中国认可
国际互认
检测
TESTING
CNAS L20712

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..... :	CS10004113 01001
Date of issue..... :	2025-04-07
Total number of pages..... :	22
Testing Laboratory..... :	**Guangdong CRT Co., Ltd.**
Address..... :	Building 3, 45 Fulai Road, Liaobu Town, Dongguan City, Guangdong, China.
Tested by (name + signature)..... :	Vic Dai
Reviewed by (name + signature)... :	Cyndy Yuan
Approved by (name + signature)... :	Arvin Chen
Applicant's name..... :	HENGYANG GLOBAL POWER TECHNOLOGY Co., LTD
Address..... :	1 chemical road, Pine Industrial Park, Shigu District, Hengyang
Manufacturer's name..... :	HENGYANG RICH POWER CO., LTD
Address..... :	1 chemical road, Pine Industrial Park, Shigu District, Hengyang
Factory's name..... :	HENGYANG RICH POWER CO., LTD
Address..... :	1 chemical road, Pine Industrial Park, Shigu District, Hengyang
Test specification:	
Standard..... :	IEC 62619:2022
Test procedure..... :	Test report
Non-standard test method..... :	N/A

Test item description..... :	Rechargeable Li-ion Battery
Trade Mark..... :	N/A
Model/Type reference..... :	BAT-15KWH-51.2V
Ratings..... :	51.2V, 280Ah, 14336Wh

List of Attachments (including a total number of pages in each attachment): - Attachment (8 pages)	
Summary of testing:	
Tests performed (name of test and test clause): cl.7.2.3.3 Whole 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);	**Testing location:** **Guangdong CRT Co., Ltd.** Building 3, 45 Fulai Road, Liaobu Town, Dongguan City, Guangdong, China.
Summary of compliance with National Differences (List of countries addressed): EU group * *=No National or Group Differences declared ☒ **The product fulfils the requirements 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.

Rechargeable Li-ion Battery
Model : BAT-15KWH-51.2V
Normal Voltage : 51.2V
Rated Capacity : 280Ah
Rated Energy : 14336Wh
Data : YYYY.MM.DD
IFpP74/175/208[16S]E/-20+50/95
Polarity : Red(+)/Black(-)
CAUTION:
DON'T DISASSEMBLE
DON'T DISPOSE IN FIRE
DON'T IMPACTOR DROP BATTERY
DON'T SHORT CIRCUIT

Manufacturer:HENGYANG RICH POWER CO., LTD

Note:

Date Code: YYYY.MM.DD

YYYY: Represent year of manufacture;

MM: Represent month of manufacture;

DD: Represent day of manufacture;

For example “2024.03.26” means Manufacture Date “2024-03-26”.

Test item particulars..... :	
Classification of installation and use.....:	To be defined in final system
Supply Connection.....:	N/A
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.....:	2024-09-06
Date (s) of performance of tests.....:	2024-09-09 to 2024-09-25

General remarks:

"(See Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

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 the testing laboratory.
Throughout this report a point is used as the decimal separator.

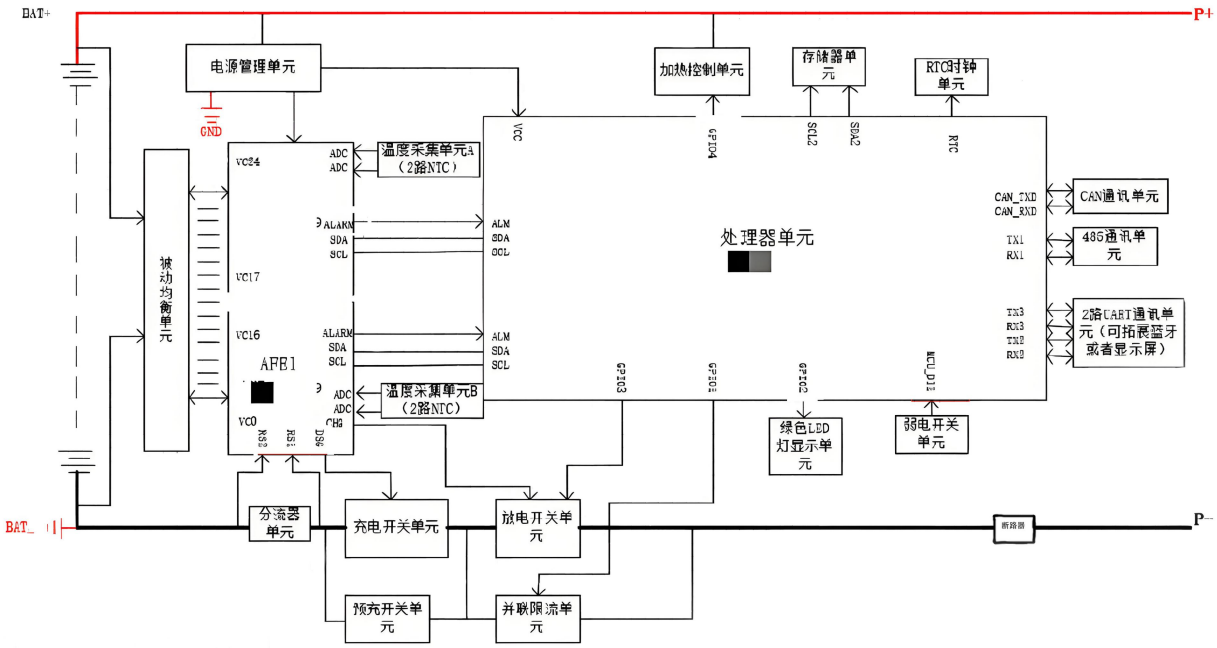
General product information and other remarks:

-The battery system is constructed with lithium-ion cells, and has overcharge, overdischarge, overcurrent, over temperature protection circuit.

This model (BAT-15KWH-51.2V) has not changed the test parameters except the applicant. The data reference file (CS10001356 01001)

-The battery system is consisting of 16 Lithium-ion cells in 16S1P connection.

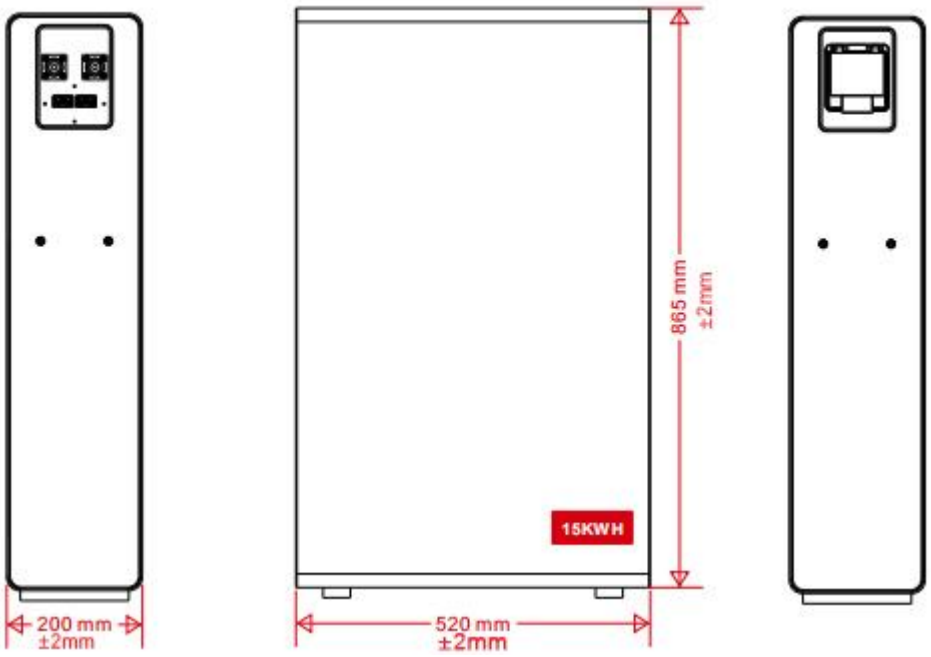
The cell (Model CB71173204EB) inside the battery is CB approved according to IEC 62619: 2022. (CB Certificate No.: JPTUV-147509, Report No.:CN23ZLAN 001)



Test sample model, See the table below for details:

Product name	Rechargeable Prismatic Lithium-ion Cell	Rechargeable Li-ion battery
Type/model	CB71173204EB	BAT-15KWH-51.2V
Rated capacity (Ah)	280	280
Nominal voltage(V)	3.2	51.2
Standard charge current (A)	280	140
Maximum charge current (A)	280	140
Standard Charge voltage(V)	3.65	55.2
Max. Charge voltage(V)	3.75	57.6
Standard discharge current (A)	280	140
Maximum discharge current (A)	280	140
Final discharge voltage(V)	2.5	44.8
Charging Temperature Range(°C)	0 ~ 60	0 ~ 50
Discharging Temperature Range(°C)	-30 ~ 65	-20 ~ 60
Storage Temperature Range(°C)	--	-30 ~ 60
Dimensions(mm)	71.7± 0.5mm(T)* 174.0 ± 0.5mm(W)* 206.8 ± 0.6mm(H)	520±2mm(T) * 200±2mm(W) 865±2mm(H)
Weight(kg)	5.34kg ± 0.15kg	124kg ± 2kg

Construction Unit: (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....:	See also table 5.1 for Critical components information.	P
	Reduce the risk of injuries from moving parts	No such components.	N/A
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	Venting mechanism exists on the top of 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		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)	Marking near the Power connector.	P
	Polarity marking not provided for keyed external connector		N/A
	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)		P
	Recommendations of cell operating limits, mounting advice, storage conditions and other design recommendations by the cell manufacturer		P

IEC 62619			
Clause	Requirement + Test	Result - Remark	Verdict
	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		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		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		P
5.9	**Quality plan**		**P**
	Manufacturing quality plan (for example: ISO9001, etc.) prepared and implemented.....:	Complied. ISO 9001: 2015 Certificate supplied.	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	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	Complied.	P
	The cells or batteries charged using the method specified by the manufacturer.....:	Information mentioned in Manufacturer's specifications	P
7.2	**Reasonably foreseeable misuse**		**P**
7.2.1	External short-circuit test (cell or cell block)	Approved cell used.	N/A

IEC 62619			
Clause	Requirement + Test	Result - Remark	Verdict
	Short circuit with total resistance of 30 mΩ ± 10 mΩ at 25 °C ± 5 °C		N/A
	Results: no fire, no explosion		N/A
7.2.2	Impact test (cell or cell block)	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)	Approved cell used.	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)	mass of test unit > 100 kg	P
	Description of the Test Unit.....:	Battery System	—
	Mass of the test unit (kg).....:	123.985kg	—
	Height of drop (m).....:	2.5cm	—
	Results: no fire, no explosion	No fire, no explosion	P
7.2.4	Thermal abuse test (cell or cell block)		N/A
	Results: no fire, no explosion	No fire, no explosion.	P
7.2.5	Overcharge test (cell or cell block)	Approved cell used.	N/A
	For those battery systems that are provided with only a single protection for the charging voltage control		N/A
	Results: no fire, no explosion.....:		N/A
7.2.6	Forced discharge test (cell or cell block)		—
	Cells connected in series in the battery system.....:	See Table 7.2.5.	N/A
	Redundant or single protection for discharge voltage control provided in battery system.....:	Approved cell used.	N/A
	Target Voltage.....:		N/A
	Maximum discharge current of the cell, Im.....:		N/A
	Discharge current for forced discharge, 1.0 It.....:		N/A
	Discharging time, t = (1 It / Im) x 90 (min.).....:		N/A
	Results: no fire, no explosion.....:		N/A
7.3	**Considerations for internal short-circuit – Design evaluation**		**N/A**
7.3.1	General		N/A

IEC 62619			
Clause	Requirement + Test	Result - Remark	Verdict
7.3.2	Internal short-circuit test (cell)	Approved cell used.	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.....:	See Table 7.3.2.	N/A
7.3.3	Propagation test (battery system)	Alternate test item 7.3.2 performed.	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		P
	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		P
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)..... :		N/A
	Results: no fire, no explosion.....:	See Table 8.2.2.	P
	The BMS terminated the charging before exceeding the upper limit charging voltage	Tested and complied.	P
8.2.3	Overcharge control of current (battery system)		P
	Results: no fire, no explosion.....:	See Table 8.2.3	P

IEC 62619			
Clause	Requirement + Test	Result - Remark	Verdict
	The BMS detected the overcharging current and controlled the charging to a level below the maximum charging current	Tested and complied.	P
8.2.4	Overheating control (battery system)		P
	The cooling system, if provided, was disconnected		N/A
	Elevated temperature for charging, 5 °C above maximum operating temperature..... :	55°C	P
	Results: no fire, no explosion.....:	See Table 8.2.4	P
	The BMS detected the overheat temperature and terminated charging	Tested and complied.	P
	The battery system operated as designed during test		P
9	**EMC**		**N/A**
	Battery system fulfil EMC requirements of the end-device application.....:		N/A
10	**INFORMATION FOR SAFETY**		**P**
	The cell manufacturer provides information about current, voltage and temperature limits of their products	Information for safety mentioned in manufacturer's specification.	P
	The battery system manufacturer provides information regarding how to mitigate hazards to equipment manufacturers or end-users.	Information for safety mentioned in manufacturer's specification.	P
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		N/A
	Battery designation	IFpP74/175/208[16S]E/-20+50/95	P
	Battery structure formulation	1P16S	P
12	**PACKAGING AND TRANSPORT**		P
	Refer to Annex D		P
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		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
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**		**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				
Object / part No.	**Manufacturer/ trademark**	**Type / model**	**Technical data**	**Standard**	**Mark(s) of conformity[1)]**
Metal enclosure	LIUZHOU IRON AND STEEL COMPANY LIMITED	520±2mm(L)* 200±2mm(W) *865±2mm(H)	Material:SGCC 520±2mm(L)* 200±2mm(W) * 865±2mm(H) Min.thickness 1.0mm	IEC 62619: 2022	Tested with appliance
Connector	Shenzhen Huayu Huitong Technology Co., Ltd	FTB250-08-M8-C	Material:Copper; Size:(37.0±0.2)mm * (37.0±0.2)mm	IEC 62619: 2022	Tested with appliance
(Alternative)	Interchangeable	Interchangeable	600V, 200A	IEC 62619: 2022	Tested with appliance
Circuit braker	Zhejiang BSB Electrical Appliances Co., Ltd.	B3T1-200	200A,80VDC	IEC/EN IEC 60934:2019	TUV AN 50521735
Internal wire of power	ECHU SPECIAL WIRE & CABLE (KUNSHAN) CO LTD	1015	Minimum 6AWG, minimum 600V, minimum 105ºC	UL 758	UL E312831
(Alternative)	Interchangeable	Interchangeable	Minimum 6AWG, minimum 600V, minimum 105ºC	UL 758	UL approval
Internal wire for collection	NISSEI ELECTRIC SHENZHEN CO LTD	1332	Minimum 24AWG, minimum 300V, minimum 200ºC, VW-1	UL 758	UL E318424
(Alternative)	Interchangeable	Interchangeable	Minimum 24AWG, minimum 300V, minimum 200ºC, VW-1	UL 758	UL approval
Internal BMS Power Wires	JIANGYIN TIANQI SILICONE RUBBER PRODUCTS CO LTD	3135	Minimum 16AWG, minimum 600V, minimum 200ºC	UL 758	UL E225526
(Alternative)	Interchangeable	Interchangeable	Minimum 16AWG, minimum 600V, minimum 200ºC	UL 758	UL approval
Foam	SABIC INNOVATIVE PLASTICS US L L C	B1A(FOAM)	Rated V-1, 95°C	UL 94 UL 746	UL E121562

IEC 62619			
Clause	Requirement + Test	Result - Remark	Verdict

(Alternative)	Interchangeable	Interchangeable	Min. V-1, 95°C	UL 94 UL 746	UL approved
Epoxy board	Jiangxi Aquila New Materials Co Ltd	YJL-01C.	Minimum 130 ºC, V-0, Minimun thickness: 0.38mm	UL 746E	UL E503090
(Alternative)	Interchangeable	Interchangeable	Minimum 130 ºC, V-0, Minimun thickness: 0.38mm	UL 746E	UL approved
Cell	REPT BATTERO Energy Co., Ltd.	CB71173204EB	3.2V, 280Ah	IEC 62619:2022	Report No.: CN23ZLAN 001 Certificate No.: JPTUV-147509
BMS board(RD-RJ4S100A-V2)					
PCB Board	SHENZHEN HANGSHENG PCB TECHNOLOGY CO LTD	D	Rated V-0, 130ºC	UL 746	UL E315835
(Alternative)	Interchangeable	Interchangeable	Rated V-0, 130ºC	UL 746	UL approved
MCU	ST	STM32F072VBT6LFP100	VDD:2.0V to 3.6V, -40 to 85℃	--	Tested with appliance
AFE	Nuvoton	KA49503A	V_{VBAT}:-0.3V to 99V, V_{CVDD}:-0.3V to 6.5V, -40 to 125℃	--	Tested with appliance
MOSFET (MM1 - MM28)	SILICON MAGIC Co., Ltd.	SDN10N2P7S2B	Vds: 100V, Id: 166A	--	Tested with appliance
Sampling Resister (RCJ1 - RCJ10)	Resi	ECSR2512	2mΩ, 3W	--	Tested with appliance
(Alternative)	Interchangeable	Interchangeable	2mΩ, 3W	--	Tested with appliance
NTC(T1)	SHENZHEN AMPRON TECHNOLOGY CO LTD	MF58-103X3435YB	10kohm at 25°C, Tmoa = 250°C	UL 1434	UL E243011
Supplementary information: [1)] Provided evidence ensures the agreed level of compliance. See OD-CB2039.					

IEC 62619			
Clause	Requirement + Test	Result - Remark	Verdict

7.2.1	TABLE: External short-circuit test (cell or cell block)				N/A
Sample No.	**Ambient (at 25°C ± 5ºC)**	**OCV at start of test (V dc)**	**Resistance of Circuit (mΩ)**	**Maximum Case Temperature Rise ΔT (°C)**	**Results**
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--

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): _____

IEC 62619			
Clause	Requirement + Test	Result - Remark	Verdict

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 It, (A)**	**Total Time for Reversed Charge Application (min)**	**Results**
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--

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)			N/A
Sample No.	**OCV at start of test, (V dc)**	**Particle location [1)]**	**Maximum applied pressure, (N)**	**Results**
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--
--	--	--	--	--

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): __

IEC 62619			
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)				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**
S-1-1	2.923~2.951	140	57.6	3.649	A, D, F

	Charge Voltage Applied Battery System: 1)	
	Whole	**Part**
	66V	--

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): ___

IEC 62619			
Clause	Requirement + Test	Result - Remark	Verdict

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**
S-1-1	46.9	168	57.6	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**	**Measured Maximum Charging Voltage, V dc**
BAT-15KWH-51.2V (**Sample No.:** S-1-1)	52.8	140	54.7
Maximum Specified Temperature of Battery System, °C		**Maximum Measured Cell Case Temperature, °C**	**Results**
50		58.8	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): ____

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**
--	--	--	--	--	--

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): ____

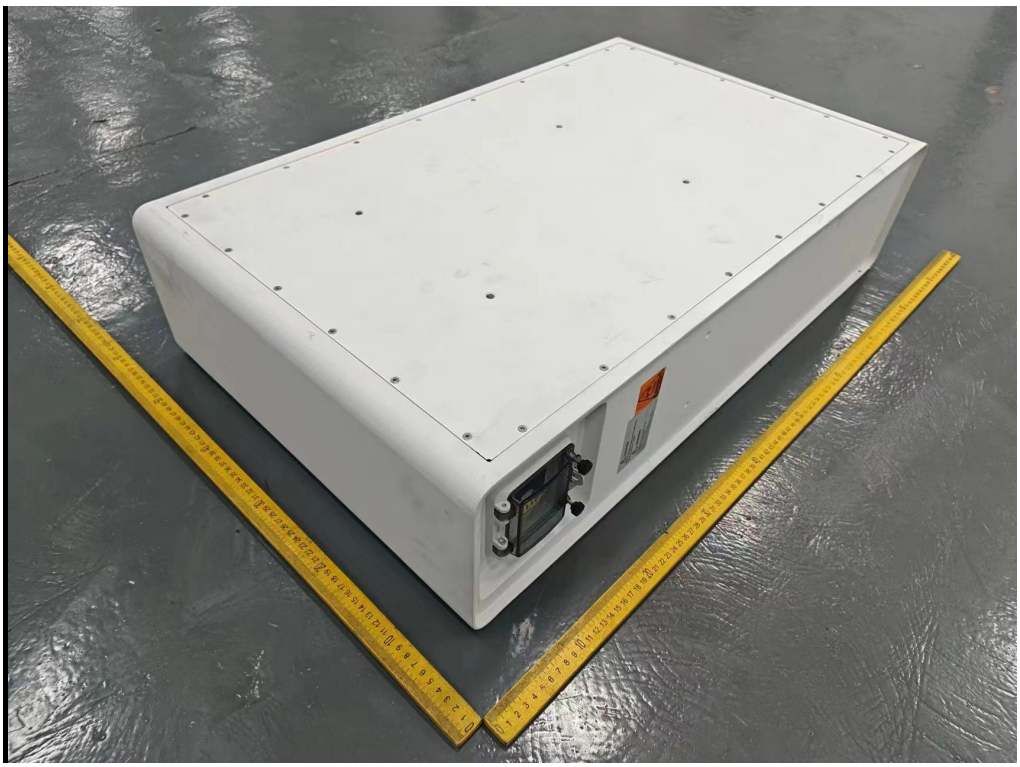
-- End of Report --

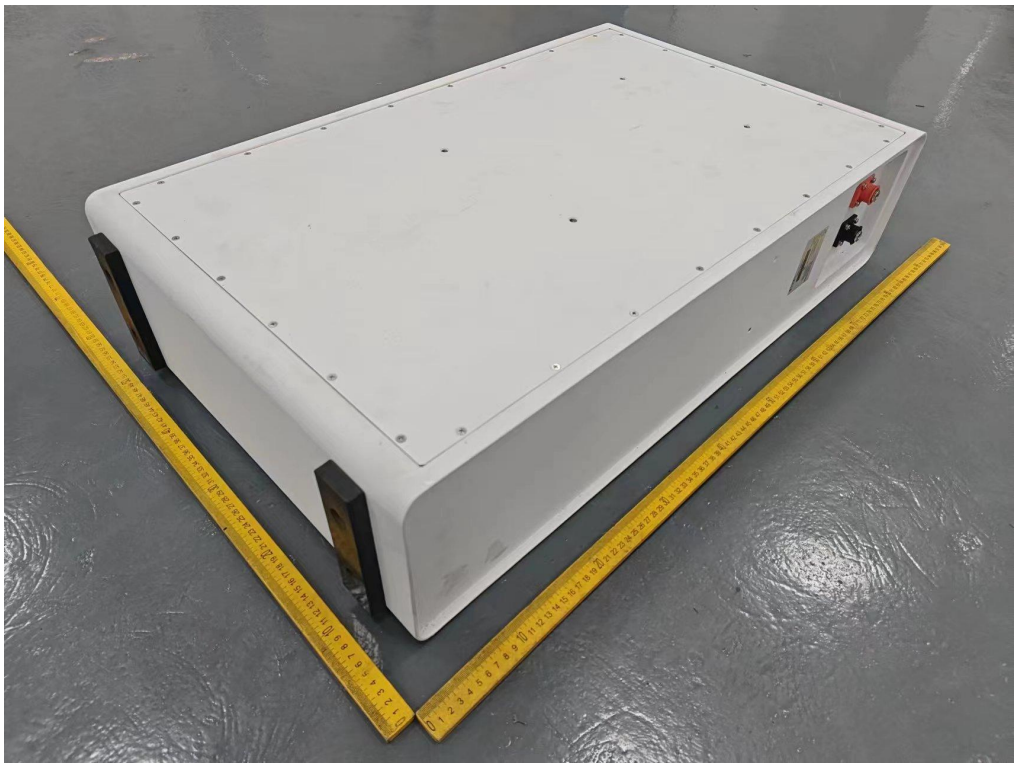
ENCLOSURE

Supplement ID	Description
01-1	Overall View of Battery
01-2	Internal View 1 of Battery
01-3	Internal View 2 of Battery
01-4	Overall View 1 of BMS board
01-5	Overall View 1 of LED board
01-06	Overall View 1 of Interface board
02	ISO 9001 Certification

Photos

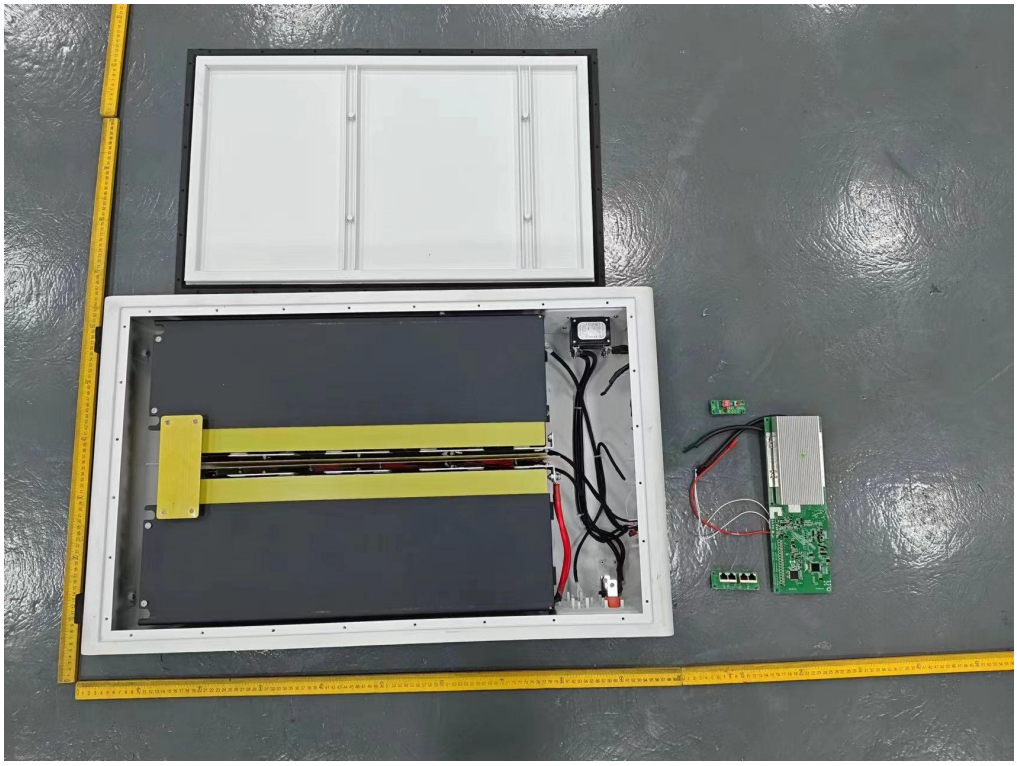
ID 01-1

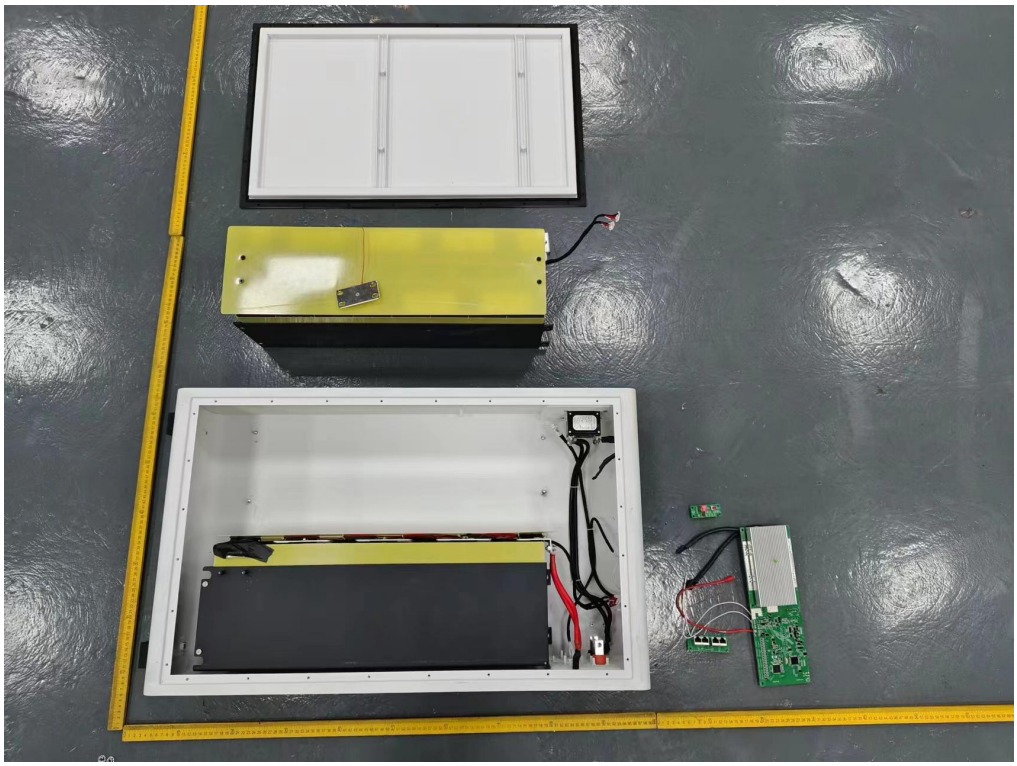




Photos

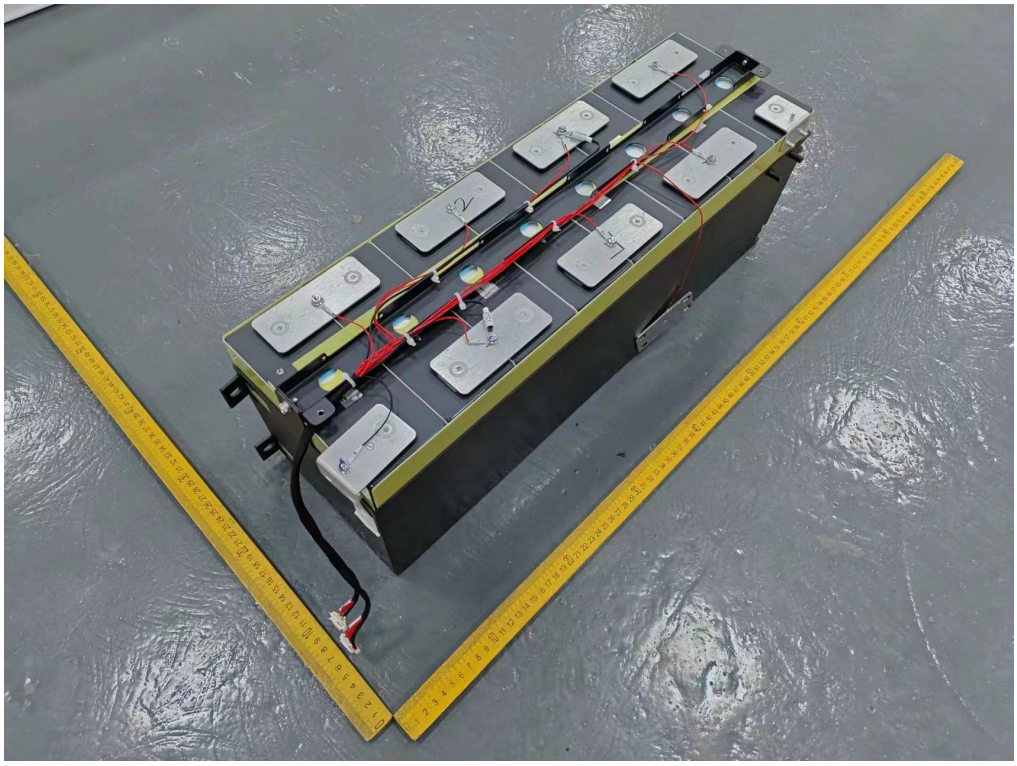
ID 01-2

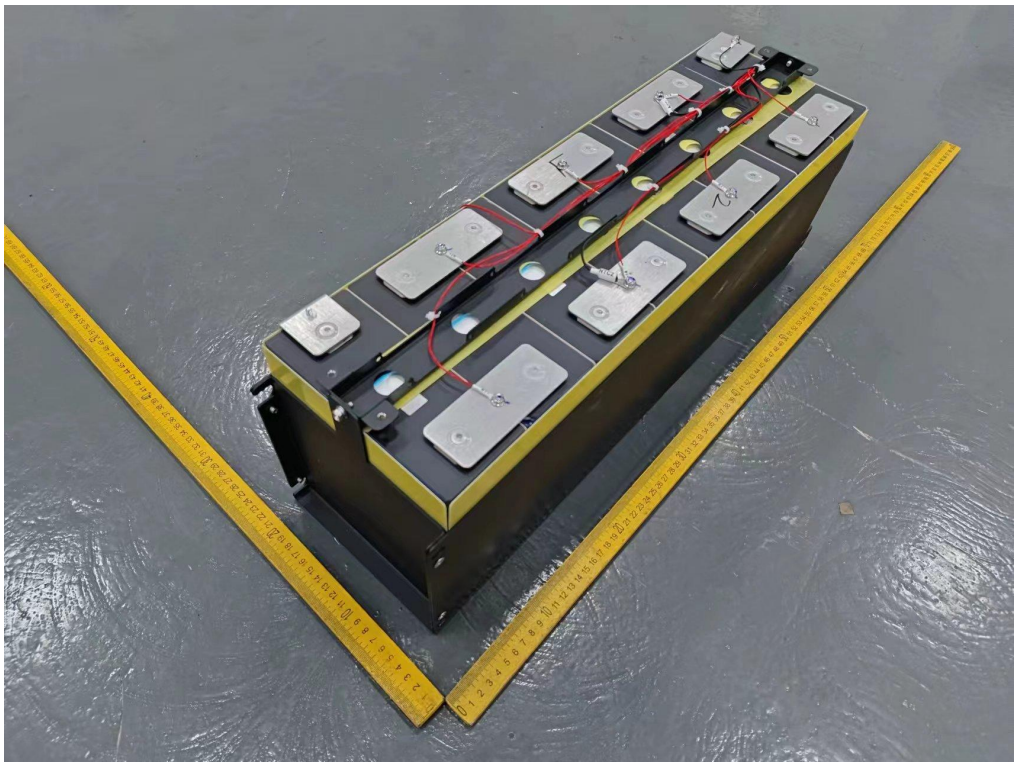




Photos

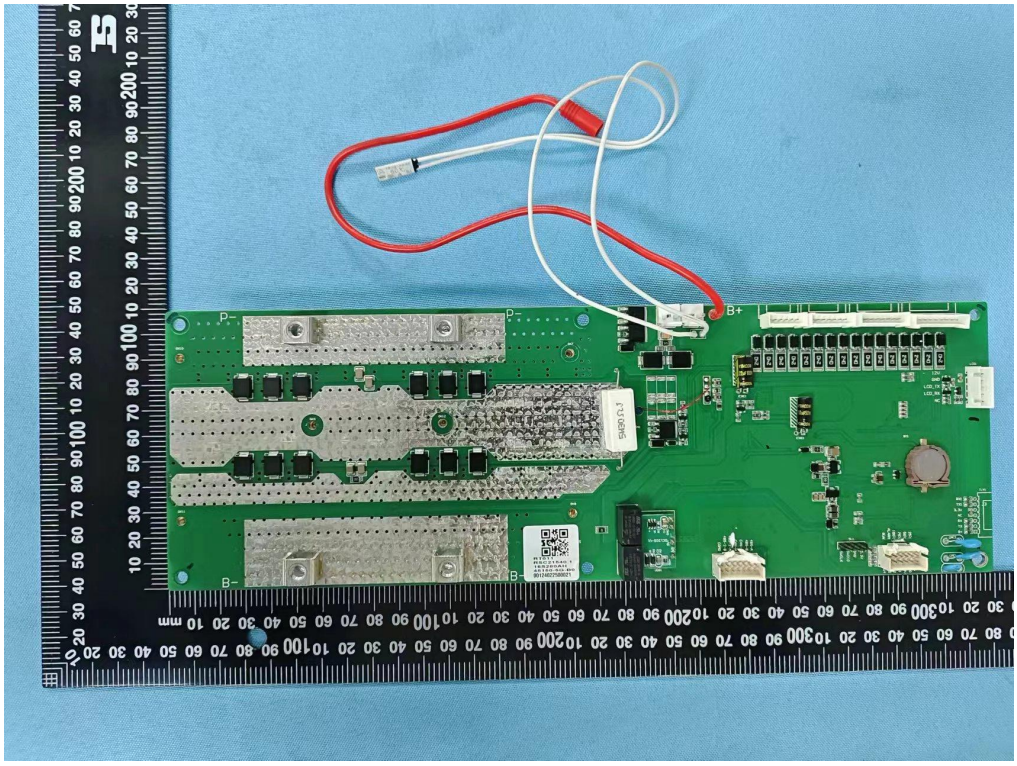
ID 01-3

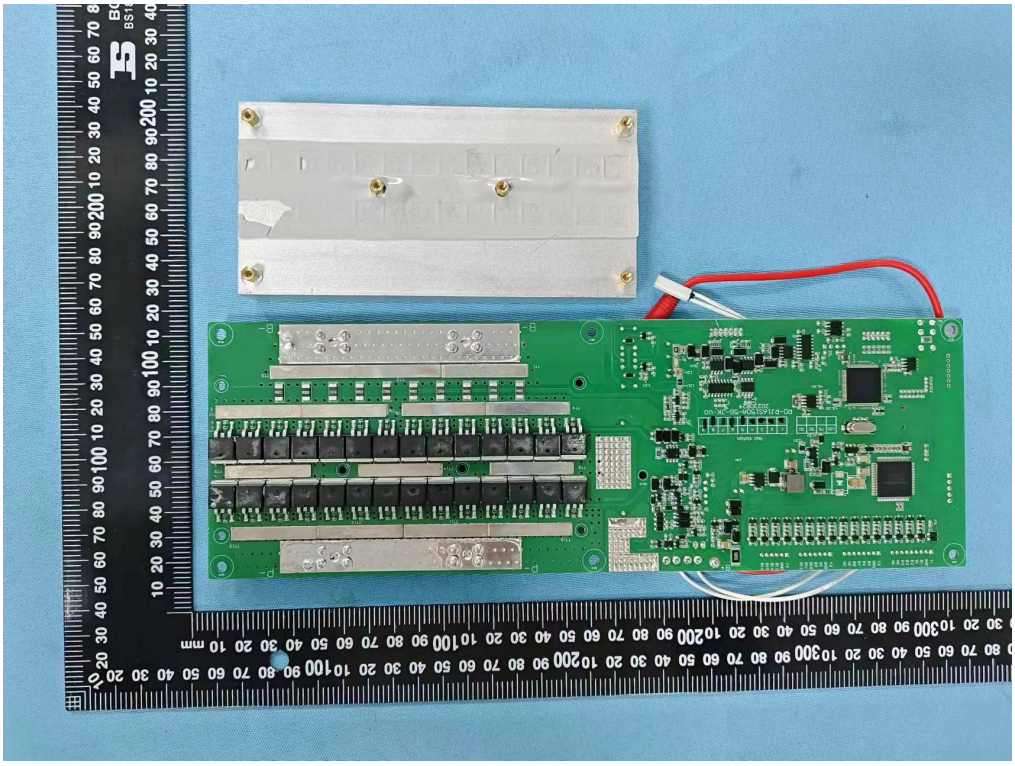




Photos

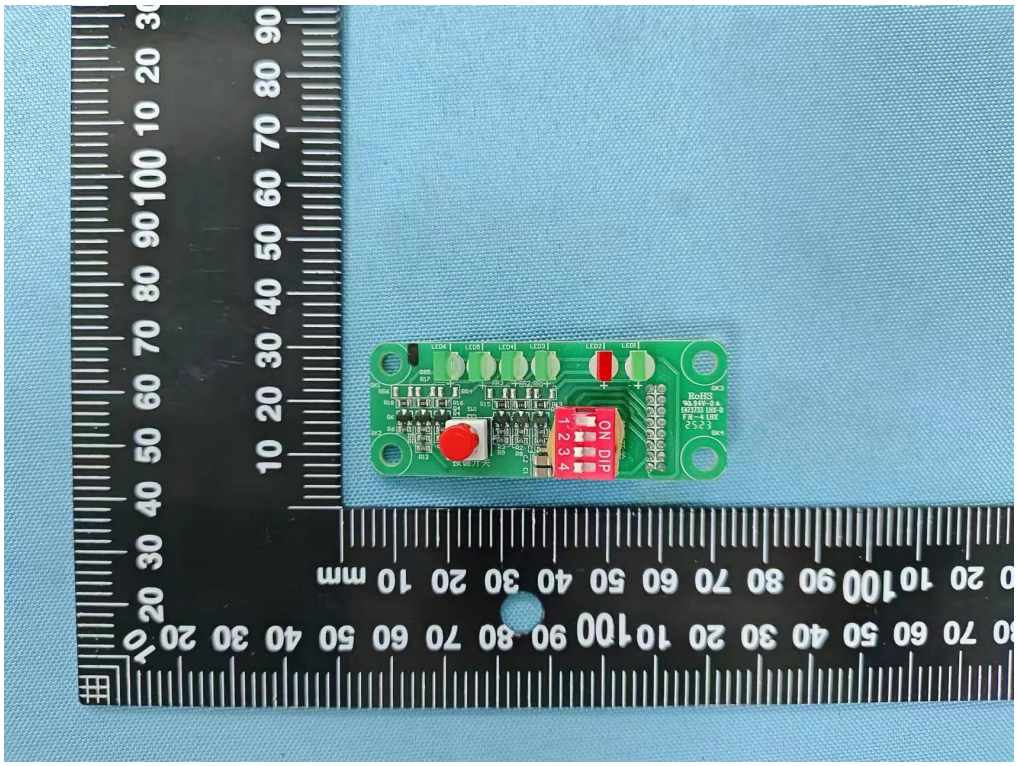
ID 01-4

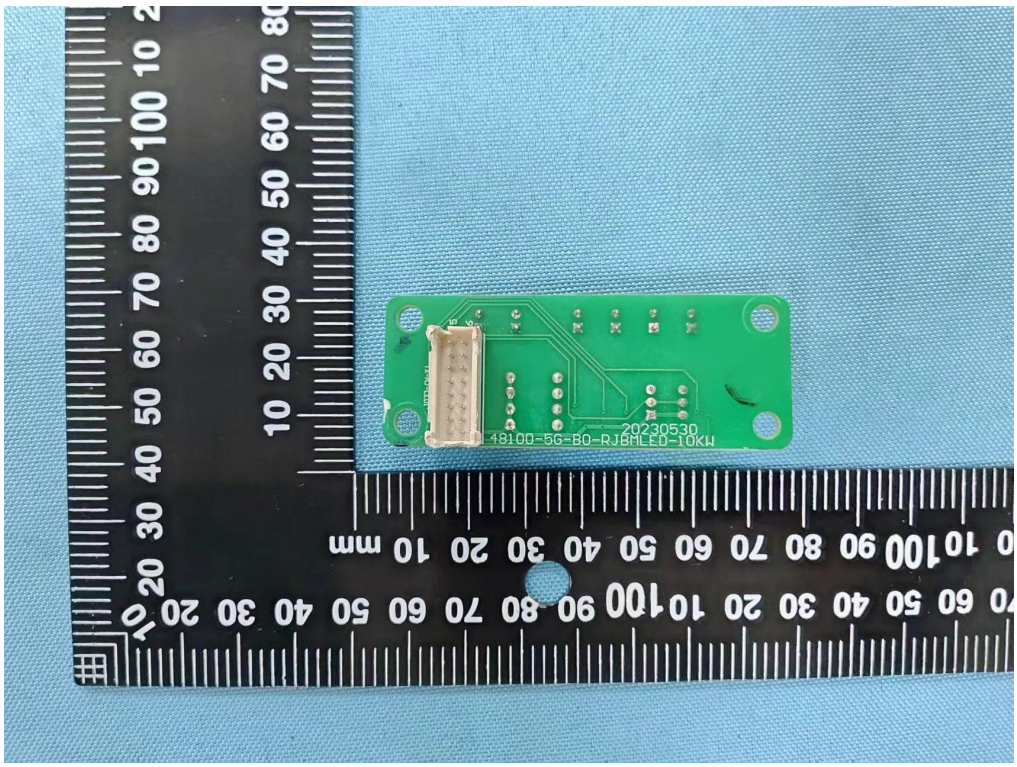




Photos

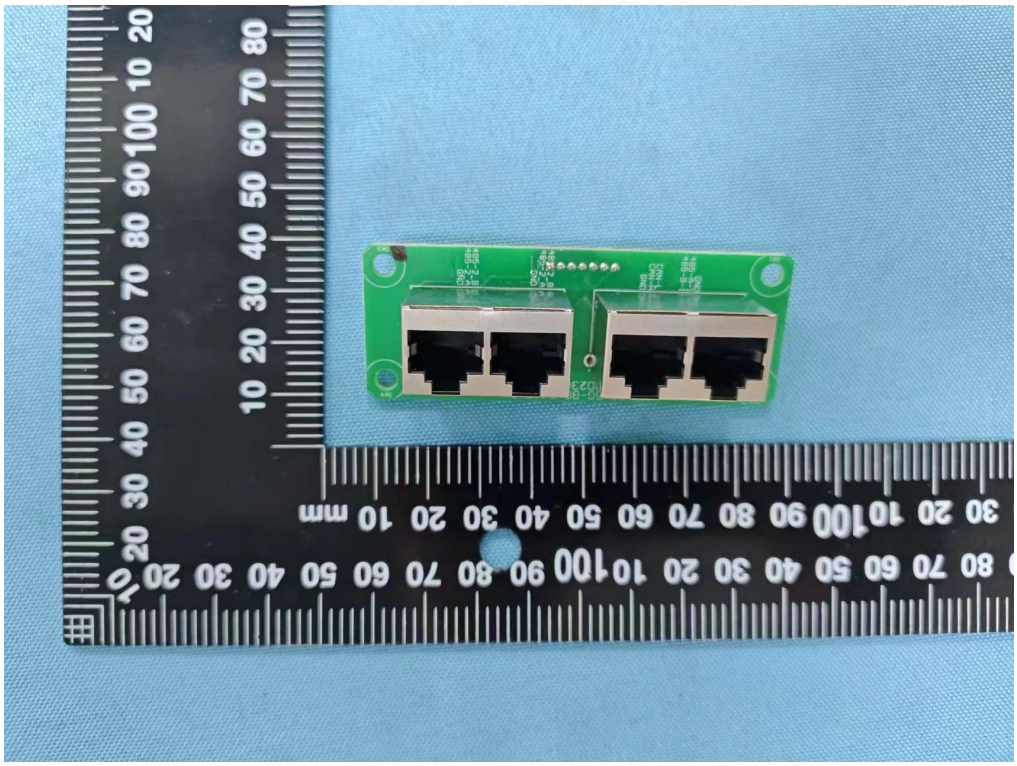
ID 01-5

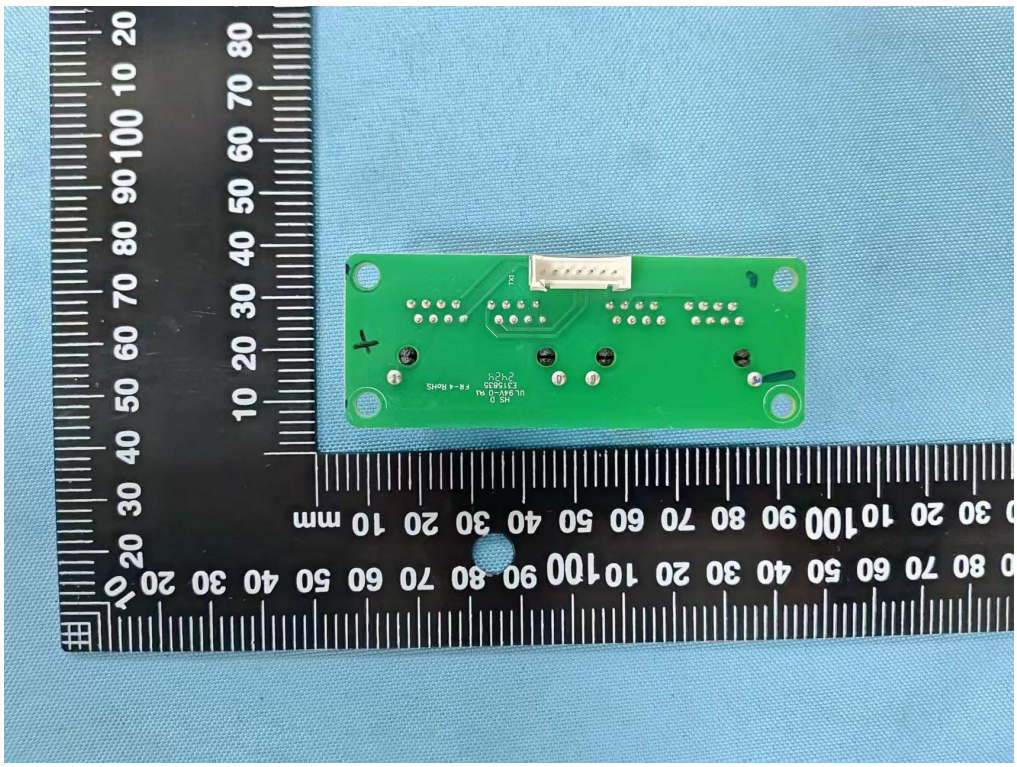




Photos

ID 01-6





Photos

ID 02

IQNET

Building trust together.

Certificate

CQM has issued an IQNET recognized certificate that the organization:

HENGYANG GLOBAL POWER TECHNOLOGY CO.LTD

Xinzhu Village, Songmu Township, Shigu District, Hengyang City, Hunan, P.R.China

has implemented and maintains a

Quality Management System

for the following scope:

Design, production and sales of lithium-ion battery (PACK)

which fulfils the requirements of the following standard:

ISO 9001:2015

Issued on: 2024-06-19
Expires on: 2027-06-18

Registration Number: CN-00224Q23530R0M

Alex Stoichitoiu
President of IQNET

Ji XiaoDong
President of CQM

CQM China Quality Mark

This attestation is directly linked to the IQNET Member's original certificate and shall not be used as a stand-alone document.

IQNET Members*:
AENOR Spain **AFNOR Certification** France **APCER** Portugal **CCC** Cyprus **CISQ** Italy **CQC** China **CQM** China **CQS** Czech Republic **Cro Cert** Croatia **DQS Holding GmbH** Germany **EAGLE Certification Group** USA **FCAV** Brazil **FONDONORMA** Venezuela **ICONTEC** Colombia **ICS** Bosnia and Herzegovina **Inspecta Sertifiointi Oy** Finland **INTECO** Costa Rica **IRAM** Argentina **JQA** Japan **KFQ** Korea **LSQA** Uruguay **MIRTEC** Greece **MSZT** Hungary **Nemko AS** Norway **NSAI** Ireland **NYCE-SIGE** México **PCBC** Poland **Quality Austria** Austria **SII** Israel **SIQ** Slovenia **SIRIM QAS International** Malaysia **SQS** Switzerland **SRAC** Romania **TSE** Türkiye **YUQS** Serbia

* The list of IQNET Members is valid at the time of issue of this certificate. Updated information is available under www.iqnet-certification.com