEST BY LASER IRRADIATION		N/A
B.1	General		N/A
B.2	Test conditions		N/A
B.2.1	Cell test (preliminary test)		N/A
	The cell fully charged according to the manufacturer recommended conditions..... :		—
	Laser irradiation point on the cell..... :		—
	Output power of laser irradiation..... :		—
	Tested in an ambient temperature of 25 °C ± 5 °C		N/A
	Repeat of cell test for 3 times		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
B.2.2	Battery system test (main test)		N/A
	The battery system fully charged according to the manufacturer recommended conditions		—
	Target cell to be laser irradiated		—
	The irradiation point on the target cell same or similar as that on the cell test		N/A
	Output power of laser irradiation.....		—
	Tested in an ambient temperature of 25 °C ± 5 °C		N/A

ANNEX C	PROCEDURE OF 7.3.3 PROPAGATION TEST BY METHODS OTHER THAN LASER	N/A
C.1	General	N/A
C.2	Test conditions:	N/A
	– The battery fully charged according to the manufacturer recommended conditions	—
	– Target cell forced into thermal runaway	—
	– A specially prepared sample (e.g. a heater or a hole for nail penetration provided) used for ease of testing.....	—
C.3	Method used for initiating the thermal runaway. 1) Heater (Heater, Burner, Laser, Inductive heating) 2) Overcharge 3) Nail penetration of the cell 4) Combination of above methods 5) Other methods	—

ANNEX D	PACKAGING AND TRANSPORT	P
	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	P
	Regulations concerning international transport of secondary lithium batteries	P

IEC 62619			
Clause	Requirement + Test	Result - Remark	Verdict

5.1	TABLE: Critical components information					P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾	
Cells	Guoke Energy (CHUZHOU) Co., Ltd.	NP71173207-280	3.2Vdc, 280Ah	IEC 62619: 2022	Tested with appliance	
- Electrolyte (one-time injection)	Jiujiang Tianci High tech Materials Co., Ltd	TC-E8087-V1	Composition: LiPF6+LiFSI+EC+DMC+EMC+VC+FEC+DTD+TMSP, Conductivity: 10.77±0.5 mS/cm	IEC 62619: 2022	Tested with appliance	
- Electrolyte (Secondary Injection)	Jiujiang Tianci High tech Materials Co., Ltd	TC-E8087-V2	Composition: LiPF6+LiFSI+EC+DMC+EMC+VC, Conductivity: 11.70±0.5 mS/cm	IEC 62619: 2022	Tested with appliance	
- Separator	Hebei Jinli New Energy Technology Co., Ltd	(9+3+1)µm*197mm	Material: Ceramic diaphragm Shutdown temperature (°C): 134±5°C, Thickness: (13±3.0)µm	IEC 62619: 2022	Tested with appliance	
- Positive electrode	Inner Mongolia Shengfan Technology New Energy Co., Ltd.	SF18	Material: LiFePO ₄ , Dimensions: 15700 mm * 188 mm* 161mm	IEC 62619: 2022	Tested with appliance	
- Negative electrode	Jiangxi Zichen Technology Co., Ltd.	CQ-6F	Material: Graphite, Dimensions: 16036 mm*191mm* 129mm	IEC 62619: 2022	Tested with appliance	
- Cell case	Jinlimi Intelligent Technology (Dongtai) Co., Ltd	71173E	Aluminum A3003, Thickness: 71.25±0.1mm	IEC 62619: 2022	Tested with appliance	
- Relief valve	Jinlimi Intelligent Technology (Dongtai) Co., Ltd	--	Deflated pressure: 0.8±0.1MPa	IEC 62619: 2022	Tested with appliance	
Supplementary information:						
¹⁾ Provided evidence ensures the agreed level of compliance. See OD-CB2039.						

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Clause	Requirement + Test	Result - Remark	Verdict

7.2.1	TABLE: External short-circuit test (cell or cell block)					P
Sample No.	Ambient (at 25°C ± 5°C)	OCV at start of test (V dc)	Resistance of Circuit (mΩ)	Maximum Case Temperature Rise ΔT (°C)	Results	
Q24N01	25,9	3,378	22,52	6,8	A, E	
Q24N02	25,5	3,389	22,52	19,8	A, E	
Q24N03	24,2	3,488	22,52	18,1	A, E	
Supplementary information: A – No fire or Explosion B – Fire C – Explosion D – The test was completed after 6 h E – The test was completed after the cell casing cooled to 20% of the maximum temperature rise F – Other (Please explain):____						

7.2.5	TABLE: Overcharge test (cell or cell block)					P
Sample No.	OCV at start of test (V dc)	OCV at end of test (V dc)	Measured Maximum Charging Current (A)	Measured Maximum Charging Voltage (V dc)	Max. Cell Case Temperature, (°C)	Results
Q24N14	2,863	3,457	280	4,015	50,7	A, E, F
Q24N15	2,714	3,373	280	4,015	49,4	A, E, F
Q24N16	2,870	3,457	280	4,015	50,7	A, E, F
Supplementary information: Results: A – No fire or Explosion B – Fire C – Explosion D – Test concluded when temperature reached a steady state condition E – Test concluded when temperature returned to ambient F – Other (Please explain): Remark: Maximum charge voltage of the cell is 3.65V. The customer requires to use the maximum charge voltage of 110% for the test as the tightening test condition.						

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Clause	Requirement + Test	Result - Remark	Verdict

7.2.6	TABLE: Forced discharge test (cell or cell block)					P
Sample No.	OCV before applying reverse charge, (V dc)	Target Voltage (V dc)	Measured Reverse Charge Current It, (A)	Total Time for Reversed Charge Application (min)	Results	
Q24N17	2,745	-3,65	280	90	A	
Q24N18	2,719	-3,65	280	90	A	
Q24N19	2,746	-3,65	280	90	A	
Supplementary information: Results: A – No fire or Explosion B – Fire C – Explosion D – Other (Please explain): ____						

IEC 62619			
Clause	Requirement + Test	Result - Remark	Verdict

7.3.2	TABLE: Internal short-circuit test (cell)				P
Sample No.	OCV at start of test, (V dc)	Particle location ¹⁾	Maximum applied pressure, (N)	Results	
Q24N20	3,324	1	400	A, E	
Q24N21	3,325	1	400	A, E	
Q24N22	3,329	1	400	A, E	
Q24N23	3,329	1	400	A, E	
Q24N24	3,331	1	400	A, E	
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: A – No fire or explosion B – Fire C – Explosion D – Test concluded when 50 mV voltage drop occurred prior to reaching force limit E – Test concluded when 400 N pressure was reached and 50 mV voltage drop was not achieved F – Test was concluded when fire or explosion occurred G – Other (Please explain): ____					

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Clause	Requirement + Test	Result - Remark	Verdict

7.3.3	TABLE: Propagation test (battery system)					N/A
Sample No.	OCV of Battery System Before Test, (V dc)	OCV of Target Cell Before Test, (V dc)	Maximum Cell Case Temperature, (°C)	Maximum DUT Enclosure Temperature, (°C)	Results	
--	--	--	--	--	--	
--	--	--	--	--	--	
--	--	--	--	--	--	
Method of cell failure ¹⁾		Location of target cell		Area for fire protection (m ²)		
--		--		--		
--		--		--		
--		--		--		
Supplementary information:						
1) Cell can be failed through laser exposure, applied heat, overcharge, nail penetration or combinations of these failures or other acceptable methods. See supporting documentation for details on cell failure method						
2) If the battery system has no outer covering, the manufacturer is required to specify the area for fire protection.						
Results:						
A – No fire external to DUT enclosure or area for fire protection or no battery case rupture						
B – Fire external to DUT enclosure or area for fire protection						
C – Explosion						
D – Battery case rupture						
E – Other (Please explain): ____						

IEC 62619			
Clause	Requirement + Test	Result - Remark	Verdict

8.2.2	TABLE: Overcharge control of voltage (battery system)					N/A
Sample 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	
--	--	--	--	--	--	
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--	--	--	--	--	--	
			Charge Voltage Applied Battery System: 1)			
			Whole		Part	
			--	--		

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:

A – No Fire or Explosion

B – Fire

C – Explosion

D – The voltage of the measured cells or cell blocks did not exceed the upper limit charging voltage

E – The voltage of the measured cells or cell blocks did exceed the upper limit charging voltage

F – All function of battery system did operate as intended during the test.

G – All function of battery system did not operate as intended during the test.

H – Other (Please explain): ____

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Clause	Requirement + Test	Result - Remark	Verdict

8.2.3	TABLE: Overcharge control of current (battery system)			N/A
Sample No.	OCV at start of test, (V dc)	Max. Charging Current, (A)	Max. Charging Voltage, (V dc)	Results
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Supplementary information: Results: A – No fire or Explosion B – Fire C – Explosion D – Overcurrent sensing function of BMU did operate and then charging stopped E – Overcurrent sensing function of BMU did not operate and then charging stopped F – All function of battery system did operate as intended during the test. G – All function of battery system did not operate as intended during the test. H – Other (Please explain): _____				

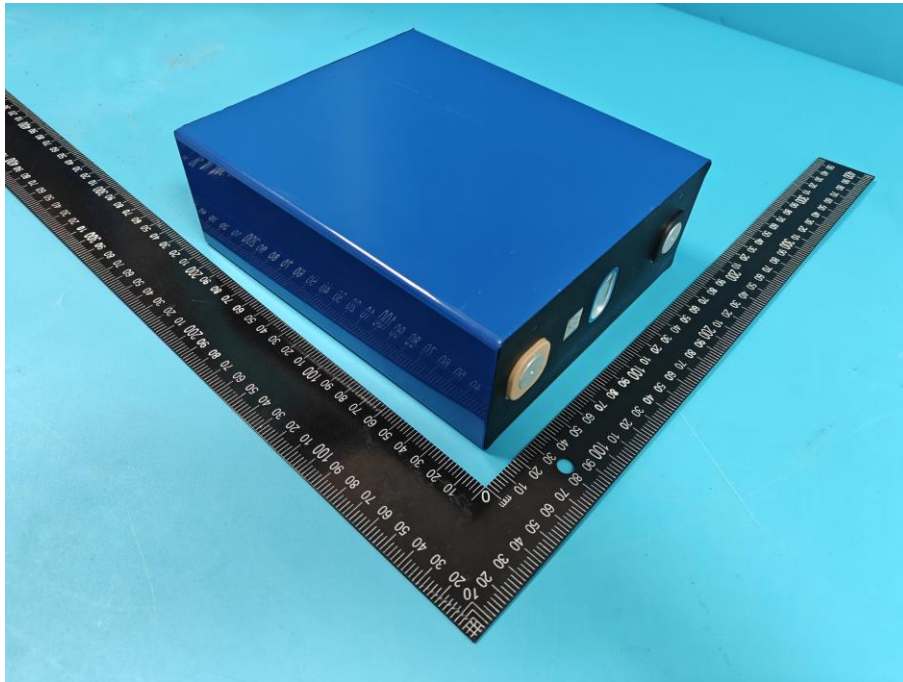
8.2.4	TABLE: Overheating control (battery system)			N/A
Model No.	OCV at start (SOC 50%) of test, V dc	Maximum Charging Current, A	Measured Maximum Charging Voltage, V dc	
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Maximum Specified Temperature of Battery System, °C		Maximum Measured Cell Case Temperature, °C	Results	
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Supplementary information: Results: A – No fire or Explosion B – Fire C – Explosion D – Temperature sensing function of BMU did operate and then charging stopped E – Temperature sensing function of BMU did not operate and then charging stopped F – All function of battery system did operate as intended during the test. G – All function of battery system did not operate as intended during the test. H – Other (Please explain): _____				

IEC 62619			
Clause	Requirement + Test	Result - Remark	Verdict

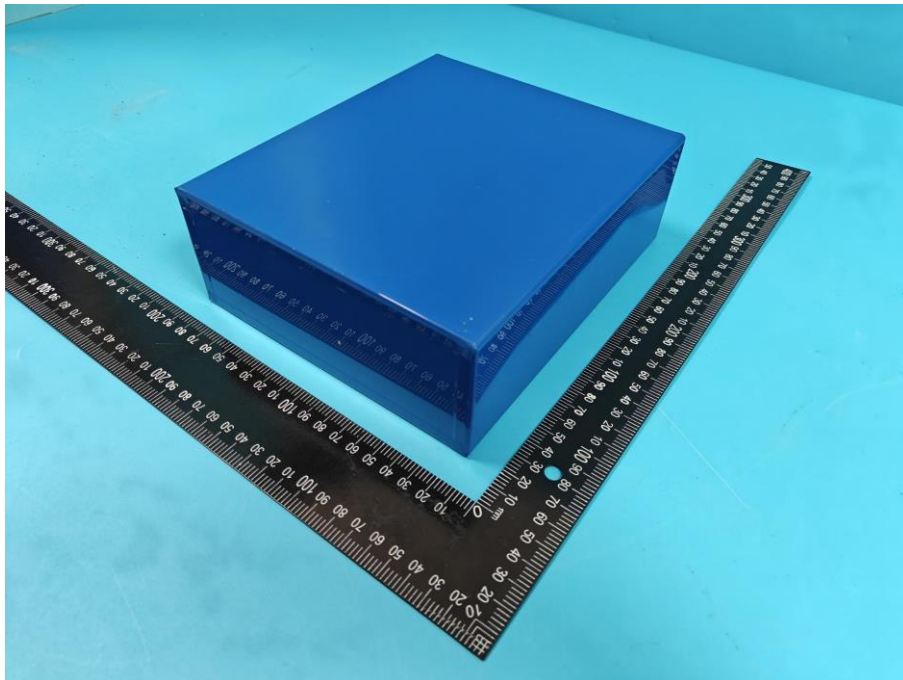
9	TABLE: EMC					N/A
Standard used for EMC test:						
Sample No.	EMC Test Item	Battery Condition	EMC Test Level/ Parameters	Compliance Criteria	Results	
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Supplementary information: Battery Condition During EMC test 1 – In Operation Mode, [] Supplied at ____, [] Load at ____ 2 – In non-operation Mode, Battery state of charge (SOC) before test at around ____ Compliance Criteria and Test Results: A – No fire or Explosion B – Fire C – Explosion D – Battery system did operate as intended during the test. E - All function of battery system did operate as intended after the test. F - All function of battery system did not operate as intended during the test, (Please explain): ____ G - Other (Please explain): ____						

Attachment 1 (Pictures for product)

Picture for product



Picture for product



Picture for product



Attachment 2 (Pictures for internal short-circuit test)

