

TEST REPORT

Product Name : Energy Storage System

Model Number : NURA-6.5KW

Prepared for : Crown Micro FZCO.
Address : Plot No. S60806, Jafza South, Jebel Ali Free Zone, Dubai,
United Arab Emirates.

Prepared by : EMTEK (SHENZHEN) CO., LTD.
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Report Number : ENS2503130245P00301R

TEST REPORT IEC 61683 Photovoltaic systems –Power conditioners – Procedure for measuring efficiency	
Report Number: ENS2503130245P00301R Date of issue.....: April 3, 2025 Total number of pages..... 45 pages	
Name of Testing Laboratory preparing the Report.....	EMTEK (SHENZHEN) CO., LTD. Bldg 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China
Applicant's name Address.....	Crown Micro FZCO. Plot No. S60806, Jafza South, Jebel Ali Free Zone, Dubai, United Arab Emirates.
Test specification: Standard IEC 61683:1999 Test procedure IEC report Non-standard test method.....: N/A	
Test Report Form No. IEC61683B Test Report Form(s) Originator TÜV SÜD Product Service GmbH Master TRF..... Dated 2017-11-03 Copyright © 2017 IEC System of Conformity Assessment Schemes for Electrotechnical Equipment and Components (IECEE System). All rights reserved. This publication may be reproduced in whole or in part for non-commercial purposes as long as the IECEE is acknowledged as copyright owner and source of the material. IECEE takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context. If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed. This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.	
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Test item description : Energy Storage System		
Trade Mark : N/A		
Manufacturer : Crown Micro FZCO.		
Address : Plot No. S60806, Jafza South, Jebel Ali Free Zone, Dubai, United Arab Emirates.		
Model/Type reference : NURA-6.5KW		
Ratings : See the rating labels.		
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
☐	Testing Laboratory:	
	Testing location/ address	EMTEK (SHENZHEN) CO., LTD. Bldg 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China
	Tested by (name, function, signature)..... :	Alan Zhang / Engineer
	Approved by (name, function, signature) .. :	Paladin/ Manager
☐	Testing procedure: CTF Stage 1:	
	Testing location/ address	
	Tested by (name, function, signature)..... :	
	Approved by (name, function, signature) .. :	
☐	Testing procedure: CTF Stage 2:	
	Testing location/ address	
	Tested by (name + signature)..... :	
	Witnessed by (name, function, signature) . :	
	Approved by (name, function, signature) .. :	
☐	Testing procedure: CTF Stage 3:	
☐	Testing procedure: CTF Stage 4:	
	Testing location/ address	
	Tested by (name, function, signature)..... :	
	Witnessed by (name, function, signature) . :	
	Approved by (name, function, signature) .. :	
	Supervised by (name, function, signature) :	

List of Attachments (including a total number of pages in each attachment):

Photos (11 pages)

Summary of testing:

Tests performed (name of test and test clause):

The product has been tested according to standard IEC 61683:1999.

Testing location:

EMTEK (SHENZHEN) CO., LTD.

Bldg 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China

Summary of compliance with National Differences (List of countries addressed):

/

☒ The product fulfils the requirements of IEC 61683:1999

Copy of marking plate:

CROWN	
Energy Storage System	
Model Name	NURA-6.5KW
PV-Input	
Max. Open Circuit Voltage(VOC)	500d.c. V
MPPT voltage range	120 - 400d.c. V
Max. PV short current(input A/B)	25d.c. A/25d.c. A
Max. PV current(input A/B)	17d.c. A/17d.c. A
Max. PV power	9600W
AC-Input	
Nominal AC voltage, Frequency	230a.c. V, 50Hz/60Hz
Max. GRID current	45a.c. A
Max. Generator current	31.9a.c.A
AC-Output(Back-up)	
UPS nominal voltage, Frequency	230a.c. V, 50Hz/60Hz
UPS nominal output power	6500W
UPS nominal current	28.3a.c. A
Adjustable displacement factor range	(@cosΦ=0.99)
Battery	
Battery type	LFP Li-ion Battery
Battery voltage operation voltage	40 - 60d.c. V
Rated Voltage	51.2d.c. V
Max. Charge Voltage	57.2d.c. V
Recommend Cut off Voltage	49d.c. V
Rated Capacity/Energy	200Ah/10.24kwh
Max. charge and discharge current	140d.c. A
Max. charge and discharge power	6500W
Operating ambient temperature range	0 - 45°C
Inverter topolgy	Transformerless
Ingress protection	IP 21
Protective class	I
	
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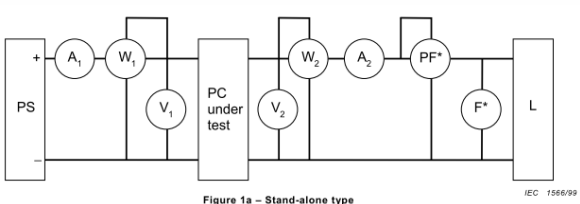
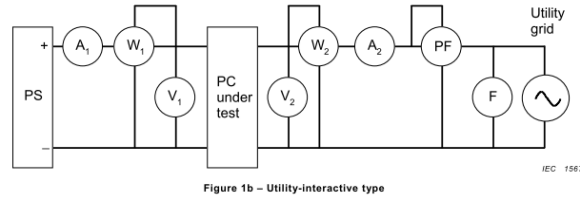
Test item particulars	
Classification of installation and use	Stationary
Supply Connection	Permanent connection
Possible test case verdicts:	
- test case does not apply to the test object : N/A	
- test object does meet the requirement : P (Pass)	
- test object does not meet the requirement : F (Fail)	
Testing	
Date of receipt of test item : March 14, 2025	
Date (s) of performance of tests : March 15, 2025 to March 30, 2025	
General remarks:	
"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report.	
Throughout this report a ☐ comma / ☒ point is used as the decimal separator.	
Manufacturer's Declaration per sub-clause 4.2.5 of IECCE 02:	
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 factory (ies)	ShenZhen Lux Power technology Co., LTD. C501, Building A, Donghua Industrial Park, 5003 Bao'an Avenue, Sanwei Community, Hangcheng Street, Bao'an District, Shenzhen, 518126, China.
General product information:	
1) It's intended for professional incorporation into DC systems, and it is assessed on a component test basis; 2) The PCE shall be used at specified ambient temperature range: -25℃~+60℃.	

IEC 61683:1999				
Clause	Requirement + Test	Measuring result	Remark	Verdict
4	Efficiency measurement conditions			P
	Efficiency is measured under the conditions in the following clauses.	(See test data record)		P
	Specific conditions may be excluded by mutual agreement when those conditions are outside the manufacturer's allowable operating range.			N/A
4.1	DC power source for testing			P
	For power conditioners operating with fixed input voltage, the d.c. power source shall be a storage battery or constant voltage power source to maintain the input voltage.			N/A
	For power conditioners that employ maximum power point tracking (MPPT) and shunt-type power conditioners, either a photovoltaic array or a photovoltaic array simulator shall be utilized.	PV array simulator used.		P
4.2	Temperature	(See test data record)		P
	All measurements are to be made at an ambient temperature of $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$.			P
	Other ambient temperatures may be allowed by mutual agreement. However, the temperature used must be clearly stated in all documentation.			N/A
4.3	Output voltage and frequency			P
	The output voltage and frequency shall be maintained at the manufacturer's stated nominal values.	(See test data record)		P
4.4	Input voltage			P
	Measurements performed in each of the following tests shall be repeated at three power conditioner input voltages: a) manufacturer's minimum rated input voltage; b) the inverter's nominal voltage or the average of its rated input range; c) 90% of the inverter's maximum input voltage.	(See test data record)		P
	In the case where a power conditioner is to be connected with a battery at its input terminals, only the nominal or rated input voltage may be applied.			N/A
4.5	Ripple and distortion			P
	Record input voltage and current ripple for each measurement. Also record output voltage and current distortion (if a.c.) or ripple (if d.c.). Ensure that these measurements remain within the manufacturer's specified values.			P
4.6	Resistive loads/utility grid			P

IEC 61683:1999				
Clause	Requirement + Test	Measuring result	Remark	Verdict
	At unity power factor, or at the intrinsic power factor of grid-connected inverters without power factor adjustment, measure the efficiency for power levels of 10%, 25%, 50%, 75%, 100% and 120% of the inverter's rating.			N/A
	Stand-alone inverters are also be measured at a power level of 5% of rated. The power conditioner test is conducted with a specified resistive and reactive grid impedance.	(See test data record)		P
4.7	Reactive loads			N/A
	For stand-alone inverters, measure the efficiency with a load which provides a power factor equal to the manufacturer's specified minimum level (or 0.25, whichever is greater) and at power levels of 25%, 50% and 100% of rated VA.			N/A
	Repeat for power factors of 0.5 and 0.75 (do not go below the manufacturer's specified minimum PF) and power levels of 25%, 50%, and 100% of rated VA.			N/A
4.8	Resistive plus non-linear loads			N/A
	For stand-alone inverters, measure the efficiency with a fixed non-linear load (total harmonic distortion (THD) = $(80 \pm 5)\%$) equal to $(25 \pm 5)\%$ of the inverter's rated VA plus sufficient resistive load in parallel to achieve a total load of 25%, 50% and 100 % of rated VA.			N/A
	Repeat the measurements with a fixed non-linear load equivalent to $(50 \pm 5)\%$ of the inverter's rated VA plus sufficient resistive load in parallel to achieve a total load of 50 % and 100 % of rated VA.			N/A
	The type of non-linear load must be clearly stated in all documentation.			N/A
4.9	Complex loads			N/A
	When a non-linear plus a sufficient reactive load condition is specified for stand-alone inverters, measure the efficiency with a fixed non-linear load (THD = $(80 \pm 5)\%$) equal to $(50 \pm 5)\%$ of the inverter's rated VA plus a sufficient reactive load (PF = 0.5) in parallel to achieve a total load of 50% and 100% of rated VA.			N/A
	The type of complex load shall be clearly stated in all documentation.			N/A

5	Efficiency calculations		P
5.1	Rated output efficiency	(See test data record)	P
5.2	Partial output efficiency	(See test data record)	P

IEC 61683:1999			
Clause	Requirement + Test	Measuring result	Remark
5.3	Energy efficiency	(See test data record)	P
5.4	Efficiency tolerances	(See test data record)	P

6	Conditions of loading for output ports		P
6.1	Test circuits		P
	Figure 1a is applied to standard-alone power conditioners		P
	 Figure 1a – Stand-alone type IEC 1566/99		P
	Figure 1b is applied to utility-interactive power conditioners		N/A
	 Figure 1b – Utility-interactive type IEC 1567/99 PC power conditioner PS variable voltage-current d.c. power supply A1 DC ammeter A2 AC or d.c. ammeter W1 DC wattmeter W2 AC or d.c. wattmeter L load F frequency meter V1 DC voltmeter V2 AC or d.c. voltmeter PF power factor meter		N/A
6.2	Measurement procedure		P

7	Loss measurement		P
7.1	No-load loss	(See test data record)	P
7.2	Standby loss	(See test data record)	P

Annex A	Power conditioner description		P
Annex B	Power efficiency and conversion factor		P
Annex C	Weighted-average energy efficiency		P
Annex D	Derivation of efficiency tolerance		P

IEC 61683:1999				
Clause	Requirement + Test	Measuring result	Remark	Verdict

TABLE	Efficiency recording and efficient calculation sheet								
Power conditioner type	Utility-interactive								
Model:	NURA-6.5KW								
Parameters of power conditioner	Minimum rated input voltage: 278Vdc (Solar Charger mode) Nominal voltage: 48Vdc (Inverter mode), 350Vdc (Solar Charger mode) Maximum input voltage: 400Vdc (Solar Charger mode) Rated output voltage: 230Vdc Rated output frequency: 50/60Hz Rated output power: 6.5kW								
Input voltage	a)220Vdc (PV mode)								
Temperature (°C)	25°C								
Operating period for energy measurement (min)	10min								
Percentage of rated output VA	5%	10%	25%	50%	75%	100%	120%*	/	/
Input voltage (V)	--	212.11	212.16	211.06	212.13	211.11	--	/	/
Input current (A)	--	3.30	8.07	16.53	24.87	32.81	--	/	/
Input power (Pi) (W)	--	699.89	1712.16	3487.98	5274.64	6927.33	--	/	/
Output power (Po) (W)	--	653.31	1629.30	3316.02	4994.42	6569.07	--		
Output efficiency (%)	--	93.34	95.16	95.07	94.69	94.83	--		
Input energy (Wi) (Wh)WP1	--	118.84	288.70	558.38	881.42	1156.60	--	/	/
Output energy (Wo) (Wh)WP2	--	110.83	274.81	527.31	834.53	1090.94	--	/	/
Energy efficiency (%)	--	93.26	95.19	95.38	94.68	94.32	--	/	/
Input voltage	b)305Vdc (PV mode)								
Temperature (°C)	25°C								
Operating period for energy measurement (min)	10min								
Percentage of rated output VA	5%	10%	25%	50%	75%	100%	120%*	/	/
Input voltage (V)	--	306.21	306.11	306.44	306.92	306.26	--	/	/
Input current (A)	--	2.21	5.54	10.86	16.68	22.50	--	/	/
Input power (Pi) (W)	--	683.21	1697.25	3326.61	5120.53	6892.82	--	/	/

IEC 61683:1999									
Clause	Requirement + Test					Measuring result	Remark	Verdict	
Output power (Po) (W)	--	652.67	1628.39	3187.96	4879.84	6534.82	--		
Output efficiency (%)	--	95.55	95.94	95.83	95.30	94.8	--		
Input energy (Wi) (Wh)WP1	--	121.34	286.76	557.22	854.22	1433.27	--	/	/
Output energy (Wo) (Wh)WP2	--	116	275.22	534.16	813.98	1358.77	--	/	/
Energy efficiency (%)	--	95.6	0.9597	95.86	95.29	94.8	--	/	/
Input voltage	c)400Vdc (PV mode)								
Temperature (°C)	25℃								
Operating period for energy measurement (min)	10min								
Percentage of rated output VA	5%	10%	25%	50%	75%	100%	120%*	/	/
Input voltage (V)	--	403.12	402.71	403.79	404.36	402.60	--	/	/
Input current (A)	--	1.71	4.21	9.74	14.41	19.36	--	/	/
Input power (Pi) (W)	--	689.96	1695.97	3432.77	5090.98	6850.78	--	/	/
Output power (Po) (W)	--	653.12	1629.62	3303.96	4877.37	6524.30	--		
Output efficiency (%)	--	94.6	96.09	96.25	95.80	95.23	--		
Input energy (Wi) (Wh)WP1	--	115.24	278.19	576.19	850.28	1452.14	--	/	/
Output energy (Wo) (Wh)WP2	--	108.99	267.52	554.58	814.62	1361.64	--	/	/
Energy efficiency (%)	--	94.58	96.16	96.25	95.81	93.8	--	/	/
Input voltage	51.2Vdc (Battery mode)								
Temperature (°C)	25℃								
Operating period for energy measurement (min)	10min								
Percentage of rated output VA	5%	10%	25%	50%	75%	100%	120%*	/	/
Input voltage (V)	--	52.44	52.22	51.91	51.69	51.45	--	/	/
Input current (A)	--	14.00	33.55	68.82	103.55	142.09	--	/	/
Input power (Pi) (W)	--	728.75	1748.22	3565.98	5343.84	7300.23	--	/	/
Output power (Po) (W)	--	652.72	1624.74	3305.78	4877.09	6536.31	--		

IEC 61683:1999									
Clause	Requirement + Test					Measuring result	Remark	Verdict	
Output efficiency (%)	--	89.57	92.94	92.70	91.27	89.54	--		
Input energy (Wi) (Wh)WP1	--	121.87	292.12	596.09	892.85	1225.4 4	--	/	/
Output energy (Wo) (Wh)WP2	--	109.06	271.57	552.58	815.16	1097.1 5	--	/	/
Energy efficiency (%)	--	89.49	92.97	92.70	91.30	89.53	--	/	/
Remark: *If limited by design, inverter is not capable to operate with the 120% of rated output load, test under this condition is waived;									

ABLE	No load loss		P
power conditioner type	Utility-interactive		
Measure input voltage (V)	209.67 (PV model)		
Measured input power(W)	21.40		
Measure input voltage (V)	304.88 (PV model)		
Measured input power(W)	23.90		
Measure input voltage (V)	400.29 (PV model)		
Measured input power(W)	3.45		
Measure input voltage (V)	51.84 (Battery model)		
Measured input power(W)	21.45		
Remark: No load loss is measured when the power conditioner works at rated input voltage and it's load is disconnected.			

TABLE	Standby loss		P
power conditioner type	Utility-interactive		
Measure input voltage (V)	230.01Vac (AC charge model)		
Measured input power(W)	28.03		
Remark: Standby loss is measured when the power conditioner works at rated input voltage and in standby mode.			

IEC 61683:1999				
Clause	Requirement + Test	Measuring result	Remark	Verdict

TABLE: Critical components information					P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾
Enclosure	Interchangeable	Interchangeable	Metal, Thickness: 1.5mm min	IEC 62040-1	Tested with Appliance
All PCB	Interchangeable	Interchangeable	Min. 130°C, Min. V-0, CTI. V-	IEC 62040-1	Tested with Appliance
FAN	Shenzhen Huaxia Hengtai Electronic Co., Ltd	DA08025B12VR	12V/70000H	IEC 62040-1	Tested with Appliance
(Alternate)	Shenzhen Huaxia Hengtai Electronic Co., Ltd	DA08025B12XR	12V/70000H	IEC 62040-1	Tested with Appliance
(Alternate)	SHENZHEN HUA XIN RONG PLASTIC ELECTRONIC CO., LTD.	EFC-08E12P	12V/70000H	IEC 62040-1	Tested with Appliance
(Alternate)	SHENZHEN HUA XIN RONG PLASTIC ELECTRONIC CO.,LTD.	EFC-08E12W	12V/70000H	IEC62040-1	Tested with Appliance
-Frame	DONGGUAN QIYANG PLASTIC CO., LTD	QY-PBT9800	PBT	UL 94 V-0	UL E465572
-Propeller	DONGGUAN QIYANG PLASTIC CO., LTD	QY-PBT9800	PBT	UL 94 V-0	UL E465572
-Bobbin	DONGGUAN QIYANG PLASTIC CO., LTD	QY-PBT9800	PBT	UL 94 V-0	UL E465572
-Lead wires	ZHENG YI ELECTRICAL MATERIAL LTD CO	xUEW, QA- x/130	UL1007#24AW G	UL 1007	UL E316891
Tape	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE	PF-301	180°C,0.45mm	UL 510	UL E165111
UL TUBE	SHENZHEN WOER HEAT- SHRINKABLE MATERIAL CO., LTD	600V RSFR	125°C	UL 224	UL E203950
-Tube	SHENZHEN WAH CHANG WEI INDUSTRIAL CO., LTD	SGS-25	200°C	UL	UL E233804

IEC 61683:1999					
Clause	Requirement + Test		Measuring result	Remark	Verdict
Inductor (Inv1)	HUIZHOU BAOHUI ELECTRONICS TECHNOLOGY CO., LTD	NPF226040*2	1.5mm*2P*62Ts 707.3uH $\pm$ 10%	IEC 62040-1	Tested with Appliance
(Alternate)	Shenzhen Jsy TECHNOLOGY CO., LTD	NPF226040*2	1.5mm*2P*62Ts 707.3uH $\pm$ 10%	IEC 62040-1	Tested with Appliance
(Alternate)	Guangdong Liwang High-tech Co., Ltd	NPF226040*2	1.5mm*2P*62Ts 707.3uH $\pm$ 10%	IEC 62040-1	Tested with Appliance
(Alternate)	Dongguan Shi Huibailu Technology CO.,LTD	NPF226040*2	1.5mm*2P*62Ts 707.3uH $\pm$ 10%	IEC 62040-1	Tested with Appliance
(Alternate)	SHENZHEN TRANSFORMER ELECTRONICS CO.,LTD.	NPF226040*2	1.5mm*2P*62Ts 707.3uH $\pm$ 10%	IEC 62040-1	Tested with Appliance
Inductor (Inv2)	HUIZHOU BAOHUI ELECTRONICS TECHNOLOGY CO., LTD	NPF226040*2	1.5mm*2P*62Ts 707.3uH $\pm$ 10%	IEC 62040-1	Tested with Appliance
(Alternate)	Shenzhen Jsy TECHNOLOGY CO., LTD	NPF226040*2	1.5mm*2P*62Ts 707.3uH $\pm$ 10%	IEC 62040-1	Tested with Appliance
(Alternate)	Guangdong Liwang High-tech Co., Ltd	NPF226040*2	1.5mm*2P*62Ts 707.3uH $\pm$ 10%	IEC 62040-1	Tested with Appliance
(Alternate)	Dongguan Shi Huibailu Technology CO.,LTD	NPF226040*2	1.5mm*2P*62Ts 707.3uH $\pm$ 10%	IEC 62040-1	Tested with Appliance
(Alternate)	SHENZHEN TRANSFORMER ELECTRONICS CO.,LTD.	NPF226040*2	1.5mm*2P*62Ts 707.3uH $\pm$ 10%	IEC 62040-1	Tested with Appliance
Inductor (BB)	HUIZHOU BAOHUI ELECTRONICS TECHNOLOGY CO., LTD	NPF226040*2	1.5mm*2P*62Ts 707.3uH $\pm$ 10%	IEC 62040-1	Tested with Appliance
(Alternate)	Shenzhen Jsy TECHNOLOGY CO., LTD	NPF226040*2	1.5mm*2P*62Ts 707.3uH $\pm$ 10%	IEC 62040-1	Tested with Appliance
(Alternate)	Guangdong Liwang High-tech Co., Ltd	NPF226040*2	1.5mm*2P*62Ts 707.3uH $\pm$ 10%	IEC 62040-1	Tested with Appliance
(Alternate)	Dongguan Shi Huibailu Technology CO.,LTD	NPF226040*2	1.5mm*2P*62Ts 707.3uH $\pm$ 10%	IEC 62040-1	Tested with Appliance
(Alternate)	SHENZHEN TRANSFORMER ELECTRONICS CO.,LTD.	NPF226040*2	1.5mm*2P*62Ts 707.3uH $\pm$ 10%	IEC 62040-1	Tested with Appliance

IEC 61683:1999					
Clause	Requirement + Test	Measuring result	Remark	Verdict	
Inductor (BOOST1)	HUIZHOU BAOHUI ELECTRONICS TECHNOLOGY CO., LTD	NPF226040*1	1.5mm*2P*62Ts 353.6uH $\pm$ 10%	IEC 62040-1	Tested with Appliance
(Alternate)	Shenzhen Jsy TECHNOLOGY CO., LTD	NPF226040*1	1.5mm*2P*62Ts 353.6uH $\pm$ 10%	IEC 62040-1	Tested with Appliance
(Alternate)	Guangdong Liwang High-tech Co., Ltd	NPF226040*1	1.5mm*2P*62Ts 353.6uH $\pm$ 10%	IEC 62040-1	Tested with Appliance
(Alternate)	Dongguan Shi Huibailu Technology CO.,LTD	NPF226040*1	1.5mm*2P*62Ts 353.6uH $\pm$ 10%	IEC 62040-1	Tested with Appliance
(Alternate)	SHENZHEN TRANSFORMER ELECTRONICS CO.,LTD.	NPF226040*1	1.5mm*2P*62Ts 353.6uH $\pm$ 10%	IEC 62040-1	Tested with Appliance
Inductor (BOOST2)	HUIZHOU BAOHUI ELECTRONICS TECHNOLOGY CO., LTD	NPF226040*1	1.5mm*2P*62Ts 353.6uH $\pm$ 10%	IEC 62040-1	Tested with Appliance
(Alternate)	Shenzhen Jsy TECHNOLOGY CO., LTD	NPF226040*1	1.5mm*2P*62Ts 353.6uH $\pm$ 10%	IEC 62040-1	Tested with Appliance
(Alternate)	Guangdong Liwang High-tech Co., Ltd	NPF226040*1	1.5mm*2P*62Ts 353.6uH $\pm$ 10%	IEC 62040-1	Tested with Appliance
(Alternate)	Dongguan Shi Huibailu Technology CO.,LTD	NPF226040*1	1.5mm*2P*62Ts 353.6uH $\pm$ 10%	IEC 62040-1	Tested with Appliance
(Alternate)	SHENZHEN TRANSFORMER ELECTRONICS CO.,LTD.	NPF226040*1	1.5mm*2P*62Ts 353.6uH $\pm$ 10%	IEC 62040-1	Tested with Appliance
Transformer	HUIZHOU BAOHUI ELECTRONICS TECHNOLOGY CO., LTD	EE55A*2	1mH	IEC 62040-1	Tested with Appliance
-Winding	SHENZHEN JIAZHENGXIN INDUSTRIAL CO., LTD	XUEW	155°C	UL	UL E334055
(Alternate)	SHENZHEN YANCHENG COMPOUND LINE CO., LTD	XUEW	155°C	UL	UL E360434
(Alternate)	SHANGHAI ASIA PACIFIC ELECTRIC CO., LTD	UEW-	155°C	UL	UL E214423

IEC 61683:1999					
Clause	Requirement + Test	Measuring result	Remark	Verdict	
(Alternate)	TAI-I COPPER (GUAN-ZHOU) CO., LTD	UEW/UEWF	155°C	UL	UL E234896
(Alternate)	DONG GUAN YIDA INDUSTRIAL CO LTD	UEW	155°C	UL	UL E344055
Tape	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE	PF-301	180°C, 0.45mm	UL	UL E165111
TUBE	SHENZHEN WOER HEAT- SHRINKABLE MATERIALCO., LTD	WF (PTFE)	200°C	UL	UL E203950
EPOXY	DONGGUAN EATTO ELECTRONIC MATERIAL CO., LTD	E-500	130	UL	UL E218090
PRESS BOARDS	SUZHOU TAIHU ELECTRIC ADVANCED MATERIAL CO., LTD	NMN, NHN	155	UL	UL E338526
(Alternate)	XUCHANG WEIDU DISTRICT YAAN INSULATING MATERIAL PLANT	6630 DMD	155	UL	UL E310670
-core	HENGDIAN GROUP DMEGC MAGNETICS CO., LTD	EE55/21	DMR95	IEC 62040-1	Tested with Appliance
(Alternate)	TDG HOLDING CO., LTD		TPW33	IEC 62040-1	Tested with Appliance
(Alternate)	BDK MAGNET & ELECTRON CO., LTD		BP95	IEC 62040-1	Tested with Appliance
(Alternate)	SUZHOU GUANDA MAGNET CO., LTD		GP95	IEC 62040-1	Tested with Appliance
(Alternate)	NANJING NEW CONDA MAGNETIC INDUSTRIAL CO., LTD		LP9	IEC 62040-1	Tested with Appliance

IEC 61683:1999					
Clause	Requirement + Test	Measuring result	Remark	Verdict	
-Margin tape	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE	PF-301	180°C	UL	UL E165111
Connector	SHENZHEN CONNECTION ELECTRONIC CO LTD	DRTB6-NR 03	600V / 50A	UL	UL E304128
Connector	SHENZHEN CONNECTION ELECTRONIC CO LTD	DRTB6-NR 04	600V / 50A	UL	UL E304128
CTRL Board					
DSP (U3)	Texas Instruments	TMS320F28035 PNT	80PIN -40 to +125°C	IEC 62040-1	Tested with Appliance
(Alternate)	Hunan Advancechip Electronics Technology Co., Ltd.	ADP32F28034Q P80S	80PIN -40 to +125°C	IEC 62040-1	Tested with Appliance
	ST	TMS320F28034 PNT	80PIN -40 to +125°	IEC62040-1	Tested with Appliance
Crystal oscillator (XL3)	SHEN ZHEN CRYSTAL TECHNOLOGY INDUSTRIAL CO., LTD	SJK7U0160000 212LJP	16MHZ / ±10PPM / 9PF SMD	IEC 62040-1	Tested with Appliance
Crystal oscillator (XL1)	SHEN ZHEN CRYSTAL TECHNOLOGY INDUSTRIAL CO., LTD	SJK7U0200000 212LJP	20MHZ / ±10ppm / -40°C to +105°C / 3225/SMD	IEC 62040-1	Tested with Appliance
Crystal oscillator (XL2)	SHEN ZHEN CRYSTAL TECHNOLOGY INDUSTRIAL CO., LTD	SJK32.786	32.768KHz / - 40°C -85°C / 3.2*1.5mm	IEC 62040-1	Tested with Appliance
MCU (U42)	ST	STM32F103RCT 6	64PIN -40 to +105°	IEC 62040-1	Tested with Appliance
(Alternate)	Giga Device Semiconductor Inc.	GD32F103RCT6	64PIN -40 to +105°	IEC 62040-1	Tested with Appliance
(Alternate)	Artery Technology Co., Ltd.	AT32F413RCT7	64PIN -40 to +105°	IEC 62040-1	Tested with Appliance
(Alternate)	CHINA KEY SYSTEM & INTEGRATED CIRCUIT CO., LTD	CKS320F103RE T6	64PIN -40 to +105°	IEC 62040-1	Tested with Appliance

IEC 61683:1999					
Clause	Requirement + Test		Measuring result	Remark	Verdict
Electrolytic capacitor (C52, C59, C77, C86, C89, C92, C123, C173, C282, C283, C284)	Rubycon	AL 100UF / 25V / YXJ	105°C / 5*11mm / 2mm	IEC 62040-1	Tested with Appliance
(Alternate)	CAPXON	FH 100μF / 25V 5X11	105°C / 5*11mm / 2mm	IEC 62040-1	Tested with Appliance
HPV board					
MCU (U13)	ST	STM32G070RBT 6	64PIN -40 to +105°C	IEC 62040-1	Tested with Appliance
Crystal oscillator (XL1)	SHEN ZHEN CRYSTAL TECHNOLOGY INDUSTRIAL CO., LTD	SJK-7U-16M-9-10-60-B-10	16MHz / ±10PPM / 9PF SMD	IEC 62040-1	Tested with Appliance
Electrolytic capacitor (C46, C100, C125, C142)	Rubycon	AL 100UF/25V/ YXJ	105°C / 5*11mm / 2mm	IEC 62040-1	Tested with Appliance
(Alternate)	CAPXON	FH 100μF / 25V 5X11	105°C / 5*11mm / 2mm	IEC 62040-1	Tested with Appliance
Electrolytic capacitor (C43, C44, C96, C99, C132, C135, C138, C146, C152)	Rubycon	AL 220UF / 25V / YXF	105°C / 6.3*11.5mm / 2.5mm	IEC 62040-1	Tested with Appliance
(Alternate)	CAPXON	FH 220μF / 25V 6.3X11	105°C / 6.3*11.5mm / 2.5mm	IEC 62040-1	Tested with Appliance
Opto-coupler (U6)	Lite-On	LTV-817S-TA-B	CTR: MIN.50% at IF=5mA, VCE=5V, Viso=5000Vrms	UL 1577	UL E113898
(Alternate)	AVAGO	HCPL-817-56BE	CTR: min.50% at IF=5mA, VCE=5V	EN 60747-5-2, VDE 0884	VDE 40016429
MOS (Q17)	China Resource	CS9N90FA9RD	900V / 9A / 0.95Ω / -55 ~ +150°C / TO220-F	IEC 62040-1	Tested with Appliance
(Alternate)	Wuxi Unigroup Microelectronics	TPP90R350A	900V / 15A / 150°C / TO-220	IEC 62040-1	Tested with Appliance
(Alternate)	Oriental Semiconductor	OSG95R500FF	950V / 10A / 150°C	IEC 62040-1	Tested with Appliance
(Alternate)	Pnjsemi	P3M171KOK3	1700V/6A/175°C	IEC62040-1	Tested with Appliance

IEC 61683:1999					
Clause	Requirement + Test		Measuring result	Remark	Verdict
(Alternate)	China Resource	CRXQ1KM170 G1	1700V/5A/175℃	IEC62040-1	Tested with Appliance
(Alternate)	IVCT 瞻星电子	IV2Q171R0T3	1700V/6.5A/175℃	IEC62040-1	Tested with Appliance
(Alternate)	China Resource	CS9N90ANHD	900V/9A/150℃	IEC62040-1	Tested with Appliance
(Alternate)	China Resource	CS9N90AKRD G	900V/5A/150℃	IEC62040-1	Tested with Appliance
(Alternate)	Oriental Semiconductor	OSG95R350H F	900V/12A/150℃	IEC62040-1	Tested with Appliance
Y capacitor (C8, C31, C36, C112, C113)	Xiamen Faratronic Co., Ltd	MKP63	Y2 4.7nF / 1000Vdc / 13*6*11mm / 10mm/K	EN 60384-14:2013	SE/0366-2C
(Alternate)	DONGGUAN HONGFARAD ELECTRONICSC o., Ltd	MKP	Y2 4.7nF / 1000Vdc / 13*6*11mm / 10mm/K	UL	E209251-20121103
Electrolytic capacitor (C35)	Rubycon	AL / BXC	33UF / 450V/BXC / 16*25mm / 7.5mm	IEC 62040-1	Tested with Appliance
Film Capacitor (C9, C12, C15, C30, C97)	GUANG DONG FENGMING ELECTRONIC TECH. CO., LTD	B72G334K630D DNC002	0.33uF / 630V / 26.5*10.5*16.5 mm / 22.5mm/K		SE/0366-2C
(Alternate)	Xiamen FaratronicCo.Ltd. or	MKP21	0.33uF / 630V / 26.5*10.5*16.5 mm / 22.5mm/K	EN 60384-14:2013	SE/0366-2C
(Alternate)	SHENZHEN CREATE START INDUSTRIAL LIMITED CO., LTD	MPX	0.33uF / 630V / 26*8.5*17mm / 22.5mm/K	UL	UL E473038
(Alternate)	DONGGUAN HONGFARAD ELECTRONICSC o., Ltd	MKP	0.33uF / 630V / 26.5*10.5*16.5 mm / 22.5mm/K	UL	E209251-20121103
Relay (RY1)	HF	HF140FF / 012-2ZS / 10A / 250VAC	10A, 250VAC	UL	R 50149131
(Alternate)	Churod Electronics Co., Ltd	CHZ05-S-212LC2	8A, 250VAC	UL	R 50149131
-Interchangeable	Churod Electronics Co., Ltd	CHI05H-S-212HC2	250VAC/10A	UL	R 50149131
Current sensor (HCT1, HCT2)	Sinomags Technology Co., LTD	STK-20PL-A	20A (40mV/A) / 85℃	UL 508, EN 50178, IEC 61010-1	UL E189713

IEC 61683:1999					
Clause	Requirement + Test		Measuring result	Remark	Verdict
IGBT (Q4, Q5)	Trinno Technology	TGAN40N65F2 DS	650V / 40A / 175°C / TO-247	IEC 62040-1	Tested with Appliance
(Alternate)	Infineon	IKW40N65ES5	650V / 40A / 175°C / TO-247	IEC 62040-1	Tested with Appliance
(Alternate)	Sanrise Tech	SRE40N065FS UD6T-G	650V / 40A / 175°C / TO-247	IEC 62040-1	Tested with Appliance
(Alternate)	SL	SGTP40V65SD B1P7	650V / 40A / 175°C / TO-247	IEC 62040-1	Tested with Appliance
(Alternate)	Sample	SRE40N65FSU2 DGT-G1	650V / 40A / 175°C / TO-247	IEC 62040-1	Tested with Appliance
DIOD (D3, D7)	MacMic Science & Technology Co Ltd	MM60FU060B	600V / 60A / 175°C / TO-274	IEC 62040-1	Tested with Appliance
(Alternate)	Sino- Microelectronics	60F60WT	60A / 600V / -55 ~ +175°C / TO-2472L	IEC 62040-1	Tested with Appliance
(Alternate)	Yangzhou Yangjie Electronic Technology Co., Ltd.	MUR6060P	60A / 600V / -55 ~ +175°C / TO-247AC	IEC 62040-1	Tested with Appliance
(Alternate)	Onsemi	RHRG5060	50A / 600V / 150W / 175°C / TO-247	IEC 62040-1	Tested with Appliance
(Alternate)	Vishay	VS-E5PX6006L-N3	60A / 600V / 175°C / TO-247AD 2L	IEC 62040-1	Tested with Appliance
Heat-sink (HPV board)	ALL	ALL accepted	Metal, overall measured: L: 84mm, W: 40mm, H: 50mm	IEC 62040-1	Tested with Appliance
Opto-coupler (U2, U4)	SiLLUMIN	SLMi350DB-DG	5A / -40°C ~ 125°C / DUB8	UL 1577	DIN V VDE 0884- 11
(Alternate)	Novosense	NSI6801TC-DDBR	5A / -40°C ~ 125°C / DUB8	UL 1577	DIN VDE V 0884- 11:2017-01
(Alternate)	Onsemi	FOD3120SD	2.5A peak output current, Wide supply voltage range from 15V to 30V, -40°C to 100°C	UL 1577, IEC 60747-5-2	VDE 40018398

IEC 61683:1999					
Clause	Requirement + Test		Measuring result	Remark	Verdict
(Alternate)	Lite-On	LTV3120S-V	2.5A peak output current, Wide supply voltage range from 15V to 30V, -40°C to 105°C	UL 1577	UL E113898
Main Board					
Opto-coupler (U7, U12, U15, U16, U18, U19, U31, U32, U33, U34, U41, U42, U43, U44)	SiLLUMIN	SLMi350DB-DG	5A / -40°C ~125°C / DUB8	UL 1577	DIN V VDE 0884- 11
(Alternate)	Novosense	NSI6801TC-DDBR	5A/-40°C ~125°C/DUB8	UL 1577	DIN VDE V 0884- 11:2017-01
(Alternate)	Lite-On	LTV3120S-V	2.5A peak output current, Wide supply voltage range from 15V to 30V, -40°C to 105°C	UL 1577	UL E113898
Relay (RY1 RY2, RY4, RY5, RY6, RY7,RY8)	Churod Electronics Co., Ltd.	CHS01-V-112LA2/12V/60 A/277VAC/OPE N	60A, 12V		
(Alternate)	Protection Technology group	PB3	63A, 12V		
(Alternate)	Xiamen Hongfa Electroacoustic Co.,Ltd.	HF165F-50/12-HLT(A21)	60A, 12V		
(Alternate)	Churod Electronics Co., Ltd.	CHS01-V-112LA2 / 12V / 60A / 277VAC / OPEN	60A, 12V		
Relay (RY3)	Churod Electronics Co., Ltd.	CHFN-V-112HA2F/12V/3 1A/277VAC/OP EN	12V/31A/277VAC /OPEN	UL	E43028
-Interchangeable	panasonic	ALFG2PF12/31 A/12VDC	31A/12VDC	UL	
-Interchangeable	panasonic	ALFG2PF121/3 3A/12VDC	33A/12VDC		
-Interchangeable	HF	Relay/HF161F-W/31A/12V	31A/12V		

IEC 61683:1999					
Clause	Requirement + Test		Measuring result	Remark	Verdict
Relay (RY2A)	Protection Technology group	PC3	90A, 12V		
-Interchangeable	Churod Electronics Co., Ltd.	/CHAR-112A90C/90A/38*33*39.5mm	90A, 12V		
-Interchangeable	HF	HFE19-90/12-HT-22(445)	90A, 12V		
Opto-coupler (U20, U23, U24)	Lite-On	LTV-817S-TA-B	CTR: MIN.50% at IF=5mA, VCE=5V; Viso=5000Vrms	UL1577	UL E113898
Opto-coupler (U20, U23, U24)	AVAGO	HCPL-817-56BE	CTR: min.50% at IF=5mA, VCE=5V	EN60747-5-2, VDE 0884	VDE 40016429
MOSFET(Q45, Q46, Q47, Q48, Q50, Q51, Q52, Q53, Q49, Q54)	Infineon	IRFP4468PbF	100V / N / 175°C / TO-247	IEC 62040-1	Tested with Appliance
(Alternate)	Potens semiconductor corp.	PDX0080A	100V / N / 175°C / TO-247	IEC 62040-1	Tested with Appliance
(Alternate)	China Resource	CRSQ027N10N	100V / TO247 / 150°C	IEC 62040-1	Tested with Appliance
(Alternate)	Scilicon Electric	SFW025N100C3	100V / TO247 / 175°C	IEC 62040-1	Tested with Appliance
(Alternate)	Sanrise Tech	SRT10N022HT-G	100V/TO247/150°C	IEC62040-1	Tested with Appliance
(Alternate)	China Resource	CRSQ023N10N4Z	100V/TO247/150°C	IEC62040-1	Tested with Appliance
IGBT(Q56, Q60, Q32, Q33, Q34, Q35, Q57, Q58, Q62, Q63)	Onsemi	FGH75T65SQD T-F155	75A / 650V / 175°C / TO-247	IEC 62040-1	Tested with Appliance
(Alternate)	Infineon	IKW75N65ES5	75A / 650V / 175°C / TO-247	IEC 62040-1	Tested with Appliance
(Alternate)	Trinno Technology	TGAN80N65F2DS	650V / 80A / 175°C / TO-247	IEC 62040-1	Tested with Appliance
(Alternate)	Sanrise Tech	SRE80N065FSUD8	650V / 80A / 175°C / TO-247	IEC 62040-1	Tested with Appliance
(Alternate)	SL	SGTP75V65SDB1P7	650V / 75A / 175°C / TO-247	IEC 62040-1	Tested with Appliance
(Alternate)	MacMic Science & Technology Co Ltd	MM75G5T65B	650V / 75A / 175°C / TO-274	IEC 62040-1	Tested with Appliance
(Alternate)	Onsemi	FGH75T65SHD T-F155	75A / 650V / 175°C / TO-247	IEC 62040-1	Tested with Appliance

IEC 61683:1999					
Clause	Requirement + Test		Measuring result	Remark	Verdict
(Alternate)	ST	STGWA80H65D FB	650V / 80A / 175°C / TO-247	IEC 62040-1	Tested with Appliance
(Alternate)	ST	STGWA75H65D FB2	650V / 75A / 175°C / TO-247	IEC 62040-1	Tested with Appliance
(Alternate)	SEM	ZSG75W07DSF	650V / 75A / 175°C / TO-247	IEC 62040-1	Tested with Appliance
(Alternate)	Trinno Technology	TGAN40N65F2 DS	650V / 40A / 175°C / TO-247	IEC 62040-1	Tested with Appliance
(Alternate)	Infineon	IKW40N65ES5	650V / 40A / 175°C / TO-247	IEC 62040-1	Tested with Appliance
(Alternate)	Sanrise Tech	SRE40N065FS UD6T-G	650V / 40A / 175°C / TO-247	IEC 62040-1	Tested with Appliance
(Alternate)	SL	SGTP40V65SD B1P7	650V / 40A / 175°C / TO-247	IEC 62040-1	Tested with Appliance
(Alternate)	Sample	SRE40N65FSU2 DGT-G1	650V / 40A / 175°C / TO-247	IEC 62040-1	Tested with Appliance
MOSFET (Q9, Q17)	Infineon	IPA600N25NM3 S	250V / 15A / 175°C / TO- 220AB	IEC 62040-1	Tested with Appliance
(Alternate)	Conver	CS16N25BP	250V / -55 ~ +150°C / TO220-3	IEC 62040-1	Tested with Appliance
(Alternate)	China Resource	CS55N25FA9R	250V / 150°C / TO-220F	IEC 62040-1	Tested with Appliance
(Alternate)	Wuxi Guang Lei electronic technology co., LTD	GL32N30FA9	300V / 32A / 100mΩ / 150°C / TO-220F	IEC 62040-1	Tested with Appliance
Current sensor (HCT3, HCT4)	Sinomags Technology Co., LTD	STK-50PL-A	5V / 50A / -40 ~ 105°C	UL	UL E507664
(Alternate)	Sinomags Technology Co., LTD	STK-50HDK	5V / 50A / -40 ~ 105°C	IEC 62040-1	Tested with Appliance
(Alternate)	magntek	MTC952CA-50B5	5V/50A/- 40~105°C	IEC62040-1	Tested with Appliance
(Alternate)	tiancun	LA16P050S05	5V/50A/- 40~105°C	IEC62040-1	Tested with Appliance
Capacitor (C226, C227, C239, C242)	Nantong Jianghai capacitor Co., Ltd	250V / 1200UF	250V / 1200UF / ±20% / 105°C / 2000h / 35*45mm / DIP	IEC 62040-1	Tested with Appliance
(Alternate)	Shenzhen Ruizhilin Electronics Co., Ltd.	250V / 1200UF	250V / 1200UF / ±20% / 105°C / 2000h / 35*45mm / DIP	IEC 62040-1	Tested with Appliance
-Interchangeable	Shenzhen Ruizhilin Electronics Co., Ltd.	250V/1600UF	250V/1600UF/± 20%/105°C /2000h/35*65mm/ DIP	IEC62040-1	Tested with Appliance

IEC 61683:1999					
Clause	Requirement + Test	Measuring result	Remark	Verdict	
(Alternate)	Shenzhen Ruizhilin Electronics Co., Ltd.	250V / 1800UF	250V / 1800UF / $\pm 10\%$ / 105°C / 2.92A / 3000h / 35*65mm	IEC 62040-1	Tested with Appliance
Capacitor (C246)	Nantong Jianghai capacitor Co., Ltd	160V / 100UF	160V / 100UF / $\pm 20\%$ / 105°C / 2000h / 12.5*20mm	IEC 62040-1	Tested with Appliance
-Interchangeable	Shenzhen Ruizhilin Electronics Co. Ltd.	200V/100UF	200V/100UF/ $\pm 20\%$ /105°C /2000h/13*20mm	IEC62040-1	Tested with Appliance
Capacitor (C177)	SHENZHEN CREATE START INDUSTRIAL LIMITED CO., LTD	20uF / 350VAC	HAPK 20uF / 350VAC / 57.5*50*35 / P=52.5mm 4PINS L=5.5mm	IEC 62040-1	Tested with Appliance
(Alternate)	DONGGUAN HONGFARAD ELECTRONICSC o., Ltd	20uF / 350VAC	HAPK 20uF / 350VAC / 57.5*50*35 / P=52.5mm 4PINS L=5.5mm	IEC 62040-1	Tested with Appliance
Electrolytic capacitor (C39, C48, C60, C62, C68, C70, C72, C73, C74, C76, C78, C79, C80, C82, C137, C159, C275, C288)	Rubycon	AL 100UF / 25V / YXJ	105°C / 5*11mm / 2mm	IEC 62040-1	Tested with Appliance
(Alternate)	CAPXON	FH 100μF/25V 5X11	105°C / 5*11mm / 2mm	IEC 62040-1	Tested with Appliance
Electrolytic capacitor (C34, C43, C44, C45, C50, C53, C55, C59, C64, C66, C67, C185, C193, C195, C196, C232, C240, C268, C269, C270, C276, C277, C279)	Rubycon	AL 220UF / 25V/YXF	105°C / 6.3*11.5mm / 2.5mm	IEC 62040-1	Tested with Appliance
(Alternate)	CAPXON	FH 220μF / 25V 6.3X11	105°C / 6.3*11.5mm / 2.5mm	IEC 62040-1	Tested with Appliance
Electrolytic capacitor (C204, C206, C208, C209)	Shenzhen Ruizhilin Electronics Co., Ltd.	80V 3300UF	105°C / 22*50	IEC 62040-1	Tested with Appliance
(Alternate)	Shenzhen Ruizhilin Electronics Co., Ltd.	80V / 3900UF	105°C / 22*55	IEC 62040-1	Tested with Appliance

IEC 61683:1999					
Clause	Requirement + Test	Measuring result	Remark	Verdict	
Y capacitor (C22, C24, C25, C26, C27, C47, C183, C184, C186, C188, C189, C191, C212, C219)	Xiamen Faratronic Co., Ltd	MKP63	Y2 4.7nF / 1000Vdc / 13*6*11mm / 10mm/K	EN 60384-14:2013	SE/0366-2C
(Alternate)	DONGGUAN HONGFARAD ELECTRONICSC o., Ltd	MKP	Y2 4.7nF / 1000Vdc / 13*6*11mm / 10mm/K	UL	E209251-20121103
Film Capacitor (C160, C161, C164, C165, C166)	GUANG DONG FENGMING ELECTRONIC TECH. CO., LTD	B72G334K630D DNC002	0.33uF / 630V / 26.5*10.5*16.5 mm / 22.5mm/K		
(Alternate)	Xiamen Faratronic Co., Ltd. or SHENZHEN CRC NEW ENERGY CO., LTD	MKP21	0.33uF / 630V / 26.5*10.5*16.5 mm / 22.5mm/K	EN 60384-14:2013	SE/0366-2C
(Alternate)	DONGGUAN HONGFARAD ELECTRONICSC o., Ltd	MKP	0.33uF / 630V / 26.5*10.5*16.5 mm / 22.5mm/K	UL	E209251-20121103
Transformer (TX3)	HUIZHOU BAOHUI ELECTRONICS TECHNOLOGY CO., LTD	TXEE33/36Pin	50uH±10% (min)	IEC 62040-1	Tested with Appliance
(Alternate)	Shenzhen Jsy TECHNOLOGY CO., LTD	TXEE33/36Pin	50uH±10% (min)	IEC 62040-1	Tested with Appliance
(Alternate)	Guangdong Liwang High-tech Co., Ltd	TXEE33/36Pin	50uH±10% (min)	IEC 62040-1	Tested with Appliance
-Winding	SHENZHEN JIAZHENGXIN INDUSTRIAL CO., LTD	xUEWF	155°C	UL	UL E334055
(Alternate)	SHENZHEN YANCHENG COMPOUND LINE CO., LTD	xUEWF	155°C	UL	UL E360434
-Winding	HUIZHOU HUILI INDUSTRIAL CO., LTD	PIW-B	130°C	UL	UL E322908
(Alternate)	SHENZHEN KAIZHONG HEDONG NEW MATERIAL CO., LTD	TIW-B	130°C	UL	UL E357240

IEC 61683:1999					
Clause	Requirement + Test	Measuring result	Remark	Verdict	
TAPE	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE	CT-280	130°C	UL	UL E165111
TF TUBE	SHENZHEN WOER HEAT-SHRINKABLE MATERIAL CO., LTD	WF (PTEE)	200°C	UL	UL E203950
VARNISH	SUZHOU TAIHU ELECTRIC ADVANCED MATERIAL CO., LTD	T-4260(a)	130°C	UL	UL E228349
-Bobbin	SUMITOMO BAKELITE CO LTD	PM-9820, PM-9630	150°C	UL	UL E41429
(Alternate)	CHANG CHUN PLASTICS CO., LTD	T375J	150°C	UL	UL E59481
-Core	HENGDIAN GROUP DMEGC MAGNETICS CO., LTD	EE33	DMR40	IEC 62040-1	Tested with Appliance
(Alternate)	TDG HOLDING CO., LTD	EE33	TP4	IEC 62040-1	Tested with Appliance
(Alternate)	BDK MAGNET & ELECTRON CO., LTD	EE33	BP40	IEC 62040-1	Tested with Appliance
(Alternate)	SUZHOU GUANDA MAGNETICS CO., LTD	EE33	GP4	IEC 62040-1	Tested with Appliance
Transformer (TX2)	HUIZHOU BAOHUI ELECTRONICS TECHNOLOGY CO., LTD	TXEER28 / 10Pin	54uH±10% (min)	IEC 62040-1	Tested with Appliance
(Alternate)	Shenzhen Jsy TECHNOLOGY CO., LTD	TXEER28 / 10Pin	54uH±10% (min)	IEC 62040-1	Tested with Appliance
(Alternate)	Guangdong Liwang High-tech Co., Ltd	TXEER28 / 10Pin	54uH±10% (min)	IEC 62040-1	Tested with Appliance
-Winding	SHENZHEN JIAZHENGXIN INDUSTRIAL CO., LTD	xUEWF	155°C	UL	UL E334055
(Alternate)	SHENZHEN YANCHENG COMPOUND LINE CO., LTD	xUEWF	155°C	UL	UL E360434
-Winding	HUIZHOU HUILI INDUSTRIAL CO., LTD	PIW-B	130°C	UL	UL E322908

IEC 61683:1999					
Clause	Requirement + Test	Measuring result	Remark	Verdict	
(Alternate)	SHENZHEN KAIZHONG HEDONG NEW MATERIAL CO., LTD	TIW-B	130°C	UL	UL E357240
(Alternate)	FURUKAWA ELECTRIC CO., LTD	TEX-E	130°C	UL	UL E206440
TAPE	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE	CT-280	130°C	UL	UL E165111
TF TUBE	SHENZHEN WOER HEAT-SHRINKABLE MATERIAL CO., LTD	WF (PTEE)	200°C	UL	UL E203950
VARNISH	SUZHOU TAIHU ELECTRIC ADVANCED MATERIAL CO., LTD	T-4260(a)	130°C	UL	UL E228349
-Bobbin	SUMITOMO BAKELITE CO LTD	PM-9630, PM-9820	150°C	UL	UL E41429
(Alternate)	CHANG CHUN PLASTICS CO., LTD	T375J	150°C	UL	UL E59481
-Core	HENGDIAN GROUP DMEGC MAGNETICS CO., LTD	EER28	DMR40	IEC 62040-1	Tested with Appliance
(Alternate)	TDG HOLDING CO., LTD	EER28	TP4	IEC 62040-1	Tested with Appliance
(Alternate)	BDK MAGNET & ELECTRON CO., LTD	EER28	BP40	IEC 62040-1	Tested with Appliance
(Alternate)	SUZHOU GUANDA MAGNETICS CO., LTD	EER28	GP4	IEC 62040-1	Tested with Appliance
Transformer (CT1)	HUIZHOU BAOHUI ELECTRONICS TECHNOLOGY CO., LTD	EI24	1:1000 / 1H (min)	IEC 62040-1	Tested with Appliance
(Alternate)	Shenzhen Jsy TECHNOLOGY CO., LTD	EI24	1:1000 / 1H (min)	IEC 62040-1	Tested with Appliance
(Alternate)	Guangdong Liwang High-tech Co., Ltd	EI24	1:1000 / 1H (min)	IEC 62040-1	Tested with Appliance
Varistor MOV1,MOV3	Guangdong Fenghua Advanced Technology (Holding) Co., Ltd	FNR-14K751	750V, 50A, 85°C		

IEC 61683:1999					
Clause	Requirement + Test	Measuring result	Remark	Verdict	
Varistor MOV2	Guangdong Fenghua Advanced Technology (Holding) Co., Ltd	FNR-14K561	560V, 50A, 85°C		
Fuse (F5, F6, F7)	SET (赛尔特)	X3/3A/250VAC/125°C/DIP	3A/250VAC/125°C		
Gas Discharge Tube (GAS1,)	Brightking	2RP600-8	DC:600V/20KA	UL	E244458
--Wind	SHANGHAI ASIA PACIFIC ELECTRIC CO., LTD	UEW	155°C	UL	UL E214423
(Alternate)	PACIFIC ELECTRIC WIRE & CABLE (SHENZHEN) CO., LTD	UEW	155°C	UL	UL E201757
(Alternate)	TAI-I COPPER (GUAN-ZHOU) CO., LTD	UEWF	155°C	UL	UL E234896
TAPE	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE	CT-280	130°C	UL	UL E165111
TF TUBE	SHENZHEN WOER HEAT-SHRINKABLE MATERIAL CO., LTD	WF(PTEE)	200°C	UL	UL E203950
VARNISH	SUZHOU TAIHU ELECTRIC ADVANCED MATERIAL CO., LTD	T-4260(a)	130°C	UL	UL E228349
EPOXY	DONGGUAN EATTO ELECTRONIC MATERIAL CO., LTD	E-500	130°C	UL	UL E218090
SPACER	KINGBOARD LAMINATES (MACAO COMMERCIAL OFFSHORE) LTD	94V-0, FR-4 KB-6150, CEM-1 KB-5150	130°C	UL	UL E123995
CORE	NSC	Z11 0.35A	EI24	IEC 62040-1	Tested with Appliance
(Alternate)	KSC	Z11 0.35A	EI24	IEC 62040-1	Tested with Appliance
(Alternate)	WU HAN STEEL	Z11 0.35A	EI24	IEC 62040-1	Tested with Appliance
(Alternate)	BAO GANG	Z11 0.35A	EI24	IEC 62040-1	Tested with Appliance

IEC 61683:1999					
Clause	Requirement + Test		Measuring result	Remark	Verdict
Transformer (TX1)	HUIZHOU BAOHUI ELECTRONICS TECHNOLOGY CO., LTD	EE55A*2	0.58mH 8A10% (min)	IEC 62040-1	Tested with Appliance
(Alternate)	Shenzhen Jsy TECHNOLOGY CO., LTD	EE55A*2	0.58mH 8A10% (min)	IEC 62040-1	Tested with Appliance
(Alternate)	Guangdong Liwang High-tech Co., Ltd	EE55A*2	0.58mH 8A10% (min)	IEC 62040-1	Tested with Appliance
(Alternate)	Dongguan Shi Huibailu Technology CO.,LTD	EE55A*2	0.58mH 8A10% (min)	IEC 62040-1	Tested with Appliance
(Alternate)	SHENZHEN TRANSFORMER ELECTRONICS CO.,LTD.	EE55A*2	0.58mH 8A10% (min)	IEC 62040-1	Tested with Appliance
-Winding	SHENZHEN JIAZHENGXIN INDUSTRIAL CO., LTD	XUEW	155°C	UL	E334055
(Alternate)	SHENZHEN YANCHENG COMPOUND LINE CO., LTD	XUEW	155°C	UL	E360434
(Alternate)	SHANGHAI ASIA PACIFIC ELECTRIC CO., LTD	UEW-	155°C	UL	E214423
(Alternate)	TAI-I COPPER (GUAN-ZHOU) CO., LTD	UEW/UEWF	155°C	UL	E234896
(Alternate)	DONG GUAN YIDA INDUSTRIAL COLTD	UEW	155°C	UL	E344055
Tape	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE	PF-301	180°C, 0.45mm	UL	E165111
TUBE	SHENZHEN WOER HEAT- SHRINKABLE MATERIAL CO., LTD	WF (PTFE)	200°C	UL	E203950
EPOXY	DONGGUAN EATTO ELECTRONIC MATERIAL CO., LTD	E-500	130	UL	E218090
PRESS BOARDS	SUZHOU TAIHU ELECTRIC ADVANCED MATERIAL CO., LTD	NMN, NHN	155	UL	E338526
(Alternate)	XUCHANG WEIDU DISTRICT YAAN INSULATING MATERIAL PLANT	6630 DMD	155	UL	E310670

IEC 61683:1999					
Clause	Requirement + Test	Measuring result	Remark	Verdict	
-core	HENGDIAN GROUP DMEGC MAGNETICS CO., LTD	EE55/21	DMR95	IEC 62040-1	Tested with Appliance
(Alternate)	TDG HOLDING CO., LTD	EE55/21	TPW33	IEC 62040-1	Tested with Appliance
(Alternate)	BDK MAGNET & ELECTRON CO., LTD	EE55/21	BP95	IEC 62040-1	Tested with Appliance
(Alternate)	SUZHOU GUANDA MAGNET CO., LTD	EE55/21	GP95	IEC 62040-1	Tested with Appliance
(Alternate)	NANJING NEW CONDA MAGNETIC INDUSTRIAL CO., LTD	EE55/21	LP9	IEC 62040-1	Tested with Appliance
-Margin tape	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE	PF-301	180°C	UL	E165111
Fliter inductor (L8)	HUIZHOU BAOHUI ELECTRONICS TECHNOLOGY CO., LTD	T42-26-18C (R10K)	Φ2.0mm*2P / 7:7:7	IEC 62040-1	Tested with Appliance
(Alternate)	Shenzhen Jsy TECHNOLOGY CO., LTD	T42-26-18C (R10K)	Φ2.0mm*2P / 7:7:7	IEC 62040-1	Tested with Appliance
(Alternate)	Guangdong Liwang High-tech Co., Ltd	T42-26-18C (R10K)	Φ2.0mm*2P / 7:7:7	IEC 62040-1	Tested with Appliance
-Interchangeable	HUIZHOU BAOHUI ELECTRONICS TECHNOLOGY CO.,LTD	T38*22*16C(R5K /M5K)	Φ 2.0mm*2P/7: 7	IEC62040-1	Tested with Appliance
(Alternate)	Shenzhen Jsy TECHNOLOGY CO., LTD	T38*22*16C(R5K /M5K)	Φ 2.0mm*2P/7: 7	IEC62040-1	Tested with Appliance
(Alternate)	Guangdong Liwang High-tech Co., Ltd	T38*22*16C(R5K /M5K)	Φ 2.0mm*2P/7: 7	IEC62040-1	Tested with Appliance
(Alternate)	Dongguan Shi Huibailu Technology CO.,LTD	T38*22*16C(R5K /M5K)	Φ 2.0mm*2P/7: 7	IEC62040-1	Tested with Appliance
(Alternate)	SHENZHEN TRANSFORMER ELECTRONICS CO.,LTD.	T38*22*16C(R5K /M5K)	Φ 2.0mm*2P/7: 7	IEC62040-1	Tested with Appliance
--Wind	SHANGHAI ASIA PACIFIC ELECTRIC CO., LTD	EIW, EI/AIW	180°C / 200°C	UL	UL E214423
(Alternate)	DONG GUAN YIDA INDUSTRIAL CO LTD	EIW/180, EI/AIW/200	180°C / 200°C	UL	UL E344055

IEC 61683:1999					
Clause	Requirement + Test	Measuring result	Remark	Verdict	
(Alternate)	Guangdong jingda Rea Special Enamelled Wire Co., Ltd.	QZY-2/180, QZY/XY-2/200	180°C / 200°C	UL	UL E223994
(Alternate)	PACIFIC ELECTRIC WIRE & CABLE (SHENZHEN) CO LTD	PEWH, EIAI/U	180°C / 200°C	UL	UL E201757
TAPE	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE	CT-	130°C	UL	UL E165111
VARNISH	SUZHOU TAIHU ELECTRIC ADVANCED MATERIAL CO., LTD	T-4260(a)	130°C	UL	UL E228349
EPOXY	DONGGUAN EATTO ELECTRONIC MATERIAL CO., LTD	3300A/B-1	130°C	UL	UL E218090
SPACER	KINGBOARD LAMINATES (MACAO COMMERCIAL OFFSHORE) LTD	94V-0, FR-4 KB-6150, CEM-1 KB-5150	130°C	UL	UL E123995
CORE	HENGDIAN GROUP DMEGC MAGNETICS CO., LTD	FERRITE CORE, T42*26*18C	R5K	IEC 62040-1	Tested with Appliance
(Alternate)	TDG	FERRITE CORE, T42*26*18C	TS5	IEC 62040-1	Tested with Appliance
(Alternate)	TIANMING OR EQ	FERRITE CORE, T42*26*18C	M5K	IEC 62040-1	Tested with Appliance
(Alternate)	SUZHOU GUANDA MAGNET CO., LTD OR EQ	FERRITE CORE, T42*26*18C	GH5	IEC 62040-1	Tested with Appliance
Heat-sink1 (mainboard)	Interchangeable	Interchangeable	Metal, overall measured: L: 210mm, W: 50mm, H: 78.8mm	IEC 62040-1	Tested with Appliance
Heat-sink2 (mainboard)	Interchangeable	Interchangeable	Metal, overall measured: L: 260mm, W: 50mm, H: 78.8mm	IEC 62040-1	Tested with Appliance
Internal wiring (AC-Input)	Interchangeable	Interchangeable	Min. 10AWG, 600V, 105°C, VW-1	UL 1015	UL E341104

IEC 61683:1999					
Clause	Requirement + Test		Measuring result	Remark	Verdict
Internal wiring (EPS-output)	Interchangeable	Interchangeable	Min. 10AWG, 600V, 105°C, VW-1	UL 1015	UL E341104
Earthing wire	Interchangeable	Interchangeable	Min. 12AWG, 600V, 105°C, VW-1	UL 1015	UL E341104
Internal wiring (GEN input)	Interchangeable	Interchangeable	Min. 10AWG, 600V, 105°C, VW-1	UL 1015	UL E341104
Internal wiring (PV input)	Interchangeable	Interchangeable	Min. 10AWG, 600V, 105°C, VW-1	UL 1015	UL E341104
Interface Board					
Electrolytic capacitor (C6, C7, C8, C46, C51)	Rubycon	AL 220UF/25V/YXF	105°C/6.3*11.5 mm/2.5mm	IEC 62040-1	Tested with Appliance
(Alternate)	CAPXON	FH 220μF/25V 6.3X11	105°C / 6.3*11.5mm / 2.5mm	IEC 62040-1	Tested with Appliance
Pluggable connector (CN14)	NINGBO DEGSON ELECTRICAL CO., LTD.	DG142V-5.08-06P-1Y-1000A (H)	6A / 250V / -25 ~ 85°C	IEC 62040-1	Tested with Appliance
Relay (RY1, RY2)	HF	HF41F/12-Z8ST	250VAC / 6A	UL, VDE	UL E133481, VDE 40020043
LCD1 Board					
LCD panel	SHENZHEN TIANRUIX ELECTRONIC CO., LTD	TRB6099A1	VDD: 3~3.5V, -30 ~ +80°C	IEC 62040-1	Tested with Appliance
(Alternate)	SHENZHEN HUAYUAN DISPLAY CO.,LTD.	HYS6313-VA	VDD: 3~3.5V, -30 ~ +80°C	IEC 62040-1	Tested with Appliance
LCD2+LED Board					
M3 (U1)	Giga Device Semiconductor Inc.	GD32F305VET6 /LQF100	flash512KB/-40~85°C	IEC 62040-1	Tested with Appliance
(Alternate)	Giga Device Semiconductor Inc.	GD32F303VET6/ LQF100	flash512KB/-40~85	IEC 62040-1	Tested with Appliance
LCD (LCD1)	DWIN	PC043-A1WTC/4.3-inch color touch screen	USB /5V/-20°C~70°C/DWIN	IEC 62040-1	Tested with Appliance
RGB(U1, U2, U3, U4, U5, U6, U7, U8)	Lite-On	LTST-E263CEGBK	+3.8V~+5.5V/-20 °C~+ 80 °C/1.8*1.8mm	IEC 62040-1	Tested with Appliance
Supplementary information:					

picture



Fig. 1 -- Front view



Fig. 2 -- Side view

picture



Fig. 3 -- Side view



Fig. 4 -- Side view

picture



Fig. 5 -- Front view (inverter)



Fig. 6 -- Side view (inverter)

picture



Fig. 7 -- Side view (inverter)



Fig. 8 -- Interior view (inverter)

picture

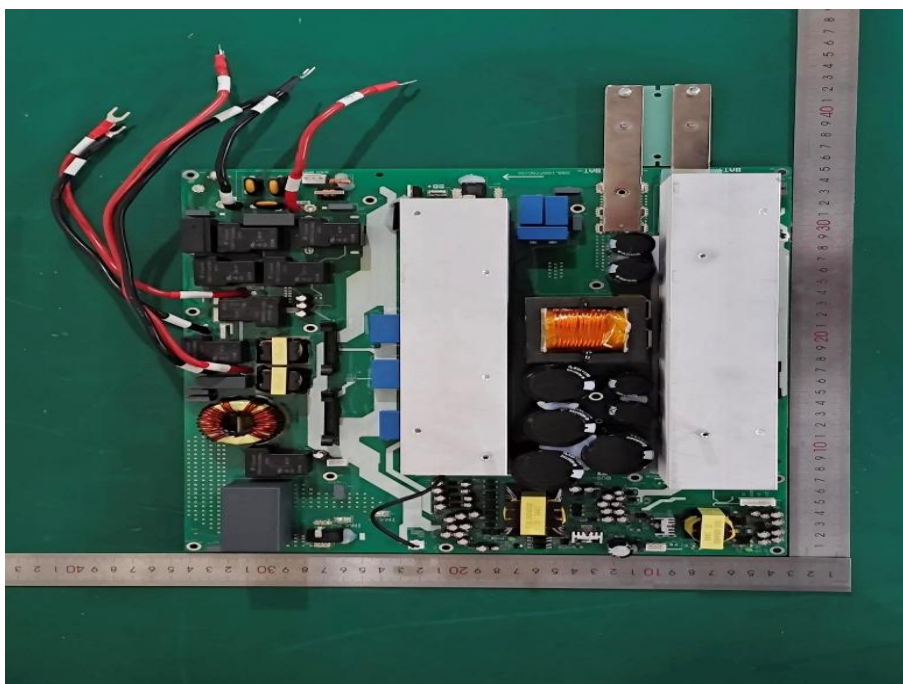


Fig. 9 -- Motherboard view 1

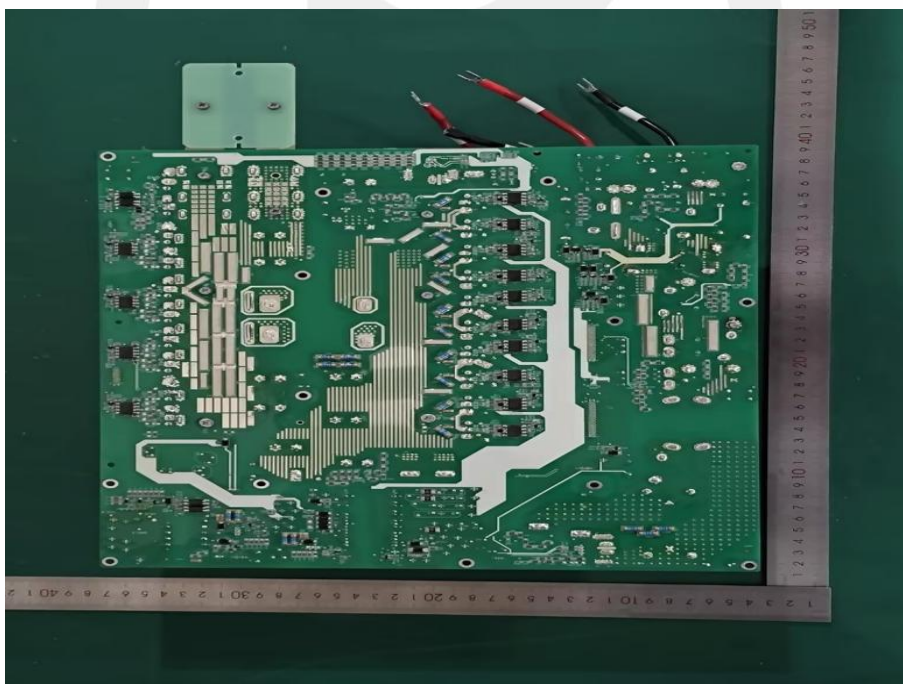


Fig. 10 -- Motherboard view 2

picture

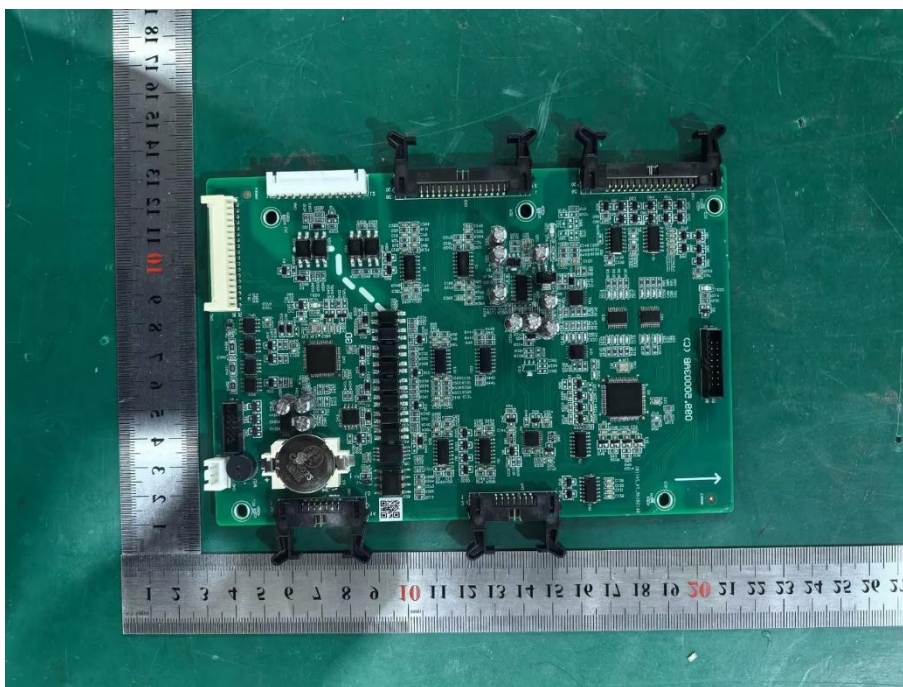


Fig. 11 -- Control board view 1

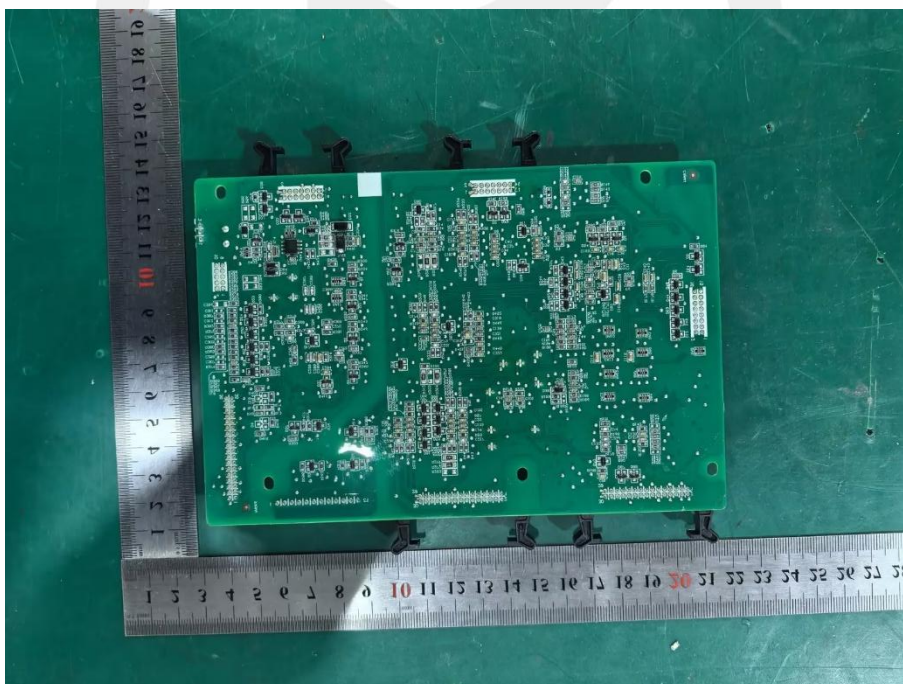


Fig. 12 -- Control board view 2

picture

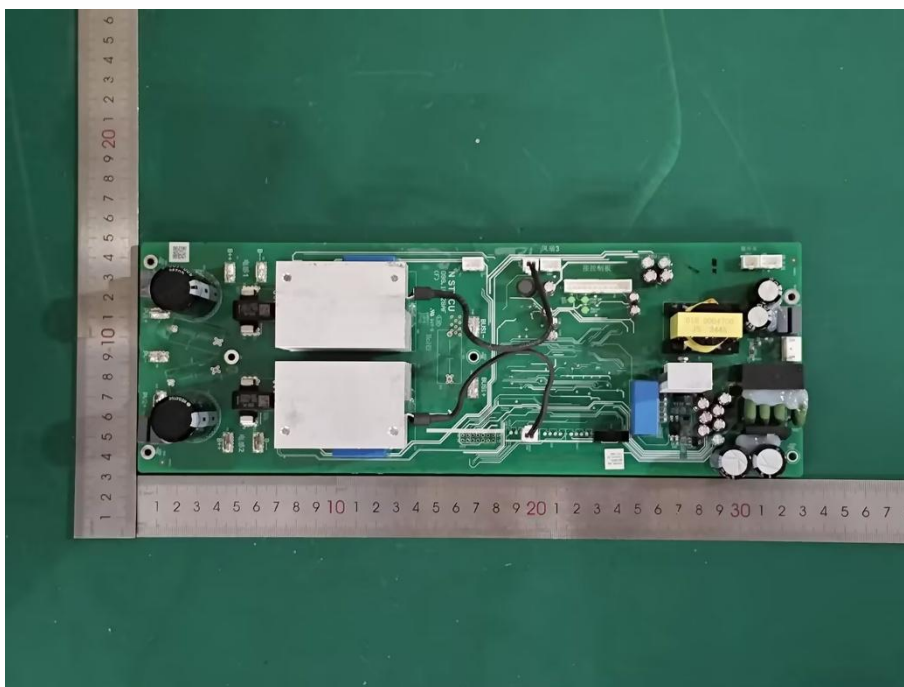


Fig. 13 -- MPPT board view 1

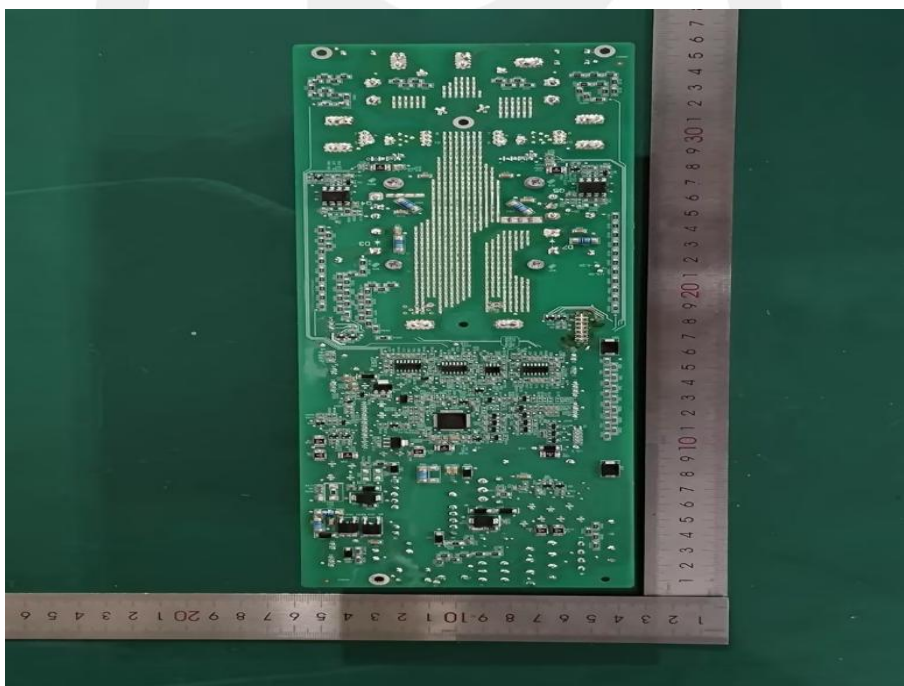


Fig. 14 -- MPPT board view 2

picture

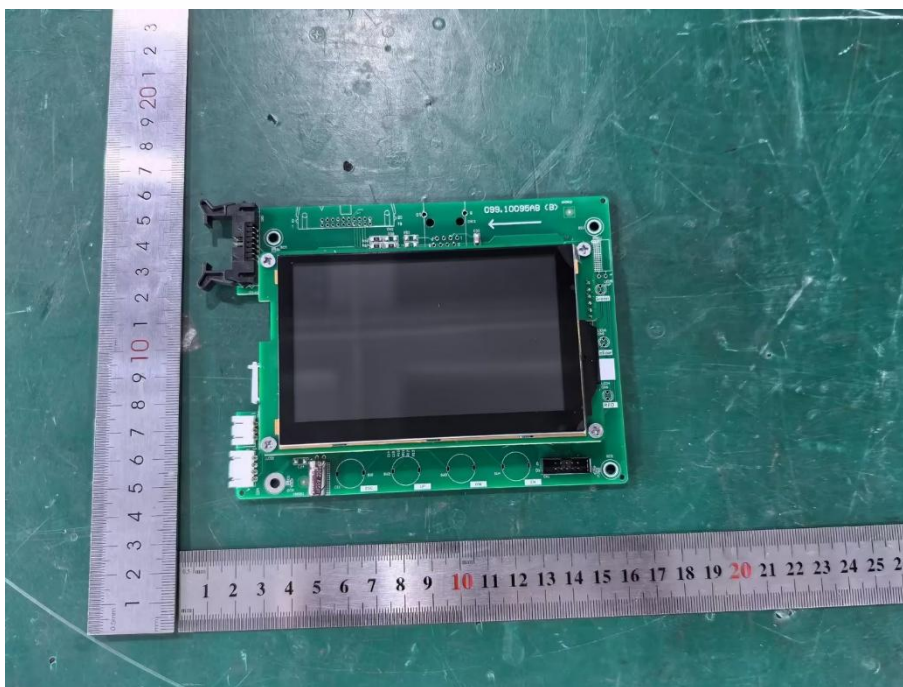


Fig. 15 -- LCD board view 1

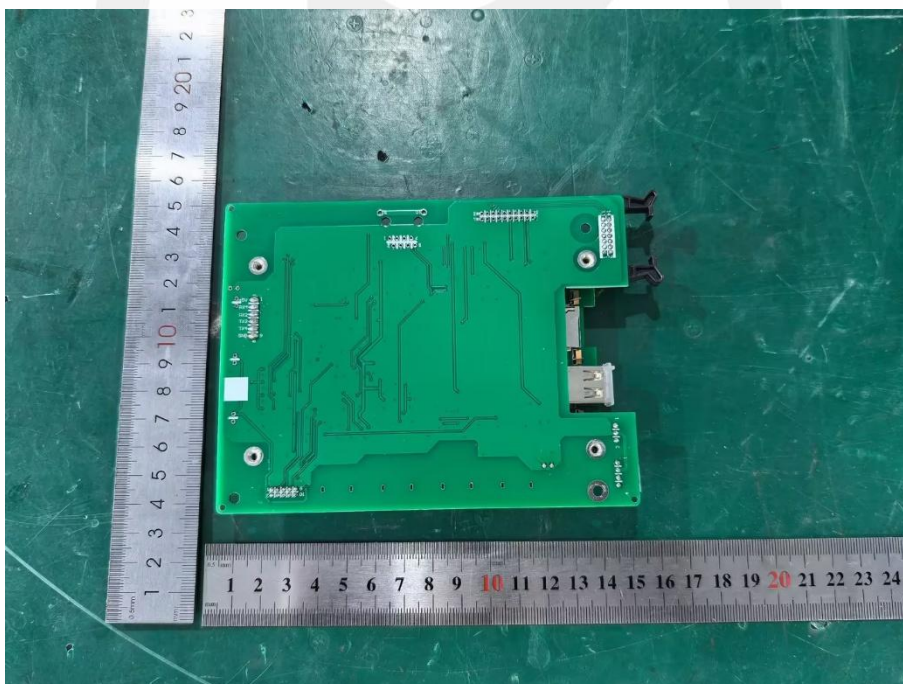


Fig. 16 -- LCD board view 2

picture



Fig. 17 --LED board view 1



Fig. 18 --LED board view 2

picture

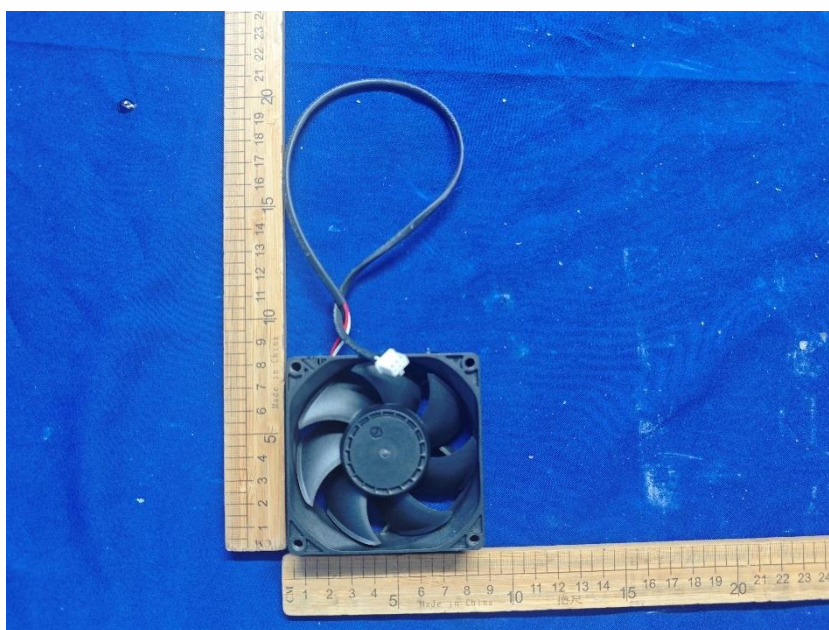


Fig. 19 -- FAN view 1

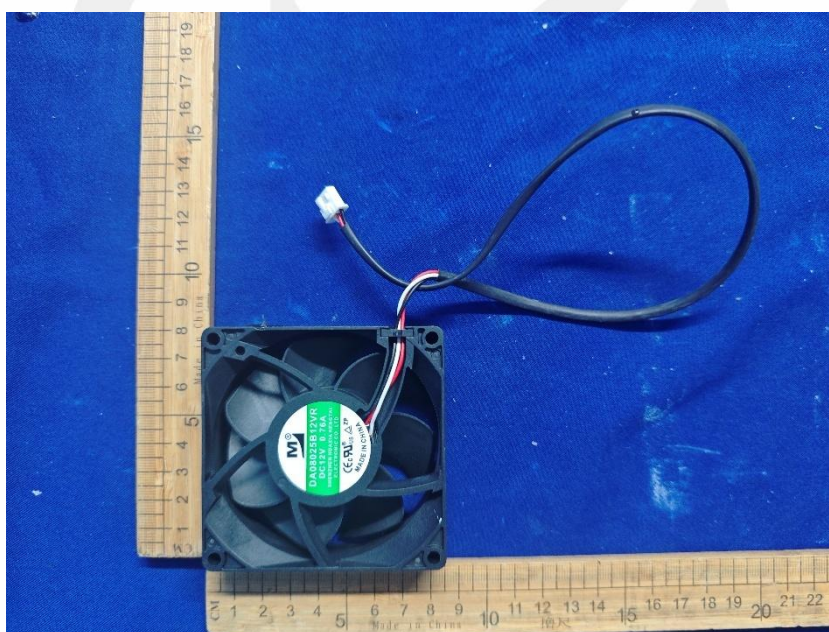


Fig. 20 -- FAN view 2

picture

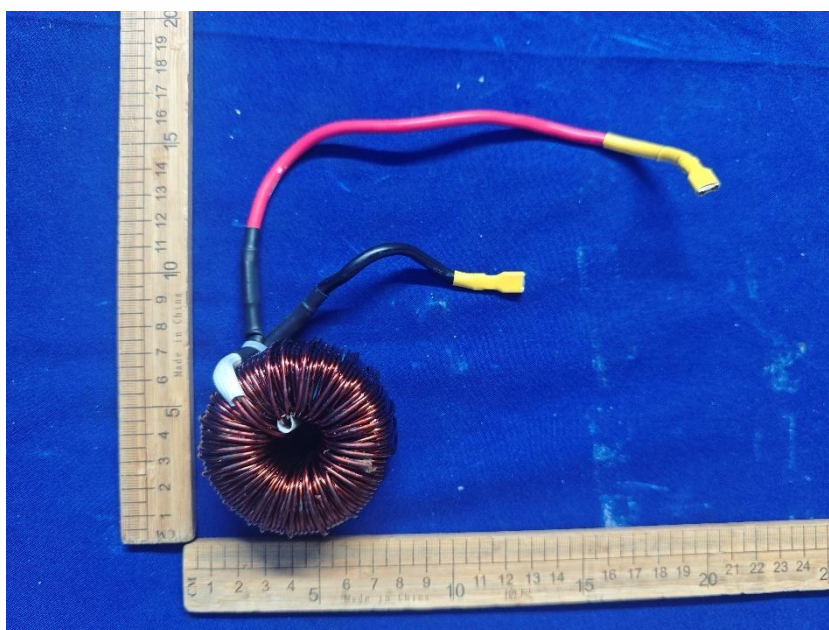


Fig. 21 -- Inductance 1 view 1

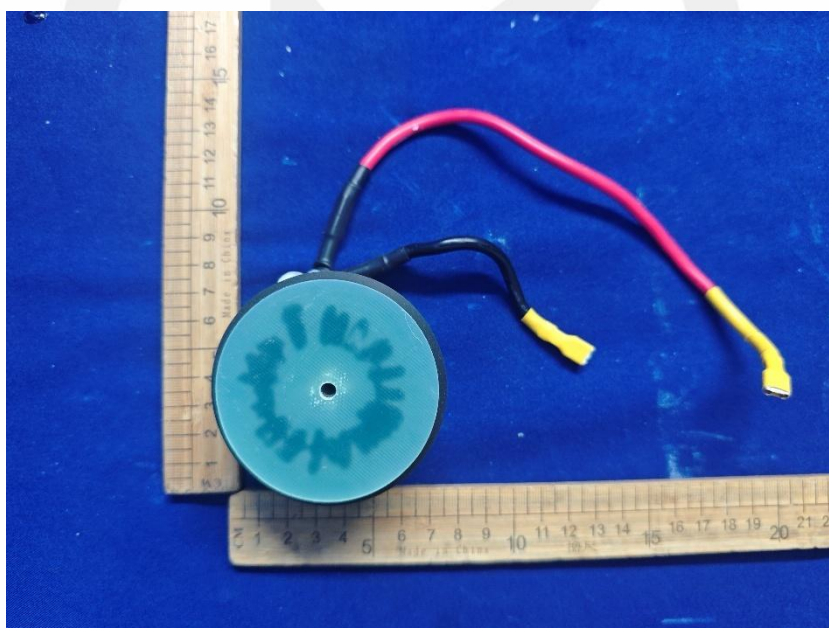


Fig. 22 -- Inductance 1 view 2

picture

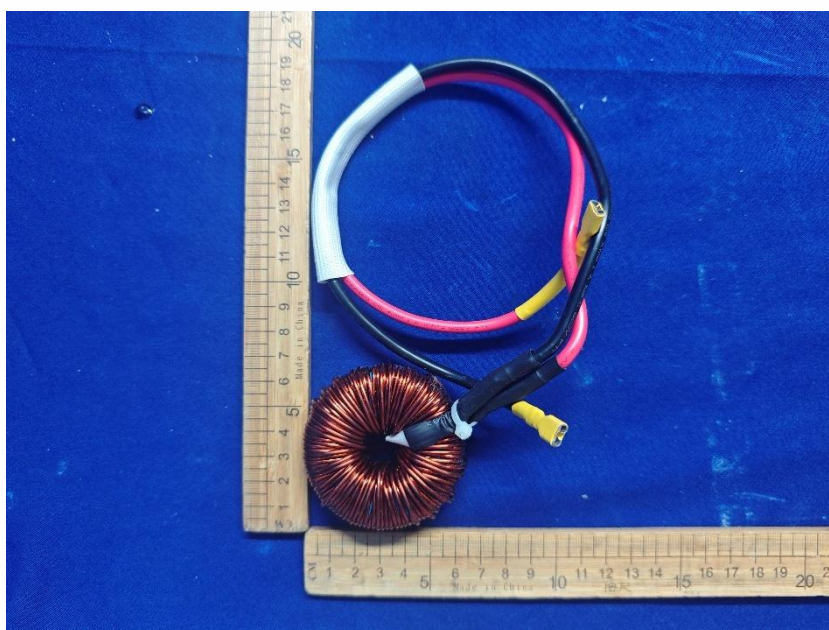


Fig. 23 -- Inductance 2 view 1

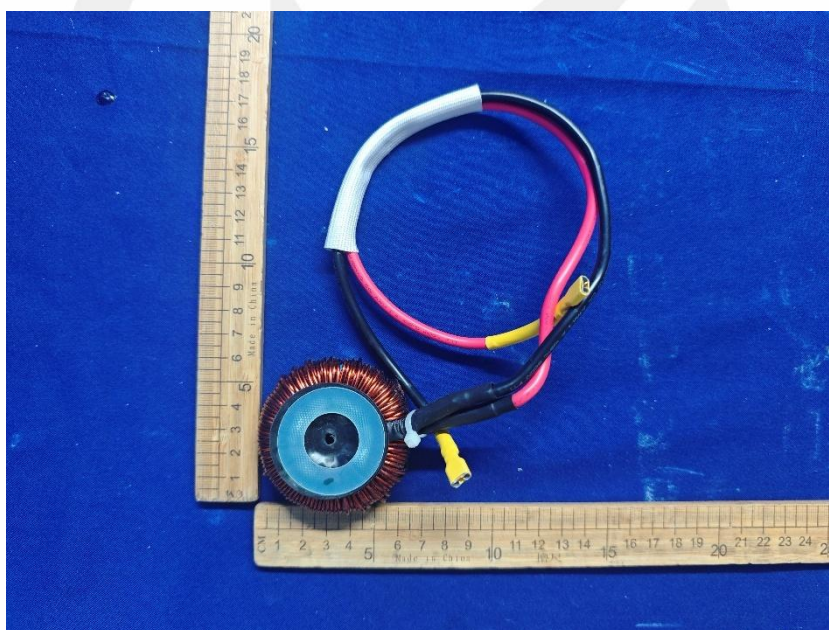


Fig. 24 -- Inductance 2 view 2

*** End of Report ***

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4. The observations or tests with special mark fall outside the scope of accreditation, and are only used for purpose of commission, research, training, internal quality control etc.
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