Smart String Energy Storage System

More Usable Energy

100% Depth of Discharge
Pack Level Energy Optimization

Flexible Investment

5kWh Modular Design,
Scalable from 5 to 30 kWh

Safe & Reliable

Lithium Iron Phosphate (LFP) Cell

Easy Installation

12 kg Power Module
50 kg Battery Module

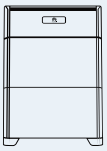
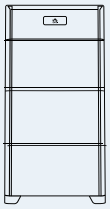
Quick Commissioning

Automatically Detected in App

Perfect Compatibility

Compatible to Both Residential
Single & Three Phase Inverter

Technical Specification

Technical Specification	LUNA2000-5-S0	LUNA2000-10-S0	LUNA2000-15-S0
			

Performance			
Power module	LUNA2000-5KW-C0		
Number of power modules	1		
Battery module	LUNA2000-5-E0		
Battery module energy	5 kWh		
Number of battery Modules	1	2	3
Battery usable energy [1]	5 kWh	10 kWh	15 kWh
Max. output power	2.5 kW	5 kW	5 kW
Peak output power	3.5 kW, 10 s	7 kW, 10 s	7 kW, 10 s
Nominal voltage (single phase system)	360 V		
Operating voltage range (single phase system)	350 – 560 V		
Nominal voltage (three phase system)	600 V		
Operating voltage range (three phase system)	600 – 980 V		

Communication	
Display	SOC status indicator, LED indicator
Communication	RS485 / CAN (only for parallel operation)

General Specification			
Dimension (W*D*H)	670 * 150 * 600 mm (26.4 * 5.9 * 23.6 inch)	670 * 150 * 960 mm (26.4 * 5.9 * 37.8 inch)	670 * 150 * 1320 mm (26.4 * 5.9 * 60.0 inch)
Weight (Floor stand toolkit included)	63.8 kg (140.7 lb)	113.8 kg (250.9 lb)	163.8 kg (361.1 lb)
Power module dimension (W*D*H)	670 * 150 * 240 mm (26.4 * 5.9 * 9.4 inch)		
Power module weight	12 kg (26.5 lb)		
Battery module dimension (W*D*H)	670 * 150 * 360 mm (26.4 * 5.9 * 14.0 inch)		
Battery module weight	50 kg (110.2 lb)		
Installation	Floor stand (standard), Wall mount (optional)		
Operating temperature	-10℃ ~ + 55℃ (14℉ ~ 131℉) [2]		
Operating altitude	0 - 4,000 m (13,123 ft.) (Derating above 2,000 m)		
Relative humidity	5% ~ 95%		
Cooling	Natural convection		
Protection rating	IP 65		
Noise emission	<29 dB		
Cell technology	Lithium-iron phosphate (LiFePO4)		
Warranty	10 years [3]		
Scalability	Max. 2 systems in parallel operation		
Compatible inverters	SUN2000L-2/3/3.68/4/4.6/5KTL [4], SUN2000-2/3/3.68/4/4.6/5/6KTL-L1, SUN2000-3/4/5/6/8/10KTL-M0 [4], SUN2000-3/4/5/6/8/10KTL-M1		

Standard Compliance (more available upon request)	
Certificates	CE, RCM, CEC, VDE2510-50, IEC62619, IEC 60730, UN38.3

Ordering and Deliverable Part	
Product ordering model [5]	LUNA2000-5KW-C0, LUNA2000-5-E0, LUNA2000 Wall Mounting Bracket

1. Test conditions: 100% depth of discharge (DoD), 0.2C charge & discharge at 25℃
2. Charge/discharge derating occurs when the operating temperature from -10℃ to 5 ℃.& 45 ℃ to 55 ℃.
3. Refer to battery warranty letter for conditional application.
4. Available in Q1, 2021
5. Storage system is ordered and delivered in the form of power module and battery module separately with corresponding quantity.

ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

Product Service

Attestation of Conformity

No. N8A 041829 4368 Rev. 00

Holder of Certificate: **Huawei Technologies Co., Ltd.**
Administration Building
Headquarters of Huawei Technologies Co., Ltd.
Bantian, Longgang District
518129 Shenzhen
PEOPLE'S REPUBLIC OF CHINA

Product: **Batteries**
(Battery System)

Model(s): **LUNA2000-5-E0**

Parameters:

Battery type:	LiFePO4
Rated capacity [Ah]:	100
Rated energy capacity [kWh]:	5
Maximum charging / discharging current [Ad.c.]:	7.5
Maximum charging / discharging power [kW]:	2.5
Peak charging / discharging Power [kW]:	3.5 (10s)
Nominal voltage [Vd.c.]:	385
Operating voltage range [Vd.c.]:	350 - 435
Operating temperature range [°C]:	-10 to +55
Protection class:	I
Ingress protection:	IP 66

Tested according to: EN IEC 62040-1:2019

This Attestation of Conformity is issued on a voluntary basis according to the Low Voltage Directive 2014/35/EU relating to electrical equipment designed for use within certain voltage limits. It confirms that the listed equipment complies with the principal protection requirements of the directive 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.: 64290193020201

Date, 2020-11-09

(Billy Qiu)

After preparation of the necessary technical documentation as well as the EU declaration of conformity the required CE marking can be affixed on the product. The declaration of conformity is issued under the sole responsibility of the manufacturer. Other relevant EU-directives have to be observed.

TÜV SÜD Product Service GmbH • Certification Body • Ridlerstraße 65 • 80339 Munich • Germany

ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

Product Service

Attestation of Conformity

No. N8A 041829 4369 Rev. 00

Holder of Certificate: **Huawei Technologies Co., Ltd.**
Administration Building
Headquarters of Huawei Technologies Co., Ltd.
Bantian, Longgang District
518129 Shenzhen
PEOPLE'S REPUBLIC OF CHINA

Product: **Energy Storage System**

This Attestation of Conformity is issued on a voluntary basis according to the Low Voltage Directive 2014/35/EU relating to electrical equipment designed for use within certain voltage limits. It confirms that the listed equipment complies with the principal protection requirements of the directive 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.: 64290203034701

Date, 2020-11-09

(Billy Qiu)

After preparation of the necessary technical documentation as well as the EU declaration of conformity the required CE marking can be affixed on the product. The declaration of conformity is issued under the sole responsibility of the manufacturer. Other relevant EU-directives have to be observed.

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Product Service

Attestation of Conformity

No. N8A 041829 4369 Rev. 00

Model(s): **Bidirectional DC/DC Unit: LUNA2000-5KW-C0**
Rechargeable Lithium ion Battery: LUNA2000-5-E0

Parameters:

Bidirectional DC/DC Unit:	LUNA2000-5KW-C0		
BAT terminal parameters (connected to PV inverter):			
Maximum voltage [Vd.c.]	1100		
Rated voltage [Vd.c.]	450 / 600		
DC operating voltage range [Vd.c.]	350 - 980		
Maximum charging / discharging current [Ad.c.]	15		
Maximum charging / discharging power [kW]	5		
B terminal parameters (connected to battery):			
Battery type	LiFePO4		
Battery number	1	2	3
Battery usable energy [kWh]	5	10	15
Rated voltage [Vd.c.]	385	385	385
Battery voltage range [Vd.c.]	350 - 435	350 - 435	350 - 435
Maximum charging / discharging current [Ad.c.]	7.5	15	15
Maximum charging / discharging power [kW]	2.5	5	5
Peak output power [kW]	3.5 (10s)	7 (10s)	7 (10s)
General:			
Operating temperature range [°C]	-25 to +55		
Protection class	I		
Ingress protection	IP66		

Rechargeable Lithium ion Battery	LUNA2000-5-E0
Battery type	LiFePO4
Rated capacity [Ah]	100
Rated energy capacity [kWh]	5
Maximum charging / discharging current [Ad.c.]	7.5
Maximum charging / discharging power [kW]	2.5
Peak charging / discharging Power [kW]	3.5 (10s)
Nominal voltage [Vd.c.]	385
Operating voltage range [Vd.c.]	350 - 435
Operating temperature range [°C]	-10 to +55
Protection class	I
Ingress protection	IP 66

After preparation of the necessary technical documentation as well as the EU declaration of conformity the required CE marking can be affixed on the product. The declaration of conformity is issued under the sole responsibility of the manufacturer. Other relevant EU-directives have to be observed.

ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

Product Service

Attestation of Conformity

No. N8A 041829 4369 Rev. 00

Tested according to: EN 62477-1:2012/A1:2017

After preparation of the necessary technical documentation as well as the EU declaration of conformity the required CE marking can be affixed on the product. The declaration of conformity is issued under the sole responsibility of the manufacturer. Other relevant EU-directives have to be observed.

TÜV SÜD Product Service GmbH • Certification Body • Ridlerstraße 65 • 80339 Munich • Germany

Ref. Certif. No.

SG PSB-IT-00181

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

CB TEST CERTIFICATE

Product	Energy Storage System
Name and address of the applicant	Huawei Technologies Co., Ltd. Administration Building Headquarters of Huawei Technologies Co., Ltd. Bantian, Longgang District 518129 Shenzhen PEOPLE'S REPUBLIC OF CHINA
Name and address of the manufacturer	Huawei Technologies Co., Ltd. Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, 518129 Shenzhen, PEOPLE'S REPUBLIC OF CHINA
Name and address of the factory	Huazhi Machine Co., Ltd. Zone A, Yingzhan Ind. Area, Kengzi Community, Pingshan New District, 518000 Shenzhen, Guangdong, PEOPLE'S REPUBLIC OF CHINA
Ratings and principal characteristics	Bidirectional DC/DC Unit: LUNA2000-5KW-C0 BAT terminal parameters (connected to PV inverter) Maximum voltage [Vd.c.]: 1100 Rated voltage [Vd.c.]: 450 / 600 DC operating voltage range [Vd.c.]: 350 - 980 Maximum charging / discharging current [Ad.c.]: 15 Maximum charging / discharging power [kW]: 5
Trade mark (if any)	See page 2
Model/type Ref.	Bidirectional DC/DC Unit: LUNA2000-5KW-C0 Rechargeable Lithium ion Battery: LUNA2000-5-E0
A sample of the product was tested and found to be in conformity with	IEC 62477-1:2012 IEC 62477-1:2012/AMD1:2016
as shown in the Test Report Ref. No. which forms part of this certificate	085-203034801-000

This CB Test Certificate is issued by the National Certification Body

CBS 041829 4372 Rev. 00

Date, 2020-11-16

(Billy Qiu)

TÜV SÜD PSB Pte Ltd • 1 Science Park Drive • Singapore 118221

PSB Singapore

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

Trade mark (Image)

Name and address of the factory (continued)

Huizhou Desay Battery Co., Ltd.
No.18, Jin Zhong Road, Huicheng District, 516000 Huizhou, Guangdong, PEOPLE'S REPUBLIC OF CHINA

Ratings and principal characteristics (continued)

Bidirectional DC/DC Unit:	LUNA2000-5KW-C0		
B terminal parameters (connected to battery):			
Battery type	LiFePO4		
Battery number	1	2	3
Battery usable energy [kWh]	5	10	15
Rated voltage [Vd.c.]	385	385	385
Battery voltage range [Vd.c.]	350 - 435	350 - 435	350 - 435
Maximum charging / discharging current [Ad.c.]	7.5	15	15
Maximum charging / discharging power [kW]	2.5	5	5
Peak output power [kW]	3.5 (10s)	7 (10s)	7 (10s)
General:			
Operating temperature range [°C]	-25 to +55		
Protection class	I		
Ingress protection	IP66		

This CB Test Certificate is issued by the National Certification Body

CBS 041829 4372 Rev. 00
Date, 2020-11-16

(Billy Qiu)

TÜV SÜD PSB Pte Ltd • 1 Science Park Drive • Singapore 118221

PSB Singapore

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

Rechargeable Lithium ion Battery	LUNA2000-5-E0
Battery type	LiFePO4
Rated capacity [Ah]	100
Rated energy capacity [kWh]	5
Maximum charging / discharging current [Ad.c.]	7.5
Maximum charging / discharging power [kW]	2.5
Peak charging / discharging Power [kW]	3.5 (10s)
Nominal voltage [Vd.c.]	385
Operating voltage range [Vd.c.]	350 - 435
Operating temperature range [°C]	-10 to +55
Protection class	I
Ingress protection	IP 66

This CB Test Certificate is issued by the National Certification Body

CBS 041829 4372 Rev. 00

Date, 2020-11-16

(Billy Qiu)

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PSB Singapore

Ref. Certif. No.

SG PSB-BT-02216

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

CB TEST CERTIFICATE

Product	Batteries (Rechargeable Lithium ion Battery)
Name and address of the applicant	Huawei Technologies Co., Ltd. Administration Building Headquarters of Huawei Technologies Co., Ltd. Bantian, Longgang District 518129 Shenzhen PEOPLE'S REPUBLIC OF CHINA
Name and address of the manufacturer	Huawei Technologies Co., Ltd. Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, 518129 Shenzhen, PEOPLE'S REPUBLIC OF CHINA
Name and address of the factory	Huizhou Desay Battery Co., Ltd. No.18, Jin Zhong Road, Huicheng District, 516000 Huizhou, Guangdong, PEOPLE'S REPUBLIC OF CHINA
Ratings and principal characteristics	Nominal voltage: 51.2Vd.c. Rated capacity: 100Ah
Model/type Ref.	LUNA2000-5-E0
A sample of the product was tested and found to be in conformity with	IEC 62619:2017
as shown in the Test Report Ref. No. which forms part of this certificate	211-281930147-000

This CB Test Certificate is issued by the National Certification Body

CBS 041829 4360 Rev. 00

Date, 2020-11-06

(Harry Zhang)

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PSB Singapore

Ref. Certif. No.

SG PSB-BT-02216

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

Trade mark (Image)

This CB Test Certificate is issued by the National Certification Body

CBS 041829 4360 Rev. 00

Date, 2020-11-06

(Harry Zhang)

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PSB Singapore

Ref. Certif. No.

SG PSB-BT-02216

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

CB TEST CERTIFICATE

Product	Batteries (Rechargeable Lithium ion Battery)
Name and address of the applicant	Huawei Technologies Co., Ltd. Administration Building Headquarters of Huawei Technologies Co., Ltd. Bantian, Longgang District 518129 Shenzhen PEOPLE'S REPUBLIC OF CHINA
Name and address of the manufacturer	Huawei Technologies Co., Ltd. Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, 518129 Shenzhen, PEOPLE'S REPUBLIC OF CHINA
Name and address of the factory	Huizhou Desay Battery Co., Ltd. No.18, Jin Zhong Road, Huicheng District, 516000 Huizhou, Guangdong, PEOPLE'S REPUBLIC OF CHINA
Ratings and principal characteristics	Nominal voltage: 51.2Vd.c. Rated capacity: 100Ah
Model/type Ref.	LUNA2000-5-E0
A sample of the product was tested and found to be in conformity with	IEC 62619:2017
as shown in the Test Report Ref. No. which forms part of this certificate	211-281930147-000

This CB Test Certificate is issued by the National Certification Body

CBS 041829 4360 Rev. 00

Date, 2020-11-06

(Harry Zhang)

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Ref. Certif. No.

SG PSB-BT-02216

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

Trade mark (Image)

This CB Test Certificate is issued by the National Certification Body

CBS 041829 4360 Rev. 00

Date, 2020-11-06

(Harry Zhang)

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PSB Singapore

广 州 海 关 技 术 中 心
GUANGZHOU CUSTOMS DISTRICT TECHNOLOGY CENTER

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Website: www.iqtc.cn Postcode: 510623

No: 01052000005950-7(E)
Date: 2020-10-06
Page: 1 of 8

材料安全数据表
Material Safety Data Sheet

样 品 名 称： 储能系统（内含锂离子蓄电池）

Sample Name: **Energy Storage System(contain lithium ion batteries)**

委 托 单 位： 华为技术有限公司

Applicant: **Huawei Technologies Co., Ltd.**

SC4RT50XHB

广 州 海 关 技 术 中 心
GUANGZHOU CUSTOMS DISTRICT TECHNOLOGY CENTER

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Add: Tower B, No.66 Huacheng Avenue, Zhujiang Xincheng, Tianhe District, Guangzhou, China
Website: www.iqtc.cn Postcode: 510623

材料安全数据表
Material Safety Data Sheet

1. 化学品及企业标识 Chemical Product and Company Identification	
货物名称 Goods name	储能系统（内含锂离子蓄电池） Energy Storage System(contain lithium ion batteries)
样品型号 Sample Model	LUNA2000-5-E0
委托单位 Applicant	华为技术有限公司 Huawei Technologies Co., Ltd
委托单位地址 Applicant Address	广东省深圳市龙岗区坂田华为基地 Huawei Base, Bantian Longgang District Shenzhen, P.R. China
生产单位 Manufacture	惠州市德赛电池有限公司 Huizhou Desay Battery Co., Ltd.
生产单位地址 Manufacture Address	广东省惠州市惠城区金钟路 18 号 No.18, Jin Zhong Road, Huicheng District, Huizhou, Guangdong
应急电话 Emergency telephone call	+86-0755-2629800
2. 危险性概述 Hazards Identification	
物品危险分类 Hazard label	 9类锂电池 Class 9- Lithium batteries
爆炸危险性 Explosive risk	该物品不属于爆炸危险品。 This article does not belong to the explosion dangerous goods.
易燃危险性 Flammable risk	该物品不属于易燃危险品。 This article does not belong to the flammable material.
氧化危险性 Oxidation risk	该物品不属于氧化危险品。 This article does not belong to the oxidation of dangerous goods.
毒害危险性 Toxic risk	该物品不属于毒害危险品。 This article does not belong to the toxic dangerous goods.
放射危险性 Radioactive risk	该物品不属于放射危险品。 This article does not belong to the radiation of dangerous goods.
腐蚀危险性 Mordant risk	该物品不属于腐蚀危险品。 This article does not belong to the corrosion of dangerous goods.
其他危险性 other risk	该电池瓦时率 5120Wh，属于锂离子电池。 Watt hour rate 5120Wh, which belong to the Lithium-ion battery.

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Website: www.iqtc.cn Postcode: 510623

3. 成分/组成信息
Composition/Information

材料及组分 Material or ingredient	化学式 Chemical Formula	CAS 号 CAS No.	重量含量 Wt %
磷酸铁锂 Lithium iron phosphate	LiFePO4	15365-14-7	15~40
石墨 Graphite	C	7782-42-5	7~25
羧酸乙基甲酯 Ethyl methyl carboxylate	C4H8O3	623-53-0	0~15
碳酸乙烯酯 Ethylene carbonate	C3H4O3	96-49-1	0~15
六氟磷酸锂 Lithium hexafluorophosphate	LiPF6	21324-40-3	0~5
碳酸二乙酯 Diethyl carbonate	PE	105-58-8	0~15
碳酸二甲酯 Dimethyl carbonate	C3H6O3	616-38-6	0~15
碳酸丙烯酯 Propylene carbonate	C4H6O3	108-32-7	0~15
炭黑 carbon black	C	1333-86-4	0~2

4. 急救措施
First aid measures

眼睛：
万一接触，立即用大量的清水冲洗至少15分钟，翻起上下眼睑，直到化学的残留物消失为止，迅速就医。
Eye
Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.
皮肤：
万一接触，用大量水冲洗至少15分钟，同时除去污染的衣物和鞋子，迅速就医。
Skin
Remove contaminated clothes and rinse skin with plenty of water or shower for 15 minutes. Get medical aid.
吸入：
立即从暴露处移至空气清新处，如果呼吸困难给予输氧，立即就医。
Inhalation
Remove from exposure and move to fresh air immediately. Use oxygen if available.
食入：
饮用两杯牛奶或水。如果当事人仍然清醒可以采取催吐的方法，并且立即就医。
Ingestion
Give at least 2 glasses of milk or water. Induce vomiting unless patient is unconscious. Call a physician

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Website: www.iqtc.cn Postcode: 510623

5. 消防措施
Fire-fighting measures

燃点：不适用
Flash Point: N/A.
自燃温度：不适用
Auto-Ignition Temperature: N/A.
灭火介质：大量水（降温），二氧化碳
Extinguishing Media: Water, CO_2.
特殊灭火程序：自给式呼吸器
Special Fire-Fighting Procedures: Self-contained breathing apparatus.
异常火灾或爆炸：当电芯暴露于过热的环境中时，安全阀可能会打开。
Unusual Fire and Explosion Hazards: Cell may vent when subjected to excessive heat-exposing battery contents.
燃烧产生的危险物品：一氧化碳，二氧化碳，锂氧化物烟气
Hazardous Combustion Products: Carbon monoxide, carbon dioxide, lithium oxide fumes.

6. 泄露应急处理
Accidental release measures

为防止电池材料泄露或释放采取的措施
如果电池内部材料泄露，试验人员应立刻撤离试验区直到烟气消散。将通风设备打开吹散危险性气体。用抹布擦净试验区，清除溢出的液体，将泄露电池放进塑料袋中，然后放进钢制容器。避免皮肤和眼睛接触或吸入有害气体。
Steps to be Taken in case Material is Released or Spilled
If the battery material is released, remove personnel from area until fumes dissipate. Provide maximum ventilation to clear out hazardous gases. Wipe it up with a cloth, and dispose of it in a plastic bag and put into a steel can. The preferred response is to leave the area and allow the battery to cool and vapors to dissipate. Provide maximum ventilation. Avoid skin and eye contact or inhalation of vapors. Remove spilled liquid with absorbent and incinerate.
废弃物处置方法
建议将电池完全放电，消耗电池内部的锂金属，并且深埋于土壤中。
Waste Disposal Method
It is recommended to discharge the battery to the end, to use up the metal lithium inside the battery, and to bury the discharged battery in soil.

7. 操作处置和储存
Handling and storage

禁止打开、毁坏或焚烧电池，因为电池有可能在这些处理过程中发生爆炸、破裂或泄露等事故。禁止将电池短路、过充、强制放电或扔入火中。禁止挤压刺穿电池或将电池浸入溶液中。
The battery should not be opened, destroyed or incinerate, since they may leak or rupture and release to the environment the ingredients that they contain in the hermetically sealed container. Do not short circuit terminals, or over charge the battery, forced over-discharge, throw to fire. Do not crush or puncture the battery, or immerse in liquids.
操作处置和储存中的防范措施
禁止物理或电滥用，禁止高温储存，最好将电池储存在阴凉、干燥、通风等温度变化较小的环境中。禁止将电池接触加热设备或将电池直接暴露于阳光中。
Precautions to be taken in handling and storing
Avoid mechanical or electrical abuse. Storage preferably in cool, dry and ventilated area, which is subject to little temperature change. Storage at high temperatures should be avoided. Do not place the battery near heating equipment, nor expose to direct sunlight for long periods.

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其他要注意的防范措施
拆解、挤压、直接放入火中或高温条件下，电池可能发生爆炸和燃烧。禁止短接或将电池正负极错误的安装在设备中。
Other Precautions
The battery may explode or cause burns, if disassembled, crushed or exposed to fire or high temperatures. Do not short or install with incorrect polarity.

8. 接触控制/个人防护
Exposure controls/personal protection

呼吸防护：
当电池排气阀打开时，应尽量使通风设备开至最大，避免将打开排气阀的电芯局限在某一狭窄空间内。正常操作条件下，呼吸保护是不必要的。
Respiratory Protection
In case of battery venting, provide as much ventilation as possible. Avoid confined areas with venting cell cores. Respiratory Protection is not necessary under conditions of normal use.
通风条件
正常使用条件下不需要。
Ventilation
Not necessary under conditions of normal use.
防护手套
正常使用条件下不需要。
Protective Gloves
Not necessary under conditions of normal use.
其他防护服装或设备
正常使用条件下不需要。
Other Protective Clothing or Equipment
Not necessary under conditions of normal use.
电池开阀试验时应做好个人防护，呼吸防护，防护手套，防护服装和有护边的安全玻璃罩都是要准备的。
Personal Protection is recommended for venting battery Respiratory Protection, Protective Gloves, Protective Clothing and safety glass with side shields.

9. 物理和化学特性
Physical and chemical properties

气味：泄漏时，有醚的气味。
Odors: If leaking, smells of medical ether.
酸碱度：不适用
pH: Not applicable as supplied.
燃点：除单个电芯暴露试验外其他不适用。
Flash Point: Not applicable unless individual components exposed.
可燃性：除单个电芯暴露试验外其他不适用。
Flammability: Not applicable unless individual components exposed.
相对密度：除单个电芯暴露试验外其他不适用。
Relative density: Not applicable unless individual components exposed.
溶解性（水溶性）：除单个电芯暴露试验外其他不适用。
Solubility (water): Not applicable unless individual components exposed.
溶解性（其他）：除单个电芯暴露试验外其他不适用。
Solubility (other): Not applicable unless individual components exposed.

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10. 稳定性和反应活性
Stability and reactivity

稳定性：产品在第7节所述的条件下稳定。
Stability: Product is stable under conditions described in Section 7.
应避免的条件：加热70℃以上或焚烧。变形。毁坏。粉碎。拆卸。过充电。短路。长时间暴露在潮湿的条件下。
Conditions to Avoid: Heat above 70℃ or incinerate. Deform. Mutilate. Crush. Disassemble. Overcharge. Short circuit. Expose over a long period to humid conditions.
应避免的材料：氧化剂，碱，水。
Materials to avoid: Oxidising agents, alkalis, water.
危险分解物：有毒烟雾，并可能形成过氧化物。
Hazardous Decomposition Products: Toxic Fumes, and may form peroxides.
聚合危害：不适用
Hazardous Polymerization: N/A.
如果发生泄露，避免与强氧化剂，无机酸，强碱，卤代烃接触。
If leaked, forbidden to contact with strong oxidizers, mineral acids, strong alkalies, halogenated Hydrocarbons.

11. 毒理学资料
Toxicological information

标志及症状：无，除非电池破裂。
Signs & symptoms: None, unless battery ruptures.
内部物质暴露的情况下，蒸汽烟雾可能对眼睛和皮肤的刺激性。
In the event of exposure to internal contents, vapour fumes may be very irritating to the eyes and skin.
吸入：对肺有刺激性。
Inhalation: Lung irritant.
皮肤接触：对皮肤刺激性。
Skin contact: Skin irritant.
眼睛接触：对眼睛有刺激性。
Eye contact: Eye irritant
食入：吞下中毒。
Ingestion: Poisoning if swallowed.
下列情况下健康状况会恶化：万一发生与电池内部材料接触的事故，轻微或严重的刺激，都可能使皮肤出现干燥和灼烧的感觉，并且损坏靶器官（肝脏，肾脏）的神经。
Medical conditions generally aggravated by exposure: In the event of exposure to internal contents, moderate to server irritation, burning and dryness of the skin may occur, Target Organs nerves, liver and kidneys.

12. 生态学资料
Ecological information

对哺乳动物的影响：目前未知。
Mammalian effects: None known at present.
生态毒性：目前未知。
Eco-toxicity: None known at present.
生物体内积累：慢慢地生物降解。
Bioaccumulation potential: Slowly Bio-degradable.
环境危害：目前没有已知的环境危害。
Environmental fate: None known environmental hazards at present.

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13. 废弃处置
Disposal consideration

不要焚烧，或使电池温度超过70℃，这种滥用可导致泄漏和/或电池爆炸。按照相应的地方性法规处理。
Do not incinerate, or subject cells to temperature in excess of 70℃, Such abuse can result in loss of seal leakage, and/or cell explosion. Dispose of in accordance with appropriate local regulations.

14. 运输信息
Transport information

UN 编号：UN3480
UN Number: UN3480
EmS 编号：F-A ,S-I
EmS No: F-A ,S-I
海洋污染物：无
Marine pollutant: No
运输专用名称：锂离子电池（包括锂离子聚合物电池）
Proper Shipping name: Lithium ion battery (Including lithium ion polymer batteries)
危害分类：货物应遵守海运危险货物规则（Amdt.39-18）年版，联合国危险货物运输的建议书规章范本（第二十一版），包括通过UN38.3测试手册要求。
Hazard Classification: The goods shall be complied with the requirements of IMDG CODE (Amdt.39-18) Edition, TRANSPORT OF DANGEROUS GOODS Model Regulations (Rev. 21), including the passing of the UN38.3 test.

15. 法规信息
Regulation information

法律信息
Law information
《危险物品规则》
《Dangerous Goods Regulations》
《对危险货物运输的有关规定的建议》
《Recommendations on the Transport of Dangerous Goods Model Regulations》
《国际海运危险货物规则》
《International Maritime Dangerous Goods》
《危险品安全运输技术指令》
《Technical Instructions for the Safe Transport of Dangerous Goods》
《危险货物分类和品名编号》
《Classification and code of dangerous goods》
《职业安全卫生法》
《Occupational Safety and Health Act》(OSHA)
《有毒物质控制法》
《Toxic Substance Control Act》(TSCA)
《消费产品安全法》
《Consumer Product Safety Act》(CPSA)
《联邦环境污染控制法》
《Federal Environmental Pollution Control Act》(FEPCA)
《石油污染法案》
《The Oil Pollution Act》(OPA)
《超级基金修正案和再授权法案Ⅲ(302/311/312/313)》
《Superfund Amendments and Reauthorization Act TitleⅢ(302/311/312/313)》(SARA)

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《资源保护及恢复法案》
《Resource Conservation and Recovery Act》(RCRA)
《安全饮用水法》
《Safety Drinking Water Act》(CWA)
《加州65提案》
《California Proposition 65》
《美国联邦法规》
《Code of Federal Regulations》(CFR)
根据所有联邦、州和地方法律。
In accordance with all Federal State and local laws.

16. 其他信息
Other information

本文件仅对由委托方提供的，并由惠州市德赛电池有限公司生产的电池（型号：LUNA2000-5-E0）有效。该电池的成分信息由委托方提供并承诺其完整性和准确性。
用户应仔细阅读此文件，并按照正确的方法使用电池，如因电池使用不当造成的损害或损失，广州海关技术中心不承担任何责任。
This file is only effective to the batteries (model: LUNA2000-5-E0) provided by commissioner which manufactured by Huizhou Desay Battery Co., Ltd. The commissioner provides the composition information of batteries, and promises its integrity and accuracy.
Users should read this file carefully, and use the batteries in correct method. Guangzhou Customs District Technology Center doesn't assume responsibility for any damage or loss because of misuse of batteries.

* * * * 报告结束 End of report * * * *

Evaluation Report of Environmental Directives Compliance

Product Name	:	See Page 3
Product Model	:	LUNA2000-5KW-C0 LUNA2000-5-E0 LUNA2000-5KW-NHC0 LUNA2000-5-NHE0
Report Number	:	SYBH(G)06950162

Reliability Laboratory of Huawei Technologies Co., Ltd.

(Global Compliance and Testing Center of Huawei Technologies Co., Ltd.)

No.2, New City Avenue, Songshan Lake Sci. & Tech. Industry Park, Dongguan, 523808, P.R.C

Tel: +86 769 23830808 Fax: +86 769 23837628

Notice

1. The laboratory (Reliability Lab of Huawei Technologies Co., Ltd) is also named “Global Compliance and Testing Center of Huawei Technologies Co., Ltd”, the both names have coexisted since 2009.

2. The evaluation report is invalid if not marked with the signatures of the persons responsible for preparing and approving the report.

3. The evaluation report is invalid if there is any evidence of erasure and/or falsification.

4. The evaluation report is based on the completeness and adequacy of the data and information submitted by the applicant to Reliability Lab. Reliability Lab has not verified and will not be responsible for the accuracy or their true representation of the data and information submitted by applicant. The applicant shall make its/his/her own judgment as to whether the information provided in this evaluation report is sufficient for its/his/her purposes.

5. Content of the evaluation report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.

Applicant	:	Huawei Technologies Co., Ltd.
Address	:	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C
Product Name	:	1) Energy Storage, Power Module, LUNA2000-5KW-C0, Including Flooring Bracket; 2) Energy Storage, Battery Module, LUNA2000-5-E0, 5kWh; 3) Energy Storage, Power Module, LUNA2000-5KW-NHC0, Including Flooring Bracket; 4) Energy Storage, Battery Module, LUNA2000-5-NHE0, 5kWh
Product Model	:	LUNA2000-5KW-C0, LUNA2000-5-E0 LUNA2000-5KW-NHC0, LUNA2000-5-NHE0
Date of Receipt Sample	:	2020-09-16
Start Date of Evaluation	:	2020-09-16
End Date of Evaluation	:	2020-09-19
Evaluation Result	:	

Regulation	Conclusion
2011/65/EU& (EU) 2015/863 (EU RoHS) & other RoHS directives in other countries	**Complies**
Regulation (EC) No 1907/2006 (REACH) SVHC for Product	**See Clause 5.4**
94/62/EC& 2004/12/EC for Packaging Material	**Complies**
2012/19/EU (WEEE) ANNEX V & ANNEX IX	**Complies**
Huawei Requirements of Restricted Substances (Including Annex XVII of REACH)	**Complies**
2006/66/EC& 2013/56/EU on batteries and accumulators	**Complies**

Approved by Senior Engineer:	2020-09-21	Zhang Jiaojiao	Zhang Jiaojiao
	Date	Name	Signature
Prepared by:	2020-09-21	Li Yeshuang	Li Yeshuang
	Date	Name	Signature

Modification Record

No.	Last Report No.	Modification Description
1	N/A	First report

Remark: This report is evaluated based on the documents and declarations of material environmental compliance provided by the applicant.

List of abbreviations

No.	Abbreviations	Full spelling
1	RoHS	the Restriction of the use of certain hazardous substances in electrical and electronic equipment
2	REACH	REGULATION concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
3	SVHC	Substances of Very High Concern
4	WEEE	Waste Electrical and Electronic Equipment
5	MCD	Material Composition Declaration
6	BOM	Bill of Material
7	PDM	Product Data Management
8	ppm	parts per million
9	NA	Not Applicable
10	ND	Not detected (Less than the method limits for the test lab)
11	3R	Recovery, Reuse and Recycling

Contents

1 General Information

1.1 Applied Standard

Applied Product Directives & Standards	:	2011/65/EU& (EU) 2015/863 (EU RoHS) & EN50581 Regulation (EC) No 1907/2006 (EU REACH) 2006/66/EC& 2013/56/EU (Battery Directive) 94/62/EC (Packaging Directive) Huawei's Requirements for Restricted Substances China RoHS 2012/19/EU (WEEE) Similar RoHS Directives in other countries
Test Methods	:	See detailed evaluation contents

1.2 Evaluation Location

Evaluation Location	:	Reliability Laboratory of Huawei Technologies Co., Ltd.
Address	:	No.2, New City Avenue, Songshan Lake Sci. & Tech. Industry Park, Dongguan, 523808, P.R.C

1.3 Evaluation Environment Condition

Ambient Temperature	:	15~35℃
Relative Humidity	:	25%~75%
Atmospheric Pressure	:	86~106KPa

2 Product Photo

LUNA2000-5KW-C0 & LUNA2000-5KW-NHC0

LUNA2000-5-E0 & LUNA2000-5-NHE0

3 Review of Documents of Conformity

According to European Standard of EN50581: 2012, the manufacturer should collect supplier declarations and/or contractual agreements, and/or material declarations and/or analytical test results from all suppliers. As per Huawei's requirements of material compliance, all suppliers should sign *Quality and Environment Assurance Agreement* and *Indemnity Agreement for Quality and Environment Problems of Supplier's Materials* and/or provide *Declaration of Non-use of Restricted Substances* which declare suppliers' products meet Huawei's environmental requirement, including RoHS requirements, REACH requirements, packaging requirements, battery requirements and other Huawei's special requirements, and provide MCD (Material Composition Declaration) and the test reports of high-risk materials to prove that their products comply with the requirements of Huawei.

In the process of environmental compliance evaluation, all suppliers' documents were evaluated according to Huawei's requirements, and all results were described in table below.

Table 1 Evaluation Results of Documents of Conformity

Material Descriptions	Reason of Non-compliance	Conclusion
All Materials	NA	**Complies**

Remark: NA = Not Applicable

4 RoHS Evaluation of Product

4.1 Evaluation of Materials / Samples

According to the European Standard of EN50581: 2012, the high-risk materials should be tested during the RoHS certification process and all materials (the non-risk materials and high-risk materials) were evaluated according to Huawei's requirements (See clause 3). As per the Directive 2011/65/EU and their amendments (RoHS Directive) and other RoHS directives in other countries, the evaluation results were summarized in table below based on the product's Bill of Material (BOM) and tested results provided by the applicant.

(1) High Risk Materials / Samples Information

Table 2 Evaluation results of high risk materials / samples for RoHS

Item	**Evaluation of High Risk Materials / Samples[#1]**		
High Risk Material Information	Amount		
	High Risk Samples in Product[#2]	Tested Samples	Failed Samples
LUNA2000-5KW-C0 LUNA2000-5KW-NHC0	28	28	0
LUNA2000-5-E0 LUNA2000-5-NHE0	20	20	0
Result[#3]	**Complies**		

Remark:

#1 : Evaluation results were based on the configuration of the product (See Annex Ⅰ).

#2 : As per Huawei's "*Product RoHS Certification Guide" , "Annex A in IEC62321"* and *"Annex D in GB/T26572"*, the high risk materials include solder (Pb), plating layer (Pb, Cr(VI)), plastic colorant (Pb, Cd and Cr(VI)), ABS (Acrylonitrile Butadiene Styrene) plastic (PBDE), PVC (Polyvinyl Chloride) plastic (Pb, Cd), PP (Polypropylene) plastic (PBDE), PET (Polyester Terephthalate) plastic (PBDE), PBT (Polybutylene Terephthalate) plastic (PBDE), coatings (Pb), cable jacketing and other soft plastics (phthalate substances such as DEHP, BBP, DBP and DIBP) and alloy (Pb, Cd and Cr(VI)).

#3 : The results based on the evaluation results and the exemptions in EU RoHS Directives, and all exemptions applied to the evaluated product materials were taken as "Pass" for the evaluation results.

(2) Information of Failed Sample

From the part fulfil RoHS attribute in PDM System (pdm.huawei.com), MCD (Material Composition Declaration) in Huawei InSight System (insight.huawei.com) and the test report submitted by suppliers and applicant, the contents of restricted substances in EU RoHS are listed in table below.

Table 3 Contents of Restricted Substance in Failed Sample

Material Descriptions		**Content of Restricted Substances (ppm)**

	Report No.	Cd	Pb	Hg	Cr(VI)	PBB	PBDE	DEHP	DBP	BBP	DIBP
-	-	-	-	-	-	-	-	-	-	-	-

Remark:

ppm = parts per million

4.2 Test Items and Methods of the High Risk Materials

As per the information provided by the applicant, the high risk materials were tested by the following methods.

Table 4 Test Methods of High Risk Materials for RoHS

Testing Item	Test Method
Cadmium (Cd)	With reference to EN/IEC 62321-5, by acid digestion and determined by ICP-OES
Lead (Pb)	
Mercury (Hg)	With reference to EN/IEC 62321-4, by acid digestion and determined by ICP-OES
Hexavalent chromium [Cr(VI)]	With reference to EN/IEC 62321-7, by solvent extraction and determined by UV-VIS
Polybrominated biphenyls (PBB)	With reference to EN/IEC 62321-6, by solvent extraction and determined by GC/MS
Polybrominated biphenyl ethers (PBDE)	
Bis(2-ethylhexyl) phthalate (DEHP)	With reference to EN/IEC 62321-8, by solvent extraction and determined by GC/MS
Butyl benzyl phthalate (BBP)	
Dibutyl phthalate (DBP)	
Diisobutyl phthalate (DIBP)	

4.3 RoHS Requirements

The limits of restricted substances were quoted from 2011/65/EU& (EU) 2015/863 for homogeneous material.

Table 5 Limits of RoHS Restricted Substances

Restricted Substances	Limits
Cadmium (Cd)	0.01% (100 ppm)
Lead (Pb)	0.1% (1000 ppm)
Mercury (Hg)	0.1% (1000 ppm)
Hexavalent chromium [Cr(VI)]	0.1% (1000 ppm)
Polybrominated Biphenyls (PBB)	0.1% (1000 ppm)
Polybrominated Diphenyl Ethers (PBDE)	0.1% (1000 ppm)

Bis(2-ethylhexyl) phthalate (DEHP)	0.1% (1000 ppm)
Butyl benzyl phthalate (BBP)	0.1% (1000 ppm)
Dibutyl phthalate (DBP)	0.1% (1000 ppm)
Diisobutyl phthalate (DIBP)	0.1% (1000 ppm)

5 REACH SVHC Evaluation

5.1 SVHCs in a concentration above 0.1% (w/w) of article

From the supplier declarations and/or contractual agreements, the MCD (Material Composition Declaration) in Huawei InSight System (insight.huawei.com) and the test report submitted by suppliers and the applicant, the SVHC (Substances of Very High Concern) in a concentration above 0.1% (w/w) of "article" are listed as below.

Table 6 SVHCs in a concentration above 0.1% weight by weight

SVHCs in a concentration above 0.1% weight by weight	CAS No.
DIBORON TRIOXIDE	1303-86-2
LEAD (Pb)	7439-92-1
4,4'-METHYLENEDIANILINE	101-77-9
BORACIC ACID	10043-35-3
1-METHYL-2-PYRROLIDONE	872-50-4

Remark:

1. The results were based on the configuration of the product (See Annex Ⅰ).
2. "Article" in product means an object which during production is given a special shape, surface or design which determines its function to a greater degree than does its chemical composition (According to Regulation EC No. 1907/2006). The limit of 0.1% (w/w) applies to every article in the product. The results were calculated to an article defined by decision C-106/14 of EuGH of 10th September 2015.

5.2 List of SVHC

According to Regulation EC No 1907/2006 (REACH) and ECHA (European Chemical Agency) website, the SVHC (Substances of very high concern) are listed on the website (https://echa.europa.eu/candidate-list-table).

5.3 Requirements of SVHC

5.3.1 In accordance with Regulation (EC) No 1907/2006, any EU manufacturer or importer of articles shall notify ECHA, in accordance with paragraph 2 of Article 7, if a substance meets the criteria in Article 57 and is identified in accordance with Article 59(1) of the Regulation, if (a) the substance in the Candidate List is present in those articles in quantities totaling over one tonne per manufacturer or importer per year; and (b) the substance in the Candidate List is present in those articles above a

concentration of 0.1% weight by weight (w/w).The following information has to be submitted for notification:

a. Identification of the registrant and the substance,

b. Classification and labeling of the substance,

c. Description of use of the substance and the article,

d. Registration number, if available,

e. Tonnage range.

5.3.2 As per article 33 of regulation (EC) No 1907/2006 (REACH), recipients of product must be provided with sufficient information, as a minimum, the name of that substance, to allow safe use if the concentration of any SVHC is above 0.1% (w/w). A product meets the requirement of article 33(1) by default when no SVHC exceeds 0.1% (w/w).

5.4 Conclusion

According to specified evaluation processes in this report, SVHC (Substances of Very High Concern) in candidate list promulgated by ECHA (European Chemical Agency), which are defined in article 57 of regulation (EC) No 1907/2006 (REACH regulation), are listed in table 6.

6 Evaluation of Packaging Material

6.1 Requirements of packaging material for restricted substance

(a) According to EU Packaging Directive (94/62/EC), the sum of contents of restricted substances ((Cd, Pb, Hg and Cr (VI)) in packaging material (such as packaging, instruction, guideline and other packaging materials in medium) should be less than 100ppm.

(b) According to REACH regulation ((EC) No 1907/2006), the packaging considered as an independent article should comply with the SVHC requirements, and if the content for individual SVHC more than 0.1% (w/w) should be meet the requirement described in clause 5.3.

6.2 Evaluation Results of Packaging Material

From the supplier declarations and/or contractual agreements and the MCD (Material Composition Declaration) in Huawei InSight System (insight.huawei.com) and the test report submitted by suppliers and applicant, the contents of restricted and notification substances for Packaging Directive and SVHC (List described in clause 5.2) in packaging material are listed in table below.

Table 7 Contents of Restricted / Notification Substance in Packaging Material

Material Descriptions	Report No.	Content of Restricted Substances (ppm)					SVHC contents (ppm)
		Cd	Pb	Hg	Cr(VI)	Sum	Each SVHC
All materials	-	ND	ND	ND	ND	<100	-
SVHC in Article		-	-	-	-	-	<1000
Conclusion		**Complies**					**Don't Need to Notify**

Remark:

ppm = parts per million

ND = Not detected (Less than the method limits for the test lab)

7 Evaluation of Battery

7.1 Requirements of battery for restricted substance

(a) According to EU Battery Directive (2006/66/EC& 2013/56/EU), EU shall prohibit the placing on the market of a) all batteries or accumulators, whether or not incorporated into appliances, that contain more than 0,0005 % of mercury by weight; and that contain more than 0,002 % of cadmium by weight. All batteries containing more than 0,004 % lead, shall be marked with the chemical symbol for the metal concerned: Pb.

(b) According to EU REACH Regulation ((EC) No 1907/2006), the battery considered as an independent article should comply with the SVHC requirements, and if the content for individual SVHC more than 0.1% (w/w) should be meet the requirement described in clause 5.3.

7.2 Evaluation Results of Battery

From the supplier declarations and/or contractual agreements and the MCD (Material Composition Declaration) in Huawei InSight System (insight.huawei.com) and the test report submitted by suppliers and applicant, the contents of restricted and notification substances for battery directive and SVHC (List is described in clause 5.2) in battery are listed in table below.

Table 8 Contents of Restricted / Notification Substance in Battery

Material Descriptions	Report No.	Content of Restricted Substances (ppm)			SVHC contents (ppm)
		Cd	Pb	Hg	Each SVHC
Battery	-	ND	ND	ND	<1000
Conclusion		**Complies**			**Don't Need to Notify**

Remark:

ppm = parts per million

ND = Not detected (Less than the method limits for the test lab)

8 Evaluation of Other Restricted Substance

8.1 Huawei's requirements for restricted substance

As per Huawei's requirements based on the laws, regulations ((including Annex XVII of Regulation (EC) No 1907/2006 (REACH)), decrees and directives for restricted substances in the world, the following substances were restricted to be added in Huawei's product:

Table 9 List of Huawei Restricted Substances

Chemical	CAS No.	Threshold	Scope
Lead and its compounds (Pb)	-	300 ppm	Cable jacketing

		40 ppm	Battery
		100 ppm (Cd + Cr (VI) + Hg + Pb)	Packaging
		1000 ppm	All other materials (except all exemptions in 2011/65/EU and its amendments)
Hexavalent Chromium and its compounds (Cr^{6+})	-	1000 ppm	Non-metallic (except leather, packaging)
		0.1μg/cm^2 (negative)	Metal plating
		100 ppm (Cd + Cr (VI) + Hg + Pb)	Packaging
		ND(<3 ppm)	Leather
Cadmium and its compounds (Cd)	-	20 ppm	Battery
		100 ppm (Cd + Cr (VI) + Hg + Pb)	Packaging
		100 ppm	All other materials (except batteries and packaging)
Mercury and its compounds (Hg)	-	5 ppm	Battery
		100 ppm (Cd + Cr (VI) + Hg + Pb)	Packaging
		1000 ppm	All other materials (except batteries and packaging)
Polybrominated Biphenyls (PBBs)	-	1000 ppm	All materials
Polybrominated Diphenyl Ethers (PBDEs)	-	1000 ppm	All materials
Diethylhexyl phthalate (DEHP)	117-81-7	1000 ppm	All materials
Butylbenzyl phthalate (BBP)	85-68-7	1000 ppm	All materials
Dibutyl phthalate (DBP)	84-74-2	1000 ppm	All materials
Diisobutyl phthalate (DIBP)	84-69-5	1000 ppm	All materials
Short Chlorinated Paraffins (SCCPs, C_{10-13})	-	1500ppm	All materials

PFOS & PFOA and their salts	-	1000 ppm	All materials (except coatings)
		1 μg/m^2	coatings
Hexachlorobutadiene	87-68-3	Forbidden	All materials
Monomethyl – tetrachlorodiphenylmethane (Ugilec 141)	76253-60-6	Forbidden	All materials
Monomethyl-dichloro-diphenyl methane (Ugilec 121, Ugilec 21)	81161-70-8	Forbidden	All materials
Monomethyl - dibromo - diphenylmethane, bromobenzyl toluene (DBBT)	99688-47-8	Forbidden	All materials
Dimethyl fumarate (DMF)	624-49-7	0.1 ppm	All materials
Asbestos fiber	-	Forbidden	All materials
Organotin compounds	-	total content < 1000 ppm	All materials
Benzene	71-43-2	Not intentionally added	All materials
Polychlorinated biphenyls and their derivatives (PCBs)	-	Not intentionally added	All materials
Polychlorinated terphenyls and their derivatives (PCTs)	-	50 ppm	All materials
Polychlorinated naphthalenes (PCNs)	70776-03-3 and so on	Forbidden	All materials
Hexabromocyclododecane (HBCDD)	25637-99-4, 3194-55-6, 134237-50-6 134237-51-7 134237-52-8	100ppm	All materials

2- (2'-hydroxy-3 ', 5'-di-tert-butylphenyl) -benzotriazole	3846-71-7	Not intentionally added	Adhesives, pigments, printing inks
Radioactive material	-	ND	All materials
Azo dyes	-	30 ppm	Dye or colorant for plastics, textiles, leather products
Carcinogenic and allergic dyes	-	Not intentionally added	Textiles, leather products
Nickel and its compounds	-	0.5 μg/cm^2/ week	Direct and long contact with the skin of the electroplating, corrosion-resistant alloy materials
Pentachlorophenol and its salts and esters	87-86-5 and so on	5 ppm	Textiles, leather products
Nonylphenol (NP) Nonylphenol polyoxyethylene ether (NPEO)	25154-52-3 9016-45-9	100 ppm	Textiles, leather products
Tris (2,3-dibromopropyl) phosphate (TRIS)	126-72-7	Forbidden	Textiles
Tri- (aziridinyl) phosphine oxide (TEPA)	545-55-1	Forbidden	Textiles
Formaldehyde	50-00-0	75 ppm	Suitable for textiles, leather products, such as mobile phone sets
		0.1 ml/m^3	Indoor wooden product
		5 mg/L	Wooden packaging、agglutinant
Ozone Depleting Chemicals (ODS)	-	ND	All materials
Arsenic and its compounds	-	Not intentionally added	Wooden packaging material
Creosote, naphthalene oil, anthracene oil, tar acid, alkaline low temperature tar etc.	-	Not intentionally added	Wooden packaging material
The restrictions on the use of pesticides in packaging materials or transport materials	-	Not intentionally added	Packaging materials, transport materials
Polycyclic Aromatic Hydrocarbons (PAHs)	-	Single PAHs substance (BaP;BeP;Ba	Rubber or plastic material on the exterior or user contact surface of the product

		A;BbFA;BjFA;BkFA;CHR;DBAhA;Benzo[g,h,i]perylene;Indeno[1,2,3-cd]pyrene)<1 ppm;	

Remark:

The threshold level for intentionally added substances is 1000 ppm. When the content of a substance is higher than 1000 ppm, the substance will be deemed as intentionally added.

8.2 Evaluation of Materials / Samples

8.2.1 Document Evaluation

The evaluation of restricted substances was based on the statistic of material / sample from the history data, and the supplier was evaluated by the material categories, tested data, and so on. All suppliers should provide supplier declarations and/or sign contractual agreements to prove that their products complied with the requirements of Huawei (See clause 3).

8.2.2 Contents of Restricted Substances

As per the data from Huawei InSight System (insight.huawei.com), test report, MCD and supplier declarations provided by supplier, and Huawei's requirements of other restricted substances, the contents of restricted substances in material or sample are described in table below.

Table 10 Test Results of Huawei Restricted Substances

Material Descriptions	Restricted Substances	Limit	Content in material / sample
All Materials	NA	NA	NA

Remark: The evaluation results were based on the configuration of the product.

8.3 Conclusion

As per the results as above (Clause 8.2), the contents of restricted substances in submitted sample **comply with** the requirements of Huawei (including Annex XVII of Regulation (EC) No 1907/2006 (REACH)).

9 WEEE Evaluation

9.1 WEEE 3R (Recovery, Recycling & Reuse) Evaluation

9.1.1 Preparation of Product 3R Evaluation

According to Articles 8 and the Annex VII of Directive 2012/19/EU (WEEE), the product contains the following substances, preparations and components have to be removed and be selective treated in table below.

Table 11 Removed Components in Product

Descriptions of Parts and Materials	Remarks	Quantity

Capacitors / condensers (Containing PCB/PCT)	Polychlorinated biphenyls and polychlorinated terphenyls (PCB/PCT)	0
Mercury-containing components	Such as mercury in lamps, display backlights, scanner lamps, switches, batteries	0
Batteries	All types including standard alkaline and lithium coin or button style batteries	0 (LUNA2000-5KW-C0, LUNA2000-5KW-NHC0) 16 (LUNA2000-5-E0, LUNA2000-5-NHE0)
Printed Circuit Boards (PCB) or Printed Circuit Assemblies (PCBA)	Printed circuit boards of mobile phones generally, and of other devices if the surface of the printed circuit board is greater than 10 square centimeters,	5
Components and parts containing toner and ink, including liquids, semi-liquids (gel/paste) and toner	Include the cartridges, print heads, tubes, vent chambers, and service stations.	0
Plastics containing Brominated Flame Retardants	Brominated Flame Retardants include PBB, PBDE, HBCDD and so on	0
Components and waste containing asbestos	-	0
Cathode Ray Tubes (CRT)	-	0
Chlorofluorocarbons (CFC), hydrochlorofluorocarbons (HCFC) or hydrofluorocarbons (HFC), hydrocarbons (HC)	-	0
Gas Discharge Lamps	-	0
Liquid Crystal Displays (LCD)	With a surface greater than 100 sq cm, includes background illuminated displays with gas discharge lamps	0
External electrical cables and cords	-	1
Components, parts and materials containing refractory ceramic fibres	Described in Commission Directive 97/69/EC adapting to technical progress Council Directive 67/548/EEC relating to the classification, packaging and labeling of dangerous substances (2)	0
Components, parts and materials containing radioactive substances	With the exception of components that are below the exemption thresholds set in Article 3 of an Annex I to Council Directive 96/29/Euratom laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionizing radiation (3)	0

Electrolyte capacitors containing substances of concern	Height > 25 mm, diameter > 25 mm or proportionately similar volume	0

9.1.2 WEEE 3R Calculation of Product

As per the evaluation instructions of WEEE 3R and Huawei InSight Platform, according to IEC: TR merge 62635-62650 and actual 3R data of EEE products, the results of 3R were listed in table below:

Table 12 Results of WEEE 3R for Evaluated Product

a) LUNA2000-5KW-C0, LUNA2000-5KW-NHC0

Material / Part Description	Weight Ratio (%)	Recoverability Rate (%)	Reuse and Recyclability Rate (%)	Weight Ratio of Recovery (%)	Weight Ratio of Reuse & Recycling (%)
(1) Parts required selective treatment					
Power Cable	5.36%	90%	85%	4.82%	4.55%
Capacitor (PCB)	0.00%	90%	85%	0.00%	0.00%
PCB (Printed Circuit Board)	12.50%	90%	70%	11.25%	8.75%
BFR* Plastics	0.00%	90%	0%	0.00%	0.00%
Electrolyte Capacitors	0.00%	0%	0%	0.00%	0.00%
(2) Parts difficult to process					
Compressors	0.00%	90%	90%	0.00%	0.00%
AC Motor	0.00%	90%	90%	0.00%	0.00%
Resin Motor	0.00%	0%	0%	0.00%	0.00%
Transformer (MWO)	0.00%	90%	90%	0.00%	0.00%
(3) Parts which go to separation process					
ABS (Acrylonitrile Butadiene Styrene)	0.00%	90%	90%	0.00%	0.00%
PC (Polycarbonate)	1.79%	90%	90%	1.61%	1.61%
PET (Polyethylene Terephthalate)	0.00%	90%	90%	0.00%	0.00%
PP (Polypropylene)	0.00%	90%	90%	0.00%	0.00%
PS (Polystyrene)	0.00%	90%	90%	0.00%	0.00%
PBT (Polybutylene terephthalate)	0.00%	90%	90%	0.00%	0.00%
PVC (Polyvinyl chloride)	0.00%	90%	0%	0.00%	0.00%
POM (Polyoxymethylene)	0.00%	90%	90.00%	0.00%	0.00%
EP (Epoxy Resin)	0.00%	90%	0%	0.00%	0.00%
Steel	50.00%	98%	98%	49.00%	49.00%

Aluminum	0.00%	98%	98%	0.00%	0.00%
Copper	30.36%	98%	98%	29.75%	29.75%
Rubber	0.00%	90%	0%	0.00%	0.00%
Fiberglass	0.00%	80%	80%	0.00%	0.00%
Others	0.00%	60%	60%	0.00%	0.00%
Total	**100%**	**-**	**-**	96.43%	93.66%

b) LUNA2000-5-E0, LUNA2000-5-NHE0

Material / Part Description	Weight Ratio (%)	Recoverability Rate (%)	Reuse and Recyclability Rate (%)	Weight Ratio of Recovery (%)	Weight Ratio of Reuse & Recycling (%)
(1) Parts required selective treatment					
Power Cable	1.39%	90%	85%	1.25%	1.18%
Capacitor (PCB)	0.00%	90%	85%	0.00%	0.00%
PCB (Printed Circuit Board)	8.33%	90%	70%	7.50%	5.83%
BFR* Plastics	0.00%	90%	0%	0.00%	0.00%
Electrolyte Capacitors	0.00%	0%	0%	0.00%	0.00%
(2) Parts difficult to process					
Compressors	0.00%	90%	90%	0.00%	0.00%
AC Motor	0.00%	90%	90%	0.00%	0.00%
Resin Motor	0.00%	0%	0%	0.00%	0.00%
Transformer (MWO)	0.00%	90%	90%	0.00%	0.00%
(3) Parts which go to separation process					
ABS (Acrylonitrile Butadiene Styrene)	0.00%	90%	90%	0.00%	0.00%
PC (Polycarbonate)	1.39%	90%	90%	1.25%	1.25%
PET (Polyethylene Terephthalate)	0.00%	90%	90%	0.00%	0.00%
PP (Polypropylene)	0.00%	90%	90%	0.00%	0.00%
PS (Polystyrene)	0.00%	90%	90%	0.00%	0.00%
PBT (Polybutylene terephthalate)	0.00%	90%	90%	0.00%	0.00%
PVC (Polyvinyl chloride)	0.00%	90%	0%	0.00%	0.00%
POM (Polyoxymethylene)	0.00%	90%	90.00%	0.00%	0.00%
EP (Epoxy Resin)	0.00%	90%	0%	0.00%	0.00%
Steel	72.22%	98%	98%	70.78%	70.78%
Aluminum	0.00%	98%	98%	0.00%	0.00%

Copper	16.67%	98%	98%	16.33%	16.33%
Rubber	0.00%	90%	0%	0.00%	0.00%
Fiberglass	0.00%	80%	80%	0.00%	0.00%
Others	0.00%	60%	60%	0.00%	0.00%
Total	**100%**	**-**	**-**	97.11%	95.38%

Remarks：

3R = Recovery, Reuse and Recycling

WEEE = Waste Electrical and Electronic Equipment

BFR* = Brominated Flame Retardants

The evaluation results were based on the configuration of the product (See Annex Ⅰ).

9.1.3 WEEE 3R Conclusion

According to the evaluation process of WEEE 3R described above clause 9.1.2, the below conclusion can be gotten in table below.

Table 13 Conclusion of WEEE 3R for Evaluated Product

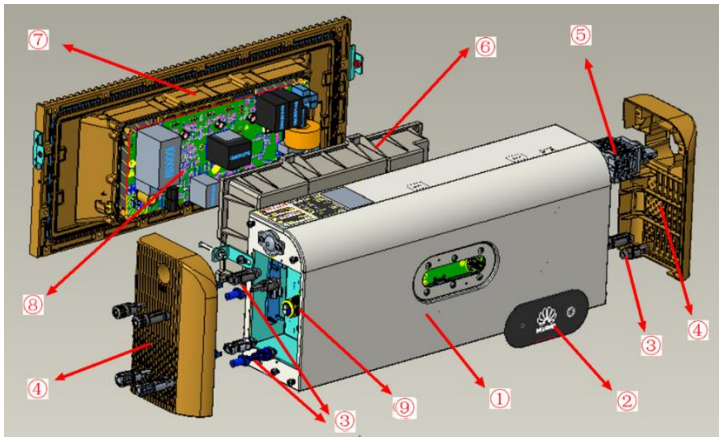
Product Name	Power System	
Product Category	Large equipment	
Reuse/recycling/recovery (3R)	Recovery (%)	Reuse & Recycling (%)
Evaluation Result (LUNA2000-5KW-C0, LUNA2000-5KW-NHC0)	96.43%	93.66%
Evaluation Result (LUNA2000-5-E0, LUNA2000-5-NHE0)	97.11%	95.38%
3R Requirements in WEEE for the Product	85%	80%
3R Compliance for the Product	**Complies**	**Complies**

9.1.4 Sketch Figure of Sample Disassembly

The disassembly procedure taken here is in accordance with the treatment requirements under WEEE Directive, and based on economic and efficiency factor, disassembly tools, and current state of the art of recycling and recovery technology. The detailed information for sample disassembly can be described as below in Figure 1.

Figure 1 Sketch Figure of Evaluated Sample Disassembly

a) LUNA2000-5KW-C0, LUNA2000-5KW-NHC0



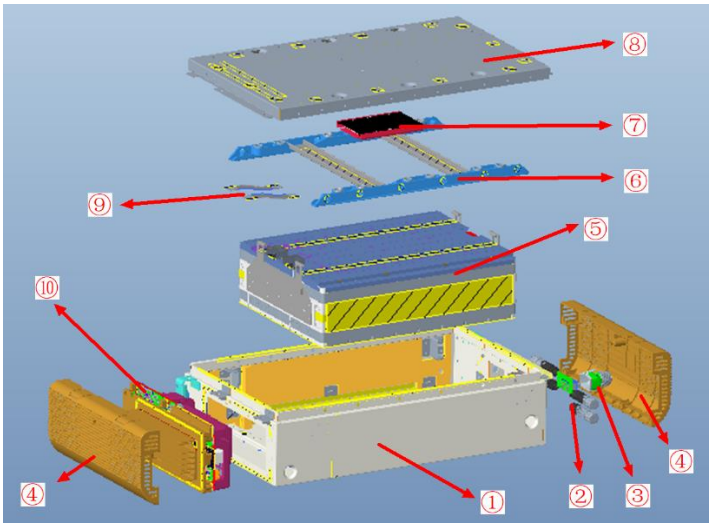
Remarks: (All information is from the installation instruction)

(1) Metal shell (2) Logo (3) Input and output terminals

(4) Plastic decorative shell (5) Input knob switch (6) Seal plastic part

(7) Heat sink (8) PCBA (9) Signal terminal

b) LUNA2000-5-E0 /LUNA2000-5-NHE0



Remarks: (All information is from the installation instruction)

(1) Metal shell (2) Input and output terminals

(3) Signal terminal (4) Plastic decorative shell

(5) Battery (6) Fixing support

(7) Fire extinguishing module (8) Metal cover

(9) Power aluminum bar (10) Power control module

9.1.5 WEEE 3R Requirements

As per WEEE Directive (2012/19/EU), all products sold in EU should comply with the requirements of recovery, recycling and re-use (3R) for their design. Detailed requirements for 3R are described in table below.

Table 14 Requirements of WEEE 3R for Products

Category No.	WEEE Category	Rate of Recovery	Rate of Reuse & Recycling
1	Temperature exchange equipment	85%	80%
2	Screens, monitors, and equipment containing screens having a surface greater than 100 cm^2	80%	70%
3	Lamps	80%	80%
4	**Large equipment**	**85%**	**80%**
5	Small equipment	75%	55%
6	Small IT and telecommunication equipment (no external dimension more than 50 cm)	75%	55%

9.1.6 WEEE 3R Definition

According to directive 2012/19/EU (WEEE), Reuse, Recycling & Recovery Rate using in the report are calculated as following formulas**.**

$$\text{Recovery Rate (\%)} = \frac{Reuse\ \&Recycling\ Weight + Energy\ Recovery\ Weight}{Product\ Tatal\ Weight} \times 100\%$$

$$\text{Reuse \& Recycling Rate (\%)} = \frac{Reuse\ \&\ Recycling\ Weight}{Product\ Tatal\ Weight} \times 100\%$$

Remark: Total weight of the product includes the main product and accessories weight.

9.2 WEEE Label Evaluation

9.2.1 WEEE Label Requirements

As per the requirements of WEEE directive (2012/19/EU), producer is committed to marking all obligated EEE put on EU market with the crossed-out wheeled bin symbol, and the WEEE symbol should meet the requirements of EU standard EN50419: 2005. According to Standard EN50419: 2005, the WEEE symbol should meet the below requirements.

(1) The symbol should be printed on the product. In special circumstances, the label can be marked on the package and instruction if it cannot be marked on the product surface for its size.

(2) The symbol must be printed visibly, legibly and indelibly.

(3) The dimensional relationship should meet that (Figure 2):

(a) The symbol should consist of a solid bar, the height of which equals “h” and the width of which equals 1.2a (a is the height of the body of crossed-out wheeled bin).

(b) The height (h) of the bar shall be the greater of 0.3a or 1mm.

(c) The bar should only be used in conjunction with the crossed-out wheeled bin.

(d) The bar should not contain any text or any kind of additional information.

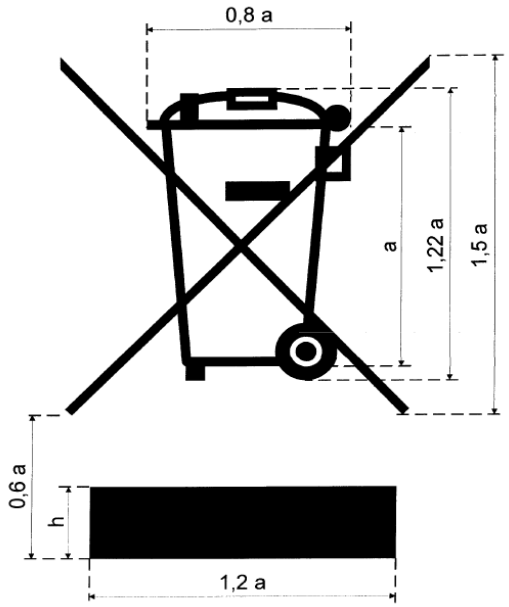


Figure 2 WEEE Symbol Requirements

9.2.2 Conclusion of WEEE Label Evaluation

As per the WEEE label on the product, the label was affixed on the product and the label passed the label test before its sales. From the WEEE label on product, the below evaluation results can be gotten in table below.

Table 15 Results of WEEE Label Evaluation

No.	Label Requirements	Actual Status for Evaluated Product	Results
(a)	Symbol Position	Product, package and instruction	Yes
(b)	Size	The “a” was more than 3.333mm and the “h” was more than 1mm on label of product.	Yes
(c)	Visibly	The label passed the label test for visibly, legibly and indelibly.	Yes
(d)	Legibly		Yes
(e)	Indelibly		Yes
Conclusion		**Complies**	

10 Compliance Results in Other Countries

10.1 Restricted Substances Information in Product

According to China RoHS (Management measures for the restriction of hazardous substances in electrical and electronic products), the contents of restricted substances should be shown in the product documentation. As per the evaluation process and the data in Huawei InSight System (insight.huawei.com), the below table was made for the product and its fittings.

Table 16 Restricted Substances Table in Product

a) LUNA2000-5KW-C0, LUNA2000-5KW-NHC0

Part Descriptions	Restricted Substances in Product

	Cd	Pb	Hg	Cr(VI)	PBB	PBDE
Shell	○	×	○	○	○	○
PCBA	○	×	○	○	○	○
Cable	○	×	○	○	○	○
Corollary Equipment	○	×	○	○	○	○
Accessories	○	×	○	○	○	○

b) LUNA2000-5-E0, LUNA2000-5-NHE0

Part Descriptions	Restricted Substances in Product					
	Cd	Pb	Hg	Cr(VI)	PBB	PBDE
Shell	○	×	○	○	○	○
PCBA	○	×	○	○	○	○
Cable	○	×	○	○	○	○
Corollary Equipment	○	×	○	○	○	○
Accessories	○	×	○	○	○	○
Battery	○	×	○	○	○	○

Remark:

○ : It means that the content of the restricted substance in all materials of part is less than the limit defined in GB/T 26572 and other similar directives in other countries.

× : It means that the content of the restricted substance in at least one homogenous material of part is not less than the limit defined in GB/T 26572 and other similar directives in other countries.

The contents of restricted substances are more than the limits defined in standard, but they are exempted from the standard and can be used in product.

10.2 Restricted Substances Compliance Results in Other Countries

As per the above evaluation results and the laws / regulations / directives for prohibited substances in the world, the compliance results for restricted substances in different countries and regions as below in table below can be gotten.

Table 17 Evaluation of Huawei's Product in different countries and regions

Region	Requirements of material / sample / product	Conclusion
Global	Montreal Protocol, Stockholm Convention	**Complies**
EU and EEA Countries	EU RoHS (2011/65/EU& (EU) 2015/863), REACH ((EC) No 1907/2006) SVHC, REACH Appendix XVII, POPs ((EU) 2019/1021), Battery Directive (2006/66/EC& 2013/56/EU), Packaging Directive (94/62/EC)	**Complies**

Turkey	Turkey RoHS (Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment) No. 26891	**Complies**
Ukraine	Ukraine RoHS (Technical Regulation for Restricting the Use of Certain Hazardous Substances in Electrical and Electronic Equipment) No. 139	**Complies**
Germany	EU RoHS, GS PAHs Requirement, REACH SVHC, REACH Appendix XVII, POPs, Battery Directive, Packaging Directive	**Complies**
Serbia	Serbia RoHS (Management of Waste from and Hazardous Substances in Electrical and Electronic Equipment) Regulation 99/2010-83	**Complies**
EAEU Countries	EAEU RoHS (EAEU TR 037/2016)	**Complies**
USA	TPCH, CA 65 (California Proposition), CA RoHS (SB20/50)	**Complies**
Canada	SOR 2014-254, SOR 2012-286	**Complies**
China	China RoHS (GB/T 26572)	**Complies**
Taiwan, China	Taiwan RoHS (CNS 15663)	**Complies**
Japan	Japan RoHS (Japan Waste Electrical and Electronic Equipment Management)	**Complies**
Korea	K-RoHS& WEEE& ELV (Act for Resource Recycling of Electrical and Electronic Equipment and Vehicles)	**Complies**
India	India RoHS (India E-Waste (Management) Rules, 2016 & E-Waste (Management) Amendment Rules, 2018)	**Complies**
Thailand	Thailand RoHS (TIS 2368-2551)	**Complies**
Vietnam	Vietnam RoHS (30/2011/TT-BCT)	**Complies**
UAE	UAE RoHS (UAE Regulation to Control Hazardous Materials in Electrical and Electronic Devices) Decision No.10 of 2017	**Complies**

Remark:

EU = Europe Union, including Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom.

EEA = European Economic Area, including Iceland, Liechtenstein, Norway and all EU countries.

EAEU = Eurasian Economic Union, including Armenia, Belarus, Kazakhstan, Kyrgyzstan, Russia.

Annex Ⅰ Configuration of Product

Board list		
Board Name	Description	Qty.
ENQ1PWRE	DCDC power board	1
ENQ1LEDE	LED Board	1
ENQ1PWRB	Pack power board	1
ENQ1CTLF	BMS control board	1
ENQ1CTLE	Signal transfer board	1
Subassembly list		
Subassembly Name	Description	
Adapter	Use with Inverter Input voltage: ⎓ 100V-1000V Output voltage: ⎓ 350-1000V Rate power: 5000W	

END

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No: 01052000005950-2(E)
Date: 2020-10-12

UN38.3 试验概要
UN38.3 test summary

单位信息 Company information	
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生产单位信息 Manufacturer's Information	名称：惠州市德赛电池有限公司 Name: Huizhou Desay Battery Co., Ltd.
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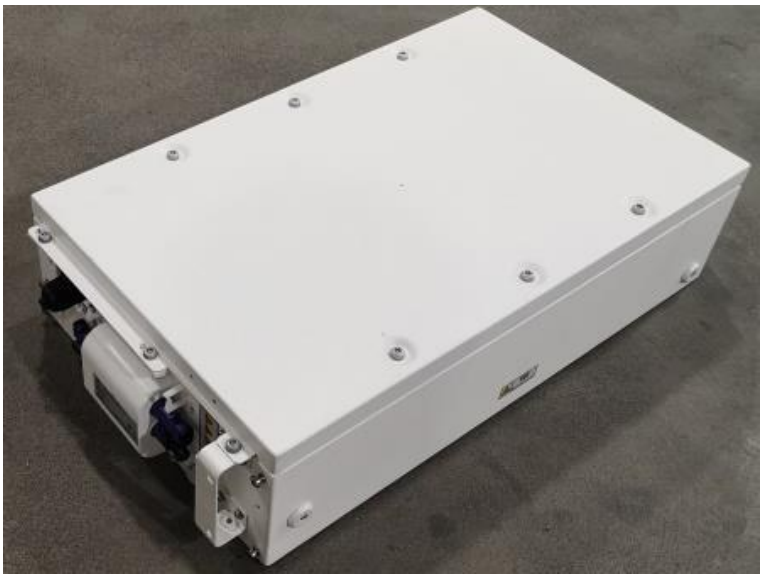
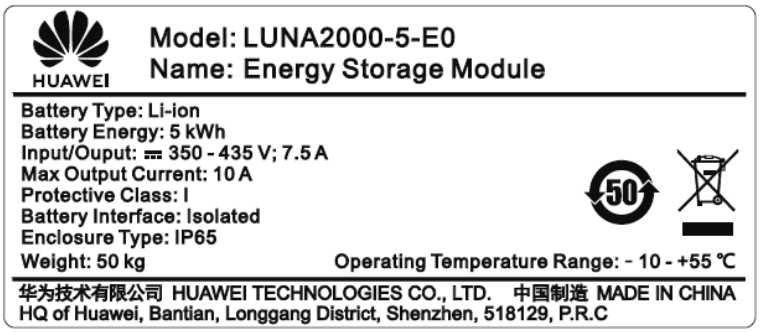
	电子邮箱 Email address: zhangxc_dc@desay.com
	网址 Website: https://www.desay.com/
试验实验室 Test laboratory	名称：广州海关技术中心 Name: GUANGZHOU CUSTOMS DISTRICT TECHNOLOGY CENTER
	地址：广东省广州市科学城南翔支路 1 号 C102 房（轻工科学城实验室） Address: Room C102, No,1 Nanxiangzhi Road, Science City, Guangzhou, Guangdong, China (Light Industry Testing Laboratory in Science City)
	电话号码 Phone number: +86-20-38669019
	电子邮箱 Email address: itl@iqtc.cn
	网址Website: www.iqtc.cn

WPL8IM0VTS

地址：中国广州市天河区珠江新城花城大道66号B座
网址：www.iqtc.cn 邮编：510623
Add：Tower B, No.66 Huacheng Avenue, Zhujiang Xincheng, Tianhe District, Guangzhou, China
Website：www.iqtc.cn Postcode：510623

电池信息 Battery information			
名称 Name	储能系统（内含锂离子蓄电池） Energy Storage System(contain lithium ion batteries)	型号 Model	LUNA2000-5-E0
标称电压 Nominal voltage	384V	容量 Capacity	100Ah
额定瓦时值 Watt-hour rating	5kWh	样品外观 Appearance	白色金属外壳 White metal shell
质量 Mass	50kg	电池描述 Physical description	可充电锂离子电池组 Rechargeable Li-ion battery
电池图片 Battery picture			
			

地址：中国广州市天河区珠江新城花城大道66号B座
网址：www.iqtc.cn 邮编：510623
Add：Tower B, No.66 Huacheng Avenue, Zhujiang Xincheng, Tianhe District, Guangzhou, China
Website：www.iqtc.cn Postcode：510623

测试信息 Test information			
测试报告编号 Test report number	01052000005950-1(E)	测试报告日期 Date of test report	2020-10-12
测试标准 Test standard	联合国《关于危险货物运输的建议书·试验和标准手册》ST/SG/AC.10/11/Rev.7 UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS", Manual of Tests and Criteria ST/SG/AC.10/11/Rev.7		
T.1 高度模拟 Altitude simulation	合格 Passed	T.2 温度循环 Thermal test	合格 Passed
T.3 振动 Vibration	合格 Passed	T.4 冲击 Shock	合格 Passed
T.5 外部短路 External short circuit	合格 Passed	T.6 挤压 Crush	合格 Passed
T.7 过度充电 Overcharge	合格 Passed	T.8 强制放电 Forced discharge	合格 Passed
38.3.3(f)	合格 Passed	38.3.3(g)	不适用 Not applicable
结论 Conclusion	经测试，该样品符合联合国《关于危险货物运输的建议书 试验和标准手册》ST/SG/AC.10/11/Rev.7, 38.3 标准要求。 The sample has passed the test items of UNITED NATIONS "Recommendations on the TRANSPORT OF DANGEROUS GOODS", Manual of Test and Criteria ST/SG/AC.10/11/Rev.7, 38.3.		
备注 Remark	检测结果仅对样品有效。 The test results are only valid for the test samples submitted the applicant.		
签名及职务 Signature & Title	实验室主任 Laboratory Director	签发日期 Issued date	2020-10-12

地址：中国广州市天河区珠江新城花城大道66号B座
网址：www.iqtc.cn 邮编：510623
Add：Tower B, No.66 Huacheng Avenue, Zhujiang Xincheng, Tianhe District, Guangzhou, China
Website：www.iqtc.cn Postcode：510623

声 明
Statement

1.本报告无检验单位公章无效。

The test report is invalid without the official stamp of IQTC.

2 本报告无批准人、审核人及主检人签名无效。

The test report is invalid without the signatures of Approver, Checker and Appraiser.

3.本报告涂改无效。未经本实验室书面同意，不得部分地复制本报告。

The test report is invalid if altered. Nobody is allowed to photocopy or partly photocopy this report without written permission of IQTC.

4.客户必须如实提供样品及资料，并保证申报品名和样品以及运输货物相同，否则本检测单位不承担任何相关责任。

The client should provide samples and relevant data, at the same time, they should guarantee the consistence of the product's name they declared, the samples they provided and the goods to be transported. Otherwise we will not bear any relevant responsibilities.

5.对检验报告若有异议，应于收到报告之日起十五天内向检验单位提出。

Objection to the test report must be submitted to IQTC within 15 days

6.本报告仅对送检样品负责。

The test report is valid for the tested samples only.

7.检验地址：广东省广州市科学城南翔支路 1 号 C102 房（轻工科学城实验室）

Inspection Address: Room C102, No.1 Nanxiangzhi Road, Science City, Guangzhou, Guangdong, China (Light Industry Testing Laboratory in Science City)

电话(Tel)：020-38669019

电子邮箱(E-mail)：itl@iqtc.cn

* * * * 报告结束 End of report * * * *

Huawei Technologies Co., Ltd.

Administration Building, Headquarters of Huawei Technologies Co., Ltd.,

Bantian, Longgang District, 518129 Shenzhen, PEOPLE'S REPUBLIC OF CHINA

Manufacturer's Declaration

VDE application guide 2510-2 Stationary electrical energy storage systems for connection to the low-voltage grid

Huawei Technologies Co., Ltd. hereby confirms that the Huawei energy storage system meets the requirements of VDE-AR-E 2510-2:2015-09.

The energy storage system for increased self-consumption is made up of the following components:

• Three-Phase INVERTER
Product: SOLAR INVERTER
Models: SUN2000-3KTL-M1, SUN2000-4KTL-M1, SUN2000-5KTL-M1, SUN2000-6KTL-M1, SUN2000-8KTL-M1, SUN2000-10KTL-M1

• Single-Phase INVERTER
Product: SOLAR INVERTER
Models: SUN2000-2KTL-L1, SUN2000-3KTL-L1, SUN2000-4KTL-L1, SUN2000-5KTL-L1, SUN2000-6KTL-L1

• Smart Power Sensor：DDSU666-H (Single Phase)，DTSU666-H 250A (Three Phase)

• Battery (LUNA2000-5-S0，LUNA2000-10-S0，LUNA2000-15-S0)

Note：For the details of the product,please see www.solar.huawei.com

Huawei Technologies Co., Ltd.

31 December 2020	Gus. Tian
date	Technical manage (stamp, signature)

HUAWEI

Information on VDE-AR 2510-2

4	Transport for installation	
4.1	General requirements	P
4.2	Lead-acid batteries	N/A
4.3	Lithium batteries	P
5	Requirements for electrical energy storage systems	
5.1	Requirements for the safe use and operation of stationary energy storage systems	P
5.2	Requirements for the installation site of stationary energy storage systems	P
5.2.1	General	P
5.2.2	Areas	P
5.2.3	General requirements for the placing of batteries	P
5.2.4	Additional requirements for cabinets or boxes inside or outside buildings	P
6	**Electrical installation**	
6.101	General	P
6.102	Symmetry requirements	P
6.102.1	Symmetry requirements in isolated operation	P
6.102.2	Symmetry conditions in grid-connected operation	P
6.102.2.1	Single-phase energy storage systems	P
6.102.2.2	Three-phase energy storage systems	P
6.103	Voltage quality	P
6.410	Protection against electric shock in isolated operation	P

6.410.2.1	Isolated operation in IT systems	N/A
6.410.2.2	Isolated operation with TN system	P
6.430.101	Overcurrent protection	P
6.530	Switchgear and control gear	P
6.530.1	Selection of residual current devices (RCD)	P
6.530.1.1	Residual current devices (RCD) for AC systems	P
6.530.1.2	Residual current devices (RCD) for DC systems	P
6.536	Devices for switching to isolated operation	P
6.538	Insulation monitoring devices	P
6.540	Earthing arrangements and protective earth conductors	P
6.551.1	Operating modes of energy storage systems	P
6.551.2	Coordination with decentralized generating plants (EZA) in isolated operation for power limitation	P
6.600	Tests	P
6.600.1	Initial and recurring tests	P
6.600.2	Inspection	P
6.600.3	Testing and measurement	P
6.600.3.1	Continuity of conductors	P
6.600.3.2	Insulation resistance of the electrical installation	P
6.600.3.3	Protective measure "automatic disconnection of supply"	P

Zertifikat *Certificate*

TÜVRheinland®

Zertifikat Nr. *Certificate No.*
R 50491060

Blatt *Sheet*
0001

Ihr Zeichen *Client Reference*	**Unser Zeichen** *Our Reference*	**Ausstellungsdatum**	*Date of Issue*
168296441	02--CN200LC3 001	30.12.2020	*(day/mo/yr)*

Genehmigungsinhaber *License Holder*
HUAWEI TECHNOLOGIES CO., LTD.
Administration Building,
Headquarters of Huawei Technologies Co., Ltd. Bantian,
Longgang District, Shenzhen, 518129
Guangdong
P.R. China

Fertigungsstätte *Manufacturing Plant*
Refer to latest revision
of the annex list of factories

Prüfzeichen *Test Mark*

TÜVRheinland® ZERTIFIZIERT
Bauart geprüft
Sicherheit
Regelmäßige Produktions-überwachung
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ID 1111234296

Geprüft nach *Tested acc. to*
VDE-AR-E 2510-50:2017
2 PfG 2698/08.19

Zertifiziertes Produkt (Geräteidentifikation)
Certified Product (Product Identification)

Lizenzentgelte - Einheit
License Fee - Unit

Energiespeichersystem (LUNA2000 Energy Storage System)

Type designation	: 1) LUNA2000-15-S0 2) LUNA2000-10-S0 3) LUNA2000-5-S0	12
Operating voltage range [Vd.c.]	: 350 - 980	
Maximum operating current [Ad.c.]	: 30	
Battery type	: LiFePO4	
Battery usable energy [kWh]	: 1)5 2)10 3)15	
Maximum power [kW]	: 1)2.5 2)5 3)5	
Operating temperature range [°C]	: -10 to +55	
Protection class	: I	
Ingress protection	: IP66	

12

ANLAGE (Appendix): 1.0

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 Zertifizierstelle TÜVRheinland®

Zertifizierungsstelle

A. Chen

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

Anlage Fertigungsstättenliste
/Attachment List of Factories

TÜVRheinland®

R 50491060 0001

1 Huazhi Machine Co., Ltd.
Zone A, Yingzhan Industrial Park,
Kengzi Street,
Pingshan New District, Shenzhen,
518122 Guangdong
P.R. China

2 Huizhou Desay Battery Co., Ltd
Building C, Yalun Company,
Jinda Road, Huinan High-tech Industrial Park,
Huiao Avenue, Huizhou
Guangdong
P.R. China

Dieser Anhang ersetzt den Vorgänger vom/
This annex replaces the previous annex dated

Datum / Date 30.12.2020

TÜV Rheinland LGA Products GmbH TÜVRheinland Zertifizierungsstelle

Zertifizierungsstelle
/ Certification Body

A. Chen

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

TÜVRheinland®
Precisely Right.

HUAWEI TECHNOLOGIES CO., LTD.

Date : 30.12.2020
Our ref. : 02
Your ref.: 168296441

Administration Building,
Headquarters of Huawei Technologies
Co., Ltd. Bantian,
Longgang District, Shenzhen, 518129
Guangdong
P.R. China

Ref : R TÜV-Mark Approval

Type of Equipment : LUNA2000 Energy Storage System)
Model Designation : See Certificate
Certificate No. : R 50491060 0001
Report No. : CN200LC3 001

Dear Ladies and Gentlemen,

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.

With kind regards,

Certification Body

A. Chen

Enclosure

TÜV Rheinland (China) Ltd.
莱茵检测认证服务（中国）有限公司
No. 01/03B-08, Floor 7 and No. 01/04B-08, Floor 11, AVIC Building, No.10B, Central Road, East 3rd Ring Road, Chaoyang District, Beijing, P.R. China
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Internet: http://www.chn.tuv.com