1.0 Reference and Address			
Report Number	240723091GZU-001	Original Issued: 16-Dec-2024	Revised: None
Standard(s)	Electric Vehicle Supply Equipment [UL 2594:2022 Ed.3] Electric Vehicle Supply Equipment [CSA C22.2#280:2022 Ed.3]		

Applicant	Nanjing Ruifanda New Energy Technology Co., Ltd.	Manufacturer 1	**Nanjing Ruifanda New Energy Technology Co., Ltd.**
Address	No.6, Zhongke Road, Jiangning District, NANJING Jiangsu 211102	Address	No.6, Zhongke Road, Jiangning District, NANJING Jiangsu 211102
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FAX	NA	FAX	NA
Email	technicalsupport@ruivanda.com	Email	technicalsupport@ruivanda.com

2.0 Product Description

Product	AC EV CHARGING STATION
Brand name	Ruivanda® (Ruivanda) PRTDT® (PRTDT)
Description	The products covered in this report are Level 2 AC fixed in place EV charging stations.
Models	PEV-40A03US, PEV-48A03US, PEV-40A03NACS, PEV-48A03NACS, PEV-40A06US, PEV-48A06US, PEV-40A06NACS, PEV-48A06NACS, PEV-40A09US, PEV-48A09US, PEV-48A09NACS, PEV-40A09NACS
Model Similarity	All models are the same except for the parameters listed in the table below.

Model name	Current	Enclosure	output connector	Output cord
PEV-40A03US	40A	PEV03	J1772	2*8AWG+1*9AWG+1*20AWG
PEV-48A03US	48A	PEV03	J1772	2*8AWG+1*9AWG+1*20AWG
PEV-40A03NACS	40A	PEV03	NACS	2*8AWG+1*10AWG+2*18AWG
PEV-48A03NACS	48A	PEV03	NACS	2*8AWG+1*10AWG+2*18AWG
PEV-40A06US	40A	PEV06	J1772	2*8AWG+1*9AWG+1*20AWG
PEV-48A06US	48A	PEV06	J1772	2*8AWG+1*9AWG+1*20AWG
PEV-40A06NACS	40A	PEV06	NACS	2*8AWG+1*10AWG+2*18AWG
PEV-48A06NACS	48A	PEV06	NACS	2*8AWG+1*10AWG+2*18AWG
PEV-40A09US	40A	PEV09	J1772	2*8AWG+1*9AWG+1*20AWG
PEV-48A09US	48A	PEV09	J1772	2*8AWG+1*9AWG+1*20AWG
PEV-40A09NACS	40A	PEV09	NACS	2*8AWG+1*10AWG+2*18AWG
PEV-48A09NACS	48A	PEV09	NACS	2*8AWG+1*10AWG+2*18AWG

Ratings	PEV-40A03US, PEV-40A03NACS, PEV-40A06US, PEV-40A06NACS, PEV-40A09US, PEV-40A09NACS: Input: 240Vac 40A, 50/60Hz Output: 240Vac 40A, 50/60Hz PEV-48A03US, PEV-48A03NACS, PEV-48A06US, PEV-48A06NACS, PEV-48A09US, PEV-48A09NACS: Input: 240Vac 48A, 50/60Hz Output: 240Vac 48A, 50/60Hz
Other Ratings	Enclosure rating:Type 4. Ambient temperature rating:-30°C~50°C. Output cord 7.5m max.

3.0 Product Photographs

Photo 1 - External view of PEV-40A03US and PEV-48A03US

Photo 2 - External view of PEV-40A03US and PEV-48A03US

3.0 Product Photographs

Photo 3 - External view of PEV-40A03NACS and PEV-48A03NACS

Photo 4 - External view of PEV-40A03US, PEV-48A03US, PEV-40A03NACS and PEV-48A03NACS

3.0 Product Photographs

Photo 5 - Internal view of PEV-40A03US, PEV-48A03US, PEV-40A03NACS and PEV-48A03NACS

Photo 6 - Internal view of PEV-40A03US, PEV-48A03US, PEV-40A03NACS and PEV-48A03NACS

3.0 Product Photographs

Photo 7 - LED PCB view of PEV-40A03US, PEV-48A03US, PEV-40A03NACS and PEV-48A03NACS

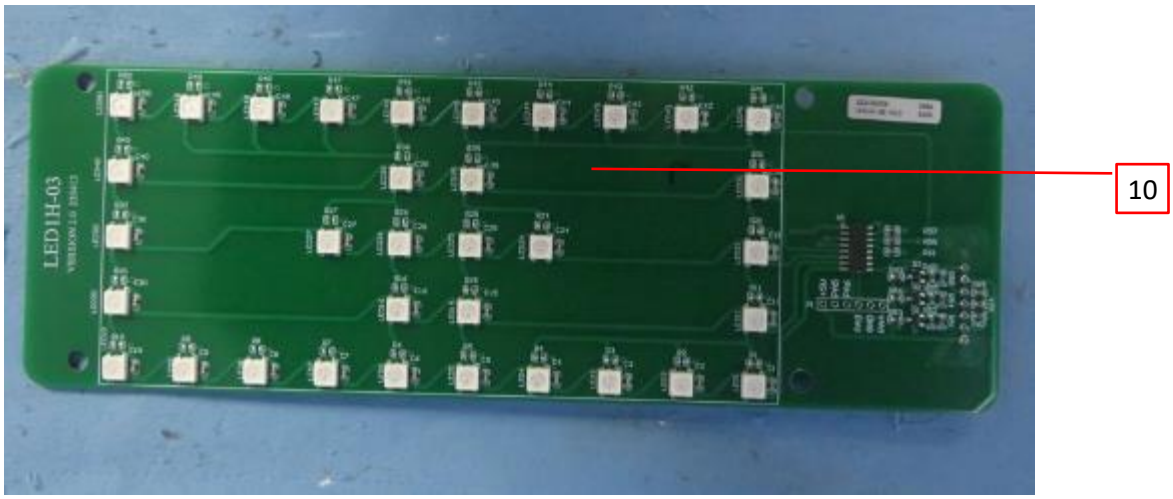
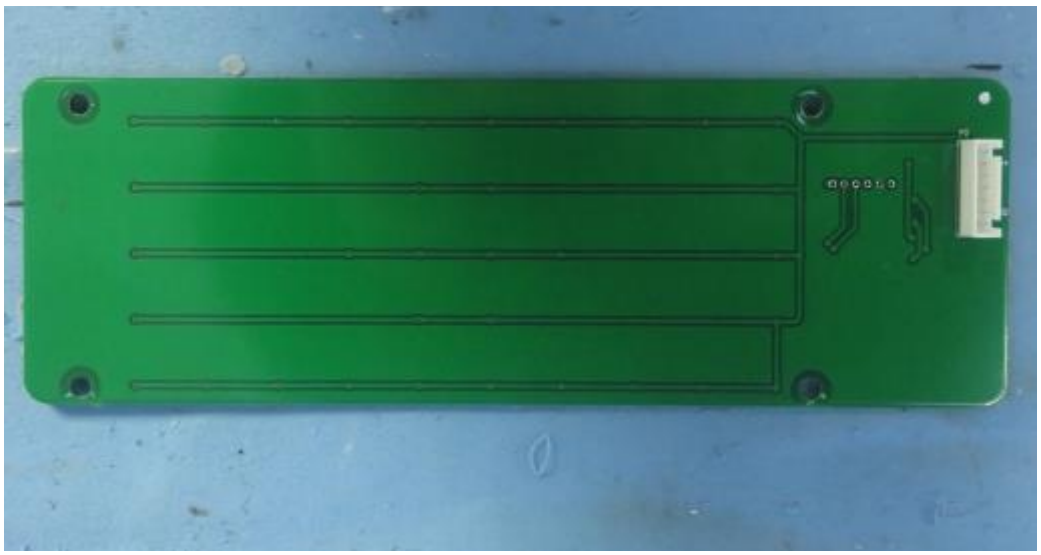


Photo 8 - LED PCB view of PEV-40A03US, PEV-48A03US, PEV-40A03NACS and PEV-48A03NACS



3.0 Product Photographs

Photo 9 - External view of PEV-40A06US and PEV-48A06US

Photo 10 - External view of PEV-40A06US and PEV-48A06US

3.0 Product Photographs

Photo 11 - External view of PEV-40A06NACS and PEV-48A06NACS

Photo 12 - External view of PEV-40A06US, PEV-48A06US, PEV-40A06NACS and PEV-48A06NACS

3.0 Product Photographs

Photo 13 - LED PCB view of PEV-40A06US, PEV-48A06US, PEV-40A06NACS and PEV-48A06NACS

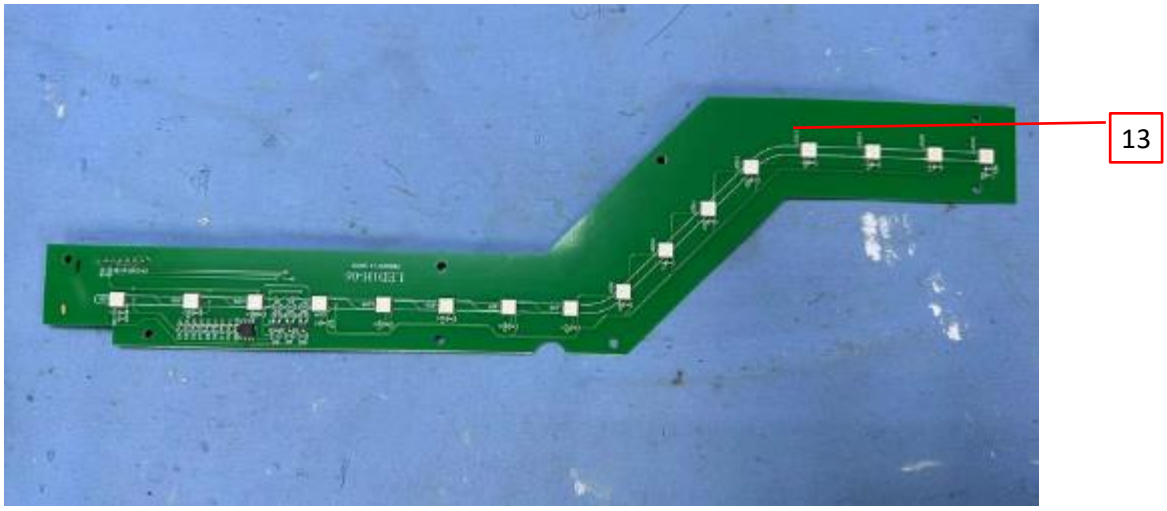


Photo 14 - LED PCB view of PEV-40A06US, PEV-48A06US, PEV-40A06NACS and PEV-48A06NACS

3.0 Product Photographs

Photo 15 - Internal view of PEV-40A06US, PEV-48A06US, PEV-40A06NACS and PEV-48A06NACS

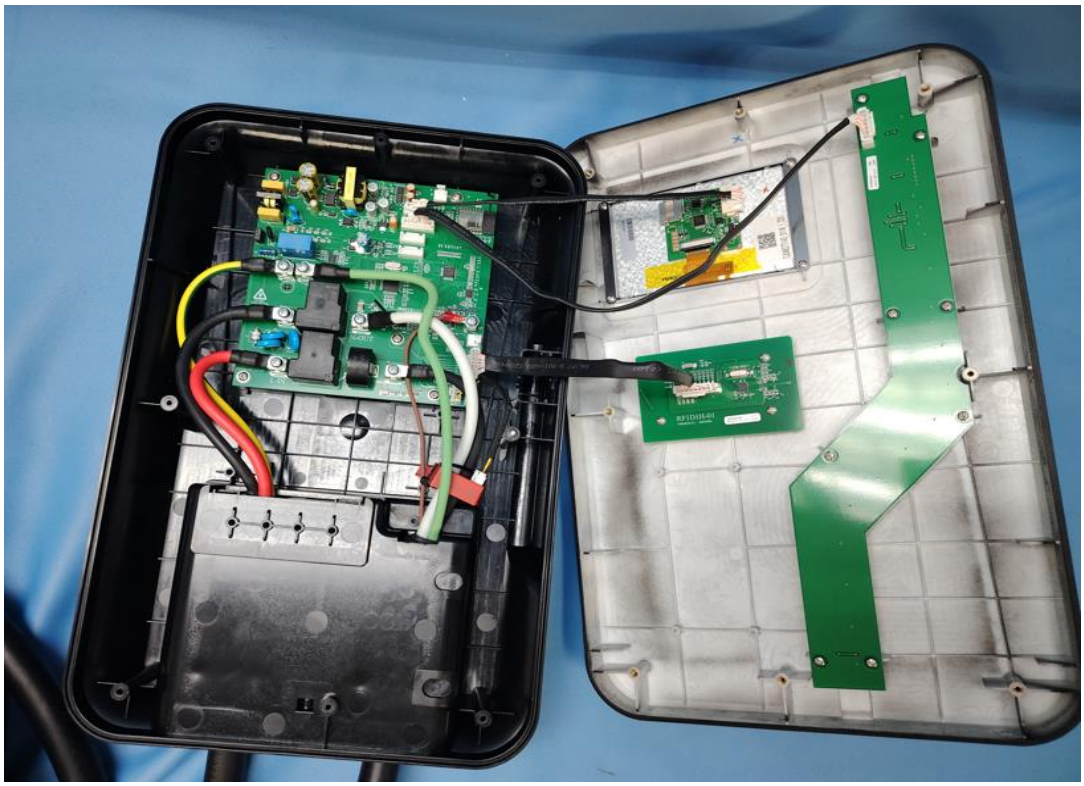


Photo 16 - External view of PEV-40A09US and PEV-48A09US

3.0 Product Photographs

Photo 17 - External view of PEV-40A09US and PEV-48A09US

Photo 18 - External view of PEV-40A09NACS and PEV-48A09NACS

3.0 Product Photographs

Photo 19 - Internal view of PEV-40A09US, PEV-48A09US, PEV-40A09NACS and PEV-48A09NACS

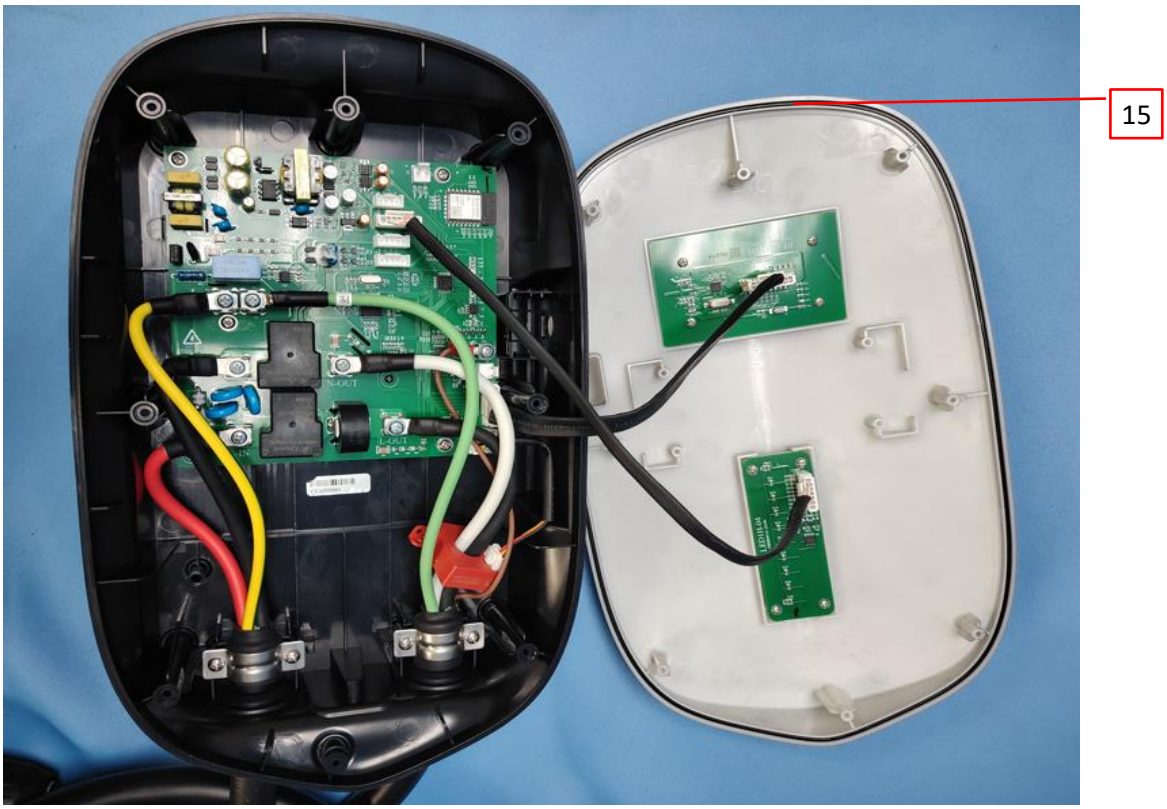
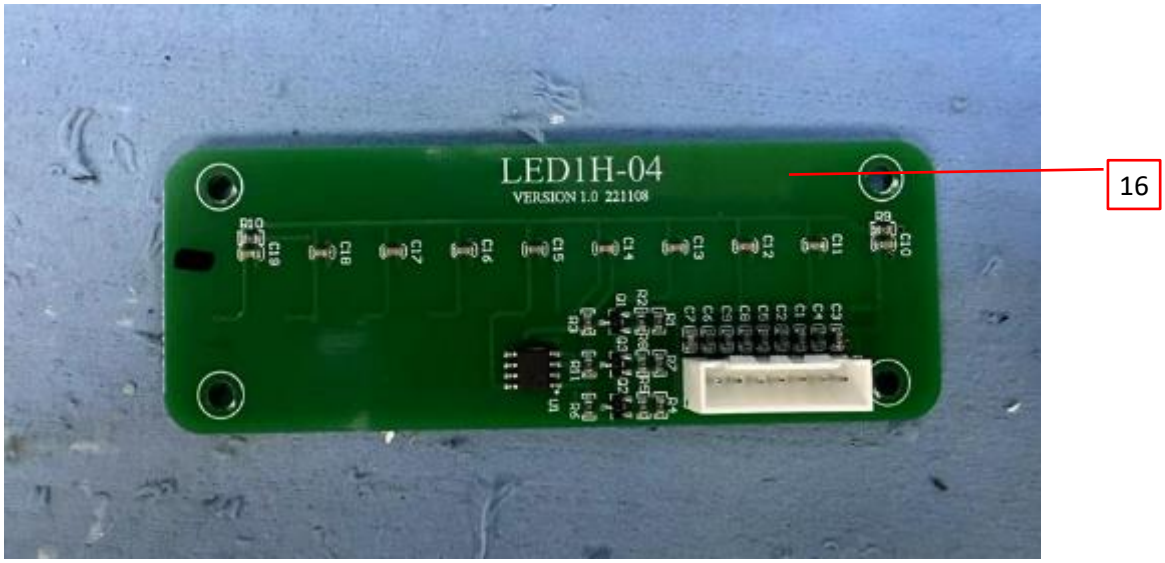


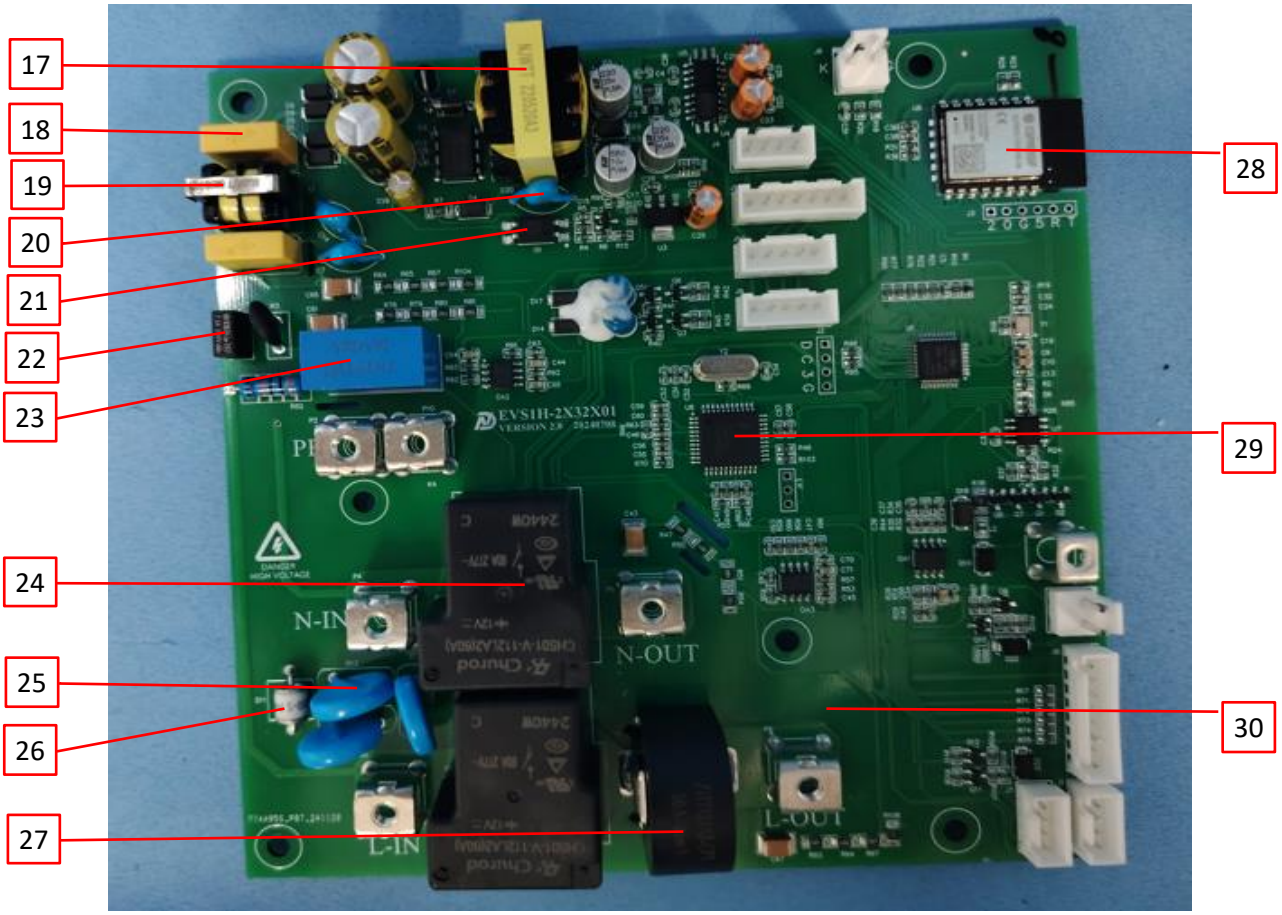
Photo 20 - LED PCB view of PEV-40A09US, PEV-48A09US, PEV-40A09NACS and PEV-48A09NACS



3.0 Product Photographs

Photo 21 - LED PCB view of PEV-40A09US, PEV-48A09US, PEV-40A09NACS and PEV-48A09NACS

Photo 22 - Main PCB view



3.0 Product Photographs

Photo 23 - Main PCB view

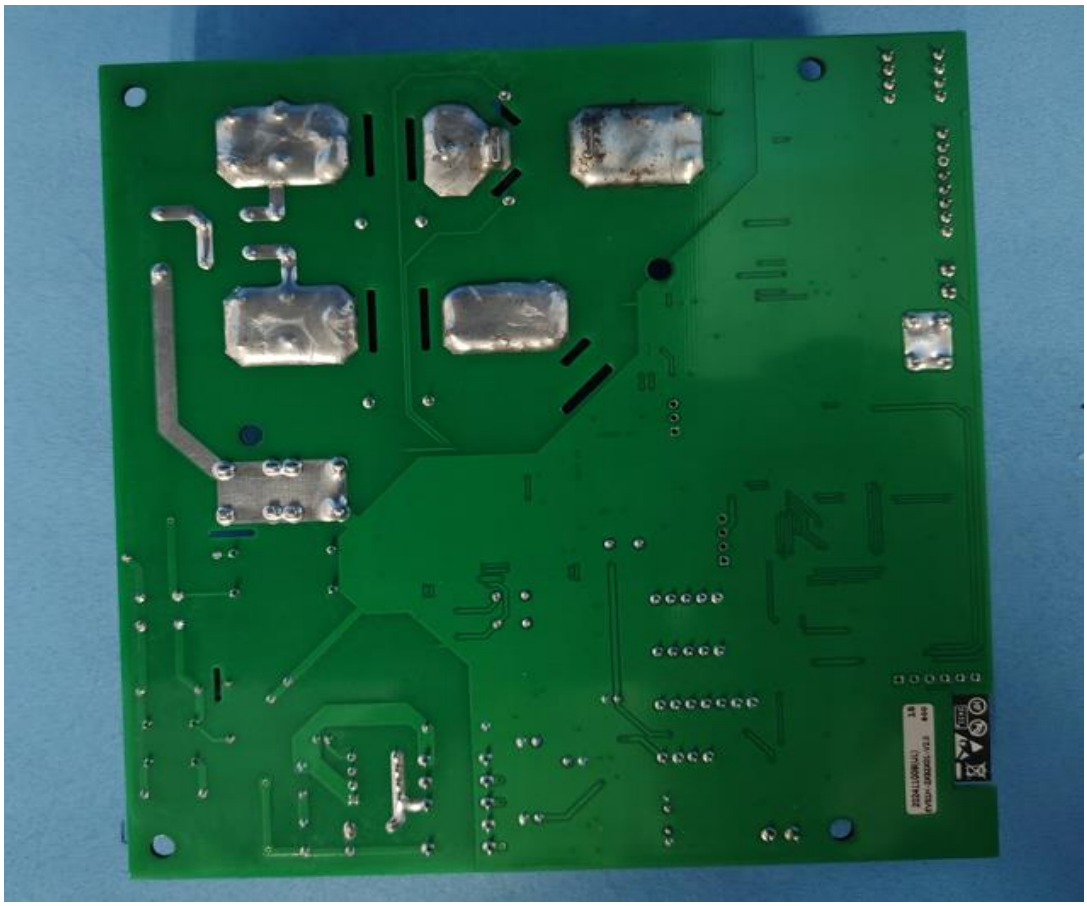


Photo 24 - Display view

3.0 Product Photographs

Photo 25 - Display view

Photo 26 - RFID view

3.0 Product Photographs

Photo 27 - RFID view

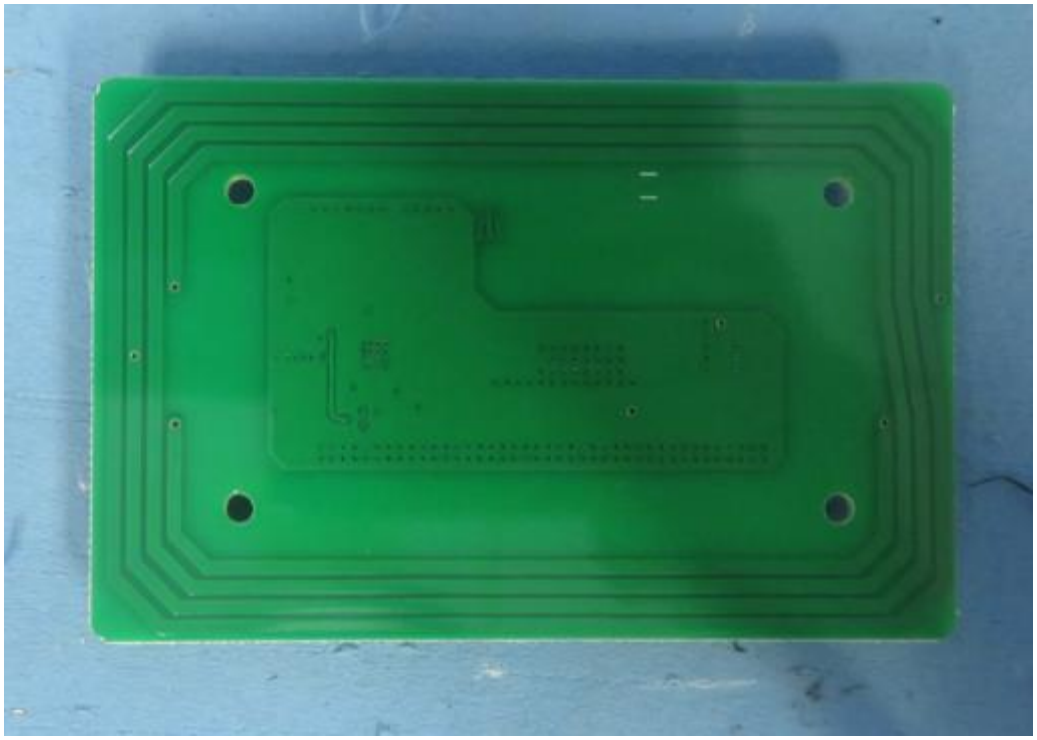


Photo 28 - Internal wire view

3.0 Product Photographs

Photo 29 - Internal Sensor view

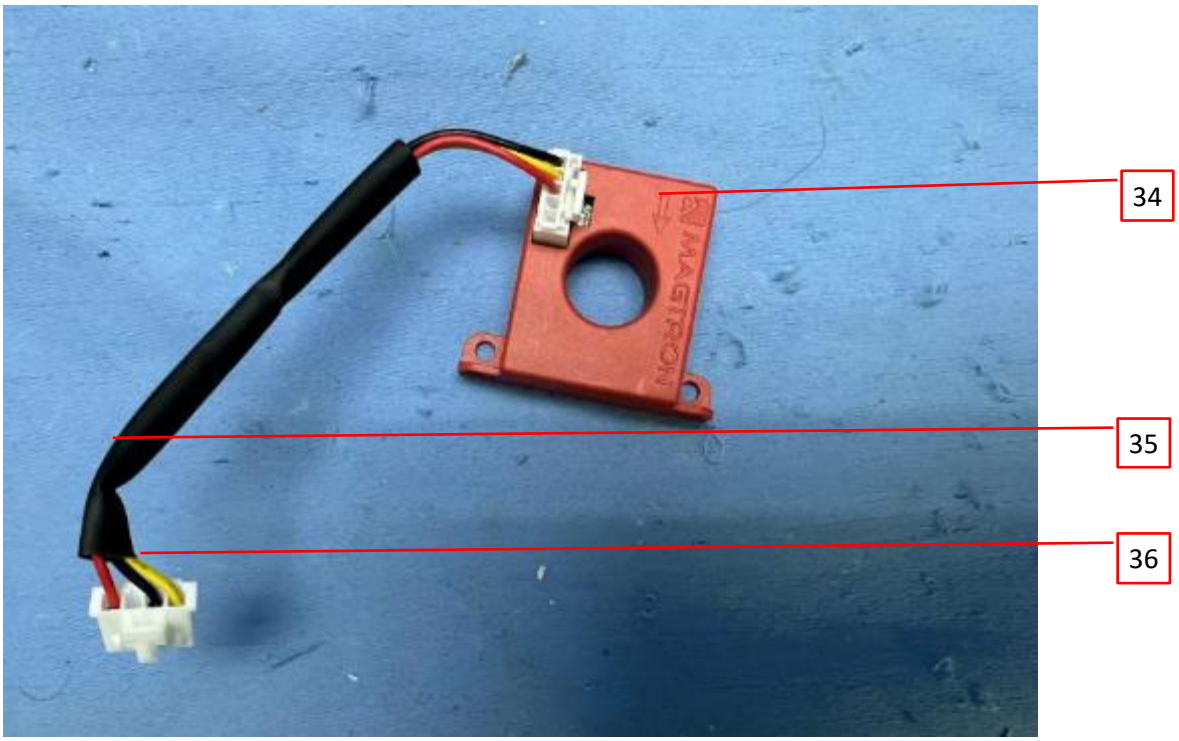


Photo 30 - Transformer view

3.0 Product Photographs

Photo 31 - Transformer view

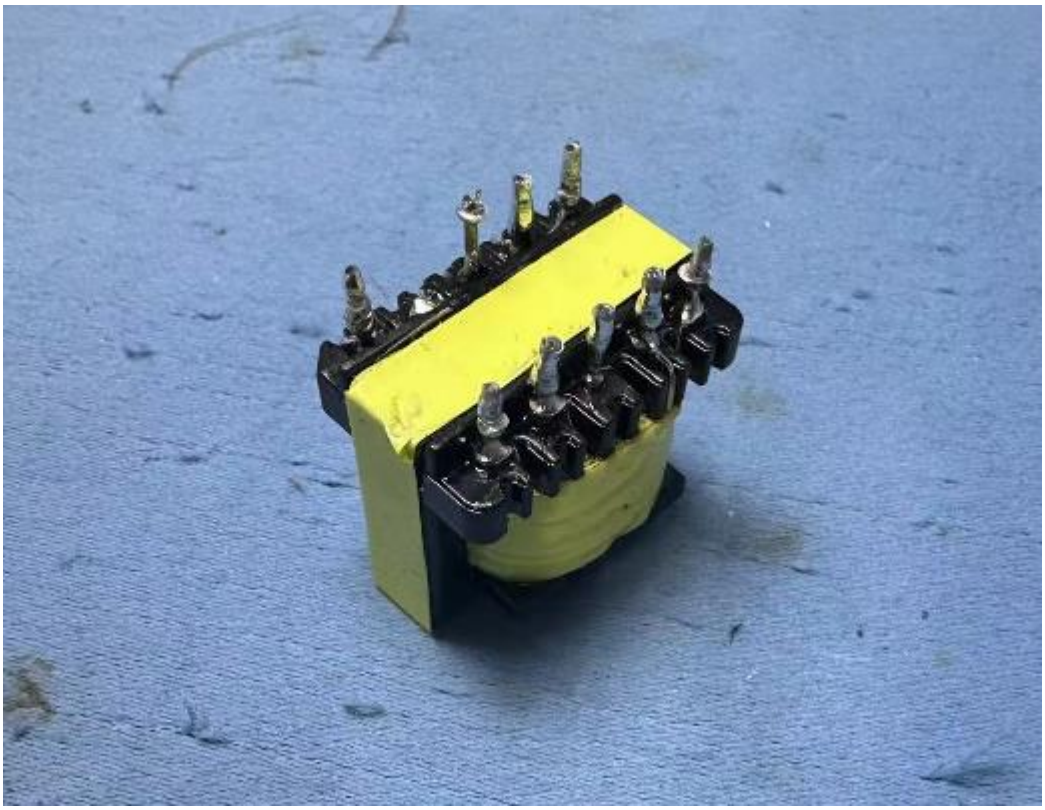
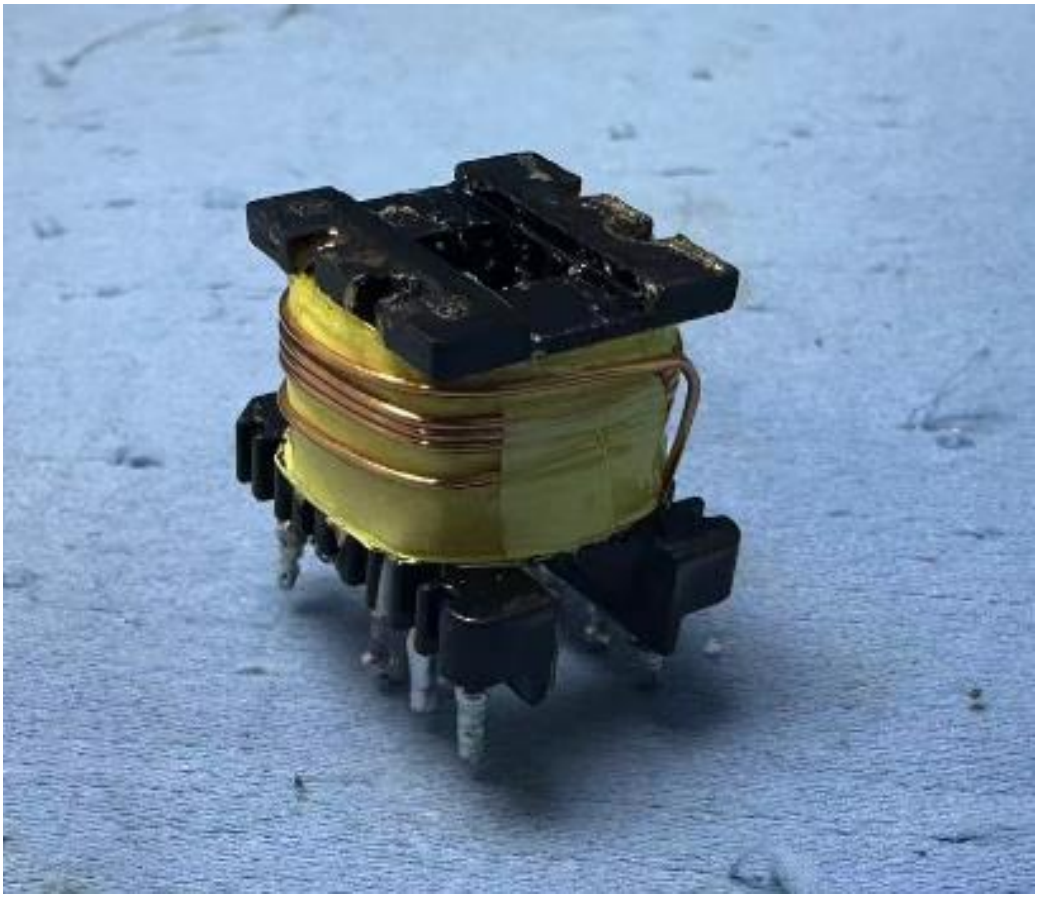


Photo 32 - Transformer view



3.0 Product Photographs

Photo 33 - Transformer view

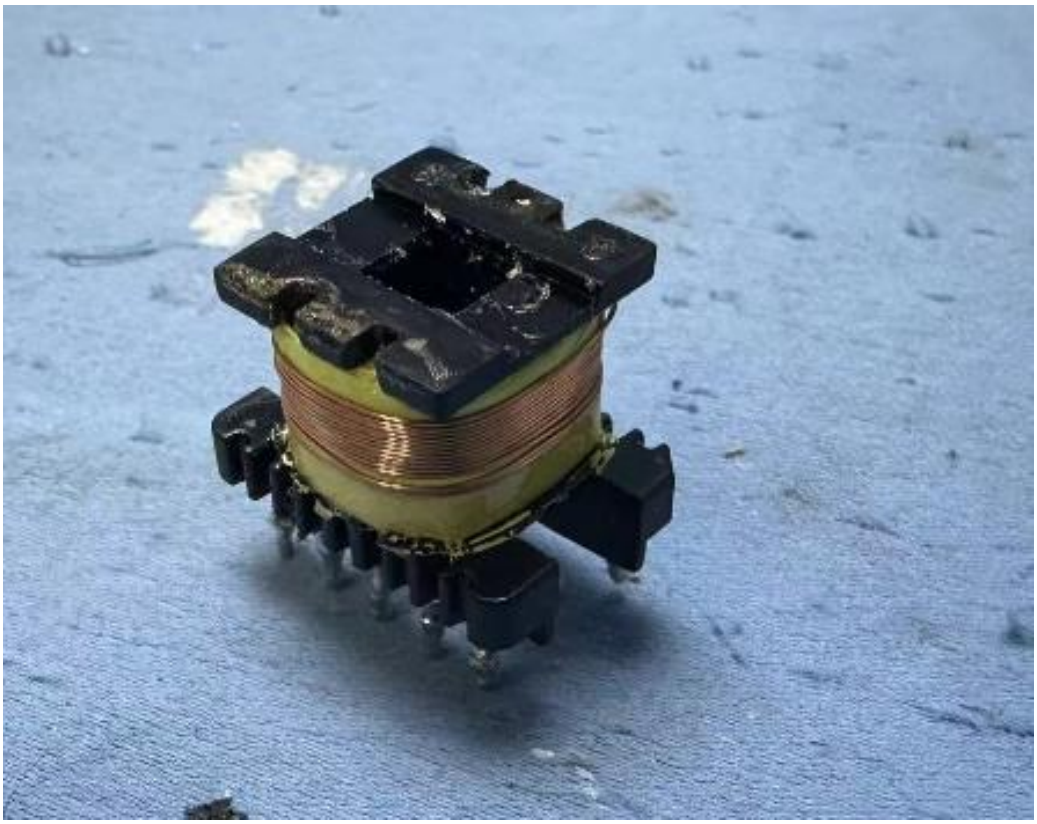
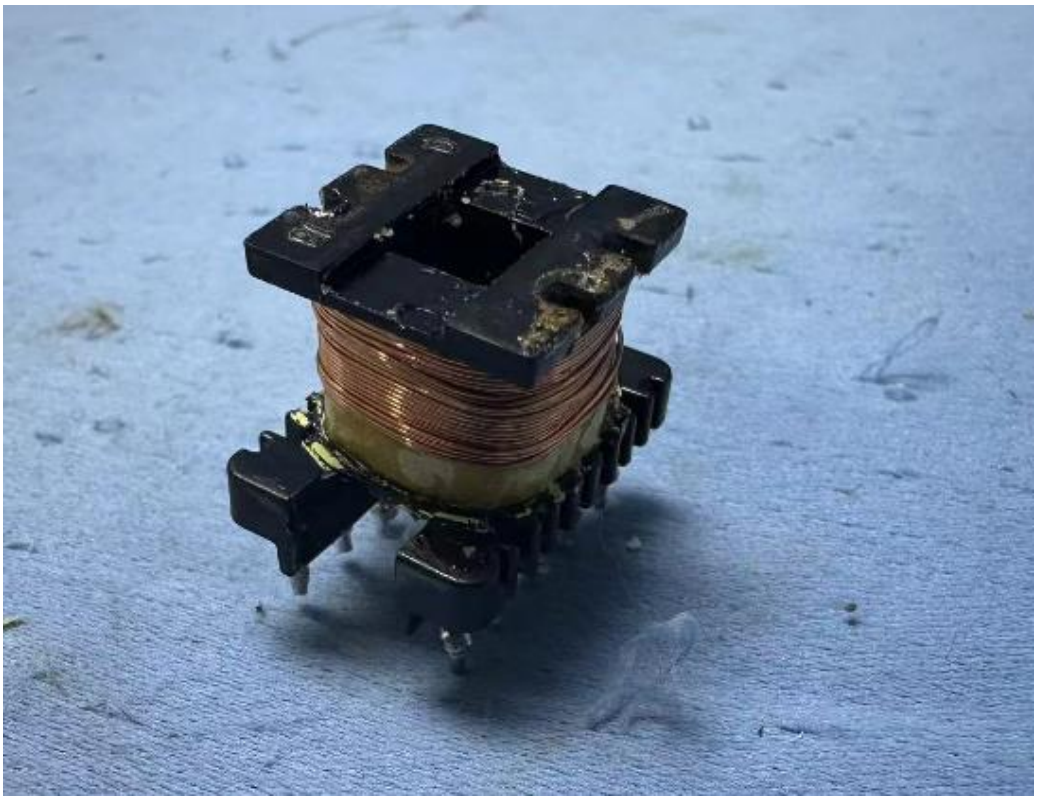


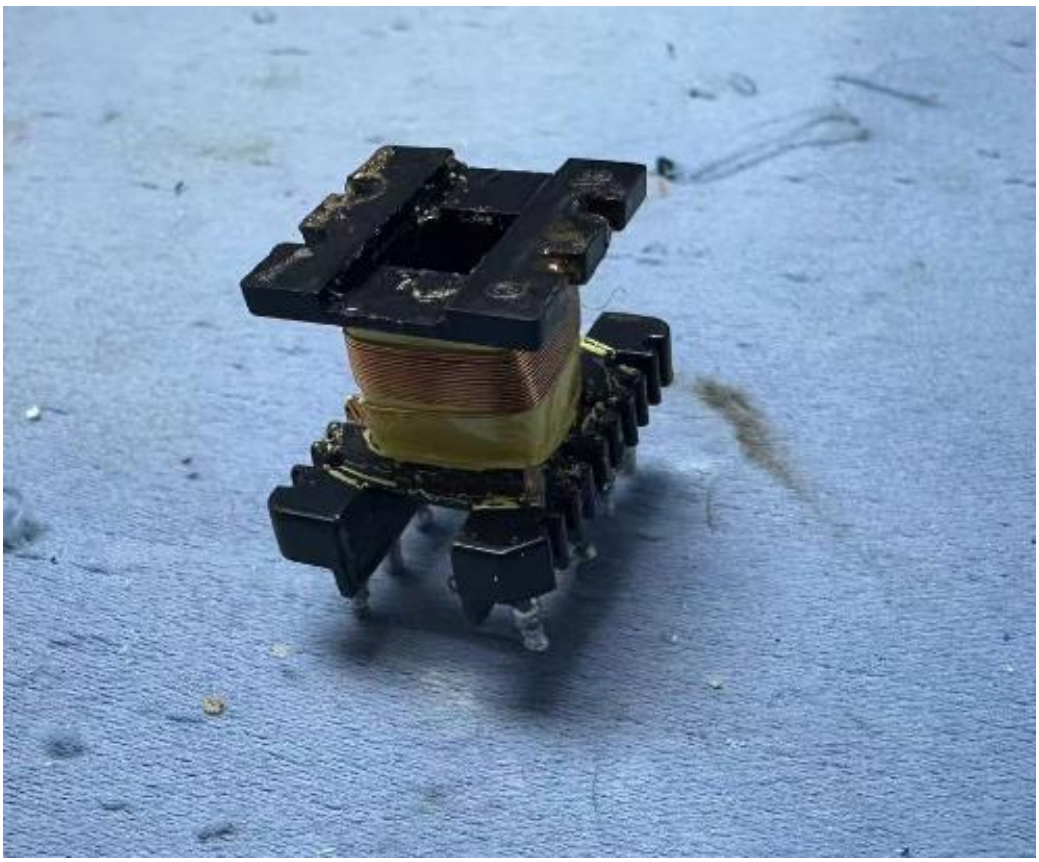
Photo 34 - Transformer view



3.0 Product Photographs

Photo 35 - Transformer view

Photo 36 - Transformer view



4.0 Critical Components						
Photo #	Item no.[1]	Name	Manufacturer/ trademark[2]	Type / model[2]	Technical data and securement means	Mark(s) of conformity [3]
1	1	Enclosure-1	POLYROCKS CHEMICAL CO LTD	1008(+)(f1)	80°C, 3mm, V-0, 5VA, F1	cURus
1	1a	Glue (not shown)	3M COMPANY	4914	-35 to110°C	UR
1	2	Enclosure-2	POLYROCKS CHEMICAL CO LTD	1008(+)(f1)	80°C, 3mm, V-0, 5VA, F1	cURus
2	3	Enclosure-3	POLYROCKS CHEMICAL CO LTD	1008(+)(f1)	80°C, 3mm, V-0, 5VA, F1	cURus
2	4	EV Connector -1	Shenzhen Woer New Energy Electrical Technology Co Ltd	WOER-T1-C-AC48-01	AC250V,48A, -30°C to +50°C, type 4	cURus
3	5	Input Cord	Hongqi Cable Electrical Instrument Group Co Ltd	EVE	2X6AWG+1X8AWG 105°C 600V	cURus
3	6	Output Cord	LTK Electric Wire (Huizhou) Ltd	EVE	2X8AWG+1X10AWG, 105°C, 600V	cURus
3	7	EV Connector -2	Wuxi Mida New Energy Co., Ltd	MIDA-NACS-48A(48A)	AC240V,48A, -30°C to +50°C, type 4	cURus
4	8	Bushing	Changzhou Wuyuan Plastic Co.Ltd	WYSIL55	-40~115°C, end Use: Suitable for UL 50E continuous and periodic compression applications for enclosures Types 2, 3, 3X, 3R, 3RX, 3S, 3SX, 4, 4X, 5, 6 and 6P.	UR
6	9	Heat shrink tubing	SHENZHEN WOER HEAT-SHRINKABLE MATERIAL CO LTD	SBRS	600V, 125℃, VW-1	cURus
7	10	LED PCB-1	JIANGMEN JUNYEDA ELECTRONICS TECHNOLOGY CO LTD	JYD-D2	125℃, V-0, 1.6mm, CTI≥175	cURus
9	11	Enclosure-4	POLYROCKS CHEMICAL CO LTD	1008(+)(f1)	80°C, 3mm, V-0, 5VA, F1	cURus
9	11a	Glue (not shown)	3M COMPANY	4914	-35-110℃	UR
9	12	Enclosure-5	POLYROCKS CHEMICAL CO LTD	1008(+)(f1)	80°C, 3mm, V-0, 5VA, F1	cURus
13	13	LED PCB-2	JIANGMEN JUNYEDA ELECTRONICS TECHNOLOGY CO LTD	JYD-D2	125℃, V-0, 1.6mm, CTI≥175	cURus
16	14	Enclosure-6	POLYROCKS CHEMICAL CO LTD	1008(+)(f1)	80°C, 3mm, V-0, 5VA, F1	cURus

4.0 Critical Components						
Photo #	Item no.[1]	Name	Manufacturer/ trademark[2]	Type / model[2]	Technical data and securement means	Mark(s) of conformity [3]
19	15	Gasket Seal	SHENZHEN GENVAN SILICONE MATERIALS CO LTD	GA8961	1.0mm, -40 to 90°C Meets the requirements of UL 50E	UR
20	16	LED PCB-3	JIANGMEN JUNYEDA ELECTRONICS TECHNOLOGY CO LTD	JYD-D2	125℃, V-0, 1.6mm, CTI≥175	cURus
22	17	Transformer	Nanjing Woteng Technology Development Co., Ltd	220520A2E	10W, 90°C, Class A Input:100~240Vac ,50/60Hz Output:5V,2A (T1)	NR
22	17a	Bobbin (not show)	CHANG CHUN PLASTICS CO LTD	T378J	V-0, 150°C	cURus
22	17b	Magnet Wire (not show)	SHANTOU SHENGANG ELECTRICAL INDUSTRIAL CO LTD	QA-1/155	155°C	UR
22	17c	Varnished (not show)	ZHEJIANG RONGTAI TECHNICAL INDUSTRY CO LTD	R-831-6	180°C	UR
22	17d	Tape (not show)	JINGJIANG JINGYANG INSULATING PRODUCT CO LTD	JY-133	130°C	UR
22	18	X Capacitor	SHANTOU HIGH-NEW TECHNOLOGY DEVELOPMNT ZONE SONGTIAN ENTERPRISE CO LTD	MPX	X2, 0.22uF, 275VAC, 110°C (C11, C16)	cURus
22	19	Inductor	Nanjing Woteng Technology Development Co., Ltd	NJWTT090314 B	UU9.8-25mH (L1)	NR
22	19a	Bobbin (not shown)	CHANG CHUN PLASTICS CO LTD	T378J	V-0, 150°C	cURus
22	19b	Varnished Wire (not shown)	SHANTOU SHENGANG ELECTRICAL INDUSTRIAL CO LTD	QA-1/155	155°C	UR

4.0 Critical Components						
Photo #	Item no.[1]	Name	Manufacturer/ trademark[2]	Type / model[2]	Technical data and securement means	Mark(s) of conformity [3]
22	20	Y Capacitor	SHANTOU HIGH-NEW TECHNOLOGY DEVELOPMNT ZONE SONGTIAN ENTERPRISE CO LTD	CD	Y1, 1000PF,400VAC (C7, C14, C20)	cURus
			PROSPERITY DIELECTRICS CO LTD	FK12X102K502 EGQ	Y2, 1000PF, 250VAC (C43, C65, C61, C67)	cURus
22	21	Optocoupler	Sharp Corporation	PC817	Isolation voltage of 5300 Vrms (O1)	cURus
22	22	Fuse	LITTELFUSE INC	392 +	5A, 250VAC (F1)	cURus
22	23	Sensor-1	Nanjing ZHENHENGTON G Electronics Co. LTD	ZHTPT107	1000：1000, -40°C~+85°C (TV1)	NR
22	23a	Enclosure (not shown)	NANTONG ORIENT PLASTICS CO LTD	3080 G(zz)	V-0, 130℃, Min.thickness 0.8mm	cURus
22	23b	Varnished Wire (not shown)	BAIYIN YIZHI CHANGTONG SUPER MICRO-WIRE CO., LTD	xUEW/155	MW79-C,155℃	UR
22	23c	Epoxy Resin (not shown)	TIAN JIN XIN QIAO INSULATING MATERIAL CO LTD	TXH-9201	V-0, 90°C	UR
22	24	Relay	DONGGUAN CHUROD ELECTRONICS CO LTD	CHS01-V-112HA2(60A)	60A, 277VAC (K1, K4)	cURus
22	25	MOV	SHANTOU HIGH-NEW TECHNOLOGY DEVELOPMNT ZONE SONGTIAN ENTERPRISE CO LTD	14D681K	420VAC,125°C (R11 R12 R13)	cURus
22	26	Gas drain tube	BESTBRIGHT ELECTRONICS CO LTD	2RL800L-5	800V, 5KA (D11)	cURus
22	27	Sensor-2	Nanjing ZHENHENGTON G Electronics Co. LTD	ZHT123A2-CP1	2000:1, -40°C~+85°C (T11)	NR
22	27a	Enclosure (not shown)	NANTONG ORIENT PLASTICS CO LTD	3080 G(zz)	V-0, 130℃, Min.thickness 0.8mm	cURus

4.0 Critical Components						
Photo #	Item no.[1]	Name	Manufacturer/ trademark[2]	Type / model[2]	Technical data and securement means	Mark(s) of conformity [3]
22	27b	Varnished Wire (not shown)	BAIYIN YIZHI CHANGTONG SUPER MICRO-WIRE CO., LTD	xUEW/155	MW79-C,155℃	UR
22	27c	Epoxy Resin (not shown)	TIAN JIN XIN QIAO INSULATING MATERIAL CO LTD	TXH-9201	V-0, 90°C	UR
22	28	WIFI Module	ESPRESSIF SYSTEMS(SHANGHAI)CO., LTD	ESP8685-WROOM-04	Wi-Fi 802.11b/g/n (U6)	NR
22	29	MCU	STMicroelectronics	STM32G030C8T6	64MHz,64KB LQFP48 (U8)	NR
22	30	PCB	JIANGMEN JUNYEDA ELECTRONICS TECHNOLOGY CO LTD	JYD-D2	125℃, V-0, 1.6mm, CTI≥175	cURus
24	31	Display	Shenzhen Taojingchi Electronics Co., Ltd	TJC4827T143	4.3Inch, 480*272	NR
26	32	RFID PCB	JIANGMEN JUNYEDA ELECTRONICS TECHNOLOGY CO LTD	JYD-D2	125℃, V-0, 1.6mm, CTI≥175	cURus
28	33	Internal Wire	SHENZHEN SHUNJIA ELECTRICAL TECHNOLOGY CO LTD	20080	80℃, VW-1, 30Vac, 28AWG	cURus
29	34	Sensor-3	Zhejiang Magtron Intelligent Technology Co., Ltd.	RCMU101SN	CCID20	cURus
29	35	Heat shrink tubing	DONGGUAN SALIPT CO LTD	SALIPT S-HPT-600	600V, 125℃, VW-1	cURus
29	36	Sensor Wire	SHENZHEN SHUNJIA ELECTRICAL TECHNOLOGY CO LTD	1007	80℃, VW-1, 300Vac, 26AWG	cURus
1	37	Label (not shown)	Guangdong Tianyue Printing Tech. Co., Ltd.	TY867-150	-40 to 100°C	cURus
1	37a	Glue (not shown)	3M COMPANY	4914	-35 to 110°C	UR

NOTES:

1) Not all item numbers are indicated (called out) in the photos, as their location is obvious.

2) “Various“ means any type, from any manufacturer that complies with the "Technical data and securement means" and meets the "Mark(s) of conformity" can be used.

3) Indicates specific marks to be verified, which assures the agreed level of surveillance for the component. "NR" - indicates Unlisted and only visual examination is necessary. "See 5.0" indicates Unlisted components or assemblies to be evaluated periodically refer to section 5.0 for details.

5.0 Critical Unlisted CEC Components

No Unlisted CEC components are used in this report.

6.0 Critical Features

Recognized Component - A component part, which has been previously evaluated by an accredited certification body with restrictions and must be evaluated as part of the basic product considering the restrictions as specified by the Conditions of Acceptability.

Listed Component - A component part, which has been previously Listed or Certified by an accredited Certification Organization with no restrictions and is used in the intended application within its ratings.

Unlisted Component - A part that has not been previously evaluated to the appropriate designated component standard. It may also be a Listed or Recognized component that is being used outside of its evaluated Listing or component recognition.

Critical Features/Components - An essential part, material, subassembly, system, software, or accessory of a product that has a direct bearing on the product's conformance to applicable requirements of the product standard.

Construction Details - For specific construction details, reference should be made to the photographs and descriptions. All dimensions are approximate unless specified as exact or within a tolerance. In addition to the specific construction details described in this Report, the following general requirements also apply.

1. Spacing - UL 840 was used.
   In primary circuits, 1.5/2.4mm minimum spacing are maintained through air and over surfaces of insulating material between current-carrying parts of opposite polarity and 6.4/9.5 mm minimum between such current-carrying parts and accessible parts.
2. Mechanical Assembly - Components such as switches, fuseholders, connectors, wiring terminals and display lamps are mounted and prevented from shifting or rotating by the use of lockwashers, starwashers, or other mounting format that prevents turning of the component.
3. Corrosion Protection - All ferrous metal parts are protected against corrosion by painting, plating or the equivalent.
4. Accessibility of Live Parts - All uninsulated live parts in primary circuitry are housed within a non-metallic enclosure constructed with no openings other than those specifically described in Sections 4 and 5.
5. Grounding - All exposed dead-metal parts and all dead-metal parts within the enclosure that are exposed are connected to the equipment grounding terminal.
6. Internal Wiring - Internal wiring is routed away from sharp or moving parts. Internal wiring leads terminating in soldered connections are made mechanically secure prior to soldering. Recognized Component separable (quick disconnect) connectors of the positive detent type, closed loop connectors, or other types specifically described in the text of this report are also acceptable as internal wiring terminals. At points where internal wiring passes through metal walls or partitions, the wiring insulation is protected against abrasion or damage by plastic bushings or grommets. All wiring is minimum 28 AWG, with a minimum rating of 30Vac, 80°C.
7. Schematics - Refer to Illustration 6 for schematics requiring verification during Field Representative Inspection Audits.
8. Markings - The product is marked on labeling system as described in item No.37 of Section 4.0 as follows:
   -Applicant's name or brand name;
   -model number;
   -date of manufacturer;
   -electrical ratings.
   -environmental enclosure type.
   -ambient temperature rating.
9. Cautionary Markings - The following are required Refer to Illustration No.5.
10. Installation, Operating and Safety Instructions - Instructions for installation and use of this product are provided by the manufacturer. Refer to Illustrations 8 for details.
11. Transformer - Supplier records must be provided that indicate the received shipment of transformers(section 4.0, item 17) was constructed as indicated in Illustration No.9. These records must be available at the factory for inspection on every received shipment.

7.0 Illustrations

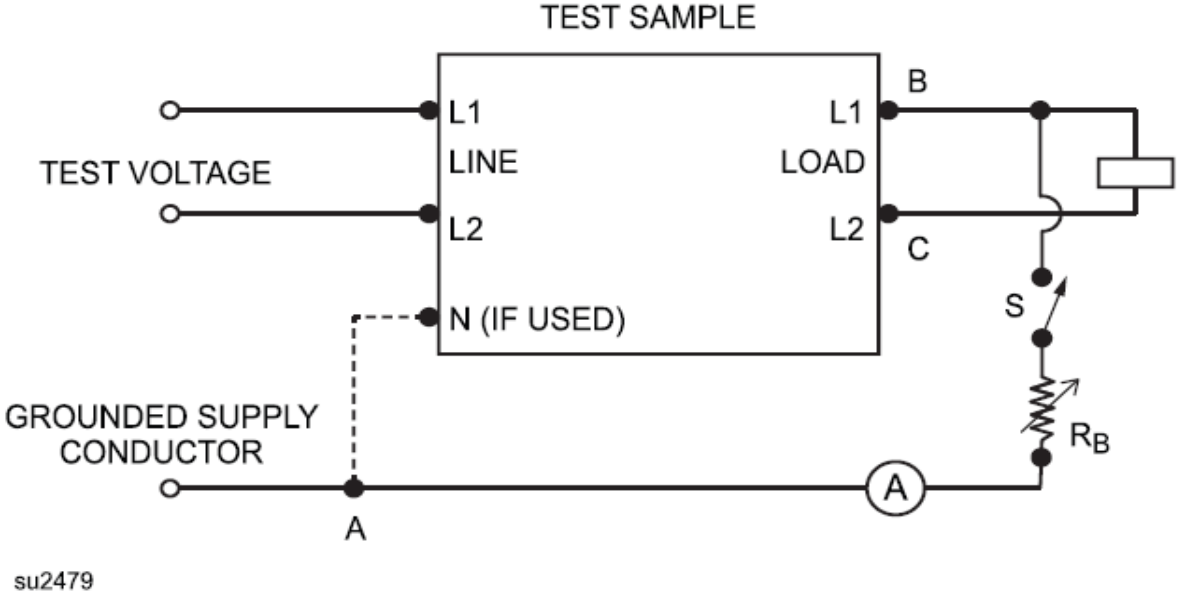
Illustration 1 - Table C1 Trip level

Table C1
Trip level

Type of device	Simulated fault current (mA)	Trip within (sec)	Minimum allowable trip fault current (mA)
CCID5	6	5.60	4.0
CCID20	20	1	15

Illustration 2 - Figure C2: Circuit for tests 1 and 2 (120/240 V and 120/208Y V)

Figure C2
Circuit for tests 1 and 2 (120/240 V and 120/208Y V)



Note: The sum of R_B and the resistance of meter A is to be not less than 500 ohms.

7.0 Illustrations

Illustration 3 - Table C2: Test voltage

Table C2
Test voltage

Rated voltage	Percent of rated voltage	Test voltage
120	85	102
	100	120
	110	132
120/240	85	204
	100	240
	110	264
120/208Y	85	177
	100	208
	110	229
Note: Devices rated both 120/240 V and 120/208Y V shall be tested at test voltages of 177, 240, and 264 volts.		

Illustration 4 - Table C3: Test parameters

Table C3
Test parameters

Rated voltage	Test voltage (percent of rated voltage)	Simulated fault current to ground (ma)	Trip within (millisecond)
120	102 (85)	204	36
	120 (100)	240	29
	132 (110)	264	25
120/240	204 (85)	204	36
	240 (100)	240	29
	264 (110)	264	25
120/208Y	177 (85)	204	36
	208 (100)	240	29
	229 (110)	264	25
Note: Devices rated both 120/240 V and 120/208Y V shall be tested at test voltages of 177, 240, and 264 volts.			

7.0 Illustrations

Illustration 5 - Cautionary Markings

CAUTIONS:

1. To reduce the risk of electric shock, connect only to properly grounded outlets.
2. Do not use this product if there is any damage to the unit.
3. Risk of electric shock, Do not remove cover or attempt to open the enclosure.No user serviceable parts inside. Refer servicing to qualified service personnel.

1. Pour réduire le risque de choc électrique, ne branchez que des prises corectement mises à la terre.
2. N'utilisez pas ce produit s'il y a des dommages à l'unité.
3. Risque de choc électriaue,N'enlevez pas le couvercle et n'essavez pasd'ouwrir l'enceinte Pas de pièces utllsables à linterieur. Référez entreten à dupersonnel de service qualifé.

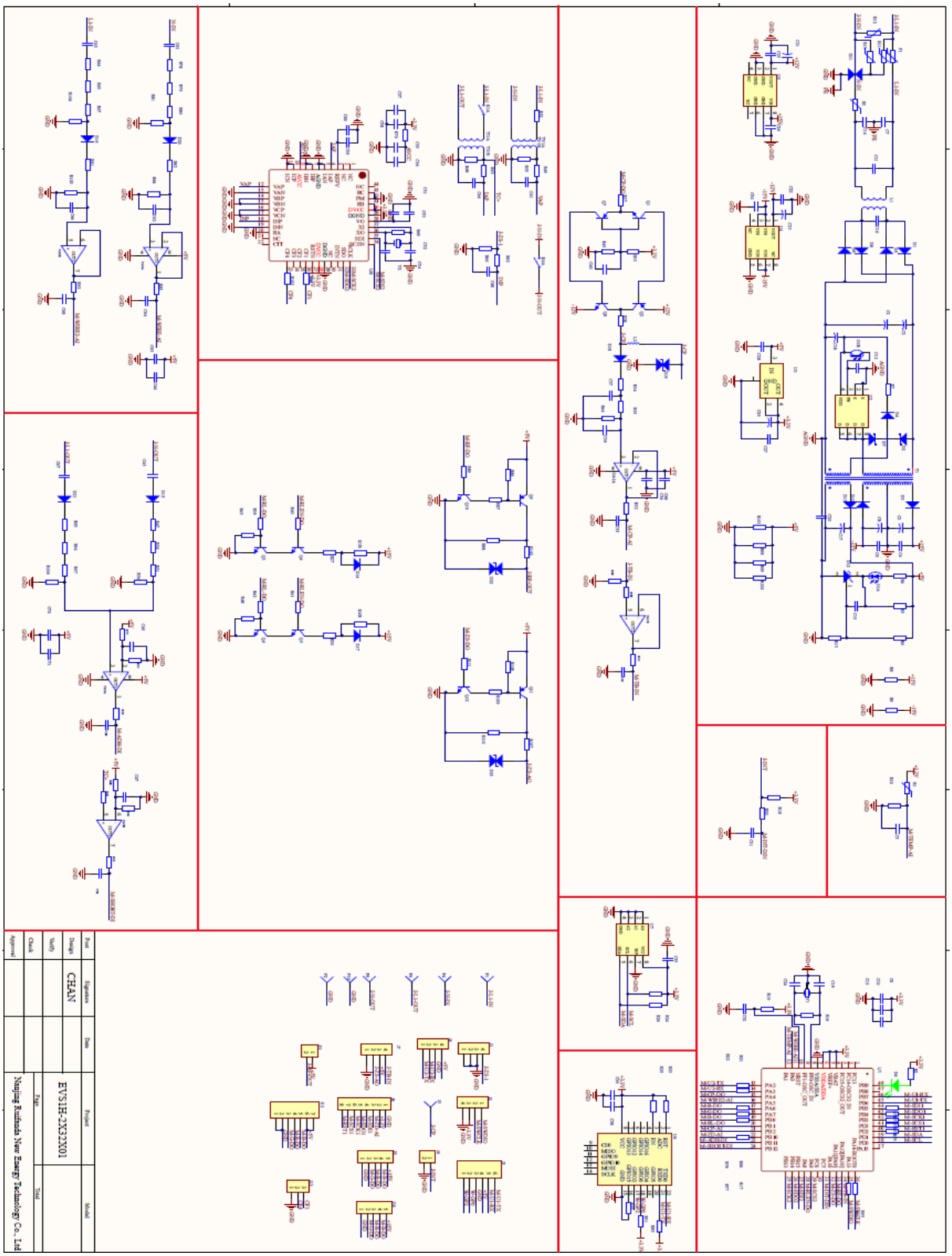
WARNINGS:

1. This device is intended only for charging vehicles not requiring ventilation during charging.
2. This device must be grounded.
3. Do not use this device with an extension cord or an adapter.

1. Ce dispositif est destiné uniquement à charger des véhicules ne nécessitant pas de ventilation pendant la charge.
2. L'appareil doit étre mis à la terre.
3. N'utilisez pas cet appareil avec un rallonge ou un adaptateur.

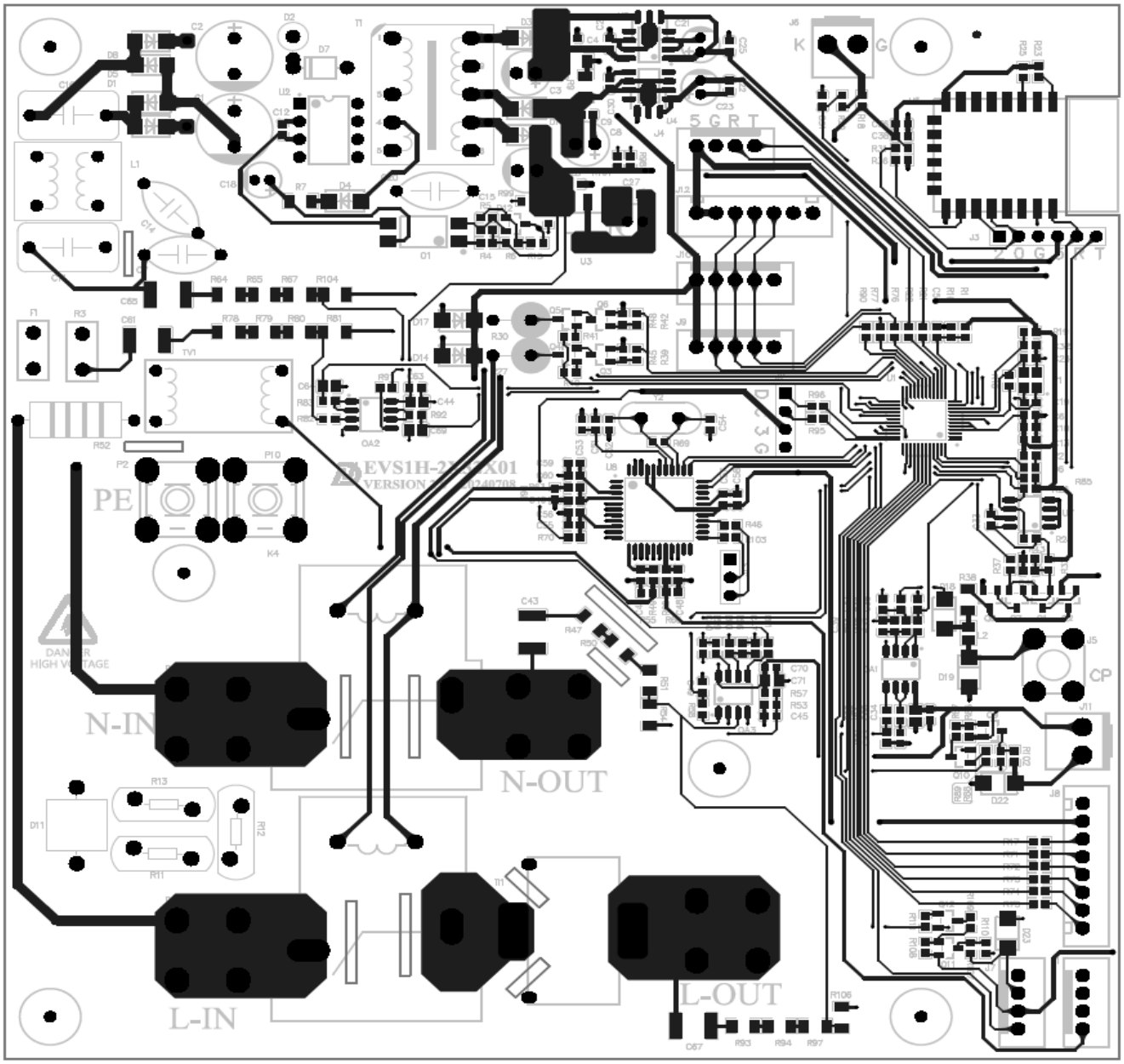
7.0 Illustrations

Illustration 6 - Schematics (partial)



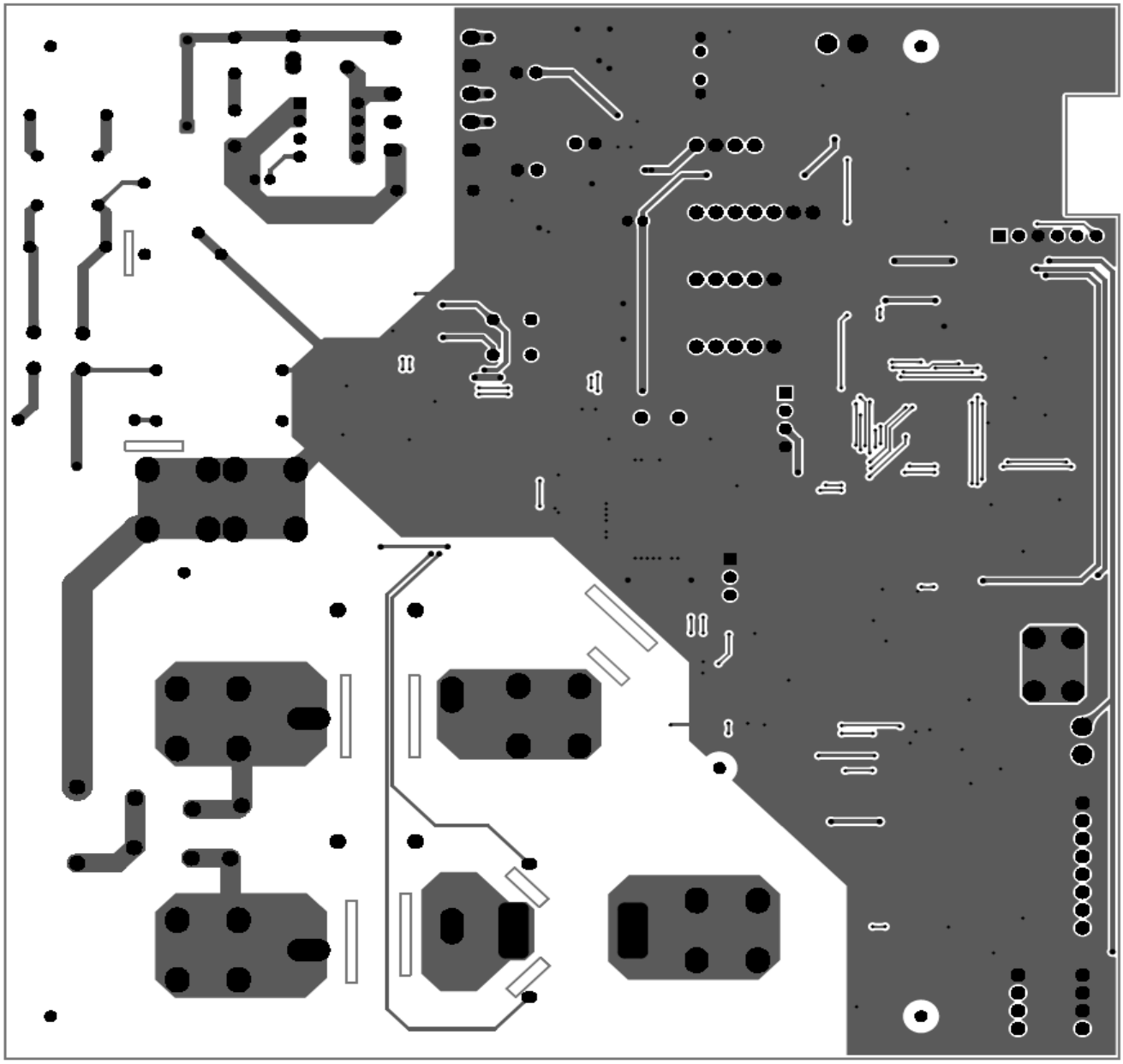
7.0 Illustrations

Illustration 7 - PCB layout (partial)



7.0 Illustrations

Illustration 7a - PCB layout (partial)



7.0 Illustrations

Illustration 8 - User manual (partial)

Safety Caution (*Please save these instructions)

IMPORTANT SAFETY INFORMATION
Save These Important Safety Instructions. This document contains important instructions and warnings that must be followed when using this product.

WARNINGS

- 1) Do not install or use this product near flammable, explosive.harsh,or combustible materials,chemicals,or vapors.
- 2) Please unplug the plug of the device when not in use for a longtime.
- 3) Read all the instructions before using this product.
- 4) This device should be supervised when used around children.
- 5) Do not put fingers into the electric vehicle connector.
- 6) Do not use this product if the flexible power cord or EV cable is frayed, has broken insulation, or any other signs of damage.
- 7) Do not use this product if the enclosure or the EV connector is broken, cracked,open,or shows any other indication of damage.
- 8) Do not attempt to disassemble,repair,tamper with,or modify this product. This product is not user serviceable.This product must be grounded through a permanent wiring system or an equipment- grounded conductor.
- 9) Never spray water or any other liquid directly at the wall mounted control box,
- 10) Never spray any liquid onto the charge handle or submerge the charge handle in liquid, Store the charge handle in the dock to prevent unnecessary exposure to contamination or moisture.
- 11) Do not forcefully fold or apply pressure to any part of the product or damage it with sharp objects.
- 12) The internal circuit has a high voltage, and the internal circuit must not be touched by hand.

Storage

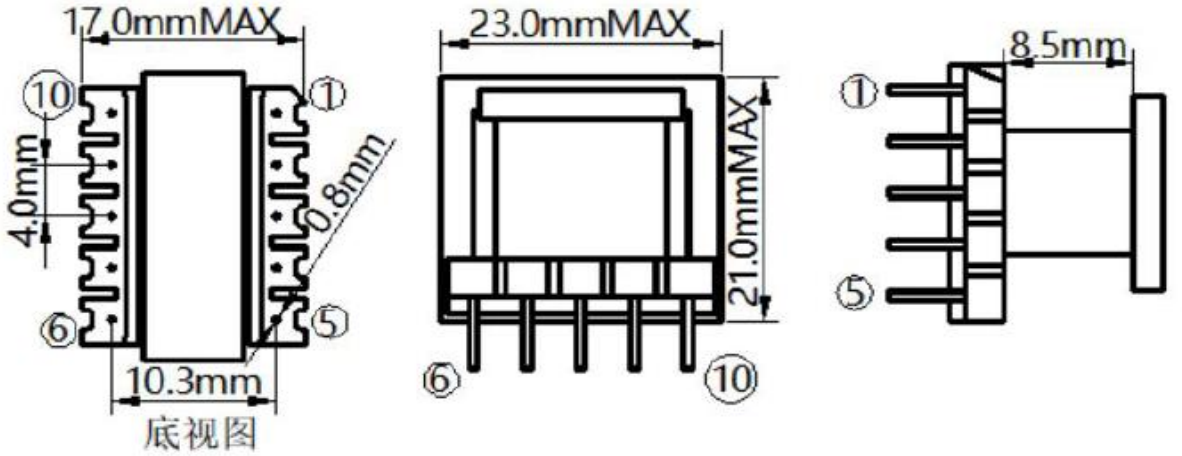
- Do not use private power generators as a power source for charging.
- Do not operate this product in temperatures outside its operating range of - 22℉ to 122℉ (- 30℃ to ~50℃).
- Store this product in a clean dry place in temperatures between-40℉ and 185℉(- 40℃ ~ 85℃).

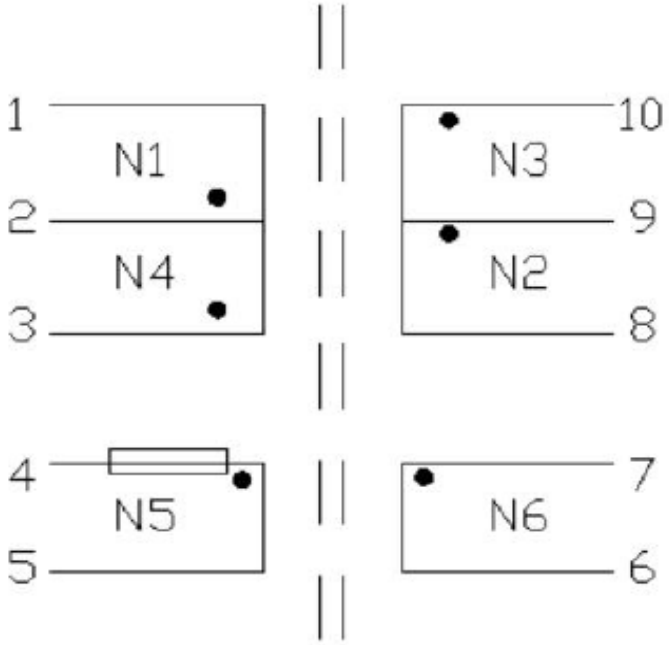
User Maintenance Instructions

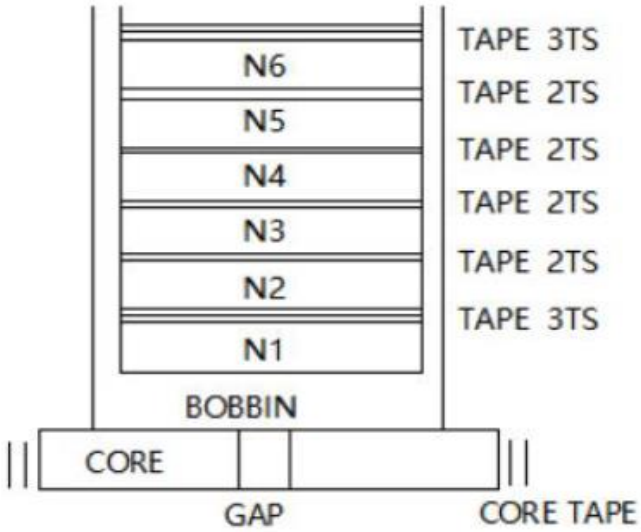
- In order to ensure the applicable life of the product, such as use a dry rag to clean up surface stains.
- Check the product regularly for damage.
- This product does not support users to repair it themselves. In case of abnormal situations such as shell damage or wire damage, please contact your local after-sales service.

7.0 Illustrations

Illustration 9 - Specification of Transformer







8.0 Test Summary					
Evaluation Period	24-Jul-2024 to 4-Dec-2024			Project No.	240723091GZU
Sample Rec. Date	24-Jul-2024	Condition	Prototype	Sample ID.	S240723091-001 to 022
Test Location	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch Room101/301/401/102/202/302/402/502/602/702/802, No. 7-2, Caipin Road, Huangpu District, Guangzhou, Guangdong, China.				
Test Procedure	Testing Lab				

Determination of the result includes consideration of measurement uncertainty from the test equipment and methods. The product was tested as indicated below with results in conformance to the relevant test criteria.

The following tests were performed:

Test Description	UL 2594:2022 Ed.3 & CSA C22.2#280:2022 Ed.3 Clause	UL 2231-2:2012 Ed.2+R:15Dec2020 & CSA C22.2#281.2:2012 Ed.1+U1;U2;U3 Clause
Humidity Conditioning	--	20
Leakage Current Test	46	21
Leakage Current Test Following Humidity Conditioning	47	--
Input Test	48	--
Temperature Test	49	25
Dielectric Voltage Withstand Test	51	26
Abnormal Tests	52	31
Flanged Bobbin Transformer Abnormal Test	53	--
Strain Relief Tests	54	35
EV Cable Secureness Test	55	--
Ground continuity test	56.2	--
Impact Test	57	22.2
Drop Test	59	22.3
Ground-fault trip threshold	--	23.2
Interrupting time	--	23.3
Environmental sequence	--	23.3A
High-resistance ground fault test	--	23.4
Harmonic distortion immunity	--	24.2
Electrostatic discharge immunity	--	24.3
Radiated electromagnetic field immunity	--	24.4
Immunity to conducted disturbances, induced by RF fields	--	24.5
Electrical fast transient immunity	--	24.6
Voltage dips, short interruptions and voltage variations immunity	--	24.7
Magnetic field immunity	--	24.8
Voltage surge test	--	24.10
Mounting Means Test	64	--
Mold Stress-Relief Distortion Test	66	--
Tests on Transformer Insulating Materials	69	--
Overload Test	--	27
Low-Resistance Ground Fault Test	--	29
Supervisory Circuit Test	--	30
Extra-Low-Resistance Ground Fault Test	--	32

8.0 Test Summary		
Short Circuit Test	--	33
Dust Test	--	41
Test Description	UL 991:2004 Ed.3+R:09Jun2010 Clause	CSA C22.2#0.8:2019 Ed.4 Clause
Transient Overvoltage Test	12	--
Voltage Variation Test	13	6.3.3
Electromagnetic Susceptibility Tests	14	--
Electrostatic Discharge Test	15	--
Test for Effects of Shipping and Storage	17	--
Thermal Cycling Test	18	--
Humidity Test	19	--
Voltage dips and interruption test	--	6.3.4
Ring wave test	--	6.3.5
Electrical fast transient/burst immunity test	--	6.3.6
Surge immunity test	--	6.3.7
Static electricity	--	6.4.2
Immunity to conducted disturbances	--	6.4.3.3
Immunity to radiated electromagnetic fields	--	6.4.3.4
Influence of supply frequency variations	--	6.4.5
power frequency magnetic field immunity test	--	6.4.7
Test Description	UL 50E:2020 Ed.3 & CSA C22.2#94.2:2020 Ed.3 Clause	
Hosedown test	8.6	
Gasket tensile strength and elongation test	8.13.2	
Gasket compression test:	8.13.3	
Component test reviewer	Peter Lu	
Test Description	UL 1998:2013 Ed.3+R:16Nov2022 Clause	CSA C22.2#0.8:2019 Ed.4 Clause
Measures To Address Microelectronic	8	Annex B
Software Analysis and Failure	11	5.6.3 & 5.7
Component test reviewer	Jimmy Lin	

Test Location	Shenzhen Academy of Metrology and Quality Inspection No. 4, Tong Fa Road, Xili Town, Nan Shan District, Shenzhen,China
Test Procedure	Testing Lab
Determination of the result includes consideration of measurement uncertainty from the test equipment and methods. The product was tested as indicated below with results in conformance to the relevant test criteria.	
The following tests were performed:	

Test Description	UL 2231-2:2012 Ed.2+R:15Dec2020 & CSA C22.2#281.2:2012 Ed.1+U1;U2;U3 Clause
Capacitor switching transient test	24.9

8.0 Test Summary			
8.1 Signatures			
A representative sample of the product covered by this report has been evaluated and found to comply with the applicable requirements of the standards indicated in Section 1.0.			
Completed by:	Eric Yao	Reviewed by:	Kevin X Wang
Title:	Engineer	Title:	Reviewer
Signature:		Signature:	

9.0 Correlation Page For Multiple Listings	
The following products, which are identical to those identified in this report except for model number and Listee name, are authorized to bear the ETL label under provisions of the Intertek Multiple Listing Program.	
BASIC LISTEE	Nanjing Ruifanda New Energy Technology Co., Ltd.
Address	No.6, Zhongke Road, Jiangning District, NANJING Jiangsu 211102
Country	CHINA
Product	AC EV CHARGING STATION

MULTIPLE LISTEE 1	None
Address	
Country	
Brand Name	
ASSOCIATED MANUFACTURER	
Address	
Country	

MULTIPLE LISTEE 1 MODELS	BASIC LISTEE MODELS

MULTIPLE LISTEE 2	None
Address	
Country	
Brand Name	
ASSOCIATED MANUFACTURER	
Address	
Country	

MULTIPLE LISTEE 2 MODELS	BASIC LISTEE MODELS

MULTIPLE LISTEE 3	None
Address	
Country	
Brand Name	
ASSOCIATED MANUFACTURER	
Address	
Country	

MULTIPLE LISTEE 3 MODELS	BASIC LISTEE MODELS

10.0 General Information

The Applicant and Manufacturer have agreed to produce, test and label ETL Listed products in accordance with the requirements of this Report. The Manufacturer has also agreed to notify Intertek and to request authorization prior to using alternate parts, components or materials.

COMPONENTS

Components used shall be those itemized in this Intertek report covering the product, including any amendments and/or revisions.

LISTING MARK

The ETL Listing mark applied to the products shall either be separable in form, such as labels purchased from Intertek, or on a product nameplate or other media only as specifically authorized by Intertek. Use of the mark is subject to the control of Intertek.

The mark must include the following four items:

1) applicable country identifiers "US" and/or "C" or "US", "C" and "EU"
2) the word "Listed" or "Classified" or "Recognized Component" (whichever is appropriate)
3) a control number issued by Intertek
4) a product descriptor that identifies the standards used for certification. Example:

For US standards, the words, “Conforms to” shall appear with the standard number along with the word, “ Standard” or “Std.” Example: “Conforms to ANSI/UL Std. XX.”

For Canadian standards, the words “Certified to CAN/CSA Standard CXX No. XX.” shall be used, or abbreviated, “Cert. to CAN/CSA Std. CXX No. XX.”

Can be used together when both standards are used.

If all standards on the ATM have the same standard title, the shared title or its abbreviation may be used in place of the examples above. Example: "Medical Electrical Equipment" or "MEE"; "Information Technology Equipment" or "ITE"; "Audio/Video Information And Communication Technology Equipment" or "A/V ICTE".

Note: A facsimile must be submitted to Intertek, Attn: Follow-up Services for approval prior to use. The facsimile need not have a control number. A control number will be issued **after signed Certification Agreements** have been received by the Follow-up Services office, approval of the facsimile of your proposed Listing Mark, satisfactory completion of the Listing Report, and scheduling of a factory assessment in your facility.

MANUFACTURING AND PRODUCTION TESTS

Manufacturing and Production Tests shall be performed as required in this Report.

FOLLOW-UP SERVICE

Periodic unannounced audits of the manufacturing facility (and any locations authorized to apply the mark) shall be scheduled by Intertek. An audit report shall be issued after each visit. Special attention will be given to the following:

1. Conformance of the manufactured product to the descriptions in this Report.
2. Conformance of the use of the ETL mark with the requirements of this Report and the Certification Agreement.
3. Manufacturing changes.
4. Performance of specified Manufacturing and Production Tests.

In the event that the Intertek representative identifies non-conformance(s) to any provision of this Report, the Applicant shall take one or more of the following actions:

1. Correct the non-conformance.
2. Remove the ETL Mark from non-conforming product.
3. Contact the issuing product safety evaluation center for instructions.

10.1 Evaluation of Unlisted Components

Because Unlisted Components are uncontrolled, and they do not fall under a third party follow up program, Intertek may require these components to be tested and/or evaluated at least once annually, more often for certain components, as part of the independent certification process. The Unlisted Components in Section 5.0 require testing and/or evaluation as indicated.

The Applicant will be notified, in writing, via the applicable contact methods, as defined in Section 1.0, when these components must be selected and sent to Component Evaluation Center (CEC) for re-evaluation.

Due to particular testing requirements, some components may be requested to be shipped to specific labs. Thus, specific shipment destination(s) for each sample will be provided in the written notification.

Managing CEC Location:
Intertek Testing Services Shenzhen Limited Guangzhou Branch
ETL Component Evaluation Center
Room 101/301/401/102/202/302/402/502/602/702/802, No. 7-2, Caipin Road, Huangpu District
Guangzhou, Guangdong, China
Attn: Ms. Joey Kuang
Sample Disposition: Due to the destructive nature of the testing, all samples will be discarded at the conclusion of testing unless, the manufacturer specifically requests the return of the samples. The request for return must accompany the initial component shipment.

11.0 Manufacturing and Production Tests

The manufacturer agrees to conduct the following Manufacturing and Production Tests as specified:

Required Tests

Dielectric Voltage Withstand Test
CCID Trip - Rated Load - Low Leakage
CCID Trip - Rated Load - High Leakage

11.1 Dielectric Voltage Withstand Test

Method

One hundred percent of production of the products covered by this Report shall be subjected to a routine production line dielectric withstand test.

The test shall be conducted on products, which are fully assembled. Prior to applying the test potential, all switches, contactors, relays, etc., should be closed so that all primary circuits are energized by the test potential. If all primary circuits cannot be tested at one time, then separate applications of the test potential shall be made.

The test voltage specified below shall be applied between primary circuits and accessible dead-metal parts. The test voltage may be gradually increased to the specified value but must be maintained at the specified value for one second or one minute as required.

Test Equipment

The test equipment shall incorporate a transformer with an essentially sinusoidal output, a means to indicate the applied test potential, and an audible and/or visual indicator of dielectric breakdown.

The test equipment shall incorporate a voltmeter in the output circuit to indicate directly the applied test potential if the rated output of the test equipment is less than 500VA.

If the rated output of the test equipment is 500VA or more, the applied test potential may be indicated by either:
1 - a voltmeter in the primary circuit;
2 - a selector switch marked to indicate the test potential; or
3 - a marking in a readily visible location to indicate the test potential for test equipment having a single test potential output.
In cases 2 and 3, the test equipment shall include a lamp or other visual means to indicate that the test potential is present at the test equipment output. All test equipment shall be maintained in current calibration.

Products Requiring Dielectric Voltage Withstand Test:

Product	Test Voltage	Test Time
All products covered by this Report.	1480 Vac or 1800 Vac	60 s 1s
Product - One sampe from each shipment of Section 4.0 item 17:	**Test Voltage**	**Test Time**
Between pri. and sec. output Between sec. and core	1480 Vac or 1800 Vac	60 s 1 s

11.2 CCID Trip - Rated Load - Low Leakage

Method

Each finished product shall comply with the trip level requirements in Table C1 (Illustration 1).

For devices rated 120/240 V or 120/208Y V, each unit shall be connected to the test circuit in Figure C2 (Illustration 2) with rated current in the load circuit. The test shall be performed with the fault circuit connected to points A and B as shown in Figure C2. Except as indicated in C4.1.6, the test voltage shall be set in turn to 85, 100, and 110 percent of the rated voltage of the device under test in accordance with Table C2 (IIllustration 3).

For each test voltage a simulated fault current shall be applied by gradually reducing the value of RB. The device shall trip within the specified time, and shall not trip below the specified “Minimum Allowable Trip Fault Currents.”

Test Equpment

All test equipment shall be maintained in current calibration

Products Requiring Manufacturer's Proprietary Test Program for Special CCID Components:

Product

All products covered by this Report.

11.3 CCID Trip - Rated Load - High Leakage

Method

The test described in CCID Trip - Rated Load - Low Leakage, CCID Trip shall be repeated on each device, except that RB shall be varied to obtain the test parameters detailed in Table C3 (Illustration 4) . For devices rated 120/240 V or 120/208 V, each unit shall be connected to the test circuit shown in Figure C2 (Illustration 2). The test shall be repeated with the fault circuit connected to points A and C of Figure C2 (Illustration 2).

Test Equpment

All test equipment shall be maintained in current calibration

Products Requiring Manufacturer's Proprietary Test Program for Special CCID Components:

Product

All products covered by this Report.

12.0 Revision Summary

The following changes are in compliance with the declaration of Section 8.1:

Date/ Proj # Site ID	Project Handler/ Reviewer	Section	Item	Description of Change
				None