TEST REPORT
EN 50549-1:2019
Requirements for generating plants to be connected in parallel with distribution networks
Part 1: Connection to a LV distribution network - Generating plants up to and including Type B

Report Reference No…… ...:	190430035GZU-001
Date of issue……:	02 Dec 2019; Revision 1:20 April 2020
Total number of pages……:	7 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	Shenzhen SOFAR SOLAR Co., Ltd.
Address.....	401, Building 4, AnTongDa Industrial Park, District 68, XingDong Community, XinAn Street, BaoAn District, Shenzhen, China

Test specification:

Standard	EN 50549-1: February 2019
Test procedure.....	Type approval for type B
Non-standard test method……..:	N/A

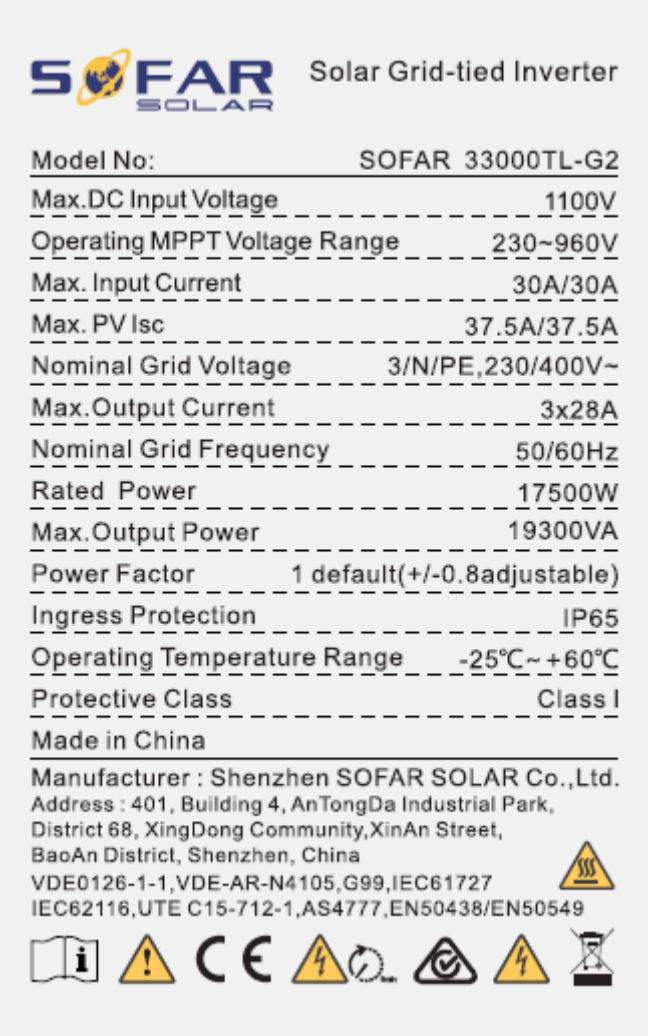
Test Report Form No.	EN 50549-1a
Test Report Form(s) Originator	Intertek Guangzhou
Master TRF.....	Dated 2019-05

Test item description	Solar Grid-tied Inverter
Trade Mark.....	SOFAR SOLAR
Manufacturer.....	Same as Applicant
Model/Type reference.....	SOFAR 20000TL-G2, SOFAR 25000TL-G2, SOFAR 30000TL-G2, SOFAR 33000TL-G2

Ratings.....	Model	SOFAR 20000TL-G2	SOFAR 25000TL-G2	SOFAR 30000TL-G2	SOFAR 33000TL-G2
	Max. DC input Voltage	1100Vdc			
	Operating MPPT voltage range	230Vdc – 960Vdc			
	PV Isc	30A*2	35A*2	37.5A*2	37.5A*2
	Max.input current	24A/24A	28A/28A	30A/30A	30A/30A
	Nominal AC output Power	17500W	17500W	17500W	17500W
	Max.Output Power	19300VA	19300VA	19300VA	19300VA
	Max. output current	28A	28A	28A	28A
	Nominal output voltage	3/N/PE 230Vac/400Vac			
	Nominal output Frequency	50Hz			
	Power factor range	1 Default (+/- 0.8 adjustable)			
	Safety level	Class I			
	Ingress Protection	IP 65			
	Operation Ambient Temperature	-25℃ - +60℃			
	Software version	V1.00			

Summary of testing:	
Tests performed (name of test and test clause): All applicable test	**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 .....:				
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 .....:				

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 April 2020

Date (s) of performance of tests.....: 15 April 2020 – 17 April 2020

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.
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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.

Revision 1:

This report is based on original report No. 190430035GZU-001, dated 02 Dec 2019 to have following modification:

1, Changed the rated power of all models to "17500W", the Max power to "19300VA", which are identical with original models, only power derating in software; The output current is changed to "28A" correspond to the derating power.

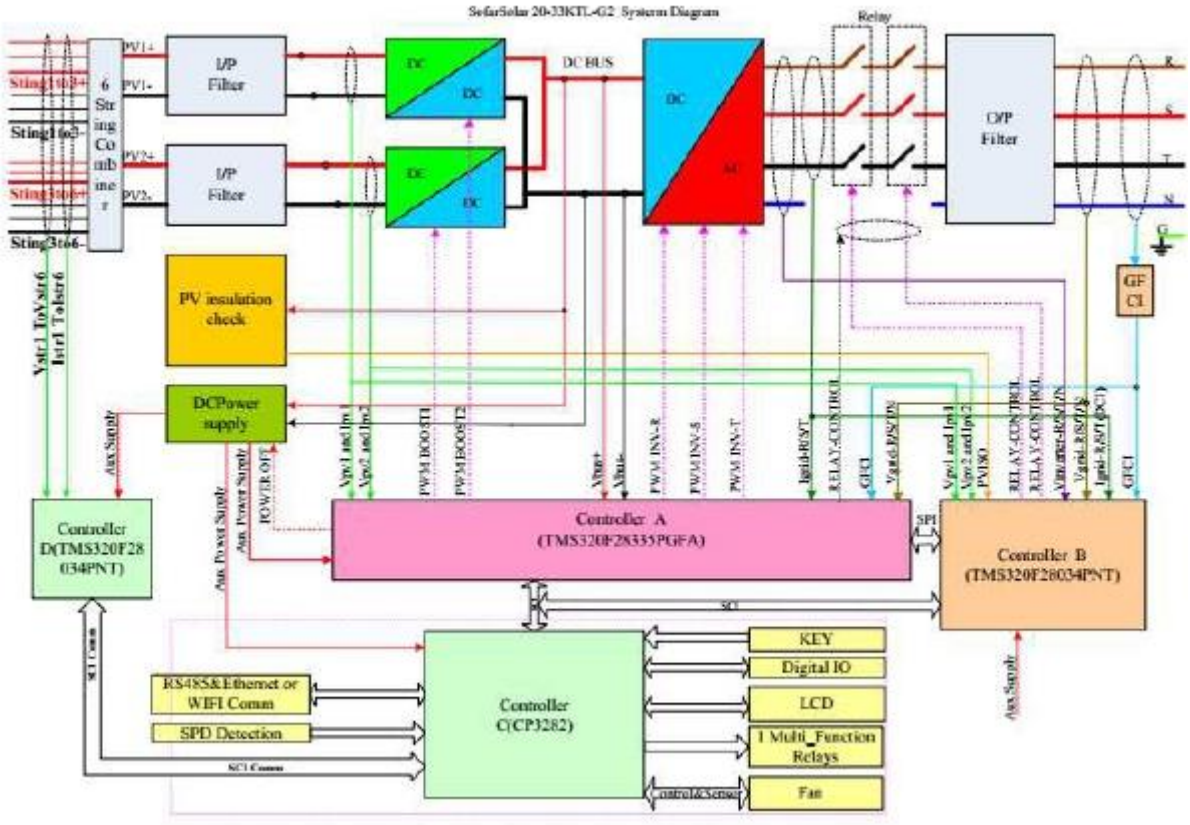
2, Changed the software Version from "V2.20" to "V1.00" as the power derating in software.

This report will be valid when used together with report No. 190430035GZU-001

General product information:

The Solar converter is a three-phase type.

The unit is providing EMC filtering at the output toward mains. The unit does not provide galvanic separation from input to output (transformerless). The output is switched off redundant by the high power switching bridge and two relays. This assures that the opening of the output circuit will also operate in case of one error.



The internal control is redundant built. It consists of Main DSP(UC20) and slave DSP(UC73).

The Main DSP(UC20) can control the relays, measures voltage, and frequency, AC current with injected DC, insulation resistance and residual current, In addition it tests the array insulation resistance and the RCMU circuit before each start up.

The slave DSP(UC73) is using for detecting residual current, also can open the relays independently and communicate with Main DSP(UC20).

The unit provides two relays in series on Line conductors. When single-fault applied to one relay, alarm an error code in display panel, another redundant relay provides basic insulation maintained between the PV array and the mains. All the relays are tested before starting up. Both controllers (Main DSP(UC20), Slave DSP(UC73) can open the relays

The product was tested on:

Hardware version: V1.00

Software version: V1.00

Model differences:

The models SOFAR 20000TL-G2, SOFAR 25000TL-G2, SOFAR 30000TL-G2 and SOFAR 33000TL-G2 are almost identical in hardware except the shown in the following table and the output power derated by software.

The difference in hardware			
Item	SOFAR 20000TL-G2	SOFAR 25000TL-G2	SOFAR 30000TL-G2 / SOFAR 33000TL-G2
Number of PV terminal	2+2	3+3	
Number of BUS capacitance	8 capacitors: 550V/110μF 2 capacitors: 1100V/40μF		10 capacitors: 550V/110μF 4 capacitors: 1100V/40μF
INV inductance	785μH	735μH	
Combiner board	Not the board	Have the board	
External fan	Not the board	2	3
Relay of output board	6pcs T9VV1K15-12S		3pcs AZSR250-2AE-12D

The tests had been performed on the SOFAR 33000TL-G2 is valid for the SOFAR 20000TL-G2, SOFAR 25000TL-G2, SOFAR 30000TL-G2.

Factory information:

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(End of report)