

C E R T I F I C A T E
of Conformity

EC Council Directive 2014/30/EU
Electromagnetic Compatibility



Registration No.: AE 50473271 0001

Report No.: 50254516 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: R5-0.7K-S1 R5-1K-S1 R5-1.5K-S1
R5-2K-S1 R5-2.5K-S1 R5-3K-S1
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 02.07.2020



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 : 02.07.2020
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 50473271 0001
Report No. : 50254516 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

CERTIFICATE



of Conformity Low Voltage Directive 2014/35/EU

Registration No.: AN 50474599 0001

Report No.: 50386680 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: R5-0.7K-S1 R5-1K-S1 R5-1.5K-S1
R5-2K-S1 R5-2.5K-S1 R5-3K-S1
Serial Number : R5S1302G1930E00959
Remark : Refer to report 50386680 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 20.07.2020

A handwritten signature in blue ink.
A. Chen

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.



Guangzhou Sanjing Electric Co.,
Ltd.
Mr. Li Yun

Date : 20.07.2020
Our ref. : zhangco 02
Your ref.: L.Y

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

Ref : AN Certificate of Conf. Low Voltage D.

Type of Equipment : Grid-tied PV Inverter
Model Designation : See Certificate
Certificate No. : AN 50474599 0001
Report No. : 50386680 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

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CERTIFICATE of Conformity



Registration No.: AK 50515715 0001

Report No.: CN21JOLM 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: R5-0.7K-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
Firmware Version : V1.201
Remark : Refer to test report CN21JOLM 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.



Certification Body

Date 27.08.2021

A handwritten signature in blue ink, appearing to read "A. Chen".
A. Chen

TÜV Rheinland LGA Products GmbH - Tillystraße 2 - 90431 Nürnberg

CERTIFICADO

de conformidad



Adjunto a
Attachment to

Número de registro: AK 50515715 0001
Registration No.

Reporte no: CN21JOLM 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 produccion: Conectado a la red PV Inversor
Type of production

Modelo: R5-0.7K-S1, R5-1K-S1, R5-1.5K-S1, R5-2K-S1, R5-2.5K-S1,
Model 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

Versión de firmware: V1.201
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

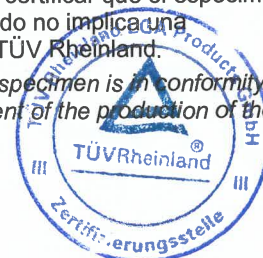
Real Decreto 661/2007, de 25 de mayo, por el que se regula la actividad de producción de energía eléctrica en régimen especial.

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 : 27/08/2021
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 50515715 0001
Report No. : CN21JOLM 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

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

Registration No.: AE 50551054 0001

Report No.: 50254516 003

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: R5-0.7K-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
Serial No.: n.a.
Remark: Refer to above-listed test report for details.

Tested acc. to: EN IEC 61000-6-1:2019
EN IEC 61000-6-2:2019
EN IEC 61000-6-3:2021
EN IEC 61000-6-4:2019

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 12.07.2022

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 : 12.07.2022
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 50551054 0001
Report No. : 50254516 003

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.

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With kind regards,

Certification Body

Tongle Lee

Enclosure

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CERTIFICATE



of Conformity Low Voltage Directive 2014/35/EU

Registration No.: AN 50545459 0001

Report No.: CN21E5HI 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: R5-0.7K-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
Serial Number : A003271859-001
Firmware Version: V1.201
Remark : Refer to report CN21E5HI 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 07.06.2022

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.



C E R T I F I C A T E

of Conformity



Registration No.: AK 50460336 0001

Report No.: 50343962 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: R5-0.7K-S1 R5-1K-S1 R5-1.5K-S1
R5-2K-S1 R5-2.5K-S1 R5-3K-S1
Serial Number : R5S1302G1930E00959
Firmware Version : V1.201
Compliant to : -Requirements to Type A Generation Units.
-COMMISSION REGULATION(EU) 2016/631(RfG).
Remark : Refer to test report 50343962 001.

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 24.03.2020

A handwritten signature in black ink, appearing to be "A. Chen".
A. Chen

TÜV Rheinland LGA Products GmbH - Tillystraße 2 - 90431 Nürnberg

Guangzhou Sanjing Electric Co.,
Ltd.
Mr. Li Yun

Date : 24.03.2020
Our ref. : zhangco 02
Your ref.: L.Y

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 50460336 0001
Report No. : 50343962 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

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

Registration No.: AE 50530522 0001

Report No.: 50254516 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: R5-0.7K-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
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

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 50530522 0001
Report No. : 50254516 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

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: R5-0.7K-S1, R5-1K-S1, R5-1.5K-S1, R5-2K-S1, R5-2.5K-S1, R5-3K-S1

Version logiciel : V1.201

**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 ENBT 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 : 60365268 001

Numéro de certificat : AK 50468258 0001

Date d'émission : 2020.05.20



A.Chen

TÜV Rheinland LGA Products GmbH – Tillystraße 2 – 90431 Nürnberg

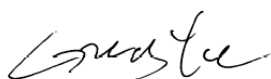
Certificate of Conformity

Certificate Number: CN-PV-190092

On the basis of the tests undertaken, the samples of the below product have been found to comply with the requirements of the referenced specification/standard at the time the tests were carried out. It does not imply that Intertek has performed any surveillance or control of the manufacture. The manufacturer 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:	Anti-backflow system
Ratings & Principle Characteristics:	See Annex to Certificate of Conformity
Model:	PV Grid-connected Inverter: R5-3K-S2, R5-4K-S2, R5-5K-S2, R5-6K-S2, R5-7K-S2, R5-8K-S2 R5-0.7K-S1, R5-1K-S1, R5-1.5K-S1, R5-2K-S1, R5-2.5K-S1, R5-3K-S1 Wattmeter: DDSU666
Brand Name:	
Tested according to:	UNE 217001 IN: October 2015 Requirements and tests for systems intended to avoid the energy transmission to the distribution network
Certificate Issuing Office Name & Address:	Intertek Testing Services Ltd. Shanghai 2/F (West Side), No. 707, Zhangyang Road, Free Trade Experimental Area, Shanghai, P. R. China
Test Report No.:	191115098GZU-001

Additional information in Appendix.



Signature

Certification Manager: Grady Ye

Date: 24 December 2019

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-190092

Ratings & Principle
Characteristics:

PV Grid-connected Inverter:

Model	R5-3K-S2	R5-4K-S2	R5-5K-S2	R5-6K-S2	R5-7K-S2	R5-8K-S2
Max Voltage	600 Vdc					
MPPT voltage range	90-550 Vdc					
Max DC input Current [PV1/PV2]	12.5/12.5 Adc				25/12.5 Adc	
Max. Short circuit Current [PV1/PV2]	15/15Adc				30/15Adc	
Nominal AC voltage	230Vac					
Rated AC current [A]	13.1	17.4	21.8	26.1	30.5	34.8
Max.AC Current [A]	14.4	19.2	24.0	26.1	33.5	34.8
Grid Frequency	50Hz					
Rated Power [W]	3000	4000	5000	6000	7000	8000
Max. AC power [VA]	3300	4400	5500	6000	7700	8000
Power factor	0.8 Leading to 0.8 Lagging					
Temperature	-40°C - +60°C					
Protective Class	Class I					
Ingress protection	IP 65					
Software Version	V1.142					

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-190092

Ratings & Principle Characteristics:

Model	R5-0.7K-S1	R5-1K-S1	R5-1.5K-S1	R5-2K-S1	R5-2.5K-S1	R5-3K-S1
Max Voltage	450 Vdc			500 Vdc		
MPPT voltage range	40-425 Vdc			50-450 Vdc		
Max DC input Current	12.5 Adc					
Max. Short circuit Current	15Adc					
Nominal AC voltage	230Vac					
Rated AC current [A]	3.1	4.4	6.6	8.7	10.9	13.1
Max.AC Current [A]	3.5	5.0	7.5	10.0	12.5	15.0
Grid Frequency	50Hz					
Rated Power [W]	700	1000	1500	2000	2500	3000
Max. AC power [VA]	770	1100	1650	2200	2750	3300
Power factor	0.8 Leading to 0.8 Lagging					
Temperature	-40°C - +60°C					
Protective Class	Class I					
Ingress protection	IP 65					
Software Version	V1.142					

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-190092

Ratings & Principle
Characteristics:

Wattmeter:
Voltage: AC 220/230V
Current (CT): 100A/40mA
Frequency: 50/60Hz
Class of Power measurement: Class I
Type of communication: RS485
Operational temperature: -40°C - +60°C
Ingress protection: IP 54
Software Version: control: V1.146, communication: V2.027



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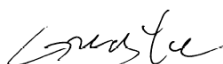
Certificado de Conformidad

Número de Certificado: CN-PV-220130

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:	R5-0.7K-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
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°:	220614049GZU-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-220130.

Unidad / Tipo.....:	R5-0.7K-S1, R5-0.7K-S1-15	R5-1K-S1, R5-1K-S1-15	R5-1.5K-S1, R5-1.5K-S1-15	R5-2K-S1, R5-2K-S1-15	R5-2.5K-S1, R5-2.5K-S1-15	R5-3K-S1, R5-3K-S1-15
Versión de hardware / Número de serie (examinado)..... :	V1.3					
Versión del firmware / Versión del software (examinado) :	V1.201					
Rango de Corriente Continua MPP [V] .. :	40-425			50-450		
Rango de entrada de Corriente Continua [V]..... :	40-450			40-500		
Entrada máxima de Corriente Continua [A] :	12.5 ¹⁾ or 15 ²⁾					
Máximo de Cortocircuito [A] :	15 ¹⁾ or 18 ²⁾					
Tensión nominal de salida de CA [V] :	230V (L+ N + PE, 50/60Hz)					
Salida máxima de Corriente Alterna [A] :	3,5	5,0	7,5	10,0	12,5	15,0
Potencia activa nominal de salida [kW] :	0,7	1,0	1,5	2,0	2,5	3,0
Potencia de salida máxima, aparente / activa [kVA / kW] :	0,77	1,1	1,65	2,2	2,75	3,3

1) ISC PV [A]=15 y Corriente de Entrada PV máx. PV [A]=12,5 para R5-0,7K-S1, R5-1K-S1, R5-1,5K-S1, R5-2K-S1, R5-2,5K-S1, R5-3K-S1.

2) ISC PV [A]=18 y Corriente de Entrada máx. PV [A]=15 para R5-0,7K-S1-15, R5-1K-S1-15, R5-1,5K-S1-15, R5-2K-S1-15, R5-2,5K-S1-15 y R5-3K-S1-15.

APÉNDICE: Certificado de Conformidad

Este es un Apéndice del Certificado de Conformidad Número: CN-PV-220130.

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.220614049GZ 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 / 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.

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Verificación de Ensayo de Conformidad

Número de Verificación: 220825091GZU-VOC004

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) sometida(s) al ensayo.

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:	R5-0.7K-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
Calificaciones y Características Principales:	Ver apéndice
Nombre de la Marca:	SAJI
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 EMC Directive 2014/30/EU
Nombre & Dirección de la Oficina Emisora 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 Ensayos:	-
Número(s) de Informe de Ensayo:	220825091GZU-004
Información Adicional en el Apéndice.	

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-VOC004

Calificaciones y Características Principales:

Modelo	R5-0.7K-S1 R5-0.7K-S1-15	R5-1K-S1 R5-1K-S1-15	R5-1.5K-S1 R5-1.5K-S1-15
Tensión máx. PV	450Vdc		
Tensión MPPT	40-425Vdc		
Corriente Máx. de Entrada	12.5A; 15A (For the suffix "-15" models)		
PV Isc	15A; 18A (For the suffix "-15" models)		
Tensión Nominal de Salida	220Vac/230Vac/240Vac		
Frecuencia Nominal de Salida	50/60Hz		
Corriente Máx. de Salida	3.5A	4.4A	6.6A
Potencia Nominal de Salida	0.7KW	1.0KW	1.5KW
Potencia Aparente Máx.	0.77KVA	1.1KVA	1.65KVA
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	V1.201		

Sky Zhu

Firma

Nombre: Sky Zhu

Posición: Jefe de equipo

Fecha: 16 de septiembre de 2022



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APÉNDICE: Verificación de Ensayo de Conformidad

Éste es un Apéndice de la Verificación de Ensayo de Conformidad Nº: 220825091GZU-VOC004

Calificaciones y
Características
Principales:

Modelo	R5-2K-S1 R5-2K-S1-15	R5-2.5K-S1 R5-2.5K-S1-15	R5-3K-S1 R5-3K-S1-15
Tensión máx. PV	500Vdc		
Tensión MPPT	50-450Vdc		
Corriente Máx. de Entrada	12.5A; 15A (For the suffix "-15" models)		
PV Isc	15A; 18A (For the suffix "-15" models)		
Tensión Nominal de Salida	220Vac/230Vac/240Vac		
Frecuencia Nominal de Salida	50/60Hz		
Corriente Máx. de Salida	10.0A	12.5A	15.0A
Potencia Nominal de Salida	2.0KW	2.5KW	3.0KW
Potencia Aparente Máx.	2.2KVA	2.75KVA	3.3KVA
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	V1.201		

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.



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Verificación de la conformidad de la prueba

Número de verificación: 220825089GZU-VOC004

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  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 R5-0.7K-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
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 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
Nombre y dirección de la oficina a cargo de la verificación:	
Fecha de las pruebas:	15 de marzo de 2022 - 23 de marzo de 2022
Número(s) de informe de prueba:	CN21E5HI 001, tested and issued by TUV Rheinland (Shanghai) Co., Ltd.
Información adicional en el Apéndice.	

Jason Fu

Firma

Nombre: Jason Fu

Posición: Supervisor

Fecha: 06 de septiembre de 2022



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APÉNDICE: Verificación de la conformidad de la prueba

Este es un apéndice de la Prueba de verificación de conformidad Número: 220825089GZU-VOC004

Características de potencia y principios:

Modelo	R5-0.7K-S1 R5-0.7K-S1-15	R5-1K-S1 R5-1K-S1-15	R5-1.5K-S1 R5-1.5K-S1-15
Tensión PV máx.	450Vdc		
Tensión MPPT	40-425Vdc		
Entrada máxima corriente	12.5A; 15A (For the suffix "-15" models)		
PV Isc	15A; 18A (For the suffix "-15" models)		
Tensión nominal de salida	220Vac/230Vac/240Vac		
Frecuencia nominal de salida	50/60Hz		
Corriente de salida máx.	3.5A	4.4A	6.6A
Energía nominal de salida	0.7KW	1.0KW	1.5KW
Energía aparente máx.	0.77KVA	1.1KVA	1.65KVA
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	V1.201		

Jason Fu

Firma

Nombre: Jason Fu

Posición: Supervisor

Fecha: 06 de septiembre de 2022



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APÉNDICE: Verificación de la conformidad de la prueba

Este es un apéndice de la Prueba de verificación de conformidad Número: 220825089GZU-VOC004

Características de potencia y principios:

Modelo	R5-2K-S1 R5-2K-S1-15	R5-2.5K-S1 R5-2.5K-S1-15	R5-3K-S1 R5-3K-S1-15
Tensión PV máx.	500Vdc		
Tensión MPPT	50-450Vdc		
Entrada máxima corriente	12.5A; 15A (For the suffix "-15" models)		
PV Isc	15A; 18A (For the suffix "-15" models)		
Tensión nominal de salida	220Vac/230Vac/240Vac		
Frecuencia nominal de salida	50/60Hz		
Corriente de salida máx.	10.0A	12.5A	15.0A
Energía nominal de salida	2.0KW	2.5KW	3.0KW
Energía aparente máx.	2.2KVA	2.75KVA	3.3KVA
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	V1.201		

Jason Fu

Firma

Nombre: Jason Fu

Posición: Supervisor

Fecha: 06 de septiembre de 2022

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



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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,
R5-0.7K-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 $\leq 16A$)

EN 61000-3-3:2013(Maximum AC current $\leq 16A$)

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



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.

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

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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

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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 $\leq$ 16A)

EN 61000-3-3:2013(Maximum AC current $\leq$ 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

Li Yun



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

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EN 61000-6-2:2005,
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EN 61000-6-4:2007+A1:2011
EN 61000-3-2:2014(Maximum AC current $\leq$ 16A)
EN 61000-3-3:2013(Maximum AC current $\leq$ 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



中国认可
国际互认
检测
TESTING
CNAS L0220

Test Report issued under the responsibility of:

intertek
Total Quality. Assured.

Page 1 of 27

TEST REPORT UNE 217001 IN: October 2015 Requirements and tests for systems intended to avoid the energy transmission to the distribution network	
Report Reference No.....	191115098GZU-001
Date of issue	18 Dec 2019
Total number of pages.....	27 pages
Testing Laboratory	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch
Address.....	Block E, No.7-2 Guang Dong Software Science Park, Caipin Road, Guangzhou Science City, GETDD, Guangzhou, China
Testing location/ address	Same as above
Tested by (name + signature).....	Jason Fu Technical Team Leader
Approved by (+ signature)	Tommy Zhong Technical Manager
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	UNE 217001 IN: October 2015
Test procedure.....	Type approval
Non-standard test method.....	N/A
Test Report Form No.	UNE 217001a
Test Report Form(s) Originator.....	Intertek Guangzhou
Master TRF.....	Dated 2019-11
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Test item description	Anti-backflow system
Trade Mark	
Manufacturer.....	Same as Applicant
Model/Type reference	PV Grid-connected Inverter: R5-3K-S2, R5-4K-S2, R5-5K-S2, R5-6K-S2, R5-7K-S2, R5-8K-S2 R5-0.7K-S1, R5-1K-S1, R5-1.5K-S1, R5-2K-S1, R5-2.5K-S1, R5-3K-S1 Wattmeter: DDSU666

Ratings

PV Grid-connected Inverter:

Model	R5-3K-S2	R5-4K-S2	R5-5K-S2	R5-6K-S2	R5-7K-S2	R5-8K-S2
Max Voltage	600 Vdc					
MPPT voltage range	90-550 Vdc					
Max DC input Current [PV1/PV2]	12.5/12.5 Adc				25/12.5 Adc	
Max. Short circuit Current [PV1/PV2]	15/15Adc				30/15Adc	
Nominal AC voltage	230Vac					
Rated AC current [A]	13.1	17.4	21.8	26.1	30.5	34.8
Max.AC Current [A]	14.4	19.2	24.0	26.1	33.5	34.8
Grid Frequency	50Hz					
Rated Power [W]	3000	4000	5000	6000	7000	8000
Max. AC power [VA]	3300	4400	5500	6000	7700	8000
Power factor	0.8 Leading to 0.8 Lagging					
Temperature	-40°C - +60°C					
Protective Class	Class I					
Ingress protection	IP 65					
Software Version	V1.142					
Model	R5-0.7K-S1	R5-1K-S1	R5-1.5K-S1	R5-2K-S1	R5-2.5K-S1	R5-3K-S1
Max Voltage	450 Vdc			500 Vdc		
MPPT voltage range	40-425 Vdc			50-450 Vdc		

Max DC input Current	12.5 Adc					
Max. Short circuit Current	15Adc					
Nominal AC voltage	230Vac					
Rated AC current [A]	3.1	4.4	6.6	8.7	10.9	13.1
Max.AC Current [A]	3.5	5.0	7.5	10.0	12.5	15.0
Grid Frequency	50Hz					
Rated Power [W]	700	1000	1500	2000	2500	3000
Max. AC power [VA]	770	1100	1650	2200	2750	3300
Power factor	0.8 Leading to 0.8 Lagging					
Temperature	-40°C - +60°C					
Protective Class	Class I					
Ingress protection	IP 65					
Software Version	V1.142					

Wattmeter:

Voltage: AC 220/230V

Current (CT): 100A/40mA

Frequency: 50/60Hz

Class of Power measurement: Class I

Type of communication: RS485

Operational temperature: -40°C - +60°C

Ingress protection: IP 54

Software Version: control: V1.146, communication: V2.027

Summary of testing:

Tests performed (name of test and test clause):

All applicable tests

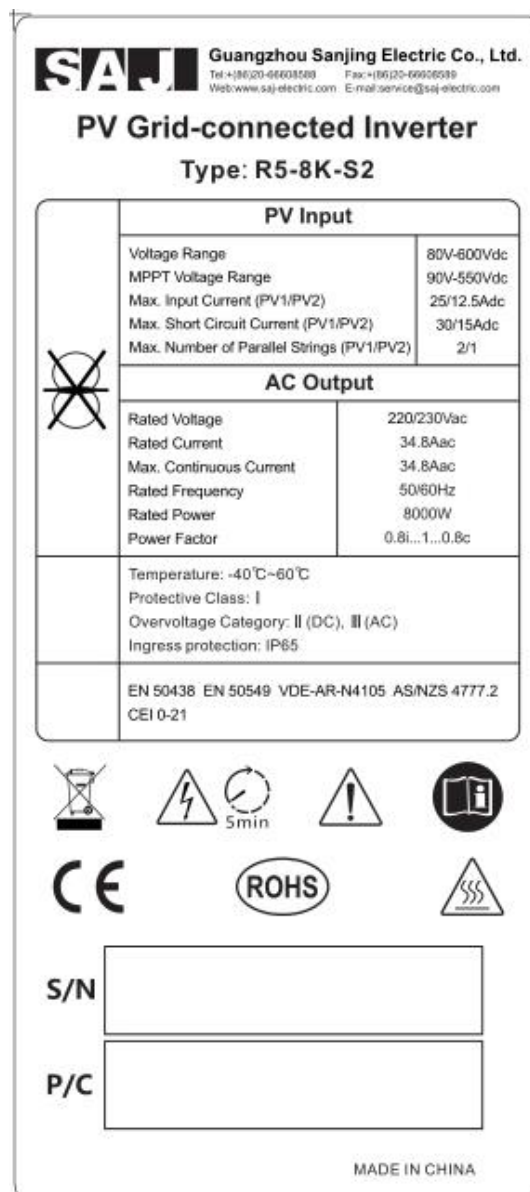
The model R5-8K-S2 is type tested.

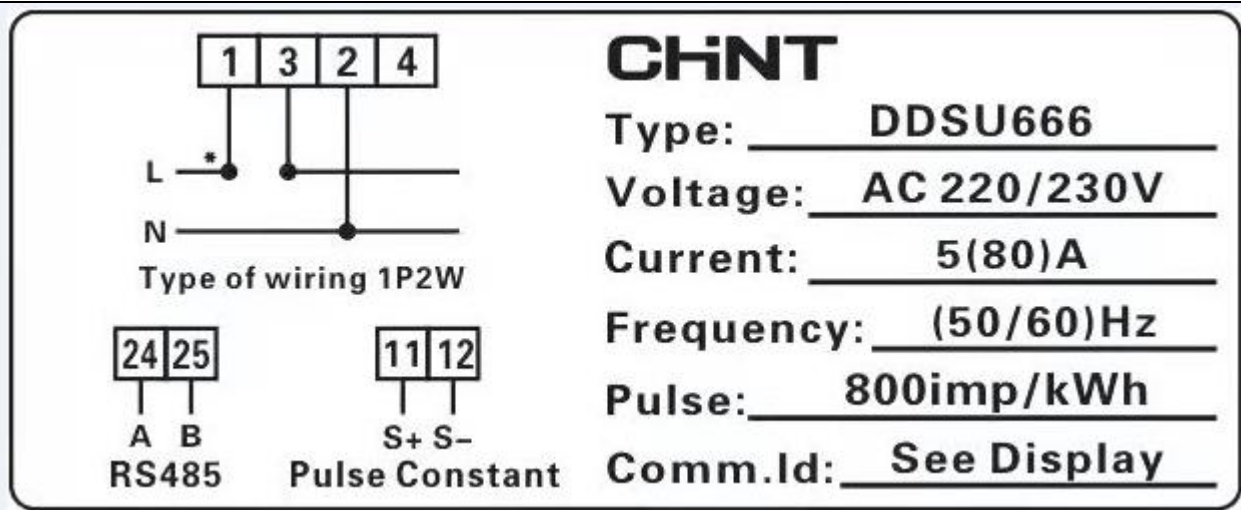
Testing location:

Intertek Testing Services Shenzhen Ltd. Guangzhou Branch

Block E, No.7-2 Guang Dong Software Science Park, Caipin Road, Guangzhou Science City, GETDD, Guangzhou, China

Copy of marking plate





Note:

1. The above markings are the minimum requirements required by the safety standard. For the final production samples, the additional markings which do not give rise to misunderstanding may be added.
2. Label is attached on the side surface of enclosure and visible after installation
3. The other model labels are identical with label above, except the model name and rating.

Test item particulars	
Temperature range	-25°C - 60°C
AC Overvoltage category	☐ OVC I ☐ OVC II ☒ OVC III ☐ OVC IV
DC Overvoltage category	☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV
IP protection class	IP 65
Possible test case verdicts:	
- test case does not apply to the test object : N/A (Not applicable)	
- test object does meet the requirement..... : P (Pass)	
- test object does not meet the requirement..... : F (Fail)	
Testing	
Date of receipt of test item	15 Nov 2019
Date (s) of performance of tests	15 Nov 2019 – 18 Dec 2019
General remarks:	
The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory. "(see Enclosure #)" refers to additional information appended to the report. "(see appended table)" refers to a table appended to the report. When determining for test conclusion, measurement uncertainty of tests has been considered. 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. The test report only allows to be revised only within the report defined retention period unless standard or regulation was withdrawn or invalid. Throughout this report a point is used as the decimal separator.	

General product information:

Description of tested item:

The equipment is single phase transformerless utility-interactive type PV inverter which will be installed and directly 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.

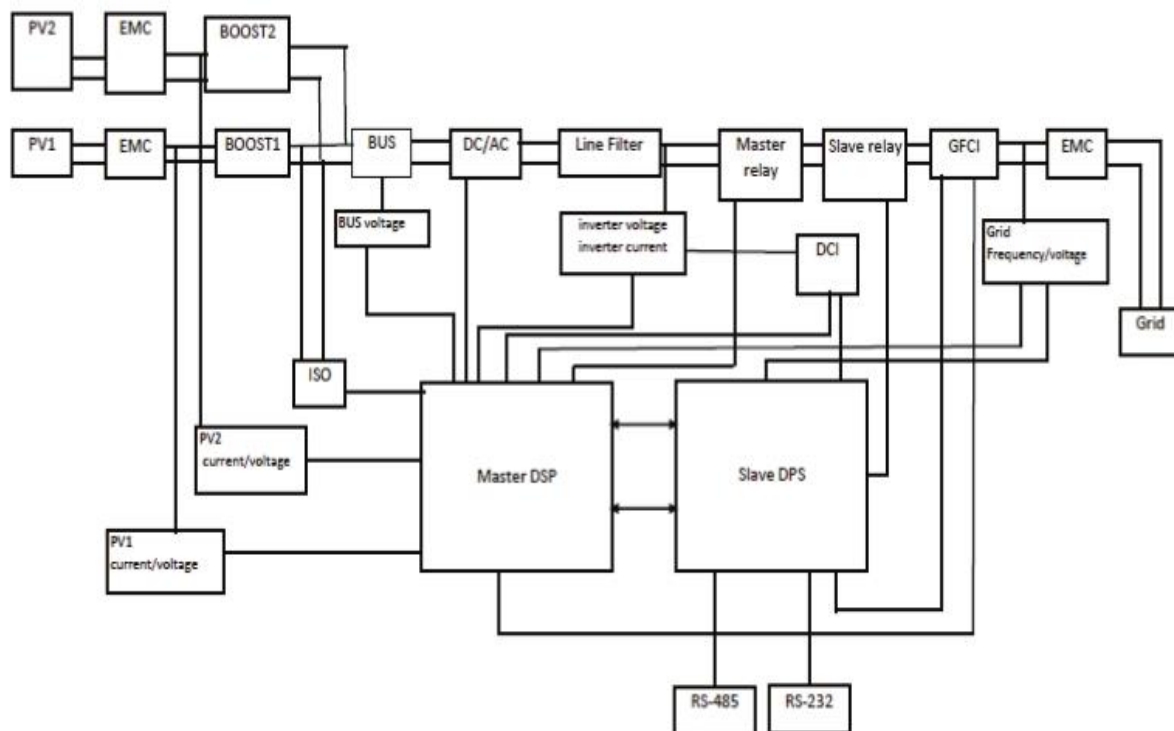
There are included a RS485 communication ports which are connected to the wattmeter to monitor the status of the inverter by proprietary software.

The PV input combiner with 2 string MPPT tracers and each MPPT tracer including one PV input terminals. 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.

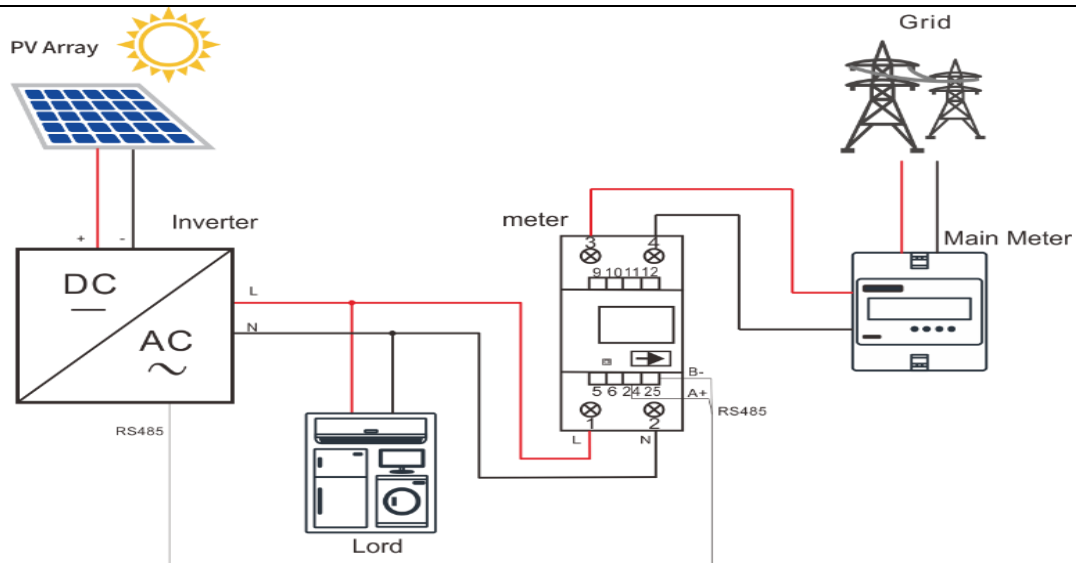
During fault condition defined in this standard, after the DSP receives the abnormal signal from the relevant protective detection circuit, the relays will operate to disconnect the PV inverter active lines from grid automatically.

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

Block diagram:

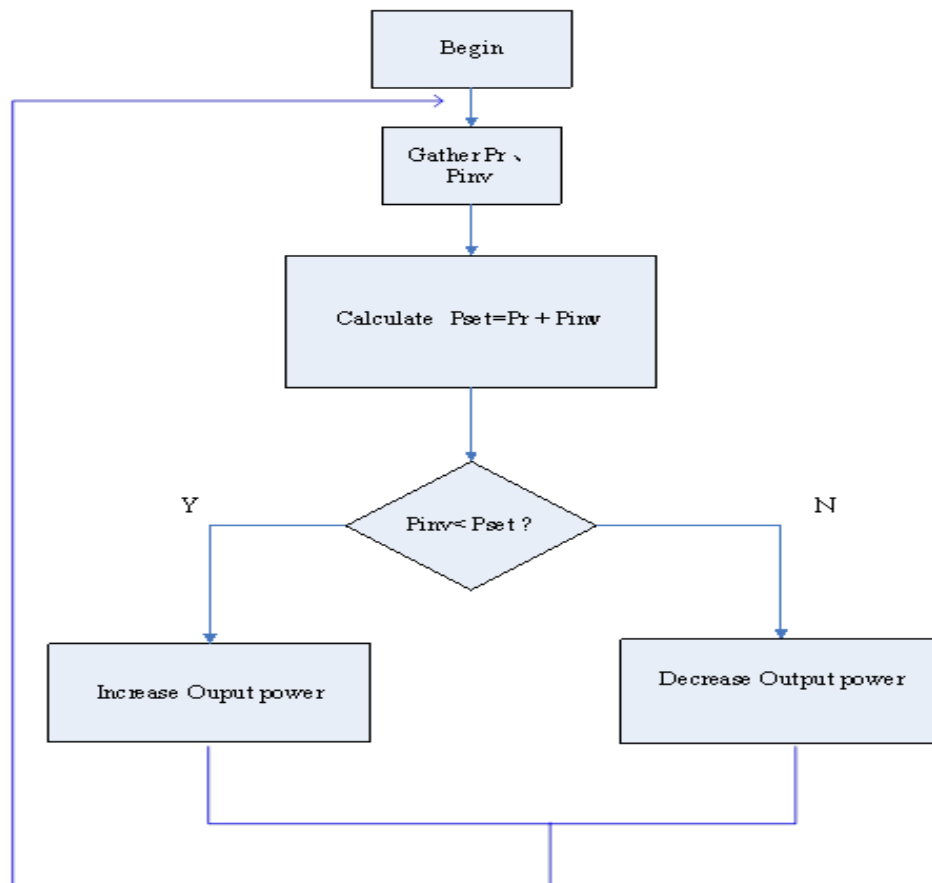


Basic outline of the system.



In the grid-connected power generation system, because the user load and light are constantly changing, in order to prevent the grid-connected system from generating electricity in the reverse direction to the power grid, the monitoring meter is added. The inverter communicates with the meter through the RS485 interface to collect the grid-connected port current in real time. And power signals, and calculate the maximum output power limit value of the inverter according to the meter's feedback power and current data, adjust the inverter output power to achieve the anti-backflow function, and maximize the use of photovoltaic modules to generate power;

Control algorithm:



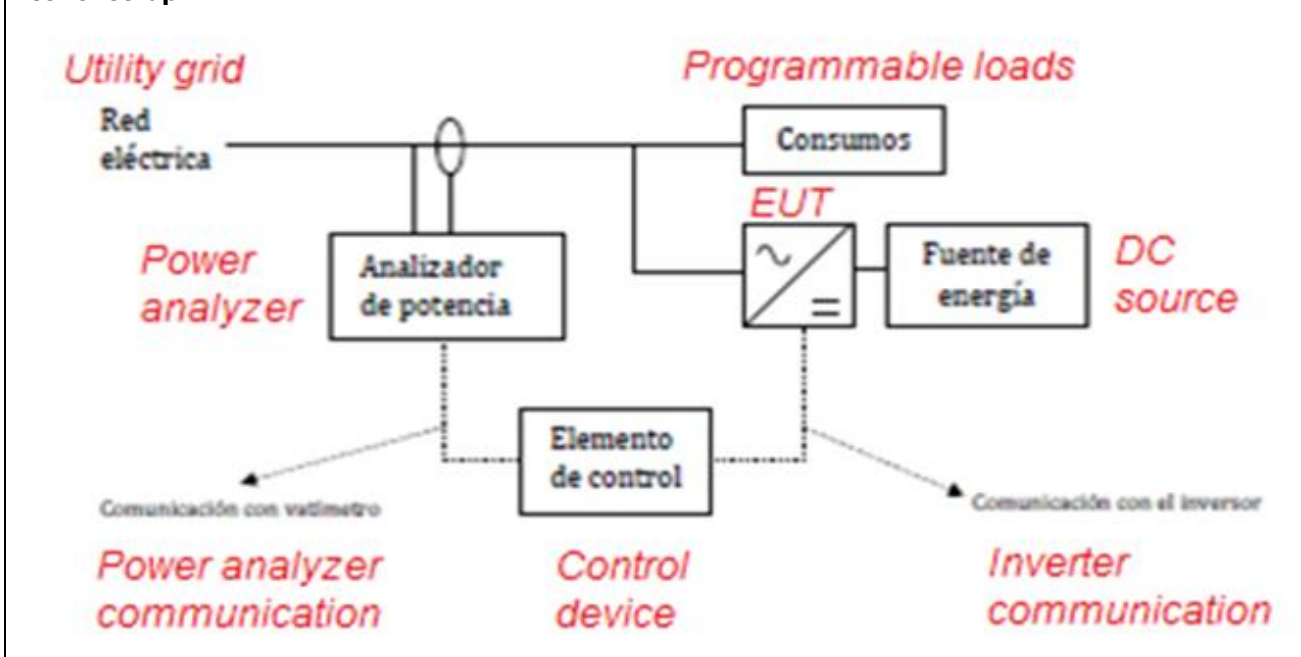
Variable	Statement
Pr	The power detected by the meter. Negative values represent reverse current, while positive values represent absorbed power from the grid.
Pset	Inverter power limit setting
Pinv	Inverter operating output power

$P_{set} = P_{inv} + P_r$; When the current output power of the inverter is greater than the load power, the inverter supplies power to the load and reverses the current to the grid. At this time, it is detected that P_r is negative, and the inverter limit power setting value is reduced;
When the current output power of the inverter is less than the load power, the load must also absorb power from the grid at this time. At this time, it is detected that P_r is a positive value, and the inverter limit power setting value is increased;

Model difference:

The models R5-0.7K-S1, R5-1K-S1, R5-1.5K-S1, R5-2K-S1, R5-2.5K-S1, R5-3K-S1, R5-3K-S2, R5-4K-S2, R5-5K-S2, R5-6K-S2, R5-7K-S2, R5-8K-S2 are identical, which have same control algorithm, same topology diagram and hardware, only the power derating in software.

Test of setup:



UNE 217001:2015 IN			
Clause	Requirement – Test	Result – Remark	Verdict
4	Requirements		P
4.1	Measurement of energy exchange with the network		P
4.2	Measure of consumption		P
5	Essays		P
5.1	Tolerance in permanent regimes		P
5.2	Response to load disconnections		P
5.3	Response to power increases in the primary energy source		P
5.4	Action in case of loss of communications		P
5.5	Determination of the maximum number of generators	The inverter does not support interconnection. Only an inverter and wattmeter are connected directly to Grid	N/A

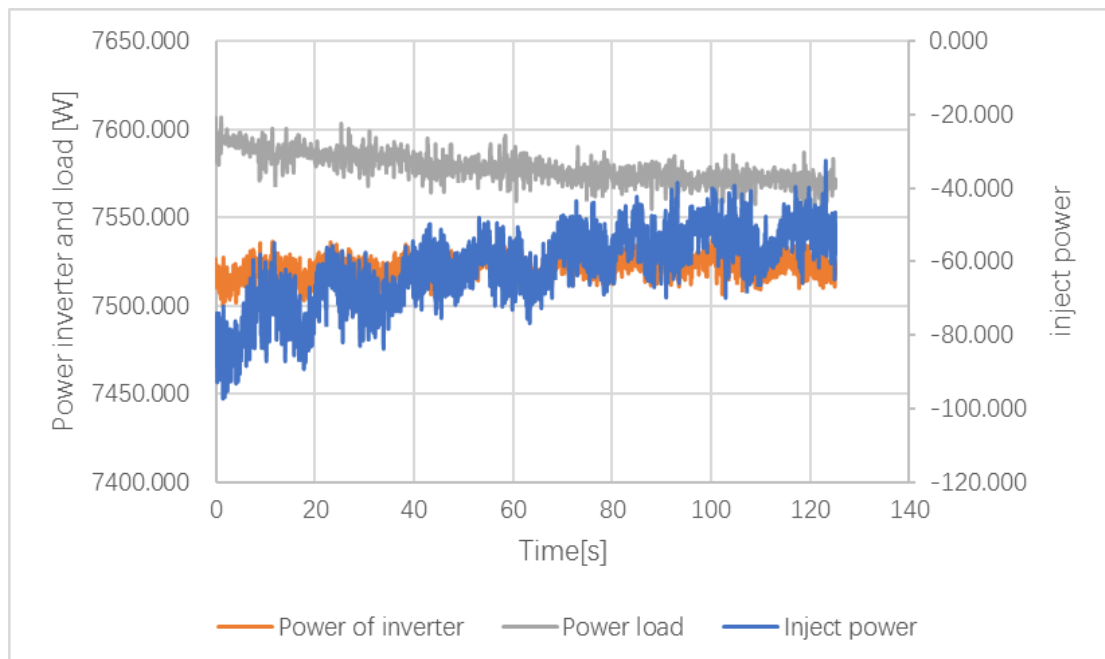
UNE 217001:2015 IN			
Clause	Requirement – Test	Result – Remark	Verdict

5.1	Tolerance in permanent regimes					P
	Load			Power injection to the grid (W)	Tolerance (%)	Limit
	L1	L2	L3			
Single phase	95%	--	--	-32.384	-0.405	<4%
	15%	--	--	7.483	0.094	<4%
	0	--	--	237.770	2.972	<4%
Three-phase	95%	95%	95%	--	--	<4%
	15%	15%	15%	--	--	<4%
	0	0	0	--	--	<4%
	95%	65%	65%	--	--	<4%
	65%	65%	65%	--	--	<4%
	35%	65%	65%	--	--	<4%
	0	65%	65%	--	--	<4%

Remark:

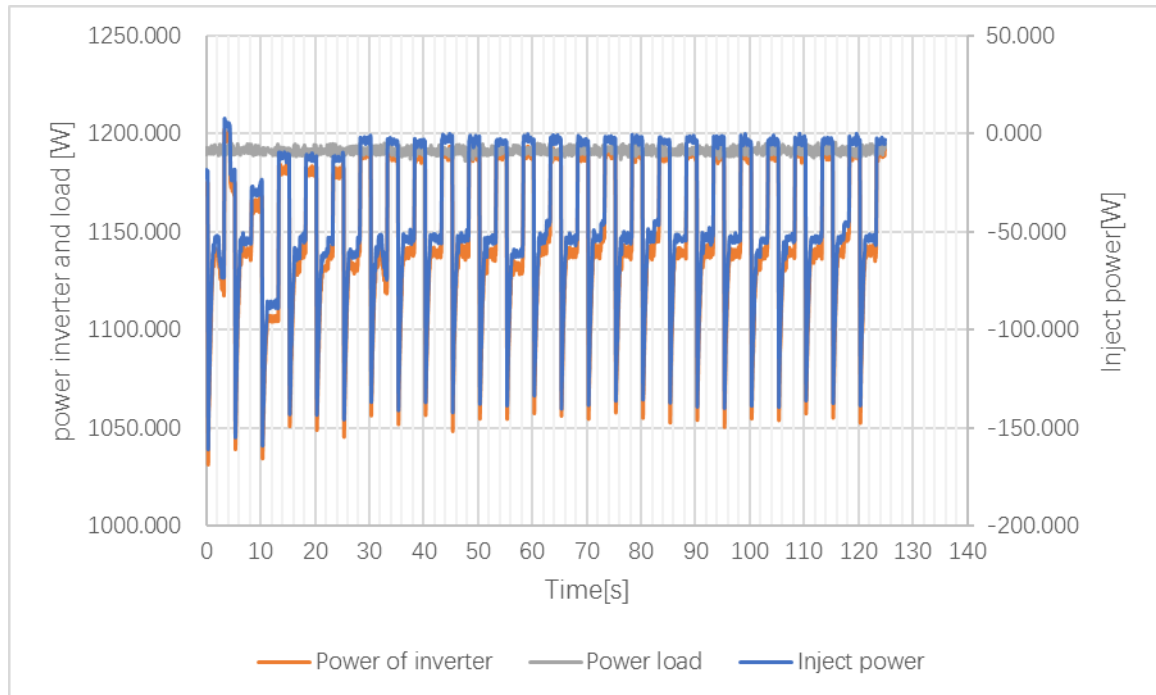
The sum of the tolerance of the power analyzer and current measured are 4%

Graph_95% load

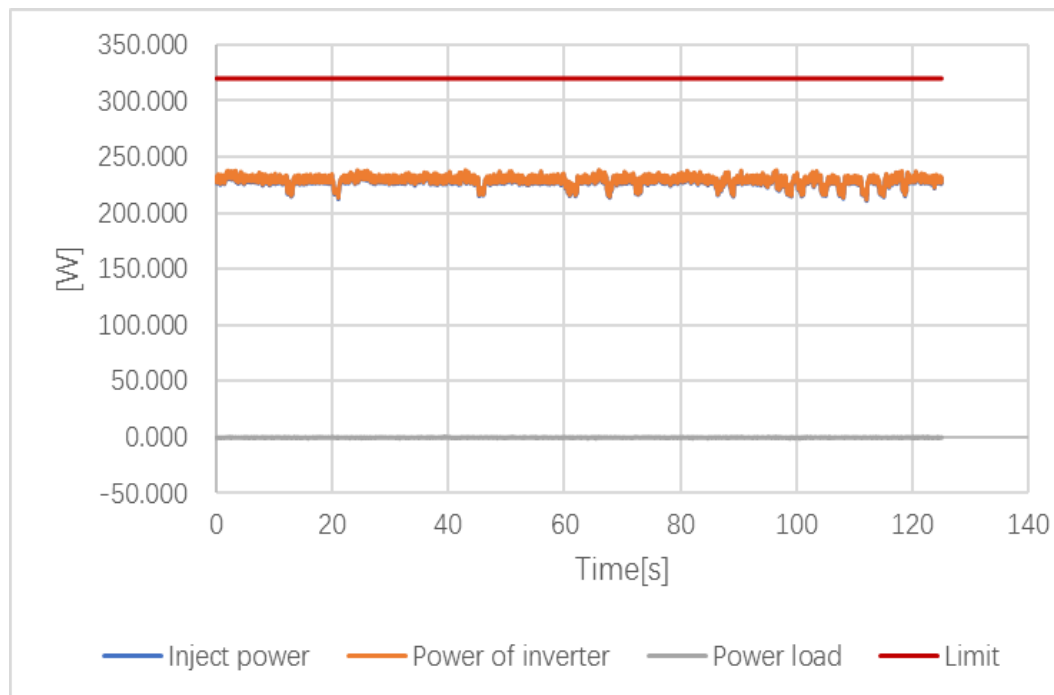


UNE 217001:2015 IN			
Clause	Requirement – Test	Result – Remark	Verdict

Graph_15% load



Graph_0% load

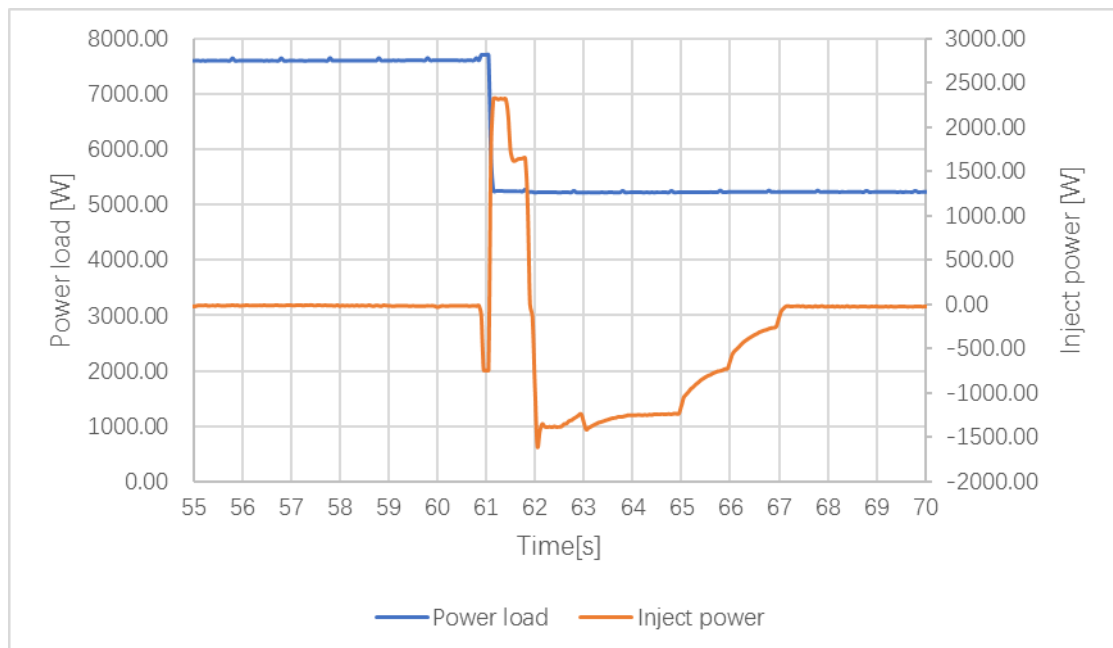
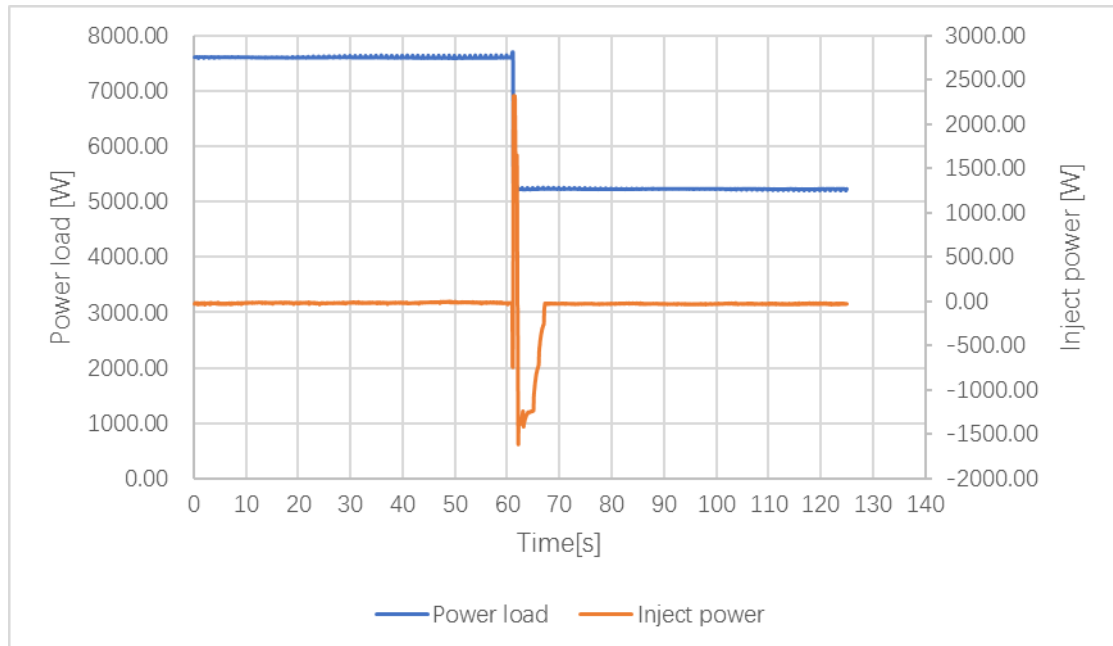


UNE 217001:2015 IN			
Clause	Requirement – Test	Result – Remark	Verdict

5.2	Response to load disconnections					P
Step	Initial Load	Final load	After disconnection re-adjust time <2s			Frequency
1	95%	65%	0.70s	0.80s	0.75s	50.01Hz
2	95%	35%	0.55s	0.70s	0.60s	49.99Hz
3	95%	0%	0.25s	0.20s	0.25s	50.17Hz
4	65%	35%	0.75s	0.75s	0.90s	49.98Hz
5	65%	0%	0.50s	0.50s	0.40	50.10Hz
6	35%	0%	0.70s	0.65s	0.40s	50.01Hz

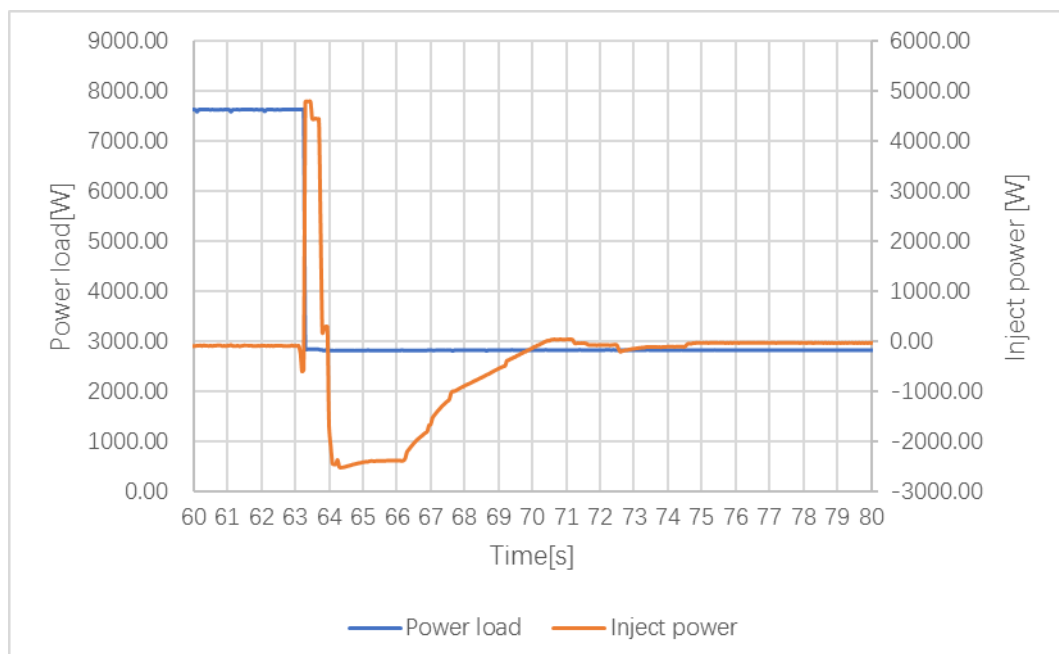
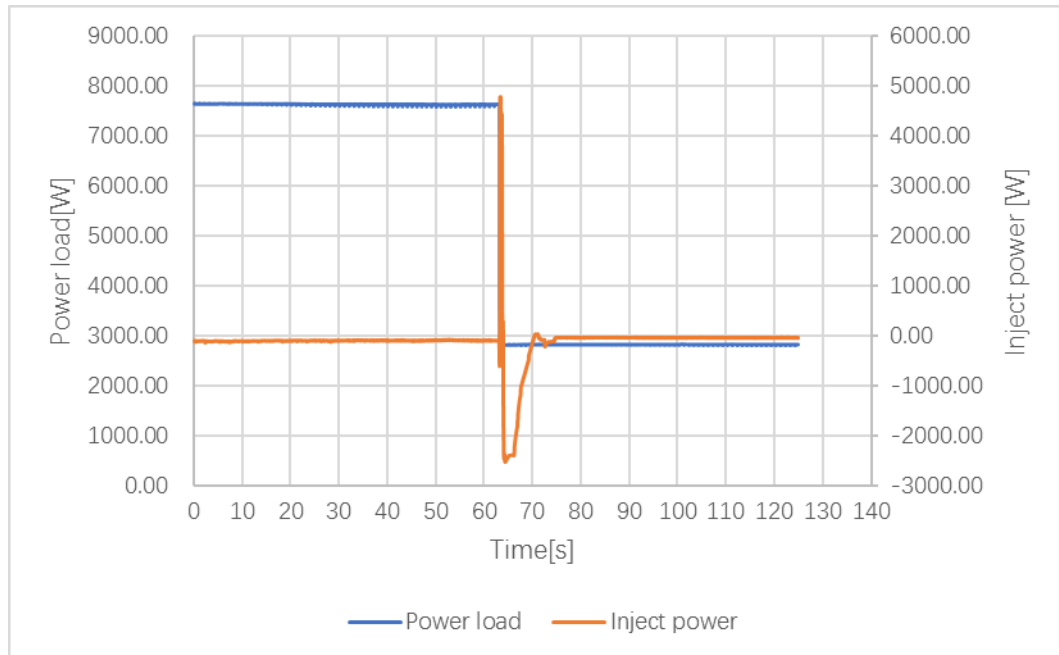
UNE 217001:2015 IN			
Clause	Requirement – Test	Result – Remark	Verdict

Graph 1_95% to 65%



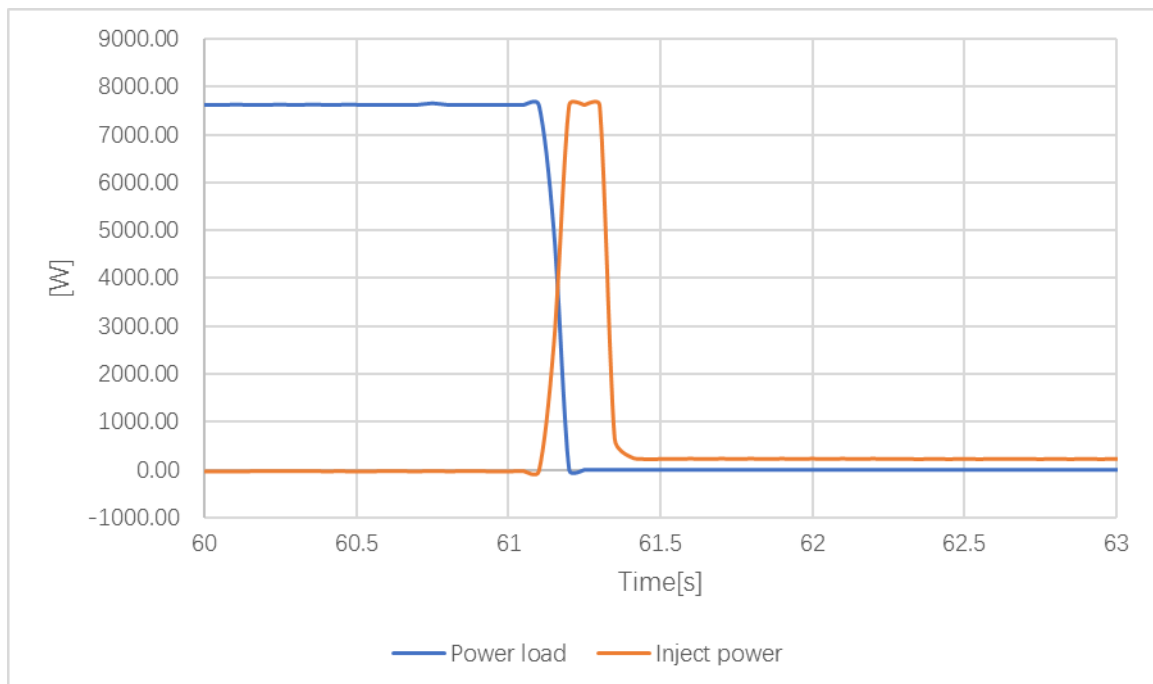
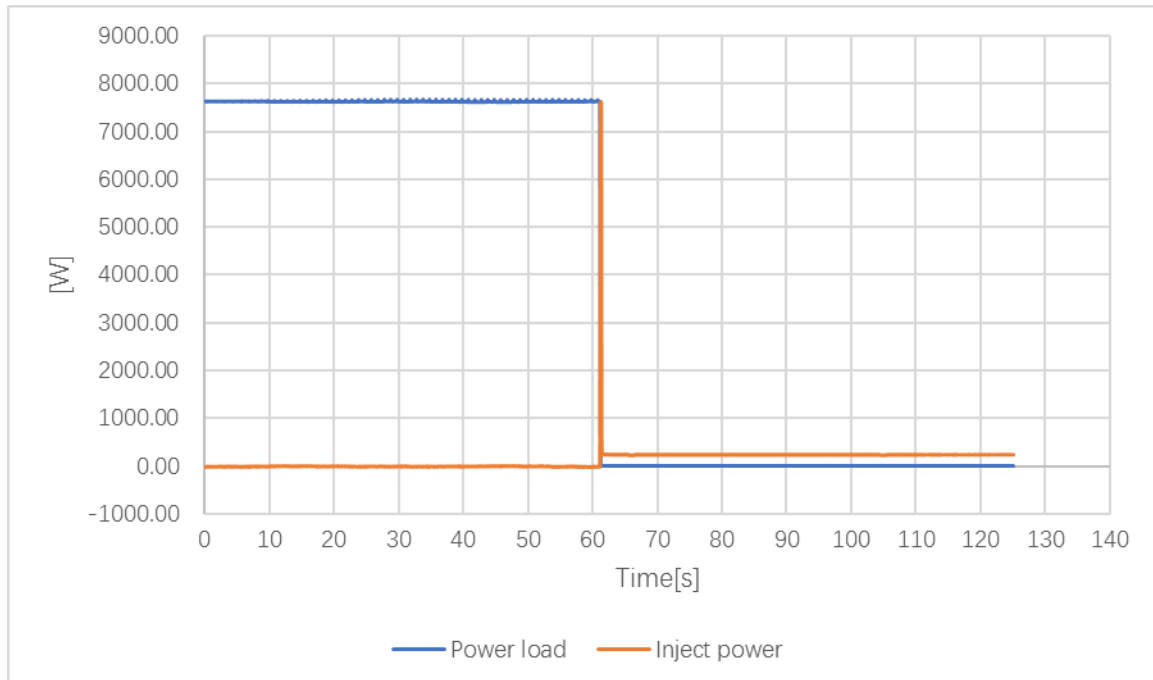
UNE 217001:2015 IN			
Clause	Requirement – Test	Result – Remark	Verdict

Graph 2_95% to 35%



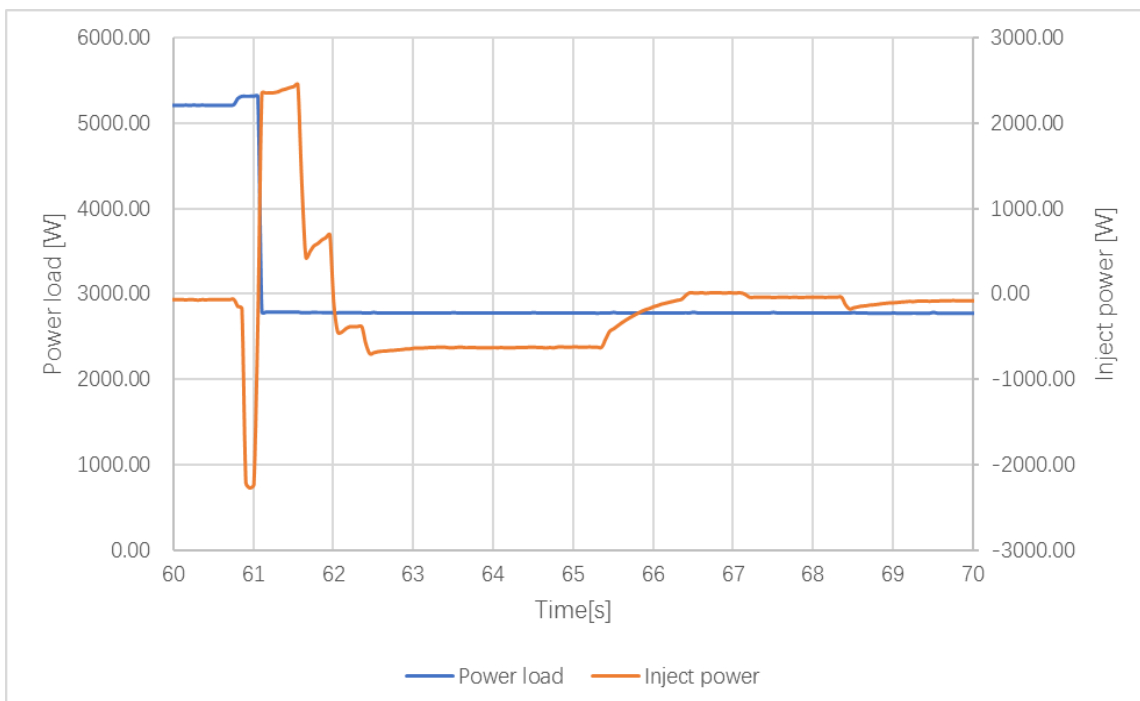
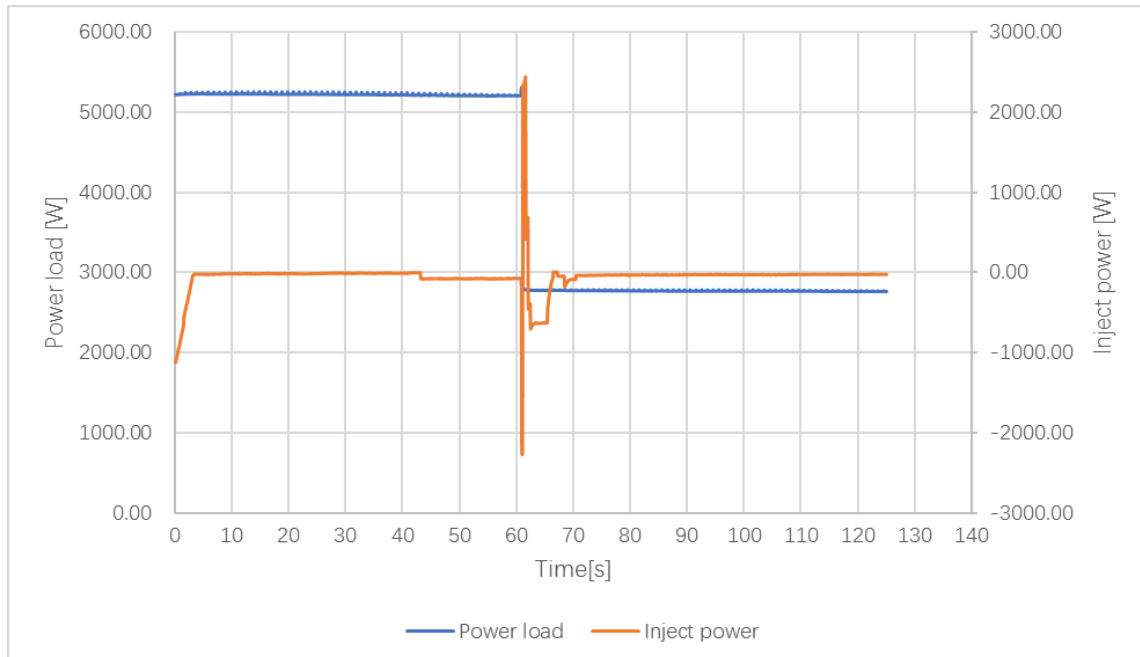
UNE 217001:2015 IN			
Clause	Requirement – Test	Result – Remark	Verdict

Graph 3_95% to 0%



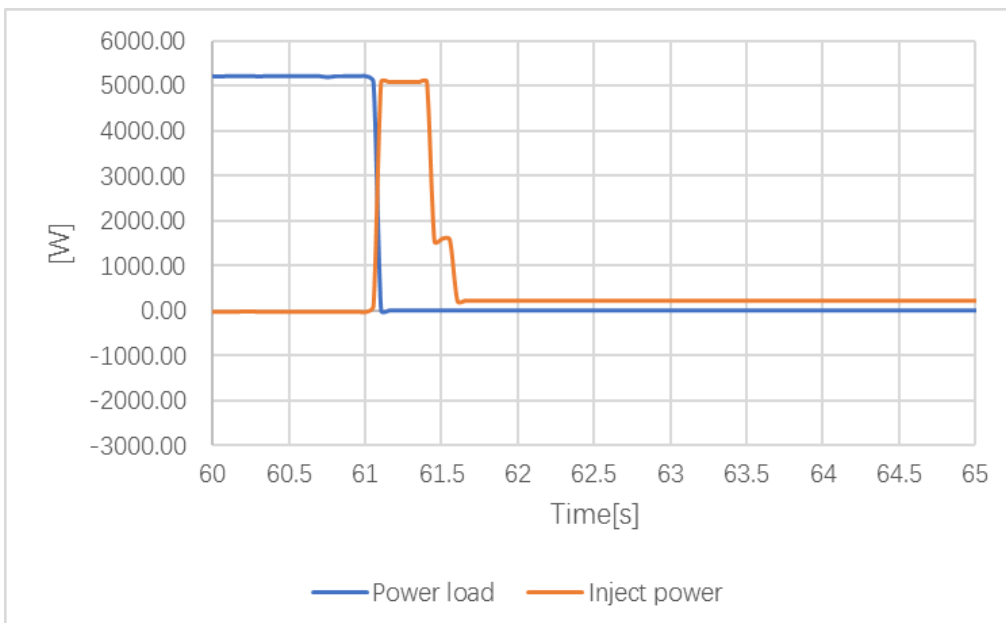
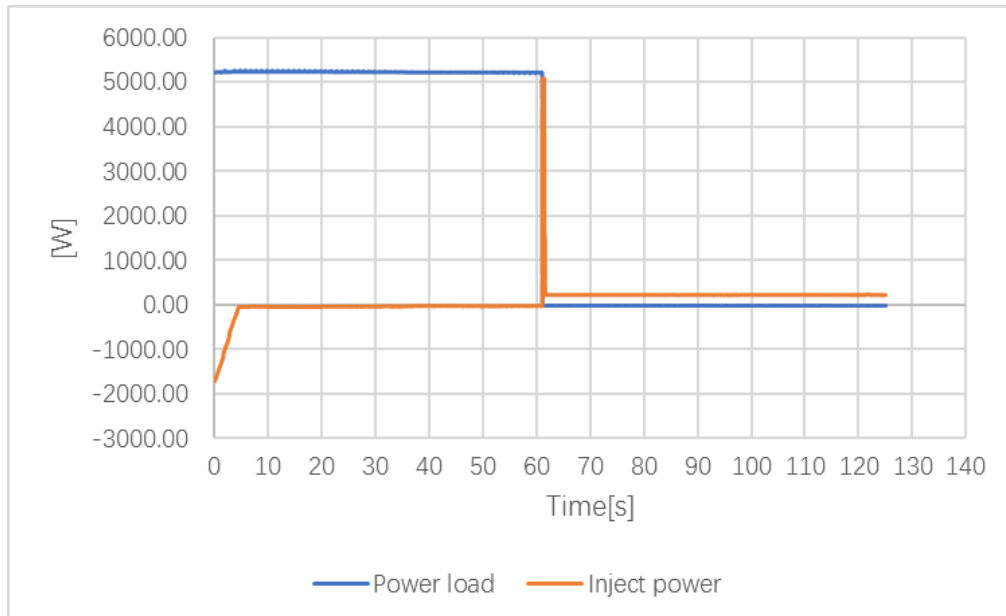
UNE 217001:2015 IN			
Clause	Requirement – Test	Result – Remark	Verdict

Graph 4_65% to 35%



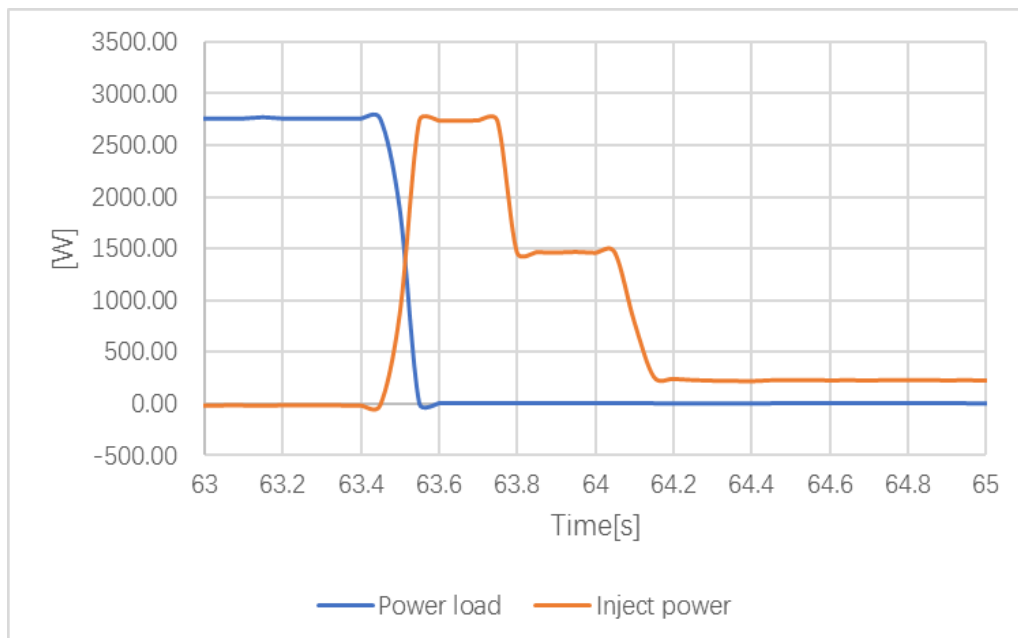
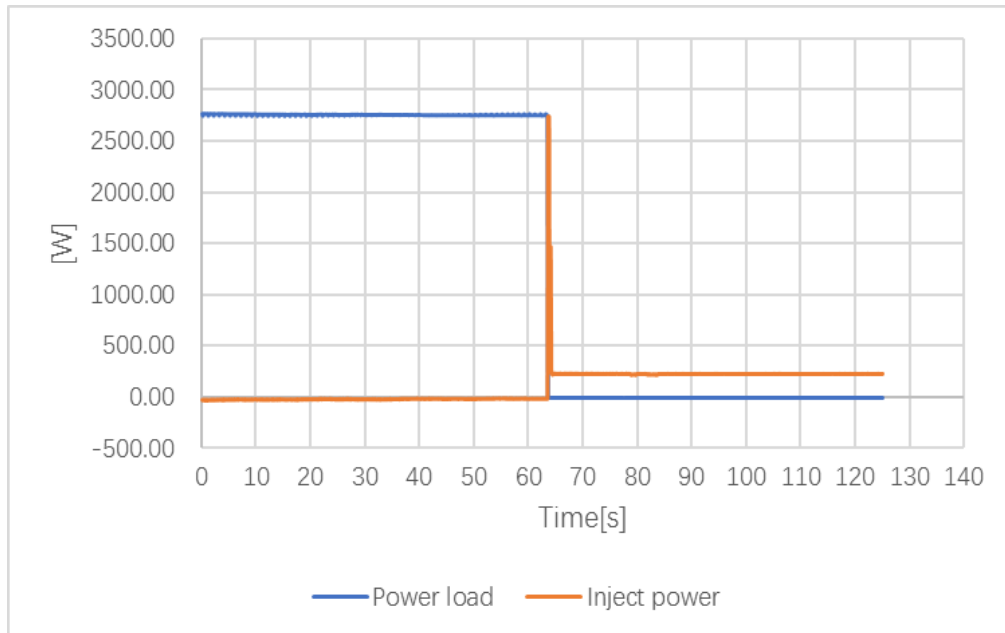
UNE 217001:2015 IN			
Clause	Requirement – Test	Result – Remark	Verdict

Graph 5_65% to 0%



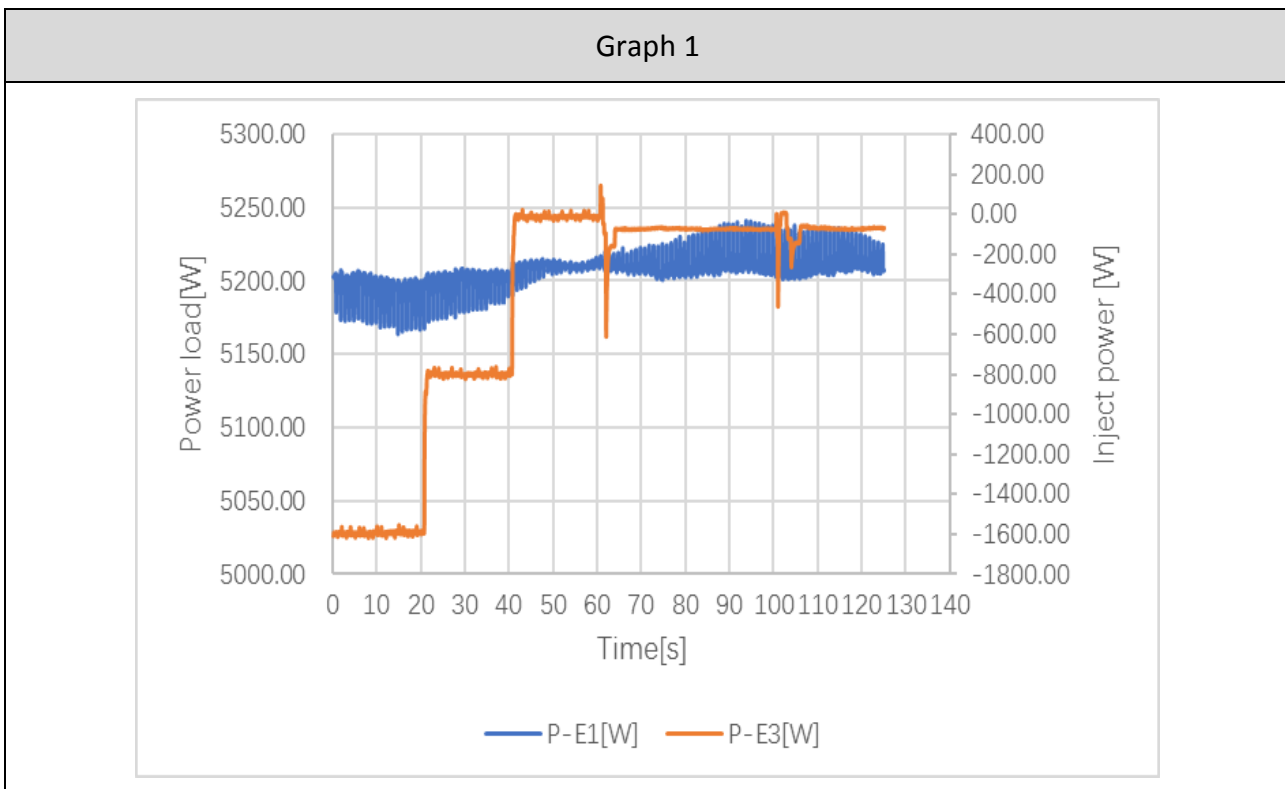
UNE 217001:2015 IN			
Clause	Requirement – Test	Result – Remark	Verdict

Graph 6_35% to 0%



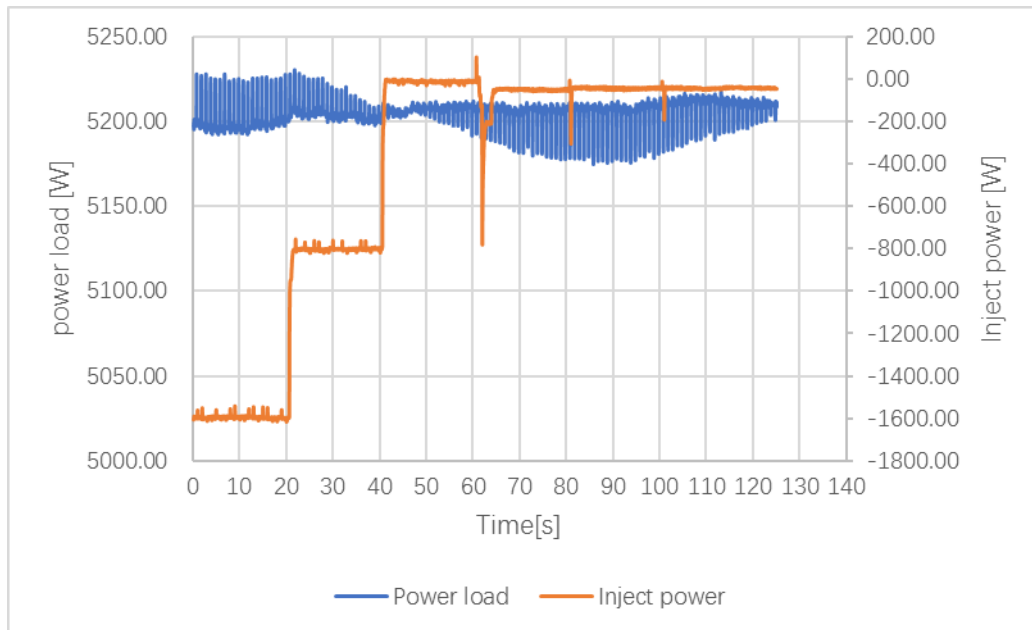
UNE 217001:2015 IN			
Clause	Requirement – Test	Result – Remark	Verdict

5.3	Response to power increases in the primary energy source					P
Step	Power of generator	load	re-adjust time <2s			
1	45%	65%	See graph 1	See graph 2	See graph 3	
2	55%	65%				
3	65%	65%				
4	75%	65%				
5	85%	65%				
6	95%	65%				

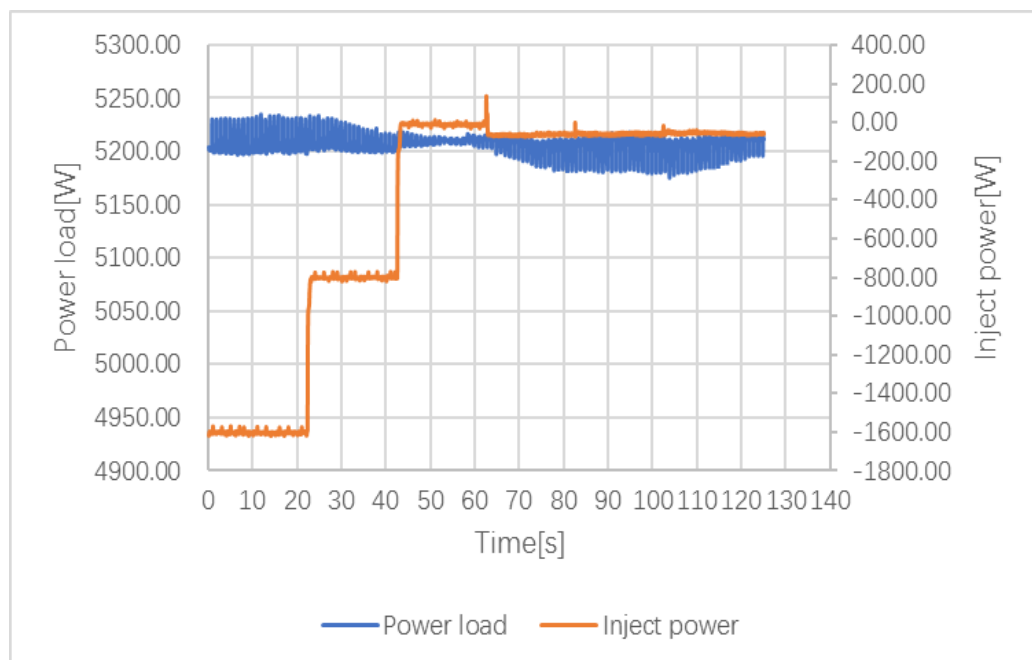


UNE 217001:2015 IN			
Clause	Requirement – Test	Result – Remark	Verdict

Graph 2



Graph 3



UNE 217001:2015 IN			
Clause	Requirement – Test	Result – Remark	Verdict

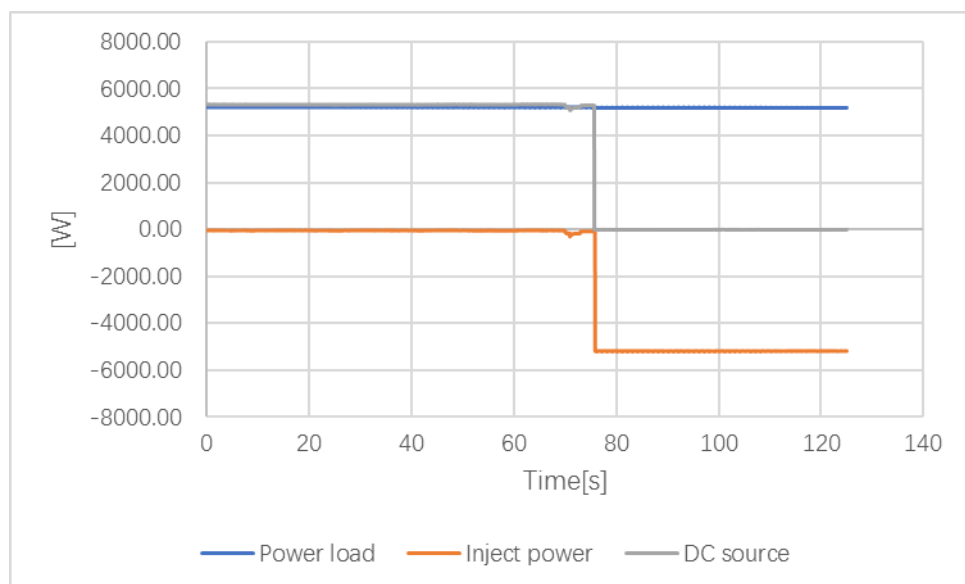
5.4	Action in case of loss of communications			P
Step	Power of generator	load	Cut off communication re-adjust time <2s	
1	100%	65%	1.136s	
2	100%	65%	1.036s	
3	100%	65%	1.288s	

UNE 217001:2015 IN			
Clause	Requirement – Test	Result – Remark	Verdict

Graph 1



CH1 denotes current of load, CH3 denotes current of Grid, CH4 denotes trip signal of communication

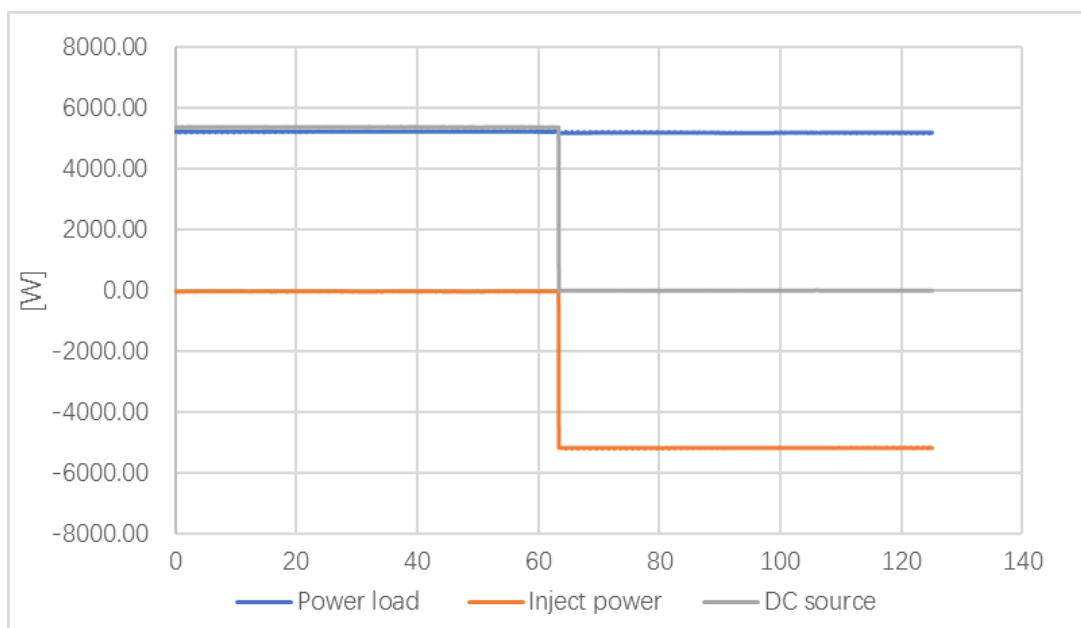


UNE 217001:2015 IN			
Clause	Requirement – Test	Result – Remark	Verdict

Graph 2



CH1 denotes current of load, CH3 denotes current of Grid, CH4 denotes trip signal of communication

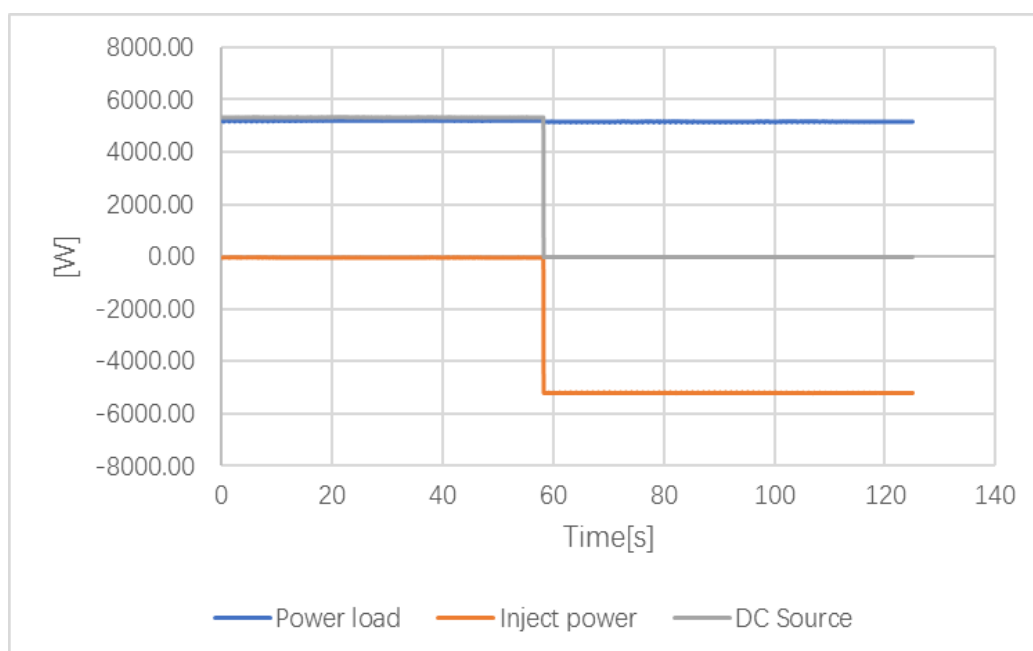


UNE 217001:2015 IN			
Clause	Requirement – Test	Result – Remark	Verdict

Graph 3



CH1 denotes current of load, CH3 denotes current of Grid, CH4 denotes trip signal of communication



Appendix: photos



Front view of inverter



Internal view of inverter



Meter view



Meter view

(End of Report)



本证书证实以下机构

广州三晶电气股份有限公司

广东省广州市高新技术产业开发区科学城荔枝山路9号

已通过中鉴认证有限责任公司的认证，
其质量管理体系符合以下国际质量管理体系标准的要求：

ISO9001:2015

特此准予注册。任何时候，与认证有关的规则和条件均须被遵守

认证范围：

太阳能发电产品（光伏逆变器/储能逆变器）及其配套件的设计开发、
生产及销售；工业控制设备变频器、智能控制系统（智能家居控制器）
的设计开发、生产及其销售

（本证书范围仅包括证书所列场所。若覆盖范围涉及行政许可前置审批、强制性认证的，仅涵盖许可资质、强制性认证证书范围内的产品及服务）

证书签发日期

2022年03月11日

有效日期

2025年03月10日

统一社会信用代码：914401017783916045

证书编号：U0022Q50048R2M

获证组织必须定期接受监督审核并经审核合格此证书方继续有效



胡家华



0158

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中国广东省广州市广州大道中227号华景大厦4楼（510600）中鉴认证有限责任公司



GUANGZHOU SANJING ELECTRIC CO., LTD.

NO.9, LIZHISHAN ROAD, SCIENCE CITY, HIGH-TECH. INDUSTRIAL DEVELOPMENT ZONE,
GUANGZHOU CITY, GUANGDONG PROVINCE

*Has been assessed by Zhongjian Certification Co., Ltd
in respect of their Quality Management
Systems and to comply with:*

ISO9001:2015

*Approval is hereby granted for registration providing the
rules and conditions relating to certification are observed at
all times*

CERTIFICATION SCOPE:

DESIGN, DEVELOPMENT, MANUFACTURE AND SALE OF SOLAR POWER GENERATION PRODUCTS
(PHOTOVOLTAIC INVERTERS/ENERGY STORAGE INVERTER) AND ACCESSORIES; DESIGN,
DEVELOPMENT, MANUFACTURE AND SALE OF FREQUENCY INVERTER FOR INDUSTRIAL CONTROL
MACHINERY EQUIPMENT, INTELLIGENT CONTROL SYSTEM (SMART HOME CONTROLLER)

(This certificate only covers the sites listed. If the covered scope involves pre-approval of administration permit or compulsory certification requirement, the scope only covers products and services within the permit license or compulsory certification scope)

Date of Issue

2022-03-11

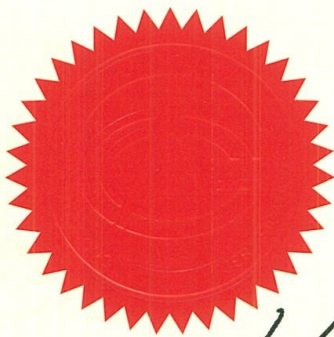
Valid Until

2025-03-10

Certificate Number: U0022Q50048R2M

Organization Code: 914401017783916045

This certificate remains valid only if the certified organization accepts and passes regular surveillance audits.



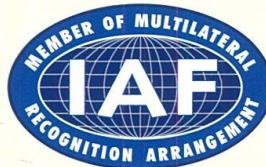
Handwritten signature of the authorized representative.

Authorised Signature for
ZhongJian Certification Co., Ltd



0158

Lack of fulfillment of
condition as set out
in Condition for the
Use of National
Accreditation Marks
by UKAS and UKAS
Accredited
Organizations may
render this
certificate invalid



This certificate remains the property of
Zhongjian Certification Co., Ltd of Quality System

The validity of this certificate could be confirmed via official Website Of CNCA (www.cnca.gov.cn)
Further to the certificate applicability, please enquire the certified organization: visit www.gzcc.org.cn or contact GZCC 020-66390902
4/F, Huajing Building, Guangzhou Dadaozhong, Guangzhou City, Guangdong Province, China (510600) Zhongjian Certification Co., Ltd.



Zhongjian Certification Co., Ltd.

CERTIFICATE OF CONFORMITY OF ENVIRONMENTAL MANAGEMENT SYSTEM CERTIFICATION

No:0070023E50463R2M

This is to certify that the environmental system of

GUANGZHOU SANJING ELECTRIC CO., LTD.

NO.9, LIZHISHAN ROAD, SCIENCE CITY, HIGH-TECH. INDUSTRIAL DEVELOPMENT ZONE, GUANGZHOU CITY, GUANGDONG
PROVINCE

Organization Code: 914401017783916045

is in conformity with

GB/T 24001-2016/ISO14001:2015 Standard

This system is valid for the

THE RELATIVE MANAGEMENT ACTIVITIES OF DESIGN, DEVELOPMENT, MANUFACTURE AND SALE OF SOLAR
POWER GENERATION PRODUCTS (PHOTOVOLTAIC INVERTERS/ENERGY STORAGE INVERTER) AND ACCESSORIES;
DESIGN, DEVELOPMENT, MANUFACTURE AND SALE OF FREQUENCY INVERTER FOR INDUSTRIAL CONTROL
MACHINERY EQUIPMENT, INTELLIGENT CONTROL SYSTEM (SMART HOME CONTROLLER)

(This certificate only covers the sites listed. If the covered scope involves pre-approval of administration permit or compulsory certification requirement, the scope only covers products and services
within the permit license or compulsory certification scope)

Date of issue: 2023-03-14

Term of validity of this certificate: from 2023-03-14 to 2026-03-13 inclusive

This certificate remains valid only if the certified organization accepts and passes regular surveillance audits.



Representative of The Company



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管理体系
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