TEST REPORT

On Behalf of

Gobel Power Energy (Shenzhen) Co., Ltd.

LiFePO4 BATTERY

GP-LA12-280AH

Prepared for :	**Gobel Power Energy (Shenzhen) Co., Ltd.** **No. 806 and 809, Block B, Huameiju Business Center, Xin'an Street, Bao'an District, Shenzhen, Guangdong, China**
Prepared By :	**Shenzhen TCT Testing Technology Co., Ltd.** **2101、2201, Zhenchang Factory, Renshan Industrial Zone,** **Fuhai Street, Bao'an District，Shenzhen**
Date of Test:	**Mar.27, 2024 to Mar.27, 2024**
Date of Report:	**Mar.27, 2024**
Report Number:	**TCT240320S007**

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IP CODE REPORT

EN 60529:1991+A1:2000+A2:2013

Degrees of protection Provide by enclosures

Report reference No	TCT240320S007
Tested by (+ signature)	Cassie Lu
Approved by (+ signature)	Ringko Shi
Date of issue	Mar.27, 2024

Testing Laboratory Name	Shenzhen TCT Testing Technology Co., Ltd.
Address	2101、2201, Zhenchang Factory, Renshan Industrial Zone, Fuhai Street, Bao'an District，Shenzhen
Testing location	CBTL ☐ CCATL ☐ SMT ☐ TMP ☐
Address	Same as above.

Applicant's Name	Gobel Power Energy (Shenzhen) Co., Ltd.
Address	No. 806 and 809, Block B, Huameiju Business Center, Xin'an Street, Bao'an District, Shenzhen, Guangdong, China
Standard	EN 60529:1991+A1:2000+A2:2013
Test procedure	N/A
Procedure deviation	N/A
Non-standard test method	N/A

Test item description	LiFePO4 BATTERY
Manufacturer	Dongguan Zhongling Technology Co., Ltd.
Address	Room 902, Building 2, No.3, Yongtai Road, Tangxia Town, Dongguan City, Guangdong Province
Model and/or type reference	GP-LA12-280AH
Trademark	N/A
Test item	IPX6
Test result	Pass

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Test item particulars :		
Equipment mobility	:	Mobile devices
Operating condition	:	Continuous
Tested for IT power systems	:	N/A
IT testing, phase-phase voltage (V)	:	N/A
Class of equipment	:	Class Ⅲ
Protection against ingress of water	:	IPX6
Test case verdicts:		
Test case does not apply to the test object	:	N(/A)
Test item does meet the requirement	:	P(ass)
Test item does not meet the requirement	:	F(ail)
Testing:		
Date of receipt of test item	:	Mar.20, 2024
Date(s) of performance of test	:	Mar.27, 2024 to Mar.27, 2024

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Clause number between brackets refer to clauses in EN 60529 (IEC 60529). "(see remark #)" refers to a remark appended to the report. "(see appended table)" refers to a table appended to the report. Throughout this report a comma is used as the decimal separator. 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. When determining the test conclusion, the Measurement Uncertainty of test has been considered. . All is excluded test of the scope of CNAS accreditation, the test results for this test from an accredited lab by CNAS. Unless otherwise specified, test are made under normal conditions at an ambient temperature within the range of 15℃ to 35℃, RH25% to 75% and an air pressure of 860mbar of 1060mbar	Attachment with: 1.Photo documentation

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5	**Degrees of protection against access to hazardous parts and against solid foreign objects indicated by the first characteristic numeral**		N/A
	The designation with a first characteristic numeral implies that conditions stated in both 5.1 and 5.2 are met. The first characteristic numeral indicates that: – the enclosure provides protection of persons against access to hazardous parts by preventing or limiting the ingress of a part of the human body or an object held by a person; and simultaneously – the enclosure provides protection of equipment against the ingress of solid foreign objects.		N/A
5.1	Protection against access to hazardous parts		N/A
	To comply with the conditions of the first characteristic numeral, adequate clearance shall be kept between the access probe and hazardous parts		N/A
5.2	Protection against access solid foreign objects		N/A
	The protection against the ingress of solid foreign objects implies that the object probes up to numeral 2 in table 2 shall not fully penetrate the enclosure. This means that the full diameter of the sphere shall not pass through an opening in the enclosure. Object probes for numerals 3 and 4 shall not penetrate the enclosure at all.		N/A
	Dust-protected enclosures to numeral 5 allow a limited quantity of dust to penetrate under certain conditions.		N/A
	Dust-tight enclosures to numeral 6 do not allow any dust to penetrate.		N/A

6	**Degrees of protection against ingress of water indicated by the second characteristic numeral**		P
	The second characteristic numeral indicates the degree of protection provided by enclosures with respect to harmful effects on the equipment due to the ingress of water		P
	Up to and including second characteristic numeral 6, the designation implies compliance also with the requirements for all lower characteristic numerals.		P
	An enclosure designated with second characteristic numeral 7 or 8 only is considered unsuitable for exposure to water jets		N/A

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10	**Marking**		N/A
	The requirements for marking shall be specified in the relevant product standard.Where appropriate, such a standard should also specify the method of marking which is to be used when - one part of an enclosure has a different degree of protection to that of another part of the same enclosure; - the mounting position has an influence on the degree of protection; -the maximum immersion depth and time are indicated.		N/A

11	**General requirements for tests**		P
11.1	Atmospheric conditions for water or dust Tests: Temperature range: 15 °C to 35 °C Relative humidity: 25% to 75% Air pressure: 86 kPa to 106 kPa		P
11.2	Test samples The tests specified in this standard are type tests.		P

12	**Tests for protection against access to hazardous parts indicated by the first characteristic numeral --**		N/A
12.1	Access probes: access probes to test the protection of persons against access to hazardous parts are given in table Ⅵ		N/A
12.2	Test conditions: The access probe is pushed against or (in case of the test for first characteristic numeral 2) inserted through any openings of the enclosure with the force specified in table Ⅵ		N/A
12.3	Acceptance conditions : The protection is satisfactory if adequate clearance is kept between the access probe and hazardous parts.		N/A

13	**Tests for protection against solid foreign objects indicated by the first characteristic numeral**		N/A
13.1& 13.2	Test means & Test conditions : The enclosure shall be deemed category1, whether reductions in pressure below the atmospheric pressure are present or not. The object probe is pushed against any openings of the enclosure with the force specified in tableⅦ		N/A
13.3	Acceptance conditions for first characteristic numerals 1, 2, 3,4		N/A
	First character-istic numeral :1 Test means: Rigid sphere without handle or guard 50 mm diameter Test force:50N		N/A

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	First character-istic numeral :2 Test means: Rigid sphere without hand 12.5 mm diameter Test force:30N		N/A
	First character-istic numeral :3 Test means: Rigid steel rod 2,5mm diameter with edges free from burrs Test force:3N		N/A
	First character-istic numeral :4 Test means: Rigid steel rod 1mm diameter with edges free from burrs Test force:1N		N/A
	The protection is satisfactory if the full diameter of the probe specified in table 7 does not pass through any opening.		N/A
13.4	Dust test for first characteristic numerals 5 and 6		N/A
	The test is made using a dust chamber incorporating the basic principles shown in figure 2 whereby the powder circulation pump may be replaced by other means suitable to maintain the talcum powder in suspension in a closed test chamber		N/A
	The enclosure under test is supported inside the test chamber and the pressure inside the enclosure is maintained below the surrounding atmospheric pressure by a vacuum pump. The suction connection shall be made to a hole specially provided for this test		N/A
	The object of the test is to draw into the enclosure, by means of depression, a volume of air 80 times the volume of the sample enclosure tested without exceeding the extraction rate of 60 volumes per hour		N/A
	with a maximum depression of 2 kPa (20 mbar), the extraction rate is less than 40 volumes per hour, the test is continued until 80 volumes have been drawn through, or a period of 8 h has elapsed		N/A
	An extraction rate of 40 to 60 volumes per hour is obtained the duration of the test is 2 h		N/A
13.5	Special conditions for first characteristic numeral 5		N/A
13.5.1	Test conditions for first characteristic numeral 5		N/A
	The enclosure shall be deemed category 1 unless the relevant product standard for the equipment specifies that the enclosure is category 2		N/A
13.5.2	Acceptance conditions for first characteristic numeral 5		N/A
	The protection is satisfactory if, on inspection, talcum powder has not accumulated in a quantity or location such that, as with any other kind of dust, it could interfere with the correct operation of the equipment or impair safety. Except for special cases to be clearly specified in the relevant product standard,		N/A

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	no dust shall deposit where it could lead to tracking along the creepage distances.		
13.6	Special conditions for first characteristic numeral 6		N/A
13.6.1	Test conditions for first characteristic numeral 6		N/A
	The enclosure shall be deemed category 1, whether reductions in pressure below the atmospheric pressure are present or not.		N/A
13.6.2	Acceptance conditions for first characteristic numeral 6		N/A
	The protection is satisfactory if no deposit of dust is observable inside the enclosure at the end of the test.		N/A

14	**Tests for protection against water indicated by the second characteristic numeral**		P
14.1 &14.2	Test means & Test conditions Test means and the main test conditions are given in Table VIII		P
	The tests are conducted with fresh water。During the tests for IPXl to IPX6 the water temperature should not differ by more than 5 K from the temperature of the specimen under test. During the test, the moisture contained inside the enclosure may partly condense		N/A
14.2.1	Test for second characteristic numeral 1 with the drip box		N/A
	Test means :Drip box Enclosure Figure 3 on turntable Water flow rate:1.2mm/min Duration of test:10 min		N/A
14.2.2	Test for second characteristic numeral 2 with the drip box		N/A
	Test means :Drip box Enclosure on turntable Water flow rate:3.2mm/min Duration of test: 2,5 min for each position of tilt		N/A
14.2.3	Test for second characteristic numeral 3 with oscillating tube or spray nozzle		N/A
	Test means : Oscillating tube Figure 4 Spray ± 60° from vertical, distance max. 200 mm Water flow rate: 0,07 l/min ± 5 % per hole, multiplied by number of holes Duration of test: 10 min		N/A
14.2.4	Test for second characteristic numeral 4 with oscillating tube or spray nozzle		N/A
	Test means :As for numeral 3 Spray ± 180° from vertical		N/A

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	Water flow rate: 0,07 l/min ± 5 % per hole, multiplied by number of holes Duration of test: 10 min		
14.2.5	Test for second characteristic numeral 5 with the 6,3 mm nozzle		N/A
	Test means :Water jet hose nozzle Figure 6 Nozzle 6,3 mm diameter, distance 2,5 m to 3 m Water flow rate: 12,5 l/min ± 5 % Duration of test: 1 min/m² at least 3 min		N/A
14.2.6	Test for second characteristic numeral 6 with the 12,5 mm nozzle		P
	Test means : Water jet hose nozzle Figure 6 Nozzle 12,5 mm diameter, distance 2,5 m to 3 m Water flow rate: 100 l/min ± 5 % Duration of test: 1 min/m² at least 3 min		P
14.2.7	Test for second characteristic numeral 7: temporary immersion between 0,15 m and 1 m		N/A
	Test means :Immersion tank Water-level on enclosure: 0,15 m above top 1 m above bottom Duration of test:30 min		N/A
14.2.8	Test for second characteristic numeral 8: continuous immersion subject to agreement		N/A
	Test means :Immersion tank Water-level on enclosure:N/A Duration of test:N/A		N/A
14.3	Acceptance conditions		P
	After testing in accordance with the appropriate requirements of 14.2.1 to 14.2.8 the enclosure shall be inspected for ingress of water.It is the responsibility of the relevant technical committee to specify the amount of water which may be allowed to enter the enclosure and the details of a dielectric strength test, if any. In general, if any water has entered, it shall not: - be sufficient to interfere with the correct operation of the equipment or impair safety; - deposit on insulation parts where it could lead to tracking along the creepage distances; - reach live parts or windings not designed to operate when wet; - accumulate near the cable end or enter the cable if any.		P

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Photo documentation

Photo 1

[√] General

[ ] front

[ ] rear

[ ] right side

[ ] left side

[ ] top

[ ] bottom

[ ] internal

Photo 2

[√] General

[ ] front

[ ] rear

[ ] right side

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Photo 3

[√] General

[ ] front

[ ] rear

[ ] right side

[ ] left side

[ ] top

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[ ] internal

Photo 4

[ ] General

[ ] front

[ ] rear

[ ] right side

[ ] left side

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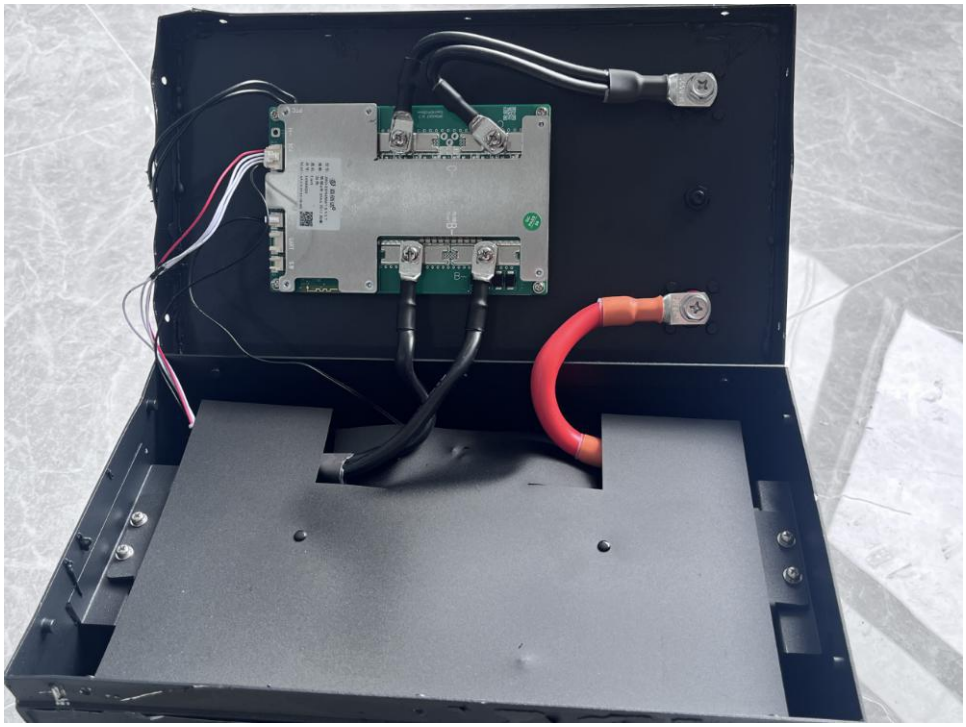

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Photo 5

[ ] General

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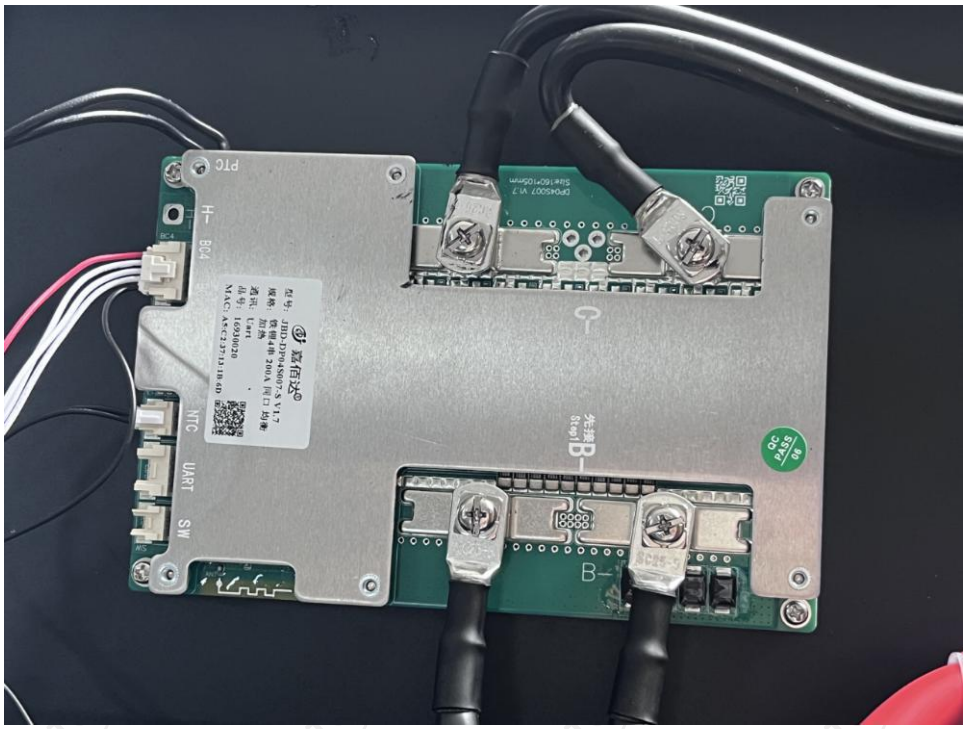

*****End of Test Report*****

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