



TEST REPORT

Applicant : Guangzhou Felicity Solar Technology Co., Ltd
Address : No. 2, Donghua Huaye Road, Renhe Town, Baiyun Area, Guangzhou

Manufacturer : Guangzhou Felicity Solar Technology Co., Ltd
Address : No. 2, Donghua Huaye Road, Renhe Town, Baiyun Area, Guangzhou

Product Name : Lithium Iron Phosphate Battery
Brand Name : felicitysolar
Model No. : LPBF24100-M
Ratings : 25.6Vd.c. 100Ah

Standard : Secondary cells and batteries containing alkaline or other non-acid electrolytes
- Safety requirements for secondary lithium cells and batteries, for use in industrial applications
IEC 62619: 2022

Date of Receiver : May 24, 2024
Date of Test : May 24, 2024 to May 28, 2024
Date of Issue : June 27, 2024
Test Report Form No : NTCS-IEC 62619: 2022
Test Result : Pass *

This Test Report is Issued Under the Authority of :

Compiled by

Smile Tian / Engineer

Approved by



Jason Tong / Manager

*Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of Shenzhen Nore Testing Center Co., Ltd. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

Summary of testing:

Tests performed (name of test and test clause):

cl.7.2.3.3 Edge and corner drop 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)

The component cell (FLS-Z100Ah) was evaluated according to IEC 62619:2022 by ATS certificate No. ATSA240505621

The samples comply with the requirement of IEC 62619:2022.

Factory : Guangzhou Felicity Solar Technology Co., Ltd
Address : No. 2, Donghua Huaye Road, Renhe Town, Baiyun Area, Guangzhou

Testing location:

ATS Electronic Technology Co., Ltd.

3/F. of Building A, 1/F. of Building B & 1/F. of Building C, No.1, Hedong 3rd Road, Jinxia Community, Changan, Dongguan, Guangdong, China

Summary of compliance with National Differences (List of countries addressed):

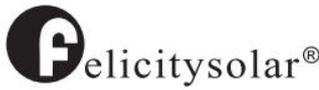
N/A

The product fulfils the requirement of EN IEC 62619:2022

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

Battery label:



Make life full of hope

Lithium iron phosphate battery

Model	LPBF24100-M
Nominal Voltage	25.6V
Energy	2.5kWh
Nominal Capacity	100AH
Operating Voltage	24-28.8V
Recommend Charge/ Discharge Current	≤60A
Recommend Charge/ Discharge Power	≤1500W
Scalability	Up to 6 units in parallel
Communication	RS485 / CAN
Cycle Life	≥6000@25°C, 80%DOD
Charging Temperature Range	0-55°C
Discharging Temperature Range	-20-60°C

IFpP/49/175/135/[1P8S]M/-20+50/95








SN:0716048200xxxxxxxxx

CODE: 0324

Label of caution:



Remark:

1: The date code "0716048200xxxxxxx"

1.1: The first and second "x" stands for year.

1.2: The third and fourth "x" stands for week

1.3: The fifth, sixth, seventh and eighth "x" represents the flow code.

Test item particulars :	
Classification of installation and use :	To be defined in final product
Supply Connection	Not directly connected to mains
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	2024-05-24
Date (s) of performance of tests	2024-05-24 to 2024-05-28
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 <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.	
Manufacturer's Declaration per sub-clause 4.2.5 of IEC 60335-1:	
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 :	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable
When differences exist; they shall be identified in the General product information section.	

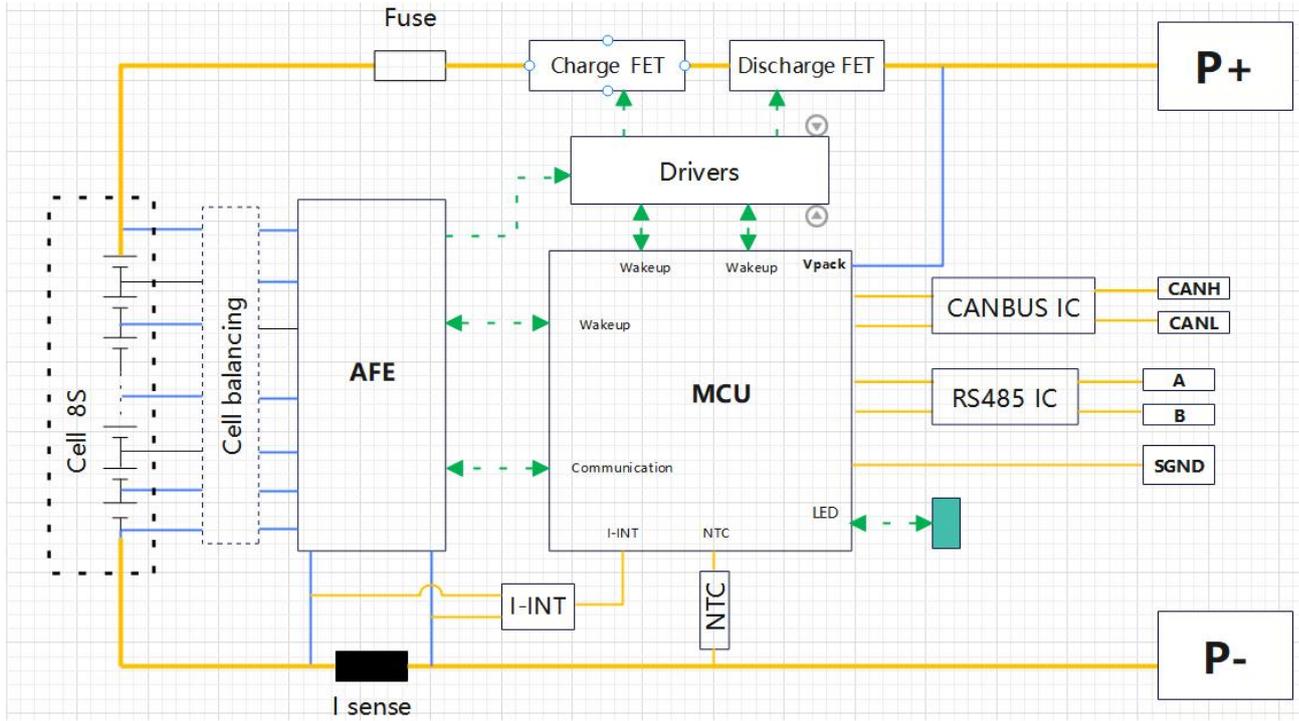
General product information and other remarks:

-The LPBF24100-M is a LiFePO4 Battery System with a nominal voltage of 25.6Vd. c and a nominal capacity of 100Ah (LiFePO4 25.6V 100Ah) which is used in energy storage applications.

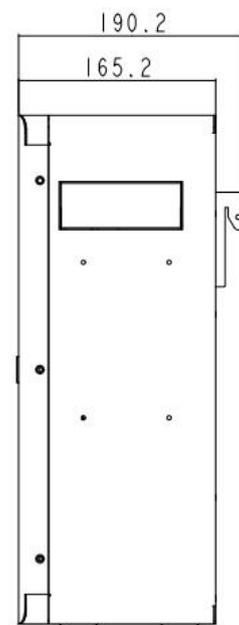
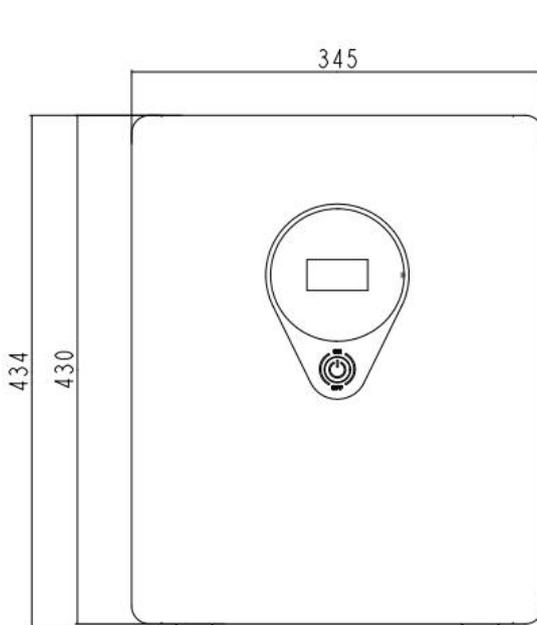
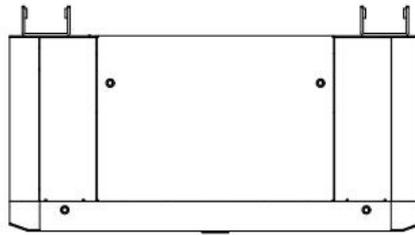
The main features of the battery are shown as below:

Item	Component Cell used inside	Battery System
Model Designation	FLS-Z100Ah	LPBF24100-M
Rated capacity (Ah)	100	100
Nominal voltage (V)	3.2	25.6
Maximum Charging Current (A)	100	80
Maximum Discharging Current (A)	200	80
Charge temperature Range (°C)	0 to 55	0 to 55
Discharge temperature Range (°C)	-20 to 60	-20 to 60
Standard Fully Charge Voltage (V)	3.65	28.8
Maximum Charging Voltage (V)	3.80	28.8
End of discharge voltage (V)	2.5	24
Weight	Approx. 2.12 kg	Approx. 22kg
Designation	IFpP/49/175/135/M/-20+50/95	IFpP/49/175/135/[1P8S]M/-20+50/95
Battery configuration		
Cell in connection	1P8S	
Recommend charging method declared by the manufacturer	Charge the battery at constant current 60A until voltage reaches 28.8V, then charge at constant voltage 28.8V till charge current is 5A	
Recommend discharging method declared by the manufacturer	Discharging the battery with 80A constant current to discharge cut off voltage 22.4V.	
External dimension (mm)	345mm * 434mm * 195mm (Length x Width x Height)	

The topology diagram as followed:



Structure (mm):



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, Clause 7, 8.1, and 8.2. See also table 5.1 for Critical components information	P
	Reduce the risk of injuries from moving parts		P
5.2	Insulation and wiring		P
	Voltage, current, altitude, and humidity requirements		P
	Adequate clearances and creepage distances between connectors and live parts at different voltages or between live parts and non-current-carrying accessible parts		P
	Protect from hazardous live parts, including during installation		P
	The mechanical integrity of internal connections		P
5.3	Venting		P
	Pressure relief function	Vent design in cell.	P
	Encapsulation used to support cells within an outer casing		P
5.4	Temperature/voltage/current management		P
	The design prevents abnormal temperature-rise	Overcharge, over discharge, over current and short-circuit proof circuit used in this battery.	P
	Voltage, current, and temperature limits of the cells		P
	Specifications and charging instructions for equipment manufacturers		P
5.5	Terminal contacts of the battery pack and/or battery system		P
	Polarity marking(s)		P
	Polarity marking not provided for keyed external connector		P
	Capability to carry the maximum anticipated current		P
	External terminal contact surfaces		P
	Terminal contacts are arranged to minimize the risk of short circuits		P
5.6	Assembly of cells, modules, or battery packs into battery systems		P
5.6.1	General		P
	Independent control and protection method(s)		N/A

IEC 62619			
Clause	Requirement + Test	Result - Remark	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	No such design.	N/A
	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..... :	Listed in the specification of cell.	P
	Designation of battery system to comply with the cell operating region	Information mentioned in manufacturer's specifications.	P
5.8	System lock (or system lock function)		P
	Non-resettable function to stop battery operation	The battery system not deviates from the operating region during operation.	N/A
	Manual with procedure for resetting of battery operation		N/A
	Emergency battery final discharge		N/A
5.9	Quality plan		N/A
	Manufacturing quality plan (for example: ISO9001, etc.) prepared and implemented		N/A
	The process capabilities and the process controls		N/A
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	Tests were carried out in an ambient temperature of 25±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..... :	The method mentioned in manufacturer's specifications.	P

IEC 62619			
Clause	Requirement + Test	Result - Remark	Verdict
7.2	Reasonably foreseeable misuse		P
7.2.1	External short-circuit test (cell or cell block)	Test report approved cell used.	N/A
	Short circuit with total resistance of $30m \pm 10m$ at $25^{\circ}C \pm 5^{\circ}C$		N/A
	Results: no fire, no explosion		N/A
7.2.2	Impact test (cell or cell block)	Test report approved cell used.	N/A
	Cylindrical cell, longitudinal axis impact		N/A
	Prismatic cell, longitudinal axis and lateral axis impact		N/A
	Results: no fire, no explosion.		N/A
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)	The mass of battery system is more than 20 kg.	N/A
	Description of the Test Unit..... :		—
	Mass of the test unit (kg)..... :		—
	Height of drop (m)..... :		—
	Results: no fire, no explosion		N/A
7.2.3.3	Edge and corner drop test (cell or cell block, and battery system)	Tested complied.	P
	Description of the Test Unit..... :	Battery system	—
	Mass of the test unit (kg)..... :	22.459kg	—
	Height of drop (m)..... :	0.1m	—
	Results: no fire, no explosion		P
7.2.4	Thermal abuse test (cell or cell block)	Test report approved cell used.	N/A
	Results: no fire, no explosion		N/A
7.2.5	Overcharge test (cell or cell block)	Test report approved cell used.	N/A
	For those battery systems that are provided with only a single protection for the charging voltage control		—
	Results: no fire, no explosion..... :		N/A
7.2.6	Forced discharge test (cell or cell block)	Test report approved cell used.	N/A
	Cells connected in series in the battery system..... :		N/A
	Redundant or single protection for discharge voltage control provided in battery system..... :		N/A
	Target Voltage..... :		N/A
	Maximum discharge current of the cell, I_m :		N/A
	Discharge current for forced discharge, 1.0 It..... :		N/A
	Discharging time, $t = (1 It / I_m) \times 90$ (min.)..... :		N/A

IEC 62619			
Clause	Requirement + Test	Result - Remark	Verdict
	Results: no fire, no explosion	N/A
7.3	Considerations for internal short-circuit – Design evaluation		N/A
7.3.1	General	Test report approved cell used.	N/A
7.3.2	Internal short-circuit test (cell)		N/A
	Samples preparation procedure: In accordance with Clause A.5 and A.6 of IEC 62133-2:2017		N/A
	Tested per 7.3.2 b) in an ambient temperature of 25 °C ± 5 °C.		N/A
	The appearance of the short-circuit location recorded by photograph or other means		—
	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		N/A
	Results: no fire, no explosion	7.3.2 for cell have been tested.	N/A
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		N/A

8	BATTERY SYSTEM SAFETY (CONSIDERING FUNCTIONAL SAFETY)		P
8.1	General requirements		P
	Functional safety analysis for critical controls	Not request by client	N/A
	Conduct of a process hazard analysis for both the cell manufacturing process and the battery system manufacturing process		P
	Conduct of risk assessment and mitigation of the battery system	Not request by client	N/A
8.2	Battery management system (or battery management unit)		P
8.2.1	Requirements for the BMS		P
	The safety integrity level (SIL) target of the BMS		P
	The charge control evaluated by tests in clauses 8.2.2 to 8.2.4		P
8.2.2	Overcharge control of voltage (battery system)		P
	The exceeded charging voltage applied to the whole battery system		P
	The exceeded charging voltage applied to only a part of the battery system, such as the cell(s)		P
	Results: no fire, no explosion	See Table 8.2.2.	P
	The BMS terminated the charging before exceeding the upper limit charging voltage		P

IEC 62619			
Clause	Requirement + Test	Result - Remark	Verdict
8.2.3	Overcharge control of current (battery system)		P
	Results: no fire, no explosion	See Table 8.2.3	P
	The BMS detected the overcharging current and controlled the charging to a level below the maximum charging current		P
8.2.4	Overheating control (battery system)		P
	The cooling system, if provided, was disconnected		P
	Elevated temperature for charging, 5 °C above maximum operating temperature		P
	Results: no fire, no explosion	See Table 8.2.4	P
	The BMS detected the overheat temperature and terminated charging		P
	The battery system operated as designed during test		P
9	EMC		N/A
	Battery system fulfil EMC requirements of the end-device application	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.		P
11	MARKING AND DESIGNATION (REFER TO CLAUSE 5 OF IEC 62620)		N/A
	The marking items shown in Table 1 in IEC 62620 indicated on the cell, battery system or instruction manual.		N/A
	Cell or battery system has clear and durable markings		N/A
	Cell designation		N/A
	Battery designation		N/A
	Battery structure formulation		N/A
12	PACKAGING AND TRANSPORT		N/A
	Refer to Annex D		N/A
ANNEX A	OPERATING REGION OF CELLS FOR SAFE USE		P
A.1	General		P

IEC 62619			
Clause	Requirement + Test	Result - Remark	Verdict
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	Charging high temperature limit 55°C	P
A.6	Low temperature range	Charging low temperature limit 0°C	P
A.7	Discharging conditions for safe use	-20~60°C	P
A.8	Example of operating region		P

ANNEX B	PROCEDURE OF 7.3.3 PROPAGATION TEST	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
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	
	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	—

IEC 62619			
Clause	Requirement + Test	Result - Remark	Verdict
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		N/A
	The materials and pack design chosen in such a way as to prevent the development of unintentional electrical conduction, corrosion of the terminals and ingress of environmental contaminants		N/A
	Regulations concerning international transport of secondary lithium batteries		N/A

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⁾	
Cell	Guangzhou Felicity Solar Technology Co., Ltd	FLS- Z100AH	100Ah, 3.2V	IEC 62619: 2022	ATS certificate No.:ATSA240 505621	
Battery:						
Metal Enclosure	DONGGUAN DIYE METAL MANUFACTURI NG CO.,LTD	Iron Shell	Sheet Metal, min. 1.4mm thick. SIZE:434mm*345 mm*190mm	IEC 62619: 2022	Tested with appliance	
Alternative	Interchangeable	Interchangeable	Min. 1.4mm thick. SIZE: SIZE:434mm*345 mm*190mm	IEC 62619: 2022	Tested with appliance	
FUSE	ADLER Elektrotechnik Leipzig GmbH	AEY3150900	70VDC, 150A	ISO 20934:2019	TUV RH certificate No.: J 50551893 0001	
DC connector(B+)	SHENZHEN CONNECTION ELECTRONIC CO.,LTD.	DRTB35-QC-NH T2 RD	TA: -40 to 120°C, 600V, 250A	IEC 62619: 2022	Tested with appliance	
DC connector(B-)	SHENZHEN CONNECTION ELECTRONIC CO.,LTD.	DRTB35-QC-NH T2 BK	TA: -40 to 120°C, 600V, 250A	IEC 62619: 2022	Tested with appliance	
Main PCB	SHEN ZHEN SHI CHANG DONG XIN PCB CO LTD	CDX-2	V-0,130°C	UL 94 UL 796	UL E327349	
Main PCB (Alternative)	Interchangeable	Interchangeable	V-0,130°C	UL 94 UL 796	UL approve	
Communication PCB	SHEN ZHEN SHI CHANG DONG XIN PCB CO LTD	CDX-1	V-0,130°C	UL 94 UL 796	UL E327349	
Communication PCB (Alternative)	Interchangeable	Interchangeable	V-0, 130°C	UL 94 UL 796	UL approve	
IC (U1)	SINO WEALTH	SH367309	VBAT: 8.5 to 65V, TA: -40 to 85°C	IEC 62619: 2022	Teste in appliance	

IEC 62619					
Clause	Requirement + Test			Result - Remark	Verdict
IC (U7)	GigaDevice Semiconductor Inc.	GD32F305RCT6	V _{DD} to V _{SS} : 7 to 40V, T _A : -40 to 85°C	IEC 62619: 2022	Test in appliance
MOSFET (Q1, Q2, Q3, Q4, Q5, Q6, Q7, Q8, Q17, Q18, Q19, Q20, Q21, Q22, Q23, Q24)	Wuxi NCE Power Co., Ltd	NCEP039N10D CGRB6	V _{DS} : 100V, I _D : 135A	IEC 62619: 2022	Teste in appliance
MOSFET (Q9-Q16, Q25, Q26, Q27, Q28, Q29, Q30, Q31, Q32)	Wuxi NCE Power Co., Ltd	NCEP039N10D CGRA1	V _{DS} : 100V, I _D : 135A	IEC 62619: 2022	Teste in appliance
NTC (T.CELL1, T.CELL2, T.CELL3, T.CELL4)	NANJING SHIHENG ELECTRONICS CO.,LTD	MF52A153F3950	T _{moa} : 100°C	IEC 62619: 2022	Teste in appliance
Lead wire	DONGGUAN ZHONGZHEN ENERGY TECHNOLOGY CO.,LTD	3512	4AWG, 200°C, 600Vac	UL758	UL E355578
Lead wire (Alternative)	Interchangeable	Interchangeable	7AWG minimum, min. 200°C, min. 600Vac	UL 758	UL approve
Supplementary information: 1) Provided evidence ensures the agreed level of compliance.					

7.2.1	TABLE: External short-circuit test (cell or cell block)					N/A
Sample No.	Ambient (at25°C±5°C)	OCV at start of test (V dc)	Resistance of Circuit (mΩ)	Maximum Case Temperature Rise ΔT (°C)	Results	
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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)					N/A
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
--	--	--	--	--	--	--
--	--	--	--	--	--	--
--	--	--	--	--	--	--

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): ____

7.2.6	TABLE: Forced discharge test (cell or cell block)				N/A
Sample No.	OCV before applying reverse charge, (V dc)	Target Voltage (V dc)	Measured Reverse Charge Current I _t , (A)	Total Time for Reversed Charge Application (min)	Results
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Supplementary information:
A - No fire or Explosion
B - Fire
C - Explosion
D - Other (Please explain): ____

7.3.2	TABLE: Internal short-circuit test (cell)				N/A
Sample No.	OCV at start of test, (V dc)	Particle location ¹⁾	Maximum applied pressure, (N)	Results	
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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 800/400 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): __

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
--	--	--	--	--	--
--	--	--	--	--	--
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Method of cell failure ¹⁾		Location of target cell		Area for fire protection (m ²)	
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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):__

8.2.2	TABLE: Overcharge control of voltage (battery system)				P
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
ATSP2405056 A A-001	2.941~2.974	80	29.127	3.629	A, D, F
			Charge Voltage Applied Battery System: ¹⁾		
			Whole	Part	
			33.44	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:

- 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): ____

8.2.3	TABLE: Overcharge control of current (battery system)			P
Sample No.	OCV at start of test, (V dc)	Max. Charging Current, (A)	Max. Charging Voltage, (V dc)	Results
ATSP2405056 A A-001	23.737	96	25.179	A, D, F
ATSP2405056 A A-001	24.071	101	25.473	A, D, F
ATSP2405056 A A-001	24.355	120	25.863	A, D, F

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)		P
Model No.	OCV at start (SOC 50%) of test, V dc	Maximum Charging Current, A	Maximum Charging Voltage, V dc	
ATSP2405056 A A-001	26.406	80	27.529	
Maximum Specified Temperature of Battery System, °C		Maximum Measured Cell Case Temperature, °C	Results	
55		54	A, D, F	

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): _____

9	TABLE: EMC				N/A
Standard used for EMC test:					
Sample No.	EMC Test Item	Battery Condition	EMC Test Level/ Parameters	Compliance Criteria	Results
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--

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): _____

Photo documentation

Photo 1



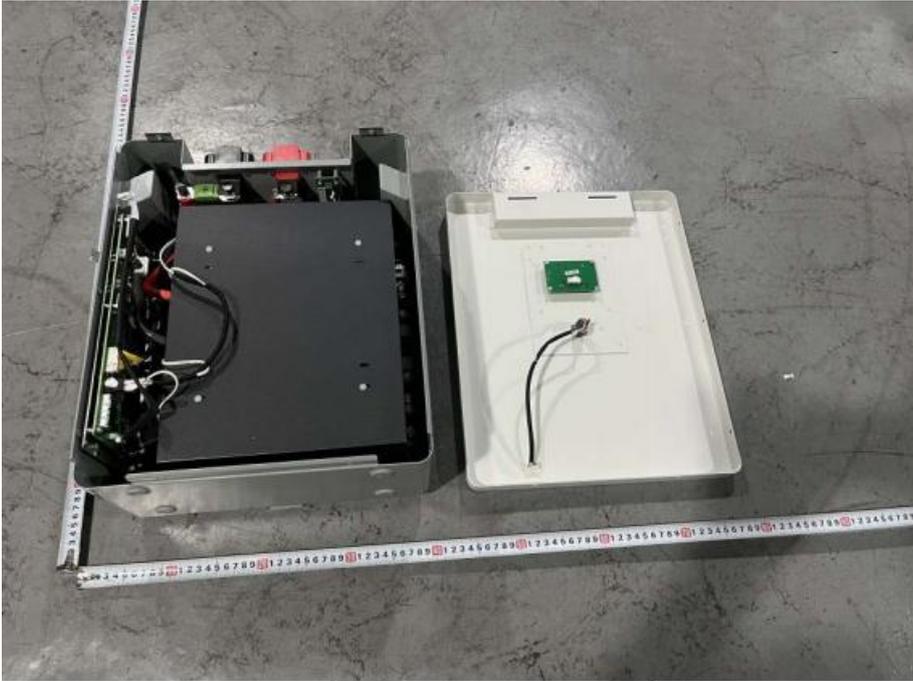
(Overall view 1 of battery)

Photo 2



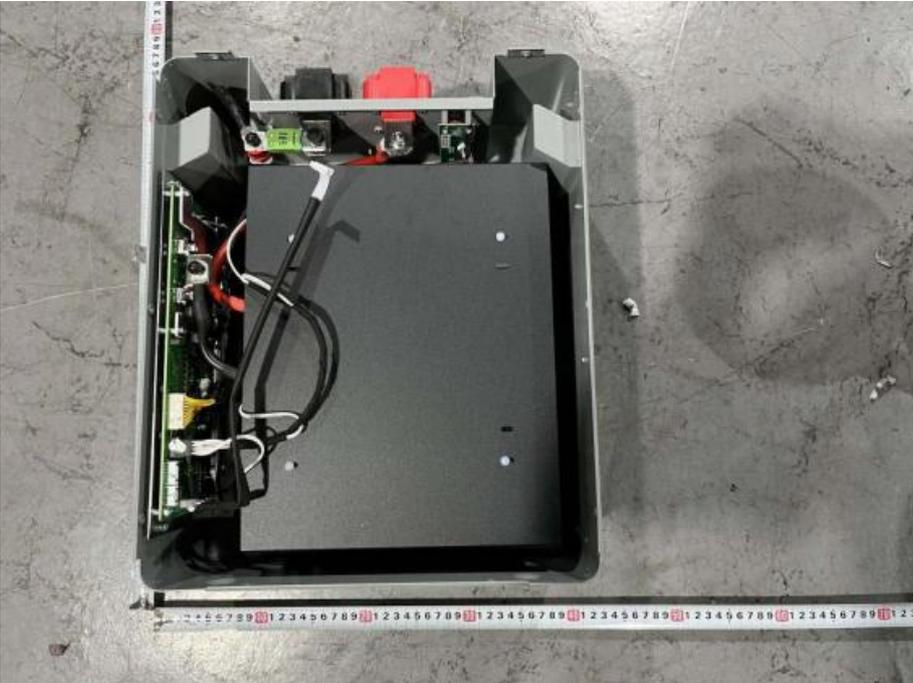
(Overall view 2 of battery)

Photo 3



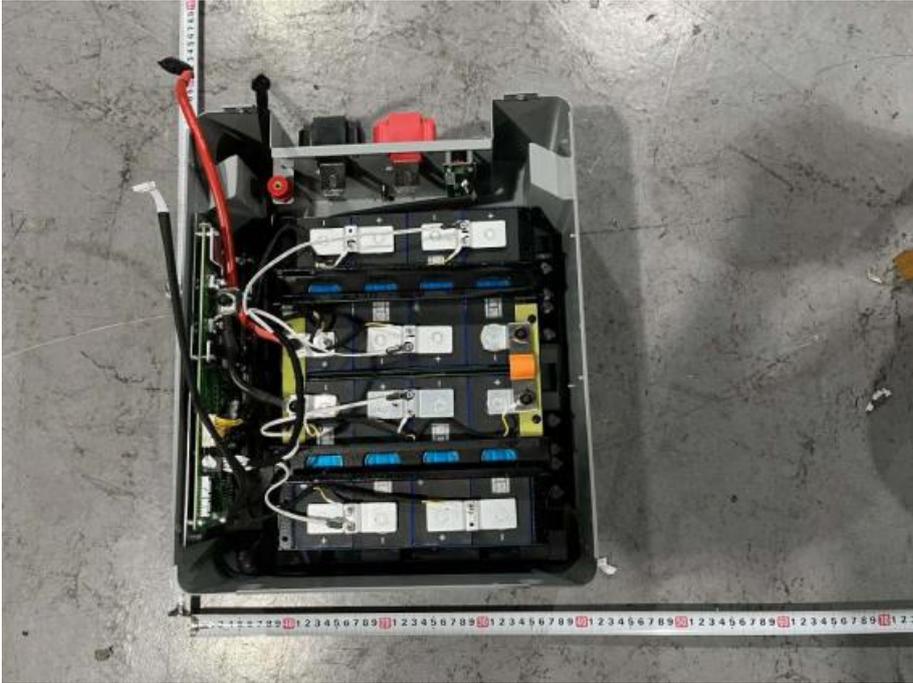
(Internal view 1 of battery)

Photo 4



(Internal view 2 of battery)

Photo 5



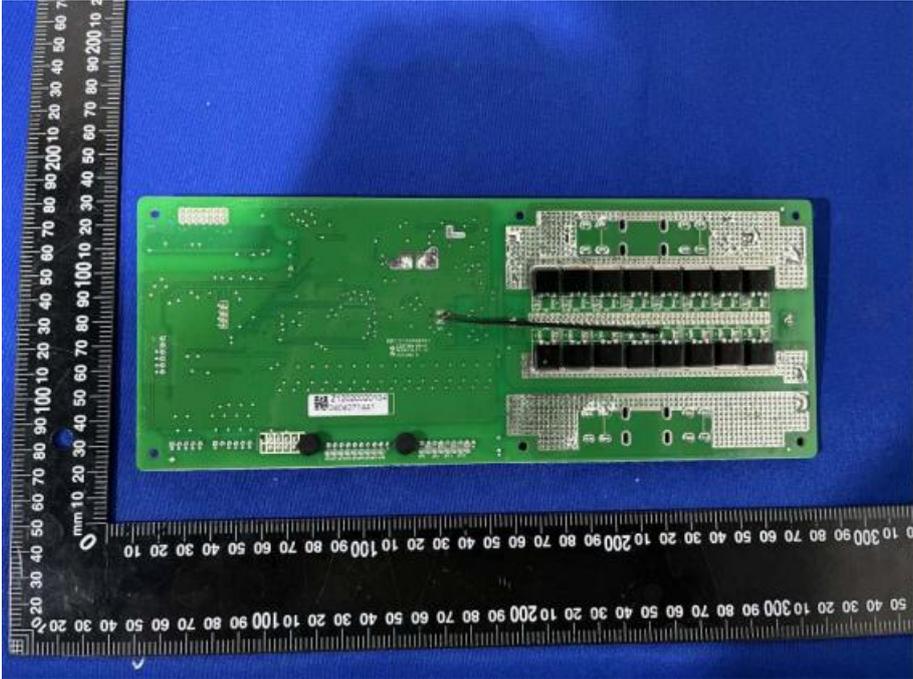
(Internal view 3 of battery)

Photo 6



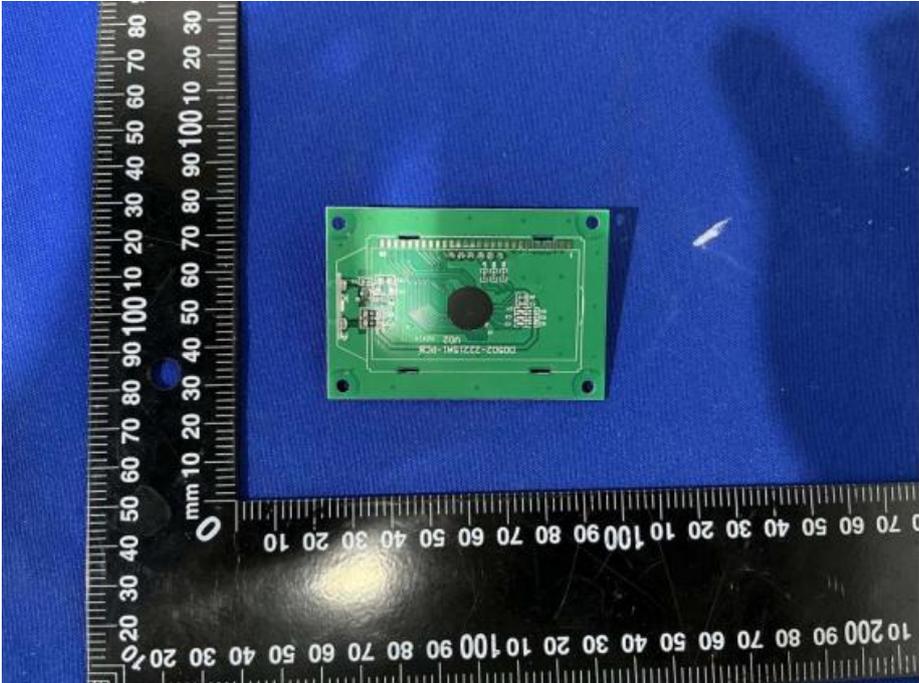
(Overall view 1 of BMS board)

Photo 7



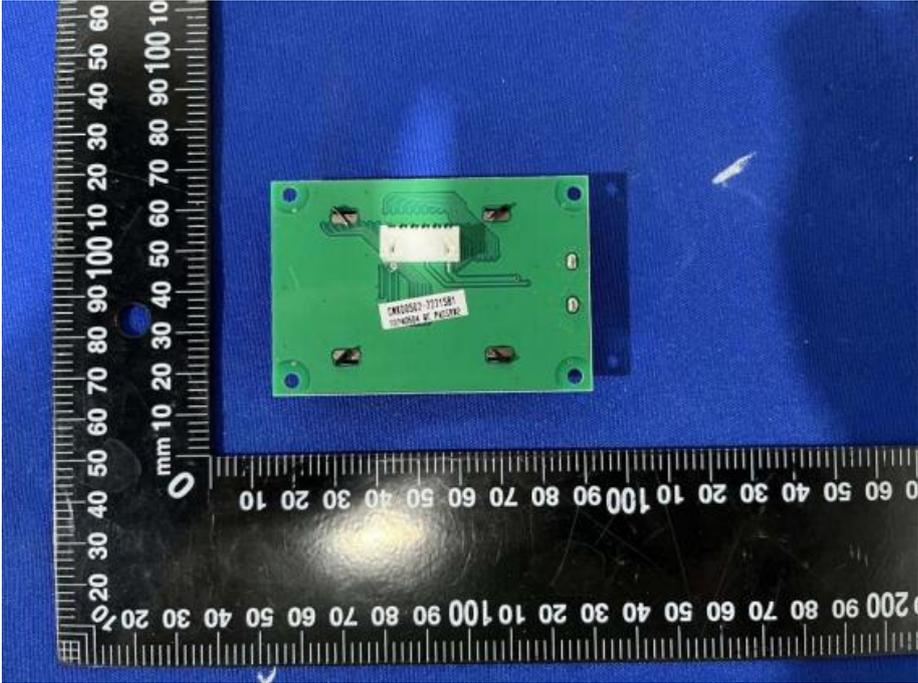
(Overall view 2 of BMS board)

Photo 8



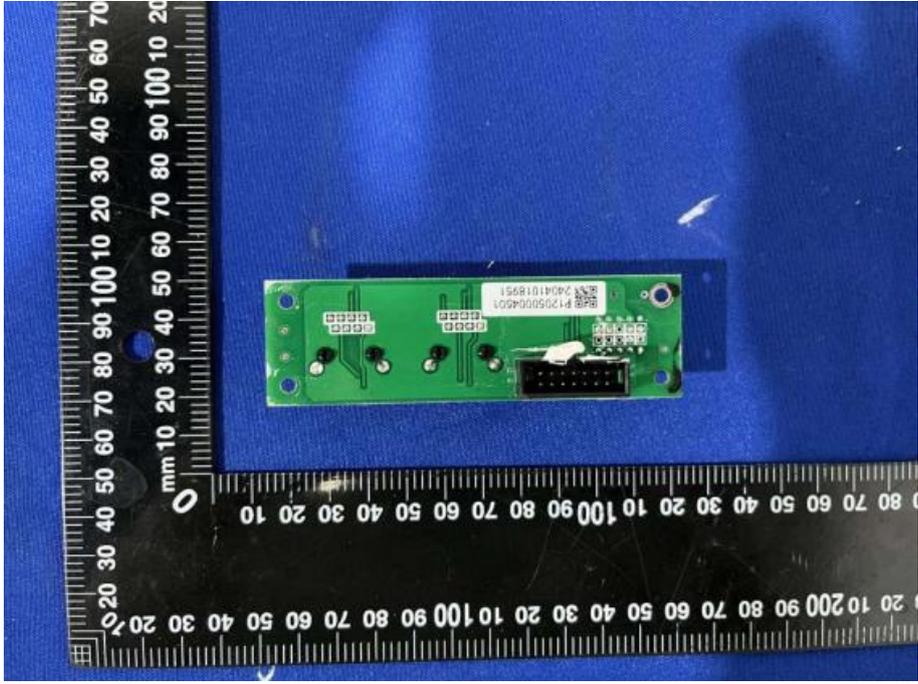
(Overall view 1 of PCB1)

Photo 9



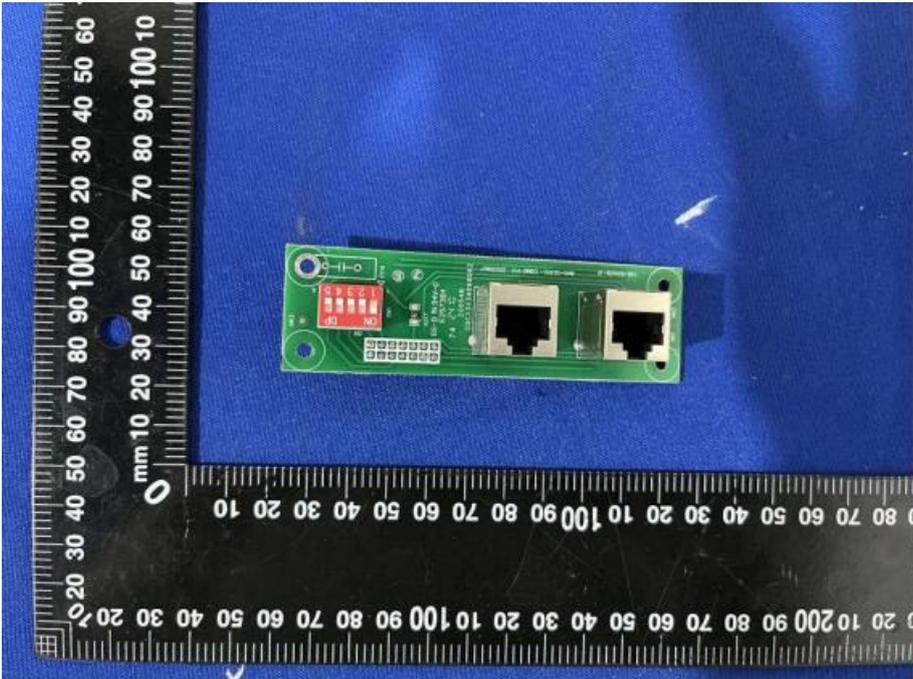
(Overall view 2 of PCB1)

Photo 10



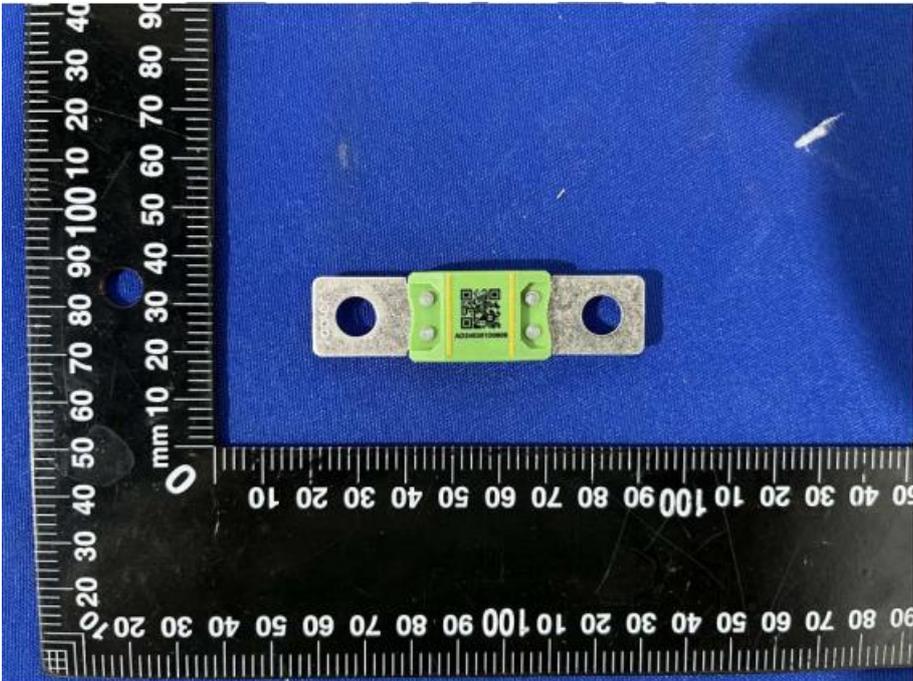
(Overall view 1 of PCB2)

Photo 11



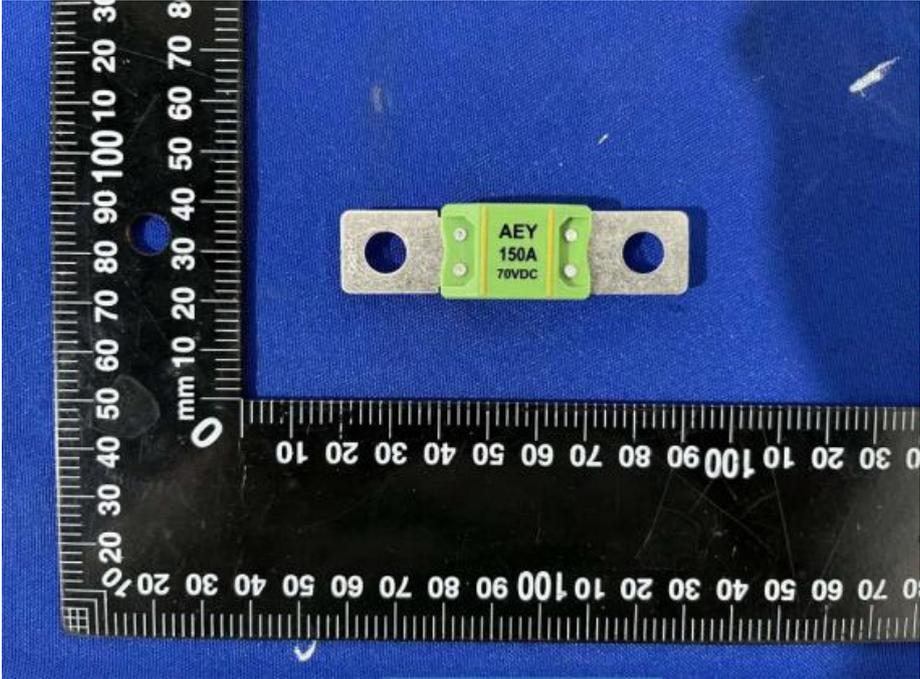
(Overall view 2 of PCB2)

Photo 12



(Overall view 1 of FUSE)

Photo 13



(Overall view 2 of FUSE)

-- End of report --