



中国认可
国际互认
检测
TESTING
CNAS L14701

TEST REPORT


Application number: PVP01079/22B-05

Applicant: Shenzhen Hopewind Technology Co., Ltd

Address: A1 Area of Building 6, Jinhaoyuan, No.1 of Yanshan Avenue, Yanchuan Community, Songgang Sub-district, Baoan District, Shenzhen, Guangdong Province, China

Equipment Type: PV Grid-interactive Inverter

Model Name: hopeSun 100KTL, hopeSun 110KTL, hopeSun 125KTL-M.

Brand Name:  **Hopewind**

Ratings: See copy of marking label and model list.

Test Standard: IEC 60068-2-1: 2007, IEC 60068-2-2: 2007
IEC 60068-2-14: 2009, IEC 60068-2-30: 2005

Test Date: Mar. 30, 2022 to Apr. 12, 2022

Date of Issue: May. 09, 2022

ISSUED BY:

Dongguan BALUN Testing Technology Co., Ltd.

Tested by: Ben Liu

Ben Liu

Checked by: Xingzhen Man

Xingzhen Man

Approved by: Simon Qi

Simon Qi



Revision History

<u>Version</u>	<u>Issue Date</u>	<u>Revisions Content</u>
<u>Rev. 01</u>	<u>May. 09, 2022</u>	<u>Initial Issue</u>

List of Attachments:

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Summary of testing:

All the tests results confirmed to the requirements of the standard.

Tests performed (name of test and test clause):

- ☒ Dry cold
- ☒ Dry Heat
- ☒ Change of temperature
- ☒ Damp heat, cycle
- Other testing conditions considered in this test report, see General Product Information.

Testing location:

Dongguan BALUN Testing Technology Co., Ltd.
Room 104, 204, 205, Building 1, No. 6, Industrial South Road, Songshan Lake District, Dongguan, Guangdong, China

☒ **The product fulfils the requirements of IEC 60068-2-1: 2007, IEC 60068-2-2: 2007, IEC 60068-2-14: 2009, IEC 60068-2-30: 2005.**

Copy of marking plate:

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

光伏并网逆变器 PV Grid-interactive Inverter	
型号 Model:	hopeSun 100KTL
产品序列号 Serial No.:	贴序列号标签
制造日期 Manufacture Date:	制造日期标签
最大输入电压 Max. Input Voltage: 1100Vd.c. MPP电压范围 MPP Voltage Range: 200-1000Vd.c. 最大输入电流 Max. Input Current: 65A/65A/65A/65A 最大短路电流 Isc PV: 100A/100A/100A/100A	
直流侧 DC	
输出电压 Nominal Output Voltage: 400Va.c./230Va.c.; 3P+N+PE 输出频率 Nominal Output Frequency: 50Hz/60Hz 额定输出功率 Rated Output Power: 100kW 最大输出功率 Max. Output Power: 110kW 最大输出电流 Max. Output Current: 158.8A 功率因数 Power Factor: 0.9 (lagging) -0.9 (leading)	
交流侧 AC	
工作环境温度 Operating Ambient Temperature: -40 to +60°C 防护等级 Ingress Protection: IP65 保护等级 Protection Class: I	
深圳市禾望科技有限公司 Shenzhen Hopewind Technology Co., Ltd.	
中国制造 MADE IN CHINA	

光伏并网逆变器 PV Grid-interactive Inverter	
型号 Model:	hopeSun 110KTL
产品序列号 Serial No.:	贴序列号标签
制造日期 Manufacture Date:	制造日期标签
最大输入电压 Max. Input Voltage: 1100Vd.c. MPP电压范围 MPP Voltage Range: 200-1000Vd.c. 最大输入电流 Max. Input Current: 65A/65A/65A/65A 最大短路电流 Isc PV: 100A/100A/100A/100A	
直流侧 DC	
输出电压 Nominal Output Voltage: 400Va.c./230Va.c.; 3P+N+PE 输出频率 Nominal Output Frequency: 50Hz/60Hz 额定输出功率 Rated Output Power: 110kW 最大输出功率 Max. Output Power: 121kW 最大输出电流 Max. Output Current: 174.6A 功率因数 Power Factor: 0.9 (lagging) -0.9 (leading)	
交流侧 AC	
工作环境温度 Operating Ambient Temperature: -40 to +60°C 防护等级 Ingress Protection: IP65 保护等级 Protection Class: I	
深圳市禾望科技有限公司 Shenzhen Hopewind Technology Co., Ltd.	
中国制造 MADE IN CHINA	

光伏并网逆变器 PV Grid-interactive Inverter	
型号 Model:	hopeSun 125KTL-M
产品序列号 Serial No.:	贴序列号标签
制造日期 Manufacture Date:	制造日期标签
最大输入电压 Max. Input Voltage: 1100Vd.c. MPP电压范围 MPP Voltage Range: 200-1000Vd.c. 最大输入电流 Max. Input Current: 65A/65A/65A/65A 最大短路电流 Isc PV: 100A/100A/100A/100A	
直流侧 DC	
输出电压 Nominal Output Voltage: 500Va.c.; 3P+N+PE 输出频率 Nominal Output Frequency: 50Hz/60Hz 额定输出功率 Rated Output Power: 125kW 最大输出功率 Max. Output Power: 137.5kW 最大输出电流 Max. Output Current: 158.8A 功率因数 Power Factor: 0.9 (lagging) -0.9 (leading)	
交流侧 AC	
工作环境温度 Operating Ambient Temperature: -40 to +60°C 防护等级 Ingress Protection: IP65 保护等级 Protection Class: I	
深圳市禾望科技有限公司 Shenzhen Hopewind Technology Co., Ltd.	
中国制造 MADE IN CHINA	

Test item particulars..... :	
Equipment mobility	Permanent connection
Operating condition..... :	Continuous
Enviromental category	Outdoor use
Over voltage category Mains	OVC III
Over voltage category PV	OVC II
Class of equipment..... :	Class I
Pollution degree	PD3 (internal reduced to PD2)
IP protection class	IP65
Mass of equipment (kg)	See model list.
Possible test case verdicts:	
- test case does not apply to the test object..... :	N/A
- test object does meet the requirement..... :	P (Pass)
- test object was not evaluated for the requirement:	N/E
- test object does not meet the requirement..... :	F (Fail)

General remarks:

"(See Enclosure #)" refers to additional information appended to the report.

"(See appended table)" refers to a table appended to the report.

The tests 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 testing laboratory.

List of test equipment must be kept on file and available for review.

Additional test data and/or information provided in the attachments to this report.

Throughout this report a ☐ comma / ☒ point is used as the decimal separator.

Determination of the test results includes consideration of measurement uncertainty from the test equipment and methods.

Manufacturer's Declaration per sub-clause 4.2.5 of IEC 60068-2-1:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided

☐ **Yes**

☒ **Not applicable**

When differences exist; they shall be identified in the General product information section.

Name and address of manufacturer (s)..... : Shenzhen Hopewind Technology Co., Ltd
A1 Area of Building 6, Jinhaoyuan, No.1 of Yanshan Avenue, Yanchuan Community, Songgang Sub-district, Baoan District, Shenzhen, Guangdong Province China

Name and address of factory (ies) Suzhou Hopewind Electric Co., LTD
555 Songjia Road, wusongjiang science and Technology Industrial Park, wuzhong Economic Development Zone, Suzhou. Jiangsu Province, China

General product information:

The PCE under test (EUT) is a Grid-Connected PV Inverter which utilizes the advanced power electronics conversion components such as MOSFET, IGBT, IPM to convert the variable DC power generated from the photovoltaic (PV) arrays to the stable utility AC power which can be fed into the commercial electrical grid.

Differences of the models:

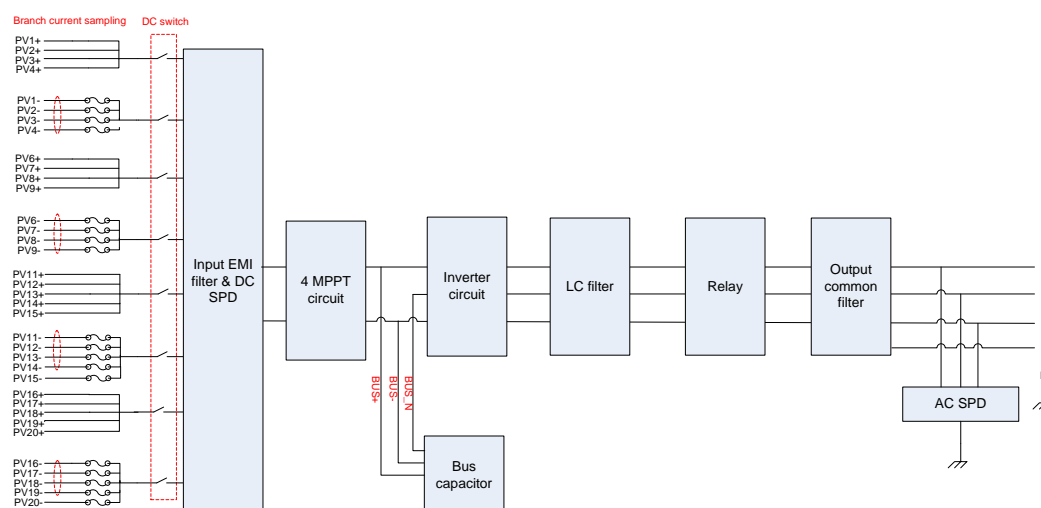
All model has the same hardware and control software. The difference of all models is output power and output voltage which is controlled by software.

Unless otherwise specified, all tests are performed on the model hopeSun 125KTL-M.

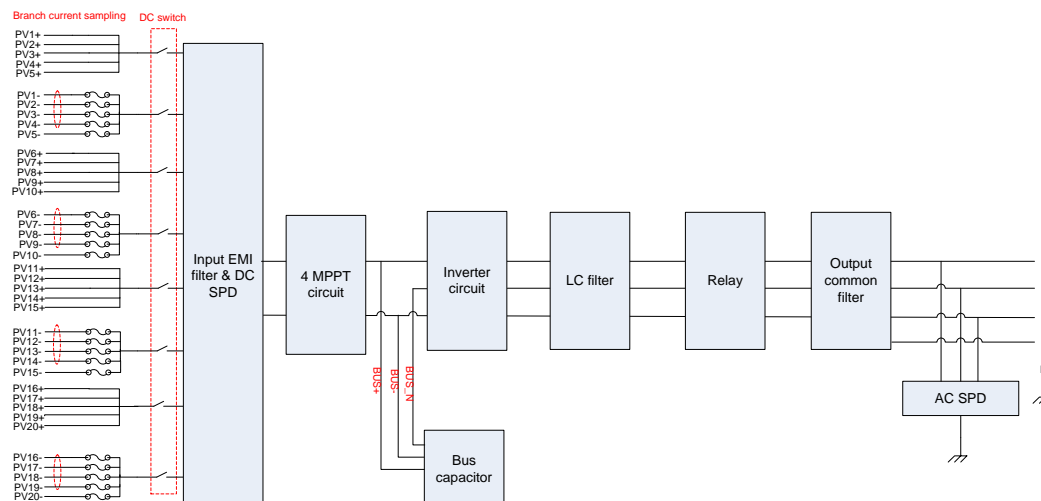
Hardware version: hopeSunC4_PCB_A
 hopeSunF7_PCB_A
 hopeSunHVB2_PCB_B
 hopeSunME_PCB_A
 hopeSunP7_PCB_A
 hopeSunWP_PCB_A
 hopeSunWQ_PCB_A

Software version: bootloader: V102.003.000
 FPGA: 108.000.000
 Inverter side: 106.005.000
 Boost side: 569.004.000

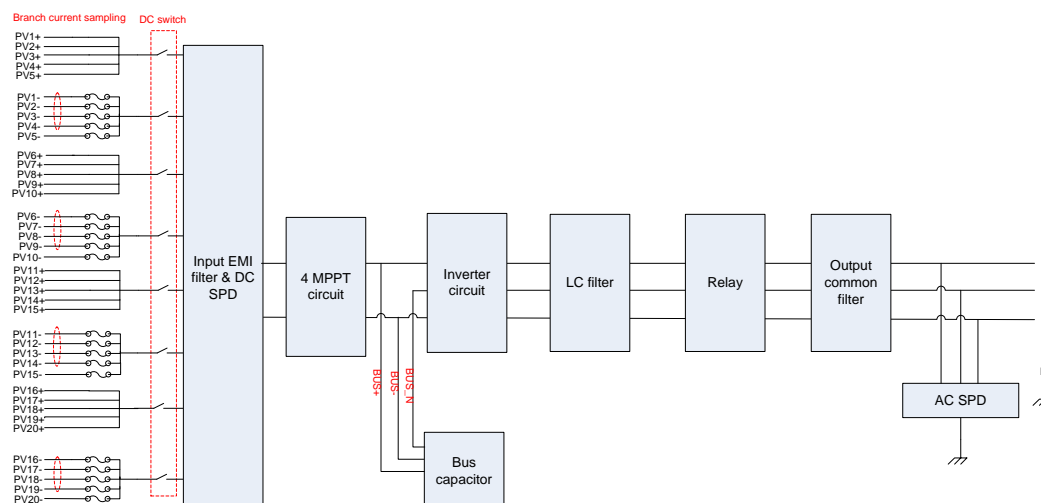
Block diagram of the utility interactive inverter:



Block Diagram of hopeSun 100KTL



Block Diagram of hopeSun 110KTL



Block Diagram of hopeSun 125KTL-M

Model list:

Model or Type designation	hopeSun 100KTL	hopeSun 110KTL	hopeSun 125KTL-M
PV Input Parameters			
V _{max} PV [V d.c.]	1100		
MPPT Voltage Range [V d.c.]	200-1000	200-1000	200-1000
Max. PV Input Current [A d.c.]	65/65/65/65		
DC Short-circuit Current [A d.c.]	100/100/100/100		
AC Output Parameters			
Rated Output Voltage [V a.c.]	230/400, 3P/N/PE	230/400, 3P/N/PE	500, 3P/N/PE
Rated Output Frequency [Hz]	50/60		
Rated Output Power [kW]	100	110	125
Max. Apparent Output Power [kVA]	110	121	137.5
Max. Output Current [A a.c.]	158.8	174.6	158.8

Power Factor $\cos\phi$ [λ]	0.9 (lagging)-0.9 (leading)
Others	
Protective Class	Class I
Inverter Topology	Non-isolated
Operation Temperature Range	-40~60°C
Ingress Protection	IP65
Size [W*H*D mm]	800mm*680mm*330mm
Weight [kg]	89
Overvoltage Category	DC II, AC III

IEC 60068-2-1			
Clause	Requirement – Test	Result – Remark	Verdict
5	Test description		P
5.1	General Tests Ab, Ad, and Ae are similar. Differences are noted in 5.2.2, 5.3.2 and 5.4.2. All other portions of the test are the same, starting with Clause 6. The rate of change of temperature within the chamber shall not exceed 1 K per minute, averaged over a period of not more than 5 min. The relevant specification shall define the functioning of the specimen under test.		P
5.2	Test Ab: Cold for non heat-dissipating specimens with gradual change of temperature		N/A
5.3	Test Ad: Cold for heat-dissipating specimens with gradual change of temperature that are powered after initial temperature stabilization		N/A
5.4	Test Ae: Cold for heat-dissipating specimens with gradual change of temperature that are required to be powered throughout the test		P
6	Test procedure		P
6.1	Confirmation of performance IEC 60068-3-5 provides guidance for the confirmation of performance of temperature test chambers.		P
6.2	Working space The dimensions of the test sample shall be such that it is entirely within the working space of the test chamber. The temperature of incident air delivered to the test specimen shall be within ± 2 K of test severity temperature during the steady-state condition. The air temperature in the working space shall be measured in accordance with 4.5.		P
6.3	Thermal radiation The ability of the specimen to transfer heat by thermal radiation shall be minimized.		P
6.4	Specimen with artificial cooling The relevant specification shall define the characteristics of the coolant supplied to the specimen. When the coolant is air, care shall be taken that the air is not contaminated by oil and dry enough to avoid moisture problems.		P
6.5	Mounting Thermal conduction and other relevant characteristics		P

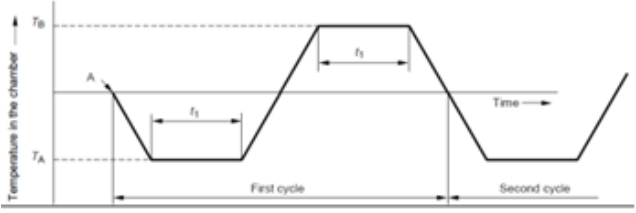
IEC 60068-2-1						
Clause	Requirement – Test			Result – Remark	Verdict	
	of the mounting and connections of the test specimen should be specified in the relevant specification. When the test specimen is intended for use with specific mounting devices, these shall be used for testing.					
6.6	Severities			-40°C	P	
	6.6.1 Temperature					
	-65°C	-40°C	-20°C			+5°C
	-55°C	-33°C	-10°C			
	-50°C	-25°C	-5°C			
	6.6.2 Duration			16h	P	
	2h	72h				
	16h	98h				
6.7	Preconditioning				P	
6.8	Initial measurements The initial state of the specimen shall be known. This may be achieved by visual inspection, and/or functional tests as required by the relevant specification.			Normal working.	P	
6.9	Conditioning The specimen shall be exposed to the low temperature conditions for the duration, as detailed in the relevant specification.				P	
6.10	Intermediate measurements The relevant specification may call for loading and/or measurements during or at the end of conditioning while the specimen is still in the chamber.				P	
6.11	Final temperature ramp If the specimen remains in operating or loaded condition during the test, it shall be switched off or unloaded before the temperature is raised with the exception of Test Ae in which the specimen shall remain operational throughout the recovery period.				P	
6.12	Recovery The specimen shall be subjected to the recovery procedure in the chamber or otherwise, as deemed suitable. Appropriate steps may be taken to remove droplets of water, as required, without damaging the specimen.				P	
6.13	Final measurements The specimen shall be visually inspected and such performance checks made as are required by the relevant specification.				P	

IEC 60068-2-2			
Clause	Requirement – Test	Result – Remark	Verdict
5	Test description		P
5.1	General Tests Bb, Bd, and Be are similar. Differences are noted in 5.2.2, 5.3.2 and 5.4.2. All other portions of the test are the same, starting with Clause 6.		P
5.2	Test Bb: Dry heat for non heat-dissipating specimens with gradual change of temperature		N/A
5.3	Test Bd: Dry heat for heat-dissipating specimens with gradual change of temperature that are not powered during the conditioning period		N/A
5.4	Test Be: Dry heat for heat-dissipating specimens with gradual change of temperature that are required to be powered throughout the test		P
6	Test procedure		P
6.1	Confirmation of performance IEC 60068-3-5 provides guidance for the confirmation of performance of temperature test chambers.		P
6.2	Working space The dimensions of the test sample shall be such that it is entirely within the working space of the test chamber. The temperature of incident air delivered to the test specimen shall be within ± 2 K of test severity temperature during the steady-state condition. The air temperature in the working space shall be measured in accordance with 4.5.		P
6.3	Thermal radiation The ability of the specimen to transfer heat by thermal radiation shall be minimized.		P
6.4	Mounting Thermal conduction and other relevant characteristics of the mounting and connections of the test specimen should be specified in the relevant specification. When the test specimen is intended for use with specific mounting devices, these shall be used for testing.		P

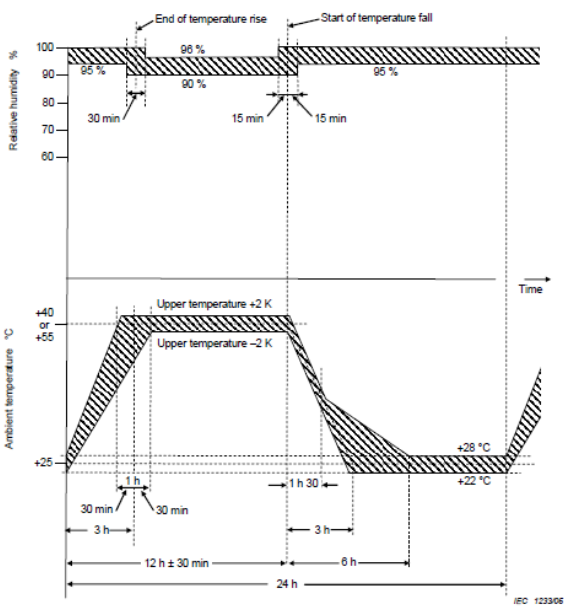
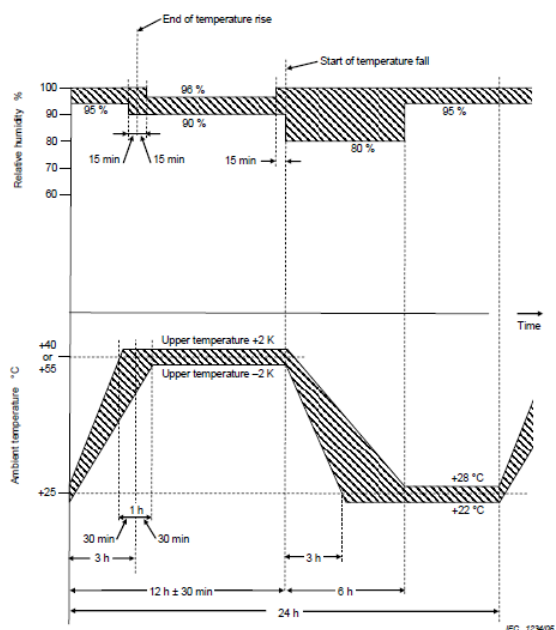
IEC 60068-2-2						
Clause	Requirement – Test				Result – Remark	Verdict
6.5	Severities				+60°C	P
	6.5.2 Temperature					
	+1000°C	+250°C	+85°C	+45°C		
	+800°C	+200°C	+70°C	+40°C		
	+630°C	+175°C	+65°C	+35°C		
	+500°C	+155°C	+60°C	+30°C		
	+400°C	+125°C	+55°C			
	+315°C	+100°C	+50°C			
	6.5.3 Duration				16h	P
	2h	72h	168h	336h		
16h	96h	240h	1000h			
6.6	Preconditioning					P
6.7	Initial measurements The initial state of the specimen shall be known. This may be achieved by visual inspection, and/or functional tests as required by the relevant specification.					P
6.8	Conditioning 6.8.1 Steady state conditions The specimen shall then be exposed to the high temperature conditions for the duration as detailed in the relevant specification.					P
	6.8.2 Absolute humidity The absolute humidity shall not exceed 20 g of water vapour per cubic metre of air (corresponding to approximately 50 % relative humidity at 35 °C) the relative humidity shall not exceed 50 %.					P
6.9	Intermediate measurements The relevant specification may call for loading and/or measurements during or at the end of conditioning while the specimen is still in the chamber.					P
6.10	Final temperature ramp If the specimen remains in operating or loaded condition during the test, it shall be switched off or unloaded before the temperature is raised with the exception of Test Ae in which the specimen shall remain operational throughout the recovery period.					P
6.11	Recovery The specimen shall be subjected to the recovery procedure in the chamber or otherwise, as deemed suitable. Appropriate steps may be taken					P

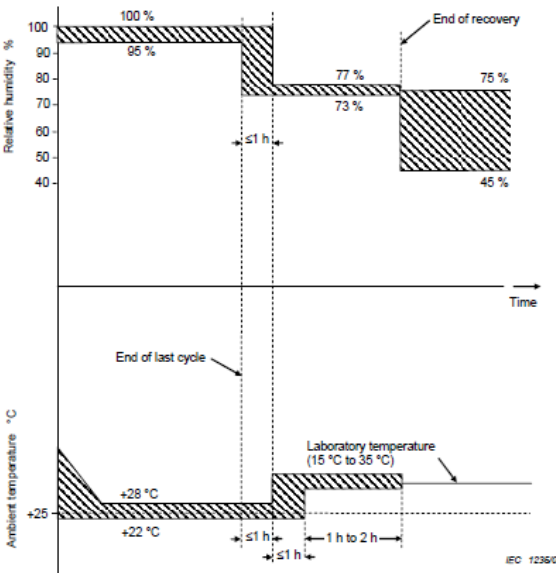
IEC 60068-2-2			
Clause	Requirement – Test	Result – Remark	Verdict
	to remove droplets of water, as required, without damaging the specimen.		
6.12	Final measurements The specimen shall be visually inspected and such performance checks made as are required by the relevant specification.		P

IEC 60068-2-14			
Clause	Requirement – Test	Result – Remark	Verdict
8	Test Nb: Change of temperature with specified rate of change		P
8.1	General description of the test This test determines the ability of components, equipment or other articles to withstand and/or function during changes of ambient temperature.		P
8.2	Testing procedure		P
8.2.1	Testing chamber The chamber for this test shall be so designed that in the working space where the specimen under test is placed a temperature cycle can be performed in such a manner that: a) the low temperature required for the test can be maintained, b) the high temperature required for the test can be maintained, c) the change rate required for the test from low temperature to high temperature or vice versa can be performed at the required rate of change.		P
8.2.2	Mounting or supporting of the test specimen Unless otherwise specified in the relevant specification, the thermal conduction of the mounting or support shall be low, such that for practical purposes the specimen is thermally isolated.		P
8.2.3	Severities The severity of the test is defined by the combination of the two temperatures, the rate of temperature change, the exposure time of the specimen and the number of cycles.		P
	The lower temperature TA shall be specified in the relevant specification and should be chosen from the test temperatures of IEC 60068-2-1 and IEC 60068-2-2.	-20°C	P
	The higher temperature TB shall be specified in the relevant specification and should be chosen from the test temperatures of IEC 60068-2-1 and IEC 60068-2-2.	+60°C	P
	The air temperature shall be lowered or raised between 90 % and 10 % of $D = TB - TA$ within a tolerance of 20 % of the temperature change rate. Preferred values are (1±0,2)K/min (3±0,6)K/min (5±1)K/min	(1±0,2)K/min	P

IEC 60068-2-14			
Clause	Requirement – Test	Result – Remark	Verdict
	<p>(10±2)K/min or (15±3)K/min</p> <p>The exposure time, t_1, to each of the two temperatures depends upon the heat capacity of the specimen. It may be 3 h, 2 h, 1 h, 30 min, or 10 min, or as specified in the relevant specification.</p>	3 h	P
8.2.4	<p>Conditioning</p> <p>The specimen and the temperature in test chamber shall be at the ambient temperature of the laboratory, +25 °C ±5 K. If required by the relevant specification, the specimen shall be brought into operating condition.</p>		P
8.2.5	<p>Test cycle</p> 		P

IEC 60068-2-30			
Clause	Requirement – Test	Result – Remark	Verdict
3	General description This test comprises one or more temperature cycles in which the relative humidity is maintained at high level.		P
4	Testing chamber-Construction requirements		P
4.1	The temperature can be varied cyclically between 25°C +/- 3 K and the appropriate upper temperature specified with the tolerance and rate of change specified in 7.3 and Figures 2a or 2b, as applicable.		P
4.2	The relative humidity in the working space can be maintained within the limits given in 7.3 and in Figures 2a or 2b, as applicable.		P
4.3	Care shall be taken to ensure that the conditions prevailing at any point in the working space are uniform and are as similar as possible to those prevailing in the immediate vicinity of suitably located temperature and humidity sensing devices. The chamber shall meet the performance criteria as detailed in IEC 60068-3-6.		P
4.4	The specimens under test shall not be subjected to radiant heat from the chamber conditioning processes.		P
4.5	Water used for the maintenance of chamber humidity shall have a resistivity of not less than 500mΩ.		P
4.6	The dimensions, properties and/or electrical loading of the specimens under test shall not appreciably influence conditions within the chamber.		P
5	Severities The severity shall be chosen from the following: a) Upper temperature: 40°C Number of cycles: 2, 6, 12, 21, 56; b) Upper temperature: 55°C Number of cycles: 1, 2, 6	Upper temperature: 55°C Number of cycles: 3	P
6	Initial measurements The specimens shall be visually inspected, and functionally tested, as required by the relevant specification.		P

7	<p>Conditioning</p> <p>The specimens shall be introduced into the chamber either in the unpacked, switched-off, ready-for-use state, or as otherwise specified in the relevant specification.</p>  <p>Figure 2a – Test Db – Test cycle – Variant 1</p>  <p>Figure 2b – Test Db – Test cycle – Variant 2</p> <p>Figure 2 – Test Db – Test cycle – Variants 1 and 2</p>	Variant 1 was used.	P
8	<p>Intermediate measurements</p> <p>The relevant specification may require functional</p>		P

IEC 60068-2-30			
Clause	Requirement – Test	Result – Remark	Verdict
	tests during the conditioning programmer.		
9	<p>Recovery</p> <p>The relevant specification shall prescribe whether recovery shall be made at standard atmospheric conditions for testing, or at controlled recovery conditions.</p> <p>If controlled recovery conditions are required (see Figure 3) , the specimen may be transferred to another chamber for this recovery period or may remain in the damp heat chamber.</p>  <p>Figure 3 – Test Db – Recovery at controlled conditions</p>		P
10	<p>Final measurements</p> <p>The specimens shall be visually inspected, and functionally tested as required by the relevant specification.</p>		P

Part 2-1	TABLE : Dry cold			P
IEC 60068-2-1: 2007				
Environmental testing - Part 2-1: Tests - Test A: Cold				
Specimen type:		heat dissipating, powered throughout		
Temperature change:		gradual		
Specimen cooling type:		without artificial cooling		
Air circulation:		forced air		
Measured temperature:		-40 °C		
Duration:		16 h		
Measurements Pre-functional test:				
PV Input:		AC grid output (line to neutral):		
Voltage DC (V)	736.96	Voltage AC (V)	501.16	
Current DC (A)	174.72	Current AC (A)	145.02	
Power DC (W)	128901.10	Active Power AC (W)	125505.16	
Measurements During the test:				
PV Input:		AC grid output (line to neutral):		
Voltage DC (V)	737.03	Voltage AC (V)	501.20	
Current DC (A)	174.59	Current AC (A)	145.00	
Power DC (W)	128850.23	Active Power AC (W)	125279.26	
Measurements Post-functional test:				
PV Input:		AC grid output (line to neutral):		
Voltage DC (V)	737.18	Voltage AC (V)	501.36	
Current DC (A)	174.34	Current AC (A)	145.00	
Power DC (W)	128717.89	Active Power AC (W)	125133.40	

Part 2-2	TABLE : Dry Heat			P
IEC 60068-2-2: 2007				
Environmental testing - Part 2-2: Tests - Test B: Dry heat				
Specimen type:		heat dissipating, powered throughout		
Temperature change:		gradual		
Specimen cooling type:		without artificial cooling		
Air circulation:		forced air		
Measured temperature:		60 °C		
Duration:		16 h		
Measurements Pre-functional test:				
PV Input:		AC grid output (line to neutral):		
Voltage DC (V)	737.35	Voltage AC (V)	501.38	
Current DC (A)	174.27	Current AC (A)	145.00	
Power DC (W)	128710.07	Active Power AC (W)	125071.15	
Measurements During the test:				
PV Input:		AC grid output (line to neutral):		
Voltage DC (V)	782.98	Voltage AC (V)	501.00	
Current DC (A)	123.03	Current AC (A)	109.02	
Power DC (W)	96353.22	Active Power AC (W)	94114.62	
Measurements Post-functional test:				
PV Input:		AC grid output (line to neutral):		
Voltage DC (V)	782.97	Voltage AC (V)	501.00	
Current DC (A)	123.03	Current AC (A)	109.02	
Power DC (W)	96368.73	Active Power AC (W)	94122.84	

Part 2-14	TABLE : Change of temperature			P
IEC 60068-2-14: 2007				
Part 2-14: Tests – Test N: Change of temperature				
Suffix letter		Nb		
Variant 1 or Variant 2		1		
Specimen type:		heat dissipating, powered throughout		
Temperature change:		gradual		
Specimen cooling type:		without artificial cooling		
Air circulation:		forced air		
Temperature measured TA and TB:		-20.0 °C and 60.0 °C		
Rate of change of temperature:		1k /min		
Duration t1:		3h		
Duration t2:		3min		
Cycle		5 cycle		
Measurements Pre-functional test:				
PV Input:		AC grid output (line to neutral):		
Voltage DC (V)	737.58	Voltage AC (V)	501.43	
Current DC (A)	174.18	Current AC (A)	144.99	
Power DC (W)	128609.39	Active Power AC (W)	125041.62	
Measurements During the test:				
PV Input:		AC grid output (line to neutral):		
Voltage DC (V)	782.97	Voltage AC (V)	501.00	
Current DC (A)	123.04	Current AC (A)	109.01	
Power DC (W)	96375.19	Active Power AC (W)	94134.56	
Measurements Post-functional test:				
PV Input:		AC grid output (line to neutral):		
Voltage DC (V)	737.63	Voltage AC (V)	501.44	
Current DC (A)	174.19	Current AC (A)	144.99	
Power DC (W)	128672.71	Active Power AC (W)	125037.71	

Part 2-30	TABLE : Damp heat, cycle			P
IEC 60068-2-30: 2005				
Environmental testing - Part 2-30: Tests - Test Db: Damp heat, cyclic (12h +12h cycle)				
Suffix letter		Db		
Variant 1 or Variant 2		1		
Specimen type:		heat dissipating, powered throughout		
Temperature change:		gradual		
Specimen cooling type:		without artificial cooling		
Air circulation:		forced air		
Lower temperature:		25.0 °C		
Upper Temperature:		55.0 °C		
Humidity measure:		95 % ± 5 %		
Duration:		24 h		
Cycle		3 cycle		
Measurements Pre-functional test:				
PV Input:		AC grid output (line to neutral):		
Voltage DC (V)	737.48	Voltage AC (V)	501.46	
Current DC (A)	174.21	Current AC (A)	144.99	
Power DC (W)	128653.15	Active Power AC (W)	125063.32	
Measurements During the test:				
PV Input:		AC grid output (line to neutral):		
Voltage DC (V)	782.96	Voltage AC (V)	501.00	
Current DC (A)	123.05	Current AC (A)	109.02	
Power DC (W)	96379.03	Active Power AC (W)	94132.32	
Measurements Post-functional test:				
PV Input:		AC grid output (line to neutral):		
Voltage DC (V)	737.54	Voltage AC (V)	501.44	
Current DC (A)	174.19	Current AC (A)	144.99	
Power DC (W)	128630.74	Active Power AC (W)	125050.52	

Pictures of the unit



Figure 1. Overview I



Figure 2. Overview II

Pictures of the unit

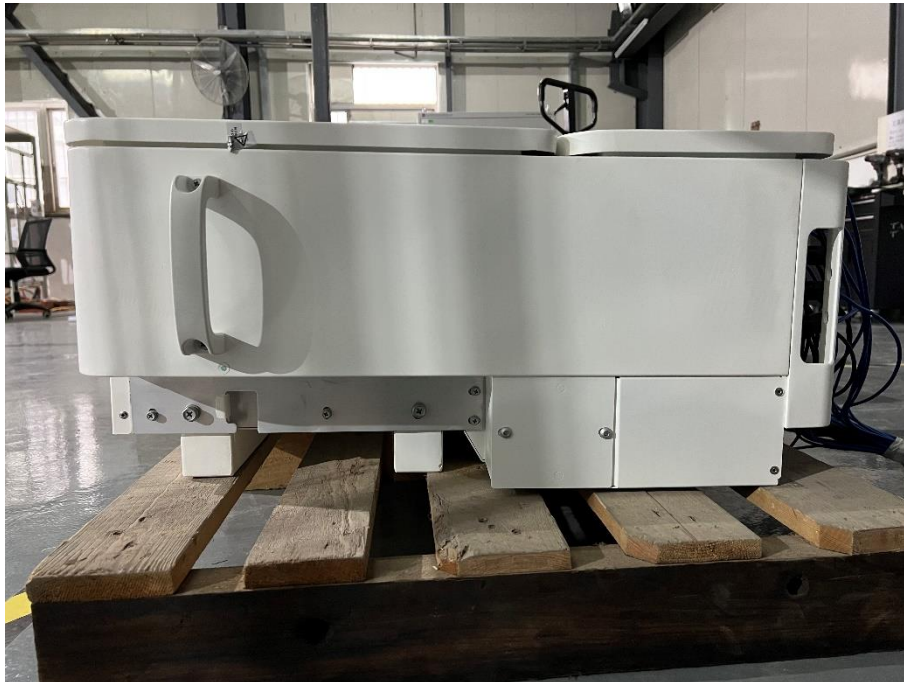


Figure 3. Overview III

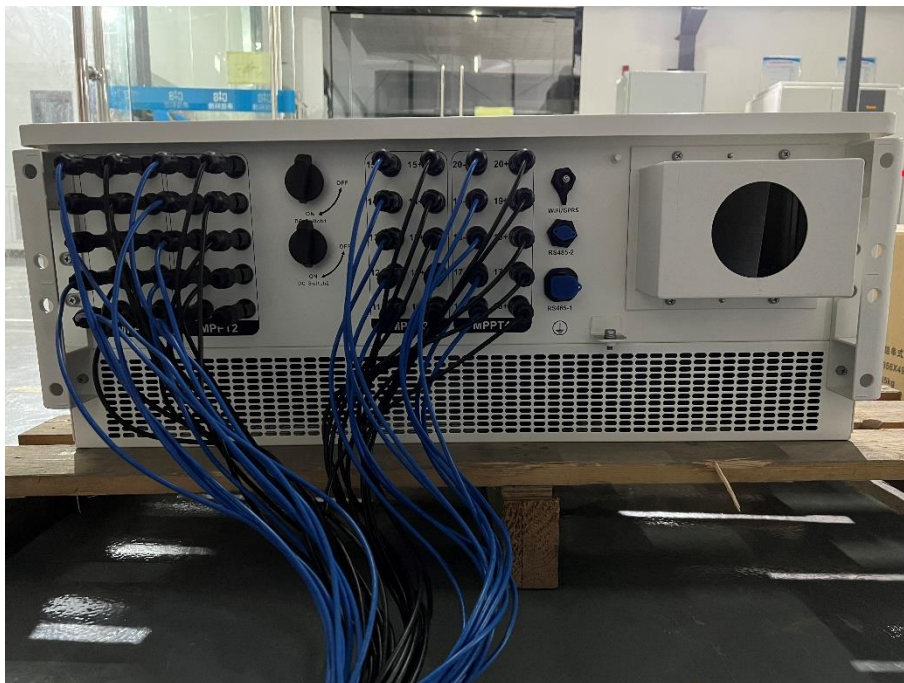


Figure 4. Overview IV

Test Equipment list				
No	Test Equipment	Equipment model	Equipment No.	Calibration due date
1	AC source	WPLA-330200KVA	BZ-DGD-L204	2022/12/22
2	DC source	WPLA-150KW	BZ-DGD-L013	2022/12/22
3	Current clamp	CT6863-05	BZ-DGD-L026-1	2023/02/22
4	Current clamp	CT6863-05	BZ-DGD-L026-2	2023/02/22
5	Current clamp	CT6863-05	BZ-DGD-L026-3	2022/12/19
6	Current clamp	CT6863-05	BZ-DGD-L026-4	2023/02/22
7	Power analyzer	PA6000H	BZ-DGD-L059	2022/10/21
8	Temperature and Humidity meter	DT-322	BZ-DGD-L005	2023/02/28
9	Thermostat	16m ³	BZ-DGD-L015	2022/08/08

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--- End of test report---