Zertifikat *Certificate*

TÜVRheinland®

Zertifikat Nr. *Certificate No.*
R 50485160

Blatt *Sheet*
0003

Ihr Zeichen *Client Reference*	**Unser Zeichen** *Our Reference*	**Ausstellungsdatum** *Date of Issue*
Elvis Xu	01-SWL-NN208NQ3 004	11.07.2022 *(day/mo/yr)*

Genehmigungsinhaber *License Holder*
Pylon Technologies Co., Ltd.
No. 73, Lane 887, Zu Chongzhi Road,
Zhangjiang Hi-Tech Park, Pudong
201203 Shanghai
P.R. China

Fertigungsstätte *Manufacturing Plant*
Pylon Technologies Co., Ltd.
Plant 8,
No.505 Kunkai Road, JinXi Town,
Kunshan City
Jiangsu
P.R. China

Prüfzeichen *Test Mark*

TÜVRheinland® ZERTIFIZIERT
Bauart geprüft
Sicherheit
Regelmäßige Produktions-überwachung
www.tuv.com
ID 1111231672

Geprüft nach *Tested acc. to*
IEC 62619:2017
IEC 63056:2020

Zertifiziertes Produkt (Geräteidentifikation)
Certified Product (Product Identification)

Lizenzentgelte - Einheit
License Fee - Unit

Energiespeichersystem (Rechargeable Li-Ion Battery)

as page 0002 continuation

Type designation: US2000C

Modification:
Add one new type of MCU for BMS.

ANLAGE (Appendix): 2.0

Dem Zertifikat liegt unsere Prüf- und Zertifizierungsordnung zugrunde und es bestätigt die Konformität des Produktes mit den oben genannten Standards und Prüfgrundlagen. Zusätzliche Anforderungen in Ländern, in denen das Produkt in Verkehr gebracht werden soll, müssen zusätzlich betrachtet werden. Die Herstellung des zertifizierten Produktes wird überwacht.
This certificate is based on our Testing and Certification Regulation and states the conformity of the product with the standards and testing requirements as indicated above. Any additional requirements in countries where the product is going to be marketed have to be considered additionally. The manufacturing of the certified product is subject to surveillance.

TÜV Rheinland LGA Products GmbH ® TÜVRheinland Zertifizierungsstelle

Zertifizierungsstelle

A. Chen

TÜV Rheinland LGA Products GmbH, Tillystraße 2, 90431 Nürnberg
http://www.tuv.com/safety E-mail: markcheck@tuv.com
Fax: +49 221 806-3935

TÜV Rheinland (China) Ltd.
Member of TÜV Rheinland Group

TÜVRheinland®
Precisely Right.

Pylon Technologies Co., Ltd.
Elvis Xu

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

Date : 11.07.2022
Our ref. : SWL 01
Your ref.: Elvis Xu

Ref : R TÜV-Mark Approval

Type of Equipment : Rechargeable Li-Ion Battery
Model Designation : See Certificate
Certificate No. : R 50485160 0003
Report No. : NN208NQ3 004

Dear Elvis Xu,

The above specified equipment has been tested and found to be in accordance with the relevant requirements.

Please find enclosed your certificate as specified above.

If cancellation of the certificate is submitted by 15 November in a given year, no fee will be charged for the following year.

The certificate is issued with the reservation that the license holder applies all information required in § 6 of the ProdSG related to name and address of the manufacturer or his authorized representative / importer, including their respective contact addresses on the product prior to marketing of the product in the European Economic Area.
In case you have a change regarding your involved local representative for the certificate, please inform us in due time.

With kind regards,

Certification Body

A. Chen

cc: Pylon Technologies Co., Ltd.

Enclosure

TÜV Rheinland (China) Ltd.
莱茵检测认证服务（中国）有限公司

Room 301, 3F and Room 1203, 12F, Building C, CATIC Plaza , No. 15, Ronghua South Road, Beijing Economic-Technological Development Area, 100176, Beijing

北京市北京经济技术开发区荣华南路15号院中航技广场C座3层301室、12层1203室
邮编：100176

Tel: 86 10 8524 2222
Fax: 86 10 8524 2200
e-mail: info@bj.chn.tuv.com
Internet: http://www.chn.tuv.com

Zertifikat *Certificate*

TÜVRheinland®

Zertifikat Nr. *Certificate No.*
R 50485160

Blatt *Sheet*
0001

Ihr Zeichen *Client Reference*	**Unser Zeichen** *Our Reference*	**Ausstellungsdatum** *Date of Issue*
Elvis Xu	01-XGJ-NN208NQ3 001	09.11.2020 *(day/mo/yr)*

Genehmigungsinhaber *License Holder*
Pylon Technologies Co., Ltd.
No. 73, Lane 887, Zu Chongzhi Road,
Zhangjiang Hi-Tech Park, Pudong
201203 Shanghai
P.R. China

Fertigungsstätte *Manufacturing Plant*
Pylon Technologies Co., Ltd.
Plant 8,
No.505 Kunkai Road, JinXi Town,
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Prüfzeichen *Test Mark*

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Zertifiziertes Produkt (Geräteidentifikation)
Certified Product (Product Identification)

Lizenzentgelte - Einheit
License Fee - Unit

Energiespeichersystem (Rechargeable Li-Ion Battery)

Type designation	: US2000C	10
Maximum current of the recommended charger[A]	: 90A	
Containing cell	: PF25N	
Rated capacity [Ah]	: 50AH	
Nominal voltage [Vd.c.]	: 48	
Upper limit charging voltage[Vd.c.]	: 54	
System designation: IFpP/8.5/141/238/[((2P5S)3S]M/0+50/95		
End of discharghing voltage[Vd.c.]	: 40.5	

Continued on page 0002

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ANLAGE (Appendix): 1.0

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This certificate is based on our Testing and Certification Regulation and states the conformity of the product with the standards and testing requirements as indicated above. Any additional requirements in countries where the product is going to be marketed have to be considered additionally. The manufacturing of the certified product is subject to surveillance.

TÜV Rheinland LGA Products GmbH Zertifizierungsstelle TÜV Rheinland®

Zertifizierungsstelle

Weichun Li

TÜV Rheinland LGA Products GmbH, Tillystraße 2, 90431 Nürnberg
Tel.: +49 221 806-1371 e-mail: cert-validity@de.tuv.com
Fax: +49 221 806-3935 http://www.tuv.com/safety

Zertifikat *Certificate*

TÜVRheinland®

Zertifikat Nr. *Certificate No.*
R 50485160

Blatt *Sheet*
0002

Ihr Zeichen *Client Reference*	**Unser Zeichen** *Our Reference*	**Ausstellungsdatum** *Date of Issue*
Elvis Xu	01-XGJ-NN208NQ3 001	09.11.2020 *(day/mo/yr)*

Genehmigungsinhaber *License Holder*
Pylon Technologies Co., Ltd.
No. 73, Lane 887, Zu Chongzhi Road,
Zhangjiang Hi-Tech Park, Pudong
201203 Shanghai
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IEC 63056:2020

Zertifiziertes Produkt (Geräteidentifikation)
Certified Product (Product Identification)

Lizenzentgelte - Einheit
License Fee - Unit

Energiespeichersystem (Rechargeable Li-Ion Battery)

as page 0001 continuation

Charging temperature [°C]	: -8 to 55
Discharging temperature[°C]	: -10 to 55
Ingress Protection (IP)	: IP20
Protection Class	: I
Pollution degree (PD)	: 2
Altitude[m]	: 4000

Remark(s):
The installation has to be carried out according to the attached installation instruction.
Any additional requirements in countries where the product is going to be marketed have to be considered additionally.

ANLAGE (Appendix): 1.0

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TÜV Rheinland LGA Products GmbH, Tillystraße 2, 90431 Nürnberg
Tel.: +49 221 806-1371 e-mail: cert-validity@de.tuv.com
Fax: +49 221 806-3935 http://www.tuv.com/safety

TÜV Rheinland LGA Products GmbH TÜV Rheinland® Zertifizierungsstelle

Zertifizierungsstelle

Weichun Li

Test Report No. 64.168.20.60353.01A
Rev. 00
Dated 2021-02-23

Applicant:	Pylon Technologies Co., Ltd.
Address:	No. 73, Lane 887, Zu Chongzhi Road, Zhangjiang Hi-Tech Park, Pudong, 201203 Shanghai, P.R. China
Sample Description:	Rechargeable Li-ion Battery
Model No.:	US2000C、US3000C、UP5000
Sample Received Date:	2021-01-08
Test Period:	From 2021-01-08 to 2021-02-19
Purpose of examination:	Verification of RoHS (Restriction of Hazardous Substances) directive 2011/65/EU and its amendment (EU) 2015/863 on submitted samples
Test Result:	Refer to following page(s)
Remark:	The result relates only to the items tested.

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch
TÜV SÜD Group

Prepared by:

Autumn Lin

Autumn Lin
Project Handler

Reviewed by:

Kevin Zhang

Kevin Zhang
Designated Reviewer

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch
TÜV SÜD Group
5F, Communication Building, 163 Pingyun Rd, Huangpu West Ave.
Guangzhou 510656, P.R. China
Tel.: (86) 20 38320668
Fax: (86) 20 38320478

SUMMARY OF TEST RESULTS

No.	Test Requested	Conclusion	Remarks
1.	Heavy Metal (Pb, Cd, Hg and Cr VI) Content	**PASS**	/
2.	Polybrominated Biphenyls (PBBs) and Polybrominated Diphenyl Ethers (PBDEs) Content	**PASS**	/
3.	Phthalates (DEHP, BBP, DBP and DIBP) Content	**PASS**	/

AUTHORIZATION TO MARK

This authorizes the application of the Certification Mark(s) shown below to the models described in the Product(s) Covered section when made in accordance with the conditions set forth in the Certification Agreement and Listing Report. This authorization also applies to multiple listee model(s) identified on the correlation page of the Listing Report.

This document is the property of Intertek Testing Services and is not transferable. The certification mark(s) may be applied only at the location of the Party Authorized To Apply Mark.

Applicant:	Pylon Technologies Co., Ltd.	**Manufacturer:**	Pylon Technologies Co., Ltd.
Address:	No. 73, Lane 887, Zu Chongzhi Road, Zhangjiang Hi-Tech Park, Shanghai	**Address:**	No. 666 Tunheng Road, Nanxun Town, Nanxun District, Huzhou City, Zhejiang Province
Country:	China	**Country:**	China
Contact:	Min Xu	**Contact:**	Shibo Dong
Phone:	+86 021 51317697	**Phone:**	+86 13862032392
FAX:	-	**FAX:**	-
Email:	xu.min@pylontech.com.cn	**Email:**	dong.shibo@pylontech.com.cn

Party Authorized To Apply Mark: Same as Manufacturer
Report Issuing Office: Intertek Testing Services Shanghai

Control Number: *5011347* **Authorized by:** _____
for Dean Davidson, Certification Manager

RECOGNIZED COMPONENT
C ETL LISTED US
Intertek

This document supersedes all previous Authorizations to Mark for the noted Report Number.

Intertek Testing Services NA Inc.
545 East Algonquin Road, Arlington Heights, IL 60005
Telephone 800-345-3851 or 847-439-5667 Fax 312-283-1672

Standard(s):	Standard For Batteries For Use In Light Electric Rail (Ler) Applications And Stationary Applications [UL 1973:2013 Ed.1+R:01Jun2016] Information Technology Equipment Safety Part 1: General Requirements (R2016) >Valid without technical revision: 01Jan2022< [CSA C22.2#60950-1:2007 Ed.2 +A1;A2]
Product:	Rechargeable Lithium Iron Battery
Brand Name:	PYLONTECH
Models:	US2000

Design Report of Safety Data Sheet

Report No.: DG2053223E
Date: 2020/10/10

Name of the sample	Rechargeable Li-ion Battery US2000C
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) Eighth revised edition
Design Result of SDS please see next page.	
Designer	**Approver**

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

SAFETY DATA SHEET

Rechargeable Li-ion Battery US2000C

SDS

Pylon Technologies Co., Ltd.

- **According to GHS (Eighth Revised Edition)**

Section 1 Product and Company Identification

> Product Identifier

Product Name	Rechargeable Li-ion Battery US2000C
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	No.73, Lane 887, Zu Chongzhi Road, Zhangjiang Hi-Tech Park Pudong, Shanghai 201203, China
Applicant Post Code	200120
Applicant Telephone	+86-21-51317697
Applicant Fax	+86-21-51317698
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
Supplier Post Code	215300
Supplier Telephone	+86-21-51317697
Supplier Fax	+86-21-51317698
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 eighth 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.8 (2019) 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 Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician if feel uncomfortable.

Skin Contact 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 Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a physician or Poison Control Center immediately.

Inhalation 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	Dry chemical, carbon dioxide or alcohol-resistant foam.
Unsuitable Extinguishing Media	Do not use a solid water stream as it may scatter or spread fire.

> 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/m³	ppm	mg/m³
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, 48V 50Ah 2400Wh

Odor: No information available

Odor Threshold: No information available

pH: No information available

Melting Point/Freezing Point (℃): No information available

Initial Boiling Point and Boiling Range (℃): No information available

Flash Point (℃)(Closed Cup): Not applicable

Evaporation Rate: Not applicable

Flammability: No information available

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

Vapor Pressure (KPa): Not applicable

Relative Vapour Density(Air = 1): Not applicable

Relative Density(Water=1): No information available

Solubility: No information available

n-Octanol/Water Partition Coefficient: No information available

Auto-Ignition Temperature(℃): No information available

Decomposition Temperature (℃): No information available

Kinematic Viscosity (mm^2/s): Not applicable

Particle characteristics: No information available

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)
Carbon black	1333-86-4	> 15400mg/kg(Rat)	> 3000mg/kg(Rabbit)	No information available
Polyacrylic acid	9003-01-4	2500mg/kg(Rat)	No information available	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
Aluminium	7429-90-5	LC_{50}: 1.55mg/L (96h)(Fish)	No information available	No information available
Copper	7440-50-8	LC_{50}: 0.665mg/L (96h)(Fish)	EC_{50}: 0.02mg/L (48h)	ErC_{50}: 7.9mg/L (96h)
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 No information available

Bioaccumulative Potential	No information available
Mobility in Soil	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	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 13.1and 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

Section 15 Regulatory Information

> International Chemical Inventory

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 2020/10/10
Revision Date 2020/10/10
Reason for Revision -

> 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.

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.

地址：中国.常州市天宁区青洋北路 47 号
电话（Tel）：+86-519-85152626，85807785
Add：47 Qingyang North Road, Tianning District, Changzhou, China
网址：www.dptc.org
邮编（P.C.）：213000

170020122837

中国认可
国际互认
检测
TESTING
CNAS L2999

UN 38.3

检 测 报 告

Test Report

■新申请 New Application　□变更 Modification　□其他: Other:

报告编号: 20200906J22532-2
Report ID

样品名称: 锂离子电池
Sample Name Rechargeable Li-ion Battery

型号规格: US2000C
Model/Type 48V 50Ah 2400Wh

委托单位: 上海派能能源科技股份有限公司
Applicant Pylon Technologies Co., Ltd.

中认英泰检测技术有限公司
检测专用章

中认英泰检测技术有限公司

CQC Intime Testing Technology Co.,Ltd

检测报告
TEST REPORT

报告编号： Report ID	20200906J22532-2		
样品名称： Sample Name	锂离子电池 Rechargeable Li-ion Battery	商　标： Trade Mark	PYLONTECH
型号规格： Model/Type	US2000C 48V 50Ah 2400Wh	样品状态： Sample status	完好 Good
委托单位： Applicant	上海派能能源科技股份有限公司 Pylon Technologies Co., Ltd.		
地址： Applicant Address	上海市浦东新区张江高科技园区祖冲之路887弄73号 No. 73, Lane 887, Zu Chongzhi Road, Zhangjiang Hi-Tech Park Pudong, Shanghai 201203, China		
制造商： Manufacturer	江苏派能能源科技有限公司 Pylon Technologies Co., Ltd.		
地址： Manufacturer Address	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		
试验单位： Test Lab	中认英泰检测技术有限公司 CQC Intime Testing Technology Co., Ltd		
地址： Lab Address	苏州吴中经济开发区吴中大道 1368号东太湖科技金融城 East Taihu Technology and Finance City, No.1368 Wuzhong Dadao Rd., Wuzhong Economic Development Zone, Suzhou, Jiangsu.		
试验标准： Standard Specification	《关于危险货物运输的建议书 试验和标准手册》第六版修订1第38.3节 Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria, ST/SG/AC.10/11/Rev.6/Amend.1/Section 38.3		
试验项目： Test Item	振动；冲击；外部短路；过度充电 Vibration, Shock, External Short Circuit, Overcharge		
接样日期：2020-09-10 Receiving Date		完成时间：　2020-09-28 Completing Date	
试验结论　： Conclusion	所检样品符合上述标准要求 The Submitted Sample(s) Meet the Requirement of the Standard.		
检测环境： Test Condition	环境温度：20±5℃ Ambient temperature		
项目： Engineer	侯逢文		
审核： Auditor	刘荣		
签发： Approver	赵润生		

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CQC IT印章
Stamp of CQC IT
签发日期：
Data of issue
2020-09-28

试验样品描述
Description of the sample

测试项目 Test Item	样品编号 Sample No.	样品状态 Sample State
T1~T5	B1~ B4	第1个充放电循环，完全充电状态 At first cycle, in fully charged states
	B5~ B8	第50个充放电循环后，完全充电状态 After 50 cycles ending in fully charged states
T6	C1~C5	第1个充放电循环，50%设计额定容量状态 At first cycle at 50% of the design rated capacity
T7	\	第1个充放电循环，完全充电状态 At first cycle, in fully charged states
	\	第50个充放电循环后，完全充电状态 After 50 cycles ending in fully charged states
T8	C6~C15	第1个充放电循环，完全放电状态 At first cycle, in fully discharged states
	C16~C25	第50个充放电循环后，完全放电状态 After 50 cycles ending in fully discharged states

备注
Remarks

1，锂离子电池（型号：US2000C，48V 50Ah），能量2400Wh未超过6.2kWh，该电池组件由3个型号为PP1650（16V 50Ah 800Wh）的电池模块串联而成；

The watt-hour rating of Rechargeable Li-ion Battery（US2000C，48V 50Ah 2400Wh）is no more than 6.2kWh, the battery system is assembled from three battery modules(PP1650, 16V 50Ah 800Wh) in series.

2，该电池组件内部电池组已通过UN38.3测试，报告编号为20190506J10608-1。

The internal battery modules have passed all applicable tests of UN38.3. The report number is 20190506J10608-1

3，对完全充电状态的电池组件（US2000C，样品编号：A1~A2）进行T3、T4、T5、T7的测试。

The battery system(model US2000C, sample number: A1~A2) in a fully charged state shall be tesed under tests T3, T4, T5, T7.

4，本报告中，内部电池模块（PP1650，样品编号：B1~B8）和电芯（PF25N，样品编号：C1~C25）的照片和测试数据均引用自编号为20190506J10608-1的报告。

In this report, the photos and data of internal battery module(PP1650, sample number: B1~B8) and cell(PF25N, sample number: C1~C25) is cited from 20190506J10608-1

5，本报告与编号为20190506J10608-1的报告一同使用，才能证明电池组件完全符合UN38.3的要求

This report shall be used together with the report of 20190506J10608-1 to prove that the assembled battery fully meets the requirements of UN38.3

6，内部电池模块（PP1650）为小型电池组

The internal battery module(PP1650) is small battery

7，内部电池模块（PP1650）未设计过充电保护装置，T7项目不适用

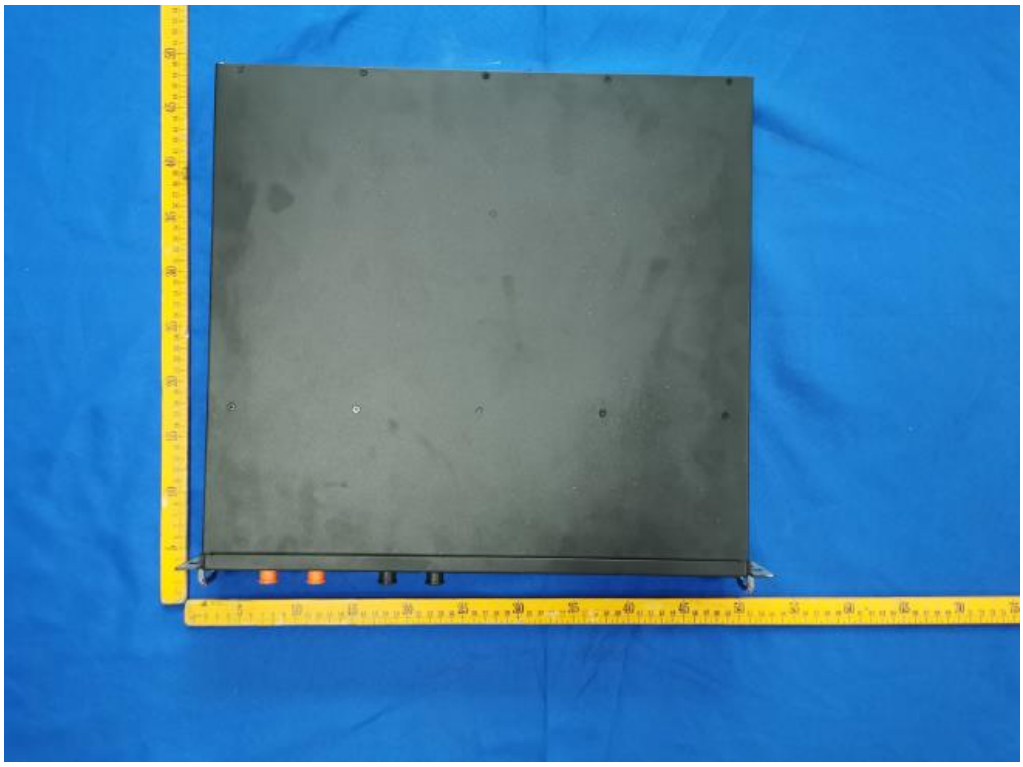
The internal battery module(PP1650) is not designed with overcharge protection. T7 item is not applicable.

样品基本信息（电池组件，US2000C） Sample Fundamental Parameters（Assembled battery，US2000C）			
项目 Item	参数 Parameters	项目 Item	参数 Parameters
额定容量(Ah) Rated capacity(Ah)	50	标称电压(V) Nominal voltage(V)	48
额定瓦特一小时(Wh) Watt-hour rating(Wh)	2400	充电限制电压 (V) Limited charge voltage(V)	54.75
充电电流(A) Charge current(A)	90	最大连续充电电流(A) Maximum continous charging current (A)	90
充电截止电流(mA) End charge current(mA)	2500	放电电流(A) Discharge current(A)	90
放电终止电压(V) End of discharging voltage (V)	40.5	内含电池芯个数(个) Cell numbers(pcs)	30
最大放电电流 (A) Maximum discharge current(A)	90	电池芯型号 Model of cell	PF25N
电池芯容量(Ah) Capacity of cell(Ah)	25	电池芯排列方式 Permutation of cell	2P15S
电池芯形状 Shape of cell	□圆柱形 Φ≥18mm □圆柱形＜18mm CylindricalΦ≥18mm CylindricalΦ＜18mm □棱柱形 ■袋装电池 □纽扣电池 Prismatic Pouch Cell Button Cell		

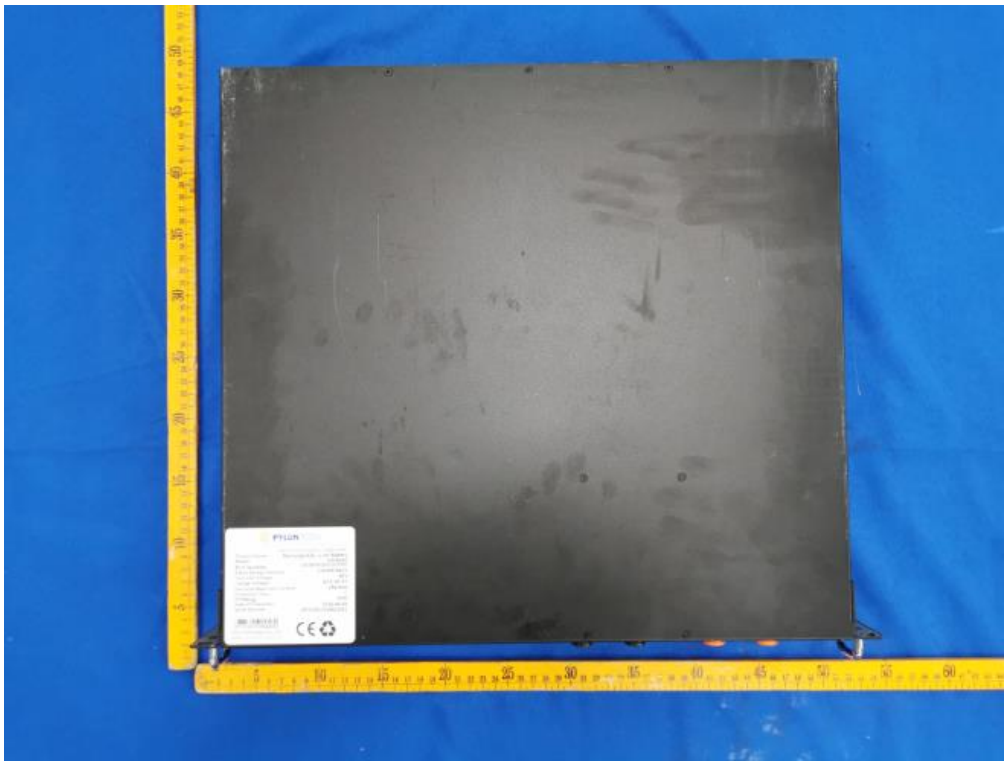
样品基本信息（内部模组，PP1650） Sample Fundamental Parameters（Internal battery modules，PP1650）			
项目 Item	参数 Parameters	项目 Item	参数 Parameters
额定容量(Ah) Rated capacity(Ah)	50	标称电压(V) Nominal voltage(V)	16
额定瓦特一小时(Wh) Watt-hour rating(Wh)	800	充电限制电压 (V) Limited charge voltage(V)	18
充电电流(A) Charge current(A)	5	最大连续充电电流(A) Maximum continous charging current (A)	50
充电截止电流(mA) End charge current(mA)	1000	放电电流(A) Discharge current(A)	25
放电终止电压(V) End of discharging voltage (V)	12.5	内含电池芯个数(个) Cell numbers(pcs)	10
最大放电电流 (A) Maximum discharge current(A)	50	电池芯型号 Model of cell	PF25N
电池芯容量(Ah) Capacity of cell(Ah)	25	电池芯排列方式 Permutation of cell	2P5S
电池芯形状 Shape of cell	□圆柱形 Φ≥18mm □圆柱形＜18mm CylindricalΦ≥18mm CylindricalΦ＜18mm □棱柱形 ■袋装电池 □纽扣电池 Prismatic Pouch Cell Button Cell		

样 品 照 片
Photos of Sample

样品图片 (Sample photograph) -1



样品图片 (Sample photograph) -2



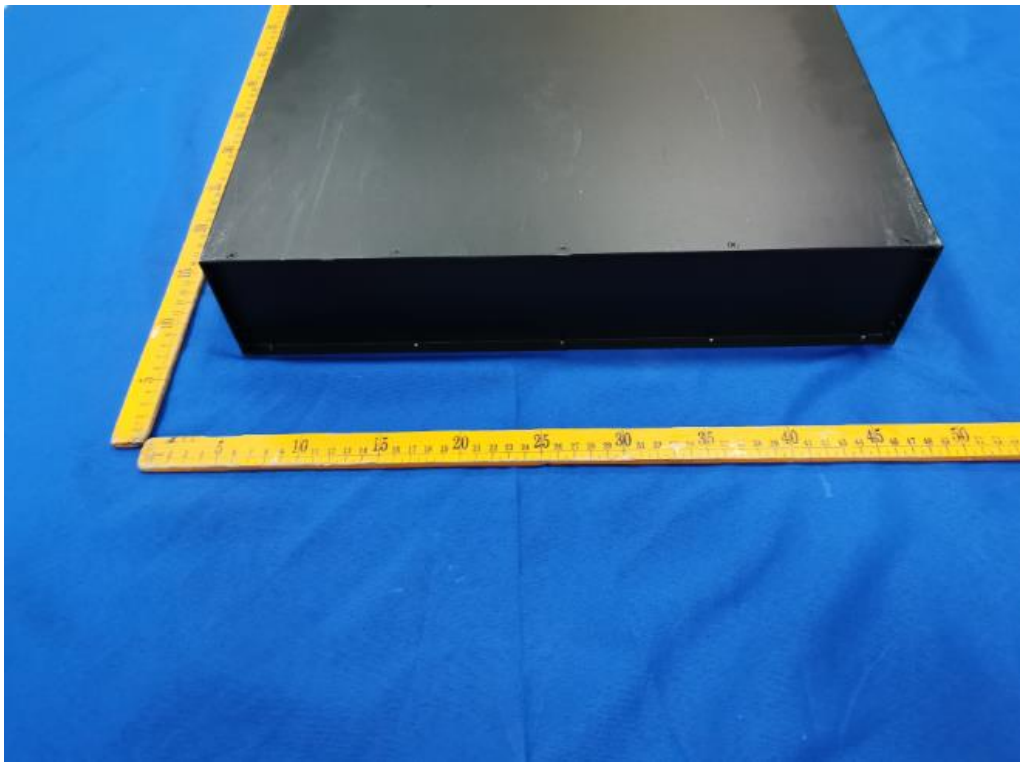
样 品 照 片
Photos of Sample

样品图片 (Sample photograph) -3

样品图片 (Sample photograph) -4

样 品 照 片
Photos of Sample

样品图片 (Sample photograph) -5



样品图片 (Sample photograph) -6

样 品 照 片
Photos of Sample

样品图片 (Sample photograph) -7

样品图片 (Sample photograph) -8

样 品 照 片
Photos of Sample

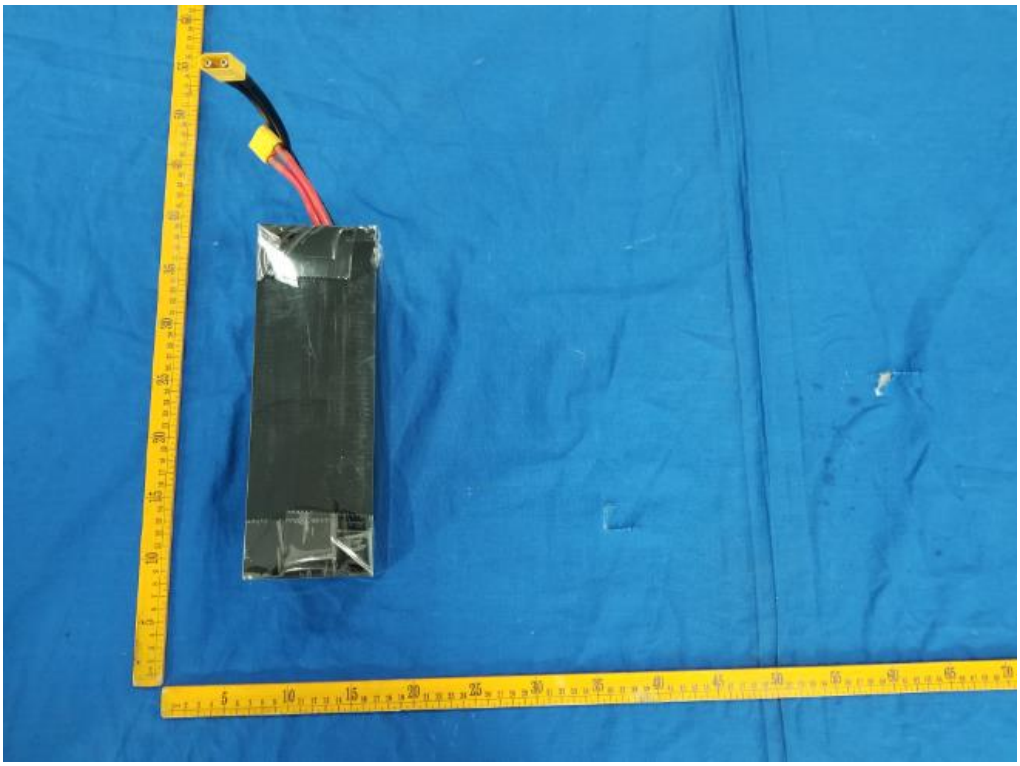
样品图片 (Sample photograph) -9

样品图片 (Sample photograph) -10

样 品 照 片
Photos of Sample

样品图片 (Sample photograph) -11

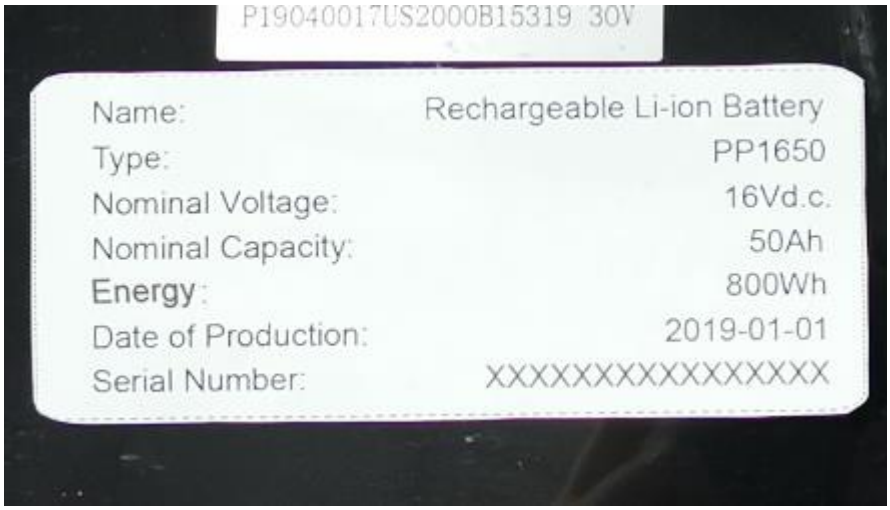
样品图片 (Sample photograph) -12



样 品 照 片
Photos of Sample

样品图片 (Sample photograph) -13

样品图片 (Sample photograph) -14



样 品 照 片
Photos of Sample

样品图片 (Sample photograph) -15

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检测报告
Test Report

检测结果
Test results

条款 Clause	**38.3.4.1高度模拟试验** **38.3.4.1 Altitude simulation**
测试步骤 Test Procedure	试验电池和电池组应在压力等于或低于11.6千帕和环境温度(20 ± 5℃)下存放至少6小时。 Test cells and batteries shall be stored at a pressure of 11.6 kPa or less for at least six hours at ambient temperature(20±5℃).
技术要求 Test requirement	不漏液、不泄放、不解体、不破裂、不着火(测试完电池的开路电压不小于测试前电压的90%，质量损失限值0.1%) No leakage, no venting, no disassembly, no rupture and no fire. The open circuit voltage of each test cell or battery after testing is not less than 90% of its voltage immediately prior to this procedure. Mass loss limit 0.1%.
检测结果 Test results	不漏液、不泄放、不解体、不破裂、不着火，具体数据详见附表1 No leakage, no venting, no disassembly, no rupture and no fire. Test data is shown in Annex 1.
结论 Pass/Fail Conclusion	P

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条款 Clause	**38.3.4.2温度试验** **38.3.4.2 Thermal test**
测试步骤 Test Procedure	试验电池和电池组应先在试验温度等于72 ± 2℃的条件下存放至少6小时，接着再在试验温度等于-40 ± 2℃的条件下存放至少6小时。两个极端试验温度之间的最大时间间隔为30分钟。此程序重复进行，共完成10次，接着将所有试验电池和电池组在环境温度(20 ± 5℃)下存放24小时。 对于大型电池和电池组，暴露于极端试验温度的时间至少应为12小时。 Test cells and batteries are to be stored for at least six hours at a test temperature equal to 72 ± 2℃, followed by storage for at least six hours at a test temperature equal to -40± 2℃. The maximum time interval between test temperature extremes is 30 minutes. This procedure is to be repeated until 10 total cycles are complete, after which all test cells and batteries are to be stored for 24 hours at ambient temperature (20± 5℃). For large cells and batteries the duration of exposure to the test temperature extremes should be at least 12 hours.
技术要求 Test requirement	不漏液、不泄放、不解体、不破裂、不着火(测试完电池的开路电压不小于测试前电压的90%，质量损失限值0.1%) No leakage, no venting, no disassembly, no rupture and no fire. The open circuit voltage of each test cell or battery after testing is not less than 90% of its voltage immediately prior to this procedure. Mass loss limit 0.1%.
检测结果 Test results	不漏液、不泄放、不解体、不破裂、不着火，具体数据详见附表2 No leakage, no venting, no disassembly, no rupture and no fire. Test data is shown in Annex 2.
结论 Pass/Fail Conclusion	P

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条款 Clause	**38.3.4.3 振动试验** **38.3.4.3 Vibration**
测试步骤 Test Procedure	电池和电池组紧固于振动机平台，但紧固程度不能造成电池变形以致不能准确传递振动。振动应是正弦波形，对数频率扫描从7Hz到200Hz，再回到7Hz，跨度为15分钟。 对电池和小型电池组：从7 Hz开始，保持1gn 的最大加速度，直到频率达到18 Hz。然后将振幅保持在0.8 毫米(总偏移1.6 毫米)，并增加频率直到最大加速度达到8 gn (频率约为50 Hz)。将最大加速度保持在8 gn 直到频率增加到200 Hz。 对大型电池组：从7Hz开始，保持1 gn 的最大加速度，直到频率达到18Hz。然后将振幅保持在0.8 毫米(总偏移1.6 毫米)，并增加频率直到最大加速度达到2 gn (频率约为25 Hz)。将最大加速度保持在2 gn 直到频率增加到200Hz。 这一振动过程须对三个互相垂直的电池安装方位的每一方向重复进行12次，总共为时3小时。其中一个振动方向必须与端面垂直。 Cells and batteries are firmly secured to the platform of the vibration machine without distorting the cells in such a manner as to faithfully transmit the vibration. 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. For cells and small batteries: from 7 Hz a peak acceleration of 1 gn is maintained until 18Hz 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 8 gn occurs (approximately 50 Hz). A peak acceleration of 8 gn is then maintained until the frequency is Increased to 200 Hz For large batteries: from 7HZ to a peak acceleration of 1 gn is maintained until 18 Hz is reached. The amplitude is then maintained at 0.8 mm(1.6 mm total excursion) and the frecuency increaseditil a peak acceleration of 2 gn ocroxmmately 25 Hz). A peak acceleration of 2 gn is then maintained until the frequency is increased to 200Hz 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 teminal face.
技术要求 Test requirement	不漏液、不泄放、不解体、不破裂、不着火(测试完电池的开路电压不小于测试前电压的90%，质量损失限值0.1%) No leakage, no venting, no disassembly, no rupture and no fire. The open circuit voltage of each test cell or battery after testing is not less than 90% of its voltage immediately prior to this procedure. Mass loss limit 0.1%.
检测结果 Test results	不漏液、不泄放、不解体、不破裂、不着火，具体数据详见附表3 No leakage, no venting, no disassembly, no rupture and no fire. Test data is shown in Annex 3.
结论 Pass/Fail Conclusion	P

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条款 Clause	**38.3.4.4 冲击试验** **38.3.4.4 Shock**
测试步骤 Test Procedure	试验电池和电池组用坚固支架紧固在试验机上，支架支撑着每个试验电池组的所有安装面。 每个电池须经受最大加速度150 gn 和脉冲持续时间6 毫秒的半正弦波冲击。大型电池须经受最大加速度50 gn 和脉冲持续时间11 毫秒的半正弦波冲击。 小型电池组以峰值为 150gn（或与$\sqrt{(\frac{100850}{mass})}$ 中的较小值）的半正弦的加速度撞击，脉冲持续 6 毫秒，大型电池组须经受最大加速度 50gn（或与$\sqrt{(\frac{30000}{mass})}$ 中的较小值）和脉冲持续时间 11 毫秒的半正弦波冲击。 每个电池或电池组须在三个互相垂直的电池安装方位的正方向经受三次冲击，接着在反方向经受三次冲击，总共经受 18 次冲击。 Test cells and batteries shall be secured to the testing machine by means of a rigid mount which will support all mounting surfaces of each test battery. Each cell shall be subjected to a half-sine shock of peak acceleration of 150 gn and pulse duration of 6 milliseconds. Altematively, large cells may be subjected to a half-sine shock acceleration of 50 gn and pulse duration of 11 milliseconds. Small batteries shall be subjected to a half-sine shock of peak acceleration of 150 gn (or Acceleration(gn)= $\sqrt{(\frac{100850}{mass})}$, which is smaller) and pulse duration of 6 milliseconds. Large batteries shall be subjected to a half-sine of peak acceleration of 50 gn (or Acceleration(gn)= $\sqrt{(\frac{30000}{mass})}$, which is smaller) and pulse duration of 11 milliseconds. 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.
技术要求 Test requirement	不漏液、不泄放、不解体、不破裂、不着火(测试完电池的开路电压不小于测试前电压的90%，质量损失限值0.1%) No leakage, no venting, no disassembly, no rupture and no fire. The open circuit voltage of each test cell or battery after testing is not less than 90% of its voltage immediately prior to this procedure. Mass loss limit 0.1%.
检测结果 Test results	不漏液、不泄放、不解体、不破裂、不着火，具体数据详见附表4 No leakage, no venting, no disassembly, no rupture and no fire. Test data is shown in Annex 4.
结论 Pass/Fail Conclusion	P

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条款 Clause	**38.3.4.5 外部短路** **38.3.4.5 External short circuit**
测试步骤 Test Procedure	电池和电池组的外壳温度稳定在57±4℃后，在此温度下对电池进行外部短路，外电路的总阻值应小于0.1Ω，持续短路至样品外壳温度回落到57±4℃后至少再继续短路1 h；对于大型电池组，外壳温度降幅达试验中所观察的的最高温升幅的二分之一并保持低于该数值。电池电池组必须再观察6h结束试验。 The cell or battery to be tested shall be temperature stabilized so that its external case temperature reaches 57±4℃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 ±4℃. This short circuit condition is continued for at least one hour after the cell or battery external case temperature has returned to 57±4℃. In the case of the large batteries, has decreased by half of the temperature increase observed during the test and remains below that value. The cell and battery must be observed for a further six hours for the test to be concluded.
技术要求 Test requirement	外壳温度不超过170℃，不解体、不破裂、不着火。 External temperature does not exceed 170℃. No disassembly, no rupture and no fire.
检测结果 Test results	外壳温度不超过170℃，不解体、不破裂、不着火，具体数据详见附表5 External temperature does not exceed 170℃. No disassembly, no rupture and no fire. Test data is shown in Annex 5.
结论 Pass/Fail Conclusion	P

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条款 Clause	**38.3.4.6 撞击/挤压** **38.3.4.6 Impact/Crush**
测试步骤 Test Procedure	□撞击（适用于直径不小于18.0毫米的圆柱形电） Impact(applicable to cylindrical cells not less than 18.0 mm in diameter) 将样品电池置于平板上，将一直径为15.8mm±0.1mm的不锈钢棒横放在样品中心，一块9.1Kg±0.1Kg的重锤从61 ± 2.5 cm高度落到试样上。圆柱形电池受撞击时，其长轴应平行于平板并且垂直于放在受检电池中心的直径为 15.8mm的棒。每一试样只经受一次撞击，电池必须再观察6h结束试验。 The sample cell or component cell is to be placed on a flat smooth surface. A 15.8 mm ± 0.1mm diameter stainless steel bar is to be placed across the centre of the sample. A 9.1 kg ± 0.1 kg mass is to be dropped from a height of 61 ± 2.5 cm on to the sample. The test sample is to be impacted with its longitudinal axis parallel to the flat surface and perpendicular to the longitudinal axis of the 15.8 mm ± 0.1mm diameter curved surface lying across the centre of the test sample. Each sample is to be subjected to only a single impact. The battery must be observed for a further six hours for the test to be concluded.
	■挤压(适用于棱柱形、袋装、硬币/纽扣电池和直径小于18.0毫米的圆柱形电池) Crush (applicable to prismatic, pouch, coin/button cells and cylindrical cells less than 18.0 mm in diammeter 将试样电池放在两个平面之间挤压，挤压力度逐渐增大，速度大约为1.5cm/s.挤压持续进行，直到出现以下三种情况之一：(a)施加的力量达到13kN±0.78kN;(b)电池的电压下降至少100mV;(c)电池变形达到原始厚度的50%或以上。棱柱形和袋装电池应从最宽的一面施压。硬币/纽扣电池应从平坦表面施压。圆柱形电池应从与纵轴垂直的方向施压。每个试样电池只做一次挤压试验，电池必须再观察6h结束试验。 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 ± 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. 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 battery must be observed for a further six hours for the test to be concluded.
技术要求 Test requirement	外壳温度不超过170℃，不解体、不破裂、不着火。 External temperature does not exceed 170℃.. No disassembly, no rupture and no fire.
检测结果 Test results	外壳温度不超过170℃，不解体、不破裂、不着火，具体数据详见附表6 External temperature does not exceed 170℃. No disassembly, no rupture and no fire. Test data is shown in Annex 6.
结论 Pass/Fail Conclusion	P

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条款 Clause	**38.3.4.7 过度充电** **38.3.4.7 Overcharge**
测试步骤 Test Procedure	充电电流必须是制造商推荐的最大持续充电电流的两倍。试验的最小电压应为如下：（a）当制造商推荐的充电电压不超过18 V时，试验的最小电压应为2倍于电池的最大充电电压或为22 V二者中较小者；（b）当制造商推荐的充电电压超过18 V时，试验的最小电压应为最大充电电压的1.2倍。该试验应在环境温度下进行。进行试验的时间应为24 小时。在过充电结束后观察被检电池7天。 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.
技术要求 Test requirement	不解体、不着火。 No disassembly, no fire.
检测结果 Test results	不解体、不着火,具体数据详见附表7 No disassembly, no fire. Test data is shown in Annex 7.
结论 Pass/Fail Conclusion	P

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条款 Clause	**38.3.4.8 强制放电** **38.3.4.8 Forced discharge**
测试步骤 Test Procedure	电池在环境温度下与12V 直流电源串联连接，以电池制造商规定的最大持续放电电流作为初始电流强制放电。 将一个大小和功率合适的电阻负载与被检电池以及直流电源串联以获得规定的放电电流。每个电池强制放电的时间应等于其额定容量除以起始试验电流。在强制放电结束后观察被检电池7 天。 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.
技术要求 Test requirement	不解体、不着火。 No disassembly, no fire.
检测结果 Test results	不解体、不着火,具体数据详见附表8 No disassembly, no fire. Test data is shown in Annex 8.
结论 Pass/Fail Conclusion	P

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附表1 高度模拟试验
Annex 1. Altitude Simulation

样品编号 Sample No.	试验前 Before test OCV_1 (V)	试验前 Before test M_1（g）	试验后 After test OCV_2 (V)	试验后 After test M_2（g）	OCV_2/OCV_1 (%)	质量损失 Mass Loss (%)	备注 Remarks
B1	16.67	5571.0	16.67	5571.0	100.00%	0.000%	-
B2	16.67	5517.0	16.67	5516.5	100.00%	0.009%	-
B3	16.67	5547.5	16.67	5547.0	100.00%	0.009%	-
B4	16.67	5573.5	16.67	5572.5	100.00%	0.018%	-
B5	16.67	5535.5	16.67	5535.5	100.00%	0.000%	-
B6	16.67	5552.0	16.67	5551.0	100.00%	0.018%	-
B7	16.67	5554.5	16.67	5554.5	100.00%	0.000%	-
B8	16.67	5513.5	16.67	5513.5	100.00%	0.000%	-
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附表2温度试验
Annex 2. Thermal test

样品编号 Sample No.	试验前 Before test OCV_1 (V)	试验前 Before test M_1（g）	试验后 After test OCV_2 (V)	试验后 After test M_2（g）	OCV_2/OCV_1 (%)	质量损失 Mass Loss (%)	备注 Remarks
B1	16.67	5571.0	16.66	5571.0	99.94%	0.000%	-
B2	16.67	5516.5	16.66	5516.5	99.94%	0.000%	-
B3	16.67	5547.0	16.66	5546.5	99.94%	0.009%	-
B4	16.67	5572.5	16.66	5572.0	99.94%	0.009%	-
B5	16.67	5535.5	16.66	5535.0	99.94%	0.009%	-
B6	16.67	5551.0	16.66	5551.0	99.94%	0.000%	-
B7	16.67	5554.5	16.66	5554.5	99.94%	0.000%	-
B8	16.67	5513.5	16.66	5513.5	99.94%	0.000%	-
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附表3振动试验
Annex 3. Vibration

样品编号 Sample No.	试验前 Before test OCV_1 (V)	试验前 Before test M_1（g）	试验后 After test OCV_2 (V)	试验后 After test M_2（g）	OCV_2/OCV_1 (%)	质量损失 Mass Loss (%)	备注 Remarks
B1	16.66	5571.0	16.65	5570.5	99.94%	0.009%	-
B2	16.66	5516.5	16.65	5515.5	99.94%	0.018%	-
B3	16.66	5546.5	16.65	5546.0	99.94%	0.009%	-
B4	16.66	5572.0	16.65	5571.0	99.94%	0.018%	-
B5	16.66	5535.0	16.65	5534.5	99.94%	0.009%	-
B6	16.66	5551.0	16.65	5550.5	99.94%	0.009%	-
B7	16.66	5554.5	16.65	5554.0	99.94%	0.009%	-
B8	16.66	5513.5	16.65	5513.0	99.94%	0.009%	-
A1	51.17	21.75 kg	51.14	21.74 kg	99.94%	0.046%	-
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附表4冲击试验
Annex 4.Shock

样品编号 Sample No.	试验前 Before test OCV_1 (V)	试验前 Before test M_1（g）	试验后 After test OCV_2 (V)	试验后 After test M_2（g）	OCV_2/OCV_1 (%)	质量损失 Mass Loss (%)	备注 Remarks
B1	16.65	5570.5	16.64	5570.0	99.94%	0.009%	-
B2	16.65	5515.5	16.64	5515.0	99.94%	0.009%	-
B3	16.65	5546.0	16.63	5545.5	99.88%	0.009%	-
B4	16.65	5571.0	16.63	5570.5	99.88%	0.009%	-
B5	16.65	5534.5	16.63	5534.0	99.88%	0.009%	-
B6	16.65	5550.5	16.62	5550.0	99.82%	0.009%	-
B7	16.65	5554.0	16.63	5553.5	99.88%	0.009%	-
B8	16.65	5513.0	16.62	5513.0	99.82%	0.000%	-
A1	51.14	21.74 kg	51.14	21.74 kg	100.00%	0.000%	-
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附表5外部短路试验
Annex 5. External short circuit

样品编号 Sample No.	试验前电压 Voltage before test (V)	初始温度 Initial Temperature (℃)	最高温度 Max Temperature (℃)	备注 Remarks
B1	16.64	56.8	64.7	-
B2	16.64	56.9	67.3	-
B3	16.63	57.1	66.5	-
B4	16.63	57.0	67.2	-
B5	16.63	56.7	68.4	-
B6	16.62	56.8	68.9	-
B7	16.63	56.8	66.5	-
B8	16.62	56.9	64.9	-
A1	51.14	57.1	57.1	-
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附表6撞击/挤压试验
Annex 6. Impact/Crush

样品编号 Sample No.	试验前电压 Voltage before test (V)	初始温度 Initial Temperature (℃)	最高温度 Max Temperature (℃)	备注 Remarks
C1	3.295	24.1	24.2	-
C2	3.287	23.9	24.0	-
C3	3.288	23.8	24.1	-
C4	3.285	23.7	23.9	-
C5	3.289	23.6	23.8	-
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附表7过充电试验
Annex 7.Overcharge

样品编号 Sample No.	试验前电压 Voltage before test (V)	初始温度 Initial Temperature (℃)	最高温度 Max Temperature (℃)	备注 Remarks
A2	51.13	23.9	24.0	-
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附表8强制放电试验
Annex 8. Forced discharge

样品编号 Sample No.	试验前电压 Voltage before test (V)	初始温度 Initial Temperature (℃)	最高温度 Max Temperature (℃)	备注 Remarks
C6	3.036	23.8	39.1	-
C7	3.054	23.9	35.8	-
C8	3.035	24.2	36.2	-
C9	3.045	24.1	32.0	-
C10	3.018	24.3	45.3	-
C11	3.022	24.1	36.0	-
C12	3.019	24.2	37.2	-
C13	3.026	24.1	45.1	-
C14	3.034	24.3	45.0	-
C15	3.029	24.1	47.8	-
C16	3.024	24.3	46.6	-
C17	3.022	24.3	45.8	-
C18	3.024	24.5	45.6	-
C19	3.021	24.1	39.0	-
C20	3.022	24.3	38.9	-
C21	3.018	24.5	39.2	-
C22	3.015	24.1	38.7	-
C23	3.024	24.3	50.4	-
C24	3.016	24.3	35.6	-
C25	3.019	24.5	34.8	-
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——报告结束 End——

声明

Statement

1. 未经本机构书面批准不得部分复制本报告，除非全部复制。

Don’t copies the report partly, if you don’t obtain the laboratory allow you to do that, unless you copy the whole report.

2. 检验结果仅对所检样品有效。

The test report is only valid to the sample which has been tested

3. 若对检测结果有异议，请在收到报告后十日内向本机构书面提出。

If you have any objection to the test result, please submit it to the laboratory in writing within 10 days after receiving the report.

4. 受检样品务必在收到检测报告三十日内领取，逾期本机构将作为废弃物自行处理。

The sample must be collected within 30 days after receiving the test report. The overdue sample will be disposed of as waste by the laboratory itself.

5. 此报告仅作为委托方参考，不作为诉讼、仲裁等依据。

This report only as a reference for client, can't be considered as a basis for litigation, arbitration and so on.

检测机构：中认英泰检测技术有限公司

Test Lab.: CQC Intime Testing Technology Co.,Ltd.

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苏州胥口实验室地址：胥口镇曹丰路236号

慈溪办事处地址：浙江省慈溪市水南路19号中央大厦北楼10层1020室

电话：0574-63895313

深圳办事处地址：深圳市福田区新洲十一街139号中央西谷大厦13A层

电话：0755-82889188-8118

广州办事处地址：广州市海珠区赤岗西路266号小聪科技园9楼

电话/传真：020-84147422

Notified Body

TÜV Rheinland LGA Products GmbH

Tillystraße 2

90431 Nürnberg - Germany

recognized by the

Bundesnetzagentur für Elektrizität, Gas, Telekommunikation, Post und Eisenbahnen

herewith issues an

EU-Type Examination Certificate

Notified under No. 0197

within the meaning of Annex III, Part A, Module B of the EMC Council Directive 2014/30/EU on compliance with the EMC protection requirements

Certificate Holder: Pylon Technologies Co., Ltd.
No. 73, Lane 887, Zu Chongzhi Road,
Zhangjiang Hi-Tech Park, Pudong
201203 Shanghai
P.R. China

Product: Lithium-ion battery
(Rechargeable Li-ion Battery)

Type Identification: US3000C US2000C UP5000

as described in the Technical Documentation
TCF_CN22L62J(2022-04-15) Rev. No.: 00, issued on 15.04.2022

Aspects Covered: Emission & Immunity
For requirements please refer to enclosed evaluation report

The technical design of the apparatus type has been verified based on the technical documentation presented by the manufacturer according to Annex III Module B of the Directive. As far as the assessed essential requirements apply, the Notified Body of TÜV Rheinland LGA Products GmbH confirms, that the technical design of the apparatus meets the essential requirements of the Directive 2014/30/EU Annex I. This certificate becomes void in case of equipment design changes or changes to the essential requirements which were not taken into account during the examination. The certificate consists of this page and enclosed evaluation report.

Registration No.: AV 50540833 0001

Evaluation Report No.: CN22L62J 001 issued 27.04.2022

Date 28.04.2022

TÜV Rheinland LGA Products GmbH TÜVRheinland Zertifizierungsstelle

Notified Body

Shawn Peng

C E R T I F I C A T E

of Conformity

Electromagnetic Compatibility Regulations 2016

(UK SI 2016 No. 1091)

Registration Nr.: AO 50540835 0001
Report Nr.: CN22L62J 001

Holder:
Pylon Technologies Co., Ltd.
No. 73, Lane 887, Zu Chongzhi Road,
Zhangjiang Hi-Tech Park, Pudong
201203 Shanghai
P.R. China

Product: Lithium-ion battery *(Rechargeable Li-ion Battery)*

Test standard:
BS EN IEC 61000-6-1:2019
BS EN IEC 61000-6-2:2019
BS EN 61000-6-3:2007+A1
BS EN IEC 61000-6-4:2019
BS EN 61000-6-1:2007
BS EN 61000-6-2:2005
BS EN 61000-6-4:2007+A1

Identification:
US3000C US2000C UP5000

This certificate of conformity is based on an evaluation of a sample of the above mentioned product, technical report and documentation. This certificate does not imply the assessment of the production of the product and does not permit the use of a TÜV Rheinland mark of conformity.

Certification Body

Date: 2022-04-28

Xinhua Lu

The UKCA mark may be used, if all relevant UK Legislations and the UK Declaration of Conformity has been completed.

TUV Rheinland UK Ltd.
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