

2025年8月12日

TUV SUD CERTIFICATION AND TESTING(CHINA) CO., LTD. GUANGZHOU BRANCH

COMMERCIAL PRODUCTS / GMA S
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成績書等の送付について

拝啓 時下益々ご清栄のこととお慶び申し上げます。

さて、貴社よりお申込みいただいております受付番号：

B25K0011 の試験成績書を同封いたしましたので、ご査収下さい。

申込者：SHANGHAI PYTES ENERGY CO., LTD.

敬 具

TEST REPORT

Report reference No. 25TR-K7012

Date & No. of reception April 15, 2025 (B25K0011)

Applicant (Name & address)

SHANGHAI PYTES ENERGY CO., LTD.

NO.3492 JINQIAN ROAD, FENGXIAN DISTRICT, SHANGHAI, CHINA

Name of product Battery system

Model/Type reference V5°, V5° α

Rating and principal characteristics

51.2V,100Ah

Test Standard JIS C 8715-2:2024

Date of issue Pass

August 5, 2025



Kazuo Ohara
Director, Kansai Laboratory
Japan Electrical Safety & Environment
Technology Laboratories (JET)

Testing laboratory

Japan Electrical safety & Environment Technology Laboratories

- ☐ JET Tokyo Laboratory
5-14-12 Yoyogi, Shibuya-ku, Tokyo, 151-8545, Japan
- ☐ JET Yokohama Laboratory
1-12-30 Motomiya, Tsurumi-ku, Yokohama, Kanagawa, 230-0004, Japan
- ☐ JET Kansai Laboratory
4-1, Kouyo-cho Nishi, Higashinada-ku, Kobe, Hyogo, 658-0033, Japan
- ☐ JET Power Technology Testing Laboratory
1-12-28 Motomiya, Tsurumi-ku, Yokohama, Kanagawa, 230-0004, Japan
- ☒ Other Location (TUV SUD New Energy Testing (Guangdong) Co., Ltd.)
Address : North-1/F, 2/F & Unit 301-3/F, TÜV SÜD Testing Center,D1,
No.63 Chuangqi Road, Shilou Town, Panyu District,Guangzhou
511447, China

Date of sample received April 21, 2025

Period of test April 17, 2024 until July 30, 2025

Tested by Kenji Nishioka

Approved by Hideo Ichimaru

Possible test case verdicts

- N (A) : Test case does not apply to the test object.
- P(ass) : Test item does meet the requirement.
- F(Fail) : Test item does not meet the requirement.
- : Test item not applied.

General remarks

- The test results presented in this report relate only to the object tested.
- This report shall not be reproduced except in full without the written approval of JET.

JIS C 8715-2:2024			
Clause	Requirement – Test	Result	Verdict
4	PARAMETER MEASUREMENT TOLERANCES		<i>P</i>
	Parameter measurement tolerances		<i>P</i>
5	GENERAL SAFETY CONSIDERATIONS		<i>P</i>
5.1	General		<i>P</i>
	Cells and batteries are safe under conditions of both intended use and reasonably foreseeable misuse		<i>P</i>
	Reduce the risk of injuries from moving parts		<i>N</i>
5.2	Insulation and wiring		<i>P</i>
	Voltage, current, altitude, and humidity requirements		<i>P</i>
	Adequate clearances and creepage distances between connectors and live parts at different voltages or between live parts and non-current-carrying accessible parts		<i>P</i>
	Protect from hazardous live parts, including during installation		<i>P</i>
	The mechanical integrity of internal connections		<i>P</i>
5.3	Venting		<i>P</i>
	Pressure relief function		<i>P</i>
	Encapsulation used to support cells within an outer casing		<i>P</i>
5.4	Temperature/voltage/current management		<i>P</i>
	The design prevents abnormal temperature-rise		<i>P</i>
	Voltage, current, and temperature limits of the cells		<i>P</i>
	Specifications and charging instructions for equipment manufacturers		<i>P</i>
5.5	Terminal contacts of the battery pack and/or battery system		<i>P</i>
	Polarity marking(s)		<i>P</i>
	Polarity marking not provided for keyed external connector		<i>N</i>
	Capability to carry the maximum anticipated current		<i>P</i>
	External terminal contact surfaces		<i>P</i>
	Terminal contacts are arranged to minimize the risk of short circuits		<i>P</i>
5.6	Assembly of cells, modules, or battery packs into battery systems		<i>P</i>
5.6.1	General		<i>P</i>
	Independent control and protection method(s)		<i>P</i>

JIS C 8715-2:2024			
Clause	Requirement – Test	Result	Verdict
	Recommendations of cell operating limits, mounting advice, storage conditions and other design recommendations by the cell manufacturer		P
	Batteries designed for the selective discharge of a portion of their series connected cells		P
	Protective circuit component(s) and consideration to the end-device application		P
5.6.2	Battery system design		P
	The voltage control function		P
	Maximum charging/discharging current of the cell are not exceeded		P
5.7	Operating region of lithium cells and battery systems for safe use		P
	The cell operating region	Product Specification	P
	Designation of battery system to comply with the cell operating region		P
5.8	System lock (or system lock function)		P
	Non-resettable function to stop battery operation		P
	Manual with procedure for resetting of battery operation		P
	Emergency battery final discharge	Product Specification	P
5.9	Quality plan		P
	Manufacturing quality plan (for example: JIS Q 9001, etc.) prepared and implemented	ISO 9001:2015 Certificate	P
	The process capabilities and the process controls		N
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 JIS C 8715-2:2024)	Manufacturing date: 2025.04.08	P
	Capacity confirmation of the cells or batteries	(See attached table)	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
	The cells or batteries charged using the method specified by the manufacturer		P

JIS C 8715-2:2024			
Clause	Requirement – Test	Result	Verdict
7.2	Reasonably foreseeable misuse		<i>P</i>
7.2.1	External short-circuit test (cell or cell block)		<i>P</i>
	Results: no fire, no explosion	<i>The cell is certified. (Registration number: 1764-C9903-404)</i>	<i>P</i>
7.2.2	Impact test (cell or cell block)		<i>P</i>
	Results: no fire, no explosion.	<i>The cell is certified. (Registration number: 1764-C9903-404)</i>	<i>P</i>
7.2.3	Drop test (cell or cell block, and battery system)		<i>P</i>
7.2.3.1	General		<i>P</i>
7.2.3.2	Whole drop test (cell or cell block, and battery system)		<i>P</i>
	Results: no fire, no explosion	<i>The cell is certified. (Registration number: 1764-C9903-404)</i>	<i>P</i>
7.2.3.3	Edge and corner drop test (cell or cell block, and battery system)		<i>P</i>
	Results: no fire, no explosion	<i>(See attached table)</i>	<i>P</i>
7.2.4	Thermal abuse test (cell or cell block)		<i>P</i>
	Results: no fire, no explosion	<i>The cell is certified. (Registration number: 1764-C9903-404)</i>	<i>P</i>
7.2.5	Overcharge test (cell or cell block)		<i>P</i>
	Results: no fire, no explosion	<i>The cell is certified. (Registration number: 1764-C9903-404)</i>	<i>P</i>
7.2.6	Forced discharge test (cell or cell block)		<i>P</i>
	Results: no fire, no explosion	<i>The cell is certified. (Registration number: 1764-C9903-404)</i>	<i>P</i>
7.3	Considerations for internal short-circuit – Design evaluation		<i>P</i>
7.3.1	General		<i>P</i>
7.3.2	Internal short-circuit test (cell)		<i>P</i>
	Results: no fire	<i>The cell is certified. (Registration number: 1764-C9903-404)</i>	<i>P</i>
7.3.3	Propagation test (battery system)		<i>N</i>
	Method to create a thermal runaway in one cell :		<i>N</i>
	Results: No external fire from the battery system, no battery case rupture..... :		<i>N</i>

JIS C 8715-2:2024			
Clause	Requirement – Test	Result	Verdict
8	BATTERY SYSTEM SAFETY (CONSIDERING FUNCTIONAL SAFETY)		<i>P</i>
8.1	General requirements		<i>P</i>
	Functional safety analysis for critical controls		<i>P</i>
	Conduct of a process hazard analysis for both the cell manufacturing process and the battery system manufacturing process		<i>P</i>
	Conduct of risk assessment and mitigation of the battery system		<i>P</i>
8.2	Battery management system (or battery management unit)		<i>P</i>
8.2.1	Requirements for the BMS		<i>P</i>
	The safety integrity level (SIL) target of the BMS		<i>P</i>
	The charge control evaluated by tests in clauses 8.2.2 to 8.2.4		<i>P</i>
8.2.2	Overcharge control of voltage (battery system)		<i>P</i>
	The exceeded charging voltage applied to the whole battery system	<i>Test Voltage:65.12V</i>	<i>P</i>
	The exceeded charging voltage applied to only a part of the battery system, such as the cell(s)		<i>N</i>
	Results: no fire, no explosion	<i>(See attached table)</i>	<i>P</i>
	The BMS terminated the charging before exceeding the upper limit charging voltage		<i>P</i>
8.2.3	Overcharge control of current (battery system)		<i>P</i>
	Results: no fire, no explosion	<i>(See attached table)</i>	<i>P</i>
	The BMS detected the overcharging current and controlled the charging to a level below the maximum charging current	<i>Test Current:90.0A</i>	<i>P</i>
8.2.4	Overheating control (battery system)		<i>P</i>
	The cooling system, if provided, was disconnected		<i>N</i>
	Elevated temperature for charging, 5 °C above maximum operating temperature	<i>Test temperature : 60.0 °C</i>	<i>P</i>
	Results: no fire, no explosion	<i>(See attached table)</i>	<i>P</i>
	The BMS detected the overheat temperature and terminated charging		<i>P</i>
	The battery system operated as designed during test		<i>P</i>
9	EMC		—
	Battery system fulfil EMC requirements of the end-device application.....		—

JIS C 8715-2:2024			
Clause	Requirement – Test	Result	Verdict
10	INFORMATION FOR SAFETY		<i>P</i>
	The cell manufacturer provides information about current, voltage and temperature limits of their products	<i>Product Specification</i>	<i>P</i>
	The battery system manufacturer provides information regarding how to mitigate hazards to equipment manufacturers or end-users.	<i>Technical specification</i>	<i>P</i>
11	MARKING AND DESIGNATION		<i>P</i>
	The marking items shown in JIS C 8715-1:2018 indicated on the cell, battery system or instruction manual.		<i>P</i>
	Cell or battery system has clear and durable markings		<i>P</i>
	Cell designation		<i>N</i>
	Battery designation		<i>P</i>
	Battery structure formulation		<i>N</i>
12	PACKAGING AND TRANSPORT		<i>P</i>
	Refer to Annex D		<i>P</i>

JIS C 8715-2:2024			
Clause	Requirement – Test	Result	Verdict
ANNEX A	OPERATING REGION OF CELLS FOR SAFE USE		<i>P</i>
ANNEX B	PROCEDURE OF 7.3.3 PROPAGATION TEST BY LASER IRRADIATION		<i>N</i>
ANNEX C	PROCEDURE OF 7.3.3 PROPAGATION TEST BY METHODS OTHER THAN LASER		<i>N</i>
ANNEX D	PACKAGING AND TRANSPORT		<i>P</i>

(Appended table)

7.1	Charging procedures for test purposes				P
Battery system			Rated capacity (Ah):	100	
Discharging					
Ambient Temp. (°C)	0.2I _A (A)	Rated discharge current (A)	Final voltage (V)	remark	
25±5	20.0	50.0	The system voltage reach to 45.9V or any cell voltage reach to 2.87V		
Charging					
Ambient Temp. (°C)	Charging voltage (V)	Charging current (A)	Condition at end	remark	
25±5	57.6	50.0	Charge at CC 50A until total voltage 57.6V or any cell 3.6V, Charge at CC 25A until total voltage 57.6V or any cell 3.6V, Charge at CC 10A until total voltage 57.6V or any cell 3.6V, Charge at CC 5A until total voltage 57.6V or any cell 3.6V	Rest Time:30min	

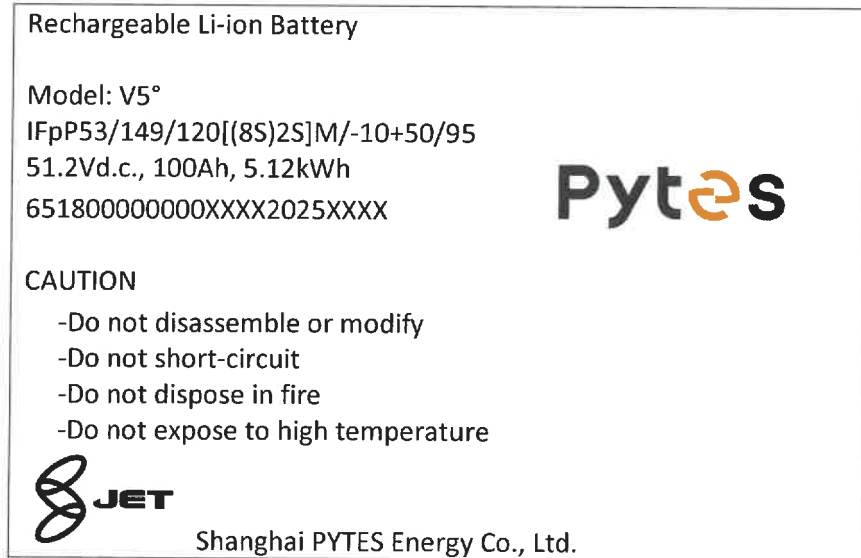
7.2.3.3 (6.2, 7.1)	Edge and corner drop test (cell or cell block, and battery system)						<i>P</i>
	Height of drop (cm):				10		—
	Test method:				Whole		—
	Rated capacity (Ah):				100		—
No.	Ambient Temp. (pre) (°C)	Measured capacity (Ah)	Ambient Temp. (test) (°C)	OCV (V)	Visual inspection	Mass (kg)	Results
1	25.0	101.2	25.0	53.65	No difference	45.20	No fire, No explosion
Supplementary information:							

8.2.2		Overcharge control of voltage (battery system)					P
		Maximum current for specified charger (A):			75		—
		Upper limit charging voltage for cell (V) :			3.7		—
		Test method:			Whole		—
No.	Test Temp. (°C)	OCV (V)	Test voltage (V)	Test current (A)	Max. voltage for cell (V)	Results	
1	25.0	47.07	65.12	75.12	3.657	No fire, No explosion	
Supplementary information:							
Protection value: 3.65V (design value)							

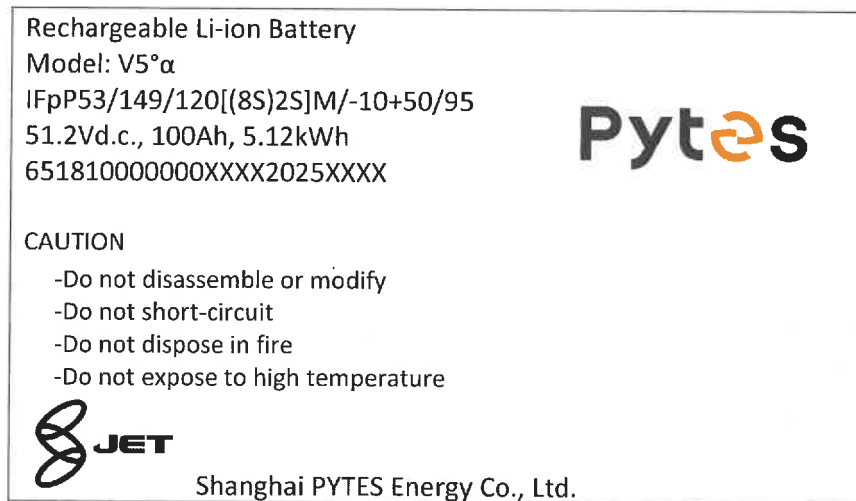
8.2.3		Overcharge control of current (battery system)				P
		Maximum charging current for cell (A):			100	—
No.	Test Temp. (°C)	OCV (V)	Test current (A)	Results		
1	25.0	47.11	90.02	No fire, No explosion		
Supplementary information:						
Maximum charging current for battery system : 75A						
Protection value: 85A						

8.2.4	Overheating control (battery system)					<i>P</i>
	Upper limit temperature for cell (°C) :			55	—	
	State of charge :			SOC50%	—	
	Charging current specified by the battery system supplier (°C) :			50	—	
	Target temperature (°C) :			60	—	
No.	Ambient Temp. (test) (°C)	Max. surface temp. for cell (°C)	OCV (V)	Test current (A)	Results	
1	59.0	59.0	52.88	50.07	No fire, No explosion	
Supplementary information: <i>Protection value : 53.0 °C</i>						

Copy of marking plate



Model : V5°

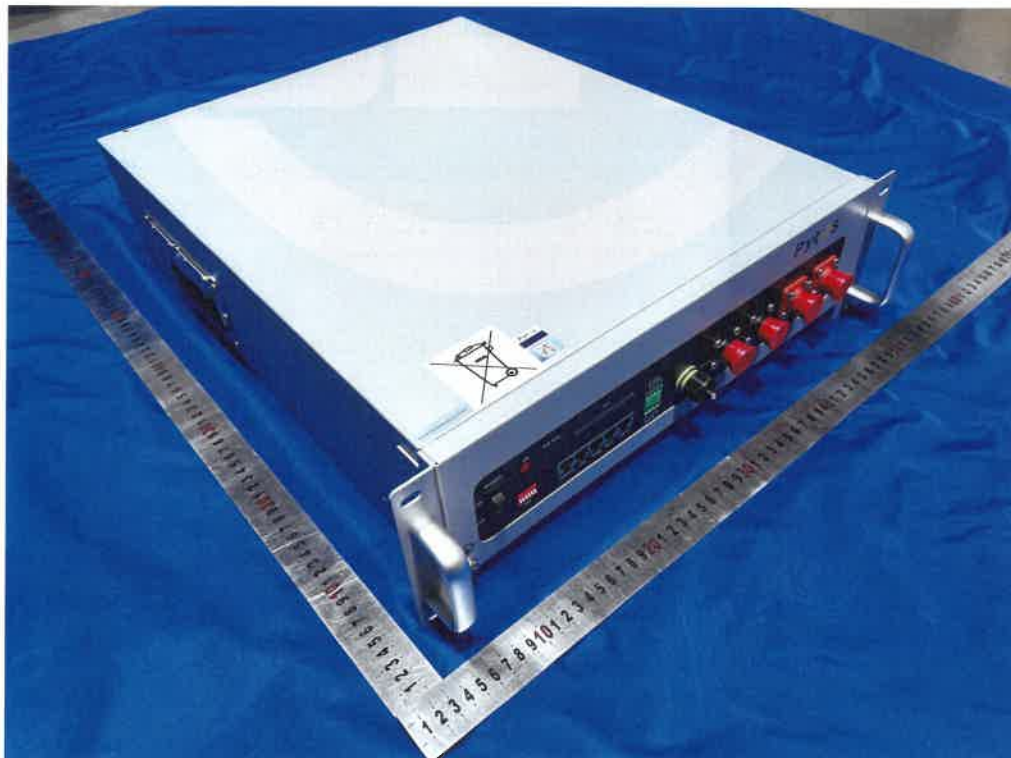


Model : V5°α

External photograph
(Battery system)



Model : V5°



Model : V5°α

-----End of The Report-----