



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ผู้ขอรับบริการ (APPLICANT): SolaX Power Network Technology (Zhe Jiang) Co., Ltd.  
No.288, Shizhu Road, Tonglu Economic Development Zone, Tonglu City,  
Zhejiang Province 310000, P.R. CHINA

ผู้รับรายงาน (SUBMITTED TO): ตามที่อยู่ผู้ขอรับบริการ  
(Same as above)

ผลิตภัณฑ์ (PRODUCT): PV grid-connected inverter

ยี่ห้อ (BRAND): SolaX

รุ่น (MODEL): X3-Hybrid-15.0

## ขอบข่ายการประเมิน (Scope):

รายงานฉบับนี้เป็นการให้ความคิดเห็นต่อความเป็นไปตามข้อกำหนดของผลิตภัณฑ์ ตามมาตรฐาน / ระเบียบที่ระบุในส่วนต่อไป วัตถุประสงค์ของการประเมินความเป็นไปตามข้อกำหนดในรายงานฉบับนี้ เพื่อระบุความเป็นไปตามข้อกำหนดตามมาตรฐานหรือระเบียบที่เกี่ยวข้องของการไฟฟ้าฝ่ายจำหน่าย สำหรับประกอบการพิจารณาอนุมัติการขนานเข้าระบบ ความคิดเห็นในรายงานฉบับนี้เป็นการประเมินจากหลักฐานทางเทคนิคซึ่งจัดส่งให้ศูนย์ฯ โดยผู้ขอรับบริการและ/หรือผู้ผลิตอุปกรณ์

## มาตรฐาน / ระเบียบ (Standards/regulations):

ระเบียบการไฟฟ้านครหลวงว่าด้วย ข้อกำหนดการเชื่อมต่อระบบโครงข่ายไฟฟ้า พ.ศ. 2558

## หลักฐานทางเทคนิค (Technical evidence):

รายงานผลการทดสอบ, ข้อกำหนดคุณลักษณะเฉพาะของผลิตภัณฑ์ และเอกสารที่เกี่ยวข้องอื่น ๆ ซึ่งจัดทำโดยผู้ขอรับบริการ

นายสิทธิชัย มังกรฤทธิ์  
วิศวกรทดสอบ

ผู้เตรียม (Prepared by)

นายชำนาญ ลิ่มสกุล  
ผู้จัดการฝ่ายทดสอบ

ผู้ทบทวน (Reviewed by)

นายบัลลังก์ หมั่นพินิจ

หัวหน้าหน่วยทดสอบอุปกรณ์ประกอบระบบ

ผู้ทบทวน (Reviewed by)

(ผศ.ดร. อนุวัช แสงสว่าง)

รองผู้อำนวยการ สายงานวิชาการ

ผู้อนุมัติ (Approved by)

REMARK: The authorized CSSC staff signature through electronic means shall have the same validity as a manually executed signature to the fullest extent of a paper-based report issued by CSSC

CES Solar Cells Testing Center (CSSC)

King Mongkut's University of Technology Thonburi (Bang Khun Thian)

49 Soi Thian Thale 25, Bang Khun Thian Chai Thale Road, Tha Kham,

BangKhun Thian, Bangkok 10150,

Tel. (66)-2470-7446, Fax (66)-2470-7445

Copyright © CES Solar Cells Testing Center (CSSC)



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

คำอธิบายผลิตภัณฑ์ (Product description)			
ยี่ห้อ: (Brand)	SolaX		
รุ่น: (Model)	X3-Hybrid-15.0		
ข้อกำหนดคุณลักษณะเฉพาะ:			
	Output		Input
Voltage	415/240, 400/230, 380/220	Max. voltage	1000V
Frequency	50/60Hz nom.	Voltage range	180 – 950V MPPT
Current	24.1A max.	Current	26/14A max.
Power	15000W nom.	Power	A11000W/B7000W max.
หมายเหตุ ข้อกำหนดคุณลักษณะดังระบุใน ภาคผนวก ข.			
ผลการประเมิน (Compliance case verdicts)			
ผ่าน: (Complied)	ผลการทดสอบเป็นไปตามข้อกำหนด (Submitted result complied with the requirement)		
ไม่ผ่าน: (Does not comply)	ผลการทดสอบไม่เป็นไปตามข้อกำหนด (Submitted result does not comply with the requirement.)		
ไม่ครบถ้วน: (Undetermined)	ผลการทดสอบหรือข้อมูลที่เกี่ยวข้องไม่เพียงพอสำหรับการประเมิน (The test results are not sufficient for evaluation.)		
หมายเหตุ (General remark)			
(1) รายงานการทดสอบนี้ต้องไม่ถูกทำซ้ำบางส่วน โดยไม่ได้รับความยินยอมจากศูนย์พัฒนามาตรฐานและทดสอบระบบเซลล์แสงอาทิตย์ เป็นลายลักษณ์อักษร ยกเว้นได้ทำซ้ำเต็มฉบับ (This report shall not be reproduced, except in full, without the written approval of CES Solar Cells Testing Center (CSSC) )			
รายงานฉบับนี้ประกอบด้วยเอกสารดังต่อไปนี้:			
<ul style="list-style-type: none"> <li>- การตรวจสอบความเป็นไปตามข้อกำหนดของผลการทดสอบ</li> <li>- แบบตรวจสอบและรับรองรายงานการทดสอบอินเวอร์เตอร์ที่ใช้ในระบบผลิตไฟฟ้าประเภทเชื่อมต่อกับโครงข่ายของ กฟน.</li> <li>- ภาคผนวก ก1. - List of documents from TÜV Rheinland (Shanghai) Co., Ltd.</li> <li>- ภาคผนวก ก2. - MEA Grid Code Compliance Table.</li> <li>- ภาคผนวก ข. - Technical Specification.</li> <li>- ภาคผนวก ค. - TÜV Rheinland's Report No: CN21EDK2 001.</li> <li>- ภาคผนวก ง. - Laboratory Accreditation Certificate No. CNAS L3038.</li> </ul>			



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ลำดับ	หัวข้อ	ผลการพิจารณา	รายละเอียด
รายละเอียดผลการพิจารณาอินเวอร์เตอร์ ยี่ห้อ SolaX รุ่น X3-Hybrid-15.0 รายงานผลการทดสอบ หมายเลข CN21EDK2 001 ลงวันที่ : 2021.07.27 จากสถาบันทดสอบ TÜV Rheinland (Shanghai) Co., Ltd ตามข้อกำหนดสำหรับอินเวอร์เตอร์ที่ซีในระบบผลิตไฟฟ้าประเภทเชื่อมต่อกับโครงข่ายของ กฟน. (Test Compliance Validation)			
1	กระแสฮาร์มอนิก (Harmonics Current)	<input checked="" type="checkbox"/> ผ่าน (Complied) <input type="checkbox"/> ไม่ผ่าน (Does not comply) <input type="checkbox"/> ไม่ครบถ้วน (Undetermined)	ตามแบบตรวจสอบและรับรองรายงานการทดสอบ อินเวอร์เตอร์ 2.1 การทดสอบกระแสฮาร์มอนิก หน้า 5-6
2	แรงดันกระเพื่อม (Voltage Fluctuation)	<input checked="" type="checkbox"/> ผ่าน (Complied) <input type="checkbox"/> ไม่ผ่าน (Does not comply) <input type="checkbox"/> ไม่ครบถ้วน (Undetermined)	ตามแบบตรวจสอบและรับรองรายงานการทดสอบ อินเวอร์เตอร์ 2.2 การทดสอบแรงดันกระเพื่อม หน้า 6
3	การจ่ายไฟฟ้ากระแสตรง (Direct Current)	<input checked="" type="checkbox"/> ผ่าน (Complied) <input type="checkbox"/> ไม่ผ่าน (Does not comply) <input type="checkbox"/> ไม่ครบถ้วน (Undetermined)	ตามแบบตรวจสอบและรับรองรายงานการทดสอบ อินเวอร์เตอร์ 2.3 การทดสอบการจ่ายไฟฟ้ากระแสตรง หน้า 6
4	ช่วงความถี่ทำงาน (Operating Frequency Range )	<input checked="" type="checkbox"/> ผ่าน (Complied) <input type="checkbox"/> ไม่ผ่าน (Does not comply) <input type="checkbox"/> ไม่ครบถ้วน (Undetermined)	ตามแบบตรวจสอบและรับรองรายงานการทดสอบ อินเวอร์เตอร์ 2.4 การทดสอบช่วงความถี่ทำงาน หน้า 7
5	ช่วงแรงดันทำงาน (Operating Voltage Range )	<input checked="" type="checkbox"/> ผ่าน (Complied) <input type="checkbox"/> ไม่ผ่าน (Does not comply) <input type="checkbox"/> ไม่ครบถ้วน (Undetermined)	ตามแบบตรวจสอบและรับรองรายงานการทดสอบ อินเวอร์เตอร์ 2.5 การทดสอบช่วงแรงดันทำงาน หน้า 7
6	การป้องกันสถานะไอส์แลนด์ (Islanding test)	<input checked="" type="checkbox"/> ผ่าน (Complied) <input type="checkbox"/> ไม่ผ่าน (Does not comply) <input type="checkbox"/> ไม่ครบถ้วน (Undetermined)	ตามแบบตรวจสอบและรับรองรายงานการทดสอบ อินเวอร์เตอร์ 2.6 การทดสอบการป้องกันสถานะไอส์แลนด์ ตั้ง หน้า 8
7	การเชื่อมต่อหลังไฟฟ้ากลับคืน (Power Recovery Response)	<input checked="" type="checkbox"/> ผ่าน (Complied) <input type="checkbox"/> ไม่ผ่าน (Does not comply) <input type="checkbox"/> ไม่ครบถ้วน (Undetermined)	ตามแบบตรวจสอบและรับรองรายงานการทดสอบ อินเวอร์เตอร์ 2.6 การทดสอบการเชื่อมต่อหลังไฟฟ้า กลับคืน หน้า 9
8	อื่นๆ (other)	<input checked="" type="checkbox"/> ครบถ้วน (Complied) <input type="checkbox"/> ไม่ครบถ้วน (Undetermined)	1. พบ Firmware version ในรายงานผลการทดสอบ 2. ผ่านการทดสอบจากห้องปฏิบัติการทดสอบที่ได้รับการ รับรอง ISO/IEC 17025:2005 ในขอบข่ายการทดสอบ อินเวอร์เตอร์ ตาม Laboratory Accreditation Certificate Number CNAS L3038

ความคิดเห็นของการประเมินความเป็นไปตามข้อกำหนดตามผลการทดสอบ/ข้อมูลจากห้องปฏิบัติการทดสอบที่ได้รับการรับรองตาม ISO/IEC17025 ซึ่งผู้ขอรับบริการ / ผู้ผลิตจัดส่งให้ศูนย์พัฒนามาตรฐานและทดสอบระบบเซลล์แสงอาทิตย์ รายละเอียดห้องปฏิบัติการทดสอบดังกล่าว ผกผนวก จ.



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

แบบตรวจสอบและรับรองรายงานผลการทดสอบ

อินเวอร์เตอร์ที่ใช้ในระบบผลิตไฟฟ้าประเภทเชื่อมต่อกับระบบโครงข่ายไฟฟ้าของการไฟฟ้านครหลวง

## ส่วนที่ 1 การรับรองรายงานผลการทดสอบอินเวอร์เตอร์

1.1 รายละเอียดอินเวอร์เตอร์	
ยี่ห้อ	SolaX
รุ่น	X3-Hybrid-15.0
Firmware Version	DSP1:2.07, DSP2:2.01, ARM:2.03
พิกัดทางไฟฟ้า	15000W
1.2 รายละเอียดของรายงานผลการทดสอบ	
หมายเลขรายงานผลการทดสอบ	CN21EDK2 001
ออกเมื่อวันที่	2021.07.27
ชื่อสถาบันหรือหน่วยงานที่ออก รายงานผลการทดสอบอินเวอร์เตอร์	TÜV Rheinland (Shanghai) Co., Ltd
ที่อยู่สถาบันหรือหน่วยงานที่ออก รายงานผลการทดสอบอินเวอร์เตอร์	No. 177, Lane 777 West Guangzhong Road, Jing'an District, Shanghai, 200072 P.R.China
1.3 การรับรองรายงานผลการทดสอบ	
ข้าพเจ้าขอรับรองว่าข้อมูลที่กรอกในเอกสารฉบับนี้มีความถูกต้องเป็นจริง และได้ตรวจสอบพบว่าผลการทดสอบอินเวอร์เตอร์ตามรายงานในข้อ 1.2 เป็นไปตามข้อกำหนดสำหรับอินเวอร์เตอร์ที่ใช้ในระบบผลิตไฟฟ้าประเภทเชื่อมต่อกับระบบโครงข่ายไฟฟ้าของการไฟฟ้านครหลวงทุกประการ	
ชื่อหน่วยตรวจสอบและรับรองผลการ ทดสอบอินเวอร์เตอร์	ศูนย์พัฒนามาตรฐานและทดสอบระบบเซลล์แสงอาทิตย์ (CSSC) สถาบันพัฒนาและฝึกอบรมโรงงานต้นแบบ มหาวิทยาลัยเทคโนโลยีพระจอมเกล้าธนบุรี
ที่อยู่หน่วยตรวจสอบและรับรองผล การทดสอบอินเวอร์เตอร์	49 ซอยเทียนทะเล 25, ถนนบางขุนเทียน-ชายทะเล แขวงท่าข้าม บางขุนเทียน กรุงเทพมหานคร 10150 โทร.: +662 470 7445 - 49 โทรสาร: +662 470 7445
วันที่ออกเอกสาร	28 กรกฎาคม 2564
ตรวจสอบและรับรองข้อมูลโดย	อนุมัติโดย
ลงชื่อ ..... (.....นายชำนาญ ลิ้มสกุล.....) ตำแหน่ง .....ผู้จัดการฝ่ายทดสอบ.....	ลงชื่อ ..... (.....ผศ.ดร. อนวัช แสงสว่าง.....) ตำแหน่ง .....รองผู้อำนวยการ สายนานวัตกรรม..... หมายเหตุ: ผู้อนุมัติต้องเป็นหัวหน้าสูงสุดของหน่วยตรวจสอบและ รับรองผลการทดสอบ หรือผู้ที่ได้รับมอบหมายให้ปฏิบัติงานแทน

หมายเลขอ้างอิง.....





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ส่วนที่ 2) รายละเอียดผลการทดสอบอินเวอร์เตอร์

2.1 การทดสอบฮาร์โมนิก (Harmonics Current)								
Order	33 % of output current		66% of output current		100 % of output current		Limit ( % of Output current)	Result confirmation
	Measured In Amp*	% of output current*	Measured In Amp*	% of output current*	Measured In Amp*	% of output current*		
2 <sup>nd</sup>	0.08	0.37 %	0.11	0.51 %	0.14	0.64 %	≤ 1 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
3 <sup>rd</sup>	0.03	0.14 %	0.05	0.23 %	0.05	0.23 %	≤ 4 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
4 <sup>th</sup>	0.01	0.05 %	0.04	0.18 %	0.03	0.14 %	≤ 1 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
5 <sup>th</sup>	0.18	0.83 %	0.31	1.43 %	0.56	2.58 %	≤ 4 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
6 <sup>th</sup>	0.00	0.00 %	0.02	0.09 %	0.02	0.09 %	≤ 1 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
7 <sup>th</sup>	0.11	0.51 %	0.22	1.01 %	0.34	1.56 %	≤ 4 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
8 <sup>th</sup>	0.00	0.00 %	0.01	0.05 %	0.01	0.05 %	≤ 1 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
9 <sup>th</sup>	0.01	0.05 %	0.02	0.09 %	0.02	0.09 %	≤ 4 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
10 <sup>th</sup>	0.00	0.00 %	0.01	0.05 %	0.01	0.05 %	≤ 1 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
11 <sup>th</sup>	0.04	0.18 %	0.10	0.46 %	0.17	0.78 %	≤ 2 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
12 <sup>th</sup>	0.00	0.00 %	0.01	0.05 %	0.01	0.05 %	≤ 0.5 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
13 <sup>th</sup>	0.03	0.14 %	0.07	0.32 %	0.10	0.46 %	≤ 2 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
14 <sup>th</sup>	0.00	0.00 %	0.00	0.00 %	0.00	0.00 %	≤ 0.5 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
15 <sup>th</sup>	0.01	0.05 %	0.01	0.05 %	0.01	0.05 %	≤ 2 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
16 <sup>th</sup>	0.00	0.00 %	0.00	0.00 %	0.00	0.00 %	≤ 0.5 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
17 <sup>th</sup>	0.01	0.05 %	0.03	0.14 %	0.04	0.18 %	≤ 1.5 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
18 <sup>th</sup>	0.00	0.00 %	0.00	0.00 %	0.00	0.00 %	≤ 0.375 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
19 <sup>th</sup>	0.01	0.05 %	0.03	0.14 %	0.04	0.18 %	≤ 1.5 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
20 <sup>th</sup>	0.00	0.00 %	0.00	0.00 %	0.00	0.00 %	≤ 0.375 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
21 <sup>th</sup>	0.00	0.00 %	0.01	0.05 %	0.01	0.05 %	≤ 1.5 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
22 <sup>th</sup>	0.00	0.00 %	0.00	0.00 %	0.00	0.00 %	≤ 0.375 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
23 <sup>th</sup>	0.01	0.05 %	0.02	0.09 %	0.03	0.14 %	≤ 0.6 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
24 <sup>th</sup>	0.00	0.00 %	0.00	0.00 %	0.00	0.00 %	≤ 0.15 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
25 <sup>th</sup>	0.01	0.05 %	0.01	0.05 %	0.03	0.14 %	≤ 0.6 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
26 <sup>th</sup>	0.00	0.00 %	0.00	0.00 %	0.00	0.00 %	≤ 0.15 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
27 <sup>th</sup>	0.00	0.00 %	0.00	0.00 %	0.00	0.00 %	≤ 0.6 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
28 <sup>th</sup>	0.00	0.00 %	0.00	0.00 %	0.00	0.00 %	≤ 0.15 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
29 <sup>th</sup>	0.01	0.05 %	0.01	0.05 %	0.02	0.09 %	≤ 1 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
30 <sup>th</sup>	0.00	0.00 %	0.00	0.00 %	0.00	0.00 %	≤ 4 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
31 <sup>th</sup>	0.00	0.00 %	0.01	0.05 %	0.02	0.09 %	≤ 1 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

Order	33 % of output current		66% of output current		100 % of output current		Limit ( % of Output current)	Result confirmation
	Measured In Amp*	% of output current*	Measured In Amp*	% of output current*	Measured In Amp*	% of output current*		
32 <sup>th</sup>	0.00	0.00 %	0.00	0.00 %	0.00	0.00 %	≤ 0.15 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
33 <sup>th</sup>	0.00	0.00 %	0.00	0.00 %	0.00	0.00 %	≤ 0.6 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
34 <sup>th</sup>	0.00	0.00 %	0.00	0.00 %	0.00	0.00 %	≤ 0.15 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
35 <sup>th</sup>	0.01	0.05 %	0.01	0.05 %	0.02	0.09 %	≤ 0.3 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
36 <sup>th</sup>	0.00	0.00 %	0.00	0.00 %	0.00	0.00 %	≤ 0.075 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
37 <sup>th</sup>	0.00	0.00 %	0.00	0.00 %	0.02	0.09 %	≤ 0.3 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
38 <sup>th</sup>	0.00	0.00 %	0.00	0.00 %	0.00	0.00 %	≤ 0.075 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
39 <sup>th</sup>	0.00	0.00 %	0.00	0.00 %	0.01	0.05 %	≤ 0.3 %	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
40 <sup>th</sup>	0.00	0.00 %	0.00	0.00 %	0.00	0.00 %	≤ 0.075%	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
TRDi		1.39 %		2.98 %		3.46 %	≤ 5%	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail

อ้างอิงจากรายงานผลการทดสอบตามข้อ 1.2 หน้า: TÜV Rheinland's Report No: CN21EDK2 001., Page 9– 15,

หมายเหตุ: \* กรณีอินเวอร์เตอร์ชนิด 3 เฟส ให้ระบุค่าสูงสุดที่ได้จากแต่ละเฟส

## 2.2 การทดสอบแรงดันกระเพื่อม (Voltage Fluctuation)

	Pst	Pit
Limit	≤ 1.0	≤ 0.65
Test results	0.30	0.15
Result confirmation	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail

อ้างอิงจากรายงานผลการทดสอบตามข้อ 1.2 หน้า: TÜV Rheinland's Report No: CN21EDK2 001., Page 16-17

## 2.3 การทดสอบการจ่ายไฟฟ้ากระแสตรง (Direct Current)

Test level	33 % of rated output current	66 % of rated output current	100 % of rated output current
Limit (% of rated Output current)	≤ 0.5%	≤ 0.5%	≤ 0.5%
Test results* (% of rate Output current)	0.033 %	0.037 %	0.026 %
Result confirmation	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail

อ้างอิงจากรายงานผลการทดสอบตามข้อ 1.2 หน้า: TÜV Rheinland's Report No: CN21EDK2 001., Page 18. and 196.

หมายเหตุ: \* กรณีอินเวอร์เตอร์ชนิด 3 เฟส ให้ระบุค่าสูงสุดที่ได้แต่ละเฟส

หมายเลขอ้างอิง.....

ตรวจสอบและรับรองข้อมูลโดย.....



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

2.4 การทดสอบช่วงความถี่ทำงาน (Operating Frequency Range)						
	Actual Trip Setting		Test Result	Limit	Result confirmation	
	Frequency (Hz)	Trip Time (sec)	Trip Time* (sec)	Time Delay (sec)		
Underfrequency	46.9	0.070	0.096	≤ 0.1	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
Overfrequency	52.1	0.070	0.093	≤ 0.1	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
อ้างอิงจากรายงานผลการทดสอบตามข้อ 1.2 หน้า: TÜV Rheinland's Report No: CN21EDK2 001., Page 21 and 111-120.						
หมายเหตุ: * ให้ระบุค่าสูงสุดที่ได้จากการทดสอบ						
2.5 การทดสอบช่วงแรงดันการทำงาน (Operating Voltage Range)						
<input checked="" type="checkbox"/> Grid-connected inverter which connected to grid at low voltage (230/400) <sup>(1)</sup>						
	Actual Setting		Result	Limit	Result confirmation	
	<input checked="" type="checkbox"/> VL-N setting <sup>(2)</sup> (V)	<input type="checkbox"/> VL-L setting <sup>(2)</sup> (V)	Time Delay (sec)	Time Delay <sup>(3)</sup> (sec)		
Undervoltage level 2 <sup>(4)</sup>	<input checked="" type="checkbox"/> 114 or <input type="checkbox"/> .....	<input type="checkbox"/> 198 or <input type="checkbox"/> .....	0.090	0.092	≤ 0.1	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
Undervoltage level 1	199	345	1.900	1.942	≤ 2	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
Overvoltage level 1	241	417	1.900	1.980	≤ 2	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
Overvoltage level 2 <sup>(4)</sup>	<input type="checkbox"/> 311 or <input checked="" type="checkbox"/> 271	<input type="checkbox"/> 539 or <input type="checkbox"/> .....	0.040	0.049	≤ 0.05	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
<input type="checkbox"/> Grid-connected inverter which connected to the grid at voltage ≥ 12kV <sup>(1)</sup>						
	Actual Setting		Result	Limit	Result confirmation	
	V setting (% of rate output voltage)		Time Delay (sec)	Time Delay <sup>(3)</sup> (sec)		
Undervoltage level 2 <sup>(4)</sup>	<input type="checkbox"/> 135% or <input type="checkbox"/> .....				≤ 0.1	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
Undervoltage level 1	110%				≤ 2	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
Overvoltage level 1	85%				≤ 2	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
Overvoltage level 2 <sup>(4)</sup>	<input type="checkbox"/> 50% or <input type="checkbox"/> .....				≤ 0.05	<input type="checkbox"/> Pass <input type="checkbox"/> Fail
อ้างอิงจากรายงานผลการทดสอบตามข้อ 1.2 หน้า: TÜV Rheinland's Report No: CN21EDK2 001., Page 19-20 and Page 31-110.						
<b>Note:</b> (1) Select MEA's voltage level where grid - connected inverter connected to.						
(2) Select between line-neutral or line - line voltage test based on the actual operation of inverter.						
(3) Insert maximum value recorded during test.						
(4) If inverter cannot be adjusted for overvoltage and/or undervoltage trip setting as per MEA' grid - connected Inverter regulation, it shall be adjusted the overvoltage or undervoltage trip setting to the maximum and/or minimum voltage that inverter can to be set.						

หมายเลขอ้างอิง.....

ตรวจสอบและรับรองข้อมูลโดย.....



# Compliance Evaluation Report

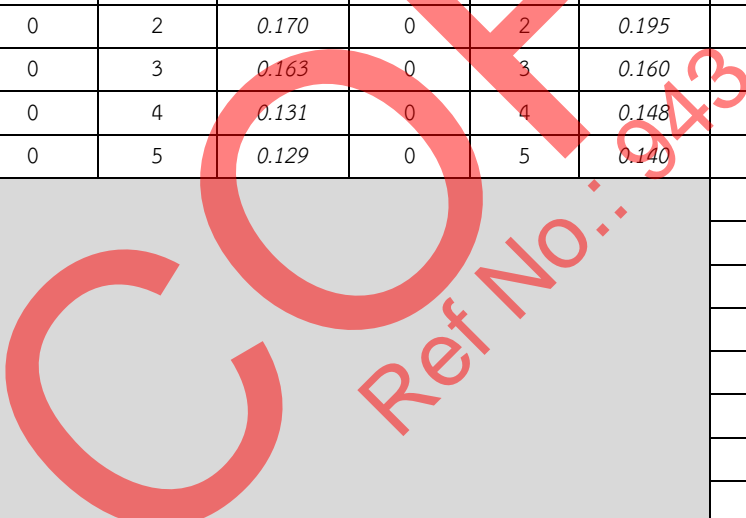


หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

2.6 การทดสอบการป้องกันสภาวะไอส์แลนด์ (Islanding Protection)									
Item	Test Condition C			Test Condition B			Test Condition A		
	P <sub>AC</sub> (% of nominal)	Q <sub>AC</sub> (% of nominal)	Run on Time ( sec ) (Limit ≤2 Sec )	P <sub>AC</sub> (% of nominal)	Q <sub>AC</sub> (% of nominal)	Run on Time ( sec ) (Limit ≤2 Sec )	P <sub>AC</sub> (% of nominal)	Q <sub>AC</sub> (% of nominal)	Run on Time ( sec ) (Limit ≤2 Sec )
1	0	0	0.256	0	0	0.321	0	0	0.256
2	0	-5	0.121	0	-5	0.124	-10	-10	0.111
3	0	-4	0.143	0	-4	0.141	-10	-5	0.109
4	0	-3	0.154	0	-3	0.156	-10	0	0.107
5	0	-2	0.229	0	-2	0.180	-10	+5	0.104
6	0	-1	0.251	0	-1	0.237	-10	+10	0.103
7	0	1	0.237	0	1	0.230	-5	-10	0.113
8	0	2	0.170	0	2	0.195	-5	-5	0.205
9	0	3	0.163	0	3	0.160	-5	0	0.197
10	0	4	0.131	0	4	0.148	-5	+5	0.140
11	0	5	0.129	0	5	0.140	-5	+10	0.112
12							0	-10	0.112
13							0	-5	0.230
14							0	+5	0.237
15							0	+10	0.115
16							+5	-10	0.105
17							+5	-5	0.121
18							+5	0	0.156
19							+5	+5	0.208
20							+5	+10	0.108
21							+10	-10	0.080
22							+10	-5	0.084
23							+10	0	0.091
24							+10	+5	0.093
25							+10	+10	0.102
Result confirmation	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail			<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail			<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail		

อ้างอิงจากรายงานผลการทดสอบตามข้อ 1.2 หน้า: TÜV Rheinland's Report No: CN21EDK2 001., Page 22-28. and Page 121-176.

หมายเลขอ้างอิง.....

ตรวจสอบและรับรองข้อมูลโดย.....



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

2.7 การทดสอบการเชื่อมต่อหลังไฟฟ้ากลับคืน (Power Recovery Response)					
	Actual Setting (sec)	Test Result (sec) (Limit $\geq 120$ )	Compliance with Clause 5.10.2(c) of IEEE std 1547.1-2005 <sup>(1)</sup>	Compliance with Clause 5.10.2(g) of IEEE std 1547.1-2005 <sup>(2)</sup>	Result confirmation
Underfrequency	120	124.95	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
Overfrequency	120	125.55	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
Undervoltage level 2	120	121.20	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
Undervoltage level 1	120	120.75	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
Overvoltage level 1	120	121.05	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
Overvoltage level 2	120	124.80	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
อ้างอิงจากรายงานผลการทดสอบตามข้อ 1.2 หน้า: TÜV Rheinland's Report No: CN21EDK2 001., Page 29 and Page 177-194.					
<p><b>Note:</b> <sup>(1)</sup> Adjust the voltage so that it beyond the reconnect voltage by twice the manufacture's stated tolerance. The Simulated area EPS voltage source shall maintain the abnormal voltage for two times the reconnect time delay. Verify that the EUT does not reenergize the simulated area EPS.</p> <p><sup>(2)</sup> To verify that the timer resets for additional voltage excursions within the reconnect, retest with an abnormal voltage step change event that is introduced during the reconnect countdown period. While the unit is counting down to reconnect, step to voltage to a value 5% outside of the manufacture's specified normal operating voltage for the trip time setting plus twice the manufacturer's stated timer accuracy, and then return to the normal operating voltage. The unit shall restart is reconnect timer and not reconnect until the grid voltage has been within the specified range for the specified reconnect time.</p>					
2.8 การตรวจสอบสถาบันหรือหน่วยงานที่ออกรายงานผลการทดสอบอินเวอร์เตอร์					
รายละเอียด					Result confirmation
<input type="checkbox"/> อินเวอร์เตอร์ผ่านการทดสอบจากสถาบันหรือหน่วยงานทดสอบที่เป็นกลางภายในประเทศ ซึ่งได้รับการรับรองห้องปฏิบัติการทดสอบตามมาตรฐาน มอก. 17025 (สำหรับอินเวอร์เตอร์) จากสำนักงานคณะกรรมการแห่งชาติว่าด้วยการรับรองระบบงาน หรือได้รับการตรวจสอบและยอมรับจากการไฟฟ้านครหลวง					<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
<input checked="" type="checkbox"/> อินเวอร์เตอร์ผ่านการทดสอบจากสถาบันหรือหน่วยงานทดสอบที่เป็นกลางในต่างประเทศ ซึ่งได้รับการรับรองห้องปฏิบัติการทดสอบตามมาตรฐาน ISO/IEC 17025 (สำหรับอินเวอร์เตอร์) จากหน่วยงานระดับชาติที่มีหน้าที่เทียบเคียงกันกับ สำนักงานคณะกรรมการแห่งชาติว่าด้วยการรับรองระบบงาน และอยู่ในทะเบียนขององค์การความร่วมมือระหว่างประเทศว่าด้วยการ รับรองห้องปฏิบัติการ (International Laboratory Accreditation Cooperation, ILAC)					

หมายเลขอ้างอิง.....

ตรวจสอบและรับรองข้อมูลโดย.....



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ก1. List of documents from TÜV Rheinland (Shanghai) Co., Ltd.

TÜV Rheinland (Shanghai) Co., Ltd.  
Member of TÜV Rheinland Group



Dear Whom it may concerns ,

For compliance test report evaluation, we herewith submit following documentations to CSSC:

- 1. Technical specification of product : Manual.pdf
- 2. Test report: CN21EDK2 001.pdf
- 3. Laboratory accreditation: CNAS L3038 certificate-EN.pdf
- 4. Table of compliance: Comply table.pdf
- 5. Documentation list: Confirmation letter.pdf

We appreciate your valued support and would like to offer any help and varied services in the future.

With kind regards,

TÜV Rheinland (Shanghai) Co., Ltd.

Allen Hu  
Project Engineer  
Solar & Commercial Products

Allen Hu

Ref No.: 943

TUV Rheinland (Shanghai) Co., Ltd.  
莱茵技术(上海)有限公司

10-15/F, Huateng Building,  
No. 88, Lane 777,  
West Guangzhong Road,  
200072 Shanghai, P. R. China

上海市广中西路 777 弄 88 号  
10-15 层  
邮编: 200072

Tel.: (+86) 21-61061188  
Fax: (+86) 21-61061199  
E-mail: info@sh.chn.tuv.com  
Website: www.chn.tuv.com

QMA30.195.115HG.7.1 Form of Notification of Test Result (Documentation incomplete)/ Revision date: 200605-14





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ก2. MEA Grid Code Compliance Table.



SolaX Power Network Technology (ZheJiang) Co., Ltd.

MEA Grid code compliance table

Item	Description	MEA requirement	Test results /Comment	Refer to Test report (or document) page	Complied/ Does not comply
1	Harmonics	Refer to MEA code	Total harmonic distortion %TRD (max) = 3.32% Current harmonics are in the limit according to MEA code.	Refer to the name plate of product in report CN21EDK2 001 / Page 9-11.	Complied
2	Voltage fluctuation	Refer to IEC	Pst value: Pst(max) = 0.30 Pth value: Pth(max) = 0.15	Refer to Test report CN21EDK2 001 / Page 12-13.	Complied
3	DC injection	Refer to IEC	DC injection value (max) 0.037 % of rated current	Refer to Test report CN21EDK2 001 / Page 14 and 192.	Complied
9	Under and Over frequency protection	Disconnect time of MEA requirement $f < 47 \text{ Hz} = 0.1 \text{ Sec}$ $f > 52 \text{ Hz} = 0.1 \text{ Sec}$	Under and Over frequency trip time value (max): $f < 47 \text{ Hz} = 0.096 \text{ Sec}$ $f > 52 \text{ Hz} = 0.093 \text{ Sec}$	Refer to Test report CN21EDK2 001 / Page 17 and 107-116.	Complied
8	Under and Over voltage protection	Disconnect time of MEA requirement $V < 114V = 0.1 \text{ Sec}$	Under and Over voltage trip time value (max): $V < 114V = 0.092 \text{ Sec}$ $V < 199V = 1.942 \text{ Sec}$	Refer to Test report CN21EDK2 001 / Page 15-16 and 27-106.	Complied



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ก2. MEA Grid Code Compliance Table (ต่อ).

		$V < 199V = 2 \text{ Sec}$ $V > 241V = 2 \text{ Sec}$ $V > 271V = 0.05 \text{ Sec}$	$V \geq 241V = 1.941 \text{ Sec}$ $V > 271V = 0.0480 \text{ Sec}$		
10	Anti-Islanding	Disconnect time of IEC 62116 requirement = 2 Sec Max	Trip time value (max): $P_{\text{EU}}100\%, P_{\text{R}}0\%, Q_{\text{C}}0\% = 0.256 \text{ Sec}$ $P_{\text{EU}}66\%, P_{\text{R}}0\%, Q_{\text{C}}0\% = 0.321 \text{ Sec}$ $P_{\text{EU}}33\%, P_{\text{R}}0\%, Q_{\text{C}}0\% = 0.256 \text{ Sec}$	Refer to Test report CN21EDK2 001 / Page 18-24 and 117-172.	Complied
11	Reconnection to utility recovery	Reconnection time of MEA requirement > 120s	Reconnection time value: After back to specified recovery voltage range $V = 200V = 123.30 \text{ Sec}$ $V = 240V = 125.40 \text{ Sec}$ After back to specified frequency voltage range $f = 47.0\text{Hz} = 124.95 \text{ Sec}$ $f = 52.0\text{Hz} = 125.55 \text{ Sec}$	Refer to Test report CN21EDK2 001 / Page 25-26 and 173-190.	Complied

Ref No.: 943 Allen Hu



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification.



**SolaX Power Network Technology (Zhejiang) Co., Ltd.**  
 ADD: No. 288 Shizhu Road, Tonglu Economic Development Zone,  
 Tonglu City, Zhejiang Province, China.  
 Tel: + 0571-5626 0011  
 E-mail: info@solaxpower.com



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

Contents

<b>1 Note on this Manual</b>	<b>03</b>
1.1 Scope of Validity	03
1.2 Target Group	03
1.3 Symbols Used	03
1.3.1 Important Safety Instructions	04
1.3.2 Explanation of Symbols	09
1.3.3 CE Directives	10
<b>2 Introduction</b>	<b>11</b>
2.1 Basic Features	11
2.2 Electrical Block Diagram of The System	11
2.3 Work Modes	14
2.4 Dimension	15
2.5 Terminals of Inverter	16
<b>3 Technical Data</b>	<b>17</b>
3.1 DC Input	17
3.2 AC Output/Input	17
3.3 Battery	18
3.4 EPS(Off-grid) Output	18
3.5 Efficiency, Safety and Protection	19
3.6 General Data	19
<b>4 Installation</b>	<b>20</b>
4.1 Check for Transport Damage	20
4.2 Packing List	20
4.3 Installation Precautions	22
4.4 Tool Preparation	23
4.5 Installation Site Conditions	25
4.5.1 Installation Carrier Requirements	25
4.5.2 Installation Requirements	25
4.5.3 Installation Space Requirements	26
4.6 Mounting	27

01



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

Contents

Notes on this Manual

5 Electrical Connections.....	30
5.1 PV Connection.....	30
5.2 Grid Port and EPS(Off-grid) Output Connection.....	34
5.3 EPS(Off-grid) Block Diagram.....	35
5.4 Battery Connection.....	44
5.5 Communication Connection.....	48
5.5.1 Introduction to DRM Communication.....	48
5.5.2 Introduction to Meter/CT Communication.....	49
5.5.3 COM Communication.....	52
5.5.4 Communication Connection Steps.....	54
5.6 Grounding (mandatory).....	63
5.7 Monitoring Connection.....	66
5.8 Check All Below Steps Before Starting Inverter.....	68
5.9 Inverter Operation.....	69
6 Firmware upgrading.....	71
7 Setting.....	75
7.1 Control Panel.....	75
7.2 Menu Structure.....	76
7.3 LCD Operation.....	77
8 Troubleshooting.....	103
8.1 Trouble Shooting.....	103
8.2 Routine Maintenance.....	109
9 Decommissioning.....	110
9.1 Disassemble the Inverter.....	110
9.2 Packaging.....	110
9.3 Storage and Transportation.....	110
9.4 Waste Disposal.....	110
10 Disclaimer.....	111

## 1 Notes on this Manual

### 1.1 Scope of Validity

This manual is an integral part of X3-Hybrid G4. It describes the assembly, installation, commissioning, maintenance and failure of the product. Please read it carefully before operating.

X3-Hybrid-5.0	X3-Hybrid-10.0
X3-Hybrid-6.0	X3-Hybrid-12.0
X3-Hybrid-8.0	X3-Hybrid-15.0

Note: "X3-Hybrid G4" Series refers to the energy storage inverter that supports photovoltaic grid-connected.

"5.0" means 5.0kW.

"D" version contains "DC switch", "M" version can be connected to X3-Matebox, X3-Matebox has built-in DC switch, BAT circuit breaker, AC and EPS(Off-grid) circuit breaker, which can reduce the cost of accessories for customers. And pre-installed wiring cables and equipment can get rid of complex wiring work. Keep this manual available at any time.

### 1.2 Target Group

This manual is for qualified electricians. The tasks described in this manual only can be performed by qualified electricians.

### 1.3 Symbols Used

The types of safety instructions and general information appear in this document are as described below:

	<b>Danger!</b> "Danger" refers to a dangerous situation that, if not avoided, will result in a high level of risks such as serious injury or even death.
	<b>Warning!</b> "Warning" indicates a dangerous situation, which, if not avoided, may result in serious injury or death.
	<b>Caution!</b> "Caution" indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
	<b>Note!</b> "Note" provides tips that are valuable for the optimal operation of our product.

02

03





หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

Safety

### 1.3.1 Important Safety Instructions

**Danger!**  
**Danger to life due to high voltages in the inverter!**  
The personnel responsible for the installation, electrical connection, debugging, maintenance and fault handling operation of this product need to be trained, master the correct operation method, have the corresponding electrician qualification and safety operation knowledge.

**Caution!**  
When the inverter is working, it is strictly forbidden to touch the shell. The temperature of the shell is high and there is a risk of scalding.

**Caution!**  
**Radiation may be harmful to health!**  
Do not stay for a long time and keep at least 20 cm away from the inverter.

**Note!**  
**Ground PV system.**  
Finish PV modules and photovoltaic system grounding in accordance with local requirements to achieve optimal protection of systems and personnel.

**Warning!**  
Ensure that the input DC voltage is below the inverter limit. Excessive DC voltage and current may cause permanent damage or other losses to the inverter, which is not covered by the warranty.

**Warning!**  
Before performing maintenance, cleaning or operation on the circuit connected to the inverter, authorized maintenance personnel must first disconnect the AC and DC power supplies of the inverter.

04

Safety

**Warning!**  
The inverter can not be operated when it is running.

**Warning!**  
Risk of electric shock!

Strictly follow relevant safety specifications for product installation and testing. During installation, operation or maintenance, please read carefully and follow the instructions and precautions on the inverter or user manual. If the operation is incorrect, it may cause personal and property losses. Please keep the user manual properly after use.

This inverter can only use the accessories sold and recommended by SolaX, otherwise it may cause fire, electric shock or casualties. Without the authorization of our company, you may not open the inverter cover or replace the inverter parts, otherwise the warranty promise of the inverter will be invalid.

The use and operation of the inverter must be carried out in accordance with the instructions in this manual, otherwise this protection will fail and the warranty of the inverter will also fail. During working, the inverter surface temperature may exceed 60°C, please make sure the inverter cools down before touching, and make sure children can not touch.

When exposed to sunlight, photovoltaic arrays generate dangerous high DC voltages. Please follow our instructions, otherwise it will be life-threatening.

All DC and AC power sources must be disconnected from the inverter for at least 5 minutes before any wiring or electrical operation is performed on the inverter to ensure complete isolation of the inverter and avoid electric shock.

05





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

Safety

Safety

A photovoltaic module used on the inverter must have a IEC61730A rating, and the total open circuit voltage of the photovoltaic string / array is lower than the maximum rated DC input voltage of the inverter. Any damage caused by photovoltaic over voltage is not covered by warranty.

Installation position should be away from wet environment and corrosive substances.

After the inverter and power grid cut off the PV power supply, there will be a certain amount of residual current in a short time, be cautious or it may lead to serious personal injury and even high risk of death. Use a multimeter (impedance at least 1 MΩ) to measure the voltage between the UDC and the UDC- to ensure that the inverter port is discharged below the safe voltage before starting operation (35VDC).

#### > Surge protection devices (SPDs) for PV installation

**Warning!**

Over-voltage protection with surge arresters should be provided when the PV power system is installed. The grid connected inverter is fitted with SPDs in both PV input side and MAINS side.

Direct or indirect lightning strikes can cause failures. Surge is the main cause of lightning damage to most devices. Surge voltage may occur at photovoltaic input or AC output, especially in remote mountain areas where long distance cable is supplied.

Please consult professionals before installing SPDs.

The external lightning protection device can reduce the influence of direct lightning strike, and the lightning protection device can release surge current to the earth.

06

If the building installed with external light protection device is far away from the inverter location, in order to protect the inverter from electrical and mechanical damage, the inverter should also install an external lightning protection equipment.

In order to protect DC system, two-stage surge protection equipment is needed between DC cable of inverter and photovoltaic equipment module.

In order to protect the AC system, the level 2 surge protection equipment should be installed at the AC output, located between the inverter and the grid. Installation requirements must comply with IEC61643-21 standard.

All DC cables shall be installed in a distance as short as possible, and the positive and negative cables of the same input need to be bundled together to avoid causing loops in the system. Minimum distance installation and binding requirements also apply to auxiliary grounding and shielding grounding conductors.

#### > Anti-islanding Effect

The islanding effect means that when the power grid is cut off, the grid-connected power generation system fails to detect the power outage and still supplies power to the power grid. This is very dangerous for the maintenance personnel and the power grid on the transmission line.

XI-Hybrid G4 series inverter use active frequency offset method to prevent islanding effect.

#### > PE Connection and Leakage Current

All inverter's incorporate a certified internal Residual Current Monitoring (RCM) to protect against possible electrocution and fire hazard in case of malfunction in the PV array, cables or inverter.

The standard trip thresholds for the RCM as required for certification (IEC 62109-2:2011).

The default value for electrocution protection is 30mA, and for slow rising current is 300mA.

The inverter, with built-in RCM, will exclude possibility of DC residual current to 6mA, thus in the system an external RCD (type A) can be used ( $\geq 30mA$ ).

07



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

**Warning!**  
High leakage current  
Earth connection essential before connecting supply.

- A faulty ground connection can result in equipment failure, personal and death injuries, and electrocution.
- Ensure correct according to grounding to IEC62109 and conductor diameter according to STANDARD specification.
- Do not connect the grounding end of the equipment in series to prevent multi-point grounding.
- Electrical appliances must be installed in accordance with the wiring rules of each country.

For United Kingdom:  
 • The installation that connects the equipment to the supply terminals shall comply with the requirements of BS 7671.  
 • Electrical installation of PV system shall comply with requirements of BS 7671 and IEC 60364-7-712.  
 • All protective devices cannot be changed.  
 • User shall ensure that equipment has installed, designed and operated to maintain at all times compliance with the requirements of BS/EN/IEC/UL.

**Battery Safety Instructions**  
 Solex HD Hybrid G4 Series Inverter should pair with high voltage battery. For the specific parameters such as battery type, nominal voltage and nominal capacity etc., please refer to section 5.3.  
 Please refer to the existing battery specification for details.

**1.3.2 Explanation of Symbols**  
 This section gives an explanation of all the symbols shown on the inverter and on the type label.

**• Symbols on the inverter**

Symbol	Explanation
	Operating Display
	Battery status
	An error has occurred, please inform your installer immediately

**• Symbols on the Type Label**

Symbol	Explanation
	CE mark: The inverter complies with the requirements of the applicable CE guidelines.
	TUV certified
	RCM mark.
	SAA certification.
	Beware of hot surface: The inverter can become hot during operation. Avoid contact during operation.
	Danger of high voltages: Danger to life due to high voltages in the inverter.
	Danger: Risk of electric shock.
	Observe enclosed documentation.
	The inverter can not be disposed together with the household waste. Detailed information can be found in the enclosed documentation.

COPY Ref No. 043



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

Installation

Do not operate this inverter until it is isolated from battery, mains and on-site PV generation supplies.

**Danger to life due to high voltage.**  
There is residual voltage existing in the inverter after powering off, which needs 5 min to discharge.  
-Wait 5 min before you open the upper lid or the DC lid.

### 1.3.3 CE Directives

This chapter describes the requirements of the European low voltage regulations, including safety instructions and system & cabling conditions, the user must comply with these regulations when installing, operating, and maintaining the inverter, otherwise it will cause personal injury or death, and the inverter will cause damage.

Please read the manual carefully when operating the inverter. If you do not understand "danger", "warning", "caution" and the description in the manual, please contact the manufacturer or service agent before installing and operating the inverter.

Grid-connected inverter comply with low voltage directive (LVD) 2014/35/EU and Electromagnetic compatibility directive (EMC) 2014/30/EU. Detection of components is based on:  
EN 62109-1:2010;  
EN 62109-2:2011;  
IEC 62109-1(int.1);  
IEC62109-2(int.1);  
EN 61000-6-3:2007+A:2011;  
EN 61000-6-1:2007;  
EN 61000-6-2:2005;

For installation in photovoltaic module system, it is necessary to make sure that the whole system complies with the requirements of EC(2014/35/EU, 2014/30/EU), etc.) before starting the module (i.e. to start the operation). The assembly shall be installed in accordance with the statutory wiring rules. Install and configure the system in accordance with safety rules, including the use of specified wiring methods. The installation of the system can only be done by professional assemblers who are familiar with safety requirements and EMC. The assembler shall ensure that the system complies with the relevant national laws.

The individual sub-assembly of the system shall be interconnected by means of the wiring methods outlined in national/international such as the national electric code (NEC) No. 70 or VDE regulation (VDE).

10

Introduction

## 2 Introduction

### 2.1 Basic Features

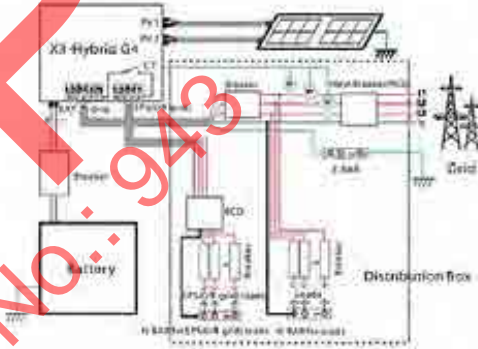
X3-Hybrid G4 series is a high-quality inverter that can convert solar energy into alternating current and store energy into batteries. The inverter can be used to optimize self-consumption, stored in batteries for future use or feed into the public grid. The way it works depends on user preferences. It can provide emergency power during power outages.

### 2.2 Electrical Block Diagram of The System

X3-Hybrid G4 series has two wiring schemes, one is for M version inverter connected to X3-Matobox, and the other is for D version inverter.

There are offered 2 ways of wiring in different countries, one is to connect N line with PE line, the other is to separate the line from the PE line wiring, see below.

Diagram A: N line and PE line separate wiring, D version inverter; (For most countries)



11



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

Introduction

Diagram B: N line and PE line separate wiring, M version inverter; (For most countries)

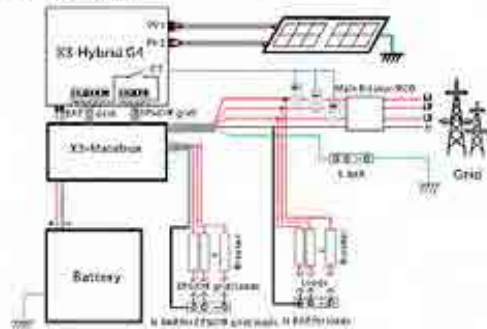


Diagram D: N line and PE line together, M version inverter; (Applicable to Australia)

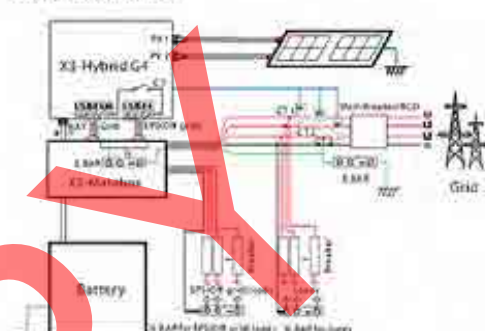
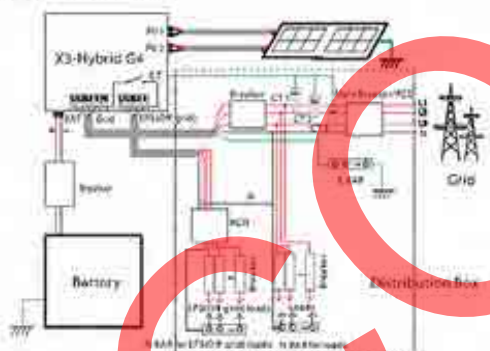


Diagram C: N line and PE line together, D version inverter; (Applicable to Australia)



Note!  
The RCD on the figure represents a leakage protection device with a circuit breaker function.

When power cuts suddenly, the inverter connects the N line of EPS (Off-grid) load with the ground through relay, providing a safe zero potential for EPS (Off-grid) load and ensuring the safety of electricity use by users.

Please control the inverter load and make sure it is "output value" in "within" EPS (Off-grid) mode, otherwise the inverter will stop and alarm "overload" fault!

Please confirm with the grid operator whether there are special regulations for grid connection.





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

Introduction

Introduction

## 2.3 Work Modes

2.3.1 Hybrid ESS system can be based on different models, there are a variety of models.

### Self Use

The self-use mode is suitable for cases with low load and high self-consumption.



### Feed-in priority

The feed-in priority mode is suitable for cases with high load and high self-consumption.



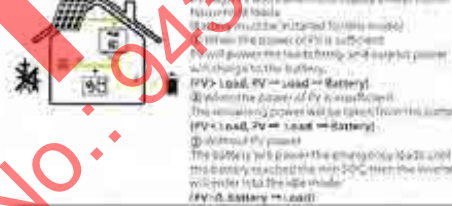
### Backup mode

The backup mode is suitable for cases with low load and high self-consumption.



### EPS (Off-grid) mode

The EPS is used when the power grid is off.



When the state of grid connection is working, the system will work normally when the battery SOC is 10% after the battery charge rate is about 90%. The PV will not charge the battery, 10% and the inverter will be working mode selected by the user.



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

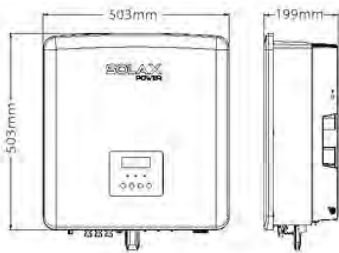
(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

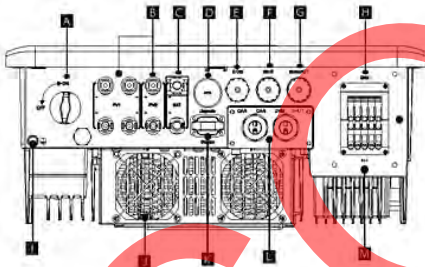
Introduction

Technical Data

## 2.4 Dimension



## 2.5 Terminals of Inverter



Object	Description
A	DC switch
B	PV connection port
C	Battery connection port
D	USB port for upgrading
E	Ethernet port
F	Battery communication
G	Meter/CT Port
H	Grid connection port
I	Ground connection port
J	Fans (only for X3-Hybrid-12.0 and X3-Hybrid-15.0)
K	External monitoring connection port
L	CAN are reserved ports / SHUT is a reserved port / DPM Port (only for Australia)
M	EPS (Off-grid) Output (main load connection port)

**Warning!**  
Qualified electrician required for the installation.

## 3 Technical Data

### 3.1 DC Input

Model	X3-Hybrid-3.0	X3-Hybrid-4.0	X3-Hybrid-5.0	X3-Hybrid-6.0	X3-Hybrid-7.0	X3-Hybrid-12.0	X3-Hybrid-15.0
Max recommended PV power [W]	A:4000/B:4000	A:5000/B:5000	A:7000/B:5000	A:9000/B:6000	A:11000/B:7000	A:11000/B:7000	A:11000/B:7000
Max DC voltage [V]	1000	1000	1000	1000	1000	1000	1000
Nominal PV operating voltage [V]	540	540	540	540	540	540	540
Operating voltage typical [V]	180-950	180-950	180-950	180-950	180-950	180-950	180-950
Max input current [A]	14/14	14/14	21/14	21/14	25/14	25/14	25/14
Max input circuit current [A]	15/15	15/15	30/15	30/15	30/15	30/15	30/15
Max Output Voltage [V]	200	200	200	200	200	200	200
No. of MP trackers	2	2	2	2	3	3	2
Strings per MP tracker	A:1/B:1	A:1/B:1	A:2/B:1	A:2/B:1	A:2/B:1	A:2/B:1	A:2/B:1





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

Technical Data

Technical Data

### 3.2 AC Output/Input

Model	01 Hybrid 5.5	01 Hybrid 6.5	01 Hybrid 8.5	01 Hybrid 10.5	01 Hybrid 12.5	01 Hybrid 15.5
AC Output						
Nominal AC power [W]	3000	6000	8000	10000	12000	15000(PMA 1400W)
Max. apparent AC power [VA]	5500	6600	8800	11000	13200	16000
Rated AC voltage [V]	415/240, 400/230, 380/220					
Rated grid frequency [Hz]	50/60					
Max. AC current [A]	8.1	9.7	12.9	16.1	19.3	24.1
Displacement power factor	1 (0PF leading, 0PF lagging)					
Total harmonic distortion(THD)	< 3%					
AC Input						
Rated AC power [W]	10000	12000	16000	20000	20000	20000
Rated grid voltage range [V]	415/240/400/230/380/220					
Rated grid frequency [Hz]	50/60					
Max AC current [A]	16.1	19.3	25.8	32.9	32.9	32.9

### 3.3 Battery

Model	01 Hybrid 5.5	01 Hybrid 6.5	01 Hybrid 8.5	01 Hybrid 10.5	01 Hybrid 12.5	01 Hybrid 15.5
Battery type	Lithium-Batteries					
Battery Full Voltage [V]	180-630					
Maximum charge/discharge flow [A]	30A					
Communication interface	CAN/RS485					
Reverse connection protection	Yes					

### 3.4 EPS(Off-grid) Output

Model	01 Hybrid 5.5	01 Hybrid 6.5	01 Hybrid 8.5	01 Hybrid 10.5	01 Hybrid 12.5	01 Hybrid 15.5
EPS Off-grid rated power [W]	3000	6000	8000	10000	12000	15000
EPS Off-grid rated voltage [V]	400/230/240VAC					
Frequency [Hz]	50/60					
EPS Off-grid rated current [A]	7.2	8.7	11.6	14.5	17.5	21.9
EPS Off-grid Peak Power [W]	7000,601	9000,605	12000,605	15000,605	18000,605	16500,605
Switching time [s]	<10ms					
Total harmonic distortion (THD)	<3%					

### 3.5 Efficiency, Safety and Protection

Model	01 Hybrid 5.5	01 Hybrid 6.5	01 Hybrid 8.5	01 Hybrid 10.5	01 Hybrid 12.5	01 Hybrid 15.5
MPPT efficiency	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%
European efficiency	97.7%	97.7%	97.7%	97.7%	97.7%	97.7%
Maximum efficiency	98.2%	98.2%	98.2%	98.2%	98.2%	98.2%
Max. battery charge efficiency (PV to BATT) full load	98.5%	98.5%	98.5%	98.5%	98.5%	98.5%
Max battery discharge efficiency (BATT to AC) full load	97.5%	97.5%	97.5%	97.5%	97.5%	97.5%
Security & Protection	Integrated Type II					
DC SPD Protection	Integrated Type II					
AC SPD Protection	Integrated Type II					
Over/under-voltage protection	Yes					
Grid protection	Yes					
DC shutdown monitoring	Yes					
Back feed current monitoring	Yes					
Residual current detection	Yes					
Anti-islanding protection	Yes					
Over load protection	Yes					
Over heat protection	Yes					
Aray monitor or resistance detection	Yes					

### 3.6 Generic Data

Model	01 Hybrid 5.5	01 Hybrid 6.5	01 Hybrid 8.5	01 Hybrid 10.5	01 Hybrid 12.5	01 Hybrid 15.5
Dimensions (WxDxH) [mm]	507*507*199					
Dimensions of Packing (WxDxH) [mm]	560*620*232					
Net weight [kg]	30	30	30	30	30	30
Gross weight [kg]	34	34	34	34	34	34
Heat dissipation treatment	Natural Cooling / Forced airflow					
Noise emission (typical) [dB]	<45					
Storage temperature range [°C]	-40~+70					
Operating temperature range [°C]	-35~+60 (storing at 45)					
Humidity [%]	0%~100%					
Max. wind speed [m/s]	<3000					
IP Protection	IP65					
Protection Class	I					
Grid standby consumption	<0W					
Over voltage category	III/300V, 60V, Battery					
Pollution Degree	II					
Installation Mode	Wall mounted					
Inverter Topology	Non-isolated					
Communication interface	Master/CT, external control (RS485, RS485, RS485, RS485, RS485, RS485)					

18

19



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

Installation

Installation

### 4 Installation

#### 4.1 Check for Transport Damage

Ensure that the inverter is in good condition via transportation. If there is any visible damage such as cracks, please contact the dealer immediately.

#### 4.2 Packing List

Open the package and check the materials and accessories according to the following list:



Item#	Quantity	Description
A	1	EM-M-01 G4 screw driver
B	7	Screws
CP	1	Waterproof connector
CP+	6	PV terminal (positive*5, negative*1)
CP-	6	PV terminal (positive*1, negative*5)
FP	12	10AWG 20 copper wire terminals
G	1	OF electrical wire for grounding
H	1	Flange for M4 Galvanneal self-tapping bolt
I	1	M4 screw for panel hole
J	2	Communication line adapter (1000Mbps RJ45)
K	2	Battery connection terminal (positive*1, negative*1)
L	5	RJ 45 terminals
M	1	Manual
N	1	Quick Installation Guide
O	1	Warranty Card
P	1	Fixion W/F (terminal)
Q	1	Mezan (terminal)
R	1	CTC (terminal)

Note: The M4 screw driver included in the package does not include the "C.V. 075/17" and "C.V. 080/18" versions. The M4 screw driver must be used with X3 M4 screw. The inverter is not to be connected to a grid without a proper connection between the inverter and the grid.

Ref No.: 943

36

37



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

Installation

Installation

4.3 Installation Precautions:

The protection level of X3 Hybrid G1 series inverter is IP65, so that the inverter can be installed outdoors.  
 Check the installation environment and pay attention to the following conditions when installing:

- Do not expose to strong light
- Do not touch flammable building materials
- Do not approach flammable and explosive gases or liquids (e.g. where chemicals are stored).
- Do not touch cold air directly.
- Do not approach TV antenna or cable.
- Do not place in areas above 3000 meters above sea level.
- Do not install in precipitation or high humidity, which may cause corrosion or damage internal devices.
- Keep the system out of reach of children.

If the inverter is installed in a narrow area, be sure to reserve appropriate space for heat dissipation.  
 The ambient temperature of the installation site is -35°C-40°C.  
 The maximum angle range of tilt is 15°.  
 Avoid direct sunlight, rain and snow weather.



4.4 Tool preparation:

Tool equipment				
Type	Name	Image	Name	Image
Mechanical installation tool	Hammer drill		Multimeter	DC voltage tester (TTW) DC
	Torque screwdriver		Socket wrench set (screwdriver)	
	General screwdriver		Diagonal pliers	
	Utility knife		Multifunction terminal crimping tool (PHE)	
	Wire stripper		Washer	
	Flat hammer		Tape ruler	
	Crimping tool		Hexagon key	
	Long terminal crimping tool		Spirit level	
	Individual Protection Tools	Outdoor Cable	Protective glasses	

Ref No.: 943



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

Installation

Cool equipment:				
Type	Name	Image	Name	Image
Industrial Injection Tool	Water pump		Water pump	

Type	Name	Image	Requirements
Cable Protection	Bracket		Must use and ERSOH (anti-pole wiring system) (A.5.2)
Cable Protection	PV lead wire		Dedicated PV wire, line number #12 AWG with rated voltage 1000V, temperature resistance 105°C (UL resistance grade VW-1)
	EPDM gasket wire		Five mil gasket
	Disc wire		Free core GDE
	Common Copper Wire		Twisted pair with shield
	Battery Cable		Conformal wire
	UV Cable		Claw-type wire

24

Installation

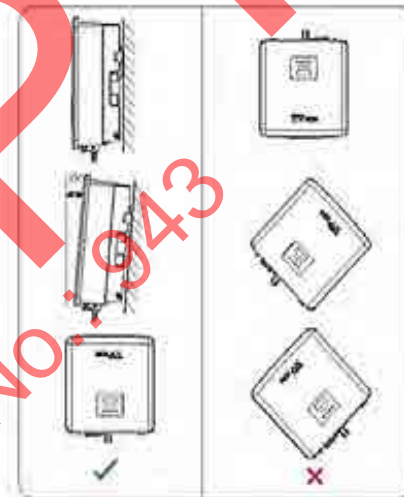
### A.5 Installation Site Conditions

#### A.5.1 Installation Carrier Requirements

Do not install the inverter on a flammable material.  
 Please install the inverter on a solid object that can withstand the weight requirements of the inverter and energy storage system.  
 Please be careful not to install the inverter in the kitchen or wall or similar to the residential areas with poor sound insulation, do not to work with noise and interfere with the resident's life in the morning.

#### A.5.2 Installation Requirements

Install the inverter at a maximum tilt of 3 degrees, the inverter can not be tilted forward, backward, upside or sideways.



25



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

**4.5.3 Installation Space Requirements**

Reserve enough space when installing inverter (at least 300mm) for heat dissipation:

Direction	Minimum
Left	300mm
Right	300mm
Up	500mm
Down	300mm
Forward	300mm

The distance of installation space for multiple inverter is as follows:

**4.6 Mounting**

Preparation

Please prepare the following tools before installation:

Installation tool: screwdriver, wrench, Φ16 drill, hammer, sockets, wrench, bit and Hexagon key.

Step 1: Fix the wall bracket to the wall.

First find the expansion screw and the wall bracket in the accessory bag, as shown below:

Expansion bolts, Tapping screw, Gasket, Gasket, Bracket

Use a mallet to fix the holes of the bracket on the wall. Drill holes at marked spots with a depth of 6mm.





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

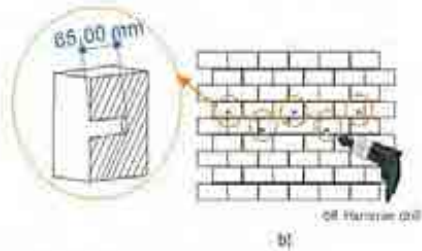
วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

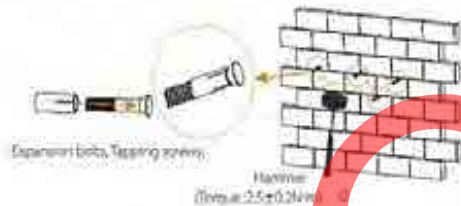
ภาคผนวก ข. Technical Specification (ต่อ).

Installation



### Step 2: Hang the inverter on the bracket

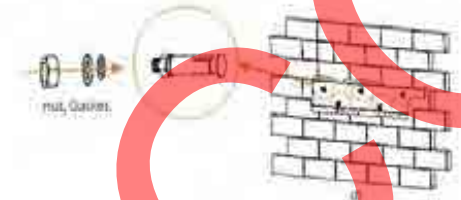
- c) Insert expansion bolt into the hole, use rubber hammer to knock the expansion screw into the wall.
- d) The bracket is aligned with the screw using the inner hexagonal wrench to screw the tapping screw until the expansion bolt "bangs" in place.



Expansion bolts, Tapping screws

Hammer

(Energy: 2.5±0.2J/m)



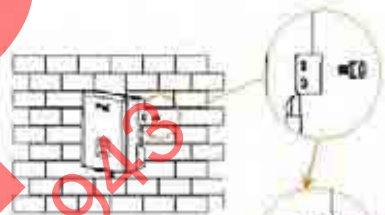
nut, Quorum

26

Installation

### Step 3: Tighten the inverter and bracket

- a) Hang the buckle (on the inverter) to the corresponding position of the backplane.
- f) Use the inner hexagonal wrench to tighten the inner hexagonal screw on the right side of the inverter.



Inner hexagonal wrench  
(torque: 1.550 ± 1 Nm)

27





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

Electrical Connections

## 5 Electrical Connections

### 5.1 PV Connection

X3 Hybrid G4 series inverters have two PV inputs. Please select photovoltaic modules with good performance and quality assurance. The open circuit voltage of the module array should be less than the maximum PV input voltage specified by the inverter, and the working voltage should be within the MPPT voltage range.

Table 1: Maximum input voltage levels

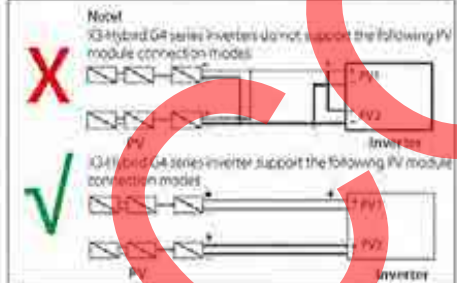
Model	X3 Hybrid G4	X3 Hybrid G4	X3 Hybrid G4	X3 Hybrid G4	X3 Hybrid G4
-------	--------------	--------------	--------------	--------------	--------------

Max. DC input voltage

**Warning!**  
The voltage of photovoltaic modules is very high, and is dangerous voltage. When wiring, please follow the safe electricity regulations.

**Noted!**  
Please do not make PV positive or negative ground!

**Noted!**  
The following PV module requirements need to be satisfied to match input range:  
1. Same model  
2. Same quantity  
3. The same queue  
4. The same angle



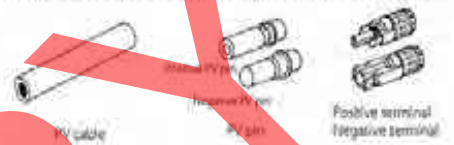
30

Electrical Connections

### Connection step

The PV port wiring of X3 Hybrid G4 M version inverter has been completed. For specific installation details, please refer to the X3-Matchbox Quick installation Guide, the D version needs to be wired.

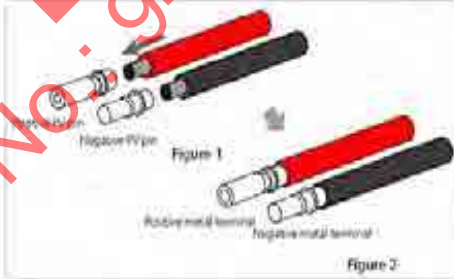
Step 1. Turn off the DC switch, connect the PV module, prepare a 12AWG PV cable, and find the PV (+) terminal and PV (-) terminal in the package.



Step 2. Use a wire stripper to strip the 2mm insulation layer of the wire end.



Step 3. Tighten the cable with the insulation layer stripped and insert it into the metal terminal (see Figure 1), make sure all wires are inserted into the metal terminal (see Figure 2).



31



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

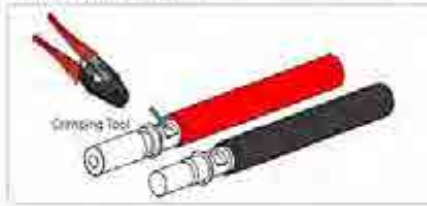
(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

## Electrical Connections

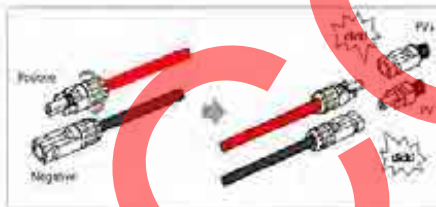
**Step 4.** Tighten the PV pin needle and the wiring harness to make the connection tight without looseness.



**Step 5.** The PV joint is divided into 2 parts - the plug and the fastening head. Insert the cable through the fastening head and the opposite plug. Note that the red and black lines correspond to different plugs. Finally, force the cable pair into the plug will a "click" sound, which indicates that the connection is complete.



**Step 6.** Tighten the fastening head and then insert the corresponding positive and negative (PV+/PV-) ports of the inverter.

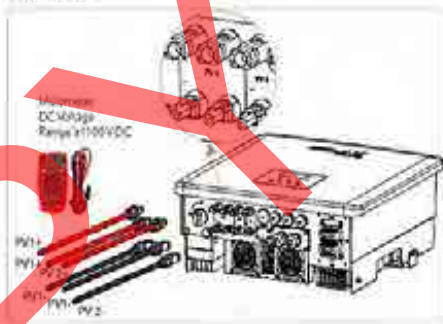


10

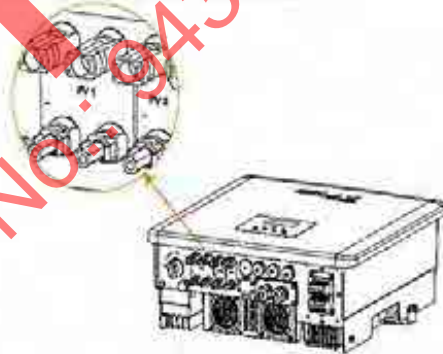
## Electrical Connections

The following is the location of the inverter's positive and negative (PV+/PV-) ports:

Note: Before inserting the PV terminal, please turn on the switch of the PV module and use a multimeter to measure the positive and negative poles of the PV terminal port to prevent reverse connection.



Schematic diagram of the inverter PV connection:



11



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

Electrical Connections

5.2 Grid Port and EPS(OFF-grid) Output Connection

X3 Hybrid G4 series inverter are three-phase inverter suitable for rated voltage 180/400/415V, frequency 50/60Hz. Other technical requests should comply with the requirement of the local public grid.

➤ Grid port connection

Grid Cable and Micro Breaker recommended

Model	11kV/11kV	11kV/11kV	11kV/11kV	11kV/11kV	11kV/11kV	11kV/11kV
Cable size (mm <sup>2</sup> )	4-10/10	4-10/10	4-10/10	4-10/10	4-10/10	4-10/10
Micro-breaker	20A	20A	20A	40A	40A	40A

EPS(OFF-grid) Cable and Micro-breaker recommended

Model	11kV/11kV	11kV/11kV	11kV/11kV	11kV/11kV	11kV/11kV	11kV/11kV
Cable size (mm <sup>2</sup> )	4-10/10	4-10/10	4-10/10	4-10/10	4-10/10	4-10/10
Micro-breaker	16A	16A	16A	25A	25A	40A

The load should not be directly connected to the inverter:

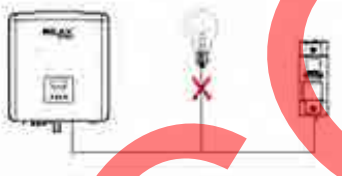


Figure: Wrong connection of load and inverter

Electrical Connections

5.3 EPS(OFF-grid) Block Diagram

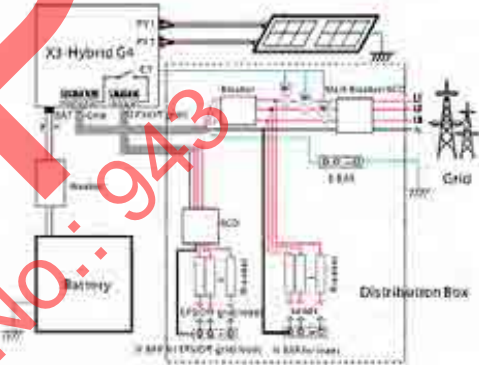
X3 Hybrid G4 series inverter has an EPS(OFF-grid) function. When the grid is connected, the inverter outputs go through the Grid port, and when the grid is disconnected, the inverter outputs go through the EPS(OFF-grid) port.

The EPS(OFF-grid) function can be connected to part of the load. Please refer to the following diagram for the wiring. If you want to save installation time, you will need an accessory. If you need a solution, please contact our sales staff.

➤ EPS(OFF-grid) wiring diagram

For different local wiring rules, please refer to the diagram below. Please select the appropriate wiring method according to local wiring rules.

Diagram A: N-line and PE line separate wiring, D version inverter. (For most countries)



Ref No.: 943



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

### Electrical Connections

Diagram B: N line and PE line separate wiring, X3 version inverters; (For most countries)

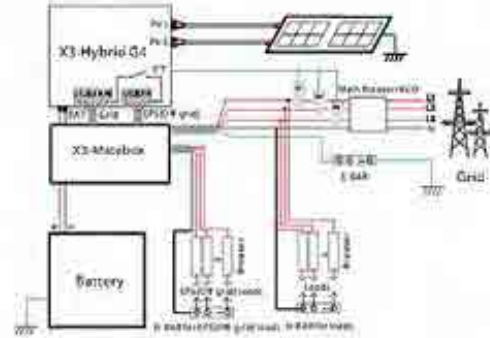
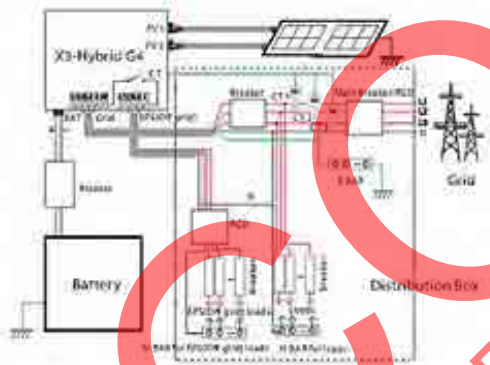
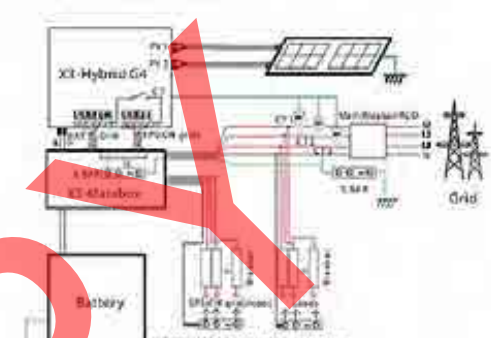


Diagram C: N line and PE line together, D version inverters; (Applicable to Australia)



### Electrical Connections

Diagram D: N line and PE line together, all load connection EPS(OFF-grid) scheme (Applicable to Australia)



X3-Matebox is a convenient wiring accessory. Please refer to X3-Matebox for details. If you need to purchase X3-Matebox, please contact us.

The RCD on the figure represents a leakage protection device with a circuit breaker function. To use X3-Matebox's Diagram B and Diagram D, you need to set "X3-Matebox" to "Enable" in "Setting". The Australian customer must shorten the N lines of the grid and the EPS in the X3-Matebox. If your local wiring method does not follow the above operation guide, especially the neutral wire, ground wire, RCD wire, please contact our company before operation.





หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)


(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

### Electrical Connections

#### > EPS(Off-grid) load requirements







**Warning**  
Ensure that the EPS(Off-grid) load rated power is within the EPS(Off-grid) rated output power range, otherwise, the inverter will report an "overload" warning.

 When "overload" occurs, adjust the load power to make sure it is within the EPS(Off-grid) rated output power range, and the inverter will automatically return to normal.

For non-linear loads, ensure that the inrush current power is within the EPS(Off-grid) rated output power range. When the configuration current is less than the maximum DC input current, the capacity and voltage of lithium and lead acid will decrease linearly.

The following table shows some common loads for your reference.

Note: Please check with the manufacturer for high-power inductive loads.

Content	Power		Common equipment	Instance		
	Start	Rated		Equipment	Start	Rated
Relative load	X 1	X 1	 Incandescent lamp	 100W	100VA (W)	100VA (W)
Inductive load	X 2-5	X 2	 Fan  Fridge  Fridge	 150W	450-750VA (W)	300VA (W)

### Electrical Connections

#### > Grid and EPS(Off-grid) connection

##### • Connection requirements

Note: Check the grid voltage and compare the voltage range (see technical data). Disconnect the circuit board from all power sources to prevent electric shock.

The Grid and the EPS(Off-grid) ports of X3-Hybrid G4 M version inverter have been connected, for specific installation details, please refer to the X3-Matebox Quick Installation Guide. And the D version needs to be wired according to the following steps.

Step 1. Prepare a Grid cable (five-core wire) and an EPS(Off-grid) cable (four-core wire), and then find the European terminal and waterproof cover in the accessory bag.



Ref No.: 943



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

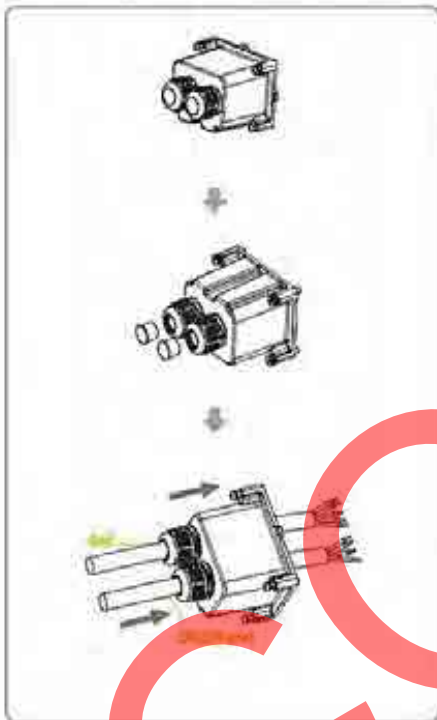
(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

## Electrical Connection

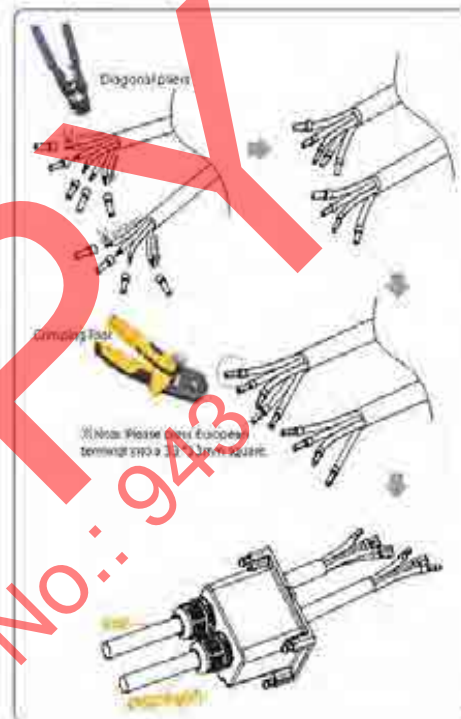
Step 2: First remove the waterproof housing plug, and then the Grid and EPS (Off-grid) cables through the waterproof housing corresponding to the Grid and EPS (Off-grid) port.



40

## Electrical Connection

Step 3: Remove the 12mm insulation layer at the end of the wire, insert the European-style terminal respectively, and make sure that the stripped ends are inserted into the European-style terminal, and finally use crimping pliers to press right!



41





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

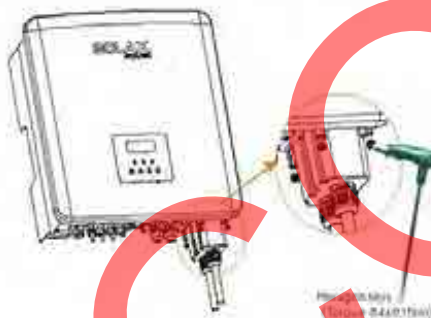
ภาคผนวก ข. Technical Specification (ต่อ).

Electrical Connection

Step 4. Find the location of the AC interface on the inverter, insert the dimpled terminals into the SW10 terminals L1, L2, N, PE, according to the wire sequence, and use a flat blade screwdriver to tighten the screws (Torque: 0.5±0.1Nm)



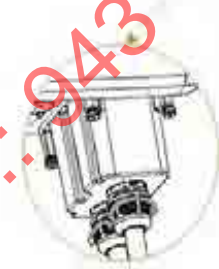
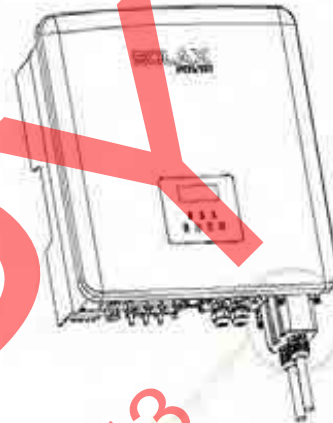
Step 5. Install the AC waterproof cover, and tighten the screws on the four sides of the waterproof cover with an Allen wrench.



102

Electrical Connection

Step 6. Tighten the waterproof fastening head.



103



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

Electrical Connection

5.4 Battery Connection

➤ Connection requirements

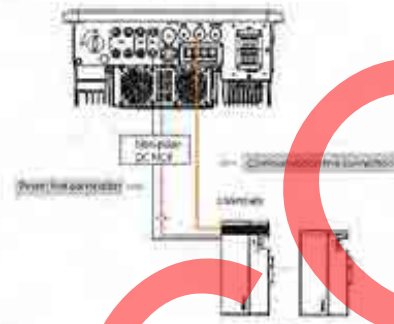
X3 Hybrid G4 series inverter charge and discharge systems can be equipped with high voltage lithium battery. Please note that the maximum voltage of the battery should not exceed 650 V, battery communication should be compatible with the X3 Hybrid G4 inverter.

➤ Battery breaker

Before connecting the battery, a non-polar DC MCB must be installed to ensure safety. Before maintenance, the inverter need to be safely disconnected.

Model	Rated Voltage (V)	Rated Current (A)	Rated Power (W)	Rated Voltage (V)	Rated Current (A)	Rated Power (W)
	Nominal voltage of DC busbar should be larger than nominal voltage of battery.					
		55A				

➤ Battery connection diagram



Note: When using Solis battery, it is recommended to use the number of battery control (HW1550) is 1, the number of battery modules (HW1550) is 2-4, the number of battery control (Mc0600) is 1, the number of battery modules (HW10230) is 2-4.

Electrical Connection

➤ Battery connection steps

Battery port connection line of the X3 Hybrid G4 M version inverter is on the X3-Matebox. For specific installation details, please refer to the X3-Matebox Quick Installation Guide. It is necessary to wire the D version according to the following steps.

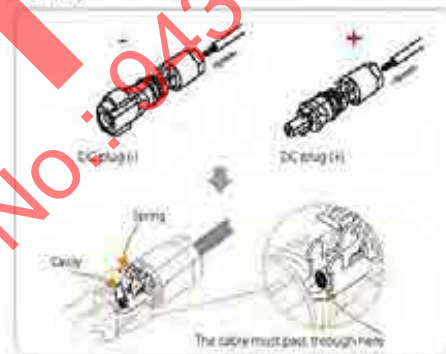
Step 1. Prepare 8 AWG battery power line, find the DC plug (+), DC plug (-) on the accessory bag.



Step 2. Strip the insulation layer (length: 12mm) at one end of the power line.



Step 3. Insert the stripped cables into the DC plug (+) and DC Plug (-) respectively.





หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

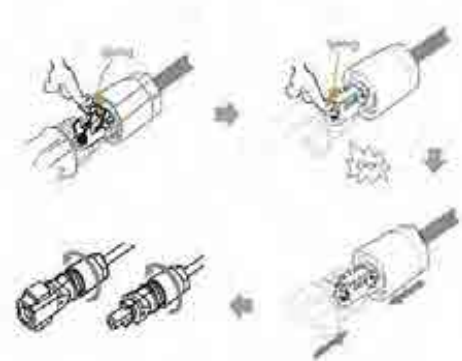
(Report no.)

(Issued date)

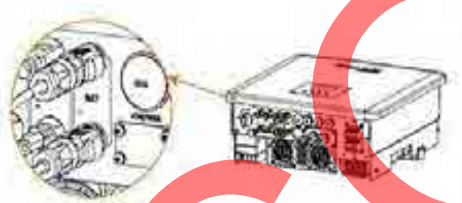
ภาคผนวก ข. Technical Specification (ต่อ).

Electrical Connection

Step 4: Press down on the spring by hand, you can free the board, they push the ends together and tighten the screw joints.



Step 5: Insert the battery power lines into the corresponding BMS (cell) of the inverter.

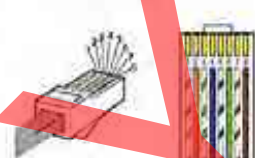


Note: The positive and negative wires of the battery must be allowed to be connected.


Communication connection

BMS port definition

The communication interface between the inverter and the battery uses the waterproof connector with 10 pins.



- 1) White with orange stripes
- 2) Orange
- 3) White with green stripes
- 4) Blue
- 5) White with blue stripes
- 6) Green
- 7) White with brown stripes
- 8) Brown



Note: After the BMS communication between the battery and the inverter is finished, the battery will work normally.



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

### Electrical Connection

#### 5.5 Communication Connection

##### 5.5.1 Introduction to DRBit communication (AS4777 regulatory requirements)

DRM requirements:

Mode	Requirement
DRM2	Operate-to disconnect device
DRM1	Do not consume power
DRM3	Do not consume more than 50% of rated power
DRM3	Do not consume more than 75% of rated power AND Source reactive power if available
DRM4	Increase power consumption subject to constraints from other active DRMs
DRM5	Do not generate power
DRM6	Do not generate more than 50% of rated power
DRM7	Do not generate more than 75% of rated power AND Sink reactive power if capable
DRM8	Increase power generation subject to constraints from other active DRMs

Mode	DRM1/5	DRM2/3	DRM3/7	DRM4/8	+1.7	DRM6	DRM7	DRM8
Icon	Active	Active	Active	Active	Active	Active	Active	Active

Remarks:  
Currently only DRM6 (DRM0) and DRM1 (DRM1/5) are functional, other DRM functions are under development.

### Electrical Connection

#### 5.5.2 Introduction to meter/CT Communication

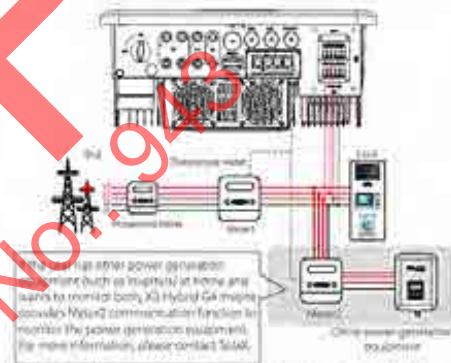
XS-Hybrid (SA) inverter should work without electric meter or current sensor (CT) for short to monitor household electricity usage. The electricity meter or CT can transmit the relevant electricity data to the inverter or website, which is convenient for users to read at anytime.

Users can choose to use electric meters or CTs according to their needs.

Please note that the meter/CT model required by SolarX must be used.

**Note**  
The meter or CT must be connected to the inverter, otherwise the inverter will shut down and alarm SolarX "meter failure" alarm. SolarX products must be authorized by SolarX, third party or other companies. Unauthorized meter may be incompatible with the inverter.  
SolarX will not be responsible for the impact caused by the use of other appliances.

#### Electric meter connection diagram



Note: Users will be notified the meter power ground the hybrid terminal of the inverter.



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

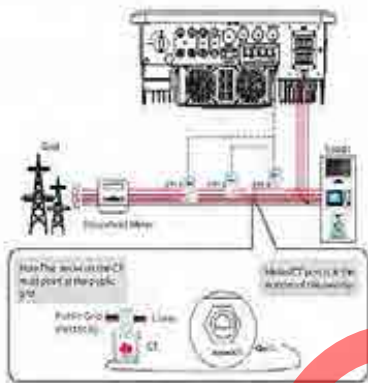
ภาคผนวก ข. Technical Specification (ต่อ).

## Electrical Connection

### CT Connection

The current sensor measures the current on the live wire between the inverter and the public grid.

### CT connection diagram



### LCD settings

To select CT, you need to enter Live setting, then enter CT (Meter Setting).



## Electrical Connection

### Note for CT connection:

- Note!
- Do not place the CT on the N line or ground wire.
- Do not put CT on the N line and L line at the same point.
- Do not place the CT on the side where the arrow points to the inverter.
- Do not place the CT too close to the inverter.
- The cable length between CT and inverter should not exceed 25 meters.
- After CT is connected, prevent the CT clip from falling off. It is recommended to wrap the CT clip around in circles with insulating tape.



### Note!

Only one of the Meter and CT connections can be selected. Meter cable goes to PIN Terminal 4 and 5; CT cable to PIN Terminal 1 and 2. CT3 cable to PIN Terminal 3 and 6. CT5 cable is connected to pin 4 and 6.

Ref No.: 913





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

## Electrical Connection

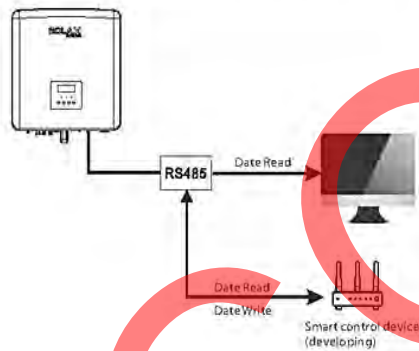
### 5.5.3 COM Communication

COM communication interface is mainly provided to the customer to do the second step of development use. Use communication to control external equipment or external equipment to control the use of the inverter.  
For example: the inverter adjusts the working mode of the heat pump and so on.

#### > Application occasion

COM is a standard communication interface, through which the monitoring data of the inverter can be directly obtained. Also, external communication devices can be connected to carry out the secondary development of the inverter. For specific technical docking, please contact SolarX.

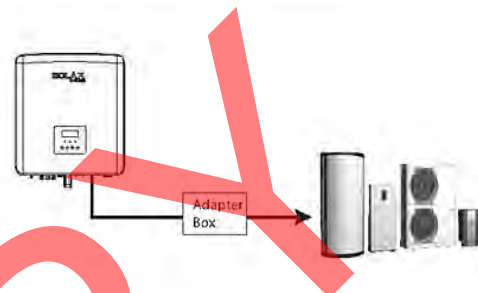
External communication equipment controls the inverter:



52

## Electrical Connector

Inverter communication control external equipment:



### > COM PIN Definition

	1	2	3	4	5	6	7	8
External equipment	Reserved	Reserved	AIN	+13V	485A	485B	GND	Reserved
Inverter	Reserved	Reserved	AIN	+13V	485A	485B	GND	Reserved

**Note!**  
The communication port on COM must be consistent with the definitions of pins 1, 2, 3, 4, 5, 6, 7, and 8 above, the connection PIN angle of the inverter is 4, 5 for the external communication equipment, and the inverter communication controls the external equipment. The pin angles are 3, 6, 7, and 8, for example, the pin angles of the inverter communication control heat pump dry contact are 3, 6, 7, and 8.

53



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

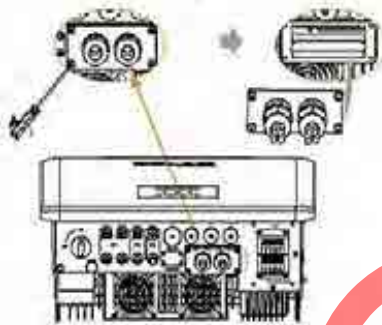
Electrical Connection

5.5 Communication Connection Steps

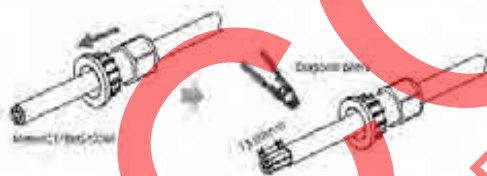
Step 1. Prepare a communication cable, and then find the communication adapter in the accessory bag.



Step 2. The inverter CAN/DRAIN/SHUT port communication line connection, need to remove the inverter cover plate.

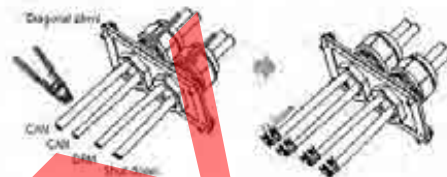


Step 3. Insert the communication cable through the communication adapter, and peel off the outer insulation layer of 15mm.



34

Electrical Connection



Step 4. Insert the prepared communication cables into the RJ45 terminals in sequence, and then use network cable crimping pliers to press them tightly.



- 1) White with orange stripes
- 2) Orange
- 3) White with green stripes
- 4) Blue
- 5) White with blue stripes
- 6) Green
- 7) White with brown stripes
- 8) Brown

35



# Compliance Evaluation Report



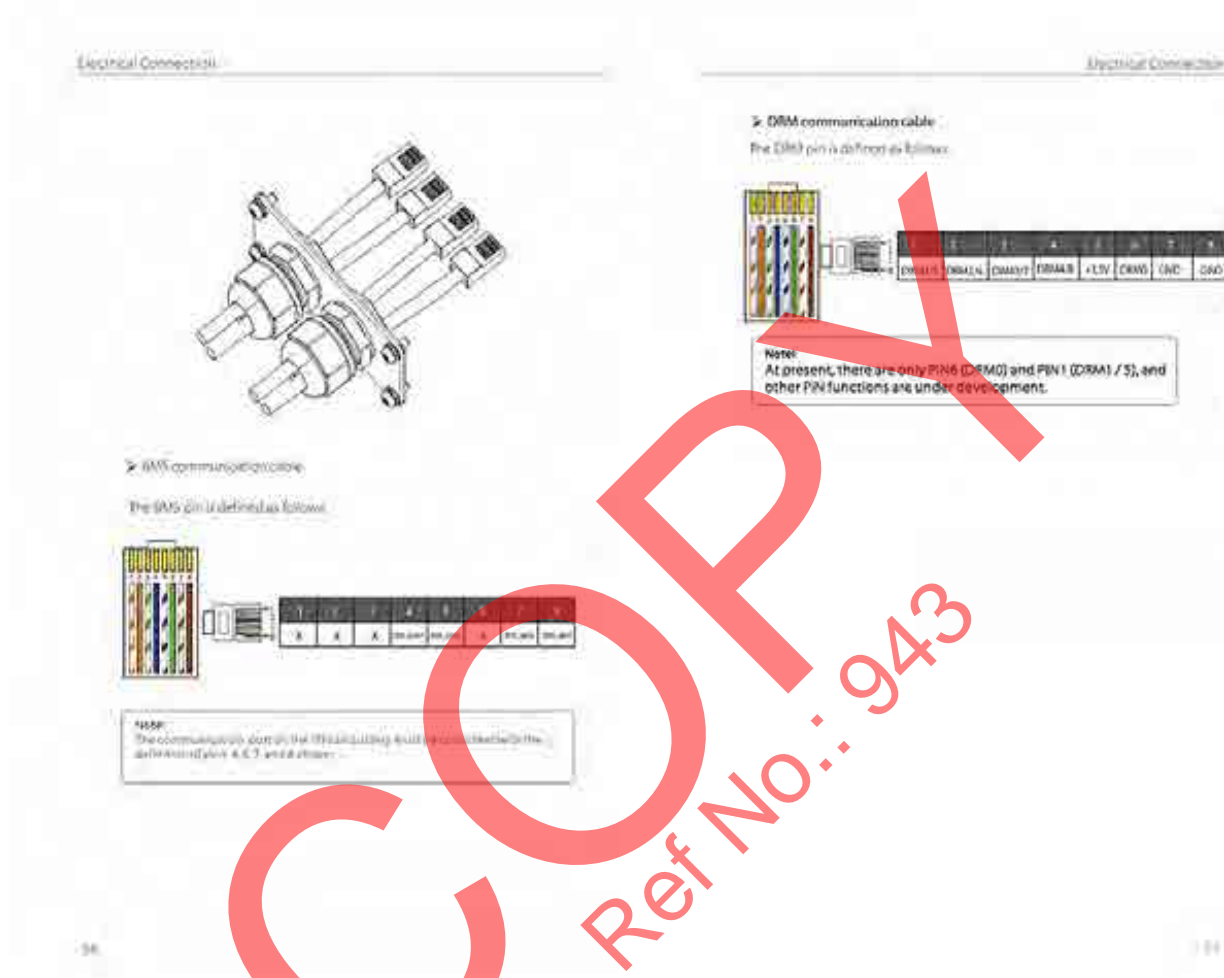
หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

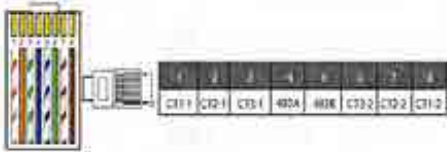
(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

## Electrical Connection

> METER/CT communication cable

METER/CT pin is defined as follow:

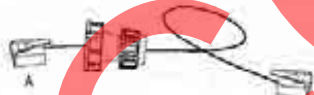


### Note!

Only one of the Meter and CT connections can be selected. Meter cable goes to pin terminal 4 and 5; CT cable to PIN Terminal 1 and 2; CT2 cable to PIN Terminal 3 and 6; CT3 cable is connected to terminals 5 and 6.

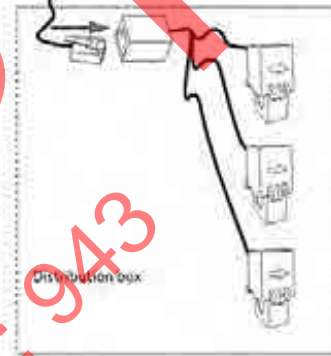
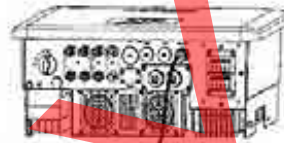
1) Users can customize the length of the CT communication cable. The accessory package provides 1\*RS45 and 1\*waterproof connector with RS45 terminals.

When the CT cable is completed, connect the A terminal to the "CT/METER" port of the inverter and tighten the waterproof screw, and connect the B terminal to the RS45 coupler.



## Electrical Connection

2) One side of the finished cable, Waterproof connector with RS45 is inserted into the inverter, and one side of the RS45 terminal is inserted into the CT connection.



### Note!

When installing, pay attention to waterproof distance. All the connected parts of CT must be put into the distribution cabinet.

Ref No.: 943



# Compliance Evaluation Report



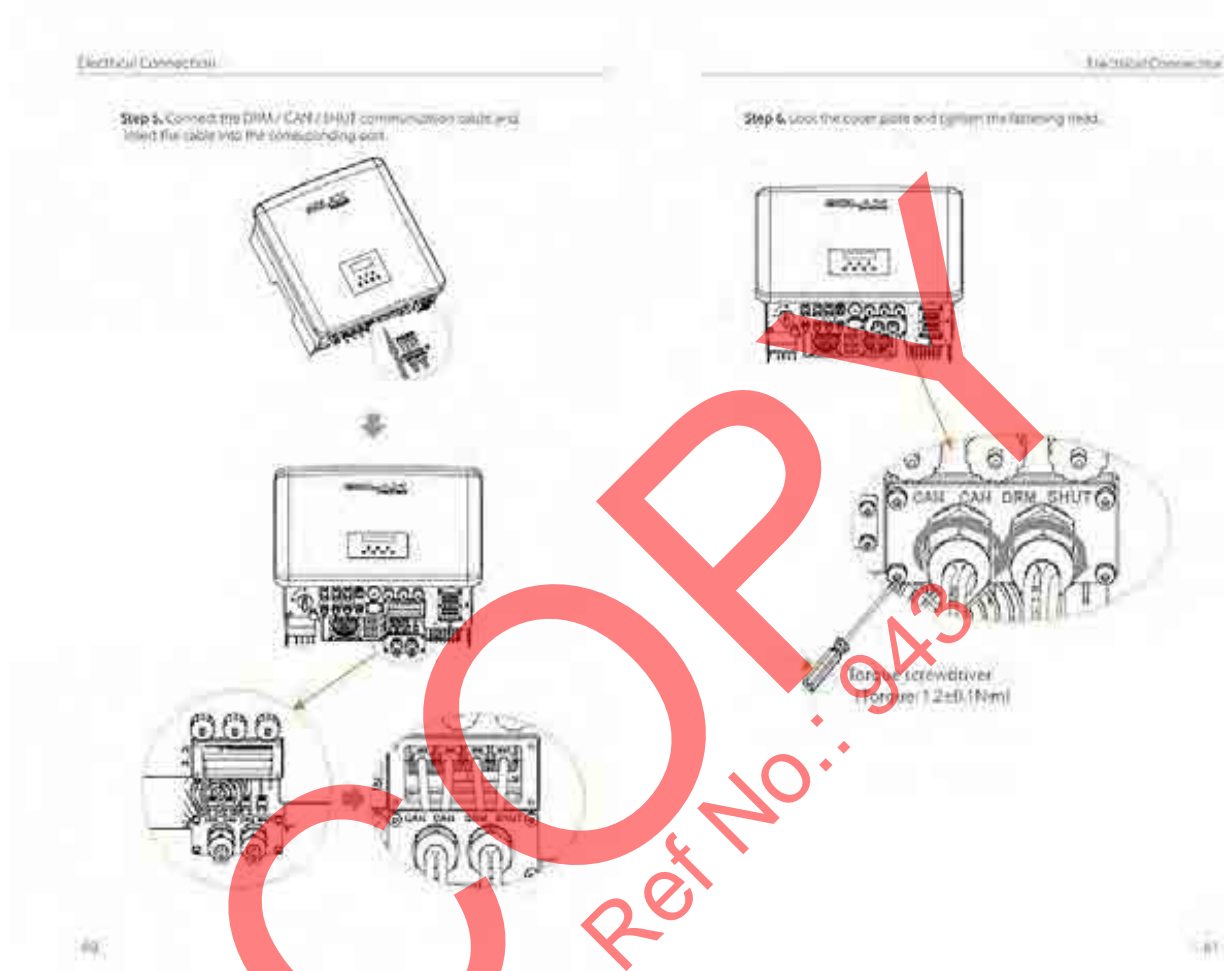
หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).







หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

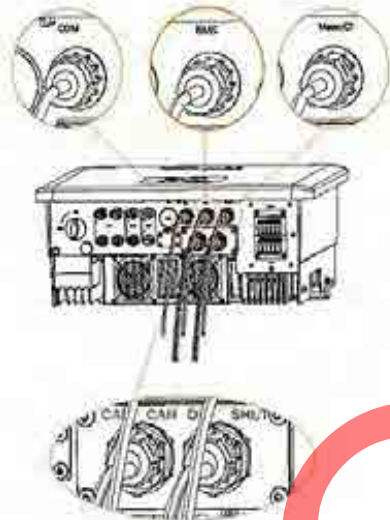
(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

Electrical Connection

Step 7: Finally, find the corresponding COM, RMS, Meter, CT, CAN, DRM, SHUT ports on the inverter and insert the communication cable into the corresponding ports.



62

Electrical Connection

3.6 Grounding Connection (mandatory)

The user must make two ground connections: one shell grounding and one equipotential grounding. This prevents electric shock.

Note: If the PE end of the inverter is not connected with earth, the inverter will turn on a red light labeled and report ISD Fault. This inverter complies with IEC 62109-2 clause 13.5 for earth fault alarm monitoring.

Ground wire port of X3 Hybrid G4-M version inverter has been located on the left side, and the G version needs to be wired according to the following steps.

Ground connection steps:

Step 1: Prepare a three-core cable (3\*2.5MM<sup>2</sup>) and then find the ground terminal in the accessories.



Step 2: Strip the ground wire with an insulation length of 1.2, insert the stripped cable into the terminal and then clamp it.



63



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

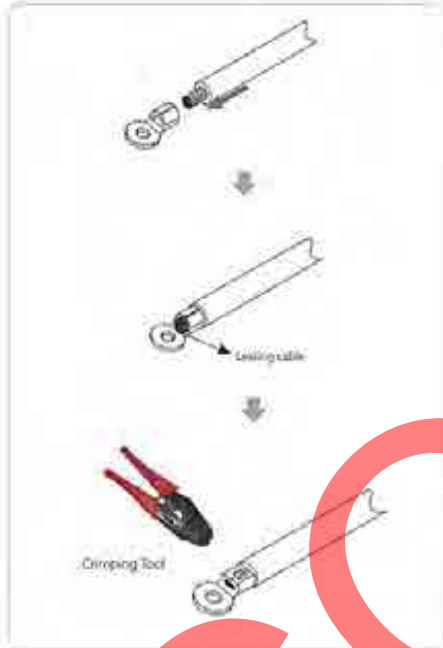
(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

## Electrical Connection

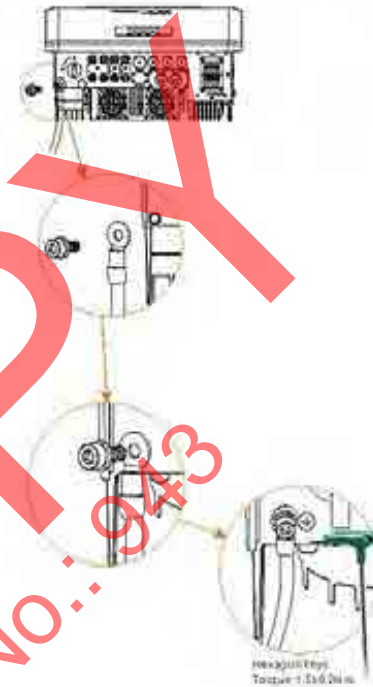
Step 3. Insert the stripped cable into UT terminal and tighten the terminal with a terminal crimping tool



44

## Electrical Connection

Step 4. Find the ground connection port on the inverter and screw the ground wire on the inverter with an MS Allen key.



45



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

Electrical Connector

Electrical Connector

### 5.7 Monitoring Connection (Accessories)

The inverter provides a DONGLE port, which can transfer data of the inverter to the monitoring system via Pocket WiFi Plus, Pocket 4G, Pocket GPS, and Pocket LAN. (If necessary, purchase products from SOLIX)

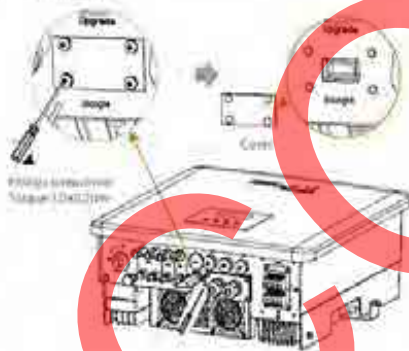
> DONGLE connection diagram:



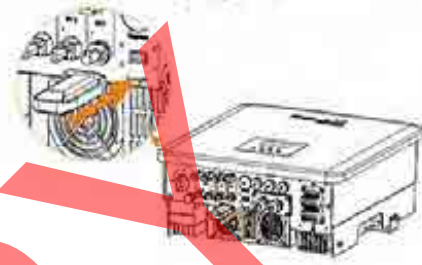
> Wireless monitoring accessories connection steps:

DONGLE port connection line of the X3-Hybrid Q4-M version inverter is on the X3-Mainbox, for specific installation details, please refer to the X3-Mainbox Quick Installation Guide. It is necessary to wire the D version according to the following steps.

Step 1. Of the DONGLE port of the inverter, remove the cover, and take off the cover.



Step 2. Plug the Pocket WiFi Plus into the DONGLE port, use the screws in the Pocket WiFi Plus Accessory to tighten it.



46

47



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

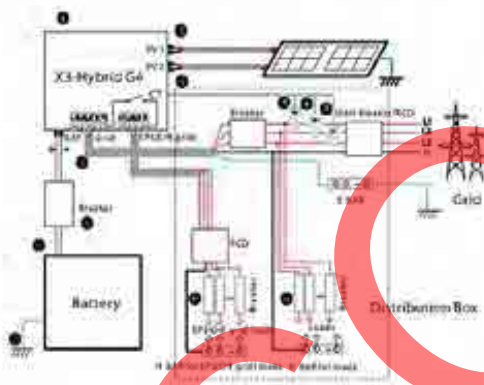
### Electrical Connection

#### 5.8 Check All Below Steps Before Starting inverter

> After the inverter is checked, the conduct the following steps:

1. Make sure that the inverter is fixed on the wall.
2. Ensure that all ground wires are grounded.
3. Confirm that all DC lines and AC lines are connected.
4. Make sure the CT are connected.
5. Make sure the battery is well connected.
6. Turn on the load switch and EPS0#(grid) switch.
7. Turn on the battery switch.

Long press the "Enter" key for 5 seconds to exit the Off mode. (The mode is factory defaulted as Off Mode)



Note: The RCD on the figure represents a leakage protection device with a circuit breaker function.

### Electrical Connection

#### 5.9 inverter Operation

> Before operation, check the inverter according to the following steps:

- a) Check that the inverter is well fixed on the wall.
- b) Ensure that all ground wires are well tightened.
- c) Ensure that all DC and AC circuit breakers are disconnected.
- d) Ensure that all ground wires are well tightened.
- e) The AC output terminal is correctly connected to the mains.
- f) Ensure that all photovoltaic panels and inverters are properly connected. Unused DC connectors should be blocked with caps.

#### Start the inverter

- Steps to start the inverter:
  1. Turn on the AC switch between the X3-Hybrid G4 and the power grid.
  2. (Optional) Remove the locking screw from the DC switch.
  3. Turn on the DC switch between the PV string and the X3-Hybrid G4 if there is any.
  4. Turn on the DC switch at the bottom of the X3-Hybrid G4.
- When the photovoltaic panel generates enough power, the inverter will start automatically.
- If the battery port of the X3-Hybrid G4 is connected to a battery, turn on the auxiliary power switch of the battery and then the battery switch.
- Check the status of the LED and LCD screen, the LED is blue, and the LCD displays the main interface. If the LED is not blue, please check the following:
  - All connections are correct.
  - An external disconnect switch is closed.
  - The DC switch of the inverter is set to the "ON" position.

The following are different states of inverter operation, which means that the inverter starts successfully.

Warning: When the DC output voltage of the photovoltaic panel is higher than the U<sub>OC</sub> (lowest starting voltage) and lower than 150V (lowest working voltage), the inverter will stop working.

Checking: This inverter will automatically detect the DC input. When the DC input voltage of the photovoltaic panel is higher than 200V and the photovoltaic panel has enough energy to start the inverter, the inverter will enter the checking state.



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

## Electrical Connection

Normal: When the inverter is working normally, the green light is always on. At the same time, the power is fed back to the grid, and the LCD displays the output power.

If it is the first time to boot, please follow the prompts to enter the setting interface.

**Warning!**  
The input terminal of the inverter can be opened only when all the installation work of the inverter has been completed. All electrical connections must be performed by professionals in accordance with local regulations.

**Note!**  
If it is the first time to operate the inverter, the system will automatically display setup guide. Please follow the setup guide to complete the basic inverter settings.

70

## Firmware Upgrading

### 6 Firmware Upgrade

#### > Upgrade notes

Please read the following precautions before upgrading.

**Warning!**  
- In order to upgrade the firmware smoothly, if the DSP and ARM firmware need to be upgraded, please note that ARM firmware must be upgraded first, then DSP firmware!  
- Please make sure that the category format is correct, do not modify the firmware file name, otherwise, the inverter may not work.

**Warning!**  
- For X3 Hybrid G4, ensure that the PV input voltage is greater than 180V (upgrade on sunny days), please ensure that the battery SOC is greater than 20% or the battery input voltage is greater than 180V. Otherwise, it may cause serious failure during the upgrade process!

**Caution!**  
- If the ARM firmware upgrade fails or stops, please do not unplug the U disk power off the inverter and restart it. Then repeat the upgrade steps.

**Caution!**  
- If the DSP firmware upgrade fails or stops, please check whether the power is off. If it is normal, plug in the U disk again and repeat the upgrade.

#### > Upgrade preparation

1) Please check the inverter version and prepare a U disk (USB 2.0/3.0) and personal computer before upgrading.

**Caution!**  
- Please make sure that the size of the U disk is smaller than 32G, and the format is FAT 16 or FAT 32.

71





หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

### Firmware Upgrading

2) Please contact our service support through [service@saleipower.com](mailto:service@saleipower.com) to obtain the firmware, and store the firmware in the U-disk according to the following path:

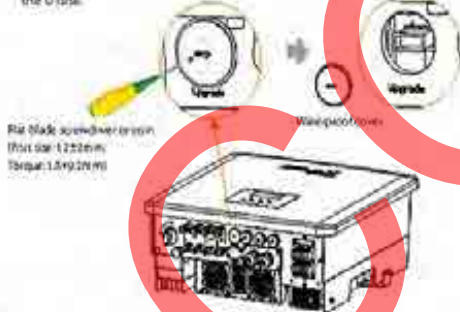
Update  
for ARM file: Update\ARM\01S0040600 Hybrid X3G4 ARM V1.01.0710.bin  
For DSP file: Update\DSP\6180040500 Hybrid X3G4 DSP V1.01.0710.hex

#### > Upgrade steps:

Step 1: Please save the "Upgrade" firmware in your U-disk first, and press the "Enter" button on the inverter screen for 5 seconds to enter the OFF mode.

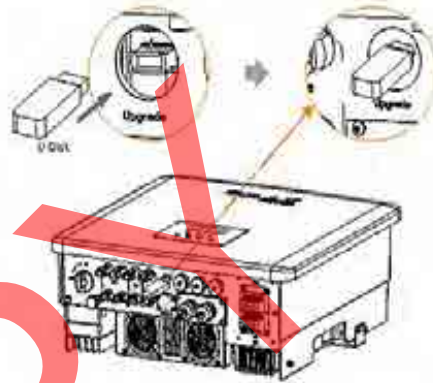


Step 2: Find the "update" port of the inverter, use a flat-head screwdriver or coin with the same width to remove the waterproof cover, and insert the U-disk.



Flat-head screwdriver  
(flat size: 1.252mm)  
Torque: 1.5-9.2N.m

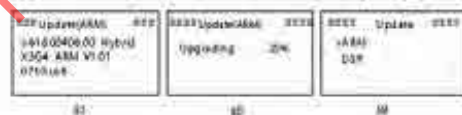
### Firmware Upgrading



Step 3: LCD operation, enter the upgrade interface "update", as shown below. Please press the up and down keys to select ARM, then press down to set "OK", press the same key to enter the software version interface.



Step 4: Please confirm the new firmware version again and select the firmware to upgrade. The upgrade takes about 20 seconds. After it is completed, the LCD screen returns to the "Update" page.





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

## Firmware Upgrading

**Step 5.** For DSP: Please wait for 10 seconds. When "Update" page shown as below, press down to select "DSP" and then press Enter. Please confirm the firmware version again and press Enter to upgrade. The upgrade takes about 2 minutes.



(f)



(g)



(h)



(i)



(j)

**Step 6.** After the upgrade is completed, the LCD screen displays "Upgrade Successful".



(k)

**Step 7.** Plug off the U disk, press "Esc" to return to the main interface, and long press the enter key to exit the mode.

**Caution!**

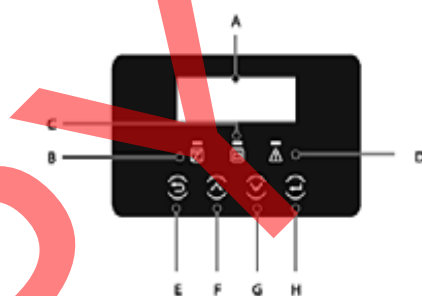
- Please strictly follow each step from step 1-6, don't miss it.
- Please confirm the ARM/DSP firmware version on the USB flash drive.

**Tip:** If the display screen is stuck on "X3-Hybrid G4" after the upgrade, please turn off the photovoltaic power supply and restart, and the inverter will restart and return to normal. If not, please contact our service @solaxpower.com for help.

## Setting

### 7 Setting

#### 7.1 Control Panel



Object	Name	Description
A	LCD Screen	Display inverter information on the LCD display.
B	LED	Blue light: The inverter is in normal state or EPS(Off-grid) mode. Blue flashing: The inverter is in the waiting, checking state or the system switch is off. Off: The inverter is in a fault state.
C	LED Indicate light	Green: The battery communication is normal but the battery MCB is disconnected, and the battery communication is normal and working normally. Green flashing: The battery communication is normal and in an idle state. Off: The battery does not communicate with the inverter.
D	Key	Red light on: The inverter is in a fault state. Off: The inverter has no error.
E	Key Function	ESC button: Return from the current interface or function.
F	Key Function	Up button: Move the cursor to the upper part or increase the value.
G	Key Function	Down button: Move the cursor down or decrease the value.
H	Key Function	Enter button: Confirm selection.



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

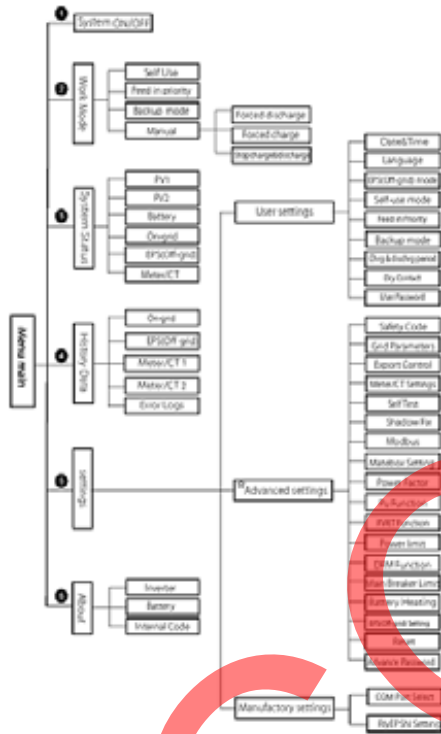
(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

Setting

Setting

## 7.2 Screen Menu Structure



Note: \* of This part of the content cannot be set by the end user. Please contact the installer or Solax if necessary.

26

## 7.3 LCD Operation

The main interface is the default interface, the inverter will automatically return to this interface when the system started up successfully or not operated for a period of time.

The information of the interface is as below: "Power" means the instant output power; "Today" means the power generated within the day; "Battery" means the left capacity of battery energy.

Power	0W
Today	0.0kWh
Battery	80%
	Normal

### > Menu interface

The menu interface is another interface for users to change settings or obtain information.

- When the LCD displays the main interface, click "OK" to enter this interface.
- The user can select up and down the menu, and press the "OK" key to confirm.

Menu
> System ON/OFF
Work Mode
System Status

27



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

Setting

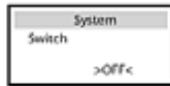
➤ Menu main



➤ System ON/OFF

"ON" means the inverter is in working state, and the inverter is in the default state.

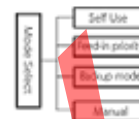
"OFF" means that the inverter stops running and only the LCD screen is on.



78

Setting

➤ Mode Selection



Mode selection, there are 4 working modes to choose from.

Name	Description
Self Use	The self-use mode is suitable for areas with low feed-in subsidies and high electricity prices. (1) When the power of PV is sufficient: Active Charging or Discharge time period: PV will power the loads firstly, and surplus power will charge to the battery. If the battery is fully charged, then sell the surplus power to the grid. (The inverter will limit the output if feed-in limit or zero feed-in is needed.) (PV > Load, PV → Load → Battery → Grid) (2) When the power of PV is insufficient: Active Charging time period: PV will power the loads firstly, the remaining power will be taken from the grid, the battery will not discharge at this time. (PV < Load, PV + Grid → Load) Active Discharge time period: PV + BAT will power the loads together, if the power is still not enough, the remaining power will be taken from the grid. (PV < Load, PV + Battery + Grid → Load) (3) Without PV power: Active Charging time period: The grid supplies the loads and also can charge the battery. (PV = 0, Grid → Load + Battery) Active Discharge time period: The battery will power the home loads firstly. If the battery power is not enough, the remaining power will be taken from the grid. The inverter will enter into the standby state. (PV = 0, Battery + Grid → Load) Battery min SOC can be set 10% - 100%
Feed-in priority	The Feed-in priority mode is suitable for areas with high feed-in subsidies, but has feed-in power limitation. (1) When the power of PV is sufficient: Active Charging time period: PV will power the loads firstly, and surplus power will feed-in to the grid. If the feed-in power has been limited, the surplus power can charge the battery. (PV > Load, PV → Load → Grid → Battery) Active Discharge time period: PV will power the loads firstly, and surplus power will feed-in to the grid. (PV < Load, PV → Load → Grid)

79



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

Setting

Setting

Feed in priority	<p>① When the power of PV is insufficient. Active Charging time period: PV will power the loads firstly, the remaining power will be taken from the grid. The battery will not discharge. <b>(PV &gt; Load, PV + Grid == Load)</b></p> <p>Discharge time period: PV + BAT will power the loads together. If the power is still not enough, the remaining power will be taken from the grid. <b>(PV &gt; Load, PV + Battery + Grid == Load)</b></p> <p>② Without PV power Active Charging time period: The grid will power the home loads and also charge the battery. <b>(PV = 0, Grid == Load + Battery)</b></p> <p>Active Discharge time period: The battery will power the home loads firstly, if the battery power is not enough, the remaining power will be taken from the grid. The inverter will enter into the standby state. <b>(PV = 0, Battery &gt; Grid == Load)</b></p> <p>Battery min SOC can be set: 10%~100%.</p>
Backup mode	<p>The backup mode is suitable for areas with frequent power outages. Same working logic with "Self-use" mode. This mode will maintain the battery capacity at a relatively high level. (Users' setting) to ensure that the emergency loads can be used when the grid is off. Customers no need to worry about the battery capacity. Battery min SOC can be set: 10%~100%. Backup mode SOC adjustment range: 30%~100%. In Backup mode, SOC-min under EPS(Off-grid) condition is 10%, which cannot be modified.</p>
EPS (Off-grid)	<p>The EPS(Off-grid) mode is used when the power grid is off. System will provides emergency power through PV and batteries to supply power to the household loads. (Battery is necessary)</p> <p>① When the power of PV is sufficient PV will power the loads firstly, and surplus power will charge to the battery. <b>(PV &gt; Load, PV == Load == Battery)</b></p> <p>② When the power of PV is insufficient The remaining power will be taken from the battery. <b>(PV &lt; Load, PV + Battery == Load == Battery)</b></p> <p>③ Without PV power The battery will power the emergency loads until the battery reached the min SOC, then the inverter will enter into the idle mode. <b>(PV = 0, Battery == Load)</b></p>

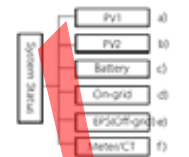
Note: In the case of grid connection, all working modes work normally when the battery SOC > 5%. When the battery charge rate is below 5%, the PV or Grid will first charge the battery SOC 11%, and then return to the working mode selected by the

Manual mode (manual mode), there are three options to choose from: forced charging, forced discharge, stop charging and discharging (grid-connected 0 power).



80

## System Status



System status contains six content: PV1/PV2/Battery/On-grid (energy feed into or buy from the grid) and EPS(Off-grid) and so on. Press up and down to select, press "Enter" to confirm the selection, and press "ESC" to return to the menu.

a/b) PV1, PV2  
Here you can see the voltage, current and power of the pv1 and Pv2. Photovoltaic panels respectively.

PV1		PV2	
>U	0.0V	>U	0.0V
I	0.0A	I	0.0A

c) Battery  
This status shows the battery condition of the system, including battery voltage and battery current, Battery power, battery capacity, battery temperature, BMS connection status. The meaning of the sign of battery current and power: "\*" means charging; "-" means discharging.

Battery	
U	400.0V
I	-1.0A
P	-400W

81





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

Setting

d) On-grid  
Here you can see the voltage, current, frequency, and power of the grid.

On-grid	
U	0.0V
I	0.0A
P	0.0W

e) EPS(Off-grid)  
Here you can see the inverter of voltage, current, frequency and power when EPS(Off-grid).

EPS(Off-grid)	
U	
I	
P	

f) Meter/CT  
Here you can see the data showing the meter or the CT.

Meter/CT	
>Meter/CT1-A	0.000Kw
Meter/CT1-B	0.000Kw

82

Setting

> History Yield

On-grid	a)
EPS(Off-gr	b)
Meter/CT1	c)
Meter/CT2	d)
Error Logs	e)

The history data contains five kinds of information: on-grid power of the inverter, EPS(Off-grid) power generation, power of the meter /CT and error Error logs.

Press up and down to select, press Enter to confirm selection, and press ESC to return to the menu.

a) On-grid  
Here is a record of the power capacity of the inverter connected to the grid today and the total.

On-grid	
Capacity	
Output Tot	
Today	

b) EPS(Off-grid)  
Here you can see the EPS(Off-grid) output of the inverter today and the total output.

EPS(Off-grid)	
Today	
Total	00.0KWh

83



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

Setting

c) Meter /CT-1  
Here you can see the inverter's electricity sold, total electricity sold, electricity bought from the grid and total electricity bought on that day.

Meter CT-1
>FeedInToday:
00.00kWh

d) Meter /CT-2  
Here you can see the total power output of the inverter for the day.

Meter CT-2
>Output Today:
00.00kWh

e) Error Logs  
Here you can see the most recent six error messages.

Error logs
>No error

84

Setting

> Settings

Date&Time	a)
Language	b)
EPS(Off-grid) mod	c)
Self-use mode	d)
Feed-in Priority mode	e)
Backup mode	f)
Chrg /Dischrg period	g)
Grid Connect	h)
User Password	i)

Here you can set the inverter time, language, working mode SOC, charging and discharging time period and user password.

User Setting
Date Time
Language
EPS(Off-grid) mode

a) Date time  
This interface is for users to set the system date and time.

Date time
>2019-11-15
10:19

85



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

Setting

b) Language  
This inverter provides multiple languages for customers to choose.

Language	
> Select:	English

c) EPS(Off-grid) Mute  
Here you can choose whether the buzzer is turned on when the inverter is running in EPS(Off-grid) mode. Select Yes, the buzzer mutes, select NO, EPS(Off-grid) mode, the buzzer will sound once every 4s when the battery is fully charged, the closer the battery is to the empty state, the higher the buzzer will sound, to remind users to avoid battery loss.

EPS(Off-grid) Mute	
> Mute:	Yes

d) Self-use mode  
In this mode, you can set the power reserve percentage of the minimum battery state, set whether the power can be taken from the mains side to charge the battery, and set the amount of power to charge the battery. For example: set the reserved minimum SOC of the battery capacity to "10%", which means that when the battery has been discharged to 10% of the battery capacity, the battery is not allowed to continue to discharge; When Charge from grid is set to "Enable", the utility power is allowed to charge the battery; when set to "Disable", the utility power is not allowed to charge the battery; Charge battery to is set to 90%, indicating that the mains is allowed to charge the battery at 90%.

Self-use Mode	
> Min SOC:	10%

Self-use Mode	
> Charge from grid	Disable

Self-use Mode	
> Charge battery to	90%

06

Setting

e) Feed-in Priority mode  
In this mode, you can set the power reserve percentage of the minimum battery state, set whether the power can be taken from the mains side to charge the battery, and set the amount of power to charge the battery. For example: set the reserved minimum SOC of the battery capacity to "10%", which means that when the battery has been discharged to 10% of the battery capacity, the battery is not allowed to continue to discharge; When Charge from grid is set to "Enable", the utility power is allowed to charge the battery; when set to "Disable", the utility power is not allowed to charge the battery; Charge battery to is set to 90%, indicating that the mains is allowed to charge the battery at 90%.

Feed-in Priority mode	
> Min SOC:	10%

Feed-in Priority mode	
> Charge from grid	Disable

Feed-in Priority mode	
> Charge battery to	90%

07



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

Setting

### f) Backup mode

In this mode, you can set the power reserve percentage of the minimum battery state, set whether the power can be taken from the mains side to charge the battery, and set the amount of power to charge the battery.

For example: set the reserved minimum SOC of the battery capacity to "10%", which means that when the battery has been discharged to 10% of the battery capacity, the battery is not allowed to continue to discharge;

When Charge from grid is set to "Enable", the utility power is allowed to charge the battery; when set to "Disable", the utility power is not allowed to charge the battery;

Charge battery to is set to 90%, indicating that the mains is allowed to charge the battery at 90%.

Backup mode	
> Min SOC:	10%

Backup mode	
> Charge from grid	Disable

Backup mode	
> Charge battery to	90%

### g) Charge and discharge time

Here you can set the charge and discharge time periods.

If two charging and discharging periods are needed, turn on the charging and discharging period 2 and set the period.

Chrg&Dischrg Period	
> Charge Period	Start Time

Charge Period	
> Charge Period	End Time

Allowed Disc Period	
> Start Time	00:00

Allowed Disc Period	
> End Time	00:00

Chrg&Dischrg Period2	
> Function	Enable Disable

### h) Dry Contact

When the user uses the inverter communication control external device function, you can enter here to set the parameters of the external response control. For the setting method, please refer to the user manual of the compatible external device.

Load Management	
> Mode Select	Disable

### i) User Password

The default password for the end user is "0000", where you can reset the new password and press the up/down key to increase or decrease the value. Press "Enter" to confirm the value and jump to the next digit. When all passwords have been entered and confirmed, press "OK" to set the password successfully.

User Password	
>	0 0 0 0

88

89



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

Setting

Setting

## Advance settings

- Safety Code a)
- Grid Parameters b)
- Export Control c)
- Meter/CT Settings d)
- Self Test e)
- Shadow For f)
- Modbus g)
- Meterbox Setting h)
- Power Factor i)
- Pu Function j)
- PVRT Function k)
- Power limit l)
- DRM Function m)
- Main Breaker Limit n)
- Battery Heating o)
- EPS/Off-grid Setting p)
- Reset q)
- Advance Password r)

All advanced settings can be set here, such as battery, grid, EPS(Off-grid), etc.

\*Advanced\* setting is generally customization and resetting for battery and grid. Each part has lower level parts.



\* Please note that when the inverter DSP communication fails, all advanced settings will be hidden.



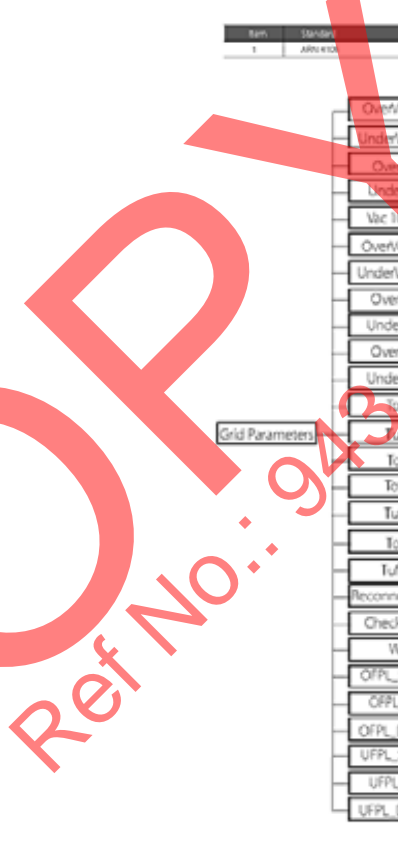
90

a) Safety Code  
Users can set safety standards according to different countries. There are now 1 standards to choose from. (There may be changes in the future, please refer to the screen display)

Item	Standard	Country
1	GB/IEC60361	Germany

- OverVoltage\_L1
- UnderVoltage\_L1
- OverFreq\_L1
- UnderFreq\_L1
- Vac 10min\_Avg
- OverVoltage\_L2
- UnderVoltage\_L2
- OverFreq\_L2
- UnderFreq\_L2
- OverFreq\_L2
- UnderFreq\_L2
- UnderFreq\_L2
- UnderFreq\_L2
- Totp\_L1
- Tovp\_L1
- Tofp\_L1
- Tovp\_L2
- Tuip\_L2
- Tofp\_L2
- Tuip\_Fast
- Reconnection Time
- Checking Time
- WtGrid
- OFFL\_StartPoint
- OFFL\_SetRate
- OFFL\_DelayTime
- UFPL\_StartPoint
- UFPL\_SetRate
- UFPL\_DelayTime

## Grid Parameters



91





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

Setting

Setting

### b) Grid Parameters

Here you can set the protection value of grid voltage and frequency. The default value is the specified value under the current safety regulations, and the user cannot change it.

The display content will be displayed according to the requirements of local laws and regulations, which are constantly increasing. Please refer to the contents displayed on the inverter screen.

Grid >Overvoltage_L1 0.0V	Grid >Undervoltage_L1 0.0V
Grid >Overfreq_L1 0.0Hz	Grid >Underfreq_L1 0.0Hz
Grid >Vac 10min Avg 0.0V	Grid >Overvoltage_L2 0.0V

### c) Export Control

This feature allows the inverter to control the amount of electricity output to the grid.

The factory value is the default and can be changed by the user. The user value set by setup must be less than the maximum. If the user does not want to supply power to the grid, set it to 0.

Export Control User value: 0W
-------------------------------------

### d) Meter/CT Settings

The user needs to select the CT or electricity meter to connect the inverter here. Select the address of the meter. CT does not need to select the address.

CT/Meter Setting > Select Meter	CT/Meter Setting > Meter 1Addr: xxxxxxxx
---------------------------------------	--

92

### e) Self Test (only for CEI 0-21)

The self test function allows users to test the following items: "Full test", "Ovp(09.S2) test", "Uvp (S1) test", "Uvp (27.S2) test", "Ofp (S1 > S1) test", "Ufp (S1 < S1) test", "Ufp (S1 > S2) test", "Ufp (S1 < S2) test", "Ovp10 (S9.S1) test".

In the self-test interface, the user can select "all tests" or a single test item for testing.

Before testing, make sure that the inverter is connected to the grid.

All tests take about 6 minutes. And it will display "Success" and then "Delivery".

For a single test item, it takes about a few seconds or minutes.

Click "Test Report" to view the test results of all items.

Self Test ALL Test Test report Uvp(09.S2) test	>Ovp2(81>S2)result Ft: 11.50Hz Tt: 1000ms Fs: 0.00Hz Tt: 999ms Fd: 0.00Hz pass	>Ovp1(9.S2)result Vt: 4.5V Tt: 300ms Vs: 0.0V Tt: 200ms Vd: 0.0V pass
>Ovp2(27.S2)result Vt: 92.0V Tt: 200ms Vs: 0.0V Tt: 198ms Vd: 0.2V pass	>Uvp2(27.S1)result Vt: 195.5V Tt: 400ms Vs: 0.0V Tt: 200ms Vd: 0.0V pass	>Ovp2(81<S2)result Ft: 47.50Hz Tt: 400ms Fs: 0.00Hz Tt: 3999ms Fd: 0.02Hz pass
>Ofp2(81>S1)result Ft: 50.50Hz Tt: 100ms Fs: 0.00Hz Tt: 99ms Fd: 0.02Hz pass	>Ufp2(81<S1)result Ft: 49.50Hz Tt: 100ms Fs: 0.00Hz Tt: 98ms Fd: 0.02Hz pass	>Ovp10(S9.S1)result Vt: 253.0V Tt: 600ms Vs: 0.0V Tt: 598ms Vd: 0.0V pass

### f) Shadow Fix

Here you can set the shadow tracking with four options, which are off, low, medium, and high.

Shadow Fix > Func Select >Off<
--------------------------------------

93



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

Setting

g) Modbus  
Here you select the baud rate of the external communication protocol, the default location of 19200 and 485 addresses.

Modbus RTU/485 Baud Rate: 115200	Modbus RTU/485 RS485 Addr: 1
--	------------------------------------

h) Matebox Setting  
If you want MateBox installed, you need to turn this feature on here.

Matebox Setting > Select Disable Enable
---

i) Power Factor (applicable to specific countries, please refer to local grid requirements.)

Power Factor Mode Select > Off <	Power Factor Mode Select > Overboosted <
Power Factor Mode Select > Under-boosted <	Power Factor Mode Select > Curve <
Power Factor Mode Select > Opt <	

Mode	Comment
Off	--
Over-Excted	PF value
Under-Excted	PF value
P1	PF (EU/US/49 only)
P2	PF (EU/US/49 only)
P3	PF (EU/US/49 only)
P4	PF (EU/US/49 only)
Power1	
Power2	
Power3	
Power4	
PF LockOutPoint (EU/US/49 only)	
PF LockOutPoint (EU/US/49 only)	
PFcu	
UnSATC (AS4772 only)	
UnSATD (AS4772 only)	
CURRESPONSE1 (EU/US/49 only)	
CURRESPONSE2 (EU/US/49 only)	
CURRESPONSE3 (EU/US/49 only)	
CURRESPONSE4 (EU/US/49 only)	
FValue (CEI 0-21 only)	
YIcu	
QVDelayTimer	
Fixed Q Power	
Q Power	

j) PU Function (applicable to specific countries, please refer to local grid requirements.)

The PU function is a zero-watt response mode required by certain national standards such as AS4772. This function can control the active power of the inverter according to the grid voltage. Selecting "Enable" means that this function is turned on and is the default value. Select "Disable" to deactivate the function.

PU Function > PFunction Enable	PU Function Response V2 220.0V
--------------------------------------	--------------------------------------



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

Setting

<b>PU Function</b> Response V3 250.0V	<b>PU Function</b> Response V4 265.0V
<b>PU Function</b> 3Tau 5-180S	

k) FVRT Function (apply to 50549)  
Here you can set the high and low enable or disable.

<b>FVRT Function</b>
Function Control
Disable    Enable

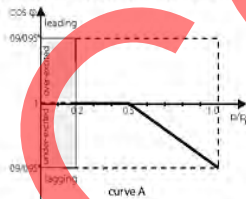
l) Power limit  
Power limit function, the maximum power of the AC port can be set by percentage.

<b>Power Limit</b>
>Proportion
1.00

• Reactive power control, reactive power standard curve  $Q = f(V)$   
For VDE ARN 4105, the curve  $\cos = f(P)$  should refer to curve B. The set default value is shown in curve B.

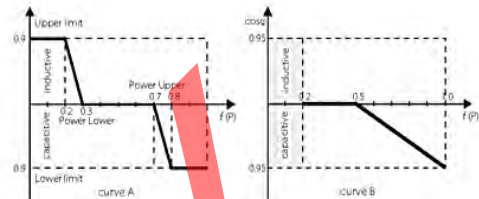
For e8001, the curve  $\cos = f(P)$  should be curve A. The set default value is shown in curve A.

For CEI 0-21, the default value of PFLockInPoint is 1.05. When  $V_{ac} > 1.05V_n$ ,  $P_{ac} > 0.2 P_n$ , curve  $\cos = f(P)$  corresponds to curve B.

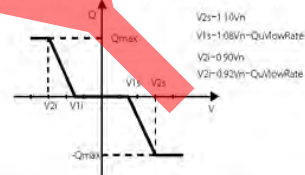


96

Setting



• Reactive power control, reactive power standard curve  $Q = f(V)$



m) DRM function (applied to NZS4777.2)  
The DRM function is a demand response method required by the NZS4777.2 standard and is only applicable to NZS4777.2. The default value is "enable". Select "Disable" to disable this function.

<b>DRM Function</b>
>Function Control
Enable

n) Main Breaker Limit  
Here you can set an open minimum current here.

<b>Main Breaker Limit</b>
>Current
40A

97



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

Setting

### l) Battery Heating

If the user needs the battery heating function, you can set it to turn on here, and set the time period that needs to be heated, and the two time periods can be set. (Only for batteries with heating function)

<b>Battery Heating</b> >Func Select: Enable    Disable	<b>Battery Heating</b> >Heating Period 1 Start Time 00:00	<b>Battery Heating</b> >Heating Period 1 End Time 00:00
<b>Battery Heating</b> >Heating Period 2 Start Time 00:00	<b>Battery Heating</b> >Heating Period 2 End Time 00:00	

### l) EPS(Off-grid) Setting

User can set the frequency selection in the EPS(Off-grid) mode here, and set the minimum capacity reserved for battery discharge.

<b>EPS(Off-grid) Setting</b> > Frequency 50Hz	<b>EPS(Off-grid) Setting</b> >Frequency 60Hz	<b>EPS(Off-grid) Setting</b> > Min SoC 10%
---	--	--

### q) Reset

Users can reset the reset error log, meter power, inverter power, and restore factory settings here.

<b>Reset Error Log</b> >Reset Yes	<b>Reset Meter/CT_1</b> >Reset Yes	<b>Reset Meter/CT_2</b> >Reset Yes
<b>Reset INV Energy</b> >Reset Yes	<b>Factory Reset</b> >Reset Yes	

### r) Advance Password

Here you can reset the advanced password. "Set OK" is displayed on success, and "Setup Failed" will also be displayed on failure.

<b>Advance Password</b> Set OK	<b>Advance Password</b> Setup failed
-----------------------------------	---

98

Setting

### ➤ Manufactory Setting

Manufactory Setting	<b>RlyEPSN Setting</b> a)
	<b>COM Port Select</b> b)

### a) RlyEPSN Setting

The user needs to set whether the inverter is installed in Australia or Europe. When the inverter is off the grid, the N line and PE line of the circuit in Australia need to be connected; the N line and PE line of the European circuit need to be separated.

<b>RlyEPSN Setting</b> >function Control Europe	<b>RlyEPSN Setting</b> >function Control Australia
---	--

### b) COM Port Select

Here external communication protocol or external indoor screen of the inverter can be set. When it is used for external communication protocol, it can choose RS485 or MOBUS.

<b>RS485/MOBUS</b> > RS485 MOBUS
--

99



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

Setting

Setting

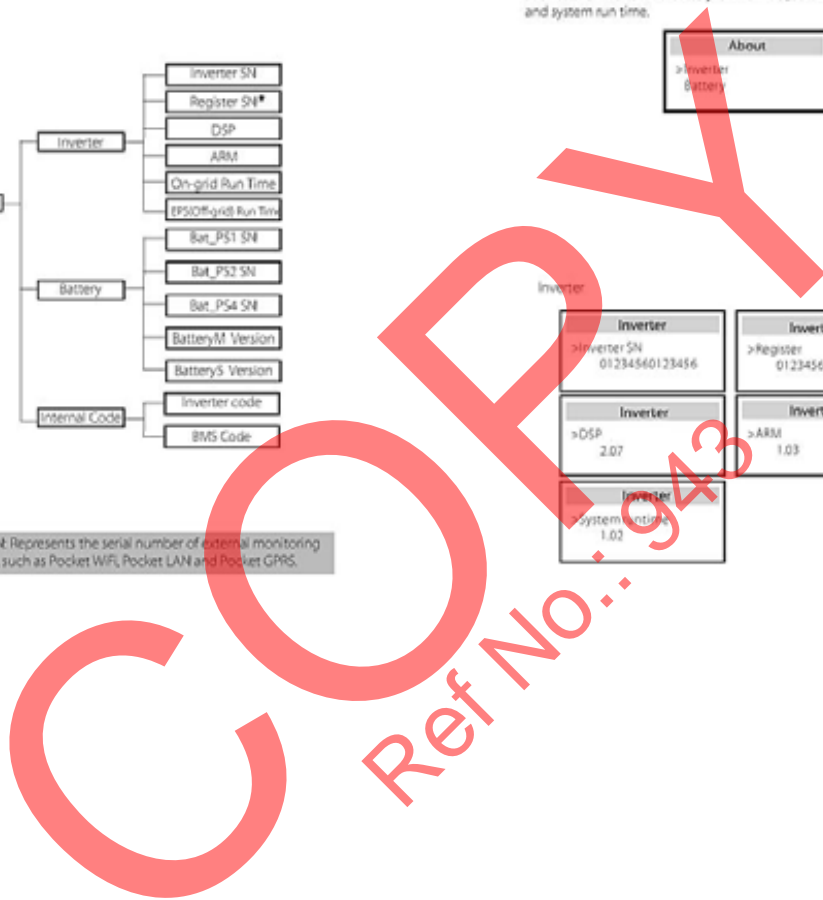
> About

a) About  
Here you can see some basic information of the inverter and battery, such as the inverter and battery SN number, software version number, and system run time.



Inverter	
> Inverter SN	01234560123456
> Register	01234560123456
> DSP	2.07
> ARM	1.03
> system runtime	1.02

\* Register1 SN Represents the serial number of external monitoring equipment, such as Pocket WiFi, Pocket LAN and Pocket GPRS.







# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

Setting

Troubleshooting

Battery

Battery	Battery
>Bat Brand BAK	>Bat MSN 65012345012345
Battery	Battery
>Bat P13 SN 65012345012345	>Bat P12 SN 65012345012345
Battery	Battery
>Bat P13 SN 65012345012345	>Bat P14 SN 65012345012345
Battery	Battery
>BatteryMVersion 2.01	>BatteryMVersion 2.01

Internal Code

Internal Code	Internal Code
>Inverter code 01 00 01 xx	>BMS code
Internal Code	Internal Code
>BAT M 2.01	>BAT S1 1.01.50
Internal Code	Internal Code
>BAT S2 1.01.50	*** >BAT S8 1.01.50

## 8 Troubleshooting

### 8.1 Troubleshooting

This section contains information and procedures for resolving possible problems with X3-Hybrid G4, and provides you with troubleshooting tips to identify and solve most problems that may occur in X3-Hybrid G4. This section will help you narrow down the source of any problems you may encounter. Please read the troubleshooting steps below.

Check the warning or fault information on the system control panel or the fault code on the inverter information panel. If a message is displayed, log it before doing anything further.

Try the solutions indicated in the table below.

Number	Faults	Diagnosis and solution
E 001	T2 Protect Fault	Overcurrent fault • Wait for a while to check if you're back to normal • Disconnect PV's PV and Batteries, reconnect. • Or ask for help from the installer if it cannot return to normal.
E 002	Grid Lost Fault	• Check battery input voltage if it's within normal range • Or ask the installer for help.
E 003	Grid Volt Fault	Power grid voltage out of range. • Wait a moment, if the utility returns to normal, the system will reconnect. • Please check if the grid voltage is within normal range. • Or ask the installer for help.
E 004	Grid Freq Fault	Electricity frequency beyond range • If the utility returns to normal, the system reconnects. • Or ask the installer for help.
E 005	PV Volt Fault	PV voltage out of range • Check the output voltage of the PV panel. • Or ask the installer for help.
E 006	Bus Volt Fault	• Press the "ESC" key to restart the inverter. • Check that the PV input open circuit voltage is in the normal range. • Or ask the installer for help.
E 007	Bat Volt Fault	Battery voltage fault • Check battery input voltage if it's within normal range • Or ask the installer for help.
E 008	AC(DM) Volt Fault	• The grid voltage was out of range in the last 10 minutes. • The system will return to normal if the grid returns to normal. • Or ask the installer for help.

102

103



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

## Troubleshooting

Number	Faults	Diagnosis and solution
IE 009	DC OCP Fault	DCI overcurrent protection fault • Wait for a while to check if it's back to normal. • Or ask the installer for help.
IE 010	DCV OVP Fault	DCV EPSoDF grid overvoltage protection failure • Wait for a while to check if it's back to normal. • Or ask the installer for help.
IE 011	SW OCP Fault	<b>Software Detection of Overcurrent Fault</b> • <b>Wait for a while to check if it's back to normal.</b> • <b>Shut down photovoltaic, battery and grid connections.</b> • <b>Or ask the installer for help.</b>
IE 012	RC OCP Fault	Overcurrent protection fault • Check the impedance of DC input and AC output. • Wait for a while to check if it's back to normal. • Or ask the installer for help.
IE 013	Isolation Fault	Insulation Fault • Please check the wire insulation for damage. • Wait for a while to check if it's back to normal. • Or ask the installer for help.
IE 014	Temp Over Fault	Temperature beyond limit • Check if ambient temperature exceeds the limit. • Or ask the installer for help.
IE 015	Bat Con Di Fault	EPSoDF grid mode current is too strong • Ensure that the load power is within the EPSoDF grid power range. • Check for any non-linear load connections on the EPSoDF grid. • Move this load to check for recovery. • Or ask for help from the installer if it can not return to normal.
IE 016	EPSoDF grid Overload Fault	EPSoDF grid over load fault. • Shut down the high power device and press the "ESC" key to restart the inverter. • Or ask for help from the installer if it can not return to normal.
IE 017	OverLoad Fault	On grid mode over-load • Shut down the high power device and press the "ESC" key to restart the inverter. • Or ask for help from the installer if it can not return to normal.
IE 018	Bat Power Low	• <b>Close the high power device and press the "ESC" key to restart the inverter.</b> • <b>Please charge the battery to a level higher than the protection capacity or protection voltage.</b>
IE 019	BMS Loss	Battery communication loss • Check that the communication lines between the battery and the inverter are properly connected. • Or ask for help from the installer if it can not return to normal.
IE 020	Fan Fault	Fan Fault • Check for any foreign matter that may have caused the fan not to function properly. • Or ask for help from the installer if it can not return to normal.
IE 021	Low Temp	Low temperature fault. • Check if the ambient temperature is too low. • Or ask for help from the installer if it can not return to normal.

104

## Troubleshooting

Number	Faults	Diagnosis and solution
IE 022	ARM Unmatched	ARM software version mismatch Fault • update the software and press the "ESC" key to restart the inverter. • Or ask for help from the installer if it can not return to normal.
IE 023	Other Device Fault	Other device Fault • update the software and press the "ESC" key to restart the inverter. • Or ask for help from the installer if it can not return to normal.
IE 025	InverComms Error	MultiPulseCom Fault • Shut down photovoltaic, battery and grid, reconnect. • Or ask for help from the installer if it can not return to normal.
IE 025	InverComms Error	Internal communication error • Shut down photovoltaic, battery and grid connections. • Or ask for help from the installer if it can not return to normal.
IE 026	Inver EEPROM Fault	Inverter EEPROM Fault • <b>Shut down photovoltaic, battery and grid, reconnect.</b> • <b>Or ask for help from the installer if it can not return to normal.</b>
IE 027	RCD Fault	Fault of Residual Current Device • Check the impedance of DC input and AC output. • Disconnect PV + PV - and Batteries, reconnect. • Or ask for help from the installer if it can not return to normal.
IE 028	GAS Relay Fault	Electrical relay fault • Disconnect P+ PV - grid and batteries and reconnect. • Or ask for help from the installer if it can not return to normal.
IE 029	EPSoDF grid/Relay Fault	EPSoDF grid-relay failure • Disconnect P+ PV - grid and batteries and reconnect. • Or ask for help from the installer if it can not return to normal.
IE 030	PV Conn Di Fault	PV Sense fault • Check if the PV input lines are connected in the opposite direction. • Or ask for help from the installer if it can not return to normal.
IE 031	Charge Relay Fault	Charge relay fault • Press the "ESC" key to restart the inverter. • Or ask for help from the installer if it can not return to normal.
IE 032	Earth Relay Fault	EPSoDF grid earth relay fault • Press the "ESC" key to restart the inverter. • Or ask for help from the installer if it can not return to normal.
IE 036	Power Type Fault	Power type fault • Upgrade the software and press the "ESC" key to restart the inverter. • Or ask for help from the installer if it can not return to normal.
IE 100	Port DC Warning	EPSoDF grid port over current fault • Check that the EPSoDF grid load does not exceed the system requirements and press the "ESC" key to restart the inverter. • Or ask for help from the installer if it can not return to normal.

105



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

## Troubleshooting

Number	Faults	Diagnosis and solution
IE 103	Mgr EEPROM Fault	Manager EEPROM Fault • Shut down photovoltaic, battery and grid, reconnect. • Or seek help from the installer if it can not return to normal.
IE 104	DSP Unmatched	DSP version error • Check that the DSP1 version matches. • Or seek help from the installer if it can not return to normal.
IE 105	NTC Sample Invalid	NTC Invalid • Make sure the NTC is properly connected and the NTC is in good condition. • Please confirm that the installation environment is normal. • Or ask for help from the installer if it can not return to normal.
IE 106	Bat Temp Low	Battery temp low • Check the battery installation environment to ensure good heat dissipation. • Or ask for help from the installer if it can not return to normal.
IE 107	Bat Temp High	Battery temp high • Check the battery installation environment to ensure good heat dissipation. • Or ask for help from the installer if it can not return to normal.
IE 109	Meter Fault	Meter error • Please check that the instrument is working properly. • Or seek help from the installer if it can not return to normal.
IE 110	Bypass Relay Fault	Bypass relay fault • Press the EDC key to restart the inverter. • Or ask for help from the installer if it can not return to normal.
BE 001	BMS_External_Fir	Battery Error: External Communication Fault • Please contact the battery supplier.
BE 002	BMS_Internal_Fir	Battery Error: Internal Communication Fault • Please contact the battery supplier.
BE 003	BMS_OverVoltage	Over voltage in battery system • Please contact the battery supplier.
BE 004	BMS_LowVoltage	Low voltage in battery system • Please contact the battery supplier.
BE 005	BMS_ChargeOCP	Battery fault: over charge fault • Please contact the battery supplier.
BE 006	BMS_DischargeOCP	Battery fault: discharge over current fault • Please contact the battery supplier.
BE 007	BMS_TerrFault	Over temperature in battery system • Please contact the battery supplier.
BE 008	BMS_TempSensor Fault	Battery temperature sensor malfunction • Please contact the battery supplier.

106

## Troubleshooting

Number	Faults	Diagnosis and solution
BE 009	BMS_CellImbalance	Battery Unbalanced Failure • Please contact the battery supplier.
BE 010	BMS_Hardware Protect	Battery hardware protection failure • Please contact the battery supplier.
BE 011	BMS_Circuit_Fault	Battery circuit failure • Restart the battery. • Please contact the battery supplier.
BE 012	BMS_Go_Fault	Battery simulation failure • Check that the battery is properly grounded and restart the battery. • Please contact the battery supplier.
BE 013	BMS_VolSen_Fault	Battery voltage sensor fault • Please contact the battery supplier.
BE 014	BMS_TempSen_Fault	Temperature sensor failure • Restart the battery. • Please contact the battery supplier.
BE 015	BMS_CurSensor Fault	Battery current sensor fault • Please contact the battery supplier.
BE 016	BMS_Relay Fault	Battery relay failure • Please contact the battery supplier.
BE 017	BMS_Type_Unmatch	Battery type failure • Upgrade the battery BMS software. • Please contact the battery supplier.
BE 018	BMS_Ver_Unmatch	Battery version mismatch failure • Upgrade the battery BMS software. • Please contact the battery supplier.
BE 019	BMS_Mfr_Unmatch	Battery manufacturer did not match the fault • Upgrade the battery BMS software. • Please contact the battery supplier.
BE 020	BMS_SW_Unmatch	Battery hardware and software mismatch failure • Upgrade the battery BMS software. • Please contact the battery supplier.
BE 021	BMS_MSE_Unmatch	Battery master slave control mismatch failure • Upgrade the battery BMS software. • Please contact the battery supplier.
BE 022	BMS_CH_NDRespond	Battery charging request does not respond to a fault • Upgrade the battery BMS software. • Please contact the battery supplier.
BE 023	BMS_SW_Protect	Battery slave software protection failure • Upgrade the battery BMS software. • Please contact the battery supplier.
BE 024	BMS_SIM_Fault	Battery fault: discharge over current fault • Please contact the battery supplier.
BE 025	BMS_SelChackSEr	Over temperature in battery system • Please contact the battery supplier.

107



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

## Troubleshooting

Number	Faults	Diagnosis and solution
BE 026	BMS_TempOffErr	Battery temperature sensor malfunction • Please contact the battery supplier.
BE 027	BMS_UnbalFvlt	Battery Unbalanced failure • Please contact the battery supplier.
BE 028	BMS_HighFvlt	Battery hardware protection failure • Please contact the battery supplier.
BE 029	BMS_PredChrgFvlt	Battery precharge failure • Please contact the battery supplier.
BE 030	BMS_AirSwitchFvlt	Battery air switch failure • Check that the battery breaker is off. • Please contact the battery supplier.

• If the information panel of your inverter does not show the fault light, check the following list to ensure the current installation status, correct operation.

- Is the inverter located in a clean, dry and well-ventilated place?
- Is the DC input circuit breaker open?
- Is the specification and length of the cable adequate?
- Are the input and output connections and wiring in good condition?
- Is the configuration set correct for your particular installation?

please contact Solax customer service for further assistance. Please be prepared to describe the details of your system installation and provide the inverter serial numbers.

108

## Troubleshooting

### 8.2 Routine Maintenance

Inverter do not require any maintenance or correction in most cases, but if the inverter often loses power due to overheating, this can be attributed to the following reason:

- **heat sink behind the inverter is covered with dirt.**  
If necessary, clean the cooling heat sink with a soft dry cloth or brush. Only trained and authorized professional's familiar with safety requirements can perform maintenance and maintenance work.

#### ➤ Safety inspections

Safety checks should be conducted at least every 12 months, please contact the manufacturer to arrange for appropriate training, expertise, and practical experience in performing these tests. (Please note that this action is not covered by warranty). These data should be recorded in the device log. If the equipment is not running properly or any test fails, the equipment must be repaired for details of safety inspections, refer to section 2 of this manual for safety instructions and europe commission instructions.

#### ➤ Regular maintenance

Only qualified people can do the following work.

In the process of using frequency converter, the manager should check and maintain the machine regularly. The specific operation is as follows.

1. check whether the heat sink is covered with dirt, clean the machine and absorb dust if necessary. This work should be performed from time to time.
2. check whether the frequency converter indicator is normal, check whether the frequency converter button is normal, check whether the frequency converter display is normal. This inspection should be conducted at least every 6 months.
3. check the input and output lines for damage or aging. This inspection should be conducted at least every 6 months.
4. Cleaning and safety inspection of PV modules should be carried out at least once every 6 months.

109



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ข. Technical Specification (ต่อ).

Dismantling

Disclaimer

## 9 Decommissioning

### 9.1 Disassemble the Inverter

- Remove DC input line and AC output line of inverter.
- Wait for at least 5 minutes to power off.
- Remove all cable connections from the inverter.
- Remove inverter from finger support the brackets.
- Remove the bracket if necessary.

### 9.2 Packing

Load the inverter into the original package if possible.

- If the original package can not be found, you can also use the following requirements of the carton packaging:  
Bearing capacity of more than 30 kg.  
Easy to carry.  
Can completely seal the cover.

### 9.3 Storage and Transportation

Store the Inverter in a dry, temperature -40°C~70°C environment.  
Pay attention to less than four machines on each stack board during storage and transportation.

### 9.4 Waste Disposal

If it is necessary to scrap the inverter or other related parts, be sure to send the waste inverter and packaging materials to the designated location for recycling by the relevant department.

## 10 Disclaimer

The X3-Hybrid G4 series hybrid inverters are transported, used and operated under limited condition, such as environmental, electrical etc. SolaX shall not be liable to provide the service, technical support or compensation under conditions listed below, including but not limited to:

- Inverter is damaged or broken by force majeure (such as earthquake, flooding, thunderstorm, lightning, fire hazard, volcanic eruption etc).
- Inverter's warranty is expired and doesn't buy extended warranty.
- Can't provide the inverter's SN, warranty card or invoice.
- Inverter is damaged by man-made cause. Inverter is used or operated against any items in local policy.
- Inverter's installation, configuration, commissioning doesn't follow the requirements mentioned in this manual.
- Inverter is installed, refitted or operated in improper ways mentioned in this manual without authority from SolaX.
- Inverter is installed, operated under improper environment or electrical condition mentioned in this manual without authority from SolaX.
- Inverter is changed, updated or disassembled on hardware or software without authority from SolaX.
- Obtain the communication protocol from other illegal channels.
- Build monitoring, control system without authority from SolaX.
- Connect to other brands batteries without authority from SolaX.

SolaX will keep right to explain all the contents in this user manual.





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001.

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.: MS-0025001-appendix 13	
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No:	CN21EDK2 001
Order No.:	244313300	Product:	Grid-Connected PV Inverter
Client Name:	SolaX Power Network Technology (Zhejiang) Co., Ltd	Model designation:	X3-Hybrid-15.0
Issue Date:	2021.07.27	Project Engineer:	Allen Hu
Lab Target:	2021.07.27	Signature:	Allen Hu
Testing Location:			
Name:	TÜV Rheinland (Shanghai) Co., Ltd		
Address:	No. 177, Lane 777 West Guangzhong Road, Jing'an District, Shanghai, 200072 P.R. China		
Electrical rating of the equipment:			
Rated Input:	See appended rating label		
Rated Output:	See appended rating label for more detail.		
Firmware version:	DSP1:2.07,DSP2:2.01,ARM:2.03		
Phase:	<input type="checkbox"/> Single-phase <input checked="" type="checkbox"/> Three-phase		
Protection class:	<input type="checkbox"/> Class 0 <input checked="" type="checkbox"/> Class I <input type="checkbox"/> Class II <input type="checkbox"/> Class III		
Overvoltage Category (OVC):	<input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II (PV) <input checked="" type="checkbox"/> OVC III (Mains) <input type="checkbox"/> OVC IV		
Pollution degree (PD):	<input type="checkbox"/> PD 1 <input checked="" type="checkbox"/> PD 2 (Inside) <input checked="" type="checkbox"/> PD 3 (Outside)		
Max. operating temperature:	See appended rating label		
Documents attached:		Remark	
<input checked="" type="checkbox"/> Rating label	See following page.		
<input checked="" type="checkbox"/> Product photo	See attachment 3.		
<input checked="" type="checkbox"/> Test equipment list	See attachment 2.		
<input checked="" type="checkbox"/> Wave diagram in test	See attachment 1.		

Used equipment No.: See equipment list for details Sample No.: N/A  
Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_  
Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland <sup>®</sup>	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No.:	244313300	Product:	Grid-Connected PV Inverter
Client Name:	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

Content	Page No
Rating label of EUT	3
General requirements and information for the tests	4
Requirements to the Measurement Precision of the Measuring Devices	7
Test results	9
Harmonics	9
Voltage Fluctuation	16
Direct Current Injection	18
Operating Voltage Range	19
Operating Frequency Range	21
Islanding Protection	22
Response to Utility Recovery	29
Attachment 1: Wave result	31
Over voltage test	31
Under voltage test	71
Over frequency test	111
Under frequency test	116
Islanding Protection test	121
Response to Utility Recovery test	177
Remark for wave diagram	195
DC injection trend line	196
Attachment 2: Test equipment list	197
Attachment 3: EUT photo	198

Used equipment No.: See equipment list for details      Sample No.: N/A  
Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

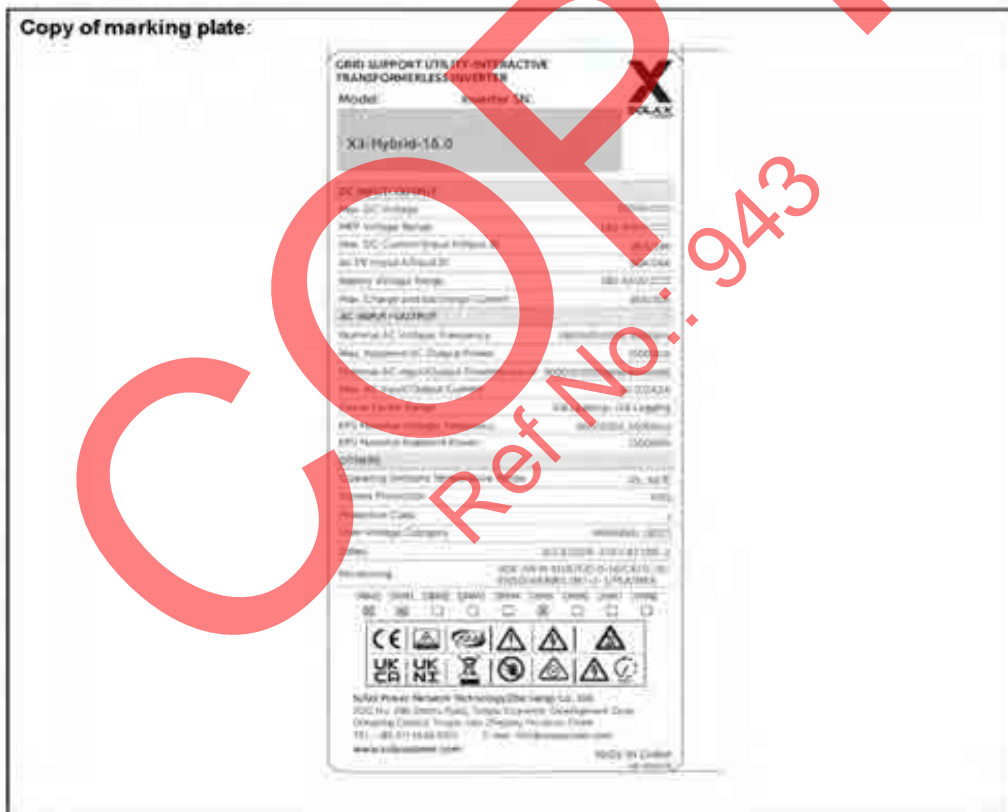
วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.: MS-0025001-appendix 13	
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No.:	244313300	Product:	Grid-Connected PV Inverter
Client Name:	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

Clause	Test description	Remark	Result
<input checked="" type="checkbox"/> 3	Technical Specifications	See below for detail.	Pass
<input checked="" type="checkbox"/> 3.1	Power Quality Control	See below for detail.	Pass
<input checked="" type="checkbox"/> 3.1.1	Harmonics	See clause 4.3.1.	Pass
<input checked="" type="checkbox"/> 3.1.2	Voltage Fluctuation	See clause 4.3.2.	Pass
<input checked="" type="checkbox"/> 3.1.3	Direct Current Injection	See clause 4.3.3.	Pass
<input checked="" type="checkbox"/> 3.2	Response to Electrical System	See below for detail.	Pass
<input checked="" type="checkbox"/> 3.2.1	Operating Voltage Range	See clause 4.3.4.	Pass
<input checked="" type="checkbox"/> 3.2.2	Operating Frequency Range	See clause 4.3.5.	Pass
<input checked="" type="checkbox"/> 3.2.3	Islanding Protection	See clause 4.3.6.	Pass
<input checked="" type="checkbox"/> 3.2.4	Response to Utility Recovery	See clause 4.3.7.	Pass
<input checked="" type="checkbox"/> 4	Testing Methodology	See below for detail.	Pass
<input checked="" type="checkbox"/> 4.1	Testing Institute or Organization	All tests are conducted in the organization with ISO/IEC 17025 certified laboratory.	Pass
<input checked="" type="checkbox"/> 4.2	Type of the Test	See below for detail.	Pass
<input checked="" type="checkbox"/> 4.2.1	Design Test	All tests are performed on single representative of inverter for each model.	Pass
<input checked="" type="checkbox"/> 4.3	Test Procedure and Assessment	All tests are performed according to the procedures specified in MEA regulation 2015 version.	Pass
<input checked="" type="checkbox"/> 4.3.1	Harmonics Test	See appended table 4.3.1.	Pass
<input checked="" type="checkbox"/> 4.3.2	Voltage Fluctuation Test	See appended table 4.3.2.	Pass
<input checked="" type="checkbox"/> 4.3.3	Direct Current Injection Test	See appended table 4.3.3.	Pass
<input checked="" type="checkbox"/> 4.3.4	Operating Voltage Range Test	See appended table 4.3.4.	Pass

Used equipment No.: See equipment list for details Sample No.: N/A  
Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_  
Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No.:	244313300	Product:	Grid-Connected PV Inverter
Client Name:	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0
Clause	Test description	Remark	Result
<input checked="" type="checkbox"/> 4.3.5	Operating Frequency Range Test	See appended table 4.3.5.	Pass
<input checked="" type="checkbox"/> 4.3.6	Islanding Protection Test	See appended table 4.3.6.	Pass
<input checked="" type="checkbox"/> 4.3.7	Response to Utility Recovery Test	See appended table 4.3.7.	Pass
Remark:			

### Revision History:

Date YYYY-MM-DD	Contents of modification (latest on top)	Prepared by	Approved by
2016-05-31	Original Test Plan	Tobias Yang	Li Weichun

Used equipment No.: See equipment list for details Sample No.: N/A  
 Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No.:	244313300	Product:	Grid-Connected PV Inverter
Client Name:	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

### Special notice to test engineer

Please contact and communicate with project engineer immediately when any of the following conditions occurred:

- Unclear of the test operating conditions and test items.
- Uncertain of the test requirements or possible typing errors found in the test plan.
- Unusual operating conditions of the EUT (unusual noises, unstable operation, ... etc), any unusual phenomenon of the operation that attracts your attention.
- Receive different model/type name of samples that does not match to the test plan.
- Short of the test samples.
- Unusual high temperatures observed during testing.
- Enclosure distortion, cracks, or loosening of any enclosure parts observed during testing, and
- Fire occurred within the EUT during testing.

Handling of test samples after completed all tests:

- Store in warehouse and wait for further notice
- Return to project engineer
- Dispose test samples according to current lab procedures
- Return to the client

Used equipment No.: See equipment list for details Sample No.: N/A  
 Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.: MS-0025001-appendix 13	
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Requirements to the Measurement Precision of the Measuring Devices

The used measuring devices must fulfill at least the following measuring precisions.

### Minimum measuring precisions

Measured Variable	Frequency Range	Measuring Precision relative to the Measuring Range
Voltage up to 1 000 V	50 Hz	± 0.1 %
	DC to 1 kHz (except for 50 Hz)	± 1.0 %
	1 kHz to < 5 kHz	± 1.5 %
	5 kHz to < 20 kHz	± 2.5 %
	≥ 20 kHz	± 5.0 %
Current < 5A	50 Hz	± 0.5 %
	DC to < 60 Hz (except for 50 Hz)	± 1.0 %
	60 Hz to < 5 kHz	± 1.5 %
	5 kHz to < 20 kHz	± 2.5 %
Current > 5A	50 Hz	± 0.5 %
	≥ 20 kHz (except for 50 Hz)	± 5.0 %
	DC to < 5 kHz	± 1.5 %
	5 kHz to < 20 kHz	± 3.5 %
Frequency	DC to < 60 Hz	± 0.01 Hz
	60 Hz to 5 kHz	± 0.2 %
	5 kHz to < 20 kHz	± 0.5 %
	≥ 20 kHz	± 1 %
Displacement Factor cosφ		0.001
Time	10 ms to < 200 ms	± 5 % of the measured value
	200 ms to < 1 s	± 10 ms
	≥ 1 s	± 1 % of the measured value
Temperature	> -35°C to 100°C	± 2°C
Relative humidity	30 % to 95 % RH	± 6 % RH

Used equipment No.: See equipment list for details Sample No.: N/A  
 Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TUV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No.:	244313300	Product:	Grid-Connected PV inverter
Client Name:	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

Measured Variable	Frequency Range	Measuring Precision relative to the Measuring Range
Barometric air pressure		± 10 kPa

The selected measuring range must not be bigger than 150% of the nominal value of the signal to be measured.

Source: CTL Decision Sheet DHS251B / 2009, modified

**COPY**  
Ref No.: 943

Used equipment No.: See equipment list for details Sample No.: N/A  
Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_  
Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.: MS-0025001-appendix 13	
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

### 4.3.1. Harmonics Test

#### PROCEDURE

Test method complies with standard IEEE 1547.1-2005, clause 5.11.1

Limits see following table:

Odd Order	Current limit (%)	Even Order	Current limit (%)
3 - 9	4.0	2 - 10	1.0
11 - 15	2.0	12 - 16	0.5
17 - 21	1.5	18 - 22	0.375
23 - 33	0.6	24 - 34	0.15
≥ 35	0.3	≥ 36	0.075

Total harmonic current distortion (THD) 5.0 %

RESULTS  Pass /  Fail

4.3.1 TABLE: Harmonic and waveform distortion									
Mains voltage: 3N/PE 400V									
P/Pn [%]	100%		100%		100%		Limit		
	Measurement								
Ordinal number	[A]	[%]	[A]	[%]	[A]	[%]	[A]	[%]	
Total	21.767	100.13	21.791	100.23	21.840	100.46	-	-	
1	21.755	100.07	21.778	100.18	21.828	100.40	-	-	
2	0.13	0.60	0.14	0.64	0.13	0.60	0.87	1.0	
3	0.05	0.23	0.03	0.14	0.03	0.14	3.48	4.0	
4	0.02	0.09	0.03	0.14	0.01	0.05	0.87	1.0	
5	0.56	2.58	0.55	2.53	0.55	2.53	3.48	4.0	
6	0.01	0.05	0.01	0.05	0.02	0.09	0.87	1.0	

Used equipment No.: See equipment list for details Sample No.: N/A  
 Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.: MS-0025001-appendix 13	
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No:	CN21EDK2 001
Order No.:	244313300	Product:	Grid-Connected PV Inverter
Client Name:	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

7	0.34	1.56	0.34	1.56	0.34	1.56	3.48	4.0
8	0.01	0.05	0.01	0.05	0.01	0.05	0.87	1.0
9	0.01	0.05	0.02	0.09	0.01	0.05	3.48	4.0
10	0.01	0.05	0.01	0.05	0.00	0.00	0.87	1.0
11	0.17	0.78	0.17	0.78	0.16	0.74	1.74	2.0
12	0.00	0.00	0.01	0.05	0.01	0.05	0.44	0.5
13	0.10	0.46	0.10	0.46	0.10	0.46	1.74	2.0
14	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.5
15	0.01	0.05	0.01	0.05	0.00	0.00	1.74	2.0
16	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.5
17	0.04	0.18	0.04	0.18	0.04	0.18	1.31	1.5
18	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.375
19	0.04	0.18	0.04	0.18	0.04	0.18	1.31	1.5
20	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.375
21	0.00	0.00	0.01	0.05	0.01	0.05	1.31	1.5
22	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.375
23	0.03	0.14	0.03	0.14	0.03	0.14	0.52	0.6
24	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.15
25	0.02	0.09	0.02	0.09	0.03	0.14	0.52	0.6
26	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.15
27	0.00	0.00	0.00	0.00	0.00	0.00	0.52	0.6
28	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.15
29	0.02	0.09	0.02	0.09	0.02	0.09	0.52	0.6
30	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.15
31	0.02	0.09	0.01	0.05	0.02	0.09	0.52	0.6

Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.: MS-0025001-appendix 13	
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No:	CN21EDK2 001
Order No.:	244313300	Product:	Grid-Connected PV Inverter
Client Name:	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

32	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.15
33	0.00	0.00	0.00	0.00	0.00	0.00	0.52	0.6
34	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.15
35	0.02	0.09	0.01	0.05	0.02	0.09	0.26	0.3
36	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.075
37	0.02	0.09	0.02	0.09	0.02	0.09	0.26	0.3
38	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.075
39	0.01	0.05	0.01	0.05	0.00	0.00	0.26	0.3
40	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.075
TRDi	3.32		3.46		3.33			

Remark:  
 $I_{rated} = 21.74 \text{ A}$   
 $I_h\% = I_h / I_{rated} \times 100\%$   
 $TRDi = \frac{\sum I_h \cdot I_h}{I_{rated}^2} \times 100\%$

4.3.1 TABLE: Harmonic and waveform distortion

Mains voltage: 3/N/PE 400V

P/Pn[%]	66		66		66		Limit	
	Measurement							
Ordinal number	[A]	[%]	[A]	[%]	[A]	[%]	[A]	[%]
Total	14.913	68.60	14.942	68.73	14.974	68.88	-	-
1	14.899	68.53	14.930	68.67	14.961	68.82	-	-
2	0.10	0.46	0.11	0.51	0.11	0.51	0.87	1.0
3	0.05	0.23	0.04	0.18	0.05	0.23	3.48	4.0

Used equipment No.: See equipment list for details      Sample No.: N/A

Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_

Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.: MS-0025001-appendix 13	
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

4	0.04	0.18	0.03	0.14	0.03	0.14	0.87	1.0
5	0.31	1.43	0.31	1.43	0.31	1.43	3.48	4.0
6	0.02	0.09	0.01	0.05	0.02	0.09	0.87	1.0
7	0.22	1.01	0.21	0.97	0.22	1.01	3.48	4.0
8	0.01	0.05	0.01	0.05	0.01	0.05	0.87	1.0
9	0.01	0.05	0.02	0.09	0.01	0.05	3.48	4.0
10	0.01	0.05	0.01	0.05	0.01	0.05	0.87	1.0
11	0.10	0.46	0.09	0.41	0.09	0.41	1.74	2.0
12	0.00	0.00	0.01	0.05	0.00	0.00	0.44	0.5
13	0.07	0.32	0.07	0.32	0.06	0.28	1.74	2.0
14	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.5
15	0.01	0.05	0.01	0.05	0.00	0.00	1.74	2.0
16	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.5
17	0.03	0.14	0.03	0.14	0.03	0.14	1.31	1.5
18	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.375
19	0.03	0.14	0.03	0.14	0.03	0.14	1.31	1.5
20	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.375
21	0.00	0.00	0.01	0.05	0.00	0.00	1.31	1.5
22	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.375
23	0.02	0.09	0.02	0.09	0.02	0.09	0.52	0.6
24	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.15
25	0.01	0.05	0.01	0.05	0.01	0.05	0.52	0.6
26	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.15
27	0.00	0.00	0.00	0.00	0.00	0.00	0.52	0.6
28	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.15

Used equipment No.: See equipment list for details      Sample No.: N/A

Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_

Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.: MS-0025001-appendix 13	
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

29	0.01	0.05	0.01	0.05	0.01	0.05	0.52	0.6
30	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.15
31	0.01	0.05	0.01	0.05	0.01	0.05	0.52	0.6
32	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.15
33	0.00	0.00	0.00	0.00	0.00	0.00	0.52	0.6
34	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.15
35	0.01	0.05	0.01	0.05	0.01	0.05	0.26	0.3
36	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.075
37	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.3
38	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.075
39	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.3
40	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.075
TRDI	2.96		2.82		2.89		5	

Remark:

$I_{rated} = 21.74 \text{ A}$

$I_L = I_{rated} * 100$

$$TRDI = \frac{I_{L(29-40)}}{I_{rated}} = 100\%$$

4.3.1		TABLE: Harmonic and waveform distortion							
Mains voltage: 3/N/PE 400V									
P/Pn[%]	33		33		33		Limit		
	Measurement								
Ordinal number	[A]	[%]	[A]	[%]	[A]	[%]	[A]	[%]	
Total	7.397	34.02	7.424	34.15	7.442	34.23	-	-	
1	7.393	34.00	7.418	34.12	7.437	34.21	-	-	

Used equipment No.: See equipment list for details

Sample No.: N/A

Finished date:

Tested by:

Review date:

Reviewed by:





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.: MS-0025001-appendix 13	
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No:	CN21EDK2 001
Order No.:	244313300	Product:	Grid-Connected PV Inverter
Client Name:	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

2	0.07	0.32	0.08	0.37	0.08	0.37	0.87	1.0
3	0.02	0.09	0.03	0.14	0.03	0.14	3.48	4.0
4	0.00	0.00	0.01	0.05	0.01	0.05	0.87	1.0
5	0.17	0.78	0.18	0.83	0.17	0.78	3.48	4.0
6	0.00	0.00	0.00	0.00	0.00	0.00	0.87	1.0
7	0.11	0.51	0.10	0.46	0.11	0.51	3.48	4.0
8	0.00	0.00	0.00	0.00	0.00	0.00	0.87	1.0
9	0.00	0.00	0.01	0.05	0.00	0.00	3.48	4.0
10	0.00	0.00	0.00	0.00	0.00	0.00	0.87	1.0
11	0.04	0.18	0.02	0.09	0.04	0.18	1.74	2.0
12	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.5
13	0.02	0.09	0.03	0.14	0.02	0.09	1.74	2.0
14	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.5
15	0.00	0.00	0.00	0.05	0.00	0.00	1.74	2.0
16	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.5
17	0.00	0.00	0.01	0.05	0.00	0.00	1.31	1.5
18	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.375
19	0.01	0.05	0.01	0.05	0.01	0.05	1.31	1.5
20	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.375
21	0.00	0.00	0.00	0.00	0.00	0.00	1.31	1.5
22	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.375
23	0.01	0.05	0.01	0.05	0.01	0.05	0.52	0.6
24	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.15
25	0.01	0.05	0.01	0.05	0.01	0.05	0.52	0.6
26	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.15

Used equipment No.: See equipment list for details Sample No.: N/A  
 Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan				TÜVRheinland®				
TÜV Rheinland (Shanghai) Co., Ltd.				Document No.: MS-0025001-appendix 13				
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)				Report No:		CN21EDK2 001		
Order No. :		244313300		Product:		Grid-Connected PV Inverter		
Client Name :		SolaX Power Network Technology (Zhejiang)Co.,Ltd		Model designation:		X3-Hybrid-15.0		
27	0.00	0.00	0.00	0.00	0.00	0.00	0.52	0.6
28	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.15
29	0.01	0.05	0.01	0.05	0.01	0.05	0.52	0.6
30	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.15
31	0.00	0.00	0.00	0.00	0.00	0.00	0.52	0.6
32	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.15
33	0.00	0.00	0.00	0.00	0.00	0.00	0.52	0.6
34	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.15
35	0.00	0.00	0.01	0.05	0.00	0.00	0.26	0.3
36	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.075
37	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.3
38	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.075
39	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.3
40	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.075
TRDi	1.12		1.39		1.16		5	
Remark: $I_{rated} = 21.74 A$ $I_n = I_n / I_{rated} * 100$ $TRDi = \frac{\sqrt{I_{max}^2 - I_n^2} * 100}{I_{rated}}$								

Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.: MS-0025001-appendix 13	
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No:	CN21EDK2 001
Order No.:	244313300	Product:	Grid-Connected PV Inverter
Client Name:	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

### 4.3.2. Voltage Fluctuation Test

#### PROCEDURE

Test method complies with standard IEC 61000-3-3 or IEC 61000-3-11.

RESULTS:  Pass /  Fail

4.3.2		TABLE: Flicker				
Mains voltage: 3/N/PE 400V						
Reference impedance $Z_{ref}$ used: $L=0.15+0.15j$ , $N=0.1+0.1j$						
Measurement	Pst	dc()	dmax()	d(t) (ms)		
	Limit= 1.0	Limit= 3.3	Limit= 4.0	Limit= 500		
Phase A	1	0.12	0.25	0.33	0.00	
	2	0.12	0.24	0.35	0.00	
	3	0.12	0.28	0.39	0.00	
	4	0.12	0.25	0.38	0.00	
	5	0.12	0.26	0.37	0.00	
	6	0.12	0.26	0.37	0.00	
	7	0.13	0.27	0.72	0.00	
	8	0.12	0.25	0.38	0.00	
	9	0.12	0.26	0.41	0.00	
	10	0.13	0.23	0.47	0.00	
	11	0.28	0.25	2.29	0.00	
	12	0.12	0.20	0.38	0.00	
Phase B	Pst	0.14				
	Limit	0.65				
	Pst	dc()	dmax()	d(t) (ms)		
	Limit= 1.0	Limit= 3.3	Limit= 4.0	Limit= 500		
1	0.10	0.00	0.00	0.00		
2	0.10	0.00	0.00	0.00		
3	0.10	0.00	0.00	0.00		

Used equipment No.: See equipment list for details

Sample No.: N/A

Finished date:

Tested by:

Review date:

Reviewed by:



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No.:	244313300	Product:	Grid-Connected PV Inverter
Client Name:	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

	4	0.10	0.00	0.00	0.00
	5	0.10	0.00	0.00	0.00
	6	0.10	0.21	0.26	0.00
	7	0.10	0.08	0.40	0.00
	8	0.10	0.21	0.22	0.00
	9	0.10	0.21	0.22	0.00
	10	0.11	0.21	0.44	0.00
	11	0.28	0.31	2.02	0.00
	12	0.10	0.17	0.25	0.00
Phase C	Measurement	Pit		0.15	
		Limit		0.65	
	Pst	dc()		0.20	
		Limit= 1.0	Limit= 3.3	Limit= 4.0	Limit= 500
	1	0.10	0.19	0.20	0.00
	2	0.10	0.00	0.00	0.00
	3	0.10	0.00	0.00	0.00
	4	0.10	0.00	0.00	0.00
	5	0.10	0.00	0.00	0.00
	6	0.10	0.00	0.00	0.00
	7	0.11	0.05	0.26	0.00
	8	0.10	0.00	0.00	0.00
	9	0.10	0.00	0.00	0.00
	10	0.11	0.00	0.28	0.00
11	0.30	0.32	2.11	0.00	
12	0.10	0.10	0.19	0.00	

Used equipment No.: See equipment list for details

Sample No.: N/A

Finished date: \_\_\_\_\_

Tested by: \_\_\_\_\_

Review date: \_\_\_\_\_

Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.: MS-0025001-appendix 13	
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

### 4.3.3. Direct Current Injection Test

#### PROCEDURE

The test methods complies with standard IEEE 1547.1-2005 clause 5.8

RESULTS:  Pass /  Fail

4.3.3		TABLE: DC Injection							
Mains voltage: 3/N/PE 400V									
PowerP/Pn[%]		100							
		Measurement						Limit	
Phase A		Phase B		Phase C					
[A]	[%]	[A]	[%]	[A]	[%]	[A]	[%]	[A]	[%]
0.006	0.026	0.005	0.022	0.006	0.026	0.109	0.5		
PowerP/Pn[%]		66							
		Measurement						Limit	
Phase A		Phase B		Phase C					
[A]	[%]	[A]	[%]	[A]	[%]	[A]	[%]	[A]	[%]
0.006	0.026	0.005	0.022	0.008	0.037	0.109	0.5		
PowerP/Pn[%]		33							
		Measurement						Limit	
Phase A		Phase B		Phase C					
[A]	[%]	[A]	[%]	[A]	[%]	[A]	[%]	[A]	[%]
0.007	0.033	0.004	0.020	0.005	0.021	0.109	0.5		

Used equipment No.: See equipment list for details Sample No.: N/A  
 Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.: MS-0025001-appendix 13	
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No:	CN21EDK2 001
Order No.:	244313300	Product:	Grid-Connected PV Inverter
Client Name:	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

### 4.3.4. Operating Voltage Range Test

#### PROCEDURE

Test method complies with standard Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2013), clause 4.3.4.

RESULTS  Pass /  Fail

4.3.4		TABLE: Over/Under voltage					
		Rated voltage Un: 230V					
Setting value							
Voltage detection accuracy [V]	±1	Voltage detection cycle Td[ms]	20				
Magnitude Vo1 [V]	241	delay time To1 [ms]	1900				
Magnitude Vo2 [V]	271	delay time To2 [ms]	40				
Magnitude Vu1 [V]	199	delay time Tu1 [ms]	1900				
Magnitude Vu2 [V]	114	delay time Tu2 [ms]	90				
Over voltage level 1	Measurement [ms]				Limit [ms]	Remark	
	L1	L2	L3	L123			
1	1980.0	1929.0	1941.0	1920.0	2000	Mains voltage From: 230 V Jump to: 242 V	
2	1922.0	1936.0	1938.0	1915.5	2000		
3	1926.0	1925.0	1936.0	1924.0	2000		
4	1929.0	1934.0	1933.5	1913.0	2000		
5	1925.0	1934.0	1936.0	1929.0	2000		
Over voltage level 2	Measurement [ms]				Limit [ms]	Remark	
	L1	L2	L3	L123			
1	41.0	46.0	35.5	44.0	50	Mains voltage From: 230 V Jump to: 272 V	
2	46.0	32.5	38.5	28.0	50		
3	43.0	49.0	38.0	28.5	50		

Used equipment No.: See equipment list for details Sample No.: N/A  
 Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan						TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.				Document No.: MS-0025001-appendix 13			
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)				Report No.: CN21EDK2 001			
Order No.:		244313300		Product:		Grid-Connected PV Inverter	
Client Name:		SolaX Power Network Technology (Zhejiang)Co.,Ltd		Model designation:		X3-Hybrid-15.0	
4	42.5	48.0	37.0	27.0	50		
5	42.0	47.5	36.5	45.0	50		
Under voltage level 1	Measurement [ms]				Limit [ms]	Remark	
	L1	L2	L3	L123			
1	1937.0	1939.0	1928.0	1917.0	2000	Mains voltage From: 230 V Jump to: 198 V	
2	1938.0	1940.0	1931.0	1925.0	2000		
3	1933.0	1940.0	1930.0	1920.0	2000		
4	1942.0	1930.0	1935.0	1921.5	2000		
5	1940.0	1924.0	1927.0	1925.0	2000		
Under voltage level 2	Measurement [ms]				Limit [ms]	Remark	
	L1	L2	L3	L123			
1	84.0	88.0	92.0	80.0	100	Mains voltage From: 230V Jump to: 113V	
2	91.0	77.0	91.0	74.0	100		
3	87.0	89.0	79.0	86.0	100		
4	87.0	76.0	80.0	77.0	100		
5	87.0	84.0	81.0	68.0	100		
Remark: Vo1= First level over voltage magnitude, Vo2= Second level over voltage magnitude. Vu1= First level under voltage magnitude, Vu2= Second level under voltage magnitude To1= Delayed time for first level over voltage tripping, To2= Delayed time for second level over voltage tripping Tu1= Delayed time for first level under voltage tripping, Tu2= Delayed time for second level under voltage tripping							

Used equipment No.: See equipment list for details Sample No.: N/A  
 Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.: MS-0025001-appendix 13	
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No:	CN21EDK2 001
Order No.:	244313300	Product:	Grid-Connected PV Inverter
Client Name:	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

### 4.3.5. Operating Frequency Range

#### PROCEDURE

Test method complies with standard Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2013), clause 4.3.5

RESULTS  Pass /  Fail

4.3.5 TABLE: Over/Under frequency			
Rated voltage frequency: 50Hz			
Setting value			
Frequency detection accuracy [Hz]	±0.1	Frequency detection cycle Td [ms]	20
Magnitude Fo [Hz]	52.1	Fo delay time To [ms]	70
Magnitude Fu [Hz]	46.9	Fu delay time Tu [ms]	70
Over frequency	Measurement [ms]	Limit [ms]	Remark
1	88.0	100	Mains voltage frequency From: 50Hz Jump to: 52.2Hz
2	88.0	100	
3	78.0	100	
4	93.0	100	
5	86.0	100	
Under frequency	Measurement [ms]	Limit [ms]	Remark
1	87.0	100	Mains voltage frequency From: 50Hz Jump to: 46.8Hz
2	85.0	100	
3	79.0	100	
4	96.0	100	
5	89.0	100	
Remark:			

Used equipment No.: See equipment list for details Sample No.: N/A  
 Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.: MS-0025001-appendix 13	
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No:	CN21EDK2 001
Order No.:	244313300	Product:	Grid-Connected PV Inverter
Client Name:	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0
Fo= Over frequency magnitude, Fu= Under frequency magnitude, To= Delayed time for over frequency tripping Tu= Delayed time for under frequency tripping			

### 4.3.6 Islanding Protection

#### PROCEDURE

Test method complies with standard IEC 62116.  $Q_i = \sqrt{(Q_i)^2 + (Q_i)^2} / P_w$

RESULTS  Pass /  Fail

4.3.6		TABLE: Islanding Protection					Mains voltage: 230V	
		Power 100						
Conditions	$P_w$ [W]	$Q_i$ [Var]	$Q_c$ [Var]	$Q_i$	Trip time [ms]	Limitation [ms]		
PR: -10 QC: +10	L1: 4.60	L1: 5.70	L1: 5.09	1.17	102.5	2000		
	L2: 4.55	L2: 5.56	L2: 5.10	1.17				
	L3: 4.58	L3: 5.59	L3: 5.10	1.17				
PR: -10 QC: +5	L1: 4.60	L1: 5.44	L1: 5.09	1.14	104.0	2000		
	L2: 4.55	L2: 5.31	L2: 5.10	1.14				
	L3: 4.58	L3: 5.33	L3: 5.10	1.14				
PR: -10 QC: 0	L1: 4.60	L1: 5.18	L1: 5.09	1.11	107.0	2000		
	L2: 4.55	L2: 5.06	L2: 5.10	1.12				
	L3: 4.58	L3: 5.08	L3: 5.10	1.11				
PR: -10 QC: -5	L1: 4.60	L1: 4.92	L1: 5.09	1.09	109.0	2000		
	L2: 4.55	L2: 4.80	L2: 5.10	1.09				
	L3: 4.58	L3: 4.82	L3: 5.10	1.08				
PR: -10 QC: -10	L1: 4.60	L1: 4.66	L1: 5.09	1.06	111.0	2000		
	L2: 4.55	L2: 4.55	L2: 5.10	1.06				

Used equipment No.: See equipment list for details Sample No.: N/A  
 Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.: MS-0025001-appendix 13	
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No:	CN21EDK2 001
Order No.:	244313300	Product:	Grid-Connected PV Inverter
Client Name:	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

PR: -5 QC: +10	L3: 4.58	L3: 4.57	L3: 5.10	1.05	111.5	2000
	L1: 4.86	L1: 5.70	L1: 5.09	1.11		
	L2: 4.80	L2: 5.56	L2: 5.10	1.11		
PR: -5 QC: -10	L3: 4.83	L3: 5.59	L3: 5.10	1.10	113.0	2000
	L1: 4.86	L1: 4.66	L1: 5.09	1.00		
	L2: 4.80	L2: 4.55	L2: 5.10	1.00		
PR: 0 QC: +10	L3: 4.83	L3: 4.57	L3: 5.10	1.00	114.5	2000
	L1: 5.12	L1: 5.70	L1: 5.09	1.05		
	L2: 5.06	L2: 5.56	L2: 5.10	1.05		
PR: -5 QC: +5	L3: 5.09	L3: 5.59	L3: 5.10	1.05	140.0	2000
	L1: 4.86	L1: 5.44	L1: 5.09	1.08		
	L2: 4.80	L2: 5.31	L2: 5.10	1.08		
PR: -5 QC: 0	L3: 4.83	L3: 5.33	L3: 5.10	1.08	197.0	2000
	L1: 4.86	L1: 5.18	L1: 5.09	1.06		
	L2: 4.80	L2: 5.06	L2: 5.10	1.06		
PR: -5 QC: -5	L3: 4.83	L3: 5.08	L3: 5.10	1.05	205.0	2000
	L1: 4.86	L1: 4.92	L1: 5.09	1.03		
	L2: 4.80	L2: 4.80	L2: 5.10	1.03		
PR: 0 QC: +5	L3: 4.83	L3: 4.82	L3: 5.10	1.03	236.5	2000
	L1: 5.12	L1: 5.44	L1: 5.09	1.03		
	L2: 5.06	L2: 5.31	L2: 5.10	1.03		
PR: 0 QC: 0	L3: 5.09	L3: 5.33	L3: 5.10	1.03	256.0	2000
	L1: 5.12	L1: 5.18	L1: 5.09	1.00		
	L2: 5.06	L2: 5.06	L2: 5.10	1.00		

Used equipment No.: See equipment list for details Sample No.: N/A  
 Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.: MS-0025001-appendix 13	
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No:	CN21EDK2 001
Order No.:	244313300	Product:	Grid-Connected PV Inverter
Client Name:	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

PR: 0 QC: -5	L3: 5.09	L3: 5.08	L3: 5.10	1.00	229.5	2000
	L1: 5.12	L1: 4.92	L1: 5.09	0.98		
	L2: 5.06	L2: 4.80	L2: 5.10	0.98		
PR: +5 QC: +5	L3: 5.09	L3: 4.82	L3: 5.10	0.98	208.0	2000
	L1: 5.37	L1: 5.44	L1: 5.09	0.96		
	L2: 5.31	L2: 5.31	L2: 5.10	0.98		
PR: +5 QC: 0	L3: 5.34	L3: 5.33	L3: 5.10	0.98	156.0	2000
	L1: 5.37	L1: 5.18	L1: 5.09	0.96		
	L2: 5.31	L2: 5.06	L2: 5.10	0.96		
PR: +5 QC: -5	L3: 5.34	L3: 4.82	L3: 5.10	0.93	121.0	2000
	L1: 5.37	L1: 4.92	L1: 5.09	0.93		
	L2: 5.31	L2: 4.80	L2: 5.10	0.93		
PR: 0 QC: -10	L3: 5.34	L3: 4.82	L3: 5.10	0.93	112.0	2000
	L1: 5.12	L1: 4.66	L1: 5.09	0.95		
	L2: 5.06	L2: 4.55	L2: 5.10	0.95		
PR: +5 QC: +10	L3: 5.09	L3: 4.57	L3: 5.10	0.95	108.0	2000
	L1: 5.37	L1: 5.70	L1: 5.09	1.00		
	L2: 5.31	L2: 5.56	L2: 5.10	1.00		
PR: +5 QC: -10	L3: 5.34	L3: 5.59	L3: 5.10	1.00	105.0	2000
	L1: 5.37	L1: 4.66	L1: 5.09	0.91		
	L2: 5.31	L2: 4.55	L2: 5.10	0.91		
PR: +10 QC: +10	L3: 5.34	L3: 4.57	L3: 5.10	0.90	102.0	2000
	L1: 5.63	L1: 5.70	L1: 5.09	0.96		
	L2: 5.56	L2: 5.56	L2: 5.10	0.96		
	L3: 5.59	L3: 5.59	L3: 5.10	0.95		

Used equipment No.: See equipment list for details Sample No.: N/A  
 Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.: MS-0025001-appendix 13	
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No:	CN21EDK2 001
Order No.:	244313300	Product:	Grid-Connected PV Inverter
Client Name:	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

PR: +10 QC: +5	L1: 5.63	L1: 5.44	L1: 5.09	0.93	92.5	2000
	L2: 5.56	L2: 5.31	L2: 5.10	0.94		
	L3: 5.59	L3: 5.33	L3: 5.10	0.93		
PR: +10 QC: 0	L1: 5.63	L1: 5.18	L1: 5.09	0.91	91.0	2000
	L2: 5.56	L2: 5.06	L2: 5.10	0.91		
	L3: 5.59	L3: 5.08	L3: 5.10	0.91		
PR: +10 QC: -5	L1: 5.63	L1: 4.92	L1: 5.09	0.89	84.0	2000
	L2: 5.56	L2: 4.80	L2: 5.10	0.89		
	L3: 5.59	L3: 4.82	L3: 5.10	0.89		
PR: +10 QC: -10	L1: 5.63	L1: 4.66	L1: 5.09	0.87	80.0	2000
	L2: 5.56	L2: 4.55	L2: 5.10	0.87		
	L3: 5.59	L3: 4.57	L3: 5.10	0.86		
Power 66						
Conditions	P <sub>W</sub> [W]	Q <sub>L</sub> [VA]	Q <sub>C</sub> [VA]	Q <sub>i</sub>	Trip time [ms]	Limitation [ms]
PR: 0 QC: -5	L1: 3.52	L1: 3.36	L1: 3.55	0.98	124.0	2000
	L2: 3.50	L2: 3.37	L2: 3.54	0.99		
	L3: 3.52	L3: 3.37	L3: 3.56	0.98		
PR: 0 QC: -4	L1: 3.52	L1: 3.39	L1: 3.55	0.99	141.0	2000
	L2: 3.50	L2: 3.40	L2: 3.54	0.99		
	L3: 3.52	L3: 3.41	L3: 3.56	0.99		
PR: 0 QC: -3	L1: 3.52	L1: 3.43	L1: 3.55	0.99	156.0	2000
	L2: 3.50	L2: 3.44	L2: 3.54	1.00		
	L3: 3.52	L3: 3.44	L3: 3.56	0.99		
PR: 0 QC: -2	L1: 3.52	L1: 3.46	L1: 3.55	1.00	180.0	2000
	L2: 3.50	L2: 3.47	L2: 3.54	1.00		

Used equipment No.: See equipment list for details Sample No.: N/A

Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_

Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.: MS-0025001-appendix 13	
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No:	CN21EDK2 001
Order No.:	244313300	Product:	Grid-Connected PV Inverter
Client Name:	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

PR: 0 QC: -1	L3: 3.52	L3: 3.48	L3: 3.56	1.00	237.0	2000
	L1: 3.52	L1: 3.50	L1: 3.55	1.00		
	L2: 3.50	L2: 3.51	L2: 3.54	1.01		
PR: 0 QC: 0	L3: 3.52	L3: 3.51	L3: 3.56	1.00	321.0	2000
	L1: 3.52	L1: 3.53	L1: 3.55	1.01		
	L2: 3.50	L2: 3.54	L2: 3.54	1.01		
PR: 0 QC: +1	L3: 3.52	L3: 3.59	L3: 3.56	1.01	230.0	2000
	L1: 3.52	L1: 3.57	L1: 3.55	1.01		
	L2: 3.50	L2: 3.58	L2: 3.54	1.02		
PR: 0 QC: +2	L3: 3.52	L3: 3.62	L3: 3.56	1.02	195.0	2000
	L1: 3.52	L1: 3.60	L1: 3.55	1.02		
	L2: 3.50	L2: 3.61	L2: 3.54	1.02		
PR: 0 QC: +3	L3: 3.52	L3: 3.66	L3: 3.56	1.02	160.0	2000
	L1: 3.52	L1: 3.64	L1: 3.55	1.02		
	L2: 3.50	L2: 3.65	L2: 3.54	1.03		
PR: 0 QC: +4	L3: 3.52	L3: 3.69	L3: 3.56	1.03	148.0	2000
	L1: 3.52	L1: 3.67	L1: 3.55	1.03		
	L2: 3.50	L2: 3.68	L2: 3.54	1.03		
PR: 0 QC: +5	L3: 3.52	L3: 3.73	L3: 3.56	1.03	140.0	2000
	L1: 3.52	L1: 3.71	L1: 3.55	1.03		
	L2: 3.50	L2: 3.72	L2: 3.54	1.04		
Power 33						
Conditions	P <sub>w</sub> [w]	Q <sub>i</sub> [VA]	Q <sub>c</sub> [VA]	Q <sub>r</sub>	Trip time [ms]	Limitation [ms]
PR: 0	L1: 1.75	L1: 1.65	L1: 1.75	0.97	121.0	

Used equipment No.: See equipment list for details Sample No.: N/A  
 Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.: MS-0025001-appendix 13	
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No:	CN21EDK2 001
Order No.:	244313300	Product:	Grid-Connected PV Inverter
Client Name:	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

Qc: -5	L2: 1.74	L2: 1.66	L2: 1.76	0.98	2000
	L3: 1.76	L3: 1.66	L3: 1.75	0.97	
Pr: 0 Qc: -4	L1: 1.75	L1: 1.67	L1: 1.75	0.98	143.0
	L2: 1.74	L2: 1.68	L2: 1.76	0.98	
	L3: 1.76	L3: 1.68	L3: 1.75	0.98	
Pr: 0 Qc: -3	L1: 1.75	L1: 1.69	L1: 1.75	0.98	154.0
	L2: 1.74	L2: 1.70	L2: 1.76	0.99	
	L3: 1.76	L3: 1.70	L3: 1.75	0.98	
Pr: 0 Qc: -2	L1: 1.75	L1: 1.70	L1: 1.75	0.99	229.0
	L2: 1.74	L2: 1.71	L2: 1.76	0.99	
	L3: 1.76	L3: 1.72	L3: 1.75	0.99	
Pr: 0 Qc: -1	L1: 1.75	L1: 1.72	L1: 1.75	0.99	251.0
	L2: 1.74	L2: 1.73	L2: 1.76	1.00	
	L3: 1.76	L3: 1.73	L3: 1.75	0.99	
Pr: 0 Qc: 0	L1: 1.75	L1: 1.74	L1: 1.75	1.00	256.0
	L2: 1.74	L2: 1.75	L2: 1.76	1.00	
	L3: 1.76	L3: 1.75	L3: 1.75	1.00	
Pr: 0 Qc: +1	L1: 1.75	L1: 1.76	L1: 1.75	1.00	237.0
	L2: 1.74	L2: 1.77	L2: 1.76	1.01	
	L3: 1.76	L3: 1.77	L3: 1.75	1.00	
Pr: 0 Qc: +2	L1: 1.75	L1: 1.77	L1: 1.75	1.01	170.0
	L2: 1.74	L2: 1.78	L2: 1.76	1.01	
	L3: 1.76	L3: 1.79	L3: 1.75	1.01	
Pr: 0 Qc: +3	L1: 1.75	L1: 1.79	L1: 1.75	1.01	163.0
	L2: 1.74	L2: 1.80	L2: 1.76	1.02	

Used equipment No.: See equipment list for details Sample No.: N/A  
 Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan					TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.			Document No.: MS-0025001-appendix 13			
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)			Report No.: CN21EDK2 001			
Order No. :	244313300		Product:		Grid-Connected PV Inverter	
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd		Model designation:		X3-Hybrid-15.0	
Pr: 0 Qc: +4	L3: 1.76	L3: 1.80	L3: 1.75	1.01	131.0	2000
	L1: 1.75	L1: 1.81	L1: 1.75	1.02		
	L2: 1.74	L2: 1.82	L2: 1.76	1.02		
Pr: 0 Qc: +5	L3: 1.76	L3: 1.82	L3: 1.75	1.02	129.0	2000
	L1: 1.75	L1: 1.82	L1: 1.75	1.02		
	L2: 1.74	L2: 1.84	L2: 1.76	1.03		
Remark:						

COPIED Ref No.: 943

Used equipment No.: See equipment list for details Sample No.: N/A  
 Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.: MS-0025001-appendix 13	
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No:	CN21EDK2 001
Order No.:	244313300	Product:	Grid-Connected PV Inverter
Client Name:	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

### 4.3.7 Response to Utility Recovery

#### PROCEDURE

Test method complies with standard IEEE 1547.1-2005, clause 5.10.

RESULTS  Pass/  Fail

4.3.7	TABLE: Response to Utility Recovery		
	Rated voltage $U_n$ : 230V	Rated frequency $F_n$ : 50Hz	
Setting value			
Voltage detection accuracy [V]	$\pm 1$	Frequency detection accuracy [Hz]	$\pm 0.1$
Specified recover voltage range	200-240V	Specified recover frequency range	47-52Hz
Recover time [s]			120

Conditions <sup>1)</sup>	$U_M$ back to 242V	$U_M$ back to 238V	$U_M$ back to 198V	$U_M$ back to 202V
Reconnection	<input type="checkbox"/> Yes/ <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes/ <input type="checkbox"/> No	<input type="checkbox"/> Yes/ <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes/ <input type="checkbox"/> No
Recover time [s]	N/A	121.05	N/A	120.75
Conditions <sup>2)</sup>	$F_M$ back to 52.2Hz	$F_M$ back to 51.8Hz	$F_M$ back to 46.8Hz	$F_M$ back to 47.2Hz
Reconnection	<input type="checkbox"/> Yes/ <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes/ <input type="checkbox"/> No	<input type="checkbox"/> Yes/ <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes/ <input type="checkbox"/> No
Recover time [s]	N/A	125.55	N/A	124.95
Conditions <sup>3)</sup>	$U_M$ back to 242V	$U_M$ back to 238V	$U_M$ back to 198V	$U_M$ back to 202V
Reconnection	<input type="checkbox"/> Yes/ <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes/ <input type="checkbox"/> No	<input type="checkbox"/> Yes/ <input checked="" type="checkbox"/> No	<input checked="" type="checkbox"/> Yes/ <input type="checkbox"/> No
Recover time [s]	N/A	124.80	N/A	121.20
Conditions <sup>4)</sup>	$U_M$ back to 238V	$U_M$ back to 202V	$F_M$ back to 51.8Hz	$F_M$ back to 47.2Hz
Reconnection	<input checked="" type="checkbox"/> Yes/ <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes/ <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes/ <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes/ <input type="checkbox"/> No
Recover time [s]	123.00	123.30	124.50	124.80
Conditions <sup>5)</sup>	$U_M$ back to 238V	$U_M$ back to 202V		
Reconnection	<input checked="" type="checkbox"/> Yes/ <input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes/ <input type="checkbox"/> No		
Recover time [s]	125.40	121.50		

Used equipment No.: See equipment list for details Sample No.: N/A  
 Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.: MS-0025001-appendix 13	
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No:	CN21EDK2 001
Order No.:	244313300	Product:	Grid-Connected PV Inverter
Client Name:	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0
Remark: 1) $U_M$ =Mains voltage; $F_M$ =Mains frequency 2) After mains voltage tripped the over/under voltage level 1 limit. 3) After mains voltage frequency tripped the over/under frequency limit. 4) After mains voltage tripped the over/under voltage level 2 limit. 5) Retest with an abnormal 1 <sup>st</sup> level voltage/frequency change event that is introduced during the reconnect countdown period. 6) Retest with an abnormal 2 <sup>nd</sup> level voltage/frequency change event that is introduced during the reconnect countdown period.			

**COPY**  
Ref No.: 943

Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	1	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input checked="" type="checkbox"/> First Over Voltage Magnitude <input checked="" type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the first level over voltage test, the L1 grid voltage was jumped to 242V approximately, trip time 1980.0ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	2	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input checked="" type="checkbox"/> First Over Voltage Magnitude <input checked="" type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the first level over voltage test, the L1 grid voltage was jumped to 242V approximately, trip time 1922.0ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	3	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input checked="" type="checkbox"/> First Over Voltage Magnitude <input checked="" type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the first level over voltage test, the L1 grid voltage was jumped to 242V approximately, trip time 1926.0ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details Sample No.: N/A  
 Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	4	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input checked="" type="checkbox"/> First Over Voltage Magnitude <input checked="" type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the first level over voltage test, the L1 grid voltage was jumped to 242V approximately, trip time 1929.0ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No. 7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	5	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input checked="" type="checkbox"/> First Over Voltage Magnitude <input checked="" type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the first level over voltage test, the L1 grid voltage was jumped to 242V approximately, trip time 1925.0ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	6	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input checked="" type="checkbox"/> First Over Voltage Magnitude <input checked="" type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the first level over voltage test, the L2 grid voltage was jumped to 242V approximately, trip time 1929.0ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	7	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time <input checked="" type="checkbox"/> First Over Voltage Magnitude <input checked="" type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery		
Test description:	<p>During the first level over voltage test, the L2 grid voltage was jumped to 242V approximately, trip time 1936.0ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter; Wave No.7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.</p>		

Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	8	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input checked="" type="checkbox"/> First Over Voltage Magnitude <input checked="" type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the first level over voltage test, the L2 grid voltage was jumped to 242V approximately, trip time 1925.0ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No. 7 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	9	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input checked="" type="checkbox"/> First Over Voltage Magnitude <input checked="" type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the first level over voltage test, the L2 grid voltage was jumped to 242V approximately, trip time 1934.0ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter. Wave No.7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	10	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input checked="" type="checkbox"/> First Over Voltage Magnitude <input checked="" type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	<p>During the first level over voltage test, the L2 grid voltage was jumped to 242V approximately, trip time 1934.0ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No. 7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.</p>		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	11	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input checked="" type="checkbox"/> First Over Voltage Magnitude <input checked="" type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the first level over voltage test, the L3 grid voltage was jumped to 242V approximately, trip time 1941.0ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A

Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_

Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	12	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input checked="" type="checkbox"/> First Over Voltage Magnitude <input checked="" type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the first level over voltage test, the L3 grid voltage was jumped to 242V approximately, trip time 1938.0ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	13	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input checked="" type="checkbox"/> First Over Voltage Magnitude <input checked="" type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the first level over voltage test, the L3 grid voltage was jumped to 242V approximately, trip time 1936.0ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details Sample No.: N/A  
 Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	14	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input checked="" type="checkbox"/> First Over Voltage Magnitude <input checked="" type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the first level over voltage test, the L3 grid voltage was jumped to 242V approximately, trip time 1933.5ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	15	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input checked="" type="checkbox"/> First Over Voltage Magnitude <input checked="" type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the first level over voltage test, the L3 grid voltage was jumped to 242V approximately, trip time 1936.0ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	16	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input checked="" type="checkbox"/> First Over Voltage Magnitude <input checked="" type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the first level over voltage test, the L123 grid voltage was jumped to 242V approximately, trip time 1920.0ms. The wave No. 3/4/5 were the grid voltages, The wave No. 8/9/10 were the output currents of inverter, Wave No. 7 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	17	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input checked="" type="checkbox"/> First Over Voltage Magnitude <input checked="" type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the first level over voltage test, the L123 grid voltage was jumped to 242V approximately, trip time 1915.5ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	18	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input checked="" type="checkbox"/> First Over Voltage Magnitude <input checked="" type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the first level over voltage test, the L123 grid voltage was jumped to 242V approximately, trip time 1924.0ms. The wave No. 3/4/5 were the grid voltages, The wave No. 8/9/10 were the output currents of inverter, Wave No. 7 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A

Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_

Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	19	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input checked="" type="checkbox"/> First Over Voltage Magnitude <input checked="" type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the first level over voltage test, the L123 grid voltage was jumped to 242V approximately, trip time 1913.0ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	20	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input checked="" type="checkbox"/> First Over Voltage Magnitude <input checked="" type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the first level over voltage test, the L123 grid voltage was jumped to 242V approximately, trip time 1929.0ms. The wave No. 3/4/5 were the grid voltages, The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	21	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input checked="" type="checkbox"/> Secondary Over Voltage Magnitude <input checked="" type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level over voltage test, the L1 grid voltage was jumped to 272V approximately, trip time 41.0ms. The wave No. 1/2/3 were the grid voltages; The wave No. 5/6/7 were the output currents of inverter. Wave No.8 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A

Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_

Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	22	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input checked="" type="checkbox"/> Secondary Over Voltage Magnitude <input checked="" type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level over voltage test, the L1 grid voltage was jumped to 272V approximately, trip time 46.0ms. The wave No. 1/2/3 were the grid voltages; The wave No. 5/6/7 were the output currents of inverter, Wave No.8 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	23	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input checked="" type="checkbox"/> Secondary Over Voltage Magnitude <input checked="" type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level over voltage test, the L1 grid voltage was jumped to 272V approximately, trip time 43.0ms. The wave No. 1/2/3 were the grid voltages; The wave No. 5/6/7 were the output currents of inverter. Wave No.8 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	24	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input checked="" type="checkbox"/> Secondary Over Voltage Magnitude <input checked="" type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level over voltage test, the L1 grid voltage was jumped to 272V approximately, trip time 42.5ms. The wave No. 1/2/3 were the grid voltages; The wave No. 5/6/7 were the output currents of inverter, Wave No.8 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A

Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_

Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	25	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input checked="" type="checkbox"/> Secondary Over Voltage Magnitude <input checked="" type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level over voltage test, the L1 grid voltage was jumped to 272V approximately, trip time 42.0ms. The wave No. 1/2/3 were the grid voltages; The wave No. 5/6/7 were the output currents of inverter. Wave No.8 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	26	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input checked="" type="checkbox"/> Secondary Over Voltage Magnitude <input checked="" type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level over voltage test, the L2 grid voltage was jumped to 272V approximately, trip time 46.0 ms. The wave No. 1/2/3 were the grid voltages; The wave No. 5/6/7 were the output currents of inverter, Wave No.8 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	27	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input checked="" type="checkbox"/> Secondary Over Voltage Magnitude <input checked="" type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level over voltage test, the L2 grid voltage was jumped to 272V approximately, trip time 32.5 ms. The wave No. 1/2/3 were the grid voltages; The wave No. 5/6/7 were the output currents of inverter. Wave No.8 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	28	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input checked="" type="checkbox"/> Secondary Over Voltage Magnitude <input checked="" type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level over voltage test, the L2 grid voltage was jumped to 272V approximately, trip time 49.0 ms. The wave No. 1/2/3 were the grid voltages; The wave No. 5/6/7 were the output currents of inverter, Wave No.8 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details Sample No.: N/A  
 Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	29	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input checked="" type="checkbox"/> Secondary Over Voltage Magnitude <input checked="" type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level over voltage test, the L2 grid voltage was jumped to 272V approximately, trip time 48.0 ms. The wave No. 1/2/3 were the grid voltages; The wave No. 5/6/7 were the output currents of inverter. Wave No.8 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	30	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input checked="" type="checkbox"/> Secondary Over Voltage Magnitude <input checked="" type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level over voltage test, the L2 grid voltage was jumped to 272V approximately, trip time 47.5 ms. The wave No. 1/2/3 were the grid voltages; The wave No. 5/6/7 were the output currents of inverter, Wave No.8 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A

Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_

Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	31	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input checked="" type="checkbox"/> Secondary Over Voltage Magnitude <input checked="" type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level over voltage test, the L3 grid voltage was jumped to 272V approximately, trip time 35.5 ms. The wave No. 1/2/3 were the grid voltages; The wave No. 5/6/7 were the output currents of inverter. Wave No.8 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	32	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input checked="" type="checkbox"/> Secondary Over Voltage Magnitude <input checked="" type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level over voltage test, the L3 grid voltage was jumped to 272V approximately, trip time 38.5 ms. The wave No. 1/2/3 were the grid voltages; The wave No. 5/6/7 were the output currents of inverter, Wave No.8 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A

Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_

Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	33	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input checked="" type="checkbox"/> Secondary Over Voltage Magnitude <input checked="" type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level over voltage test, the L3 grid voltage was jumped to 272V approximately, trip time 38.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	34	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input checked="" type="checkbox"/> Secondary Over Voltage Magnitude <input checked="" type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level over voltage test, the L3 grid voltage was jumped to 272V approximately, trip time 37.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	35	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input checked="" type="checkbox"/> Secondary Over Voltage Magnitude <input checked="" type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level over voltage test, the L3 grid voltage was jumped to 272V approximately, trip time 36.5 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	36	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input checked="" type="checkbox"/> Secondary Over Voltage Magnitude <input checked="" type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level over voltage test, the L123 grid voltage was jumped to 272V approximately, trip time 44.0 ms The wave No. 1/2/3 were the grid voltages; The wave No. 5/6/7 were the output currents of inverter, Wave No.8 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A

Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_

Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	37	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input checked="" type="checkbox"/> Secondary Over Voltage Magnitude <input checked="" type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level over voltage test, the L123 grid voltage was jumped to 272V approximately, trip time 28.0 ms. The wave No. 1/2/3 were the grid voltages; The wave No. 5/6/7 were the output currents of inverter. Wave No.8 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	38	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input checked="" type="checkbox"/> Secondary Over Voltage Magnitude <input checked="" type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level over voltage test, the L123 grid voltage was jumped to 272V approximately, trip time 28.5 ms The wave No. 1/2/3 were the grid voltages; The wave No. 5/6/7 were the output currents of inverter, Wave No. 8 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A

Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_

Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	39	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input checked="" type="checkbox"/> Secondary Over Voltage Magnitude <input checked="" type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level over voltage test, the L123 grid voltage was jumped to 272V approximately, trip time 27.0 ms. The wave No. 1/2/3 were the grid voltages; The wave No. 5/6/7 were the output currents of inverter. Wave No.8 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	40	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input checked="" type="checkbox"/> Secondary Over Voltage Magnitude <input checked="" type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level over voltage test, the L123 grid voltage was jumped to 272V approximately, trip time 45.0 ms. The wave No. 1/2/3 were the grid voltages; The wave No. 5/6/7 were the output currents of inverter, Wave No.8 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	41	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input checked="" type="checkbox"/> First Under Voltage Magnitude <input checked="" type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the first level under voltage test, the L1 grid voltage was jumped to 198V approximately, trip time 1937.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	42	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input checked="" type="checkbox"/> First Under Voltage Magnitude <input checked="" type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the first level under voltage test, the L1 grid voltage was jumped to 198V approximately, trip time 1938.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A

Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_

Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	43	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input checked="" type="checkbox"/> First Under Voltage Magnitude <input checked="" type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the first level under voltage test, the L1 grid voltage was jumped to 198V approximately, trip time 1933.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	44	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input checked="" type="checkbox"/> First Under Voltage Magnitude <input checked="" type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the first level under voltage test, the L1 grid voltage was jumped to 198V approximately, trip time 1942.0ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	45	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input checked="" type="checkbox"/> First Under Voltage Magnitude <input checked="" type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the first level under voltage test, the L1 grid voltage was jumped to 198V approximately, trip time 1940.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	46	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input checked="" type="checkbox"/> First Under Voltage Magnitude <input checked="" type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	<p>During the first level under voltage test, the L2 grid voltage was jumped to 198V approximately, trip time 1939.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.</p>		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	47	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input checked="" type="checkbox"/> First Under Voltage Magnitude <input checked="" type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the first level under voltage test, the L2 grid voltage was jumped to 198V approximately, trip time 1940.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	48	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input checked="" type="checkbox"/> First Under Voltage Magnitude <input checked="" type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the first level under voltage test, the L2 grid voltage was jumped to 198V approximately, trip time 1940.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	49	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input checked="" type="checkbox"/> First Under Voltage Magnitude <input checked="" type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the first level under voltage test, the L2 grid voltage was jumped to 198V approximately, trip time 1930.0ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	50	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input checked="" type="checkbox"/> First Under Voltage Magnitude <input checked="" type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the first level under voltage test, the L2 grid voltage was jumped to 198V approximately, trip time 1924.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	51	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input checked="" type="checkbox"/> First Under Voltage Magnitude <input checked="" type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the first level under voltage test, the L3 grid voltage was jumped to 198V approximately, trip time 1928.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	52	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input checked="" type="checkbox"/> First Under Voltage Magnitude <input checked="" type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the first level under voltage test, the L3 grid voltage was jumped to 198V approximately, trip time 1931.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	53	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input checked="" type="checkbox"/> First Under Voltage Magnitude <input checked="" type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the first level under voltage test, the L3 grid voltage was jumped to 198V approximately, trip time 1930.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	54	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input checked="" type="checkbox"/> First Under Voltage Magnitude <input checked="" type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	<p>During the first level under voltage test, the L3 grid voltage was jumped to 198V approximately, trip time 1935.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.</p>		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	55	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input checked="" type="checkbox"/> First Under Voltage Magnitude <input checked="" type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the first level under voltage test, the L3 grid voltage was jumped to 198V approximately, trip time 1927.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	56	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input checked="" type="checkbox"/> First Under Voltage Magnitude <input checked="" type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the first level under voltage test, the L123 grid voltage was jumped to 198V approximately, trip time 1917.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	57	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input checked="" type="checkbox"/> First Under Voltage Magnitude <input checked="" type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the first level under voltage test, the L123 grid voltage was jumped to 198V approximately, trip time 1925.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	58	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input checked="" type="checkbox"/> First Under Voltage Magnitude <input checked="" type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the first level under voltage test, the L123 grid voltage was jumped to 198V approximately, trip time 1920.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	59	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input checked="" type="checkbox"/> First Under Voltage Magnitude <input checked="" type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the first level under voltage test, the L123 grid voltage was jumped to 198V approximately, trip time 1921.5 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	60	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input checked="" type="checkbox"/> First Under Voltage Magnitude <input checked="" type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the first level under voltage test, the L123 grid voltage was jumped to 198V approximately, trip time 1925.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed. The wave No. ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	61	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input checked="" type="checkbox"/> Secondary Under Voltage Magnitude <input checked="" type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level under voltage test, the L1 grid voltage was jumped to 113V approximately, trip time 84.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No. 7 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	62	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input checked="" type="checkbox"/> Secondary Under Voltage Magnitude <input checked="" type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level under voltage test, the L1 grid voltage was jumped to 113V approximately, trip time 91.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No. 7 was the trip signal while the grid voltage changed. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	63	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input checked="" type="checkbox"/> Secondary Under Voltage Magnitude <input checked="" type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level under voltage test, the L1 grid voltage was jumped to 113V approximately, trip time 87.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No. 7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	64	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input checked="" type="checkbox"/> Secondary Under Voltage Magnitude <input checked="" type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level under voltage test, the L1 grid voltage was jumped to 113V approximately, trip time 87.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details Sample No.: N/A  
 Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	65	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input checked="" type="checkbox"/> Secondary Under Voltage Magnitude <input checked="" type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level under voltage test, the L1 grid voltage was jumped to 113V approximately, trip time 87.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No. 7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	66	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input checked="" type="checkbox"/> Secondary Under Voltage Magnitude <input checked="" type="checkbox"/> Secondary Under Voltage Trip time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level under voltage test, the L2 grid voltage was jumped to 113V approximately, trip time 88.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No. 7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A

Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_

Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	67	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input checked="" type="checkbox"/> Secondary Under Voltage Magnitude <input checked="" type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level under voltage test, the L2 grid voltage was jumped to 113V approximately, trip time 77.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No. 7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A

Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_

Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	68	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input checked="" type="checkbox"/> Secondary Under Voltage Magnitude <input checked="" type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level under voltage test, the L2 grid voltage was jumped to 113V approximately, trip time 89.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	69	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input checked="" type="checkbox"/> Secondary Under Voltage Magnitude <input checked="" type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level under voltage test, the L2 grid voltage was jumped to 113V approximately, trip time 76.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	70	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input checked="" type="checkbox"/> Secondary Under Voltage Magnitude <input checked="" type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level under voltage test, the L2 grid voltage was jumped to 113V approximately, trip time 84.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No. 7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A

Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_

Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	71	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input checked="" type="checkbox"/> Secondary Under Voltage Magnitude <input checked="" type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level under voltage test, the L3 grid voltage was jumped to 113V approximately, trip time 92.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	72	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input checked="" type="checkbox"/> Secondary Under Voltage Magnitude <input checked="" type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level under voltage test, the L3 grid voltage was jumped to 113V approximately, trip time 91.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	73	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input checked="" type="checkbox"/> Secondary Under Voltage Magnitude <input checked="" type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level under voltage test, the L3 grid voltage was jumped to 113V approximately, trip time 79.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	74	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input checked="" type="checkbox"/> Secondary Under Voltage Magnitude <input checked="" type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level under voltage test, the L3 grid voltage was jumped to 113V approximately, trip time 80.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No. 7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	75	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input checked="" type="checkbox"/> Secondary Under Voltage Magnitude <input checked="" type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level under voltage test, the L3 grid voltage was jumped to 113V approximately, trip time 81.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	76	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input checked="" type="checkbox"/> Secondary Under Voltage Magnitude <input checked="" type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level under voltage test, the L123 grid voltage was jumped to 113V approximately, trip time 80.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No. 7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	77	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input checked="" type="checkbox"/> Secondary Under Voltage Magnitude <input checked="" type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level under voltage test, the L123 grid voltage was jumped to 113V approximately, trip time 74.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	78	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input checked="" type="checkbox"/> Secondary Under Voltage Magnitude <input checked="" type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level under voltage test, the L123 grid voltage was jumped to 113V approximately, trip time 86.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No. 7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A

Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_

Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	79	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input checked="" type="checkbox"/> Secondary Under Voltage Magnitude <input checked="" type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level under voltage test, the L123 grid voltage was jumped to 113V approximately, trip time 77.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	80	Clause:	4.3.4
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input checked="" type="checkbox"/> Secondary Under Voltage Magnitude <input checked="" type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During the second level under voltage test, the L123 grid voltage was jumped to 113V approximately, trip time 68.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No. 7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	81	Clause:	4.3.5
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input checked="" type="checkbox"/> Over Frequency Magnitude <input checked="" type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During over frequency test, the grid voltage was jumped to 52.2Hz approximately, trip time 88.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	82	Clause:	4.3.5
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input checked="" type="checkbox"/> Over Frequency Magnitude <input checked="" type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During over frequency test, the grid voltage was jumped to 52.2Hz approximately, trip time 88.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	83	Clause:	4.3.5
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input checked="" type="checkbox"/> Over Frequency Magnitude <input checked="" type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During over frequency test, the grid voltage was jumped to 52.2Hz approximately, trip time 78.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	84	Clause:	4.3.5
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input checked="" type="checkbox"/> Over Frequency Magnitude <input checked="" type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During over frequency test, the grid voltage was jumped to 52.2Hz approximately, trip time 93.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No. 7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	85	Clause:	4.3.5
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input checked="" type="checkbox"/> Over Frequency Magnitude <input checked="" type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During over frequency test, the grid voltage was jumped to 52.2Hz approximately, trip time 86.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	86	Clause:	4.3.5
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input checked="" type="checkbox"/> Under Frequency Magnitude <input checked="" type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During under frequency test, the grid voltage was jumped to 46.8Hz approximately, trip time 87.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No. 7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	87	Clause:	4.3.5
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input checked="" type="checkbox"/> Under Frequency Magnitude <input checked="" type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During under frequency test, the grid voltage was jumped to 46.8Hz approximately, trip time 85.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A

Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_

Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	88	Clause:	4.3.5
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input checked="" type="checkbox"/> Under Frequency Magnitude <input checked="" type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During under frequency test, the grid voltage was jumped to 46.8Hz approximately, trip time 79.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No. 7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	89	Clause:	4.3.5
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input checked="" type="checkbox"/> Under Frequency Magnitude <input checked="" type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During under frequency test, the grid voltage was jumped to 46.8Hz approximately, trip time 96.0 ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No.7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	90	Clause:	4.3.5
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input checked="" type="checkbox"/> Under Frequency Magnitude <input checked="" type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	During under frequency test, the grid voltage was jumped to 46.8Hz approximately, trip time 89.0ms. The wave No. 3/4/5 were the grid voltages; The wave No. 8/9/10 were the output currents of inverter, Wave No. 7 was the trip signal while the grid voltage changed.; The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A

Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_

Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	91	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	100 load, PR: -10, QL: +10, the trip time of protection was 102.5 ms. CH1/2/7 were the output currents of the inverter; CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	92	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	100 load, PR: -10, QL: +5, the trip time of protection was 104.0 ms. CH1/2/7 were the output currents of the inverter, CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	93	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	100 load, PR: -10, QL: 0, the trip time of protection was 107.0 ms. CH1/2/7 were the output currents of the inverter, CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	94	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	100 load, PR: -10, QL: -5, the trip time of protection was 109.0 ms. CH1/2/7 were the output currents of the inverter, CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	95	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	100 load, PR: -10, QL: -10, the trip time of protection was 111.0ms. CH1/2/7 were the output currents of the inverter, CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	96	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	100 load, PR: -5, QL: +10, the trip time of protection was 111.5 ms. CH1/2/7 were the output currents of the inverter, CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	97	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	100 load, PR: -5, QL: -10, the trip time of protection was 113.0ms. CH1/2/7 were the output currents of the inverter, CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	98	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	100 load, PR: 0, QL: +10, the trip time of protection was 114.5 ms. CH1/2/7 were the output currents of the inverter; CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	99	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	100 load, PR: -5, QL: +5, the trip time of protection was 140.0 ms. CH1/2/7 were the output currents of the inverter; CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	100	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	100 load, PR: -5, QL: 0, the trip time of protection was 197.0 ms. CH1/27 were the output currents of the inverter, CHB/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was orded from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	101	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	100 load, PR: -5, QL: -5, the trip time of protection was 205.0 ms. CH1/27 were the output currents of the inverter, CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	102	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	100 load, PR: 0, QL: +5, the trip time of protection was 236.5ms. CH1/2/7 were the output currents of the inverter, CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	103	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	100 load, PR: 0, QL: 0, the trip time of protection was 256.0ms. CH1/2/7 were the output currents of the inverter; CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	104	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	100 load, the fundamental magnitude of grid current of phase L1 was 0.082A, less than 1 % of the rated current 0.217 A. See the screenshot of the power analyzer for detail. (1 <sup>st</sup> order harmonic current)		



Used equipment No.: See equipment list for details Sample No.: N/A  
 Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

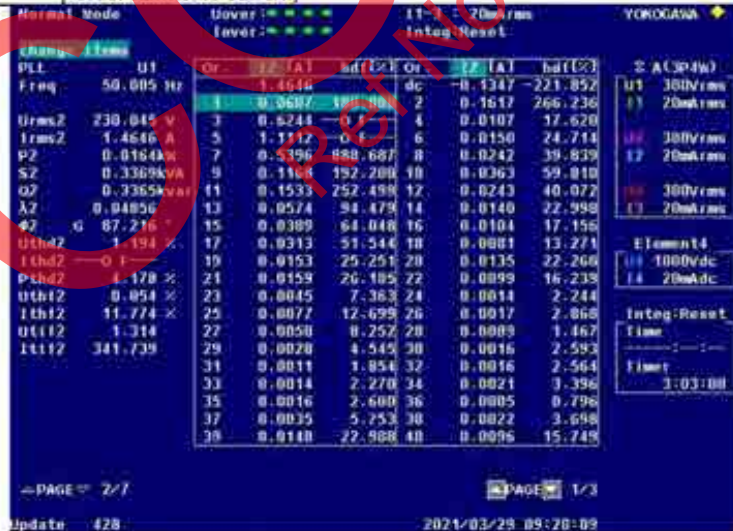
(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	105	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time <input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery		
Test description:	100 load, the fundamental magnitude of grid current of phase L2 was 0.061A, less than 1 % of the rated current 0.217 A. See the screenshot of the power analyzer for detail. (1 <sup>st</sup> order harmonic current)		



Used equipment No.: See equipment list for details      Sample No.: N/A

Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_

Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

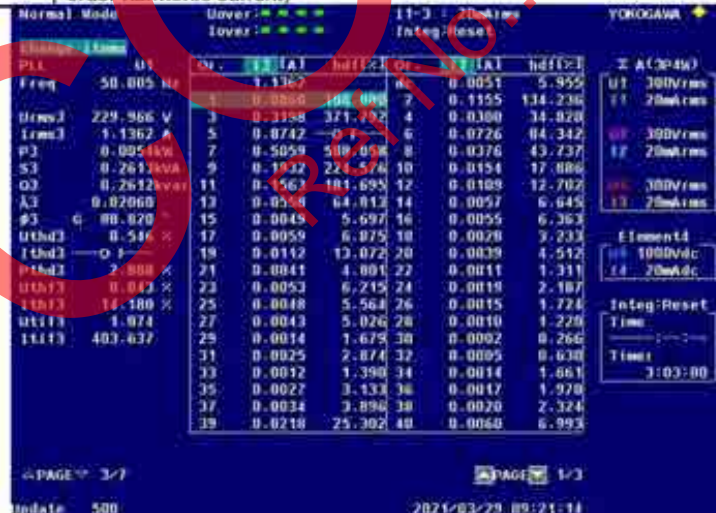
(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	106	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	100 load, the fundamental magnitude of grid current of phase L3 was 0.086A, less than 1 % of the rated current 0.217 A. See the screenshot of the power analyzer for detail. (1 <sup>st</sup> order harmonic current)		



Used equipment No.: See equipment list for details Sample No.: N/A  
 Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	107	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	100 load, PR: 0, QL: -5, the trip time of protection was 229.5 ms. CH1/2/7 were the output currents of the inverter, CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	108	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	100 load, PR: +5, QL: +5, the trip time of protection was 208.0 ms. CH1/2/7 were the output currents of the inverter; CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was orded from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	109	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	100 load, PR: +5, QL: 0, the trip time of protection was 156.0 ms. CH1/2/7 were the output currents of the inverter, CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	110	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	100 load, PR: +5, QL: -5, the trip time of protection was 121.0 ms. CH1/2/7 were the output currents of the inverter; CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	111	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	100 load, PR: 0, QL: -10, the trip time of protection was 112.0 ms. CH1/2/7 were the output currents of the inverter; CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	112	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	100 load, PR: +5, QL: +10, the trip time of protection was 108.0 ms. CH1/2/7 were the output currents of the inverter; CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was orded from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	113	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	100 load, PR: +5, QL: -10, the trip time of protection was 105.0 ms. CH1/2/7 were the output currents of the inverter; CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	114	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	100 load, PR: +10, QL: +10, the trip time of protection was 102.0 ms. CH1/2/7 were the output currents of the inverter, CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was orded from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	115	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	100 load, PR: +10, QL: +5, the trip time of protection was 92.5 ms. CH1/2/7 were the output currents of the inverter; CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	116	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	100 load, PR: +10, QL: 0, the trip time of protection was 91.0 ms. CH1/27 were the output currents of the inverter; CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was orded from top to end		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	117	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	100 load, PR: +10, QL: -5, the trip time of protection was 84.0 ms. CH1/2/7 were the output currents of the inverter; CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	118	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	100 load, PR: +10, QL: -10, the trip time of protection was 80.0 ms. CH1/2/7 were the output currents of the inverter; CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was orded from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A

Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_

Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	119	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	66 load, PR: 0, QL: -5, the trip time of protection was 124.0 ms. CH1/2/7 were the output currents of the inverter, CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	120	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	66 load, PR: 0, QL: -4, the trip time of protection was 141.0 ms. CH1/2/7 were the output currents of the inverter; CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was orded from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	121	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	66 load, PR: 0, QL: -3, the trip time of protection was 156.0ms. CH1/2/7 were the output currents of the inverter, CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was orded from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	122	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	66 load, PR: 0, QL: -2, the trip time of protection was 180.0ms. CH1/2/7 were the output currents of the inverter; CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A

Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_

Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	123	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	66 load, PR: 0, QL: -1, the trip time of protection was 237.0ms. CH1/2/7 were the output currents of the inverter, CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was orded from top to end.		



Used equipment No.: See equipment list for details Sample No.: N/A  
 Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	124	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	66 load, PR: 0, QL: 0, the trip time of protection was 321.0 ms. CH1/2/7 were the output currents of the inverter; CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	125	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	66 load, the fundamental magnitude of grid current of phase L1 was 0.092A, less than 1 % of the rated current 0.217 A. See the screenshot of the power analyzer for detail. (1st order harmonic current)		



Used equipment No.: See equipment list for details      Sample No.: N/A

Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_

Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	126	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	66 load, the fundamental magnitude of grid current of phase L2 was 0.078A, less than 1 % of the rated current 0.217 A. See the screenshot of the power analyzer for detail. (1st order harmonic current)		



Used equipment No.: See equipment list for details      Sample No.: N/A

Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_

Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	127	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time <input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery		
Test description:	66 load, the fundamental magnitude of grid current of phase L3 was 0.052 A, less than 1 % of the rated current 0.217 A. See the screenshot of the power analyzer for detail. (1st order harmonic current)		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	128	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	66 load, PR: 0, QL: +1, the trip time of protection was 230.0 ms. CH1/2/7 were the output currents of the inverter, CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	129	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	66 load, PR: 0, QL: +2, the trip time of protection was 195.0 ms. CH1/2/7 were the output currents of the inverter, CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was orded from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	130	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	66 load, PR: 0, QL: +3, the trip time of protection was 160.0 ms. CH1/2/7 were the output currents of the inverter; CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	131	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	66 load, PR: 0, QL: +4, the trip time of protection was 148.0 ms. CH1/2/7 were the output currents of the inverter, CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was orded from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	132	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	66 load, PR: 0, QL: +5, the trip time of protection was 140.0ms. CH1/2/7 were the output currents of the inverter; CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A

Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_

Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	133	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	33 load, PR: 0, QL: -5, the trip time of protection was 121. 0 ms. CH1/2/7 were the output currents of the inverter, CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was ordered from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	134	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	33 load, PR: 0, QL: -4, the trip time of protection was 143.0 ms. CH1/2/7 were the output currents of the inverter; CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was ordered from top to end.		

Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	135	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	33 load, PR: 0, QL: -3, the trip time of protection was 154.0 ms. CH1/2/7 were the output currents of the inverter; CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was orded from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	136	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	33 load, PR: 0, QL: -2, the trip time of protection was 229.0ms. CH1/2/7 were the output currents of the inverter; CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was orded from top to end.		

Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	137	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	33 load, PR: 0, QL: -1, the trip time of protection was 251.0 ms. CH1/2/7 were the output currents of the inverter; CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was orded from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	138	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	33 load, PR: 0, QL: 0, the trip time of protection was 256.0 ms. CH1/2/7 were the output currents of the inverter, CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was orded from top to end.		



Used equipment No.: See equipment list for details Sample No.: N/A  
 Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	139	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	33 load, the fundamental magnitude of grid current of phase L1 was 0.043A, less than 1 % of the rated current 0.217 A. See the screenshot of the power analyzer for detail, (1st order harmonic current)		



Used equipment No.: See equipment list for details      Sample No.: N/A

Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_

Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	140	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time <input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery		
Test description:	33 load, the fundamental magnitude of grid current of phase L2 was 0.025A, less than 1 of the rated current 0.217 A. See the screenshot of the power analyzer for detail. (1st order harmonic current)		



Used equipment No.: See equipment list for details      Sample No.: N/A

Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_

Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	141	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	33 load, the fundamental magnitude of grid current of phase L3 was 0.038A, less than 1 of the rated current 0.217 A. See the screenshot of the power analyzer for detail. (1st order harmonic current)		



Used equipment No.: See equipment list for details      Sample No.: N/A

Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_

Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	142	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	33 load, PR: 0, QL: +1, the trip time of protection was 237.0 ms. CH1/2/7 were the output currents of the inverter; CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was orded from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	143	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	33 load, PR: 0, QL: +2, the trip time of protection was 170.0 ms. CH1/2/7 were the output currents of the inverter; CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was orded from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	144	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	33 load, PR: 0, QL: +3, the trip time of protection was 163.0 ms. CH1/2/7 were the output currents of the inverter; CH8/9/10 were the currents flowing through to the grid; also regarded as the trip signal while the grid was switched off. The wave No. was orded from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	145	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	33 load, PR: 0, QL: +4, the trip time of protection was 31.0 ms. CH1/2/7 were the output currents of the inverter; CH8/9/10 were the currents flowing through to the grid, also regarded as the trip signal while the grid was switched off. The wave No. was orded from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	146	Clause:	4.3.6
Test:	<input checked="" type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input type="checkbox"/> Response to Utility Recovery
Test description:	33 load, PR: 0, QL: +5, the trip time of protection was 129.0 ms. CH1/2/7 were the output currents of the inverter; CH8/9/10 were the currents flowing through to the grid; also regarded as the trip signal while the grid was switched off. The wave No. was orded from top to end.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	147	Clause:	4.3.7
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time	<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input checked="" type="checkbox"/> Response to Utility Recovery	
Test description:	Inverter won't reconnect to grid while the grid voltage remained over 240V after the first level over voltage protection was tripped. Wave No.3/4/5 is the grid voltage; Wave No. 8/9/10 is the output current of inverter; Wave No.7 is the trip signal while grid voltage changed.		



Used equipment No.: See equipment list for details Sample No.: N/A  
 Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	148	Clause:	4.3.7
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input checked="" type="checkbox"/> Response to Utility Recovery
Test description:	Inverter reconnect to grid with 121.05 delay while grid voltage remained below 240V after the first level over voltage protection was tripped; Wave No.3/4/5 is the grid voltage; Wave No. 8/9/10 is the output current of inverter; Wave No.7 is the trip signal while grid voltage changed.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang) Co., Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	149	Clause:	4.3.7
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time	<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input checked="" type="checkbox"/> Response to Utility Recovery	
Test description:	Inverter won't reconnect to grid while the grid voltage remained under 200V after the first level under voltage protection was tripped; Wave No.3/4/5 is the grid voltage; Wave No. 8/9/10 is the output current of inverter; Wave No.7 is the trip signal while grid voltage changed.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	150	Clause:	4.3.7
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input checked="" type="checkbox"/> Response to Utility Recovery
Test description:	Inverter reconnect to grid with 120.75s delay while grid voltage remained above 200V after the first level under voltage protection was tripped Wave No.3/4/5 is the grid voltage; Wave No. 8/9/10 is the output current of inverter; Wave No.7 is the trip signal while grid voltage changed.		



Used equipment No.: See equipment list for details Sample No.: N/A  
 Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang) Co., Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	151	Clause:	4.3.7
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time	<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input checked="" type="checkbox"/> Response to Utility Recovery	
Test description:	Inverter won't reconnect to grid while the grid voltage frequency remained above 52Hz after the over frequency protection was tripped; Wave No.3/4/5 is the grid voltage; Wave No. 8/9/10 is the output current of inverter; Wave No.7 is the trip signal while grid voltage changed.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	152	Clause:	4.3.7
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input checked="" type="checkbox"/> Response to Utility Recovery
Test description:	Inverter reconnect to grid with 125.55 s delay while grid voltage frequency remained below 52Hz after the over frequency protection was tripped Wave No.3/4/5 is the grid voltage; Wave No. 8/9/10 is the output current of inverter; Wave No.7 is the trip signal while grid voltage changed.		



Used equipment No.: See equipment list for details Sample No.: N/A  
 Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang) Co., Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	153	Clause:	4.3.7
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time	<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input checked="" type="checkbox"/> Response to Utility Recovery	
Test description:	Inverter won't reconnect to grid while the grid voltage frequency remained below 47Hz after the under frequency protection was tripped; Wave No.3/4/5 is the grid voltage; Wave No. 8/9/10 is the output current of inverter; Wave No.7 is the trip signal while grid voltage changed.		



Used equipment No.: See equipment list for details Sample No.: N/A  
 Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang) Co., Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	154	Clause:	4.3.7
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input checked="" type="checkbox"/> Response to Utility Recovery
Test description:	Inverter reconnect to grid with 124.95 s delay while grid voltage frequency remained over 49Hz after the under frequency protection was tripped Wave No.3/4/5 is the grid voltage; Wave No. 8/9/10 is the output current of inverter; Wave No.7 is the trip signal while grid voltage changed.		



Used equipment No.: See equipment list for details Sample No.: N/A  
 Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang) Co., Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	155	Clause:	4.3.7
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time	<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input checked="" type="checkbox"/> Response to Utility Recovery	
Test description:	Inverter won't reconnect to grid while the grid voltage remained over 240V after the second level 2 over voltage protection was tripped. Wave No.3/4/5 is the grid voltage; Wave No. 8/9/10 is the output current of inverter. Wave No.7 is the trip signal while grid voltage changed.		



Used equipment No.: See equipment list for details Sample No.: N/A  
 Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	156	Clause:	4.3.7
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input checked="" type="checkbox"/> Response to Utility Recovery
Test description:	Inverter reconnect to grid with 124.80 s delay while grid voltage remained below 240V after the level 2 over voltage protection was tripped Wave No.3/4/5 is the grid voltage; Wave No. 8/9/10 is the output current of inverter; Wave No.7 is the trip signal while grid voltage changed.		



Used equipment No.: See equipment list for details Sample No.: N/A  
 Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang) Co., Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	157	Clause:	4.3.7
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time	<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input checked="" type="checkbox"/> Response to Utility Recovery	
Test description:	Inverter won't reconnect to grid while the grid voltage remained under 200V after the second level 2 under voltage protection was tripped; Wave No.3/4/5 is the grid voltage; Wave No. 8/9/10 is the output current of inverter. Wave No.7 is the trip signal while grid voltage changed.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	158	Clause:	4.3.7
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input checked="" type="checkbox"/> Response to Utility Recovery
Test description:	Inverter reconnect to grid with 121.2 s delay while grid voltage remained above 200V after the level 2 under voltage protection was tripped; Wave No.3/4/5 is the grid voltage; Wave No. 8/9/10 is the output current of inverter; Wave No.7 is the trip signal while grid voltage changed.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang) Co., Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	159	Clause:	4.3.7
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time	<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input checked="" type="checkbox"/> Response to Utility Recovery	
Test description:	Inverter reconnect to grid with 123.0 s delay while grid voltage remained below 240V. The grid voltage tripped over voltage level 1 again during the countdown period; Wave No.3/4/5 is the grid voltage; Wave No. 8/9/10 is the output current of inverter; Wave No.7 is the trip signal while grid voltage changed.		



Used equipment No.: See equipment list for details Sample No.: N/A  
 Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	160	Clause:	4.3.7
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input checked="" type="checkbox"/> Response to Utility Recovery
Test description:	Inverter reconnect to grid with 1.25-40 s delay while grid voltage remained below 240V. The grid voltage tripped over voltage level 2 again during the countdown period. Wave No.3/4/5 is the grid voltage; Wave No. 8/9/10 is the output current of inverter; Wave No.7 is the trip signal while grid voltage changed.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang) Co., Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	161	Clause:	4.3.7
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time	<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input checked="" type="checkbox"/> Response to Utility Recovery	
Test description:	Inverter reconnect to grid with 123.30 s delay while grid voltage remained above 200V. The grid voltage tripped under voltage level 1 again during the countdown period. Wave No.3/4/5 is the grid voltage; Wave No. 8/9/10 is the output current of inverter; Wave No.7 is the trip signal while grid voltage changed.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	162	Clause:	4.3.7
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time	<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input checked="" type="checkbox"/> Response to Utility Recovery	
Test description:	Inverter reconnect to grid with 121.05 s delay while grid voltage remained above 200V. The grid voltage tripped under voltage level 2 again during the countdown period; Wave No.3/4/5 is the grid voltage; Wave No. 8/9/10 is the output current of inverter; Wave No.7 is the trip signal while grid voltage changed.		



Used equipment No.: See equipment list for details Sample No.: N/A  
 Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	163	Clause:	4.3.7
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time		<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input checked="" type="checkbox"/> Response to Utility Recovery
Test description:	Inverter reconnect to grid with 124.5 s delay while grid voltage frequency remained below 52Hz. The grid voltage frequency jumped over 52Hz again during the countdown period after the under frequency protection was tripped; Wave No. 3/4/5 is the grid voltage; Wave No. 8/9/10 is the output current of inverter; Wave No. 7 is the trip signal while grid voltage changed.		



Used equipment No.: See equipment list for details Sample No.: N/A  
 Finished date: \_\_\_\_\_ Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_ Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No.:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Picture No.:	164	Clause:	4.3.7
Test:	<input type="checkbox"/> Islanding Protection <input type="checkbox"/> Secondary Over Voltage Magnitude <input type="checkbox"/> Secondary Over Voltage Trip Time <input type="checkbox"/> Secondary Under Voltage Magnitude <input type="checkbox"/> Secondary Under Voltage Trip Time <input type="checkbox"/> Under Frequency Magnitude <input type="checkbox"/> Under Frequency Trip Time	<input type="checkbox"/> First Over Voltage Magnitude <input type="checkbox"/> First Over Voltage Trip Time <input type="checkbox"/> First Under Voltage Magnitude <input type="checkbox"/> First Under Voltage Trip Time <input type="checkbox"/> Over Frequency Magnitude <input type="checkbox"/> Over Frequency Trip Time <input checked="" type="checkbox"/> Response to Utility Recovery	
Test description:	Inverter reconnect to grid with 124.8 s delay while grid voltage frequency remained above 47Hz. The grid voltage frequency jumped below 47Hz again during the countdown period after the under frequency protection was tripped; Wave No. 3/4/5 is the grid voltage; Wave No. 8/9/10 is the output current of inverter; Wave No. 7 is the trip signal while grid voltage changed.		



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report




หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan			
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1

Remark: Trip signal of each test	
1. Under/over frequency test	The trip signal on the wave diagram was given by the AC source. For each operation on AC source a voltage signal would be given out. (from high level change to low level or from low level change to high level). In this test, we push the button on interface of AC source to change the simulated grid voltage frequency while a trip signal was given out to Oscilloscope automatically.
2. Response to Utility Recovery	The trip signal on the wave diagram was given by the AC source. For each operation on AC source a voltage signal would be given out. (from high level change to low level or from low level change to high level). In this test, we push the button on interface of AC source to change the simulated grid voltage or voltage frequency while a trip signal was given out to Oscilloscope automatically.
3. Islanding protection	In this test the trip signal was the current flowing to the grid. When the grid were not disconnected yet, a little current remained even in 100 balance condition, in which case the fundamental current is close to zero, but harmonic component still remains. While the grid is disconnected the grid current would disappeared thoroughly. So it's easy to find the moment while the grid is disconnected by the wave of grid current. The grid current as well as the inverter output current may appear impulses after the switch S2 released or the inverter cease to energize. It was caused not by the real current, but by the electromagnetic noise which may impact the current transducer appearing very small pulse signal while there is no real current flowing through it.

Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

Test Data / Test Plan		TÜVRheinland®	
TÜV Rheinland (Shanghai) Co., Ltd.		Document No.:	MS-0025001-appendix 13
Grid-connected Inverter Regulation (Metropolitan Electricity Authority 2015)		Report No:	CN21EDK2 001
Order No. :	244313300	Product:	Grid-Connected PV Inverter
Client Name :	SolaX Power Network Technology (Zhejiang)Co.,Ltd	Model designation:	X3-Hybrid-15.0

## Attachment : 1



Used equipment No.: See equipment list for details      Sample No.: N/A  
 Finished date: \_\_\_\_\_      Tested by: \_\_\_\_\_  
 Review date: \_\_\_\_\_      Reviewed by: \_\_\_\_\_



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

TÜV Rheinland (Shanghai) Co. Ltd.  
QMA 30.041.01SHG\_7.14



Revision: 20 July, 2007 / G.Luebken

## Measurement and Test Equipment List Used MTE

Attachment: 2

Report No.: CN21EDK2 001

Order No.: 244313300

Equip.	Description	Model	Manufacturer
9017073	Power Analyser(DEWETRON)	DEWEG-PA7	Austria, DEWETRON
9017074	Current Sensor(For WT3000)	IT 200-S	LEM
9017075	Current Sensor(For WT3000)	IT 200-S	LEM
9017076	Current Sensor(For WT3000)	IT 200-S	LEM
9017077	Current Sensor(For WT3000)	IT 200-S	LEM
9017078	Programmable AC Source(6-860)	61860	Chroma MTE INC.
9017080	Oscilloscope	MDO3024	Tektronix
G1819265	ScopeCoder	DL850	JAPAN, Yokogawa
G1819266	Power Analyser(WT3000)	WT3000	JAPAN, Yokogawa
G1819267	T-Power Software	TP100-PLVHA/STP	JAPAN, Yokogawa
G1819268	Anti-standing test detection devices	ACLT-4830H	QUNLING Energy Resources
G1819269	Harmonic impedance analogicker system	ACLT-8150	QUNLING Energy Resources
G1819277	PV array simulator	62150H-1000S	Chroma Co.
G1819278	PV array simulator	62150H-1000S	Chroma Co.
G1819279	PV array simulator	62150H-1000S	Chroma Co.
G1819280	PV array simulator	62150H-1000S	Chroma Co.

Used equipment No.: See equipment list for details

Sample No.: N/A

Finished date:

Tested by:

Review date:

Reviewed by:



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

**Attachment 3:** Photo Documents  
**Report Number:** CN21EDK2 001  
**Model:** X3-Hybrid-15.0







# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

**Attachment 3:** Photo Documents  
**Report Number:** CN21EDK2 001  
**Model:** X3-Hybrid-15.0





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

**Attachment 3:** Photo Documents  
**Report Number:** CN21EDK2 001  
**Model:** X3-Hybrid-15.0



Page 200 of 201



# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ค. TÜV Rheinland's Report No: CN21EDK2 001 (ต่อ).

**Attachment 3:** Photo Documents  
**Report Number:** CN21EDK2 001  
**Model:** X3-Hybrid-15.0



COPIED  
Ref No.: 943





# Compliance Evaluation Report



หมายเลขรายงาน: CSSC/BOS/007

วันที่ออกรายงาน: July 28, 2021

(Report no.)

(Issued date)

ภาคผนวก ง. Laboratory Accreditation Certificate No. CNAS L3038.



## China National Accreditation Service for Conformity Assessment LABORATORY ACCREDITATION CERTIFICATE (Registration No. CNAS L3038 )

**TUV Rheinland (Shanghai) Co., Ltd.**

*(Legal Entity: TUV Rheinland (Shanghai) Co., Ltd.)*

1/F. of No.10, No.153/165/177/178/179/182/189/192/198, Lane 777,

Guangzhong West Road, Jing'an District, Shanghai, China

*is accredited in accordance with ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence to undertake the service described in the schedule attached to this certificate.*

*The scope of accreditation is detailed in the attached schedule bearing the same registration number as above. The schedule forms an integral part of this certificate.*

Effective Date: 2019-10-30

Expiry Date: 2023-11-18

Signed on behalf of China National Accreditation Service for Conformity Assessment

China National Accreditation Service for Conformity Assessment (CNAS) is authorized by Certification and Accreditation Administration of the People's Republic of China (CNCA) to operate the national accreditation schemes for conformity assessment. CNAS is a signatory of the International Laboratory Accreditation Cooperation Mutual Recognition Arrangement (ILAC MRA) and the Asia Pacific Accreditation Cooperation Mutual Recognition Arrangement (APAC MRA). The validity of the certificate can be checked on CNAS website at <http://www.cnas.org.cn/english/findanaccreditedbody/index.shtml>.