

C E R T I F I C A T E
of Conformity
EC Council Directive 2014/30/EU
Electromagnetic Compatibility

Registration No.: AE 50474396 0001

Report No.: 50254510 001

Holder: Guangzhou Sanjing Electric Co., Ltd.
No.9, Lizhishan Road, Science City,
Guangzhou High-tech Zone,
Guangdong
P.R. China

Product: PV-Inverter
(PV Grid-connected Inverter)

Identification: Type Designation: R5-3K-S2 R5-3.6K-S2 R5-4K-S2
 R5-5K-S2 R5-6K-S2 R5-7K-S2
 R5-8K-S2
Serial No. : n.a.
Remark: Refer to above-listed test report for details.

Tested acc. to: EN 61000-6-1:2007
 EN 61000-6-2:2005
 EN 61000-6-3:2007+A1
 EN 61000-6-4:2007+A1

This certificate of conformity is based on an evaluation of a sample of the above mentioned product. Technical Report and documentation are at the Licence Holder's disposal. This is to certify that the tested sample is in conformity with all provisions of Annex I of Council Directive 2014/30/EU. This certificate does not imply assessment of the production of the product and does not permit the use of a TÜV Rheinland mark of conformity. The holder of the certificate is authorized to use this certificate in connection with the EC declaration of conformity according to the a.m. Directive.



Certification Body

Tongle Lee

Date 13.07.2020

TÜV Rheinland LGA Products GmbH - Tillystraße 2 - 90431 Nürnberg

CE The CE marking may only be used if all relevant and effective EC Directives are complied with. CE

Guangzhou Sanjing Electric Co.,
Ltd.

Date : 13.07.2020
Our ref. : AOFEL 02
Your ref.:

No.9, Lizhishan Road, Science City,
Guangzhou High-tech Zone,
Guangdong
P.R. China

Ref : AE Certificate of Conformity EMC

Type of Equipment : PV Grid-connected Inverter
Model Designation : See Certificate
Certificate No. : AE 50474396 0001
Report No. : 50254510 001

Dear Ladies and Gentlemen,

We herewith confirm that a sample of the above mentioned technical equipment has been tested and was found to be in accordance with the relevant requirements.

Enclosed please find your Certificate of Conformity.

We appreciate your kind support and would like to offer our assistance and continuous services in the future.

With kind regards,

Certification Body

Tongle Lee

Enclosure

证书的详细资料请登陆www.tuvdotcom.com查阅,或拨打我司客服热线800 999 3668 / 400 883 1300咨询

C E R T I F I C A T E



of Conformity Low Voltage Directive 2014/35/EU

Registration No.: AN 50408658 0001

Report No.: 50148444 001

Holder: Guangzhou Sanjing Electric
Co., Ltd.
No.9, Lizhishan Road, Science City,
Guangzhou High-tech Zone,
Guangdong
P. R. China

Product: PV-Inverter
(Grid-tied PV Inverter)

Identification:

Type Designation	: R5-3K-S2	R5-4K-S2	R5-5K-S2	R5-6K-S2	R5-7K-S2	R5-8K-S2
Serial Number	: Engineering samples					
Remark	: Issued in conjunction with TÜV Rheinland license R 50408640 pages 0001-0003					

This certificate of conformity is based on an evaluation of a sample of the above mentioned product. Technical Report and documentation are at the Licence Holder's disposal. This is to certify that the tested sample is in conformity with Annex I of Council Directive 2014/35/EU, referred to as the Low Voltage Directive. This certificate does not imply assessment of the series-production of the product and does not permit the use of a TÜV Rheinland mark of conformity. The holder of the certificate is authorized to use this certificate in connection with the EC declaration of conformity according to Annex IV of the Directive.

Certification Body



Date 24.05.2018


Weichun Li

TÜV Rheinland LGA Products GmbH - Tillystraße 2 - 90431 Nürnberg

CE The CE marking may be used if all relevant and effective EC Directives are complied with. **CE**

CERTIFICATE of Conformity

Registration No.: AK 50515106 0001

Report No.: CN21DC9Y 001

Holder: **Guangzhou Sanjing Electric Co., Ltd.**
No.9, Lizhishan Road, Science City,
Guangzhou High-tech Zone,
Guangdong
P.R. China

Product: **PV-Inverter**
Grid-Connected PV Inverter

Identification: Type Designation: R5-3K-S2, R5-3.6K-S2, R5-4K-S2, R5-5K-S2,
R5-6K-S2, R5-7K-S2, R5-8K-S2, R5-3K-S2-15, R5-3.6K-S2-15,
R5-4K-S2-15, R5-5K-S2-15, R5-6K-S2-15, R5-7K-S2-15,
R5-8K-S2-15
Firmware Version : V2.011
Remark : Refer to test report CN21DC9Y 001 for details.

Tested acc. to: UNE 206006 IN:2011
UNE 206007-1 IN:2013
RD 1699:2011
RD 661:2007
RD 413:2014

The certificate of conformity refers to the above mentioned product. This is to certify that the specimen is in conformity with the assessment requirement mentioned above. This certificate does not imply assessment of the production of the product and does not permit the use of a TÜV Rheinland mark of conformity.



Date 17.08.2021

A. Chen

TÜV Rheinland LGA Products GmbH - Tillystraße 2 - 90431 Nürnberg

CERTIFICADO

de conformidad



Adjunto a
Attachment to

Número de registro: AK 50515106 0001
Registration No.

Reporte no: CN21DC9Y 001
Report No.

Titular de la licencia: Guangzhou Sanjing Electric Co., Ltd.
License Holder No.9, Lizhishan Road, Science City, Guangzhou High-tech Zone, Guangdong P. R. China

Tipo de producción: Conectado a la red PV Inversor
Type of production

Modelo: R5-3K-S2, R5-3.6K-S2, R5-4K-S2, R5-5K-S2, R5-6K-S2, R5-7K-S2, R5-8K-S2,
Model R5-3K-S2-15, R5-3.6K-S2-15, R5-4K-S2-15, R5-5K-S2-15, R5-6K-S2-15, R5-7K-S2-15, R5-8K-S2-15

Versión de firmware: V2.011
Firmware version

Normas: **UNE 206006 IN: 2011**
Standards Ensayos de detección de funcionamiento en isla de múltiples inversores fotovoltaicos conectados a red en paralelo
UNE 206007-1 IN: 2013 Requisitos de conexión a la red eléctrica Parte 1: Inversores para conexión a la red de distribución
RD 1699: 2011 Real Decreto 1699/2011, de 18 de noviembre, por el que se regula la conexión a red de instalaciones de producción de energía eléctrica de pequeña potencia.
RD 661: 2007 Real Decreto 661/2007, de 25 de mayo, por el que se regula la actividad de producción de energía eléctrica en régimen especial.
RD 413: 2014 Real Decreto 413/2014, de 6 de junio, por el que se regula la actividad de producción de energía eléctrica a partir de fuentes de energía renovables, cogeneración y residuos.

El certificado de conformidad se refiere al producto mencionado anteriormente. Esto es para certificar que el espécimen está en conformidad con el requisito de evaluación mencionado anteriormente. Este certificado no implica una evaluación de la producción del producto y no permite el uso de una marca de conformidad TÜV Rheinland.

The certificate of conformity refers to the above mentioned product. This is to certify that the specimen is in conformity with the assessment requirement mentioned above. This certificate does not imply assessment of the production of the product and does not permit the use of a TÜV Rheinland mark of conformity.



TÜV Rheinland LGA Products GmbH - Tillystraße 2 - 90431 Nürnberg

Guangzhou Sanjing Electric Co.,
Ltd.

Date : 17/08/2021
Our ref. : 02
Your ref.: 168330287

No.9, Lizhishan Road, Science City,
Guangzhou High-tech Zone,
Guangdong
P.R. China

Ref : AK Certificate of Conformity

Type of Equipment : Grid-Connected PV Inverter
Model Designation : See Certificate
Certificate No. : AK 50515106 0001
Report No. : CN21DC9Y 001

Dear Ladies and Gentlemen,

We herewith confirm that a sample of the above mentioned technical equipment has been tested and was found to be in accordance with the relevant requirements.

Enclosed please find your Certificate of Conformity.

We appreciate your kind support and would like to offer our assistance and continuous services in the future.

With kind regards,

Certification Body


A. Chen

Enclosure

证书的详细资料请登陆www.certipedia.com查阅,或拨打我司客服热线800 999 3668 / 400 883 1300咨询

CERTIFICATE of Conformity

Registration No.: AK 50441748 0001

Report No.: 50269520 001

Holder: Guangzhou Sanjing Electric
Co., Ltd.
No.9, Lizhishan Road, Science City,
Guangzhou High-tech Zone,
Guangdong
P. R. China

Product: PV-Inverter
(Grid-connected PV Inverter)

Identification: Type Designation: R5-3K-S2 R5-3.6K-S2 R5-4K-S2
R5-5K-S2 R5-6K-S2 R5-7K-S2
R5-8K-S2
Serial Number : R5S2502G1928E00955
Remark : Refer to test report 50269520 001
for details.

Tested acc. to: EN 50549-1:2019

The certificate of conformity refers to the above mentioned product. This is to certify that the specimen is in conformity with the assessment requirement mentioned above. This certificate does not imply assessment of the production of the product and does not permit the use of a TÜV Rheinland mark of conformity.



Date 12.07.2019


A. Chen

TÜV Rheinland LGA Products GmbH - Tillystraße 2 - 90431 Nürnberg

Guangzhou Sanjing Electric Co.,
Ltd.
Mr. Li Yun
-
No.9, Lizhishan Road, Science City,
Guangzhou High-tech Zone,
Guangdong
P. R. China

Date : 12.07.2019
Our ref. : zhangco 02
Your ref.: L.Y

Ref : AK Certificate of Conformity

Type of Equipment : Grid-connected PV Inverter
Model Designation : See Certificate
Certificate No. : AK 50441748 0001
Report No. : 50269520 001

Dear Mr. Li Yun,

We herewith confirm that a sample of the above mentioned technical equipment has been tested and was found to be in accordance with the relevant requirements.

Enclosed please find your Certificate of Conformity.

We appreciate your kind support and would like to offer our assistance and continuous services in the future.

With kind regards,

Certification Body


A. Chen

Enclosure

证书的详细资料请登陆www.certipedia.com查阅,或拨打我司客服热线800 999 3668 / 400 883 1300咨询

C E R T I F I C A T E
of Conformity
EC Council Directive 2014/30/EU
Electromagnetic Compatibility

Registration No.: AE 50530536 0001

Report No.: 50254510 002

Holder: Guangzhou Sanjing Electric Co., Ltd.
No.9, Lizhishan Road, Science City,
Guangzhou High-tech Zone,
Guangdong
P.R. China

Product: PV-Inverter
(PV Grid-connected Inverter)

Identification: R5-3K-S2 R5-3.6K-S2 R5-4K-S2 R5-5K-S2
R5-6K-S2 R5-7K-S2 R5-8K-S2 R5-3K-S2-15
R5-3.6K-S2-15 R5-4K-S2-15 R5-5K-S2-15 R5-6K-S2-15
R5-7K-S2-15 R5-8K-S2-15

Serial No.: n.a.

Remark: Refer to above-listed test report for details.

Tested acc. to: EN 61000-6-1:2007
EN 61000-6-2:2005
EN 61000-6-3:2007+A1
EN 61000-6-4:2007+A1

This certificate of conformity is based on an evaluation of a sample of the above mentioned product. Technical Report and documentation are at the Licence Holder's disposal. This is to certify that the tested sample is in conformity with all provisions of Annex I of Council Directive 2014/30/EU. This certificate does not imply assessment of the production of the product and does not permit the use of a TÜV Rheinland mark of conformity. The holder of the certificate is authorized to use this certificate in connection with the EC declaration of conformity according to the a.m. Directive.

Date 07.01.2022



Certification Body


Tongle Lee

TÜV Rheinland LGA Products GmbH - Tillystraße 2 - 90431 Nürnberg

CE The CE marking may only be used if all relevant and effective EC Directives are complied with. CE

Guangzhou Sanjing Electric Co.,
Ltd.

Date : 07.01.2022
Our ref. : AOFEL 02
Your ref.:

No.9, Lizhishan Road, Science City,
Guangzhou High-tech Zone,
Guangdong
P.R. China

Ref : AE Certificate of Conformity EMC

Type of Equipment : PV Grid-connected Inverter
Model Designation : See Certificate
Certificate No. : AE 50530536 0001
Report No. : 50254510 002

Dear Ladies and Gentlemen,

We herewith confirm that a sample of the above mentioned technical equipment has been tested and was found to be in accordance with the relevant requirements.

Enclosed please find your Certificate of Conformity.

We appreciate your kind support and would like to offer our assistance and continuous services in the future.

With kind regards,

Certification Body

Tongle Lee

Enclosure

证书的详细资料请登陆www.certipedia.com查阅,或拨打我司客服热线800 999 3668 / 400 883 1300咨询

CERTIFICATE

of Conformity Low Voltage Directive 2014/35/EU

Registration No.: AN 50522584 0001

Report No.: CN21MAMD 001

Holder: **Guangzhou Sanjing Electric Co., Ltd.**
No.9, Lizhishan Road, Science City,
Guangzhou High-tech Zone,
Guangdong
P.R. China

Product: **PV-Inverter**
(Grid-connected PV Inverter)

Identification: Type Designation: R5-3K-S2, R5-3.6K-S2, R5-4K-S2, R5-5K-S2,
R5-6K-S2, R5-7K-S2, R5-8K-S2, R5-3K-S2-15,
R5-3.6K-S2-15, R5-4K-S2-15, R5-5K-S2-15,
R5-6K-S2-15, R5-7K-S2-15, R5-8K-S2-15
Serial Number : A003148931-001, A003148931-002
Remark : Refer to test report CN21MAMD 001 for details.

This certificate of conformity is based on an evaluation of a sample of the above mentioned product. Technical Report and documentation are at the Licence Holder's disposal. This is to certify that the tested sample is in conformity with Annex I of Council Directive 2014/35/EU, referred to as the Low Voltage Directive. This certificate does not imply assessment of the series-production of the product and does not permit the use of a TÜV Rheinland mark of conformity. The holder of the certificate is authorized to use this certificate in connection with the EC declaration of conformity according to Annex IV of the Directive.



Date 27.10.2021



A. Chen

TÜV Rheinland LGA Products GmbH - Tillystraße 2 - 90431 Nürnberg

 The CE marking may be used if all relevant and effective EC Directives are complied with.



Certificat de conformité

Fabricant : Guangzhou Sanjing Electric Co., Ltd.
No.9, Lizhishan Road, Science City, Guangzhou High-tech Zone,
Guangdong P. R. China

Produit : Onduleur photovoltaïque injection réseau

Modèle: R5-3K-S2, R5-3.6K-S2, R5-4K-S2, R5-5K-S2,
R5-6K-S2, R5-7K-S2, R5-8K-S2

Version logiciel : V2.011

Règles de raccordement au réseau : **UTE C 15-712-1/07.13**
Installations photovoltaïques sans stockage et raccordées au réseau public de distribution
DIN VDE V 0126-1-1/08.13, VFR 2019
Organe de commutation automatique entre une installation de production autonome parallèle au réseau et le réseau à basse tension public
Enedis-NOI-RES_20E: 2019
Fiches de Collecte de renseignements pour une Proposition de Raccordement avant complétude du dossier et pour une Offre de Raccordement, au Réseau Public de Distribution géré par Enedis, d'une Installation de Production hors photovoltaïque de puissance supérieure à 36 kVA.
SEI REF 04 Version 7
PROTECTION DE DECOUPLAGE POUR LE RACCORDEMENT D'UNE PRODUCTION DECENTRALISEE EN HTA ET EN BT DANS LES ZONES NON INTERCONNECTEES.
EDT V1: 2011
Convention d'exploitation d'une installation de production d'énergie électrique de catégorie 1 raccordée au réseau public de distribution

Numéro rapport d'essai : 60374550 001

Numéro de certificat : AK 50470607 0001

Date d'émission : 2020.06.09




A.Chen

TÜV Rheinland LGA Products GmbH – Tillystraße 2 – 90431 Nürnberg



广州三晶电气股份有限公司

Guangzhou Sanjing Electric Co.,Ltd.

Tel : 400-159-0088 Fax : 020-66608589

Web : www.saj-electric.cn / www.saj-electric.com

地址 : 广州高新技术产业开发区科学城荔枝山路9号三晶创新园

Add: SAJ Innovation Park, No.9, Lizhishan Road, Science City, Guangzhou High-tech Zone, Guangdong, P.R.China.

EU Declaration of Conformity

We Guangzhou Sanjing Electric Co., Ltd.
No.9, Lizhishan Road, Science City, Guangzhou High-tech Zone, Guangdong, P.R.China

Declare under our own responsibility that the product

Name/Trademark:



Model:

Single phase inverter: R5-0.7K-S1, R5-1K-S1, R5-1.5K-S1, R5-2K-S1, R5-2.5K-S1, R5-3K-S1,
R5-3K-S2, R5-3.6K-S2, R5-4K-S2, R5-5K-S2, R5-6K-S2, R5-7K-S2,
R5-8K-S2

Three-phase inverter: R5-3K-T2, R5-4K-T2, R5-5K-T2, R5-6K-T2, R5-8K-T2, R5-9K-T2,
R5-10K-T2, R5-12K-T2, R5-13K-T2, R5-15K-T2, R5-17K-T2, R5-20K-T2

Comply with the following directives and regulations:

- 2014/35/EU (Low Voltage Directive)
- 2014/30/EU (EMC Directive)
- 2011/65/EU (RoHS Directive)
- DIRECTIVE (EU) 2015/863

For the evaluation of the compliance with these Directives and Regulations, the following standards/requirements were applied:

Safety: EN 62109-1:2010
EN 62109-2:2011

EMC: EN 61000-6-1:2007
EN 61000-6-2:2005,
EN 61000-6-3:2007+A1:2011
EN 61000-6-4:2007+A1:2011
EN 61000-3-2:2014(Maximum AC current ≤ 16A)
EN 61000-3-3:2013(Maximum AC current ≤ 16A)
EN 61000-3-11:2000(Maximum AC current > 16A)
EN 61000-3-12:2011(Maximum AC current > 16A)

RoHS: EN 50581: 2012

Notified Bodies: TÜV Rheinland
INTERTEK

Guangzhou

Place

December 21, 2020

Date

Director of New Energy: Li Yun

Signature



广州三晶电气股份有限公司

Guangzhou Sanjing Electric Co., Ltd.

Tel : 400-159-0088 Fax : 020-66608589

Web : www.saj-electric.cn / www.saj-electric.com

地址 : 广州高新技术产业开发区科学城荔枝山路9号三晶创新园

Add: SAJ Innovation Park, No.9, Lizhishan Road, Science City, Guangzhou High-tech Zone, Guangdong, P.R.China.

EU Declaration of Conformity

We **Guangzhou Sanjing Electric Co., Ltd.**
No.9, Lizhishan Road, Science City, Guangzhou High-tech Zone, Guangdong, P.R.China

Declare under our own responsibility that the product

Name/Trademark:



Model:

Single phase inverter: R5-0.7K-S1, R5-1K-S1, R5-1.5K-S1, R5-2K-S1, R5-2.5K-S1, R5-3K-S1,
R5-3K-S2, R5-3.6K-S2, R5-4K-S2, R5-5K-S2, R5-6K-S2, R5-7K-S2,
R5-8K-S2

Three-phase inverter: R5-3K-T2, R5-4K-T2, R5-5K-T2, R5-6K-T2, R5-8K-T2, R5-9K-T2,
R5-10K-T2, R5-12K-T2, R5-13K-T2, R5-15K-T2, R5-17K-T2, R5-20K-T2

Comply with the following directives and regulations:

- 2014/35/EU (Low Voltage Directive)
- 2014/30/EU (EMC Directive)
- 2011/65/EU (RoHS Directive)
- DIRECTIVE (EU) 2015/863

For the evaluation of the compliance with these Directives and Regulations, the following standards/requirements were applied:

Safety: EN 62109-1:2010
EN 62109-2:2011

EMC: EN 61000-6-1:2007
EN 61000-6-2:2005,
EN 61000-6-3:2007+A1:2011
EN 61000-6-4:2007+A1:2011
EN 61000-3-2:2014(Maximum AC current ≤ 16A)
EN 61000-3-3:2013(Maximum AC current ≤ 16A)
EN 61000-3-11:2000(Maximum AC current > 16A)
EN 61000-3-12:2011(Maximum AC current > 16A)

RoHS: EN 50581: 2012

Notified Bodies: TÜV Rheinland
INTERTEK

Guangzhou
Place

December 21, 2020
Date

Director of New Energy: Li Yun

Signature



EU Declaration of Conformity

We Guangzhou Sanjing Electric Co., Ltd.
No.9, Lizhishan Road, Science City, Guangzhou High-tech Zone, Guangdong, P.R.China

Declare under our own responsibility that the product

Name/Trademark:



Model:

Single phase inverter: R5-0.7K-S1, R5-1K-S1, R5-1.5K-S1, R5-2K-S1, R5-2.5K-S1, R5-3K-S1,
R5-0.7K-S1-15, R5-1K-S1-15, R5-1.5K-S1-15, R5-2K-S1-15,
R5-2.5K-S1-15, R5-3K-S1-15, R5-3K-S2, R5-3.6K-S2, R5-4K-S2,
R5-5K-S2, R5-6K-S2, R5-7K-S2, R5-8K-S2, R5-3K-S2-15, R5-3.6K-S2-15,
R5-4K-S2-15, R5-5K-S2-15, R5-6K-S2-15, R5-7K-S2-15, R5-8K-S2-15

Three-phase inverter: R5-3K-T2, R5-4K-T2, R5-5K-T2, R5-6K-T2, R5-8K-T2, R5-9K-T2,
R5-10K-T2, R5-12K-T2, R5-13K-T2, R5-15K-T2, R5-17K-T2, R5-20K-T2
R5-3K-T2-15, R5-4K-T2-15, R5-5K-T2-15, R5-6K-T2-15, R5-8K-T2-15,
R5-9K-T2-15, R5-10K-T2-15, R5-12K-T2-15

Comply with the following directives and regulations:

- 2014/35/EU (Low Voltage Directive)
- 2014/30/EU (EMC Directive)
- 2011/65/EU (RoHS Directive)
- DIRECTIVE (EU) 2015/863
- Commission Regulation (EU) 2016/631 (RFG)

For the evaluation of the compliance with these Directives and Regulations, the following standards/requirements were applied:

Safety: EN 62109-1:2010, EN 62109-2:2011
EMC: EN 61000-6-1:2019
EN 61000-6-2:2019
EN 61000-6-3:2021
EN 61000-6-4:2019
EN 61000-3-2:2014(Maximum AC current ≤ 16A)
EN 61000-3-3:2013(Maximum AC current ≤ 16A)
EN 61000-3-11:2000(Maximum AC current > 16A)
EN 61000-3-12:2011(Maximum AC current > 16A)
RoHS: EN 50581: 2012
RFG: EN 50549-1: 2019
Notified body: TÜV Rheinland
INTERTEK



Guangzhou

September 29th, 2022

Director of New Energy

Place


Date

Signature

Certificado de Conformidad

Número de Certificado: CN-PV-220131

Conforme a los ensayos realizados, la muestra<s> del producto que se detalla a continuación se ajusta a los requisitos de la especificación<s>/norma<s> de referencia en el momento en que se realizaron los ensayos. Esto no implica que Intertek haya realizado ningún tipo de vigilancia o control de la(s) fabricación(es). El o los fabricantes se asegurarán de que el proceso de fabricación cumpla con los productos examinados mencionados en este certificado.

Solicitante:	Guangzhou Sanjing Electric Co., Ltd. No.9, Lizhishan Road, Science City, Guangzhou High-tech Zone, Guangdong, P.R.China
Producto:	Inversor Fotovoltaico Conectado a la Red
Calificaciones y Características Principales:	Véase el apéndice del Certificado de Conformidad
Modelo:	R5-3K-S2, R5-3.6K-S2, R5-4K-S2, R5-5K-S2, R5-6K-S2, R5-7K-S2, R5-8K-S2, R5-3K-S2-15, R5-3.6K-S2-15, R5-4K-S2-15, R5-5K-S2-15, R5-6K-S2-15, R5-7K-S2-15, R5-8K-S2-15
Nombre de la Marca<s>:	
Producto Conforme con:	NTS-631:2020 Norma técnica para el control de conformidad de los módulos de generación de energía según el Reglamento UE 2016/631
Nombre y Dirección de la Oficina Emisora del Certificado:	Intertek Testing Services Ltd.Shanghai West Area, 2 nd Floor, No.707, Zhangyang Road China (Shanghai) Pilot Free Trade Zone, Shanghai, P.R.China Acreditado por ACCREDIA de conformidad con la norma ISO/IEC 17065:2012
Informe de la Prueba<s> N°:	220614050GZU-001

Información Complementaria en el Apéndice.



Firma

Responsable de la Certificación: Grady

Fecha: 06 de julio de 2022



PRD N° 306B

El presente Certificado está destinado al uso exclusivo del cliente de Intertek y se entrega en virtud del acuerdo entre Intertek y su Cliente. La responsabilidad y la obligación de Intertek se limita a los términos y condiciones del acuerdo. Intertek no asume ninguna responsabilidad ante ninguna parte, salvo ante el Cliente según el acuerdo, por cualquier pérdida, gasto, o daño ocasionado por el uso de este Certificado. Únicamente el Cliente está autorizado a conceder la copia o distribución de este Certificado. El uso del nombre de Intertek o de una de sus marcas para la venta o publicidad del material, producto, o servicio examinado debe ser aprobado previamente por escrito por Intertek.

APÉNDICE: Certificado de Conformidad

Este es un Apéndice del Certificado de Conformidad Número: CN-PV-220131.

Unidad / Tipo.....:	R5-3K-S2, R5-3K-S2-15	R5-3.6K-S2, R5-3.6K-S2-15	R5-4K-S2, R5-4K-S2-15	R5-5K-S2, R5-5K-S2-15	R5-6K-S2, R5-6K-S2-15	R5-7K-S2, R5-7K-S2-15	R5-8K-S2, R5-8K-S2-15
Versión de hardware / Número de serie (examinado)..... :	R5-3K-S2, R5-4K-S2, R5-5K-S2, R5-6K-S2, R5-3K-S2-15, R5-4K-S2-15, R5-5K-S2-15, R5-6K-S2-15: Main power board: V1.11, Control board: V1.1 R5-7K-S2, R5-8K-S2, R5-7K-S2-15, R5-8K-S2-15: Main power board: V1.32, Control board: V1.3						
Versión del firmware / Versión del software (examinado)	V1.188						
Rango de Corriente Continua MPP [V] .. :	90-550						
Rango de entrada de Corriente Continua [V]..... :	80-600						
Entrada máxima de Corriente Continua [A]	12.5/12.5 ¹⁾ or 15/15 ²⁾						
Máximo de Cortocircuito [A]	15/15 ¹⁾ or 18/18 ²⁾						
Tensión nominal de salida de CA [V]	230V (L+ N + PE, 50/60Hz)						
Salida máxima de Corriente Alterna [A] :	15,0	16,7	20,0	22,7	27,3	35,0	36,4
Potencia activa nominal de salida [kW] :	3,0	3,68	4,0	5,0	6,0	7,0	8,0
Potencia de salida máxima, aparente / activa [kVA / kW]	3,3	3,68	4,4	5,0	6,0	7,7	8,0

1) Corriente de entrada máxima (A) = 12,5 y máximo de cortocircuito (A) =15A para R5-3K-S2, R5-3,6K-S2, R5-4K-S2, R5-5K-S2, R5-6K-S2, R5-7K-S2, R5-8K-S2.

2) Corriente de entrada máxima (A) = 15 y máximo de cortocircuito (A) =18A para R5-3K-S2-15, R5-3,6K-S2-15, R5-4K-S2-15, R5-5K-S2-15, R5-6K-S2-15, R5-7K-S2-15, R5-8K-S2-15

APÉNDICE: Certificado de Conformidad

Este es un Apéndice del Certificado de Conformidad Número: CN-PV-220131.

Requisito / Requirement	NTS	Tipo / Type	Cumplimiento / Complicant	Nombre Entidad Emisora / Name of issuing Entity	Ev.(*)
Modo regulación potencia-frecuencia limitado sobrefrecuencia (MRPFL-O) / Power-frequency regulation mode limited to overfrequency (MRPFL-O)	5.1	≥A	YES (TRF No.220614050GZ U-001)	Intertek	P
Modo regulación potencia-frecuencia limitado-subfrecuencia (MRPFL-U) / Power-frequency regulation mode limited to underfrequency (MRPFL-U)	5.2	≥C	NO APPLICABLE	--	--
Modo regulación potencia-frecuencia (MRPF) / Power-frequency regulation mode (MRPF)	5.3	≥C	NO APPLICABLE	--	--
Control de potencia-frecuencia / Frequency Control	5.4	≥C	NO APPLICABLE	--	--
Capacidad de control y el rango de control de la potencia activa en remote / Active Power Requirements	5.5	≥C	NO APPLICABLE	--	--
Emulación de inercia durante variaciones de frecuencia muy rápidas / Inertia Emulations	5.6	≥C	NO APPLICABLE	--	--
Capacidad de potencia reactiva a la capacidad máxima y por debajo / Reactive power capabilities at the EUT rated power and below	5.7	≥B	NO APPLICABLE	--	--
Modos de control de la potencia reactiva / Reactive power control modes	5.8	≥B	NO APPLICABLE	--	--
Control de amortiguamiento de oscilaciones / Control of oscillation damping	5.10	≥C	NO APPLICABLE	--	--
Capacidad para soportar huecos de tensión de los MPE conectados por debajo de 110 kV / Capability to withstand voltage grid faults for POC below 110 kV	5.11	≥B	NO APPLICABLE	--	--
Capacidad para soportar huecos de tensión de los MPE conectados por encima de 110 kV / Capability to withstand voltage grid faults for POC above 110 kV	5.11	D	NO APPLICABLE	--	--
Recuperación de la potencia activa después de una falta / Active power recovery after a grid fault	5.11	≥B	NO APPLICABLE	--	--
Inyección rápida de corriente de falta en el punto de conexión en caso de faltas trifásicas) simétricas / Rapid current injection control	5.11	≥B	NO APPLICABLE	--	--
Capacidad de participar en el funcionamiento en isla / Islanding requirements	5.13	≥C	NO APPLICABLE	--	--
(*) Evaluado por / Evaluated by: P: Prueba de conformidad / Test of compliance S: Simulación de conformidad / Simulation of compliance					

Declaration: It is an accurate translation of the original document.

El presente Certificado está destinado al uso exclusivo del cliente de Intertek y se entrega en virtud del acuerdo entre Intertek y su Cliente. La responsabilidad y la obligación de Intertek se limita a los términos y condiciones del acuerdo. Intertek no asume ninguna responsabilidad ante ninguna parte, salvo ante el Cliente según el acuerdo, por cualquier pérdida, gasto, o daño ocasionado por el uso de este Certificado. Únicamente el Cliente está autorizado a conceder la copia o distribución de este Certificado. El uso del nombre de Intertek o de una de sus marcas para la venta o publicidad del material, producto, o servicio examinado debe ser aprobado previamente por escrito por Intertek.

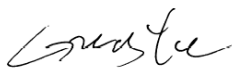
Certificate of Conformity

Certificate Number: CN-PV-220131

On the basis of the tests undertaken, the sample<s> of the below product have been found to comply with the requirements of the referenced specification<s>/standard<s> at the time the tests were carried out. It does not imply that Intertek has performed any surveillance or control of the manufacture(s). The manufacturer(s) shall ensure that the manufacturing process assures compliance of the production units with the examined products mentioned in this certificate.

Applicant:	Guangzhou Sanjing Electric Co., Ltd. No.9, Lizhishan Road, Science City, Guangzhou High-tech Zone, Guangdong, P.R.China
Product:	PV Grid-connected Inverter
Ratings & Principle Characteristics:	See appendix of Certificate of Conformity
Model:	R5-3K-S2, R5-3.6K-S2, R5-4K-S2, R5-5K-S2, R5-6K-S2, R5-7K-S2, R5-8K-S2, R5-3K-S2-15, R5-3.6K-S2-15, R5-4K-S2-15, R5-5K-S2-15, R5-6K-S2-15, R5-7K-S2-15, R5-8K-S2-15
Brand Name<s>:	
Product Complies with:	NTS-631:2020 Technical standard for monitoring the compliance of power generating modules according to EU Regulation 2016/631
Certificate Issuing Office Name & Address:	Intertek Testing Services Ltd. Shanghai West Area, 2 nd Floor, No. 707, Zhangyang Road China (Shanghai) Pilot Free Trade Zone, Shanghai, P. R. China Accredited by ACCREDIA in accordance with ISO/IEC 17065:2012
Test Report No.<s>:	220614050GZU-001

Additional information in Appendix.



Signature

Certification Manager: Grady Ye

Date: 06 July 2022



PRD N° 306B

This Certificate is for the exclusive use of Intertek's client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this Certificate. Only the Client is authorized to permit copying or distribution of this Certificate. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek.

APPENDIX: Certificate of Conformity

This is an Appendix to Certificate of Conformity Number: CN-PV-220131.

Unit / Type	R5-3K-S2, R5-3K-S2-15	R5-3.6K-S2, R5-3.6K-S2-15	R5-4K-S2, R5-4K-S2-15	R5-5K-S2, R5-5K-S2-15	R5-6K-S2, R5-6K-S2-15	R5-7K-S2, R5-7K-S2-15	R5-8K-S2, R5-8K-S2-15
Hardware version / Serial No. (tested)..	R5-3K-S2, R5-4K-S2, R5-5K-S2, R5-6K-S2, R5-3K-S2-15, R5-4K-S2-15, R5-5K-S2-15, R5-6K-S2-15: Main power board: V1.11, Control board: V1.1 R5-7K-S2, R5-8K-S2, R5-7K-S2-15, R5-8K-S2-15: Main power board: V1.32, Control board: V1.3						
Firmware version / Software version (tested)	V1.188						
MPP DC voltage range [V]	90-550						
Input DC voltage range [V]	80-600						
Max. Input DC current [A]	12.5/12.5 ¹⁾ or 15/15 ²⁾						
Max. Short circuit[A]	15/15 ¹⁾ or 18/18 ²⁾						
Nominal output AC voltage [V]	230V (L+ N + PE, 50/60Hz)						
Max. Output AC current [A]	15,0	16,7	20,0	22,7	27,3	35,0	36,4
Nominal active output power [kW].....	3,0	3,68	4,0	5,0	6,0	7,0	8,0
Max, apparent / active output power [kVA / kW]	3,3	3,68	4,4	5,0	6,0	7,7	8,0

1) Max. Input current (A) = 12.5 and Max. Short circuit(A) =15A for R5-3K-S2, R5-3.6K-S2, R5-4K-S2, R5-5K-S2, R5-6K-S2, R5-7K-S2, R5-8K-S2.

2) Max. Input current (A) = 15 and Max. Short circuit(A) =18A for R5-3K-S2-15, R5-3.6K-S2-15, R5-4K-S2-15, R5-5K-S2-15, R5-6K-S2-15, R5-7K-S2-15, R5-8K-S2-15

APPENDIX: Certificate of Conformity

This is an Appendix to Certificate of Conformity Number: CN-PV-220131.

Requisito / Requirement	NTS	Tipo / Type	Cumplimiento / Complicant	Nombre Entidad Emisora / Name of issuing Entity	Ev. (*)
Modo regulación potencia-frecuencia limitado sobrefrecuencia (MRPFL-O) / Power-frequency regulation mode limited to overfrequency (MRPFL-O)	5.1	≥A	YES (TRF No. 220614050GZU-001)	Intertek	P
Modo regulación potencia-frecuencia limitado-subfrecuencia (MRPFL-U) / Power-frequency regulation mode limited to underfrequency (MRPFL-U)	5.2	≥C	NO APPLICABLE	--	--
Modo regulación potencia-frecuencia (MRPF) / Power-frequency regulation mode (MRPF)	5.3	≥C	NO APPLICABLE	--	--
Control de potencia-frecuencia / Frequency Control	5.4	≥C	NO APPLICABLE	--	--
Capacidad de control y el rango de control de la potencia activa en remote / Active Power Requirements	5.5	≥C	NO APPLICABLE	--	--
Emulación de inercia durante variaciones de frecuencia muy rápidas / Intertia Emualtions	5.6	≥C	NO APPLICABLE	--	--
Capacidad de potencia reactiva a la capacidad máxima y por debajo / Reactive power capabilities at the EUT rated power and below	5.7	≥B	NO APPLICABLE	--	--
Modos de control de la potencia reactiva / Reactive power control modes	5.8	≥B	NO APPLICABLE	--	--
Control de amortiguamiento de oscilaciones / Control of oscillation damping	5.10	≥C	NO APPLICABLE	--	--
Capacidad para soportar huecos de tensión de los MPE conectados por debajo de 110 kV / Capability to withstand voltage grid faults for POC below 110 kV	5.11	≥B	NO APPLICABLE	--	--
Capacidad para soportar huecos de tensión de los MPE conectados por encima de 110 kV / Capability to withstand voltage grid faults for POC above 110 kV	5.11	D	NO APPLICABLE	--	--
Recuperación de la potencia activa después de una falta / Active power recovery after a grid fault	5.11	≥B	NO APPLICABLE	--	--
Inyección rápida de corriente de falta en el punto de conexión en caso de faltas trifásicas) simétricas / Rapid current injection control	5.11	≥B	NO APPLICABLE	--	--
Capacidad de participar en el funcionamiento en isla / Islanding requirements	5.13	≥C	NO APPLICABLE	--	--
(*) Evaluado por / Evaluated by: P: Prueba de conformidad / Test of compliance S: Simulación de conformidad / Simulation of compliance					

This Certificate is for the exclusive use of Intertek's client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this Certificate. Only the Client is authorized to permit copying or distribution of this Certificate. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek.



Test Report

Technical standard for monitoring the compliance of power generating modules according to EU Regulation 2016/631

For the unit(s) R5-3K-S2, R5-3.6K-S2, R5-4K-S2, R5-5K-S2, R5-6K-S2, R5-7K-S2, R5-8K-S2
R5-3K-S2-15, R5-3.6K-S2-15, R5-4K-S2-15, R5-5K-S2-15, R5-6K-S2-15,
R5-7K-S2-15, R5-8K-S2-15

Test report no 220614050GZU-001

Date 2022-6-29

Test report number: 220614050GZU-001

Date of issue: 2022-6-29

Total number of pages: 28 pages

Testing laboratory: Intertek Testing Services Shenzhen Ltd. Guangzhou Branch

Address: Room 02, & 101/E201/E301/E401/E501/E601/E701/E801 of Room 01
1-8/F., No. 7-2. Caipin Road, Science City, GETDD, Guangzhou,
Guangdong, China

Applicant's name: Guangzhou Sanjing Electric Co., Ltd.

Address: No.9, Lizhishan Road, Science City, Guangzhou High-tech Zone,
Guangdong, P.R.China

Test specification


Standard: NTS-631:2020
Type approval for Type A

Test report form number.....: NTS-631_V2.0

Test report form(s) originator: Intertek

Master TRF: Dated 2022-06-24

Test item description.....: PV Grid-connected Inverter

Trademark: 

Manufacturer.....: Same as applicant

Factory: Same as applicant

Model / Type reference.....: R5-3K-S2, R5-3.6K-S2, R5-4K-S2, R5-5K-S2, R5-6K-S2, R5-7K-S2,
R5-8K-S2, R5-3K-S2-15, R5-3.6K-S2-15, R5-4K-S2-15, R5-5K-S2-15,
R5-6K-S2-15, R5-7K-S2-15, R5-8K-S2-15

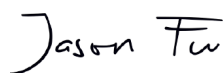
Technical data: See section 3.1.1 on p.5

Testing location / address.....: Intertek Testing Services Shenzhen Ltd. Guangzhou Branch
Room 02, & 101/E201/E301/E401/E501/E601/E701/E801 of Room 01
1-8/F., No. 7-2. Caipin Road, Science City, GETDD, Guangzhou,
Guangdong, China

Dates of testing.....: 2022-6-14 – 2022-6-24

This test report shall not be reproduced except in full without approval of Intertek Testing Services Shenzhen Ltd. Guangzhou Branch.
Test reports without signature are not valid.

Tested by



Jason Fu
Supervisor

Approved by



Tommy Zhong
Technical Manager

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

1 General information of test report

1.1 Revision history

Revision	Date	Editor	Modification / Change	Status
1	2022-6-29	Jason Fu	Initial report was written	active

2 General remarks for documentation

The test results presented in this report relate only to the object(s) tested.

Throughout this report a comma ',' / point '.' is used as decimal separator and a point '.' / comma ',' as thousands separator.

The following **suffixes/indices** are used for variables in tables and figures:

0,2	gliding average values over 200 milliseconds
10	gliding average values over 10 seconds
60	gliding average values over 60 seconds
600	gliding average values over 10 minutes
+	positive sequence system values
-	negative sequence system values
0	zero sequence system values
1	fundamental component (main frequency). In case of power values (P, Q, S) this is the sum of the 3 phase values
Lx	index of phase x
LxLy	phase-to-phase voltages of phase x and phase y
s	apparent
p	active
q	reactive

Abbreviations

AC	:	Alternating Current
DC	:	Direct Current
EUT	:	Equipment Under Test
MP	:	Measurement Point
MPP	:	Maximum Power Point
N ₁₀	:	Maximum number of switching operations within a time period of 10 minutes
N ₁₂₀	:	Maximum number of switching operations within a time period of 120 minutes
PGU	:	Power Generating Unit
PGS	:	Power Generating System
PCC	:	Point of Common Coupling (grid connection point)
THC	:	Total Harmonic Current Distortion
THDS _U	:	Total demand distortions of voltage harmonics

General remarks for testing

3.1 General product information

3.1.1 Technical data of the unit(s)

Unit / Type	R5-3K-S2, R5-3K-S2-15	R5-3.6K-S2, R5-3.6K-S2-15	R5-4K-S2, R5-4K-S2-15	R5-5K-S2, R5-5K-S2-15	R5-6K-S2, R5-6K-S2-15	R5-7K-S2, R5-7K-S2-15	R5-8K-S2, R5-8K-S2-15
Hardware version / Serial No. (tested) ..	R5-3K-S2, R5-4K-S2, R5-5K-S2, R5-6K-S2, R5-3K-S2-15, R5-4K-S2-15, R5-5K-S2-15, R5-6K-S2-15: Main power board: V1.11, Control board: V1.1 R5-7K-S2, R5-8K-S2, R5-7K-S2-15, R5-8K-S2-15: Main power board: V1.32, Control board: V1.3						
Firmware version / Software version (tested)	V1.188						
MPP DC voltage range [V]	90-550						
Input DC voltage range [V]	80-600						
Max. Input DC current [A]	12.5/12.5 ¹⁾ or 15/15 ²⁾						
Max. Short circuit[A]	15/15 ¹⁾ or 18/18 ²⁾						
Nominal output AC voltage [V]	230V (L+ N + PE, 50/60Hz)						
Max. Output AC current [A]	15,0	16,7	20,0	22,7	27,3	35,0	36,4
Nominal active output power [kW]	3,0	3,68	4,0	5,0	6,0	7,0	8,0
Max, apparent / active output power [kVA / kW]	3,3	3,68	4,4	5,0	6,0	7,7	8,0

1) Max. Input current (A) = 12.5 and Max. Short circuit(A) =15A for R5-3K-S2, R5-3.6K-S2, R5-4K-S2, R5-5K-S2, R5-6K-S2, R5-7K-S2, R5-8K-S2.

2) Max. Input current (A) = 15 and Max. Short circuit(A) =18A for R5-3K-S2-15, R5-3.6K-S2-15, R5-4K-S2-15, R5-5K-S2-15, R5-6K-S2-15, R5-7K-S2-15, R5-8K-S2-15

The solar inverter converts DC voltage, generated by photovoltaic modules, into AC voltage,
The units are Single-phase,

Equipment mobility

Operating condition.....

Class of equipment.....

Protection against ingress of water

Mass of equipment [kg]

3.1.2 Description of the differences of the models within the product series

The models R5-3K-S2, R5-4K-S2, R5-5K-S2, R5-6K-S2, R5-3K-S2-15, R5-4K-S2-15, R5-5K-S2-15, R5-6K-S2-15 same as the enclosure size, just the output power are different adjustable by software, and the models R5-7K-S2, R5-8K-S2, R5-7K-S2-15 and R5-8K-S2-15 same as the enclosure size, just the output power are different adjustable by software, the models R5-3K-S2, R5-4K-S2, R5-5K-S2, R5-6K-S2, R5-7K-S2, R5-8K-S2, R5-3K-S2-15, R5-4K-S2-15, R5-5K-S2-15, R5-6K-S2-15, R5-7K-S2-15 and R5-8K-S2-15 are as same as the construction, and the software logistic and hardware construction, except the difference as below:

Model Parts	R5-3K-S2, R5-3K-S2- 15	R5-3.6K- S2, R5- 3.6K-S2- 15	R5-4K-S2, R5-4K-S2- 15	R5-5K-S2, R5-5K-S2- 15	R5-6K-S2, R5-6K-S2- 15	R5-7K-S2, R5-7K-S2- 15	R5-8K-S2, R5-8K-S2- 15
Bus capacitor	6 PCS			8PCS		12PCS	
BOOST IGBT	FGH40T65SQD-F115/ IKW40N65H5						
INV IGBT	FGH40T65SQD-F115/ IKW40N65EH5			FGH50T65SQD-F115/ IKW50N65EH5		FGH75T65SQD-F115/ IKW75N65EH5	
Main relay	HF161F-W/ AZSR131					HE1aN-P-DC12V-Y5/ T9VV1K15-12SA	
Boost inductor	3-6K BOOST					7-8K BOOST	
INV.inductor	3-6KW INV					7-8K INV	
Main power board	Sununo.1230-1260P3.MPB.S V1.3 3-6KW					Sununo.1270-1280P3.MPB.S V1.11 7-8KW	
Control board	Sununo.1230-1260P3.CNTL V1.32 3-6KW					Sununo.1270-1280P3.CNTL V1.1 7-8KW	
AC terminal	VPAC06EW-3P					TR-10N	
Dimensions [H*W*D][mm]	367*389*143					429*418*177	

3.1.3 Copy of marking plate

SAJ Guangzhou Sanjing Electric Co., Ltd.
Tel: +86(20)69626589 Fax: +86(20)69626589
Web: www.saj-electric.com E-mail: service@saj-electric.com

PV Grid-connected Inverter
Type: R5-3K-S2

PV Input	
Voltage Range	80V-600Vdc
MPPT Voltage Range	90V-550Vdc
Max. Input Current (PV1/PV2)	12.5/12.5Adc
Max. Short Circuit Current (PV1/PV2)	15/15Adc
Max. Number of Parallel Strings (PV1/PV2)	1/1
AC Output	
Rated Voltage	220/230Vac
Rated Current	13.1Aac
Max. Continuous Current	14.4Aac
Rated Frequency	50/60Hz
Rated Power	3000W
Power Factor	0.81...1...0.8c
Temperature: -40°C~60°C Protective Class: I Overvoltage Category: II (DC), III (AC) Ingress protection: IP65	
EN 50438 EN 50549 VDE-AR-N4105 AS/NZS 4777.2 CEI 0-21	

CE ROHS SSS

S/N

P/C

MADE IN CHINA

SAJ Guangzhou Sanjing Electric Co., Ltd.
Tel: +86(20)69626589 Fax: +86(20)69626589
Web: www.saj-electric.com E-mail: service@saj-electric.com

PV Grid-connected Inverter
Type: R5-3.6K-S2

PV Input	
Voltage Range	80V-600Vdc
MPPT Voltage Range	90V-550Vdc
Max. Input Current (PV1/PV2)	12.5/12.5Adc
Max. Short Circuit Current (PV1/PV2)	15/15Adc
Max. Number of Parallel Strings (PV1/PV2)	1/1
AC Output	
Rated Voltage	220/230Vac
Rated Current	16.0Aac
Max. Continuous Current	16.0Aac
Rated Frequency	50/60Hz
Rated Power	3680W
Power Factor	0.81...1...0.8c
Temperature: -40°C~60°C Protective Class: I Overvoltage Category: II (DC), III (AC) Ingress protection: IP65	
EN 50438 EN 50549 VDE-AR-N4105 AS/NZS 4777.2 CEI 0-21	

CE ROHS SSS

S/N

P/C

MADE IN CHINA

SAJ Guangzhou Sanjing Electric Co., Ltd.
Tel: +86(20)69626589 Fax: +86(20)69626589
Web: www.saj-electric.com E-mail: service@saj-electric.com

PV Grid-connected Inverter
Type: R5-4K-S2

PV Input	
Voltage Range	80V-600Vdc
MPPT Voltage Range	90V-550Vdc
Max. Input Current (PV1/PV2)	12.5/12.5Adc
Max. Short Circuit Current (PV1/PV2)	15/15Adc
Max. Number of Parallel Strings (PV1/PV2)	1/1
AC Output	
Rated Voltage	220/230Vac
Rated Current	17.4Aac
Max. Continuous Current	19.2Aac
Rated Frequency	50/60Hz
Rated Power	4000W
Power Factor	0.81...1...0.8c
Temperature: -40°C~60°C Protective Class: I Overvoltage Category: II (DC), III (AC) Ingress protection: IP65	
EN 50438 EN 50549 VDE-AR-N4105 AS/NZS 4777.2 CEI 0-21	

CE ROHS SSS

S/N

P/C

MADE IN CHINA

SAJ Guangzhou Sanjing Electric Co., Ltd.
Tel: +86(20)69626589 Fax: +86(20)69626589
Web: www.saj-electric.com E-mail: service@saj-electric.com

PV Grid-connected Inverter
Type: R5-5K-S2

PV Input	
Voltage Range	80V-600Vdc
MPPT Voltage Range	90V-550Vdc
Max. Input Current (PV1/PV2)	12.5/12.5Adc
Max. Short Circuit Current (PV1/PV2)	15/15Adc
Max. Number of Parallel Strings (PV1/PV2)	1/1
AC Output	
Rated Voltage	220/230Vac
Rated Current	21.7/21.8Aac*
Max. Continuous Current	21.7/24Aac*
Rated Frequency	50/60Hz
Rated Power	4.6/4.999/5.0KW**
Power Factor	0.81...1...0.8c
Temperature: -40°C~60°C Protective Class: I Overvoltage Category: II (DC), III (AC) Ingress protection: IP65	
EN 50438 EN 50549 VDE-AR-N4105 AS/NZS 4777.2 CEI 0-21 * 21.7A for Australia, 21.8A/24A for other country ** 4.999kW for AS/NZS 4777.2, 4.8kW for VDE-AR-N4105	

CE ROHS SSS

S/N

P/C

MADE IN CHINA

SAJ Guangzhou Sanjing Electric Co., Ltd.
Tel: +86(20)69626589 Fax: +86(20)69626589
Web: www.saj-electric.com E-mail: service@saj-electric.com

PV Grid-connected Inverter
Type: R5-6K-T2

PV Input	
Voltage Range	150V-1100Vdc
MPPT Voltage Range	160V-950Vdc
Max. Input Current (PV1/PV2)	12.5/12.5Adc
Max. Short Circuit Current (PV1/PV2)	15/15Adc
Max. Number of Parallel Strings (PV1/PV2)	1/1
AC Output	
Rated Voltage	3/N/PE 380/400V
Rated Current	3*8.7A
Max. Continuous Current	3*10.0A
Rated Frequency	50/60Hz
Rated Power	6000W
Max. Power	6600VA
Power Factor	0.81...1...0.8c
Temperature: -40°C~60°C Protective Class: I Overvoltage Category: II (DC), III (AC) Ingress protection: IP65	
EN 50438 EN 50549 VDE-AR-N4105 AS/NZS 4777.2 CEI 0-21	

CE ROHS SSS

S/N

P/C

Importer: MADE IN CHINA

SAJ Guangzhou Sanjing Electric Co., Ltd.
Tel: +86(20)69626589 Fax: +86(20)69626589
Web: www.saj-electric.com E-mail: service@saj-electric.com

PV Grid-connected Inverter
Type: R5-7K-S2

PV Input	
Voltage Range	80V-600Vdc
MPPT Voltage Range	90V-550Vdc
Max. Input Current (PV1/PV2)	25/12.5Adc
Max. Short Circuit Current (PV1/PV2)	30/15Adc
Max. Number of Parallel Strings (PV1/PV2)	2/1
AC Output	
Rated Voltage	220/230Vac
Rated Current	30.5Aac
Max. Continuous Current	33.5Aac
Rated Frequency	50/60Hz
Rated Power	7000W
Power Factor	0.81...1...0.8c
Temperature: -40°C~60°C Protective Class: I Overvoltage Category: II (DC), III (AC) Ingress protection: IP65	
EN 50438 EN 50549 VDE-AR-N4105 AS/NZS 4777.2 CEI 0-21	

CE ROHS SSS

S/N

P/C

MADE IN CHINA

SAJ Guangzhou Sanjing Electric Co., Ltd.
Tel: +86(20)46660588 Fax: +86(20)46660589
Web: www.saj-electric.com E-mail: service@saj-electric.com

PV Grid-connected Inverter
Type: R5-8K-S2

PV Input	
Voltage Range	80V-600Vdc
MPPT Voltage Range	90V-550Vdc
Max. Input Current (PV1/PV2)	25/12.5Adc
Max. Short Circuit Current (PV1/PV2)	30/15Adc
Max. Number of Parallel Strings (PV1/PV2)	2/1
AC Output	
Rated Voltage	220/230Vac
Rated Current	34.8Aac
Max. Continuous Current	34.8Aac
Rated Frequency	50/60Hz
Rated Power	8000W
Power Factor	0.8...1...0.8c

Temperature: -40°C~60°C
Protective Class: I
Overvoltage Category: II (DC), III (AC)
Ingress protection: IP65

EN 50438 EN 50549 VDE-AR-N4105 AS/NZS 4777.2
CEI 0-21

CE ROHS

S/N

P/C

MADE IN CHINA

SAJ Guangzhou Sanjing Electric Co., Ltd.
Tel: +86(20)46660588 Fax: +86(20)46660589
Web: www.saj-electric.com E-mail: service@saj-electric.com

PV Grid-connected Inverter
Type: R5-3K-S2-15

PV Input	
Voltage Range	80V-600Vdc
MPPT Voltage Range	90V-550Vdc
Max. Input Current (PV1/PV2)	15A/15Aac
Max. Short Circuit Current (PV1/PV2)	18A/18Aac
Max. Number of Parallel Strings (PV1/PV2)	1/1
AC Output	
Rated Voltage	230Vac
Rated Current	13.1Aac
Max. Continuous Current	14.4Aac
Rated Frequency	50Hz
Rated Power	3000W
Power Factor	0.8...1...0.8c

Temperature: -40°C~60°C
Protective Class: I
Overvoltage Category: II (DC), III (AC)
Ingress protection: IP65

NB/T 32004-2013 IEC62109-1/2 IEC61000-6-2/3

CE ROHS

S/N

P/C

Importer:

SAJ Guangzhou Sanjing Electric Co., Ltd.
Tel: +86(20)46660588 Fax: +86(20)46660589
Web: www.saj-electric.com E-mail: service@saj-electric.com

PV Grid-connected Inverter
Type: R5-4K-S2-15

PV Input	
Voltage Range	80V-600Vdc
MPPT Voltage Range	90V-550Vdc
Max. Input Current (PV1/PV2)	15A/15Aac
Max. Short Circuit Current (PV1/PV2)	18A/18Aac
Max. Number of Parallel Strings (PV1/PV2)	1/1
AC Output	
Rated Voltage	230Vac
Rated Current	17.4Aac
Max. Continuous Current	19.2Aac
Rated Frequency	50Hz
Rated Power	4000W
Power Factor	0.8...1...0.8c

Temperature: -40°C~60°C
Protective Class: I
Overvoltage Category: II (DC), III (AC)
Ingress protection: IP65

NB/T 32004-2013 IEC62109-1/2 IEC61000-6-2/3

CE ROHS

S/N

P/C

Importer:

SAJ Guangzhou Sanjing Electric Co., Ltd.
Tel: +86(20)46660588 Fax: +86(20)46660589
Web: www.saj-electric.com E-mail: service@saj-electric.com

PV Grid-connected Inverter
Type: R5-5K-S2-15

PV Input	
Voltage Range	80V-600Vdc
MPPT Voltage Range	90V-550Vdc
Max. Input Current (PV1/PV2)	15A/15Aac
Max. Short Circuit Current (PV1/PV2)	18A/18Aac
Max. Number of Parallel Strings (PV1/PV2)	1/1
AC Output	
Rated Voltage	230Vac
Rated Current	21.8Aac
Max. Continuous Current	24Aac
Rated Frequency	50Hz
Rated Power	5000W
Power Factor	0.8...1...0.8c

Temperature: -40°C~60°C
Protective Class: I
Overvoltage Category: II (DC), III (AC)
Ingress protection: IP65

NB/T 32004-2013 IEC62109-1/2 IEC61000-6-2/3

CE ROHS

S/N

P/C

Importer:

SAJ Guangzhou Sanjing Electric Co., Ltd.
Tel: +86(20)46660588 Fax: +86(20)46660589
Web: www.saj-electric.com E-mail: service@saj-electric.com

PV Grid-connected Inverter
Type: R5-6K-S2-15

PV Input	
Voltage Range	80V-600Vdc
MPPT Voltage Range	90V-550Vdc
Max. Input Current (PV1/PV2)	15A/15Aac
Max. Short Circuit Current (PV1/PV2)	18A/18Aac
Max. Number of Parallel Strings (PV1/PV2)	1/1
AC Output	
Rated Voltage	230Vac
Rated Current	26.1Aac
Max. Continuous Current	26.1Aac
Rated Frequency	50Hz
Rated Power	6000W
Power Factor	0.8...1...0.8c

Temperature: -40°C~60°C
Protective Class: I
Overvoltage Category: II (DC), III (AC)
Ingress protection: IP65

NB/T 32004-2013 IEC62109-1/2 IEC61000-6-2/3

CE ROHS

S/N

P/C

Importer:

SAJ Guangzhou Sanjing Electric Co., Ltd.
Tel: +86(20)46660588 Fax: +86(20)46660589
Web: www.saj-electric.com E-mail: service@saj-electric.com

PV Grid-connected Inverter
Type: R5-7K-S2-15

PV Input	
Voltage Range	80V-600Vdc
MPPT Voltage Range	90V-550Vdc
Max. Input Current (PV1/PV2)	30A/15Aac
Max. Short Circuit Current (PV1/PV2)	36A/18Aac
Max. Number of Parallel Strings (PV1/PV2)	2/1
AC Output	
Rated Voltage	230Vac
Rated Current	30.5Aac
Max. Continuous Current	33.5Aac
Rated Frequency	50Hz
Rated Power	7000W
Power Factor	0.8...1...0.8c

Temperature: -40°C~60°C
Protective Class: I
Overvoltage Category: II (DC), III (AC)
Ingress protection: IP65

NB/T 32004-2013 IEC62109-1/2 IEC61000-6-2/3

CE ROHS

S/N


P/C

Importer:

SAJ Guangzhou Sanjing Electric Co., Ltd.
Tel:+(86)20-666608588 Fax:+(86)20-666608589
Web:www.saj-electric.com E-mail:service@saj-electric.com

PV Grid-connected Inverter

Type: R5-8K-S2-15

	PV Input	
	Voltage Range	80V-600Vdc
	MPPT Voltage Range	90V-550Vdc
	Max. Input Current (PV1/PV2)	30A/15Adc
	Max. Short Circuit Current (PV1/PV2)	36A/18Adc
	Max. Number of Parallel Strings (PV1/PV2)	2/1
	AC Output	
	Rated Voltage	230Vac
	Rated Current	34.8Aac
	Max. Continuous Current	34.8Aac
Rated Frequency	50Hz	
Rated Power	8000W	
Power Factor	0.8i...1...0.8c	
Temperature: -40℃~60℃ Protective Class: I Overvoltage Category: II (DC), III (AC) Ingress protection: IP65		
NB/T 32004-2013 IEC62109-1/2 IEC61000-6-2/3		



S/N


P/C

Importer:

SAJ Guangzhou Sanjing Electric Co., Ltd.
Tel:+(86)20-666608588 Fax:+(86)20-666608589
Web:www.saj-electric.com E-mail:service@saj-electric.com

PV Grid-connected Inverter

Type: R5-3.6K-S2-15

	PV Input	
	Voltage Range	80V-600Vdc
	MPPT Voltage Range	90V-550Vdc
	Max. Input Current (PV1/PV2)	15/15Adc
	Max. Short Circuit Current (PV1/PV2)	18/18Adc
	Max. Number of Parallel Strings (PV1/PV2)	1/1
	AC Output	
	Rated Voltage	220/230Vac
	Rated Current	16.0Aac
	Max. Continuous Current	16.0Aac
Rated Frequency	50/60Hz	
Rated Power	3680W	
Power Factor	0.8i...1...0.8c	
Temperature: -40℃~60℃ Protective Class: I Overvoltage Category: II (DC), III (AC) Ingress protection: IP65		
EN 50438 EN 50549 VDE-AR-N4105 AS/NZS 4777.2 CEI 0-21 EN62109-1/2		



S/N

P/C

Importer:

MADE IN CHINA

3.1.4 Description of the power circuit

The equipment is single phase utility-interactive type PV inverter which will be installed and connected to the grid network after installation.

It contains filters for smoothing the output voltage and for EMC, switching and control circuits. Electronic circuits are mounted on a number of PCBs interconnected by appropriate connectors and wires. Power board including electronics components is mounted on the heat sink to earthing by metal screw and spring washer.

There are included a USB and RS485 communication ports which are connected to the monitors to monitor the status of the inverter by proprietary software.

The PV input combiner with 2 string MPPT tracers and each MPPT tracer including a PV input terminal. AC output direct connected to grid and protective earthing are provided by dedicated earthing terminals. Grid is protected combination with a two series of relays as redundant build for ensure the inverter can independent disconnected from grid while a relay was fault.

During fault condition defined in this standard, after the DSP receives the abnormal signal from the relevant protective detection circuit, the relays will operate to disconnect the PV inverter active lines from grid automatically.

The master DSP and slaver DSP has capacity independent disconnected from grid, when any grid fault had happened.

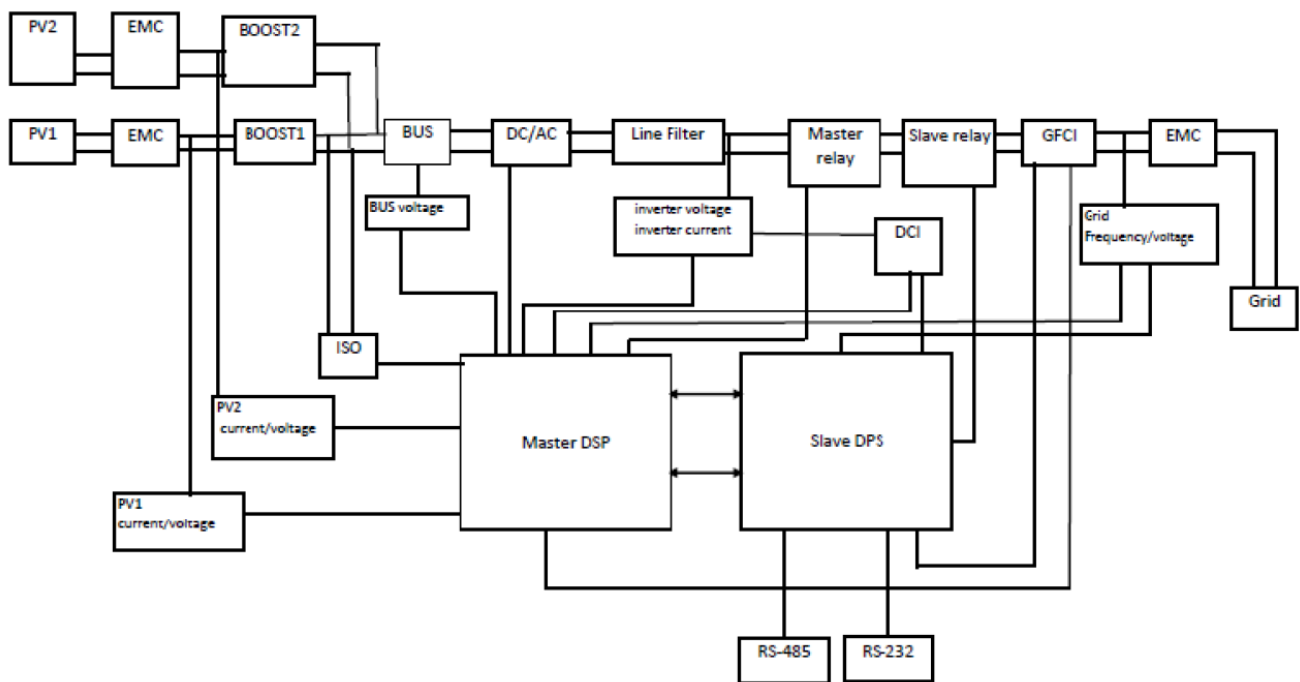


Figure 1 – Block diagram of the power circuit

3.2 Scope of measurements

NTS SECTION	CHAPTER OF THE STANDARD	TYPE ⁽¹⁾	RESULT
	NTS		
--	Frequency Requirements	--	P
--	Active power feed-in as a function of frequency	--	P
5,1	Power-frequency regulation mode limited to overfrequency (MRPFLO)	≥A	P
5,2	Power-frequency regulation mode limited to underfrequency (MRPFLO)	≥C	N/A
5,3	Power-frequency sensitive mode (MRPF)	≥C	N/A
5,4	Power-Frequency Control	≥C	N/A
5,5	Active Power Requirements	≥C	N/A
5,5	Power gradient Constraint	≥C	N/A
5,5	Absolute Production Constraint	≥C	N/A
5,6	Synthetic inertia	≥C	N/A
--	Reactive Power Requirements	--	N/A
5,7	Reactive power capabilities at the EUT rated power and below	≥B	N/A
5,8	Reactive power control modes	≥B	N/A
5,10	Control of oscillation damping	≥C	N/A
--	Robustness Requirements	--	N/A
5,11	Capability to withstand voltage grid faults for POC below 110 kV	≥B	N/A
5,11	Capability to withstand voltage grid faults for POC above 110 kV	D	N/A
5,11	Rapid current injection control	≥B	N/A
5,11	Active power recovery after a grid fault	≥B	N/A
5,13	Islanding requirements	≥C	N/A

3.3 Reference values

Representative sample for testing

Reference values for the p,u, or percentage calculations:

	R5-6K-S2
Rated active power, P_n [kW]	6,0
Max, apparent and active output power, S_{max} / P_{max} [kVA]	6,0
Rated voltage (phase-to-phase), U_n [V]	230V
Rated current, I_n [A]	26,1
Maximum current, I_{max} [A]	27,3

3.4 Measurement setup

Tests documented in this test report were performed using the following test configuration:

- Measurements in the field on real grid
- Test bench tests on real grid
- Test bench tests on an AC grid simulator

The PGU is connected on the DC-side to a PV-simulator and on the AC-side to an AC-grid simulator, The AC-grid simulator is operated with nominal conditions of $U_n = 230$ (phase-to-neutral) and $f_n = 50$ Hz unless stated otherwise by the applied test requirement,

Available primary power is modified by adapting the short circuit current (I_{sc}) value of the I-V curve, Following example shows a PV-curve ($I_{sc} = 61,31$ A, $U_{oc} = 719,3$ V) simulated according to EN50530:

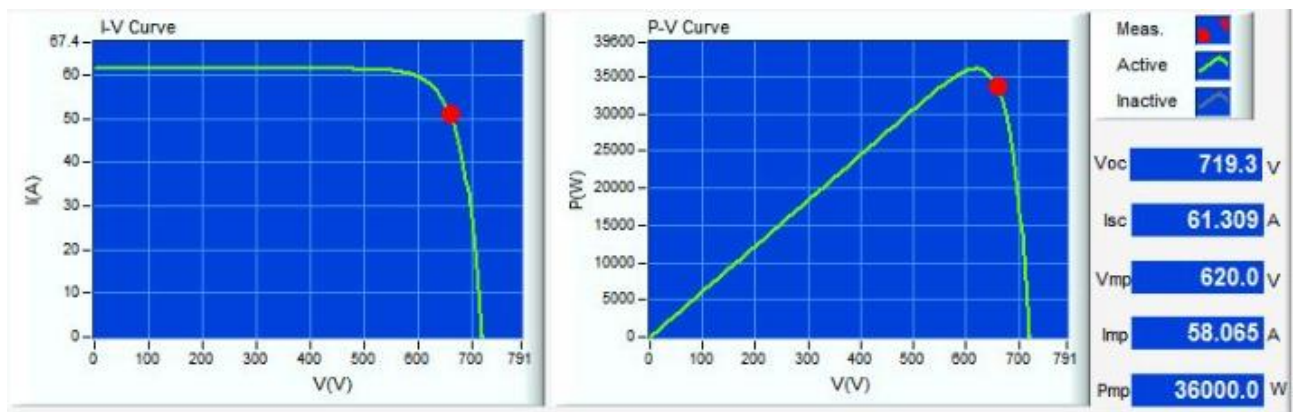


Figure 2 – DC characteristics for testing

The measurement setup is shown in Figure 3, The specific test and measurement devices are stated in section 3.5,

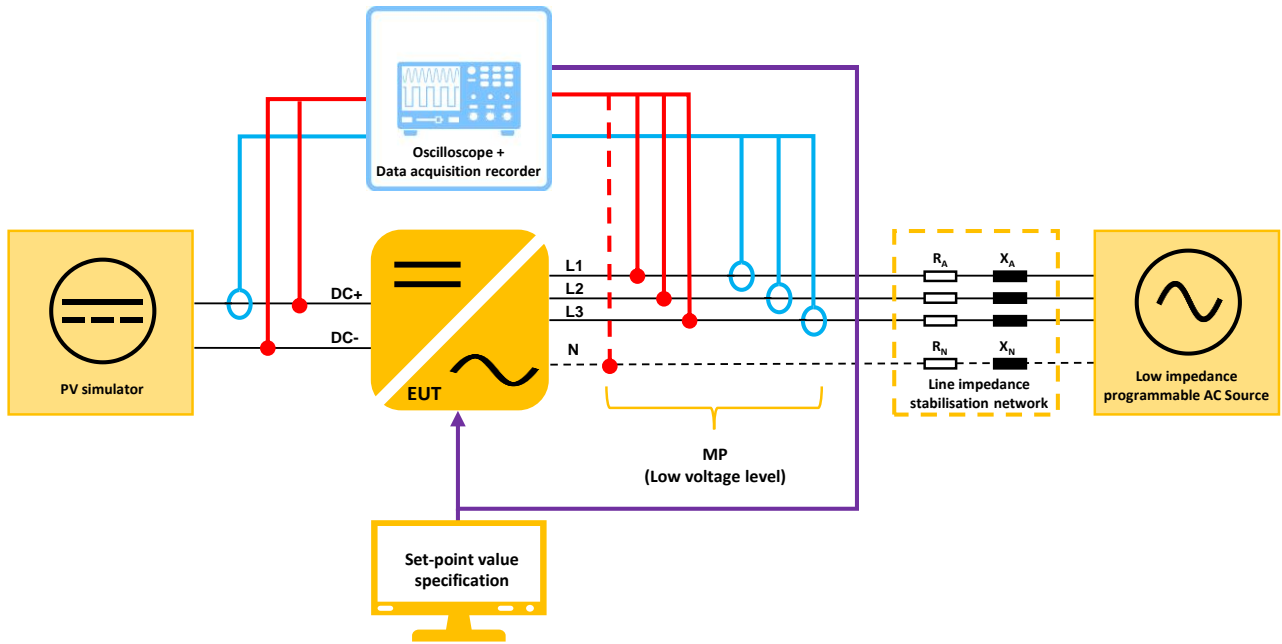


Figure 3 – Measurement setup scheme

3.5 Measurement equipment

Equipment	Internal No,	Manufacturer	Type	Serial No,	Last Calibration
DC power supply ¹	SA200-18	REGATRON	TC,P,32,1000,400,PV,HMI	1244CC683	--
AC Simulator ¹	SA200-52	Chroma	61860	618603800386	--
Oscilloscope	SA050-33	YOKOGAWA	DL850E	91S416984	2022-01-06
Power analyser	SA200-16	YOKOGAWA	WT3000	91LB24254	2021-08-07
Current sensor	SA200-16-01	YOKOGAWA	751552	141215	2021-08-07
	SA200-16-02	YOKOGAWA	751552	141221	2021-08-07
	SA200-16-03	YOKOGAWA	751552	141224	2021-08-07
	SA200-16-04	CT1000	CT1000	9112570083	2021-08-07

Note:

All measurement equipment was used within the calibration period, Copy of calibration certificates are available at the laboratory for reference,

3.6 Sampling rates

Following sampling rates were used for the measurement:

	Chapter according to	Voltages, currents	Setpoint and actual value signals
Power-frequency regulation mode limited to overfrequency (MRPFL-O)	5,1	10 kHz	10 kHz

¹ The AC simulator and DC sources are not need to be calibrated, since the AC voltage and current is measured and determined using the calibrated oscilloscope and power analyser.

3.7 Measurement uncertainties

Measurement category	Measurement uncertainty (k=2)
AC Current (50 Hz signal)	±0,33%
AC Voltage (50 Hz signal)	±0,36%
AC Powers	±0,38%
DC Current	±0,41%
DC Voltage	±0,50%
DC Power	±0,33%
Frequency	±0,01%

Note:

The data and results within this document are accurate, For the uncertainty calculation a confidence level of 95% is assessed,

All stated uncertainties are worst case values due to the definition of uncertainty calculation, The shown uncertainties are equal or lower than the shown values depending on the equipment used for measurements which is stated in this report,

The variability of the components and processes used for manufacturing of devices similar to the tested one can contribute to additional deviation, It is the responsibility of the manufacturer to assure compliance for these devices,

Conformity statements are decided in accordance with IEC GUIDE 115:2021 Procedure 2 (accuracy method), unless otherwise normatively specified or contractually agreed,

3.8 Test conditions

Condition / Requirement	Determined value / Description		Remarks
Point of measurement	<input type="checkbox"/>	medium-voltage side	Measurement at output terminals of the PGU, see Figure 3,
	<input checked="" type="checkbox"/>	low-voltage side	
Data medium-voltage system (if applicable)	N/A		Measurement on LV side
<ul style="list-style-type: none"> Short Circuit Power 	N/A		---
<ul style="list-style-type: none"> Network impedance phase angle 	N/A		---
<ul style="list-style-type: none"> Agreed service voltage UC 	N/A		---
Transformer data (if existing):	N/A		Measurement on LV side, no transformer existing
<ul style="list-style-type: none"> Nominal power of transformer 	N/A		---
<ul style="list-style-type: none"> rel, short-circuit voltage of transformer u_k 	N/A		---
<ul style="list-style-type: none"> Tap position of transformer 	N/A		---
Grid frequency:			
<ul style="list-style-type: none"> within $f_n \pm 1\%f_n$ 	Requirement met		Stable AC source used
<ul style="list-style-type: none"> $df/dt < 0,2\%f_n / (0,2 \text{ s})$ 	Requirement met		Stable AC source used
Voltage at PGU terminals within $U_n \pm 10\%U_n$	Requirement met		Checked before testing
The voltage unbalance < 2%	Requirement met: 0,04%		Determined according to IEC 61000-4-30, measured as a 10-minute mean at the PGU terminals,
Environmental conditions must correspond to the manufacturer's requirements of the measuring instruments	Requirement met		During the test period following environmental data were recorded: <ul style="list-style-type: none"> Temperature: 20,3 ~ 25,2°C Rel, humidity: 36,5 ~ 57,3%RH Air pressure: 985,2 ~ 1003,6 hPa

4 Measurement result

4,1 Frequency requirements

4,1,1 Active power feed-in as a function of frequency

The aim of the test is to demonstrate the response of the EUT due to a deviation in grid frequency from rated value in terms of speed (rise/settling time) and the active power gradient,

4,1,1,1 Overfrequency (LFSM-O)

This test has been done to verify the capacity of the EUT of activating the automatic response for active power reduction due to over frequency variations according to section 5,1,2 of the standard,

Different tests have been carried out, regarding different droop levels and activation thresholds:

- OS2F2: droop of 2% and activation threshold of $\Delta f = 0,2$ Hz (50,2 Hz),
- OS2F5: droop of 2% and activation threshold of $\Delta f = 0,5$ Hz (50,5 Hz),
- OS12F2: droop of 12% and activation threshold of $\Delta f = 0,2$ Hz (50,2 Hz),
- OS12F5: droop of 12% and activation threshold of $\Delta f = 0,5$ Hz (50,5 Hz),

Active power variation for a specific step is calculated using the following expression:

$$|\Delta P| = \frac{|\Delta f| - |\Delta f_1|}{f_n} \times \frac{P_{max}}{S_2} \times 100$$

The following conditions have been evaluated for each test performed

Criteria	Comments	Result
CONDITIONS DURING MEASUREMENTS		
A power supply connected to the terminals of the UGE when the UGE is disconnected from the mains,		P
UGE is connected to the mains,		N/A
Frequency variation method		P
A device (internal or external) introducing a digital or analog input into the UGE control system,		N/A
A direct change of the frequency reference value in the control system of the PGU,		N/A
Direct modification of the frequency in the terminals of the UGE when the power supply has the capacity to modify the output frequency,		P
Test conditions		P
LFSM-U and FSM have been deactivated		P
Voltage has been at $U_n \pm 5\%$ during tests		P
Tests have been performed at P_n with set $Q=0$		P
Every step should be measured during >1 min,		P
GENERAL		
No undamped oscillations occur in the response in the transition between test points,		P
Maximum deviations of active power according to the measured level of frequency shall not deviate more than $5\%P_n$,		P
Results comply with the following criteria from reference standards,		P
APPLICABLE FOR ACTIVE POWER REDUCTIONS		
Ta requirements		P
For type C & D Ta is less than or equal to the power response activation time set for the MRPF mode (max 0,5 s MGE without inertia) because it defines the technical capability of the MPE power response,		P
Tr Requirements		P
For MGES UGE: less than or equal to 8 s for an active power variation of up to 45% of the maximum power,	UGE MPE Evaluated	N/A
For MPE UGE: less than or equal to 2 s for an active power variation of up to 50% of the maximum power,		P
Te Requirements		P
For MGES UGE: less than or equal to 30 s,	UGE MPE Evaluated	N/A

Criteria	Comments	Result
For MPE UGE: less than 20 s,		P
APPLICABLE FOR ACTIVE POWER INCREMENTS		
Ta requirements		P
For type C & D Ta is less than or equal to the power response activation time set for the MRPF mode (max 0,5 s MGE without inertia) because it defines the technical capability of the MPE power response,		P
Tr Requirements		P
For MGES UGE: less than or equal to 5 minutes for an active power variation of up to 20% of the maximum power, This slow behaviour will not be acceptable when the direction of the frequency variation is reversed a few seconds before, in which case response times similar to the case of active power reduction will be expected,	UGE MPE Evaluated	N/A
For non-wind MPE UGE: less than or equal to 10 s for an active power variation of up to 50% of the maximum power,		P
For wind MPE UGE: less than or equal to 5 s for an active power variation of up to 20% of the maximum power if the power is above 50% of the maximum power, For powers less than 50% of the maximum power, the response time will be as low as technically possible,	Non-wind MPE UGE evaluated	N/A
Te Requirements		P
For MGES UGE: less than or equal to 6 minutes, This slow behaviour will not be acceptable when the direction of the frequency variation has reverted a few seconds before, in which case, response times similar to the case of active power reduction will be expected,	UGE MPE Evaluated	N/A
For MPE UGE: less than 30 s,		P

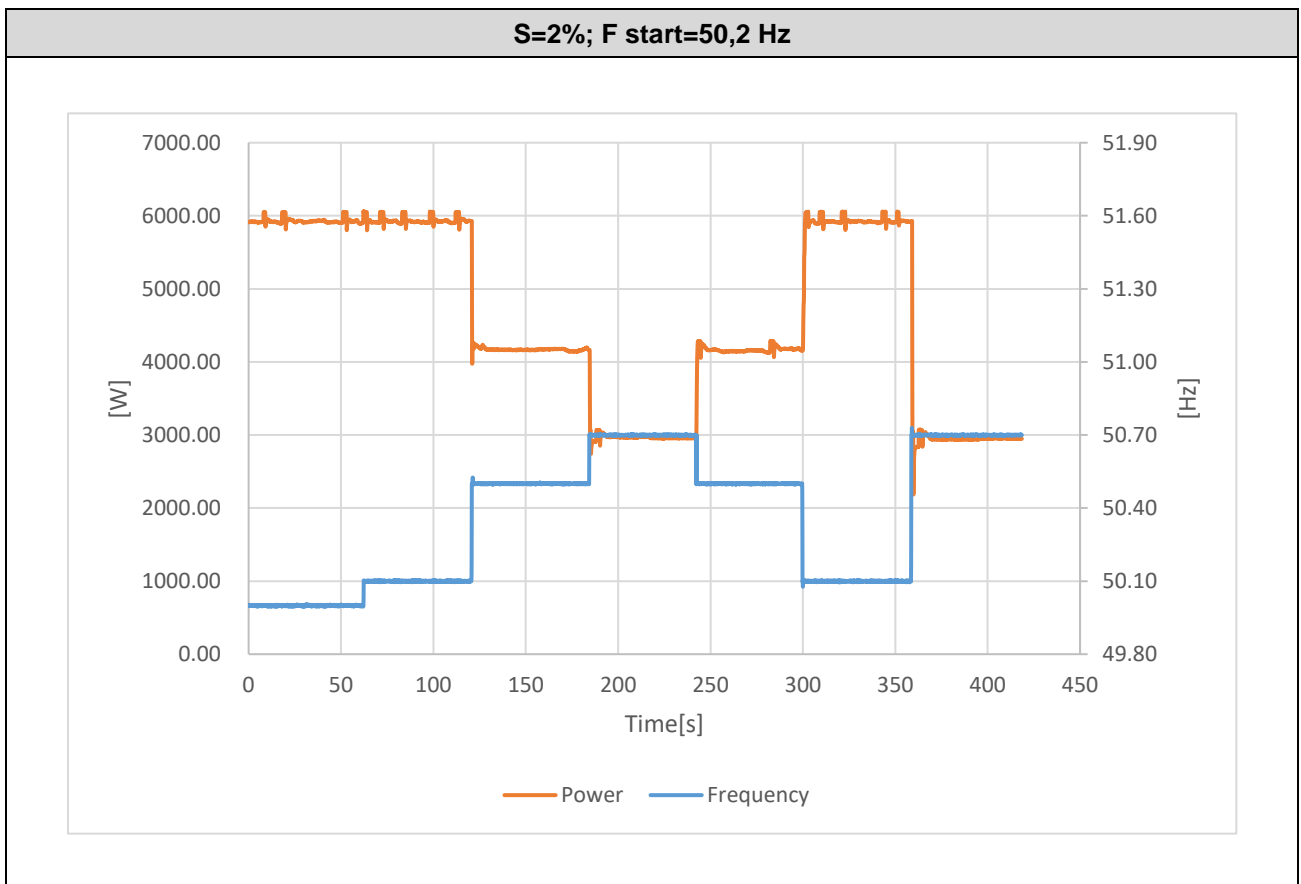
Results are presented in the following graphs and tables, where:

Ta Activation time: Time from a change on frequency that leads to a power frequency change of more than 1%, to the start of active power response,

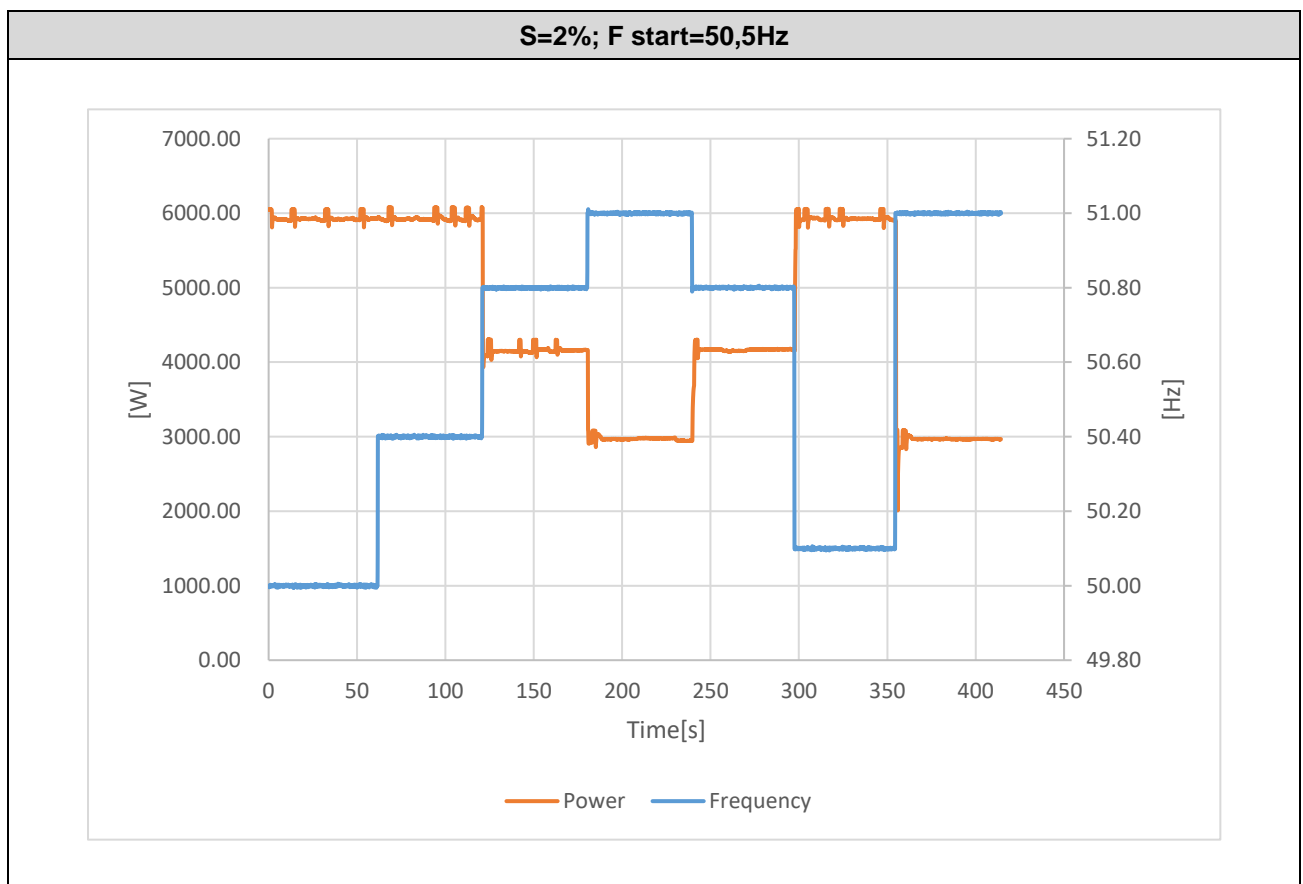
Tr Response time: Time to reach the 90% of the measured active power response (ΔP), without including Ta,

Te Settling time: Time of settling of active power on a tolerance of $\pm 5\%$ of the measured active power response (ΔP),

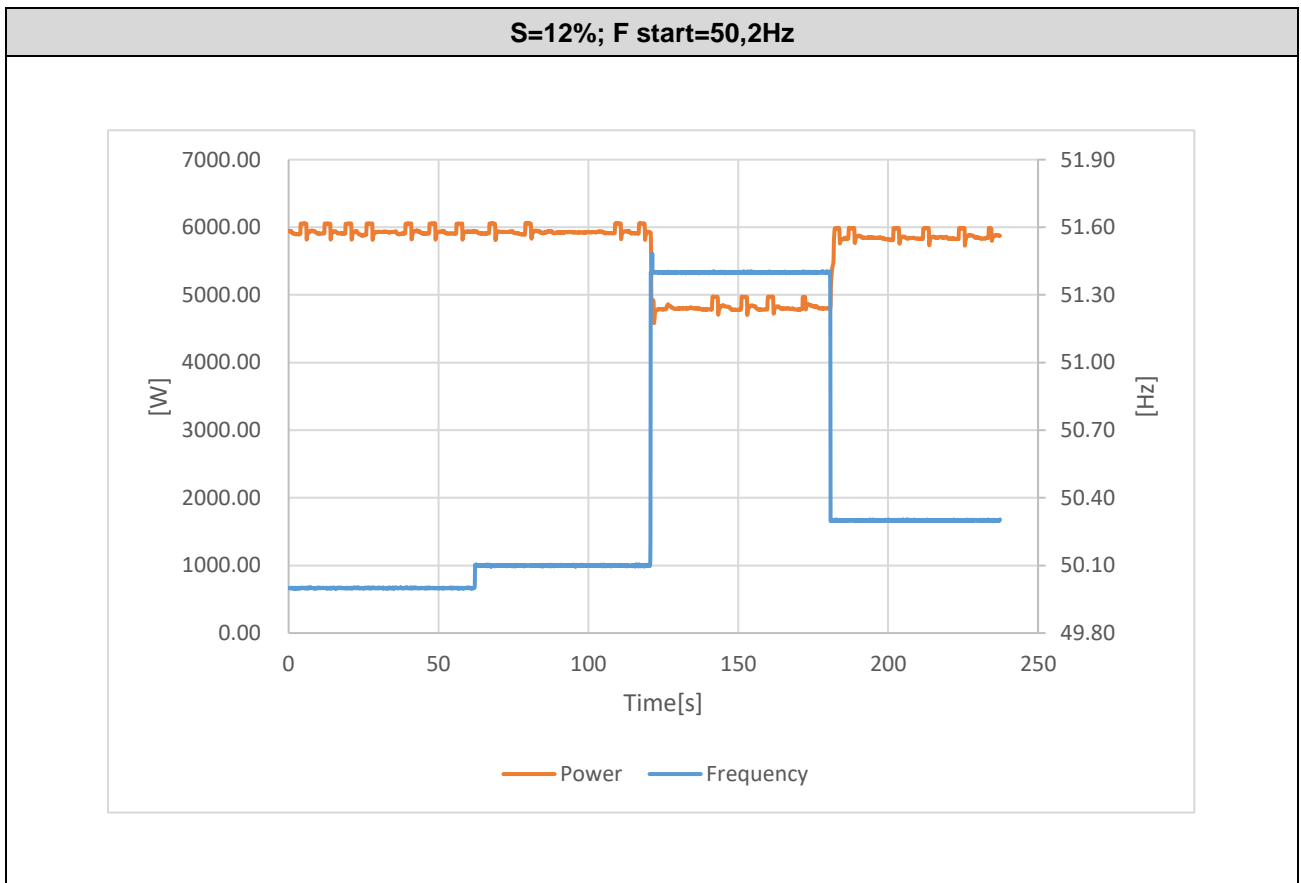
LFSM-O Tests, 2% droop and 50,2 Hz frequency threshold,										
OS2F2: No, of test point	f ₀ (Hz)	f _{end} (Hz)	ΔPtest expected (%Pmax)	ΔPtest recorded (%Pmax)	Deviation (%Pmax) (<5%Pmax)	90% ΔPtest recorded (%Pmax)	t _r (s) (at 90% ΔP (%) recorded)	t _a (s)	t _e (s)	Range of ΔP/Pmax (%) admissible (error ±5% of Pmax)
1	50,00	50,10	0%	-1,08%	-1,08%	N/A	N/A	N/A	N/A	-5% to 5%
2	50,10	50,50	-30%	-30,52%	-0,52%	-26,93%	0,5	0,2	1,0	-25% to -35%
3	50,50	50,70	-20%	-20,55%	-0,55%	-18,42%	0,6	0,3	1,6	-15% to -25%
4	50,70	50,50	+20%	19,50%	-0,50%	18,12%	0,7	0,2	1,0	15% to 25%
5	50,50	50,10	+30%	28,47%	-1,53%	N/A	N/A	N/A	N/A	25% to -35%
6	50,10	50,70	-50%	-50,78%	-0,78%	-45,22%	0,7	0,4	4,1	-45% to -55%



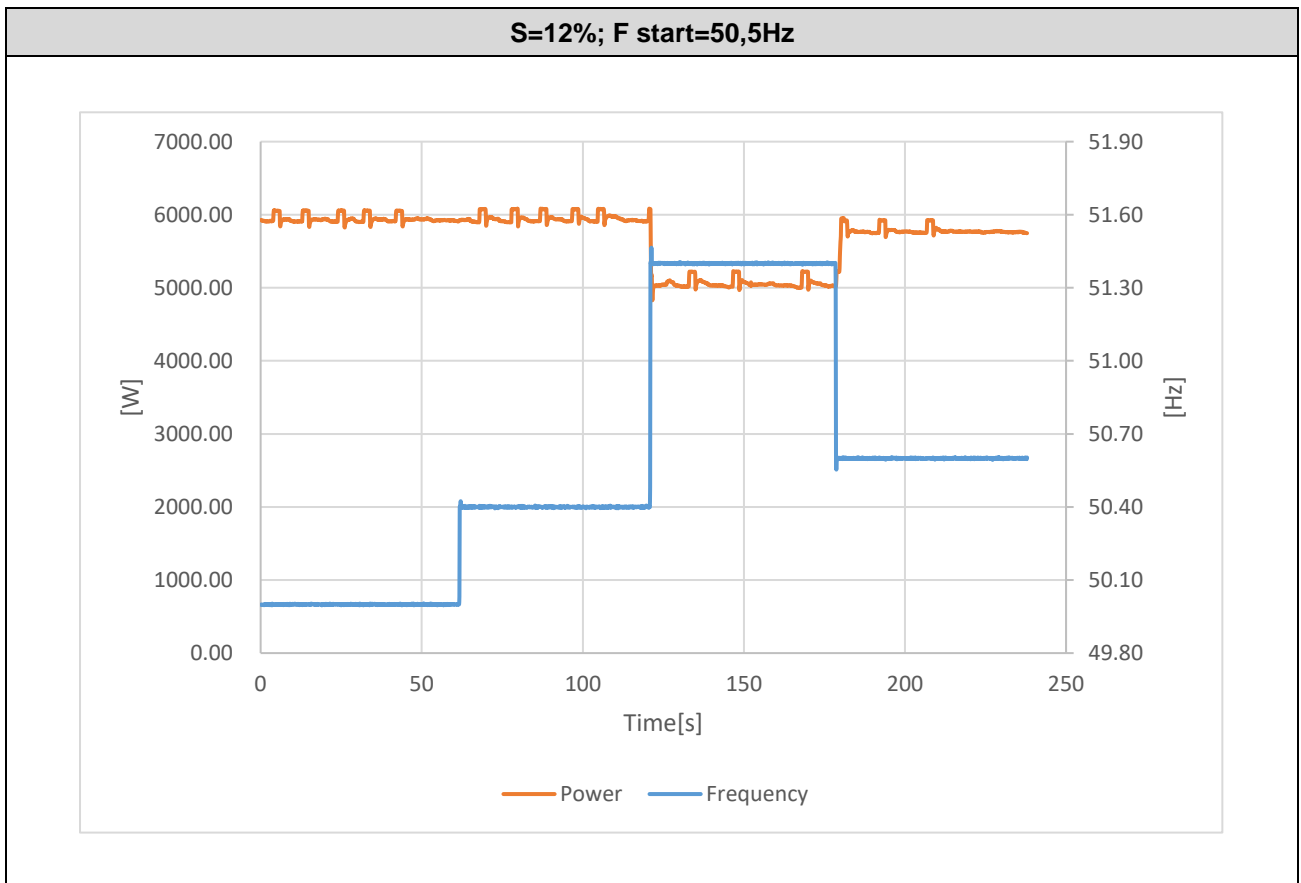
LFSM-O Tests, 2% droop and 50,5 Hz frequency threshold,										
OS2F5: No. of test point	f ₀ (Hz)	f _{end} (Hz)	ΔPtest expected (%Pmax)	ΔPtest recorded (%Pmax)	Deviation (%Pmax) (<5%Pmax)	90% ΔPtest recorded (%Pmax)	t _r (s) (at 90% ΔP (%) recorded)	t _a (s)	t _e (s)	Range of ΔP/Pmax (%) admissible (error ±5% of Pmax)
1	50,00	50,40	0%	-1,04%	-1,04%	N/A	N/A	N/A	N/A	-5% to 5%
2	50,40	50,80	-30%	-30,60%	-0,60%	-26,97	0,5	0,3	1,1	-25% to -35%
3	50,80	51,00	-20%	-20,47%	-0,47%	-18,40%	0,5	0,4	0,7	-15% to -25%
4	51,00	50,80	+20%	19,48%	-0,52%	17,89%	1,5	0,3	1,8	15% to 25%
5	50,80	50,10	+30%	29,01%	-0,99%	N/A	N/A	N/A	N/A	25% to -35%
6	50,10	51,00	-50%	-50,49%	0,49%	-45,33%	0,5	0,4	2,7	-45% to -55%



LFSM-O Tests, 12% droop and 50,2 Hz frequency threshold,										
OS12F2: No. of test point	f ₀ (Hz)	f _{end} (Hz)	ΔP _{test} expected (%P _{max})	ΔP _{test} recorded (%P _{max})	Deviation (%P _{max}) (<5%P _{max})	90% ΔP _{test} recorded (%P _{max})	t _r (s) (at 90% ΔP (%)) recorded)	t _a (s)	t _e (s)	Range of ΔP/P _{max} (%) admissible (error ±5% of P _{max})
1	50,00	50,10	0%	-0,94%	-0,94%	N/A	N/A	N/A	N/A	-5% to 5%
2	50,10	51,40	-20%	-19,64%	0,36%	-18,04%	1,1	0,2	1,5	-15% to -25%
3	51,40	50,30	+18,33%	17,82%	-0,51%	16,50%	1,3	0,2	1,5	13,33% to 23,33%



LFSM-O Tests, 12% droop and 50,5 Hz frequency threshold,										
OS12F2: No. of test point	f ₀ (Hz)	f _{end} (Hz)	ΔP _{test} expected (%P _{max})	ΔP _{test} recorded (%P _{max})	Deviation (%P _{max}) (<5%P _{max})	90% ΔP _{test} recorded (%P _{max})	t _r (s) (at 90% ΔP (%)) recorded)	t _a (s)	t _e (s)	Range of ΔP/P _{max} (%) admissible (error ±5% of P _{max})
1	50,00	50,40	0%	-0,87%	-0,87%	N/A	N/A	N/A	N/A	-5% to 5%
2	50,40	51,40	-15%	-15,67%	-0,67%	-13,76%	0,5	0,2	2,0	-10% to -20%
3	51,40	50,60	+13,33%	11,36%	-1,97%	11,12%	1,7	0,2	1,9	8,33% to 18,33%



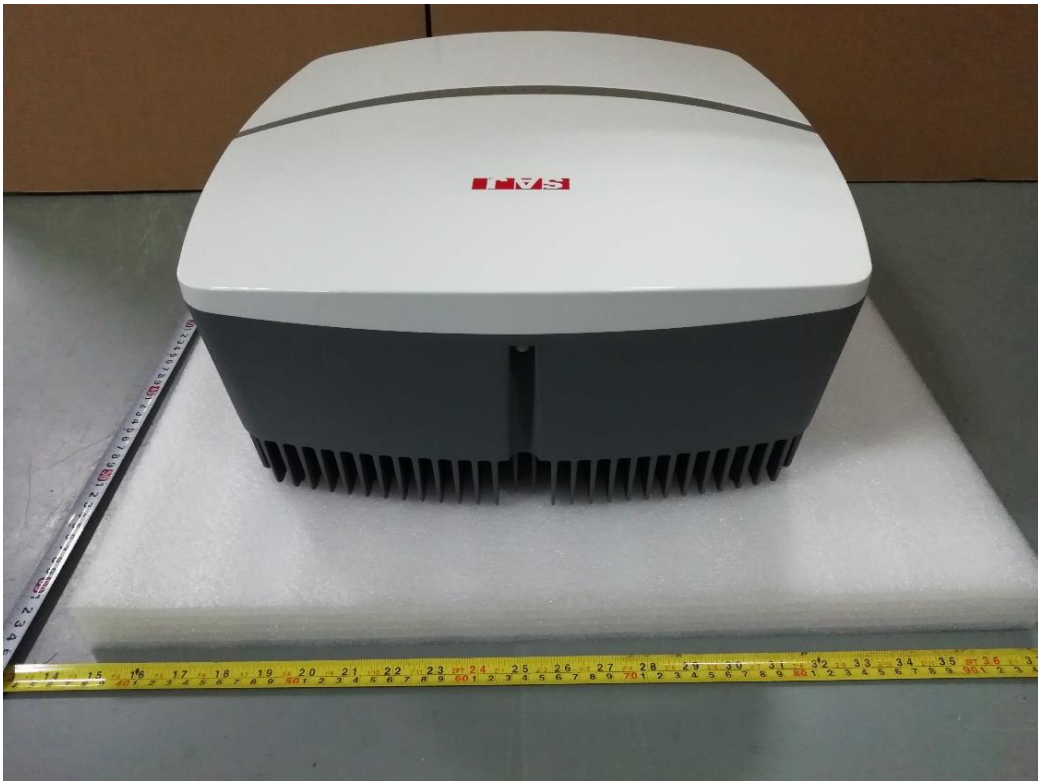
Annex 1- Photo of the unit



Enclosure front view



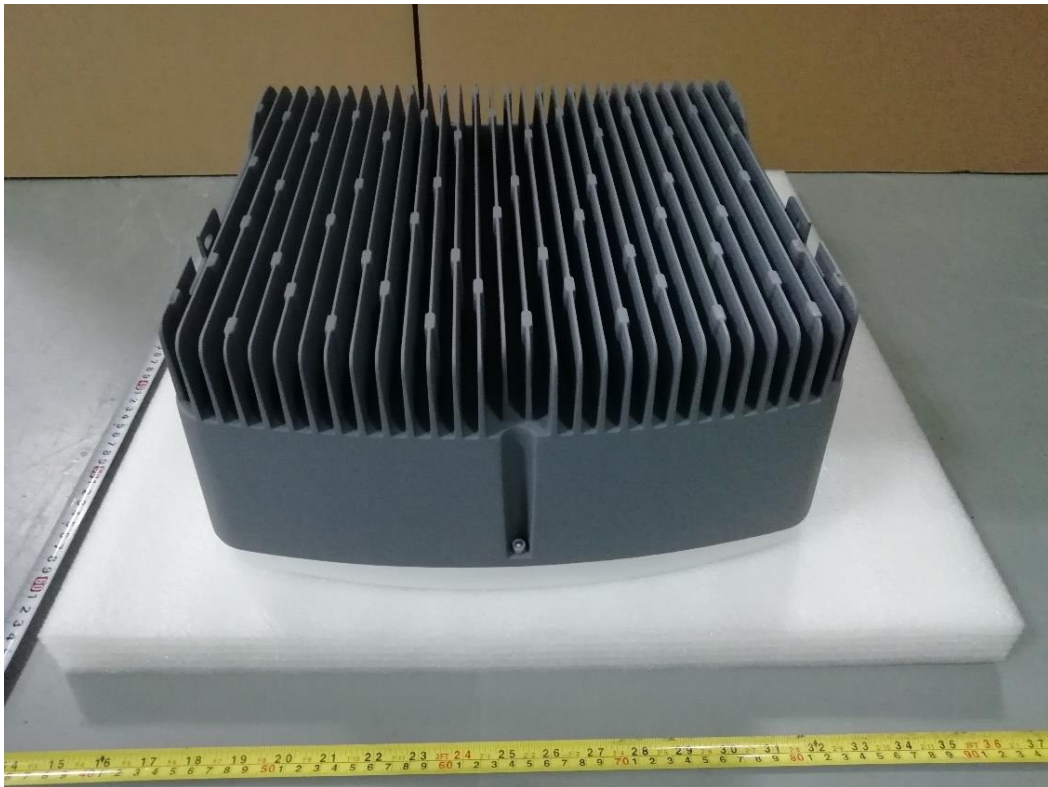
Enclosure side view-1



Enclosure side view-2



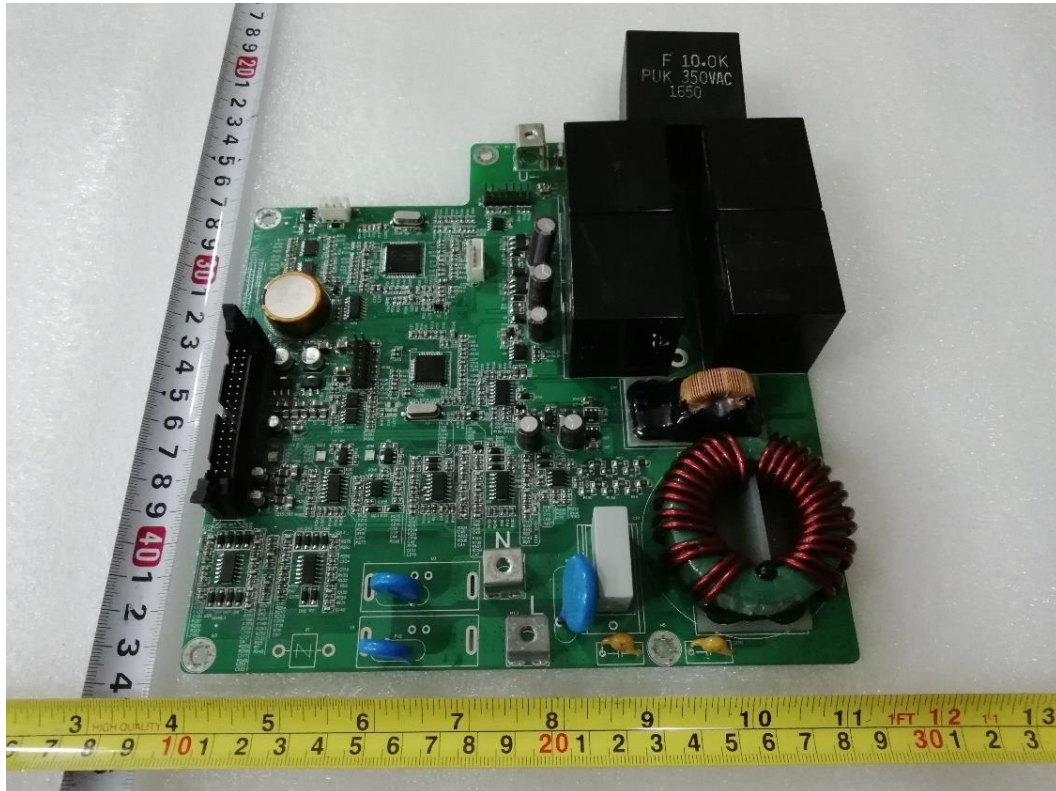
Enclosure bottom view



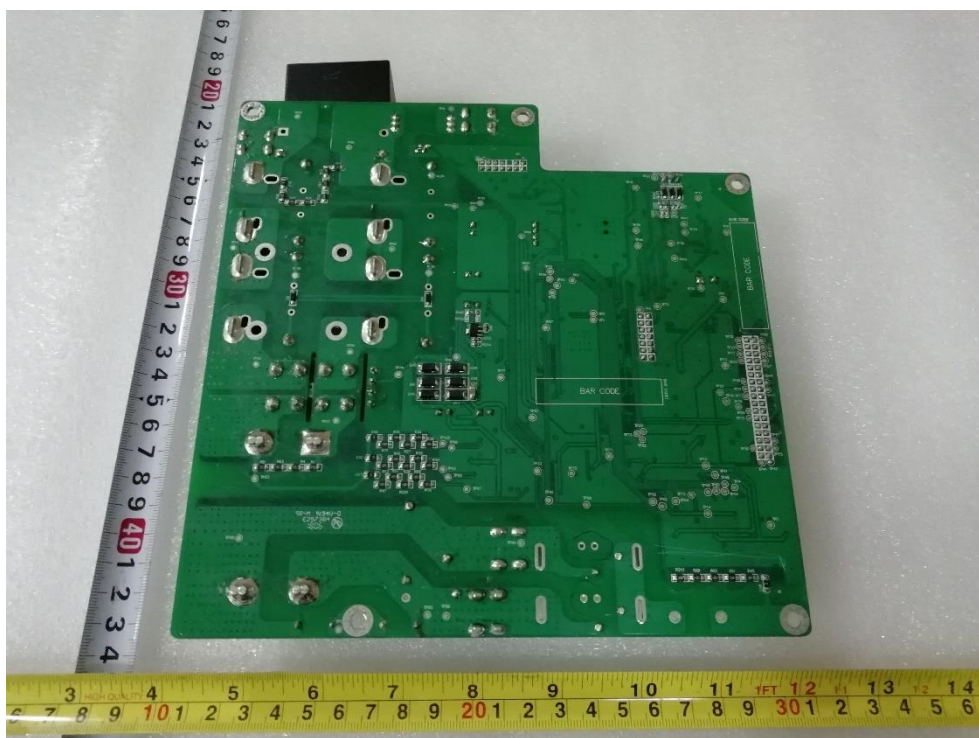
Enclosure rear view



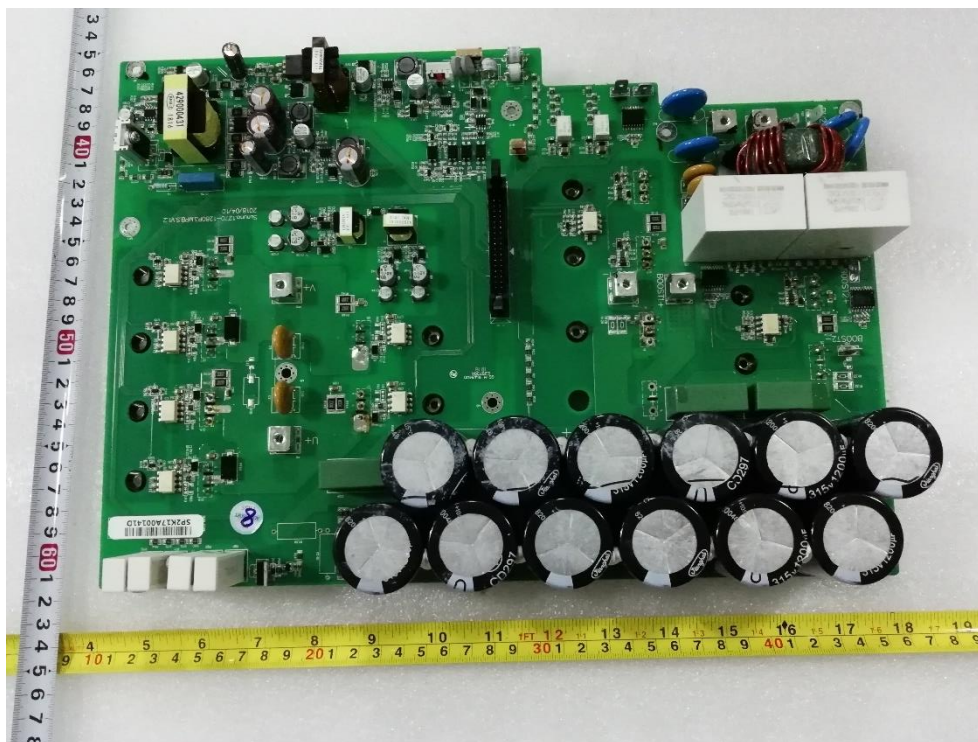
Internal view



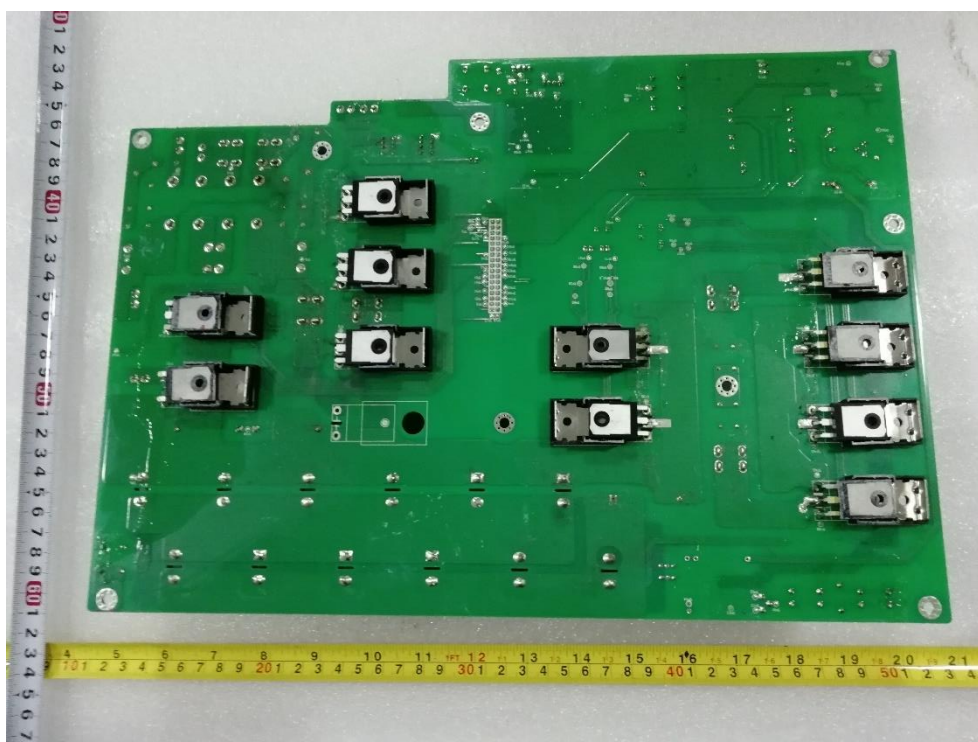
Output board and Control board component side view



Output board and Control board solder side view



Main power board and input board component side view



Main power board and input board solder side view

End of Test Report

Verificación de Ensayo de Conformidad

Número de Verificación: 220825091GZU-VOC005

Sobre la base de el(los) informe(s) de ensayo referenciado(s), se ha comprobado que la(s) muestra(s) ensayada(s) del producto indicado a continuación cumple(n) con los estándares armonizados con las directivas enumeradas en esta verificación en el momento en que se realizaron los ensayos. Otros estándares y otras directivas pueden ser pertinentes para el producto. Esta verificación forma parte de el(los) informe(s) de ensayo completo(s) y debe leerse junto con ellos. Esta verificación sustituye a la anterior.

Una vez verificada la conformidad con todas las directivas de la marca **CE** pertinentes para el producto, incluida cualquier evaluación de riesgos y control de producción pertinente, el fabricante puede indicar la conformidad firmando él mismo una Declaración de Conformidad y aplicando la marca a productos idénticos a la(s) muestra(s)

Nombre y Dirección del Solicitante:	Guangzhou Sanjing Electric Co., Ltd. No.9, Lizhishan Road, Science City, Guangzhou High-tech Zone, Guangdong, P.R.China
Descripción del Producto:	Inversor PV conectado a la Red
Referencias de Modelos/Tipo:	R5-3K-S2, R5-3.6K-S2, R5-4K-S2, R5-5K-S2, R5-6K-S2, R5-7K-S2, R5-8K-S2, R5-3K-S2-15, R5-3.6K-S2-15, R5-4K-S2-15, R5-5K-S2-15, R5-6K-S2-15, R5-7K-S2-15, R5-8K-S2-15
Calificaciones y Características Principales:	Ver apéndice
Nombre de la Marca:	SAJ
Estándares/Directivas Pertinentes:	EN IEC 61000-6-3:2021 EN IEC 61000-6-1:2019 EN IEC 61000-6-4:2019 EN IEC 61000-6-2:2019
Nombre & Dirección de la Oficina Emisora de la Verificación:	EMC Directive 2014/30/EU Intertek Testing Services Shenzhen Ltd. Guangzhou Branch Room 02, & 101/E201/E301/E401/E501/E601/E701/E801 of Room 01 1-8/F., No. 7-2. Caipin Road, Science City, GETDD, Guangzhou, Guangdong, China
Fecha de Ensayos:	-
Número(s) de Informe de Ensayo:	220825091GZU-005
Información Adicional en el Anéndice.	

Sky Zhu



Firma

Nombre: Sky Zhu

Posición: Jefe de equipo

Fecha: 16 de septiembre de 2022

Esta Verificación es para uso exclusivo del cliente de Intertek y se proporciona en virtud del acuerdo entre Intertek y su Cliente. La responsabilidad de Intertek se limita a los términos y condiciones del acuerdo. Intertek no asume ninguna responsabilidad ante ninguna parte, salvo ante el Cliente de conformidad con el acuerdo, por cualquier pérdida, gasto o daño ocasionado por el uso de esta Verificación. Sólo el Cliente está autorizado a permitir la copia o distribución de esta Verificación. Cualquier uso del nombre de Intertek o de una de sus marcas para la venta o publicidad del material, producto o servicio ensayado debe ser aprobado previamente por escrito por Intertek. Las observaciones y los resultados de los ensayos/inspecciones a los que se hace referencia en esta Verificación son pertinentes únicamente para la muestra ensayada/inspeccionada. Esta Verificación por sí misma no implica que el material, producto o servicio esté o haya estado alguna vez bajo un programa de certificación de Intertek.

APÉNDICE: Verificación de Ensayo de Conformidad

Éste es un Apéndice de la Verificación de Ensayo de Conformidad N°: 220825091GZU-VOC005

Calificaciones y Características Principales:

Modelo	R5-3K-S2, R5-3K-S2-15	R5-3.6K-S2, R5-3.6K-S2-15	R5-4K-S2, R5-4K-S2-15	R5-5K-S2, R5-5K-S2-15
Tensión máx. PV	600Vdc			
Tensión MPPT	90-550Vdc			
Corriente Máx. de Entrada	12.5A/12.5A; 15A/15A (for suffix with '-15' models)			
PV Isc	15A/15A; 18A/18A (for suffix with '-15' models)			
Tensión Nominal de Salida	230Vac			
Frecuencia Nominal de Salida	50/60Hz			
Corriente Máx. de Salida	14.4A	16.0A	19.2A	24.0A
Potencia Nominal de Salida	3.0KW	3.68KW	4.0KW	5.0KW
Potencia Aparente Máx.	3.3KVA	3.68KVA	4.4KVA	5.5KVA
Rango del Factor de Potencia	0.8Leading~0.8Lagging			
Nivel de Seguridad	Class I			
Grado de Protección	IP 65			
Temperatura Ambiente de Funcionamiento	-25°C - +60°C (>45°C with derating)			
Firmware	V1.188			

Sky Zhu

Firma

Nombre: Sky Zhu

Posición: Jefe de equipo

Fecha: 16 de septiembre de 2022



Esta Verificación es para uso exclusivo del cliente de Intertek y se proporciona en virtud del acuerdo entre Intertek y su Cliente. La responsabilidad de Intertek se limita a los términos y condiciones del acuerdo. Intertek no asume ninguna responsabilidad ante ninguna parte, salvo ante el Cliente de conformidad con el acuerdo, por cualquier pérdida, gasto o daño ocasionado por el uso de esta Verificación. Sólo el Cliente está autorizado a permitir la copia o distribución de esta Verificación. Cualquier uso del nombre de Intertek o de una de sus marcas para la venta o publicidad del material, producto o servicio ensayado debe ser aprobado previamente por escrito por Intertek. Las observaciones y los resultados de los ensayos/inspecciones a los que se hace referencia en esta Verificación son pertinentes únicamente para la muestra ensayada/inspeccionada. Esta Verificación por sí misma no implica que el material, producto o servicio esté o haya estado alguna vez bajo un programa de certificación de Intertek.

APÉNDICE: Verificación de Ensayo de Conformidad

Éste es un Apéndice de la Verificación de Ensayo de Conformidad N°: 220825091GZU-VOC005

Calificaciones y
Características
Principales:

Modelo	R5-6K-S2, R5-6K-S2-15	R5-7K-S2, R5-7K-S2-15	R5-8K-S2, R5-8K-S2-15
Tensión máx. PV	600Vdc		
Tensión MPPT	90-550Vdc		
Corriente Máx. de Entrada	12.5A/12.5A; 15A/15A (for suffix with '-15' models)	25A/12.5A; 30A/15A (for suffix with '-15' models)	
PV Isc	15A/15A; 18A/18A (for suffix with '-15' models)	30A/15A; 36A/18A (for suffix with '-15' models)	
Tensión Nominal de Salida	230Vac		
Frecuencia Nominal de Salida	50/60Hz		
Corriente Máx. de Salida	26.1A	33.5A	34.8A
Potencia Nominal de Salida	6.0KW	7.0KW	8.0KW
Potencia Aparente Máx.	6.0KVA	7.7KVA	8.0KVA
Rango del Factor de Potencia	0.8Leading~0.8Lagging		
Nivel de Seguridad	Class I		
Grado de Protección	IP 65		
Temperatura Ambiente de Funcionamiento	-25°C - +60°C (>45°C with derating)		
Firmware	V1.188		

Sky Zhu

Firma

Nombre: Sky Zhu

Posición: Jefe de equipo

Fecha: 16 de septiembre de 2022

Declaration: It is an accurate translation of the original document.




Esta Verificación es para uso exclusivo del cliente de Intertek y se proporciona en virtud del acuerdo entre Intertek y su Cliente. La responsabilidad de Intertek se limita a los términos y condiciones del acuerdo. Intertek no asume ninguna responsabilidad ante ninguna parte, salvo ante el Cliente de conformidad con el acuerdo, por cualquier pérdida, gasto o daño ocasionado por el uso de esta Verificación. Sólo el Cliente está autorizado a permitir la copia o distribución de esta Verificación. Cualquier uso del nombre de Intertek o de una de sus marcas para la venta o publicidad del material, producto o servicio ensayado debe ser aprobado previamente por escrito por Intertek. Las observaciones y los resultados de los ensayos/inspecciones a los que se hace referencia en esta Verificación son pertinentes únicamente para la muestra ensayada/inspeccionada. Esta Verificación por sí misma no implica que el material, producto o servicio esté o haya estado alguna vez bajo un programa de certificación de Intertek.

Verificación de la conformidad de la prueba

Número de verificación: 220825089GZU-VOC005

En base de los informes mencionados sobre las pruebas, se ha comprobado que las muestras probadas del siguiente producto cumplieron con las normas armonizadas con las directivas enumeradas en esta verificación, al momento de la realización de las pruebas. Otras normas y directivas pueden aplicar con el producto. Esta verificación forma parte del informe de pruebas completo y debe leerse junto con él <ellos>.

Una vez que se haya verificado el cumplimiento **CE** de todas las directivas de marca pertinentes al producto, incluyendo las evaluaciones de riesgos y control de producción pertinentes, el fabricante podrá otorgar su conformidad con su firma en una declaración de conformidad, y aplicando la marca a productos idénticos a las muestras probadas.

Nombre y dirección del solicitante:	Guangzhou Sanjing Electric Co., Ltd. No.9, Lizhishan Road, Science City, Guangzhou High-tech Zone, Guangdong, P.R.China
Descripción del producto: Características de potencia y principios: Referencias de modelos/tipo:	Inversor PV conectado a red eléctrica Consulte el APÉNDICE: Verificación de la conformidad de las pruebas R5-3K-S2, R5-3.6K-S2, R5-4K-S2, R5-5K-S2, R5-6K-S2, R5-7K-S2, R5-8K-S2, R5-3K-S2-15, R5-3.6K-S2-15, R5-4K-S2-15, R5-5K-S2-15, R5-6K-S2-15, R5-7K-S2-15, R5-8K-S2-15
Nombre de la marca:	
Normas/Directivas relevantes:	IEC/EN 62109-1: 2010 Seguridad de convertidor de energía para usarse con los Sistemas de Energía Fotovoltaicos Parte 1: Requisitos generales IEC/EN 62109-2:2011 Seguridad de los convertidores de energía para usarse con los Sistemas de Energía Fotovoltaicos- Parte 2: Requisitos particulares para inversores De conformidad con la Directiva de Baja Tensión 2014/35/EU
Nombre y dirección de la oficina a cargo de la verificación:	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch Room 02, & 101/E201/E301/E401/E501/E601/E701/E801 of Room 01 1-8/F., No. 7-2. Caipin Road, Science City, GETDD, Guangzhou, Guangdong, China
Fecha de las pruebas: Número(s) de informe de prueba: Información adicional en el Apéndice.	9 de agosto de 2021 - 20 de septiembre de 2021 CN21MAMD 001, tested and issued by TUV Rheinland (Shanghai) Co., Ltd.

Jason Fu

Firma

Nombre: Jason Fu

Posición: Supervisor

Fecha: 06 de septiembre de 2022



Esta Verificación es para el uso exclusivo del cliente de Intertek y se da en virtud del acuerdo entre Intertek y su Cliente. La responsabilidad de Intertek está limitada a los términos y condiciones del acuerdo. Intertek no asume ninguna responsabilidad ante ninguna parte, excepto por Cliente de conformidad con el acuerdo, por las pérdidas, gastos o daños ocasionados por el uso de esta Verificación. El Cliente es el único autorizado a dar lugar a la copia o distribución de esta Verificación. Cualquier uso del nombre de Intertek o de una de sus marcas para la venta o publicidad del material, producto o servicio testeado debe ser aprobado por escrito por Intertek con anterioridad. Las observaciones y los resultados de las pruebas/inspecciones a los que se hace referencia en esta Verificación son relevantes únicamente para la muestra probada/inspeccionada. Esta Verificación por sí misma no implica que el material, producto o servicio esté o haya estado alguna vez bajo un programa de certificación de Intertek.

APÉNDICE: Verificación de la conformidad de la prueba

Este es un apéndice de la Prueba de verificación de conformidad Número: 220825089GZU-VOC005

Características de potencia y principios:

Modelo	R5-3K-S2, R5-3K-S2-15	R5-3.6K-S2, R5-3.6K-S2-15	R5-4K-S2, R5-4K-S2-15	R5-5K-S2, R5-5K-S2-15
Tensión PV máx.	600Vdc			
Tensión MPPT	90-550Vdc			
Entrada máxima corriente	12.5A/12.5A; 15A/15A (for suffix with '-15' models)			
PV Isc	15A/15A; 18A/18A (for suffix with '-15' models)			
Tensión nominal de salida	230Vac			
Frecuencia nominal de salida	50/60Hz			
Corriente de salida máx.	14.4A	16.0A	19.2A	24.0A
Energía nominal de salida	3.0KW	3.68KW	4.0KW	5.0KW
Energía aparente máx.	3.3KVA	3.68KVA	4.4KVA	5.5KVA
Rango del factor de potencia	0.8Leading~0.8Lagging			
Nivel de seguridad	Class I			
Protección contra el ingreso	IP 65			
Temperatura ambiente de funcionamiento	-25°C - +60°C (>45°C with derating)			
Firmware	V1.188			

Jason Fu

Firma

Nombre: Jason Fu

Posición: Supervisor

Fecha: 06 de septiembre de 2022



Esta Verificación es para el uso exclusivo del cliente de Intertek y se da en virtud del acuerdo entre Intertek y su Cliente. La responsabilidad de Intertek está limitada a los términos y condiciones del acuerdo. Intertek no asume ninguna responsabilidad ante ninguna parte, excepto por Cliente de conformidad con el acuerdo, por las pérdidas, gastos o daños ocasionados por el uso de esta Verificación. El Cliente es el único autorizado a dar lugar a la copia o distribución de esta Verificación. Cualquier uso del nombre de Intertek o de una de sus marcas para la venta o publicidad del material, producto o servicio testeado debe ser aprobado por escrito por Intertek con anterioridad. Las observaciones y los resultados de las pruebas/inspecciones a los que se hace referencia en esta Verificación son relevantes únicamente para la muestra probada/inspeccionada. Esta Verificación por sí misma no implica que el material, producto o servicio esté o haya estado alguna vez bajo un programa de certificación de Intertek.

APÉNDICE: Verificación de la conformidad de la prueba

Este es un apéndice de la Prueba de verificación de conformidad Número: 220825089GZU-VOC005

Características de potencia y principios:

Modelo	R5-6K-S2, R5-6K-S2-15	R5-7K-S2, R5-7K-S2-15	R5-8K-S2, R5-8K-S2-15
Tensión PV máx.	600Vdc		
Tensión MPPT	90-550Vdc		
Entrada máxima corriente	12.5A/12.5A; 15A/15A (for suffix with '-15' models)	25A/12.5A; 30A/15A (for suffix with '-15' models)	
PV Isc	15A/15A; 18A/18A (for suffix with '-15' models)	30A/15A; 36A/18A (for suffix with '-15' models)	
Tensión nominal de salida	230Vac		
Frecuencia nominal de salida	50/60Hz		
Corriente de salida máx.	26.1A	33.5A	34.8A
Energía nominal de salida	6.0KW	7.0KW	8.0KW
Energía aparente máx.	6.0KVA	7.7KVA	8.0KVA
Rango del factor de potencia	0.8Leading~0.8Lagging		
Nivel de seguridad	Class I		
Protección contra el ingreso	IP 65		
Temperatura ambiente de funcionamiento	-25°C - +60°C (>45°C with derating)		
Firmware	V1.188		

Jason Fu

Firma

Nombre: Jason Fu

Posición: Supervisor

Fecha: 06 de septiembre de 2022

Declaration: It is an accurate translation of the original document.



Esta Verificación es para el uso exclusivo del cliente de Intertek y se da en virtud del acuerdo entre Intertek y su Cliente. La responsabilidad de Intertek está limitada a los términos y condiciones del acuerdo. Intertek no asume ninguna responsabilidad ante ninguna parte, excepto por Cliente de conformidad con el acuerdo, por las pérdidas, gastos o daños ocasionados por el uso de esta Verificación. El Cliente es el único autorizado a dar lugar a la copia o distribución de esta Verificación. Cualquier uso del nombre de Intertek o de una de sus marcas para la venta o publicidad del material, producto o servicio testeado debe ser aprobado por escrito por Intertek con anterioridad. Las observaciones y los resultados de las pruebas/inspecciones a los que se hace referencia en esta Verificación son relevantes únicamente para la muestra probada/inspeccionada. Esta Verificación por sí misma no implica que el material, producto o servicio esté o haya estado alguna vez bajo un programa de certificación de Intertek.