



Product Service

EU-Type Examination Certificate

No. E6A 090762 0023 Rev. 00

Holder of Certificate: **Pylon Technologies Co., Ltd.**

No. 73, Lane 887, Zu Chongzhi Road, Zhangjiang Hi-Tech Park
201203 Pudong, Shanghai
PEOPLE'S REPUBLIC OF CHINA

Product:

**Batteries
(Rechargeable Li-ion Battery)**

This EU-Type Examination Certificate is issued according to the Directive 2014/30/EU relating to electromagnetic compatibility. It confirms that the listed apparatus complies with such aspects of the requirements of the EMC directive as specified by the manufacturer or his authorized representative in the European Community and applies only to the sample and its technical documentation submitted for testing and certification. This Type Examination does not contain any statements pertaining to the EMC protection requirements governed by other laws which serve to implement EU Directives other than the aforementioned Directive 2014/30/EU. See also notes overleaf.

Evaluation Report No.:

64.771.19.30248.01-(T)

Date,

2019-07-25

(Volker Albrecht)

Page 1 of 2

TÜV SÜD Product Service GmbH is notified Body to the Directive 2014/30/EU relating to electromagnetic compatibility with the identification number 0123.

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ZERTIFIKAT ♦ CERTIFICATE ♦ 認證證書 ♦ CERTIFICADO ♦ CERTIFICAT



Product Service

EU-Type Examination Certificate

No. E6A 090762 0023 Rev. 00

Model(s): UP2500

Description of Object:

Type/model	UP2500
Nominal voltage	25.6V
Rated capacity	111Ah
Charging voltage declared by manufacturer	28.4V
Upper limit charging voltage	29.2V
Charging current declared by manufacturer	56A
Maximum continuous charging current	100A
Discharging current declared by manufacturer	56A
Maximum continuous discharging current	100A

Remark: All aspects of the essential requirements were assessed.

**Tested
according to:**

EN IEC 61000-6-2:2019
EN 61000-6-3:2007/A1:2011

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Product Service

CERTIFICATE

No. Z2 090762 0024 Rev. 00

Holder of Certificate: **Pylon Technologies Co., Ltd.**
No. 73, Lane 887, Zu Chongzhi Road, Zhangjiang Hi-Tech Park
201203 Pudong, Shanghai
PEOPLE'S REPUBLIC OF CHINA

Certification Mark:



Product: **Batteries**
(Rechargeable Li-ion Battery)

The product was tested on a voluntary basis and complies with the essential requirements. The certification mark shown above can be affixed on the product. It is not permitted to alter the certification mark in any way. In addition the certification holder must not transfer the certificate to third parties. See also notes overleaf.

Test report no.: 64280193024701

Valid until: 2024-08-18

Date, 2019-08-19


(Harry Zhang)



Product Service

CERTIFICATE

No. Z2 090762 0024 Rev. 00

Model(s): UP2500

Brand Name: PYLONTECH



Parameters:
Nominal voltage: 25.6Vd.c.
Rated capacity: 111Ah

Tested according to: IEC 62619:2017

Production Facility(ies): 091237

Attestation of Conformity

No. E8AUK 090762 0034 Rev. 00

Holder of Certificate: **Pylon Technologies Co., Ltd.**

No. 73, Lane 887, Zu Chongzhi Road, Zhangjiang Hi-Tech Park
201203 Pudong, Shanghai
PEOPLE'S REPUBLIC OF CHINA

Name of Object: **Batteries**
(Rechargeable Li-ion Battery)

This Attestation of Conformity is issued on a voluntary basis according to the Electromagnetic Compatibility Regulations 2016 relating to electromagnetic compatibility. It confirms that the listed apparatus complies with all essential requirements of the regulation and is based on the technical specifications applicable at the time of issuance. It refers only to the particular sample submitted for testing and certification. For details see: www.tuvsud.com/ps-cert

Test report no.: 64771193024801UK

Date, 2021-03-04



(Peter Jia)

Attestation of Conformity

No. E8AUK 090762 0034 Rev. 00

Model(s): UP2500

Description of Object:

Type/model	UP2500
Nominal voltage	25.6V
Rated capacity	111Ah
Charging voltage declared by manufacturer	28.4V
Upper limit charging voltage	29.2V
Charging current declared by manufacturer	56A
Maximum continuous charging current	100A
Discharging current declared by manufacturer	56A
Maximum continuous discharging current	100A

**Tested
according to:**

EN IEC 61000-6-2:2019
EN 61000-6-3:2007/A1:2011



中认英泰检测技术有限公司
CQC Intime Testing Technology Co., Ltd.

UN38.3 试验概要

LITHIUM CELLS OR BATTERIES TEST SUMMARY IN ACCORDANCE WITH SUB-SECTION 38.3 OF UN MANUAL OF TESTS AND CRITERIA

NO. CQCIT2106J0186

样品描述(Sample Description):

电池名称(Cell/battery Name):

锂离子电池 Rechargeable Li-ion Battery

质量(Mass):

26kg

规格参数(Specification Parameter):

■锂离子电池/电芯 25.6V 111Ah 2.8416kWh

□锂金属电池/电芯 ___ V ___ Ah ___ g

物理形状(Physical Description):

长方体 Cuboid

型号(Model Numbers):

UP2500

委托单位(Applicant):

江苏派能能源科技有限公司

Pylon Technologies Co., Ltd.

江苏省昆山市锦溪镇昆开路 505 号 8 号厂房

Plant 8, No.505 Kunkai Road, JinXi Town,
Kunshan City, Jiangsu Province, PEOPLE'S
REPUBLIC OF CHINA

+86-021-51317697 xu.min@pylontech.com.cn

www.pylontech.com.cn

样品生产厂商(Sample Manufacturer):

江苏派能能源科技有限公司

Pylon Technologies Co., Ltd.

江苏省昆山市锦溪镇昆开路 505 号 8 号厂房

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UN38.3 测试实验室(UN38.3 Test Lab):

中认英泰检测技术有限公司

CQC Intime Testing Technology Co., Ltd.

江苏省苏州市吴中区吴中大道 1368 号东太湖科技金融城

East Taihu Technology and Finance City,
No.1368 Wuzhong Dadao Road, Wuzhong
Economic Development Zone, Suzhou, Jiangsu.

0512-66303623

cqc_jszlb@126.com

http://www.cqc-it.com

样品测试信息(Sample Test Information):

试验报告编号(Test Report Number):

20190706J15136XG1-1

试验报告签发日期(Date of Test Report):

2019-09-06

所用《试验和标准手册》版本(Edition of UN Manual of Tests and Criteria Used):

《关于危险货物运输的建议书 试验和标准手册》第六版第 38.3 节

Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, ST/SG/AC.10/11/Rev.6/Section 38.3

所进行的试验及其结果(即: 通过/未通过)一览表(List of Tests Conducted and Results(Pass/Fail)):

T1	高度模拟(Altitude simulation)	Pass
T2	温度试验(Thermal test)	Pass
T3	振动(Vibration)	Pass
T4	冲击(Shock)	Pass
T5	外部短路(External short circuit)	Pass
T6	撞击/挤压(Impact/Crush)	Pass
T7	过度充电(Overcharge)	Pass
T8	强制放电(Forced discharge)	Pass

是否符合集成锂电池的测试要求(Assembled Lithium Battery Test Requirement):

☐38.3.3(f) ☐38.3.3(g) ☒不适用 N/A

技术负责人(Technical Leader)

签发日期(Date of Issue): 2019-09-18

Safety Data Sheet (SDS)

Report No.: HGNM21MFP9

Effective Date: 2021/09/16



Product Name: Rechargeable Li-ion Battery UP2500 25.6V 111Ah 2.8416kWh

Applicant: Pylon Technologies Co., Ltd.

Supplier: Pylon Technologies Co., Ltd.

Prepared basis: UN GHS (the 8th Revised Edition)

Please refer to the annex to this report for the SDS.



Disclaimer

1. This Safety Data Sheet (SDS) was prepared according to UN GHS (the 8th Revised Edition).
2. This SDS is issued based on the information provided by the applicant, and the applicant guarantees that the information provided is true, accurate, complete and effective.
3. Information from applicant is key of this SDS, so the company will not respond for the wrong of applicant.
4. The data in the SDS comes from international authoritative databases and information submitted by the applicant. However, due to the diversity of information sources and the limitations of our knowledge, this SDS is only for user's reference. Users should make their independent judgment of suitability of this information for their particular purposes.
5. The SDS shall not be transferred, misappropriated, fraudulently used, altered, or tampered with in any form of media.
6. This SDS is valid before the implementation of the new version of the standard.



Safety Data Sheet

Rechargeable Li-ion Battery UP2500 25.6V 111Ah 2.8416kWh

Version: V2.0.0.1

Report No.: HGNM21MFP9

Creation Date: 2021/09/15

Revision Date: 2021/09/15

*Prepared according to UN GHS (the 8th revised edition)

1 Identification

Product identifier

Product Name	Rechargeable Li-ion Battery UP2500 25.6V 111Ah 2.8416kWh
CAS No.	Not applicable
EC No.	Not applicable
Molecular Formula	Not applicable

Recommended use of the product and restrictions on use

Relevant identified uses	Please consult manufacturer.
Uses advised against	Please consult manufacturer.

Details of the supplier

Supplier Name	Pylon Technologies Co., Ltd.
Supplier Address	No. 73, Lane 887, Zu Chongzhi Road, Zhangjiang Hi-Tech Park, Pudong, Shanghai 201203, China
Supplier Post Code	—
Supplier Telephone	15821333534
Supplier Fax	—
Supplier E-mail	li.lanqiang@pylontech.com.cn
Manufacturer Name	Pylon Technologies Co., Ltd.
Manufacturer Address	Plant 8, No.505 Kunkai Road, JinXi Town, Kunshan City, Jiangsu Province, PEOPLE'S REPUBLIC OF CHINA, 215324
Manufacturer Post Code	—
Manufacturer Telephone	15821333534
Manufacturer Fax	—
Manufacturer E-mail	li.lanqiang@pylontech.com.cn

Emergency phone number

Emergency phone number	+86-021-51317699
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2 Hazard(s) identification

Hazard classification according to GHS

Hazard classification according to GHS	The product meets the definition of "article". In the Globally Harmonized Chemical Classification and Labeling System (GHS), the "articles" defined by the US Occupational Safety and Health Administration "Hazard Communication Standard" (29 CFR 1910.1200) or similar definitions do not fall within the scope of this system. [Rev. 8 (2019) Part 1.3.2.1.1].
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GHS Label elements

Hazard pictograms	Not applicable
Signal word	Not applicable

Hazard statements

Hazard statements	Not applicable
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Precautionary statements

◆ Prevention

Prevention	Not applicable
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◆ Response

Response	Not applicable
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◆ Storage

Storage	Not applicable
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◆ Disposal

Disposal	Not applicable
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Hazard description

◆ Physical and chemical hazards

	When the outer enclosure and safety circuits have been compromised or have been significantly damaged, it is likely to contain substantial electrical charge and can cause injury or death if mishandled. Mechanical damage can lead to danger. Battery products exposed to high temperature conditions, may produce heat out of control, causing fire.
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◆ Health hazards

Inhaled	According to the material form, it is not the normal way of contacting.
Ingestion	Accidental ingestion of the product may be harmful to the health of the individual.
Skin Contact	No harm in general situation.
Eye	This product may cause temporary discomfort following direct contact with the eye.

◆ Environmental hazards

	Please refer to 12th chapter of SDS.
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3 Composition/information on ingredients**Substance/mixture**

	Mixture
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Component	CAS No.	EC No.	Concentration (wt, %)
Lithium Iron phosphate	15365-14-7	604-917-2	Commercial secrets
Graphite	7782-42-5	231-955-3	Commercial secrets
Copper	7440-50-8	231-159-6	Commercial secrets
Aluminium	7429-90-5	231-072-3	Commercial secrets
Poly(vinylidene difluoride)	24937-79-9	607-458-6	Commercial secrets

Carbon black	1333-86-4	215-609-9	Commercial secrets
Polyacrylic acid	9003-01-4	618-347-7	Commercial secrets
Lithium hexafluorophosphate	21324-40-3	244-334-7	Commercial secrets
Nickel	7440-02-0	231-111-4	Commercial secrets

4 First-aid measures

Description of first aid measures

General advice	Immediate medical attention is required. Show this safety data sheet (SDS) to the doctor in attendance.
Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician if feel uncomfortable.
Skin contact	No harm in general situation. First aid is not needed.
Ingestion	Never give anything by mouth to an unconscious person. Call a physician immediately.
Inhalation	Move victim into fresh air. If breathing is difficult, give oxygen and consult a physician immediately.
Protecting of first-aiders	Ensure that medical personnel are aware of the substance involved. Take precautions to protect themselves and prevent spread of contamination.

Most important symptoms/effects, acute and delayed

1	Please see section 11.
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Indication of any immediate medical attention and special treatment needed

1	Treat symptomatically.
2	Symptoms may be delayed.

5 Fire-fighting measures

Extinguishing media

Suitable extinguishing media	Use extinguishing media suitable for surrounding area.
Unsuitable extinguishing media	There is no restriction on the type of extinguisher which may be used.

Specific hazards arising from the substance or mixture

1	Development of hazardous combustion gases or vapor possible in the event of fire.
2	Not considered a significant fire risk, however containers may burn.

Special protective equipment and precautions for fire-fighters

1	As in any fire, wear self-contained breathing apparatus (MSHA/NIOSH approved or equivalent) and full protective gear.
2	Fight fire from a safe distance, with adequate cover.
3	Prevent fire extinguishing water from contaminating surface water or the ground water system.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

1	Ensure adequate ventilation. Remove all sources of ignition.
2	Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

- | | |
|---|--|
| 3 | Use personal protective equipment, do not breathe dust/fume. |
|---|--|

Environmental precautions

- | | |
|---|---|
| 1 | Prevent further leakage or spillage if safe to do so. |
| 2 | Discharge into the environment must be avoided. |

Methods and materials for containment and cleaning up

- | | |
|---|---|
| 1 | Cut off the source of the leak as much as possible. |
| 2 | Keep leaks in a ventilated place. |
| 3 | Isolation of contaminated areas and restrictions on access. |
| 4 | It is recommended that emergency personnel wear dust masks. |
| 5 | Collect the spill with a clean shovel and place it in a clean, dry, loosely closed container and move the container away from the leak. |
| 6 | Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations. |

7 Handling and storage

Precautions for safe handling

- | | |
|---|---|
| 1 | Handling is performed in a well ventilated place. |
| 2 | Avoid contact with eyes. |
| 3 | Keep away from heat/sparks/open flames/ hot surfaces. |

Conditions for safe storage, including any incompatibilities

- | | |
|---|--|
| 1 | Keep containers tightly closed. |
| 2 | Keep containers in a dry, cool and well-ventilated place. |
| 3 | Keep away from heat/sparks/open flames/hot surfaces. |
| 4 | Store away from incompatible materials and foodstuff containers. |

8 Exposure controls/personal protection

Control parameters

Component	Country/Region	Limit value - Eight hours		Limit value - Short term	
		ppm	mg/m ³	ppm	mg/m ³
Graphite	USA - OSHA	-	15	-	-
	South Korea	-	2	-	-
	Ireland	-	10	-	-
	Germany (DFG)	-	4	-	-
	Denmark	-	2.5	-	5
	Australia	-	3 (4)	-	-
Copper	The Netherlands	-	0.1	-	-
	Poland	-	0.2	-	-
	Latvia	-	0.5	-	1
	Germany (DFG)	-	0.01	-	0.02
Aluminium	USA - OSHA	-	15	-	-

	South Korea	-	10	-	-
	Ireland	-	1	-	-
	Germany (DFG)	-	4	-	-
	Denmark	-	5	-	10
	Australia	-	10	-	-
Carbon black	USA - OSHA	-	3.5	-	-
	South Korea	-	3.5	-	-
	Ireland	-	3.5	-	7
	France	-	3.5	-	-
	Denmark	-	3.5	-	7
	Australia	-	3	-	-
Nickel	USA - OSHA	-	1	-	-
	South Korea	-	1	-	-
	Ireland	-	0.5	-	-
	Hungary	-	0.1	-	0.1
	Denmark	-	0.05	-	0.1
	Australia	-	1	-	-

◆ Biological limit values

Component	Standard	Biological monitoring index	Biological limits value	Sampling time	Remark
Lithium hexafluorophosphate	SCOEL(EU)	Fluorine/urine	8mg/L	end of shift	

◆ Monitoring methods

1	EN 14042 Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.
2	GBZ/T 300.1~GBZ/T 300.160-2017; GBZ/T 300.161~GBZ/T 300.164-2018 Determination of toxic substances in workplace air (Series standard).

Engineering controls

1	Ensure adequate ventilation, especially in confined areas.
2	Ensure that eyewash stations and safety showers are close to the workstation location.
3	Set up emergency exit and necessary risk-elimination area.
4	Handle in accordance with good industrial hygiene and safety practice.

Personal protection equipment

General requirement	No special requirements, please see the description below.
Eye protection	In general situation, eye protection is not needed. In the production process, when contacting with vapour or dust, tightly fitting safety goggles.
Hand protection	In general situation, hand protection is not needed.
Respiratory protection	In general situation, respiratory protection is not needed. If exposure limits are exceeded or if irritation or other symptoms are experienced, wear dust proof mask or gas defence mask.

Skin and body protection	In general situation, skin and body protection are not needed.
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9 Physical and chemical properties and safety characteristics

Physical and chemical properties

Physical state	Solid (cube lithium-ion battery, individually packaged, battery parameters: 25.6V 111Ah 2.8416kWh)
Colour	Black
Odor	No special odor
Odor threshold	No information available
pH	No information available
Melting point/freezing point(°C)	No information available
Initial boiling point and boiling range(°C)	No information available
Flash point(Closed cup,°C)	Not applicable
Evaporation rate	Not applicable
Flammability	Not flammable
Upper/lower explosive limits[%(v/v)]	Upper limit: No information available; Lower limit: No information available
Vapor pressure	Not applicable
Relative vapour density(Air = 1)	Not applicable
Relative density(Water=1)	No information available
Solubility	Insoluble in water
n-octanol/water partition coefficient	No information available
Auto-ignition temperature(°C)	No information available
Decomposition temperature(°C)	No information available
Kinematic viscosity	Not applicable
Particle characteristics	No information available

10 Stability and reactivity

Stability and reactivity

Reactivity	Contact with incompatible substances can cause decomposition or other chemical reactions.
Chemical stability	Stable under proper operation and storage conditions.
Possibility of hazardous reactions	Mixtures with metallic acetylene, when heated, cause a fire or incandescence. Reacts severely with halogens, interhalogens or other strong oxidants, or causes a fire.
Conditions to avoid	Incompatible materials, heat, flame and spark.
Incompatible materials	Metal acetylides, halogen, interhalogen, halogen oxides, nitric acid, nitrous oxide, nitrates, nitrites, halogen oxyacid salts, chromates, permanganates, inorganic peroxides, metal oxides and peroxyformic acid.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11 Toxicological information

Acute toxicity

Component	LD ₅₀ (oral)	LD ₅₀ (dermal)	LC ₅₀ (inhalation,4h)
Carbon black	> 15400mg/kg(Rat)	> 3000mg/kg(Rabbit)	No information available
Polyacrylic acid	2500mg/kg(Rat)	No information available	No information available

Carcinogenicity

Component	List of carcinogens by the IARC Monographs	Report on Carcinogens by NTP
Lithium Iron phosphate	Not Listed	Not Listed
Graphite	Not Listed	Not Listed
Copper	Not Listed	Not Listed
Aluminium	Not Listed	Not Listed
Poly(vinylidene difluoride)	Not Listed	Not Listed
Carbon black	Category 2B	Not Listed
Polyacrylic acid	Category 3	Not Listed
Lithium hexafluorophosphate	Not Listed	Not Listed
Nickel	Category 2B	Category R

Others

Rechargeable Li-ion Battery UP2500 25.6V 111Ah 2.8416kWh	
Skin corrosion/irritation	Based on available data, the classification criteria are not met
Serious eye damage/irritation	Based on available data, the classification criteria are not met
Skin sensitization	Based on available data, the classification criteria are not met
Respiratory sensitization	Based on available data, the classification criteria are not met
Reproductive toxicity	Based on available data, the classification criteria are not met
STOT-single exposure	Based on available data, the classification criteria are not met
STOT-repeated exposure	Based on available data, the classification criteria are not met
Aspiration hazard	Based on available data, the classification criteria are not met
Germ cell mutagenicity	Based on available data, the classification criteria are not met
Reproductive toxicity(additional)	Based on available data, the classification criteria are not met

12 Ecological information

Acute aquatic toxicity

Component	Fish	Crustaceans	Algae
Copper	LC ₅₀ : 0.665mg/L (96h)(Fish)	EC ₅₀ : 0.02mg/L (48h)(Crustaceans)	ErC ₅₀ : 7.9mg/L (96h)(Algae)
Aluminium	LC ₅₀ : 1.55mg/L (96h)(Fish)	No information available	No information available
Nickel	LC ₅₀ : 40mg/L (96h)(Fish)	EC ₅₀ : 1mg/L	No information available

		(48h)(Crustaceans)	
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Chronic aquatic toxicity

Chronic aquatic toxicity	No information available
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Persistence and degradability

Component	Persistence (water/soil)	Persistence (air)
Graphite	Low	Low
Nickel	Low	Low

Bioaccumulative potential

Component	Bioaccumulative potential	Comments
Graphite	Low	Log Kow=0.5294
Nickel	Low	Log Kow=-1.38

Mobility in soil

Component	Mobility in soil	Soil Organic Carbon-Water Partitioning Coefficient (Koc)
Graphite	Low	23.74
Nickel	Low	14.3

Results of PBT and vPvB assessment

Component	Results of PBT and vPvB assessment [according to (EC) No 1907/2006]
Graphite	Not applicable
Copper	Not applicable
Aluminium	Not applicable
Carbon black	Not PBT/vPvB
Lithium hexafluorophosphate	Not applicable
Nickel	Not applicable

13 Disposal considerations

Disposal considerations

Waste chemicals	Before disposal should refer to the relevant national and local laws and regulation. Recommend the use of incineration disposal.
Contaminated packaging	Containers may still present chemical hazard when empty. Keep away from hot and ignition source of fire. Return to supplier for recycling if possible.
Disposal recommendations	Refer to section waste chemicals and contaminated packaging.

14 Transport information

Label and Mark

Transporting Label	
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IMDG-CODE

UN number	3480
UN proper shipping name	LITHIUM ION BATTERIES (including lithium ion polymer batteries)
Transport hazard class	9
Transport subsidiary hazard class	None
Packing group	The packaging must meet the performance level of type II packaging
Special provisions	188 230 310 348 376 377
Limited quantities	0
Excepted quantities	E0
Marine pollutant (Yes or no)	No
EmS No.	F-A,S-I

IATA-DGR

UN number	3480
UN proper shipping name	LITHIUM ION BATTERIES (including lithium ion polymer batteries)
Transport hazard class	9
Transport subsidiary hazard class	None
Packing group	The packaging must meet the performance level of type II packaging
Excepted quantities	E0
Passenger and Cargo Aircraft Limited Quantity Packing Instructions	Forbidden
Passenger and Cargo Aircraft Limited Quantity Maximum net Quantity per Package	Forbidden
Passenger and Cargo Aircraft Packing Instructions	See 965
Passenger and Cargo Aircraft Maximum net Quantity per Package	-
Cargo Aircraft Packing Instructions	See 965
Cargo Aircraft Maximum net Quantity per Package	-
Special provisions	A88, A99, A154, A164, A183
ERG code	9F

UN-ADR

UN number	3480
UN proper shipping name	LITHIUM ION BATTERIES (including lithium ion polymer batteries)
Transport hazard class	9

Transport subsidiary hazard class	None
Packing group	The packaging must meet the performance level of type II packaging
Special provisions	188 230 310 348 376 377 636
Limited quantities	0
Excepted quantities	E0
Packing instructions	P903 P908 P909 LP903 LP904
Special packing provisions	-
Mixed packing provisions	-
Protable tanks and bulk containers instructions	-
Protable tanks and bulk containers special provisions	-
ADR tank code	-
ADR tank special provisions	-
Vehicle for tank carriage	-
Transport category(Tunnel restriction code)	2 (E)
Special provisions for carriage(Packages)	-
Special provisions for carriage (Bulk)	-
Special provisions for carriage (Loading, unloading and handling)	-
Special provisions for carriage (Operation)	-
Hazard identification No.	-
Notes	-

15 Regulatory information

International chemical inventory

Component	EINECS	TSCA	DSL	IECSC	NZIoC	PICCS	KECI	AIIC	ENCS
Lithium Iron phosphate	×	✓	✓	✓	×	×	✓	×	×
Graphite	✓	✓	✓	✓	✓	✓	✓	✓	×
Copper	✓	✓	✓	✓	✓	✓	✓	✓	✓
Aluminium	✓	✓	✓	✓	×	✓	✓	✓	✓
Poly(vinylidene difluoride)	×	✓	✓	✓	✓	✓	✓	✓	✓
Carbon black	✓	✓	✓	✓	✓	✓	✓	✓	✓
Polyacrylic acid	×	✓	✓	✓	✓	✓	✓	✓	✓
Lithium hexafluorophosphate	✓	✓	×	✓	×	✓	✓	✓	×
Nickel	✓	✓	✓	✓	✓	✓	✓	✓	✓

[EINECS] European Inventory of Existing Commercial Chemical Substances

[TSCA] United States Toxic Substances Control Act Inventory

[DSL]	Canadian Domestic Substances List
[IECSC]	China Inventory of Existing Chemical Substances
[NZIoC]	New Zealand Inventory of Chemicals
[PICCS]	Philippines Inventory of Chemicals and Chemical Substances
[KECI]	Korea Existing Chemicals Inventory
[AIIC]	Australia. Inventory of Industrial Chemicals (AIIC)
[ENCS]	Japan Inventory of Existing & New Chemical Substances

Note:

- “√” Indicates that the substance included in the regulations.
 “x” No data or not included in the regulations.

16 Other information

Information on revision

Creation Date	2021/09/15
Revision Date	2021/09/15
Reason for revision	-

Reference

- [1] IPCS: The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>.
- [2] IARC, website: <http://www.iarc.fr/>.
- [3] OECD: The Global Portal to Information on Chemical Substances, website: <https://www.echemportal.org/echemportal/substancesearch/index.action>.
- [4] CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>.
- [5] NLM: ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>.
- [6] EPA: Integrated Risk Information System, website: <http://cfpub.epa.gov/iris/>.
- [7] U.S. Department of Transportation: ERG, website: <http://www.phmsa.dot.gov/hazmat/library/erg>.
- [8] Germany GESTIS-database on hazard substance, website: <http://gestis-en.itrust.de/>.

Abbreviations and acronyms

CAS	Chemical Abstracts Service	UN	The United Nations
PC-STEL	Short term exposure limit	OECD	Organization for Economic Co-operation and Development
PC-TWA	Time Weighted Average	IMDG	International Maritime Dangerous Goods
MAC	Maximum Allowable Concentration	IARC	International Agency for Research on Cancer
DNEL	Derived No Effect Level	ICAO	International Civil Aviation Organization
PNEC	Predicted No Effect Concentration	IATA	International Air Transportation Association
NOEC	No Observed Effect Concentration	ACGIH	American Conference of Governmental Industrial Hygienists
LC ₅₀	Lethal Concentration 50%	NFPA	National Fire Protection Association
LD ₅₀	Lethal Dose 50%	NTP	National Toxicology Program
EC ₅₀	Effective Concentration 50%	PBT	Persistent, Bioaccumulative, Toxic
EC _x	Effective Concentration X%	vPvB	very Persistent, very Bioaccumulative
P _{ow}	Partition coefficient Octanol: Water	CMR	Carcinogens, mutagens or substances toxic to reproduction
BCF	Bioconcentration factor	RPE	Respiratory Protective Equipment
ED	Endocrine disruptor		

Disclaimer

This Safety Data Sheet (SDS) was prepared according to UN GHS (the 8th revised edition). The data included was derived from international authoritative database and provided by the enterprise. Other information was based on the present state of our knowledge. We try to ensure the correctness of all information. However, due to the diversity of information sources and the limitations of our knowledge, this document is only for user's reference. Users should make their independent judgment of suitability of this information for their particular purposes. We do not assume responsibility for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.



Design Report of Safety Data Sheet

Report No.: DG1952680E

Date: 2019/09/04



Name of the sample	Rechargeable Li-ion Battery UP2500 25.6V 111Ah		
Applicant	Pylon Technologies Co., Ltd.		
Supplier	Pylon Technologies Co., Ltd.		
Composition of the sample	Lithium Iron Phosphate; Graphite; Copper; Aluminium; Poly(vinylidene difluoride); Carbon black; Polyacrylic acid; Lithium hexafluorophosphate; Nickel		
Warranty of Design	GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS (GHS) Seventh revised edition		
Design Result of SDS please see next page.			
Designer	华雯	Approver	王红

Notes: This SDS is valid before the implementation of the eighth revised edition GHS.



SAFETY DATA SHEET

Rechargeable Li-ion Battery UP2500

25.6V 111Ah

Pylon Technologies Co., Ltd.

SDS

- According to GHS (Seventh Revised Edition)

Section 1 Product and Company Identification

> Product Identifier

Product Name Rechargeable Li-ion Battery UP2500 25.6V 111Ah

Synonyms -

> Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

Relevant Identified Uses Please consult manufacturer.

Uses Advised Against Please consult manufacturer.

> Details of the Supplier of the Safety Data Sheet

Applicant Name Pylon Technologies Co., Ltd.

Application Address Plant 8, No.505 Kunkai Road, Jinxi Town, Kunshan City, Jiangsu Province, PEOPLE'S REPUBLIC OF CHINA, 215324

Applicant Post Code —

Applicant Telephone +86-21-51317699

Applicant Fax —

Applicant E-mail xu.min@pylontech.com.cn

Supplier Name Pylon Technologies Co., Ltd.

Supplier Address Plant 8, No.505 Kunkai Road, Jinxi Town, Kunshan City, Jiangsu Province, PEOPLE'S REPUBLIC OF CHINA, 215324

Supplier Post Code —

Supplier Telephone +86-21-51317699

Supplier Fax —

Supplier E-mail xu.min@pylontech.com.cn

> Emergency Phone Number

Emergency Phone Number +86-21-51317699

Section 2 Hazards Identification

Hazard class and label elements of the product according to GHS (the seventh revised edition):

> GHS Hazard Class

This product meets the definition of an article. Under the Globally Harmonized System of Classification and Labeling of Chemicals (GHS), "Articles" as defined in the Hazard Communication Standard (29 CFR 1910.1200) of the Occupational Safety and Health Administration of the United States of America, or by similar

definition, are outside the scope of the system. [Rev.7 (2017) Part 1.3.2.1.1]

> GHS Label Elements

Pictogram Not applicable

Signal Word **Not applicable**

> Hazard Statements

Not applicable

> Precautionary Statements

Prevention

Do not open or disassemble.
Do not expose to high temperatures or open fire.
Do not mix with batteries of varying sizes, chemistries or types.
Avoid using external impact battery.

Response

Not applicable

Storage

Store under roof in cool, dry, well-ventilated areas.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

Section 3 Composition/Information on Ingredients

Component	Concentration (weight percent, %)	CAS No.	EC No.
Lithium Iron Phosphate	Commercial secrets	15365-14-17	-
Graphite	Commercial secrets	7782-42-5	231-955-3
Copper	Commercial secrets	7440-50-8	231-159-6
Aluminium	Commercial secrets	7429-90-5	231-072-3
Poly(vinylidene difluoride)	Commercial secrets	24937-79-9	200-867-7
Carbon black	Commercial secrets	1333-86-4	215-609-9
Polyacrylic acid	Commercial secrets	9003-01-4	202-415-4
Lithium hexafluorophosphate	Commercial secrets	21324-40-3	244-334-7
Nickel	Commercial secrets	7440-02-0	231-111-4

Section 4 First Aid Measures

> Description of First Aid Measures

General Advice

Immediate medical attention is required. Show this safety data sheet (SDS) to the doctor in attendance.

Eye Contact

If contact with substances in the battery, rinse thoroughly with plenty of water for at least 15 minutes and consult a physician if feel uncomfortable.

Skin Contact

If contact with substances in the battery, take off contaminated clothing and shoes immediately. Wash off with plenty of water for at least 15 minutes and

consult a physician if feel uncomfortable.

Ingestion

If you eat the substances in the battery, do not induce vomiting. Never give anything by mouth to an unconscious person. Call a physician or Poison Control Center immediately.

Inhalation

If the substance in the battery is inhaled, move victim into fresh air. If breathing is difficult, give oxygen. Do not use mouth to mouth resuscitation if victim ingested or inhaled the substance. If not breathing, give artificial respiration and consult a physician immediately.

Protecting of First-aiders

Ensure that medical personnel are aware of the substance involved. Take precautions to protect themselves and prevent spread of contamination.

> Most Important Symptoms and Effects, both Acute and Delayed

- 1 Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

> Indication of Any Immediate Medical Attention and Special Treatment Needed

- 1 Treat symptomatically.
- 2 Symptoms may be delayed.

Section 5 Fire Fighting Measures

> Extinguishing Media

Suitable Extinguishing Media

Plenty of water, dry chemical, carbon dioxide or alcohol-resistant foam.

> Specific Hazards Arising from the Substance or Mixture

- 1 Containers may explode when heated.
- 2 Fire exposed containers may vent contents through pressure relief valves.
- 3 May expansion or decompose explosively when heated or involved in fire.

> Advice for Firefighters

- 1 As in any fire, wear self-contained breathing apparatus (MSHA/NIOSH approved or equivalent) and full protective gear.
- 2 Fight fire from a safe distance, with adequate cover.
- 3 Prevent fire extinguishing water from contaminating surface water or the ground water system.

Section 6 Accidental Release Measure

> Personal Precautions, Protective Equipment and Emergency Procedures

- 1 Ensure adequate ventilation. Remove all sources of ignition.
- 2 Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.
- 3 Use personal protective equipment. Avoid breathing vapours, mist, gas or dust.

> Environmental Precautions

- 1 Prevent further leakage or spillage if safe to do so.
- 2 Discharge into the environment must be avoided.

> Methods and Materials for Containment and Cleaning Up

- 1 Absorb spilled material in dry sand or inert absorbent. In case of large amount of spillage, contain a spill by bunding.

- 2 Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.
- 3 Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

Section 7 Handling and Storage

> Precautions for Handling

- 1 Handling is performed in a well ventilated place.
- 2 Wear suitable protective equipment.
- 3 Avoid contact with skin and eyes.
- 4 Keep away from heat/sparks/open flames/ hot surfaces.
- 5 Take precautionary measures against static discharges.

> Precautions for Storage

- 1 Keep containers tightly closed.
- 2 Keep containers in a dry, cool and well-ventilated place.
- 3 Keep away from heat/sparks/open flames/ hot surfaces.
- 4 Store away from incompatible materials and foodstuff containers.

Section 8 Exposure Controls/Personal Protection

> Control Parameters

Occupational Exposure Limit Values

Component	Country/Region	Limit Value - Eight Hours		Limit Value - Short Term	
		ppm	mg/m ³	ppm	mg/m ³
Graphite 7782-42-5	USA - OSHA	-	15	-	-
	South Korea	-	2	-	-
	Ireland	-	10	-	-
	Germany (DFG)	-	4	-	-
	Denmark	-	2.5	-	5
	Australia	-	3 (4)	-	-
Copper 7440-50-8	The Netherlands	-	0.1	-	-
	Poland	-	0.2	-	-
	Latvia	-	0.5	-	1
	Germany (DFG)	-	0.01	-	0.02
Aluminium 7429-90-5	USA - OSHA	-	15	-	-
	South Korea	-	10	-	-
	Ireland	-	1	-	-
	Germany (DFG)	-	4	-	-
	Denmark	-	5	-	10
	Australia	-	10	-	-
Carbon black 1333-86-4	USA - OSHA	-	3.5	-	-
	South Korea	-	3.5	-	-

	Ireland	-	3.5	-	7
	France	-	3.5	-	-
	Denmark	-	3.5	-	7
	Australia	-	3	-	-
Nickel 7440-02-0	USA - OSHA	-	1	-	-
	South Korea	-	1	-	-
	Ireland	-	0.5	-	-
	Hungary	-	0.1	-	0.1
	Denmark	-	0.05	-	0.1
	Australia	-	1	-	-

Biological Limit Values

Component	Source	Biological monitoring index	Biological limits value	Sampling time	remark
Lithium hexafluorophosphate	SCOEL(EU)	Fluorine/urine	8mg/L	end of shift	

Monitoring Methods

- 1 EN 14042 Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.
- 2 GBZ/T 160 Determination of toxic substances in workplace air(Series effective standard)and GBZ/T 300 Determination of toxic substances in workplace air(Series standard).

> Engineering Controls

- 1 Ensure adequate ventilation, especially in confined areas.
- 2 Ensure that eyewash stations and safety showers are close to the workstation location.
- 3 Use explosion-proof electrical/ventilating/lighting/equipment.
- 4 Set up emergency exit and necessary risk-elimination area.

> Personal Protection Equipment

Eye Protection	Tightly fitting safety goggles (approved by EN 166(EU) or NIOSH (US).
Hand Protection	Wear protective gloves (such as butyl rubber) , passing the tests according to EN 374(EU),US F739 or AS/NZS 2161.1 standard.
Respiratory protection	If exposure limits are exceeded or if irritation or other symptoms are experienced, use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges.
Skin and Body Protection	Wear fire/flame resistant/retardant clothing and antistatic boots.

Section 9 Physical and Chemical Properties

Appearance: Li-ion battery, individually packaged, 25.6V 111Ah

Odor Threshold: No information available

Melting Point/Freezing Point (°C): No information available

Flash Point (°C)(Closed Cup): Not applicable

Flammability: No information available

Vapor Pressure (KPa): Not applicable

Odor: No information available

pH: No information available

Initial Boiling Point and Boiling Range (°C): No information available

Evaporation Rate: Not applicable

Upper/lower explosive limits[% (v/v)]: Upper limit: No information available; Lower limit: No information available

Relative Vapour Density(Air = 1): Not applicable

Relative Density(Water=1): No information available

n-Octanol/Water Partition Coefficient: No information available

Decomposition Temperature (°C): No information available

Particle characteristics: No information available

Solubility: No information available

Auto-Ignition Temperature(°C): No information available

Kinematic Viscosity (mm²/s): Not applicable

Section 10 Stability and Reactivity

Reactivity	Contact with incompatible substances can cause decomposition or other chemical reactions.
Chemical Stability	Stable under proper operation and storage conditions.
Possibility of Hazardous Reactions	Mixtures with metallic acetylene, when heated, cause a fire or incandescence. Reacts severely with halogens, interhalogens or other strong oxidants, or causes a fire. Ultrafine powder will self-ignite in the air at room temperature.
Conditions to Avoid	Incompatible materials, heat, flame and spark.
Incompatible Materials	Metal acetylide, halogen, interhalogen, halogen oxides, nitric acid, nitrous oxide, nitrates, nitrites, halogen oxyacid salts, chromates, permanganates, inorganic peroxides, metal oxides and peroxyformic acid. Halogen, interhalogen, strong oxidant, water and acids. Oxidants, halogen, interhalogen and mercury.
Hazardous Decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11 Toxicological Information

> Acute Toxicity

Component	CAS No.	LD ₅₀ (Oral)	LD ₅₀ (Dermal)	LC ₅₀ (Inhalation, 4h)
Polyacrylic acid	9003-01-4	2500mg/kg(Rat)	No information available	No information available
Carbon black	1333-86-4	> 15400mg/kg(Rat)	> 3000mg/kg(Rabbit)	No information available

> Skin Corrosion/Irritation

No information available

> Serious Eye Damage/Irritation

No information available

> Skin Sensitization

No information available

> Respiratory Sensitization

No information available

> Germ Cell Mutagenicity

No information available

> Carcinogenicity

ID	CAS No.	Component	IARC	NTP
1	15365-14-17	Lithium Iron Phosphate	Not Listed	Not Listed
2	7782-42-5	Graphite	Not Listed	Not Listed
3	7440-50-8	Copper	Not Listed	Not Listed
4	7429-90-5	Aluminium	Not Listed	Not Listed
5	24937-79-9	Poly(vinylidene difluoride)	Not Listed	Not Listed
6	1333-86-4	Carbon black	Category 2B	Not Listed
7	9003-01-4	Polyacrylic acid	Category 3	Not Listed
8	21324-40-3	Lithium hexafluorophosphate	Not Listed	Not Listed
9	7440-02-0	Nickel	Category 2B	Not Listed

> Reproductive Toxicity

No information available

> Reproductive Toxicity (Additional)

No information available

> STOT-Single Exposure

No information available

> STOT-Repeated Exposure

No information available

> Aspiration Hazard

No information available

Section 12 Ecological Information

> Acute Aquatic Toxicity

Component	CAS No.	Fish	Crustaceans	Algae
Copper	7440-50-8	LC ₅₀ : 0.665mg/L (96h)(Fish)	EC ₅₀ : 0.02mg/L (48h)	ErC ₅₀ : 7.9mg/L (96h)
Aluminium	7429-90-5	LC ₅₀ : 1.55mg/L (96h)(Fish)	No information available	No information available
Nickel	7440-02-0	LC ₅₀ : 40mg/L (96h)(Fish)	EC ₅₀ : 1mg/L (48h)	No information available

> Chronic Aquatic Toxicity

No information available

> Others

Persistence and Degradability
Bioaccumulative Potential
Mobility in Soil

No information available

No information available

No information available

Results of PBT and vPvB Assessment

Lithium Iron Phosphate does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII.

Graphite does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII.

Copper does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII.

Aluminium does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII.

Poly(vinylidene difluoride) does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII.

Carbon black does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII.

Polyacrylic acid does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII.

Lithium hexafluorophosphate does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII.

Nickel does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII.

Section 13 Disposal Considerations**Waste Chemicals**

Before disposal should refer to the relevant national and local laws and regulation. Recommend the use of incineration disposal.

Contaminated Packaging Disposal Recommendations

Containers may still present chemical hazard when empty. Keep away from hot and ignition source of fire. Return to supplier for recycling if possible. Refer to section 13.1 and 13.2.

Section 14 Transport Information**Transporting Label****Marine pollutant**

None

UN Number

3480

UN Proper Shipping Name

LITHIUM ION BATTERIES(including lithium ion polymer batteries)

Transport Hazard Class

9

Transport Subsidiary Hazard Class

NONE

Packing Group

Packagings shall conform to the packing group II performance level

> International Chemical Inventory

Section 15 Regulatory Information

Component	EINECS	TSCA	DSL	IECSC	NZIoC	PICCS	KECI	AICS	ENCS
Lithium Iron Phosphate	×	×	×	×	×	×	×	×	×
Graphite	✓	✓	✓	✓	✓	✓	✓	✓	×
Copper	✓	✓	✓	✓	✓	✓	✓	✓	×
Aluminium	✓	✓	✓	✓	✓	✓	✓	✓	×
Poly(vinylidene difluoride)	×	✓	✓	✓	✓	✓	✓	✓	✓
Carbon black	✓	✓	✓	✓	✓	✓	✓	✓	×
Polyacrylic acid	×	✓	✓	✓	✓	✓	×	✓	✓
Lithium hexafluorophosphate	✓	✓	×	✓	×	✓	✓	✓	×
Nickel	✓	✓	✓	✓	✓	✓	✓	✓	×

【EINECS】 European Inventory of Existing Commercial Chemical Substances.

【TSCA】 United States Toxic Substances Control Act Inventory.

【DSL】 Canadian Domestic Substances List.

【IECSC】 China Inventory of Existing Chemical Substances.

【NZIoC】 New Zealand Inventory of Chemicals.

【PICCS】 Philippines Inventory of Chemicals and Chemical Substances.

【KECI】 Existing and Evaluated Chemical Substances.

【AICS】 Australia Inventory of Chemical Substances.

【ENCS】 Existing And New Chemical Substances.

Note

"✓" Indicates that the substance included in the regulations

"×" That no data or included in the regulations

Section 16 Additional Information

Creation Date 2019/09/04

Revision Date 2019/09/04

Reason for Revision -

> Disclaimer

This Safety Data Sheet (SDS) was prepared according to UN GHS (the 7th revised edition). The data included was derived from international authoritative database and provided by the enterprise. Other information was based on the present state of our knowledge. We try to ensure the correctness of all information. However, due to the diversity of information sources and the limitations of our knowledge, this document is only for user's reference. Users should make their independent judgment of suitability of this information for their particular purposes. We do not assume responsibility for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.



Terms of the Using of the Report

1. The report is issued by DPTC according to the information of the chemicals and the information of its shipping provided by the applicant (shipper or his agent).
2. According to the demand of this SDS, DPTC requires the applicant to provide true and exact sample and data.
3. Information from applicant is the key of this Label, so the center will not respond for the wrong of applicant.
4. Unless otherwise stated, the results shown in this test report refer only to the sample(s) tested.
5. This report will be effective only after it is signed by the inspector, approver and stamped by DPTC.
6. Our center guarantees the objectivity and fairness of this report, and carries out confidentiality obligations on business secrets such as business information, technical documents and so on.
7. The partly duplicating of this report is prohibited without the written approver of DPTC.
8. The report is invalid when anything of the following happens-illegal transfer, embezzlement, imposture, modification or tampering in any media form.
9. The authenticity of the certificate can be checked by scanning the QR code of this certificate.





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TESTING
CNAS L2999

TEST REPORT OF CLASSIFICATION FOR DANGEROUS GOODS – LITHIUM METAL AND LITHIUM ION BATTERIES

☒ New Application ☐ Modification ☐ Other:

Report ID: 20190706J15136XG1-1

Sample Name: Rechargeable Li-ion Battery

Model/Type: UP2500/25.6V 111Ah 2.8416kWh

Applicant: Pylon Technologies Co., Ltd.



CQC Intime Testing Technology Co., Ltd



TEST REPORT

Report ID: 20190706J15136XG1-1

Test Unit: CQC Intime Testing Technology Co., Ltd

Address: East Taihu Technology and Finance City, No.1368 Wuzhong Dadao Rd., Wuzhong Economic Development Zone, Suzhou, Jiangsu.

Postal code: 215104 **Phone:** 0512-66303623 **Fax:** 0512-66303625

Testing location/procedure: East Taihu Technology and Finance City, No.1368 Wuzhong Dadao Rd., Wuzhong Economic Development Zone, Suzhou, Jiangsu.

Applicant's name: Pylon Technologies Co., Ltd.

Address: Plant 8, No.505 Kunkai Road, JinXi Town, Kunshan City, Jiangsu Province, PEOPLE'S REPUBLIC OF CHINA

Sample Name: Rechargeable Li-ion Battery

Trade Mark: 
Model/Type: UP2500

Ratings: 25.6V 111Ah 2.8416kWh

Manufacturer: Pylon Technologies Co., Ltd.

Address: Plant 8, No.505 Kunkai Road, JinXi Town, Kunshan City, Jiangsu Province, PEOPLE'S REPUBLIC OF CHINA

Standard Specification: UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3. Rev.6

Test Procedure: —

Non-standard Test Method: —

Test Item: Altitude Simulation, Thermal Test, Vibration, Shock, External Short Circuit, Impact, Overcharge, Force Discharge

Date of receipt of test item: 2019.07.26

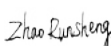
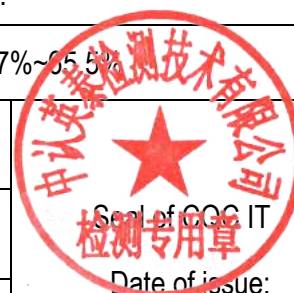
Finished Date: 2019.09.06

Conclusion: The Submitted Sample(s) Meet the Requirement of the Standard.

Testing Conditions: Temperature: 23.6℃ ~ 24.5℃ Relative Humidity: 53.7%~65.5%

Engineer: Hou Fengwen Signature:  Date: 2019.09.06

Auditor: Yang Zhenrong Signature:  Date: 2019.09.06

Approver: Zhao Runsheng Signature:  Date: 2019.09.06


2019.09.06

Remark: (1) P: Test object does meet the requirement. (2) F: Test object does not meet the requirement.

(3) N/A: Test case does not apply to the test object. (4) ---: Test case does not conduct

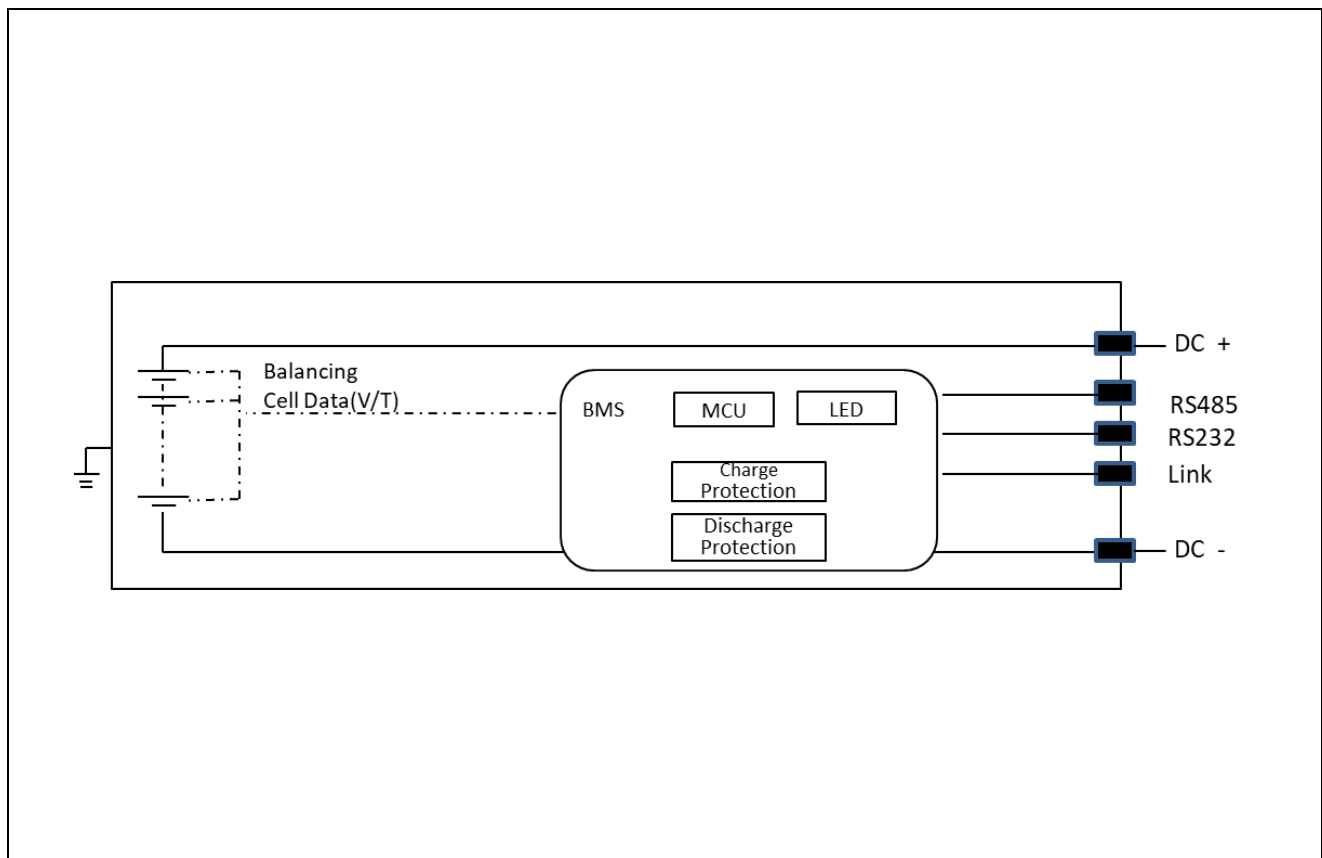
The Table of Battery Fundamental Parameters

Item	Rated Performance	Item	Rated Performance
Nominal capacity (Ah)	111	Nominal voltage(V)	25.6
Rated power(Wh)	2841.6	Limited charge voltage(V)	29.2
Charge current(A)	22.2	Maximum continous charging current (A)	100
End charge current(mA)	2220	Discharge current(A)	74
Cut-off voltage (V)	21.6	Cell numbers	24
Maximum discharge current(A)	100	Type of cellt(mm)	Pouch Cell
Permutation of cell	3P8S	Capacity of cell(Ah)	37
--	--	--	--
--	--	--	--

Battery Critical Component List

No	Name	Model/Type	Manufacturer	Remarks
1	BMS	--	--	--
2	Cell	PF37M	--	--
3	Intercell tabs	--	--	--
4	Plastics cases and Lids	--	--	--
5	Fuse	--	--	--
6	--	--	--	--
7	--	--	--	--
8	--	--	--	--
9	--	--	--	--
10	--	--	--	--

The Battery Pack Electrical Connection Diagram



Sample photograph-1



Sample photograph-2



Sample photograph-3



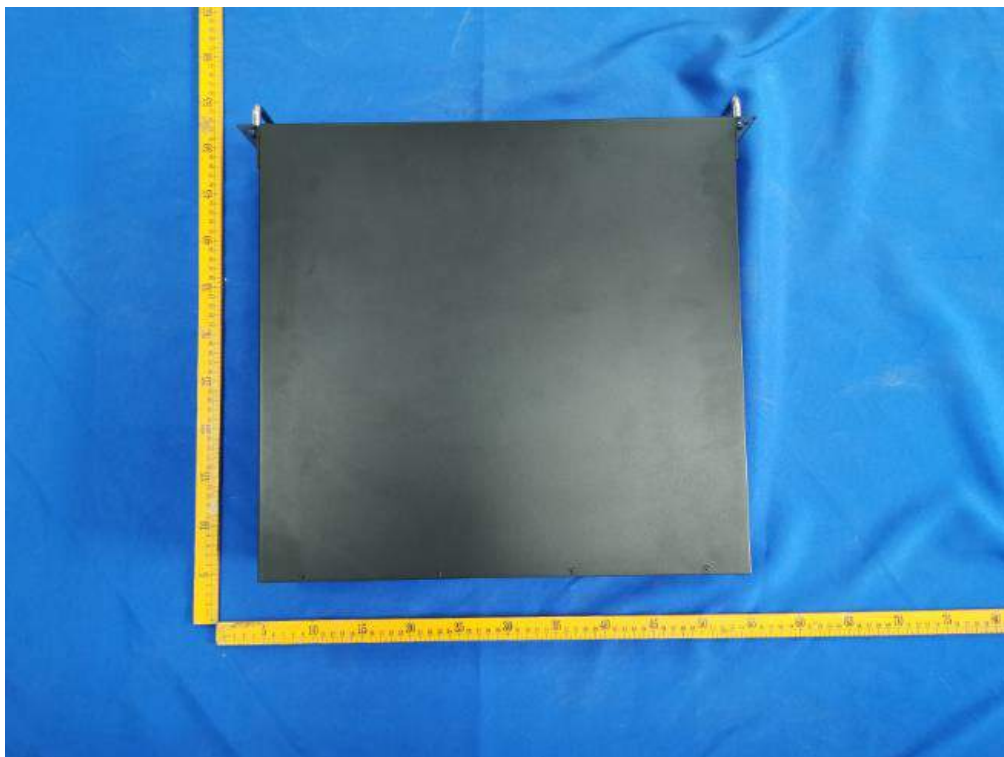
Sample photograph-4



Sample photograph-5



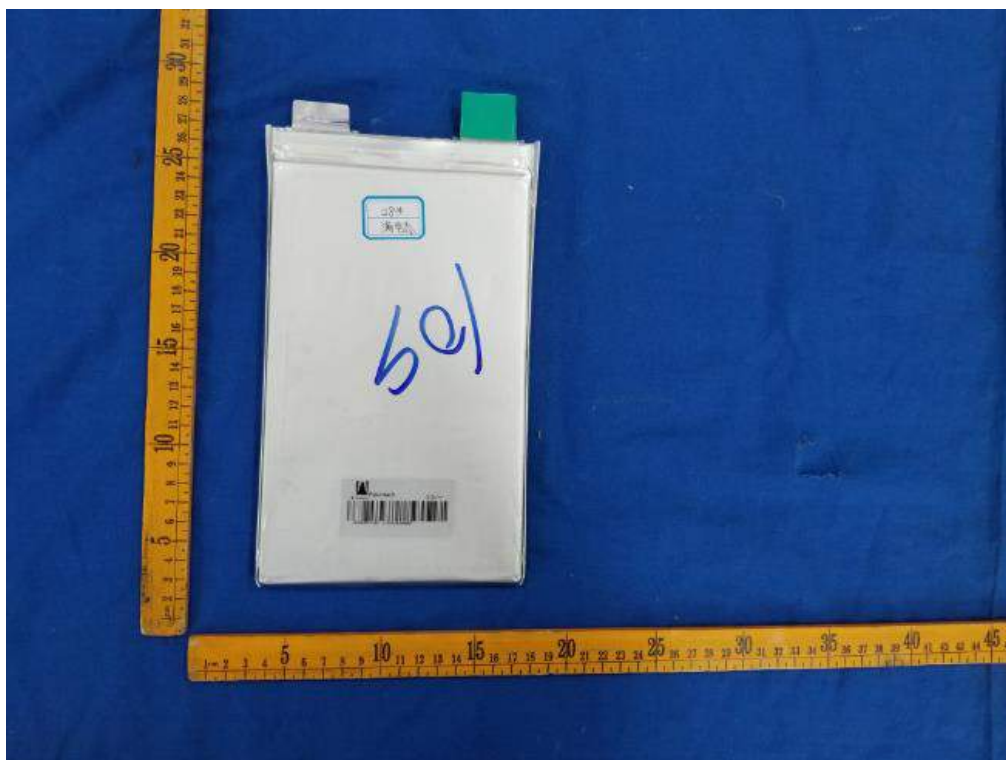
Sample photograph-6



Sample photograph-7



Sample photograph-8



CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.1 Altitude simulation	Battery at first cycle in fully charged state. Test batteries shall be stored at a pressure of 11.6 kPa or less for at least six hours at ambient temperature ($20 \pm 5^{\circ}\text{C}$).	No leakage No venting No disassembly No rupture No fire The open circuit voltage of each test battery after testing is not less than 90% of its voltage, Mass loss limit 0.1%.	Group1 Group2	No leakage No venting No disassembly No rupture No fire The open circuit voltage of each test battery after testing is not less than 90% of its voltage. No mass loss. Test data is shown in Annex 1.	P
	Battery after 25 cycles in fully charged state. Test batteries shall be stored at a pressure of 11.6 kPa or less for at least six hours at ambient temperature ($20 \pm 5^{\circ}\text{C}$).		Group3 Group4		P

*When mass loss does not exceed the limited value, it shall be considered as "no mass loss".

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.2 Thermal test	Battery at first cycle in fully charged state. Test batteries are to be stored for at least 12 hours at a test temperature equal to $75\pm 2^{\circ}\text{C}$, followed by storage for at least 12 hours at a test temperature equal to $-40\pm 2^{\circ}\text{C}$. The maximum time interval between test temperature extremes is 30 minutes. This procedure is to be repeated 10 times, after which all test batteries are to be stored for 24 hours at ambient temperature ($20\pm 5^{\circ}\text{C}$).	No leakage No venting No disassembly No rupture No fire The open circuit voltage of each test battery after testing is not less than 90% of its voltage, Mass loss limit 0.1%.	Group1 Group2	No leakage No venting No disassembly No rupture No fire The open circuit voltage of each test battery after testing is not less than 90% of its voltage.	P
	Battery after 25 cycles in fully charged state. Test batteries are to be stored for at least 12 hours at a test temperature equal to $75\pm 2^{\circ}\text{C}$, followed by storage for at least 12 hours at a test temperature equal to $-40\pm 2^{\circ}\text{C}$. The maximum time interval between test temperature extremes is 30 minutes. This procedure is to be repeated 10 times, after which all test batteries are to be stored for 24 hours at ambient temperature ($20\pm 5^{\circ}\text{C}$).		Group3 Group4	No mass loss. Test data is shown in Annex 2.	P

*When mass loss does not exceed the limited value, it shall be considered as "no mass loss".

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.3 Vibration	Battery at first cycle in fully charged state. Batteries are firmly secured to the platform of the vibration machine without distorting the cells. The vibration shall be a sinusoidal waveform with a logarithmic sweep between 7 Hz and 200 Hz and back to 7 Hz traversed in 15 minutes. This cycle shall be repeated 12 times for a total of 3 hours for each of three mutually perpendicular mounting positions of the cell. One of the directions of vibration must be perpendicular to the terminal face. The logarithmic frequency sweep is as follows: from 7 Hz a peak acceleration of 1 g_n is maintained until 18 Hz is reached. The amplitude is then maintained at 0.8 mm (1.6 mm total excursion) and the frequency increased until a peak acceleration of 2 g_n occurs (approximately 25 Hz). A peak acceleration of 2 g_n is then maintained until the frequency is increased to 200 Hz.	No leakage No venting No disassembly No rupture No fire The open circuit voltage of each test battery after testing is not less than 90% of its voltage, Mass loss limit 0.1%.	Group1 Group2	No leakage No venting No disassembly No rupture No fire The open circuit voltage of each test battery after testing is not less than 90% of its voltage No mass loss. Test data is shown in Annex 3.	P

*When mass loss does not exceed the limited value, it shall be considered as "no mass loss".

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.3 Vibration	Battery after 25 cycles in fully charged state. Batteries are firmly secured to the platform of the vibration machine without distorting the cells. The vibration shall be a sinusoidal waveform with a logarithmic sweep between 7 Hz and 200 Hz and back to 7 Hz traversed in 15 minutes. This cycle shall be repeated 12 times for a total of 3 hours for each of three mutually perpendicular mounting positions of the cell. One of the directions of vibration must be perpendicular to the terminal face. The logarithmic frequency sweep is as follows: from 7 Hz a peak acceleration of 1 g_n is maintained until 18 Hz is reached. The amplitude is then maintained at 0.8 mm (1.6 mm total excursion) and the frequency increased until a peak acceleration of 2 g_n occurs (approximately 25 Hz). A peak acceleration of 2 g_n is then maintained until the frequency is increased to 200 Hz.	No leakage No venting No disassembly No rupture No fire The open circuit voltage of each test battery after testing is not less than 90% of its voltage, Mass loss limit 0.1%.	Group3 Group4	No leakage No venting No disassembly No rupture No fire The open circuit voltage of each test battery after testing is not less than 90% of its voltage No mass loss . Test data is shown in Annex 3.	P

*When mass loss does not exceed the limited value, it shall be considered as "no mass loss".

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.4 Shock	Battery at first cycle in fully charged state. Test batteries shall be secured to the testing machine by means of a rigid mount which will support all mounting surfaces of each test battery. Small batteries shall be subjected to a half-sine shock of peak acceleration of 150 g n (or Acceleration(g n) = $\sqrt{\left(\frac{100850}{\text{mass}}\right)}$, which is smaller) and pulse duration of 6 milliseconds, large batteries shall be subjected to a half-sine of peak acceleration of 50 g n (or Acceleration(g n) = $\sqrt{\left(\frac{30000}{\text{mass}}\right)}$, which is smaller) and pulse duration of Each battery shall be subjected to three shocks in the positive direction followed by three shocks in the negative direction of three mutually perpendicular mounting positions of the battery for a total of 18 shocks.	No leakage No venting No disassembly No rupture No fire The open circuit voltage of each test battery after testing is not less than 90% of its voltage, Mass loss limit 0.1%.	Group1 Group2	No leakage No venting No disassembly No rupture No fire The open circuit voltage of each test battery after testing is not less than 90% of its voltage. No mass loss . Test data is shown in Annex 4.	P

*When mass loss does not exceed the limited value, it shall be considered as "no mass loss".

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.4 Shock	Battery after 25 cycles in fully charged state. Test batteries shall be secured to the testing machine by means of a rigid mount which will support all mounting surfaces of each test battery. Small batteries shall be subjected to a half-sine shock of peak acceleration of 150 g n (or Acceleration(g n) = $\sqrt{\left(\frac{100850}{\text{mass}}\right)}$, which is smaller) and pulse duration of 6 milliseconds, large batteries shall be subjected to a half-sine of peak acceleration of 50 g n (or Acceleration(g n) = $\sqrt{\left(\frac{30000}{\text{mass}}\right)}$, which is smaller) and pulse duration of Each battery shall be subjected to three shocks in the positive direction followed by three shocks in the negative direction of three mutually perpendicular mounting positions of the battery for a total of 18 shocks.	No leakage No venting No disassembly No rupture No fire The open circuit voltage of each test battery after testing is not less than 90% of its voltage, Mass loss limit 0.1%.	Group3 Group4	No leakage No venting No disassembly No rupture No fire The open circuit voltage of each test battery after testing is not less than 90% of its voltage. No mass loss . Test data is shown in Annex 4.	P

*When mass loss does not exceed the limited value, it shall be considered as "no mass loss".

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.5 External short circuit	Battery at first cycle in fully charged state. The cell or battery to be tested shall be temperature stabilized so that its external case temperature reaches $57\pm4^{\circ}\text{C}$ and then the cell or battery shall be subjected to a short circuit condition with a total external resistance of less than 0.1 ohm at $57\pm4^{\circ}\text{C}$. This short circuit condition is continued for at least one hour after the cell or battery external case temperature has returned to $57\pm4^{\circ}\text{C}$. The battery must be observed for a further six hours for the test to be concluded.	External temperature does not exceed 170°C. No disassembly No rupture No fire	Group1 Group2	External temperature does not exceed 170°C. No disassembly No rupture No fire Test data is shown in Annex 5.	P

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.5 External short circuit	Battery after 25 cycles in fully charged state. The cell or battery to be tested shall be temperature stabilized so that its external case temperature reaches $57\pm4^{\circ}\text{C}$ and then the cell or battery shall be subjected to a short circuit condition with a total external resistance of less than 0.1 ohm at $57\pm4^{\circ}\text{C}$. This short circuit condition is continued for at least one hour after the cell or battery external case temperature has returned to $57\pm4^{\circ}\text{C}$. The battery must be observed for a further six hours for the test to be concluded.	External temperature does not exceed 170°C. No disassembly No rupture No fire	Group3 Group4	External temperature does not exceed 170°C. No disassembly No rupture No fire Test data is shown in Annex 5.	P

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.6 Crush	Cell at first cycle at 50% of the design rated capacity. A cell or component cell is to be crushed between two flat surfaces. The crushing is to be gradual with a speed of approximately 1.5 cm/s at the first point of contact. The crushing is to be continued until the first of the three options below is reached. (a) The applied force reaches 13 kN $\pm$ 0.78 kN; (b) The voltage of the cell drops by at least 100 mV; or (c) The cell is deformed by 50% or more of its original thickness. Once the maximum pressure has been obtained, the voltage drops by 100 mV or more, or the cell is deformed by at least 50% of its original thickness, the pressure shall be released. A prismatic or pouch cell shall be crushed by applying the force to the widest side. A button/coin cell shall be crushed by applying the force on its flat surfaces. For cylindrical cells, the crush force shall be applied perpendicular to the longitudinal axis. Each test cell or component cell is to be subjected to one crush only. The test sample shall be observed for a further 6h. The test shall be conducted using test cells or component cells that have not previously been subjected to other tests.	External temperature does not exceed 170°C. No disassembly No fire	1 # 2 # 3 # 4 # 5 #	External temperature does not exceed 170°C. No disassembly No fire Test data is shown in Annex 6.	P

*: Component Cells Of Battery.

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.7 Overcharge	Battery at first cycle in fully discharged state. The charge current shall be the twice the manufactures recommended maximum continuous charge current. The minimum voltage of the test shall be follows: (a) When the manufactures recommended charge voltage is not more than 18V, the minimum voltage of the test shall be the lesser of two times the maximum charge voltage of the battery or 22V. (b) When the manufactures recommended charge voltage is more than 18V, the minimum voltage of the test shall be 1.2 times the maximum charge voltage. Tests are to be conducted at ambient temperature. The duration of the test shall be 24 hours. The test sample shall be observed for a further 7 days.	No disassembly No fire	Group5 Group6	No disassembly No fire Test data is shown in Annex 7	P

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.7 Overcharge	Battery after 25 cycles in fully charged state. The charge current shall be the twice the manufactures recommended maximum continuous charge current. The minimum voltage of the test shall be follows: (c) When the manufactures recommended charge voltage is not more than 18V, the minimum voltage of the test shall be the lesser of two times the maximum charge voltage of the battery or 22V. (d) When the manufactures recommended charge voltage is more than 18V, the minimum voltage of the test shall be 1.2 times the maximum charge voltage. Tests are to be conducted at ambient temperature. The duration of the test shall be 24 hours. The test sample shall be observed for a further 7 days.	No disassembly No fire	Group7 Group8	No disassembly No fire Test data is shown in Annex 7	P

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.8 Forced discharge	Battery at first cycle in fully discharged state. Each cell shall be forced discharged at ambient temperature by connecting it in series with a 12V D.C. power supply at an initial current equal to the maximum discharge current specified by the manufacturer. The specified discharge current is to be obtained by connecting a resistive load of the appropriate size and rating in series with the test cell. Each cell shall be forced discharged for a time interval (in hours) equal to its rated capacity divided by the initial test current (in ampere). The test sample shall be observed for a further 7 days.	No disassembly No fire	6#-15#	No disassembly No fire Test data is shown in Annex 8	P

*: Component Cells Of Battery.

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.8 Forced discharge	Battery after 50 cycles in fully charged state. Each cell shall be forced discharged at ambient temperature by connecting it in series with a 12V D.C. power supply at an initial current equal to the maximum discharge current specified by the manufacturer. The specified discharge current is to be obtained by connecting a resistive load of the appropriate size and rating in series with the test cell. Each cell shall be forced discharged for a time interval (in hours) equal to its rated capacity divided by the initial test current (in ampere). The test sample shall be observed for a further 7 days.	No disassembly No fire	16#-25#	No disassembly No fire Test data is shown in Annex 7	P

*: Component Cells Of Battery.

CQC Intime Testing Technology Co., Ltd

TEST REPORT

List of Test Equipment

No	Test Equipment	Equipment Model	Equipment No	Expiry Date of Calibration	Remarks (√)
1	Low Pressure Chamber	315Z	ITCS1206013	2020-04-04	√
2	Thermal Shock Chambers	KWGDS61	ITCB16001	2020-04-11	√
3	Vibration Tester	HV-300-D-25	ITCEN07007	2020-07-04	
4	Vibration Tester System	DL-8000-80	ITCE11009	2020-04-11	√
5	Battery Shock Tester	IS350	ITCB180207	2020-06-20	
6	High Temperature Explosion-proof Chamber	BE-101-512A	ITCB16005	2020-06-25	√
7	Battery Impact Tester	H-FZ-500	ITCEN07009	2020-05-09	
8	Battery Crush Tester	GX-5067-C	ITCB16006	2020-04-04	√
9	Electric Vehicle Battery Tester	BNT100-0100ME	ITCB13010	2020-06-27	
10	Electric Vehicle Battery Tester	BNT100-0100ME	ITCB13011	2020-04-18	√
11	High Temperature Explosion-proof Chamber	BE-101-512A	ITCB16004	2020-06-09	√
12	Smart Battety Test System	CTE-MCT-1804E - DC20V12A 4CH	ITCB13006	2020-06-05	
13	High-precision battery tester	CT-4004-5V100A-NFA	ITCB15004	2020-05-10	√
14	High Temperature Explosion-proof Chamber	SPHH-101	ITCS06031	2020-04-12	
15	Battery internal resistance tester	BT3563	ITCB14001	2020-04-04	√
16	Temperature Recorder	MV2020	ITCS111001	2020-04-13	√
17	Digital Multicenter	FLUKE177	ITCS06060-3	2020-04-14	√
18	Electronic Scale	JX-A30002	ITCB170602	2020-04-09	
19	Electronic Scale	ACS-JS	ITCB180419	2020-04-18	
20	Electronic Scale	AWH-150TC	ITCH161002	2020-06-09	√
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TEST REPORT

Annex 1. Altitude Simulation

[illegible]

NL: No leakage **NV:** No Venting **ND:** No Disassembly **NR:** No Rupture **NF:** No Fire
LK: Leakage **VNT:** Venting **DSM:** Disassembly **RUP:** Rupture **FR:** Fire

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Annex 2. Thermal Test

No	Battery Condition	Before Test OCV ₁ (V)	Before Test M ₁ (kg)	After Test OCV ₂ (V)	After Test M ₂ (kg)	OCV ₂ /OCV ₁ (%)	Mass Loss (M ₂ -M ₁)/M ₁ (%)	Remarks
Group 1	First cycle fully charged	26.43	25.96	26.28	25.95	99.43%	0.039%	--
Group 2	First cycle fully charged	26.57	25.96	26.46	25.95	99.59%	0.039%	--
Group 3	After 25 cycles fully charged	26.40	25.92	26.15	25.91	99.05%	0.039%	--
Group 4	After 25 cycles fully charged	26.55	25.96	26.34	25.94	99.21%	0.077%	--
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Remarks:

NL: No leakage **NV:** No Venting **ND:** No Disassembly **NR:** No Rupture **NF:** No Fire

LK: Leakage **VNT:** Venting **DSM:** Disassembly **RUP:** Rupture **FR:** Fire

TEST REPORT

No	Battery Condition	Before Test OCV ₁ (V)	Before Test M ₁ (kg)	After Test OCV ₂ (V)	After Test M ₂ (kg)	OCV ₂ /OCV ₁ (%)	Mass Loss (M ₂ -M ₁)/M ₁ (%)	Remarks
Group 1	First cycle fully charged	26.28	25.95	26.24	25.94	99.85%	0.039%	--
Group 2	First cycle fully charged	26.46	25.95	26.42	25.95	99.85%	0.000%	--
Group 3	After 25 cycles fully charged	26.15	25.91	26.14	25.91	99.96%	0.000%	--
Group 4	After 25 cycles fully charged	26.34	25.94	26.33	25.93	99.96%	0.039%	--
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Remarks:
NL: No leakage **NV:** No Venting **ND:** No Disassembly **NR:** No Rupture **NF:** No Fire
LK: Leakage **VNT:** Venting **DSM:** Disassembly **RUP:** Rupture **FR:** Fire

TEST REPORT

No	Battery Condition	Before Test OCV ₁ (V)	Before Test M ₁ (kg)	After Test OCV ₂ (V)	After Test M ₂ (kg)	OCV ₂ /OCV ₁ (%)	Mass Loss (M ₂ -M ₁)/M ₁ (%)	Remarks
Group 1	First cycle fully charged	26.24	25.94	26.23	25.94	99.96%	0.000%	--
Group 2	First cycle fully charged	26.42	25.95	26.42	25.94	100.00%	0.039%	--
Group 3	After 25 cycles fully charged	26.14	25.91	26.13	25.91	99.96%	0.000%	--
Group 4	After 25 cycles fully charged	26.33	25.93	26.32	25.93	99.96%	0.000%	--
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Remarks:

NL: No leakage NV: No Venting ND: No Disassembly NR: No Rupture NF: No Fire

LK: Leakage VNT: Venting DSM: Disassembly RUP: Rupture FR: Fire

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Annex 5. External Short Circuit

No	Battery Condition	Voltage (V)	Initial Temperature (°C)	Max Temperature (°C)	Remarks
Group 1	First cycle fully charged	26.23	56.9	57.0	--
Group 2	First cycle fully charged	26.42	57.0	57.0	--
Group 3	After 25 cycles fully charged	26.13	57.0	57.0	--
Group 4	After 25 cycles fully charged	26.32	56.8	56.9	--
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Remarks:

NL: No leakage **NV:** No Venting **ND:** No Disassembly **NR:** No Rupture **NF:** No Fire
LK: Leakage **VNT:** Venting **DSM:** Disassembly **RUP:** Rupture **FR:** Fire

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Annex 6. Impact

No	Battery Condition	Voltage (V)	Initial Temperature (°C)	Max Temperature (°C)	Remarks
1	First cycle in 50% rated capacity	3.308	24.1	24.2	--
2	First cycle in 50% rated capacity	3.311	24.2	24.2	--
3	First cycle in 50% rated capacity	3.309	23.8	23.8	--
4	First cycle in 50% rated capacity	3.315	23.6	23.7	--
5	First cycle in 50% rated capacity	3.309	23.7	23.8	--
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Remarks:

NL: No leakage **NV:** No Venting **ND:** No Disassembly **NR:** No Rupture **NF:** No Fire

LK: Leakage **VNT:** Venting **DSM:** Disassembly **RUP:** Rupture **FR:** Fire

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Annex 7. Overcharge

No	Battery Condition	Voltage (V)	Initial Temperature (°C)	Max Temperature (°C)	Remarks
5 Group	First cycle fully charged	26.45	24.5	24.6	--
6 Group	First cycle fully charged	26.39	24.2	24.3	--
7 Group	After 25 cycles fully charged	26.44	24.3	24.3	--
8 Group	After 25 cycles fully charged	26.53	23.9	24.0	--
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Remarks: NL: No leakage NV: No Venting ND: No Disassembly NR: No Rupture NF: No Fire LK: Leakage VNT: Venting DSM: Disassembly RUP: Rupture FR: Fire					

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Annex 8. Force Discharge

No	Battery Condition	Voltage (V)	Initial Temperature (°C)	Max Temperature (°C)	Remarks
6 #	First cycle in fully charged	3.104	24.1	57.6	--
7#	First cycle in fully charged	3.105	23.8	58.4	--
8#	First cycle in fully charged	3.106	23.9	57.5	--
9#	First cycle in fully charged	3.089	23.7	39.5	--
10#	First cycle in fully charged	3.087	23.8	45.8	--
11#	First cycle in fully charged	3.095	23.6	52.6	--
12#	First cycle in fully charged	3.096	23.8	39.8	--
13#	First cycle in fully charged	3.098	23.8	49.6	--
14#	First cycle in fully charged	3.104	23.9	47.6	--
15#	First cycle in fully charged	3.112	24.0	38.7	--
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Remarks: NL: No leakage NV: No Venting ND: No Disassembly NR: No Rupture NF: No Fire LK: Leakage VNT: Venting DSM: Disassembly RUP: Rupture FR: Fire					

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Annex 8. Force Discharge

No	Battery Condition	Voltage (V)	Initial Temperature (°C)	Max Temperature (°C)	Remarks
16#	After 50 cycles in fully charged	3.108	24.1	44.6	--
17#	After 50 cycles in fully charged	3.107	24.1	48.6	--
18#	After 50 cycles in fully charged	3.095	23.8	49.4	--
19#	After 50 cycles in fully charged	3.096	23.9	49.6	--
20#	After 50 cycles in fully charged	3.089	23.9	55.4	--
21#	After 50 cycles in fully charged	3.099	23.8	52.6	--
22#	After 50 cycles in fully charged	3.098	23.8	57.6	--
23#	After 50 cycles in fully charged	3.103	23.6	38.7	--
24#	After 50 cycles in fully charged	3.105	23.7	43.6	--
25#	After 50 cycles in fully charged	3.109	23.8	45.9	--
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Remarks: NL: No leakage NV: No Venting ND: No Disassembly NR: No Rupture NF: No Fire LK: Leakage VNT: Venting DSM: Disassembly RUP: Rupture FR: Fire					

Unless otherwise stated, All of the above tests were conducted at 20 ± 5 °C .

—End—

Statement

1. Don't copy the report partly, if you don't obtain the laboratory allows you to do that, unless you copy the whole report.
2. The test report is only valid to the samples which have been tested.
3. You can bring forward written appeal to the laboratory in ten days after you receive the report if you have objection to the test result.
4. The laboratory will deal with samples with itself if client don't take away samples in sixty days after client receive test report.
5. This report only as a reference for client, can't be considered as a basis for litigation, arbitration and so on.
6. This report instead of the report number which is "20190706J15136-1", and the original report is superseded when the new report is published.

Test Unit: CQC Intime Testing Technology Co., Ltd

Headquarters Address: Wuzhong Scientific and Technology Park, No.1368
Wuzhong Dadao Road, Wuzhong Economic Development Zone, Suzhou, China.

Postal code: 215104

Phone: 0512-- 66303623

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Xukou Laboratory: Caofeng Road No.236, Xukou Town, Suzhou

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Road, Cixi Town, Zhejiang

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Futian District, Shenzhen

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Guangzhou Office: Room 902, Floor 9, Xiaocong Science Park, 266 Chigang
West Road, Haizhu District, Guangzhou

Phone/Fax: 020-84147422



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TEST REPORT OF CLASSIFICATION FOR DANGEROUS GOODS – LITHIUM METAL AND LITHIUM ION BATTERIES

☒ New Application ☐ Modification ☐ Other:

Report ID: 20190706J15136-2

Sample Name: Rechargeable Li-ion Battery

Model/Type: UP2500/25.6V 111Ah 2.8416kWh

Applicant: Pylon Technologies Co., Ltd.



CQC Intime Testing Technology Co., Ltd



TEST REPORT

Report ID: 20190706J15136-2

Test Unit: CQC Intime Testing Technology Co., Ltd

Address: East Taihu Technology and Finance City, No.1368 Wuzhong Dadao Rd., Wuzhong Economic Development Zone, Suzhou, Jiangsu.

Postal code: 215104 **Phone:** 0512-66303623 **Fax:** 0512-66303625

Testing location/procedure: East Taihu Technology and Finance City, No.1368 Wuzhong Dadao Rd., Wuzhong Economic Development Zone, Suzhou, Jiangsu.

Applicant's name: Pylon Technologies Co., Ltd.

Address: No. 73, Lane 887, Zu Chongzhi Road, Zhangjiang Hi-Tech Park Pudong, Shanghai 201203, China

Sample Name: Rechargeable Li-ion Battery

Trade Mark:

Model/Type: UP2500

Ratings: 25.6V 111Ah 2.8416kWh

Manufacturer: Pylon Technologies Co., Ltd.

Address: Plant 8, No.505 Kunkai Road, JinXi Town, Kunshan City, Jiangsu Province, PEOPLE'S REPUBLIC OF CHINA

Standard Specification: UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3. Rev.6

Test Procedure: —

Non-standard Test Method: —

Test Item: Altitude Simulation, Thermal Test, Vibration, Shock, External Short Circuit, Impact, Overcharge, Force Discharge

Date of receipt of test item: 2019.07.26

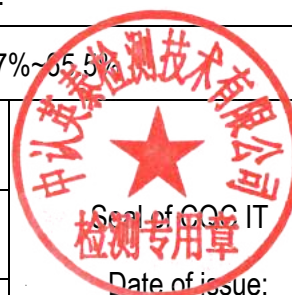
Finished Date: 2019.09.06

Conclusion: The Submitted Sample(s) Meet the Requirement of the Standard.

Testing Conditions: Temperature: 23.6°C ~ 24.5°C Relative Humidity: 53.7%~55.5%

Engineer: Hou Fengwen Signature: *Hou Fengwen* Date: 2019.09.06

Auditor: Liu Rong Signature: *Liu Rong* Date: 2019.09.06

Approver: Zhao Runsheng Signature: *Zhao Runsheng* Date: 2019.09.06


Date of issue:

2019.09.06

Remark: (1) P: Test object does meet the requirement. (2) F: Test object does not meet the requirement.

(3) N/A: Test case does not apply to the test object. (4) ---: Test case does not conduct

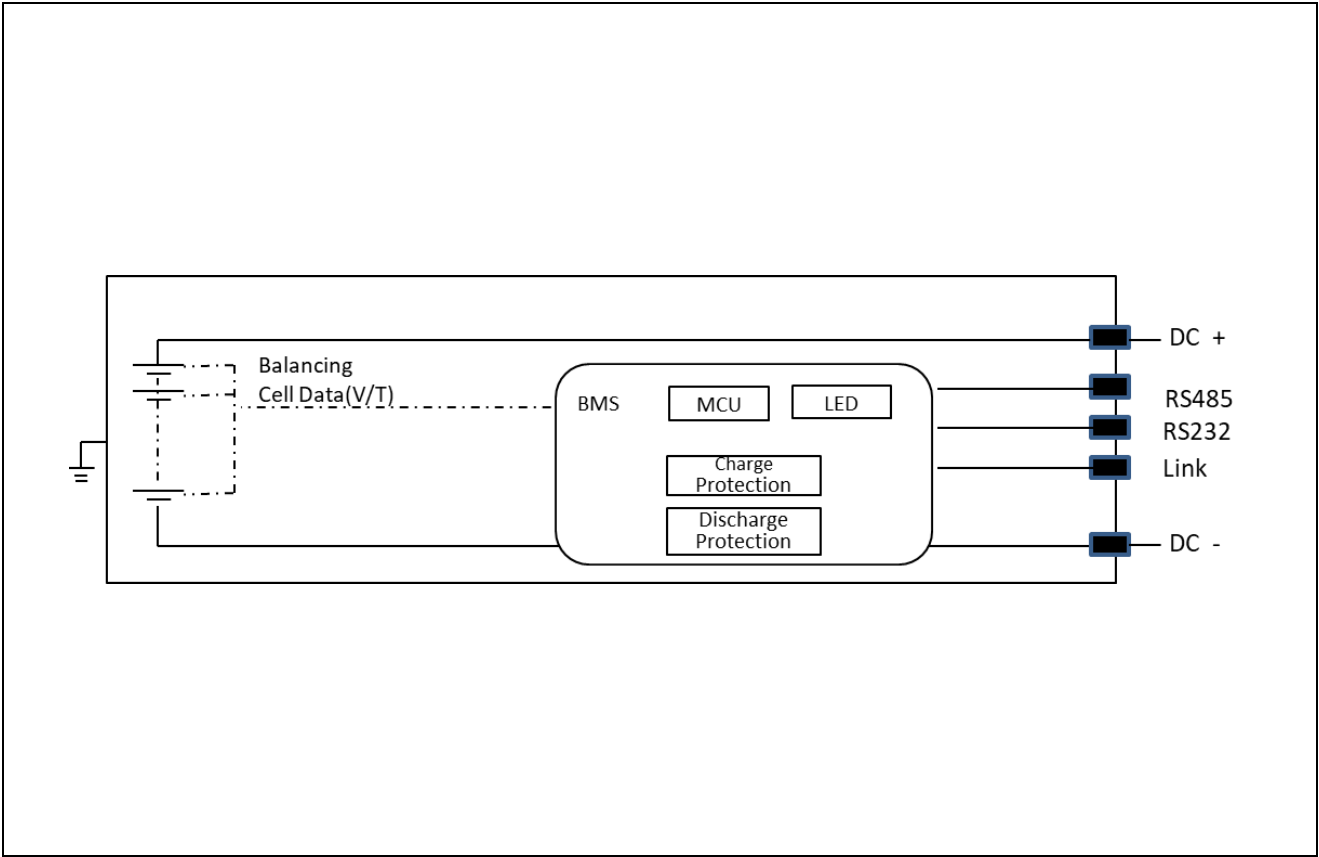
The Table of Battery Fundamental Parameters

Item	Rated Performance	Item	Rated Performance
Nominal capacity (Ah)	111	Nominal voltage(V)	25.6
Rated power(Wh)	2841.6	Limited charge voltage(V)	29.2
Charge current(A)	22.2	Maximum continous charging current (A)	100
End charge current(mA)	2220	Discharge current(A)	74
Cut-off voltage (V)	21.6	Cell numbers	24
Maximum discharge current(A)	100	Type of cell(mm)	Pouch Cell
Permutation of cell	3P8S	Capacity of cell(Ah)	37
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Battery Critical Component List

No	Name	Model/Type	Manufacturer	Remarks
1	BMS	--	--	--
2	Cell	PF37M	--	--
3	Intercell tabs	--	--	--
4	Plastics cases and Lids	--	--	--
5	Fuse	--	--	--
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7	--	--	--	--
8	--	--	--	--
9	--	--	--	--
10	--	--	--	--

The Battery Pack Electrical Connection Diagram



Sample photograph-1



Sample photograph-2



Sample photograph-3



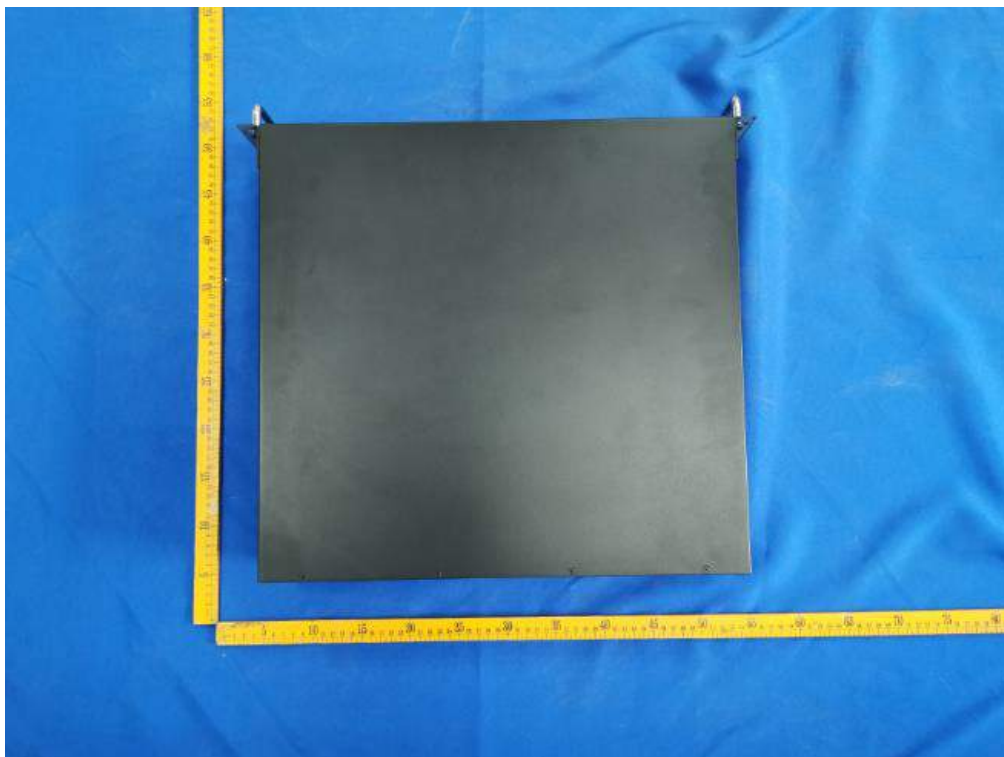
Sample photograph-4



Sample photograph-5



Sample photograph-6



Sample photograph-7



Sample photograph-8



CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.1 Altitude simulation	Battery at first cycle in fully charged state. Test batteries shall be stored at a pressure of 11.6 kPa or less for at least six hours at ambient temperature ($20 \pm 5^{\circ}\text{C}$).	No leakage No venting No disassembly No rupture No fire The open circuit voltage of each test battery after testing is not less than 90% of its voltage, Mass loss limit 0.1%.	Group1 Group2	No leakage No venting No disassembly No rupture No fire The open circuit voltage of each test battery after testing is not less than 90% of its voltage.	P
	Battery after 25 cycles in fully charged state. Test batteries shall be stored at a pressure of 11.6 kPa or less for at least six hours at ambient temperature ($20 \pm 5^{\circ}\text{C}$).		Group3 Group4	No mass loss. Test data is shown in Annex 1.	P

*When mass loss does not exceed the limited value, it shall be considered as "no mass loss".

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.2 Thermal test	Battery at first cycle in fully charged state. Test batteries are to be stored for at least 12 hours at a test temperature equal to $75\pm 2^{\circ}\text{C}$, followed by storage for at least 12 hours at a test temperature equal to $-40\pm 2^{\circ}\text{C}$. The maximum time interval between test temperature extremes is 30 minutes. This procedure is to be repeated 10 times, after which all test batteries are to be stored for 24 hours at ambient temperature ($20\pm 5^{\circ}\text{C}$).	No leakage No venting No disassembly No rupture No fire The open circuit voltage of each test battery after testing is not less than 90% of its voltage, Mass loss limit 0.1%.	Group1 Group2	No leakage No venting No disassembly No rupture No fire The open circuit voltage of each test battery after testing is not less than 90% of its voltage.	P
	Battery after 25 cycles in fully charged state. Test batteries are to be stored for at least 12 hours at a test temperature equal to $75\pm 2^{\circ}\text{C}$, followed by storage for at least 12 hours at a test temperature equal to $-40\pm 2^{\circ}\text{C}$. The maximum time interval between test temperature extremes is 30 minutes. This procedure is to be repeated 10 times, after which all test batteries are to be stored for 24 hours at ambient temperature ($20\pm 5^{\circ}\text{C}$).		Group3 Group4	No mass loss. Test data is shown in Annex 2.	P

*When mass loss does not exceed the limited value, it shall be considered as "no mass loss".

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.3 Vibration	Battery at first cycle in fully charged state. Batteries are firmly secured to the platform of the vibration machine without distorting the cells. The vibration shall be a sinusoidal waveform with a logarithmic sweep between 7 Hz and 200 Hz and back to 7 Hz traversed in 15 minutes. This cycle shall be repeated 12 times for a total of 3 hours for each of three mutually perpendicular mounting positions of the cell. One of the directions of vibration must be perpendicular to the terminal face. The logarithmic frequency sweep is as follows: from 7 Hz a peak acceleration of 1 g_n is maintained until 18 Hz is reached. The amplitude is then maintained at 0.8 mm (1.6 mm total excursion) and the frequency increased until a peak acceleration of 2 g_n occurs (approximately 25 Hz). A peak acceleration of 2 g_n is then maintained until the frequency is increased to 200 Hz.	No leakage No venting No disassembly No rupture No fire The open circuit voltage of each test battery after testing is not less than 90% of its voltage, Mass loss limit 0.1%.	Group1 Group2	No leakage No venting No disassembly No rupture No fire The open circuit voltage of each test battery after testing is not less than 90% of its voltage No mass loss. Test data is shown in Annex 3.	P

*When mass loss does not exceed the limited value, it shall be considered as "no mass loss".

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.3 Vibration	Battery after 25 cycles in fully charged state. Batteries are firmly secured to the platform of the vibration machine without distorting the cells. The vibration shall be a sinusoidal waveform with a logarithmic sweep between 7 Hz and 200 Hz and back to 7 Hz traversed in 15 minutes. This cycle shall be repeated 12 times for a total of 3 hours for each of three mutually perpendicular mounting positions of the cell. One of the directions of vibration must be perpendicular to the terminal face. The logarithmic frequency sweep is as follows: from 7 Hz a peak acceleration of 1 g_n is maintained until 18 Hz is reached. The amplitude is then maintained at 0.8 mm (1.6 mm total excursion) and the frequency increased until a peak acceleration of 2 g_n occurs (approximately 25 Hz). A peak acceleration of 2 g_n is then maintained until the frequency is increased to 200 Hz.	No leakage No venting No disassembly No rupture No fire The open circuit voltage of each test battery after testing is not less than 90% of its voltage, Mass loss limit 0.1%.	Group3 Group4	No leakage No venting No disassembly No rupture No fire The open circuit voltage of each test battery after testing is not less than 90% of its voltage No mass loss . Test data is shown in Annex 3.	P

*When mass loss does not exceed the limited value, it shall be considered as "no mass loss".

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.4 Shock	Battery at first cycle in fully charged state. Test batteries shall be secured to the testing machine by means of a rigid mount which will support all mounting surfaces of each test battery. Small batteries shall be subjected to a half-sine shock of peak acceleration of 150 g n (or Acceleration(g n) = $\sqrt{\left(\frac{100850}{\text{mass}}\right)}$, which is smaller) and pulse duration of 6 milliseconds, large batteries shall be subjected to a half-sine of peak acceleration of 50 g n (or Acceleration(g n) = $\sqrt{\left(\frac{30000}{\text{mass}}\right)}$, which is smaller) and pulse duration of Each battery shall be subjected to three shocks in the positive direction followed by three shocks in the negative direction of three mutually perpendicular mounting positions of the battery for a total of 18 shocks.	No leakage No venting No disassembly No rupture No fire The open circuit voltage of each test battery after testing is not less than 90% of its voltage, Mass loss limit 0.1%.	Group1 Group2	No leakage No venting No disassembly No rupture No fire The open circuit voltage of each test battery after testing is not less than 90% of its voltage. No mass loss . Test data is shown in Annex 4.	P

*When mass loss does not exceed the limited value, it shall be considered as "no mass loss".

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.4 Shock	Battery after 25 cycles in fully charged state. Test batteries shall be secured to the testing machine by means of a rigid mount which will support all mounting surfaces of each test battery. Small batteries shall be subjected to a half-sine shock of peak acceleration of 150 g n (or Acceleration(g n) = $\sqrt{\left(\frac{100850}{\text{mass}}\right)}$, which is smaller) and pulse duration of 6 milliseconds, large batteries shall be subjected to a half-sine of peak acceleration of 50 g n (or Acceleration(g n) = $\sqrt{\left(\frac{30000}{\text{mass}}\right)}$, which is smaller) and pulse duration of Each battery shall be subjected to three shocks in the positive direction followed by three shocks in the negative direction of three mutually perpendicular mounting positions of the battery for a total of 18 shocks.	No leakage No venting No disassembly No rupture No fire The open circuit voltage of each test battery after testing is not less than 90% of its voltage, Mass loss limit 0.1%.	Group3 Group4	No leakage No venting No disassembly No rupture No fire The open circuit voltage of each test battery after testing is not less than 90% of its voltage. No mass loss . Test data is shown in Annex 4.	P

*When mass loss does not exceed the limited value, it shall be considered as "no mass loss".

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.5 External short circuit	Battery at first cycle in fully charged state. The cell or battery to be tested shall be temperature stabilized so that its external case temperature reaches $57\pm4^{\circ}\text{C}$ and then the cell or battery shall be subjected to a short circuit condition with a total external resistance of less than 0.1 ohm at $57\pm4^{\circ}\text{C}$. This short circuit condition is continued for at least one hour after the cell or battery external case temperature has returned to $57\pm4^{\circ}\text{C}$. The battery must be observed for a further six hours for the test to be concluded.	External temperature does not exceed 170°C. No disassembly No rupture No fire	Group1 Group2	External temperature does not exceed 170°C. No disassembly No rupture No fire Test data is shown in Annex 5.	P

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.5 External short circuit	Battery after 25 cycles in fully charged state. The cell or battery to be tested shall be temperature stabilized so that its external case temperature reaches $57\pm4^{\circ}\text{C}$ and then the cell or battery shall be subjected to a short circuit condition with a total external resistance of less than 0.1 ohm at $57\pm4^{\circ}\text{C}$. This short circuit condition is continued for at least one hour after the cell or battery external case temperature has returned to $57\pm4^{\circ}\text{C}$. The battery must be observed for a further six hours for the test to be concluded.	External temperature does not exceed 170°C. No disassembly No rupture No fire	Group3 Group4	External temperature does not exceed 170°C. No disassembly No rupture No fire Test data is shown in Annex 5.	P

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.6 Crush	Cell at first cycle at 50% of the design rated capacity. A cell or component cell is to be crushed between two flat surfaces. The crushing is to be gradual with a speed of approximately 1.5 cm/s at the first point of contact. The crushing is to be continued until the first of the three options below is reached. (a) The applied force reaches 13 kN $\pm$ 0.78 kN; (b) The voltage of the cell drops by at least 100 mV; or (c) The cell is deformed by 50% or more of its original thickness. Once the maximum pressure has been obtained, the voltage drops by 100 mV or more, or the cell is deformed by at least 50% of its original thickness, the pressure shall be released. A prismatic or pouch cell shall be crushed by applying the force to the widest side. A button/coin cell shall be crushed by applying the force on its flat surfaces. For cylindrical cells, the crush force shall be applied perpendicular to the longitudinal axis. Each test cell or component cell is to be subjected to one crush only. The test sample shall be observed for a further 6h. The test shall be conducted using test cells or component cells that have not previously been subjected to other tests.	External temperature does not exceed 170°C. No disassembly No fire	1 # 2 # 3 # 4 # 5 #	External temperature does not exceed 170°C. No disassembly No fire Test data is shown in Annex 6.	P

*: Component Cells Of Battery.

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.7 Overcharge	Battery at first cycle in fully discharged state. The charge current shall be the twice the manufactures recommended maximum continuous charge current. The minimum voltage of the test shall be follows: (a) When the manufactures recommended charge voltage is not more than 18V, the minimum voltage of the test shall be the lesser of two times the maximum charge voltage of the battery or 22V. (b) When the manufactures recommended charge voltage is more than 18V, the minimum voltage of the test shall be 1.2 times the maximum charge voltage. Tests are to be conducted at ambient temperature. The duration of the test shall be 24 hours. The test sample shall be observed for a further 7 days.	No disassembly No fire	Group5 Group6	No disassembly No fire Test data is shown in Annex 7	P

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.7 Overcharge	Battery after 25 cycles in fully charged state. The charge current shall be the twice the manufactures recommended maximum continuous charge current. The minimum voltage of the test shall be follows: (c) When the manufactures recommended charge voltage is not more than 18V, the minimum voltage of the test shall be the lesser of two times the maximum charge voltage of the battery or 22V. (d) When the manufactures recommended charge voltage is more than 18V, the minimum voltage of the test shall be 1.2 times the maximum charge voltage. Tests are to be conducted at ambient temperature. The duration of the test shall be 24 hours. The test sample shall be observed for a further 7 days.	No disassembly No fire	Group7 Group8	No disassembly No fire Test data is shown in Annex 7	P

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.8 Forced discharge	Battery at first cycle in fully discharged state. Each cell shall be forced discharged at ambient temperature by connecting it in series with a 12V D.C. power supply at an initial current equal to the maximum discharge current specified by the manufacturer. The specified discharge current is to be obtained by connecting a resistive load of the appropriate size and rating in series with the test cell. Each cell shall be forced discharged for a time interval (in hours) equal to its rated capacity divided by the initial test current (in ampere). The test sample shall be observed for a further 7 days.	No disassembly No fire	6#-15#	No disassembly No fire Test data is shown in Annex 8	P

*: Component Cells Of Battery.

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Test results

UN Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, Part III, sub-section 38.3

Clause	Test item	Specification	Sample ID	Test results	Pass/Fail Conclusion
38.3.4.8 Forced discharge	Battery after 50 cycles in fully charged state. Each cell shall be forced discharged at ambient temperature by connecting it in series with a 12V D.C. power supply at an initial current equal to the maximum discharge current specified by the manufacturer. The specified discharge current is to be obtained by connecting a resistive load of the appropriate size and rating in series with the test cell. Each cell shall be forced discharged for a time interval (in hours) equal to its rated capacity divided by the initial test current (in ampere). The test sample shall be observed for a further 7 days.	No disassembly No fire	16#-25#	No disassembly No fire Test data is shown in Annex 7	P

*: Component Cells Of Battery.

CQC Intime Testing Technology Co., Ltd

TEST REPORT

List of Test Equipment

No	Test Equipment	Equipment Model	Equipment No	Expiry Date of Calibration	Remarks (√)
1	Low Pressure Chamber	315Z	ITCS1206013	2020-04-04	√
2	Thermal Shock Chambers	KWGDS61	ITCB16001	2020-04-11	√
3	Vibration Tester	HV-300-D-25	ITCEN07007	2020-07-04	
4	Vibration Tester System	DL-8000-80	ITCE11009	2020-04-11	√
5	Battery Shock Tester	IS350	ITCB180207	2020-06-20	
6	High Temperature Explosion-proof Chamber	BE-101-512A	ITCB16005	2020-06-25	√
7	Battery Impact Tester	H-FZ-500	ITCEN07009	2020-05-09	
8	Battery Crush Tester	GX-5067-C	ITCB16006	2020-04-04	√
9	Electric Vehicle Battery Tester	BNT100-0100ME	ITCB13010	2020-06-27	
10	Electric Vehicle Battery Tester	BNT100-0100ME	ITCB13011	2020-04-18	√
11	High Temperature Explosion-proof Chamber	BE-101-512A	ITCB16004	2020-06-09	√
12	Smart Battety Test System	CTE-MCT-1804E - DC20V12A 4CH	ITCB13006	2020-06-05	
13	High-precision battery tester	CT-4004-5V100A-NFA	ITCB15004	2020-05-10	√
14	High Temperature Explosion-proof Chamber	SPHH-101	ITCS06031	2020-04-12	
15	Battery internal resistance tester	BT3563	ITCB14001	2020-04-04	√
16	Temperature Recorder	MV2020	ITCS111001	2020-04-13	√
17	Digital Multicenter	FLUKE177	ITCS06060-3	2020-04-14	√
18	Electronic Scale	JX-A30002	ITCB170602	2020-04-09	
19	Electronic Scale	ACS-JS	ITCB180419	2020-04-18	
20	Electronic Scale	AWH-150TC	ITCH161002	2020-06-09	√
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CQC Intime Testing Technology Co., Ltd

TEST REPORT

Annex 1. Altitude Simulation

[illegible]

Remarks:

NL: No leakage **NV:** No Venting **ND:** No Disassembly **NR:** No Rupture **NF:** No Fire

LK: Leakage **VNT:** Venting **DSM:** Disassembly **RUP:** Rupture **FR:** Fire

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Annex 2. Thermal Test

No	Battery Condition	Before Test OCV ₁ (V)	Before Test M ₁ (kg)	After Test OCV ₂ (V)	After Test M ₂ (kg)	OCV ₂ /OCV ₁ (%)	Mass Loss (M ₂ -M ₁)/M ₁ (%)	Remarks
Group 1	First cycle fully charged	26.43	25.96	26.28	25.95	99.43%	0.039%	--
Group 2	First cycle fully charged	26.57	25.96	26.46	25.95	99.59%	0.039%	--
Group 3	After 25 cycles fully charged	26.40	25.92	26.15	25.91	99.05%	0.039%	--
Group 4	After 25 cycles fully charged	26.55	25.96	26.34	25.94	99.21%	0.077%	--
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Remarks:

NL: No leakage **NV:** No Venting **ND:** No Disassembly **NR:** No Rupture **NF:** No Fire

LK: Leakage **VNT:** Venting **DSM:** Disassembly **RUP:** Rupture **FR:** Fire

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Annex 3. Vibration

[illegible]

Remarks:

NL: No leakage **NV:** No Venting **ND:** No Disassembly **NR:** No Rupture **NF:** No Fire

LK: Leakage **VNT:** Venting **DSM:** Disassembly **RUP:** Rupture **FR:** Fire

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Annex 4. Shock

[illegible]

Remarks:

NL: No leakage **NV:** No Venting **ND:** No Disassembly **NR:** No Rupture **NF:** No Fire

LK: Leakage **VNT:** Venting **DSM:** Disassembly **RUP:** Rupture **FR:** Fire

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Annex 5. External Short Circuit

No	Battery Condition	Voltage (V)	Initial Temperature (°C)	Max Temperature (°C)	Remarks
Group 1	First cycle fully charged	26.23	56.9	57.0	--
Group 2	First cycle fully charged	26.42	57.0	57.0	--
Group 3	After 25 cycles fully charged	26.13	57.0	57.0	--
Group 4	After 25 cycles fully charged	26.32	56.8	56.9	--
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Remarks:

NL: No leakage **NV:** No Venting **ND:** No Disassembly **NR:** No Rupture **NF:** No Fire
LK: Leakage **VNT:** Venting **DSM:** Disassembly **RUP:** Rupture **FR:** Fire

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Annex 6. Impact

No	Battery Condition	Voltage (V)	Initial Temperature (°C)	Max Temperature (°C)	Remarks
1	First cycle in 50% rated capacity	3.308	24.1	24.2	--
2	First cycle in 50% rated capacity	3.311	24.2	24.2	--
3	First cycle in 50% rated capacity	3.309	23.8	23.8	--
4	First cycle in 50% rated capacity	3.315	23.6	23.7	--
5	First cycle in 50% rated capacity	3.309	23.7	23.8	--
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Remarks:

NL: No leakage **NV:** No Venting **ND:** No Disassembly **NR:** No Rupture **NF:** No Fire

LK: Leakage **VNT:** Venting **DSM:** Disassembly **RUP:** Rupture **FR:** Fire

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Annex 7. Overcharge

No	Battery Condition	Voltage (V)	Initial Temperature (°C)	Max Temperature (°C)	Remarks
5 Group	First cycle fully charged	26.45	24.5	24.6	--
6 Group	First cycle fully charged	26.39	24.2	24.3	--
7 Group	After 25 cycles fully charged	26.44	24.3	24.3	--
8 Group	After 25 cycles fully charged	26.53	23.9	24.0	--
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Remarks: NL: No leakage NV: No Venting ND: No Disassembly NR: No Rupture NF: No Fire LK: Leakage VNT: Venting DSM: Disassembly RUP: Rupture FR: Fire					

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Annex 8. Force Discharge

No	Battery Condition	Voltage (V)	Initial Temperature (°C)	Max Temperature (°C)	Remarks
6 #	First cycle in fully charged	3.104	24.1	57.6	--
7#	First cycle in fully charged	3.105	23.8	58.4	--
8#	First cycle in fully charged	3.106	23.9	57.5	--
9#	First cycle in fully charged	3.089	23.7	39.5	--
10#	First cycle in fully charged	3.087	23.8	45.8	--
11#	First cycle in fully charged	3.095	23.6	52.6	--
12#	First cycle in fully charged	3.096	23.8	39.8	--
13#	First cycle in fully charged	3.098	23.8	49.6	--
14#	First cycle in fully charged	3.104	23.9	47.6	--
15#	First cycle in fully charged	3.112	24.0	38.7	--
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Remarks: NL: No leakage NV: No Venting ND: No Disassembly NR: No Rupture NF: No Fire LK: Leakage VNT: Venting DSM: Disassembly RUP: Rupture FR: Fire					

CQC Intime Testing Technology Co., Ltd

TEST REPORT

Annex 8. Force Discharge

No	Battery Condition	Voltage (V)	Initial Temperature (°C)	Max Temperature (°C)	Remarks
16#	After 50 cycles in fully charged	3.108	24.1	44.6	--
17#	After 50 cycles in fully charged	3.107	24.1	48.6	--
18#	After 50 cycles in fully charged	3.095	23.8	49.4	--
19#	After 50 cycles in fully charged	3.096	23.9	49.6	--
20#	After 50 cycles in fully charged	3.089	23.9	55.4	--
21#	After 50 cycles in fully charged	3.099	23.8	52.6	--
22#	After 50 cycles in fully charged	3.098	23.8	57.6	--
23#	After 50 cycles in fully charged	3.103	23.6	38.7	--
24#	After 50 cycles in fully charged	3.105	23.7	43.6	--
25#	After 50 cycles in fully charged	3.109	23.8	45.9	--
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Remarks: NL: No leakage NV: No Venting ND: No Disassembly NR: No Rupture NF: No Fire LK: Leakage VNT: Venting DSM: Disassembly RUP: Rupture FR: Fire					

Unless otherwise stated, All of the above tests were conducted at 20 ± 5 °C .

—End—

Statement

1. Don't copy the report partly, if you don't obtain the laboratory allows you to do that, unless you copy the whole report.
2. The test report is only valid to the samples which have been tested.
3. You can bring forward written appeal to the laboratory in ten days after you receive the report if you have objection to the test result.
4. The laboratory will deal with samples with itself if client don't take away samples in sixty days after client receive test report.
5. This report only as a reference for client, can't be considered as a basis for litigation, arbitration and so on.

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Product Carbon Footprint Verification Statement

The Product Carbon Footprint study of
1 kWh UP 2500
which is conducted by

Pylon Technologies Co.,Ltd.

71-72, 5th Floor, Lane 887, Zuchongzhi Road, China (Shanghai) Free Trade Area, Shanghai

has been verified meeting the requirements of

ISO 14067:2018

The carbon footprint of 1 kWh UP 2500 is as follow:

97.53 kg CO₂ eq.

For the life cycle stages assessment of product
[Cradle to gate]



Authorized by

David Xin

Sr. Director - Knowledge

Date: 01 November 2023

SGS-CSTC Standards Technical Services Co., Ltd.

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SGS-CSTC Standards Technical Services Co., Ltd. (hereinafter referred to as "SGS") has been commissioned by Pylon Technologies Co.,Ltd. (hereinafter referred to as "PYLON"), 71-72, 5th Floor, Lane 887, Zuchongzhi Road, China (Shanghai) Free Trade Area, Shanghai, for the verification of the life cycle Greenhouse Gas emissions of product as provided by PYLON in accordance with

ISO 14067:2018

Roles and responsibilities

PYLON is responsible for the management of its GHG information system, the development and maintenance of records and reporting procedures in accordance with that system, including the calculation and determination of the life cycle GHG emissions of product information and the reported life cycle GHG emissions of product.

It is SGS's responsibility to express an independent GHG verification opinion on the life cycle GHG emissions of 1 kWh UP 2500.

SGS conducted a third-party verification of the provided GHG assertion against the principles of ISO 14067:2018, ISO 14040:2006 and ISO 14044:2006 in the period from 27 Jul 2023 to 28 Jul 2023. The verification was based on the verification scope, objectives and criteria as agreed between PYLON and SGS.

Level of Assurance

The level of assurance agreed is that of reasonable assurance.

Scope

PYLON has commissioned an independent verification by SGS to report the GHG emission of the manufacture of 1 kWh UP 2500 product following the established principle of ISO 14067:2018 outlined below.

This engagement covers verification of emission from partial life cycle of the product of greenhouse gases included within the organization's boundary.

- Title or description activities: GHG verification of the life cycle GHG emissions of 1 kWh UP 2500
- Product Category Rule: there was not relevant PCR can be considered
- Functional unit: 1 kWh UP 2500

Statement CN23/00005814, continued

- System boundary: Covers a "Cradle to gate" assessment of the life cycle emissions, from raw material extraction to production completion. The system boundary be clearly defined in accordance with ISO 14040:2006, ISO 14044:2006 and ISO 14067:2018.
- Use phase: Excluded in system boundary
- Retail locations: Excluded in system boundary
- Disposal phase: Excluded in system boundary
- Data resources: The primary data collection from manufacture and own operation phase. The secondary data collection from Ecoinvent 3.8 database.
- Life cycle assessment tool and index using:
 - Software applied SimaPro 9.5.
 - IPCC 2021 GWP values are applied in this inventory.
- Cut-off rules: If the flow is less than 1% of the cumulative mass of the model it would be excluded, providing its environmental relevance is not a concern, a minimum 97% of the total mass for the system is captured.
- Allocation rules:
 - Multi-output: The allocations are based on the changes in the resource consumption and pollutant emissions following the changes in the studied system's output product, or function or economical relationship.
 - Multi-input: The allocation is based on actual relationship. For example, the manufacturing process's consumption may be affected by the change in recycled resource input.
- Manufacturing locations: 71-72, 5th Floor, Lane 887, Zuchongzhi Road, China (Shanghai) Free Trade Area, Shanghai
- Emissions and removal of the product system included: Please refer to the CFP study reported provided by PYLON.
- Types of GHGs included: CO₂, CH₄, N₂O, Substances controlled by the Montreal Protocol, HFCs, PFCs, Fluorinated ethers, Perfluoropolyether, Hydrocarbons compounds.
- Mitigation: There is no GHG emissions offsetting be used at any point in the life cycle of the product.
- GHG information for the following production period was verified: The data collection period was from 01 January 2022 to 31 December 2022. Emissions covered the particular period.
- Intended user of the verification statement: Private

Objective

The purposes of this verification exercise are, by review of objective evidence, to independently

Statement CN23/00005814, continued

review:

- Whether the life cycle GHG emissions and removals of product are as declared by the organization's CFP study report;
- The data reported are accurate, complete, consistent, transparent and free of material error or omission.

Criteria

Criteria against which the verification assessment is undertaken are the principles of ISO 14067:2018.

The IPCC 2021 AR6 GWP values are applied in this assessment of life cycle GHG emissions for the product.

Materiality

The materiality required of the verification was considered by SGS to be 5%, based on the needs of the intended user of the GHG assertion.

Conclusion

PYLON provided the GHG assertion based on the requirements of ISO 14067:2018. The life cycle GHG information of product manufactured in 2022 disclosing carbon emissions, covering a Cradle to Gate system boundary, are verified by SGS to a reasonable level of assurance, consistent with the agreed verification scope, objectives and criteria.

The life cycle GHG emissions of 1 kWh UP 2500 are described as below:

According to the communication needs of all parties involved, the function unit of this study is defined as 1 kWh UP 2500. The system boundary is defined as "cradle" to "gate", which covers the production process of upstream raw materials (PCB, electronic components, power modules, positive and negative electrode materials), as well as on-site production and processing of the product (energy consumption, waste treatment, etc.). The carbon footprint of 1 kWh UP 2500 is 97.53 kg CO₂ e

	Carbon footprint of product / kg CO ₂ eq.
Product category for 1 kWh UP 2500	97.53

SGS's approach is risk-based, drawing on an understanding of the risks associated with reporting the life cycle GHG emissions of product information and the controls in place to mitigate these. Our examination includes assessment, on a test basis, of evidence relevant to the amounts and disclosures in relation to the organization's reported the life cycle GHG emissions of product.

Statement CN23/00005814, continued

We planned and performed our work to obtain the information, explanations and evidence that we considered necessary to provide a reasonable level of assurance that the life cycle GHG emissions of 1 kWh UP 2500.

We conducted our verification with regard to the GHG assertion of 1 kWh UP 2500 which included assessment of GHG information system, monitoring and reporting plan/protocol. This assessment included the collection of evidence supporting the reported data, and checking whether the provisions of the protocol reference, were consistently and appropriately applied

In SGS's opinion the presented GHG assertion

- is materially correct and is a fair representation of the GHG data and information, and
- is prepared in accordance with ISO 14067:2018 on GHG quantification, monitoring and reporting.

The validity of this verification declaration is consistent with the validity of the corresponding carbon footprint study report of 1 kWh UP 2500 product. If the carbon footprint of product changes by more than 10% within the validity period of the carbon footprint study report, this certificate will automatically become invalid without SGS reverification.

Note: This Statement is issued, on behalf of Client, by SGS-CSTC Standards Technical Services Co., Ltd. ("SGS") under its General Conditions for Green Gas Verification Services available at http://www.sgs.com/terms_and_conditions.htm. The findings recorded hereon are based upon an audit performed by SGS. A full copy of this statement, the findings and the supporting GHG Assertion may be consulted at Pylon Technologies Co., Ltd., 71-72, 5th Floor, Lane 887, Zuchongzhi Road, China (Shanghai) Free Trade Area, Shanghai. This Statement does not relieve Client from compliance with any bylaws, federal, national or regional acts and regulations or with any guidelines issued pursuant to such regulations. Stipulations to the contrary are not binding on SGS and SGS shall have no responsibility vis-à-vis parties other than its Client.