

1.0 Reference and Address			
Report Number	2408B1422SHA-001	Original Issued: 1-Nov-2024	Revised: None
Standard(s)	DC Charging Equipment for Electric Vehicles [UL 2202:2022 Ed.3] DC Charging Equipment for Electric Vehicles [CSA C22.2#346:2022 Ed.1]		
Applicant	Suzhou Niuera Energy Co Ltd	Manufacturer 1	Lumlux Corp.
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Phone	18550005110	Phone	15851308661
FAX	NA	FAX	NA
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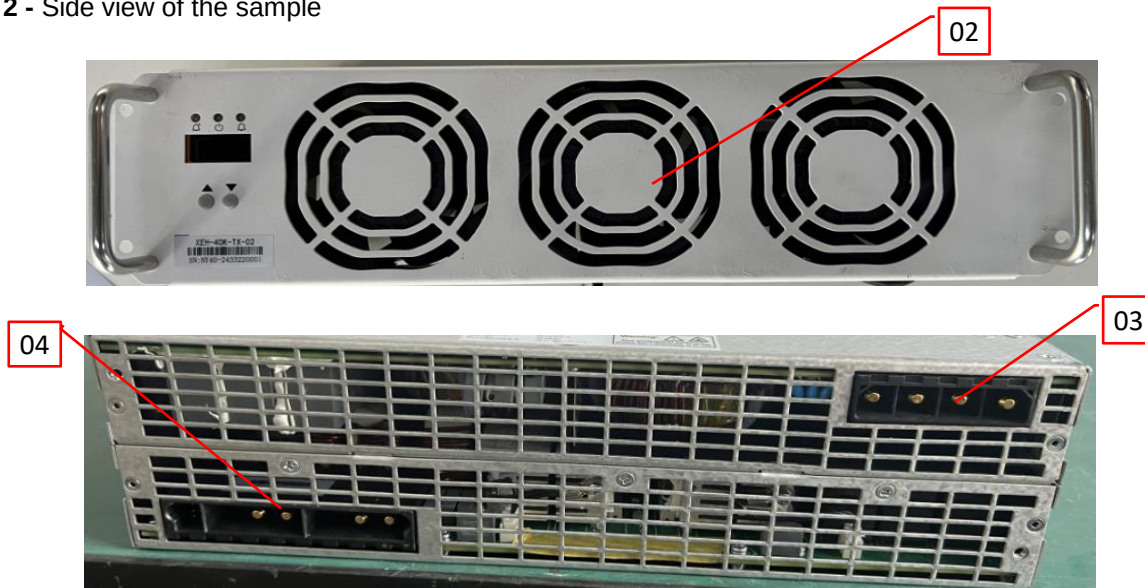
2.0 Product Description	
Product	DC charging module
Brand name	
Description	The product covered by this report is DC charging modules for used in EVSE.
Models	XEH-30K-TX-02, XEH-40K-TX-02
Model Similarity	The models have same construction, but have two different power rating, which is achieved by some different size components (Terminal connectors and inductors) and by control.
Ratings	XEH-30K-TX-02: Input: 3PH 480Vac, 50/60Hz, max 42A; Output: 150V-1000Vdc, 30kW, up to 100A; XEH-40K-TX-02: Input: 3PH 480Vac, 50/60Hz, max 56A; Output: 150V-1000Vdc, 40kW, up to 133.3A.
Other Ratings	IP20, TYPE 1 enclosure
Conditions of Acceptability	The products covered in this Report are incomplete in construction features or limited in performance capabilities and are intended for use and evaluation in other products. Consideration should be given to the following when the component is used in or with another product. 1. This product is with NEMA Type 1 metal enclosure and air-cooled, it shall be mounted in a EV charging station enclosure which has proper environmental protection and proper PE connection. 2. This product shall be provided with additional switching devices on both input and output power circuits when used in a EV charging station.

3.0 Product Photographs

Photo 1 - External view of product sample

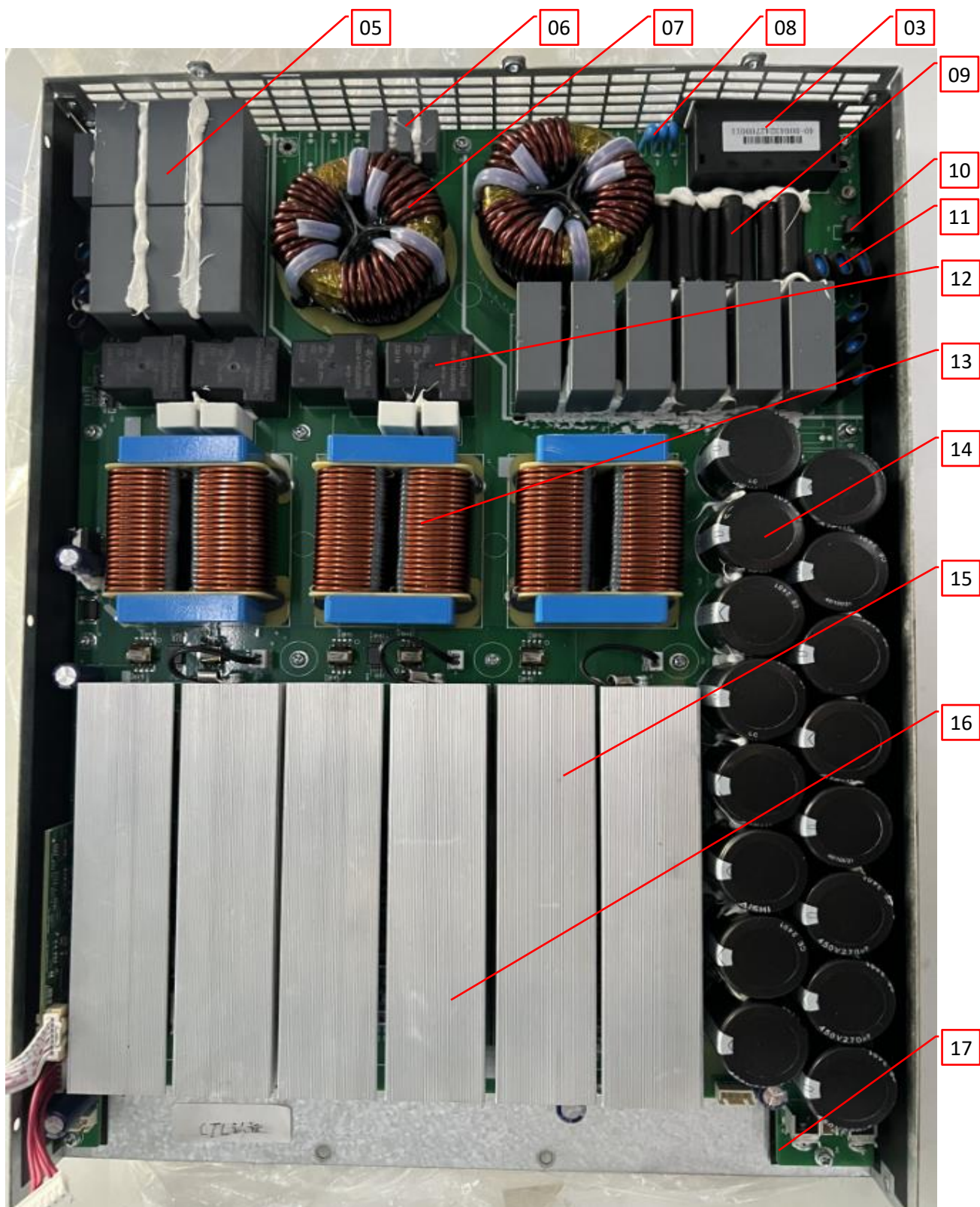


Photo 2 - Side view of the sample



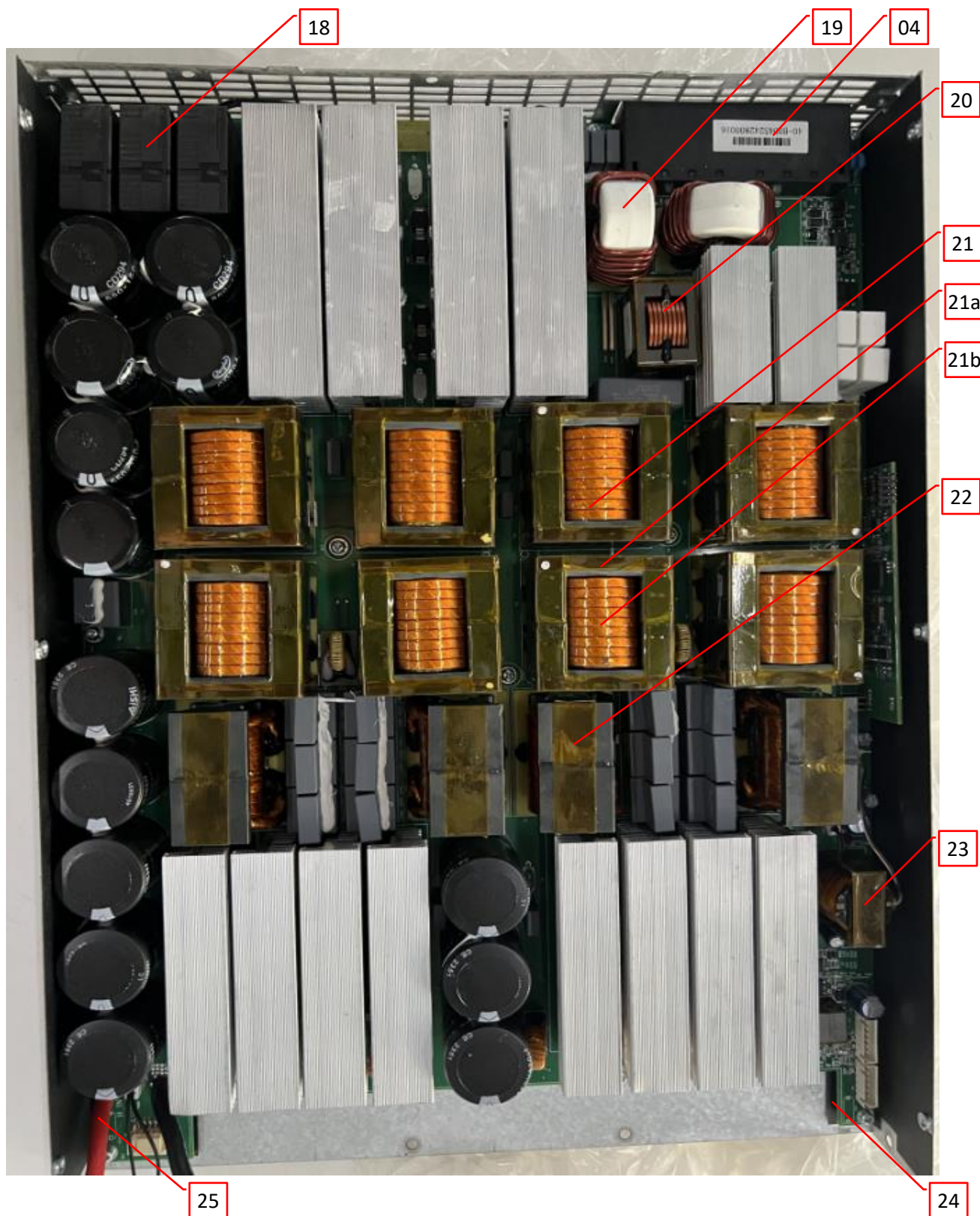
3.0 Product Photographs

Photo 3 - Internal view of the sample - PFC part



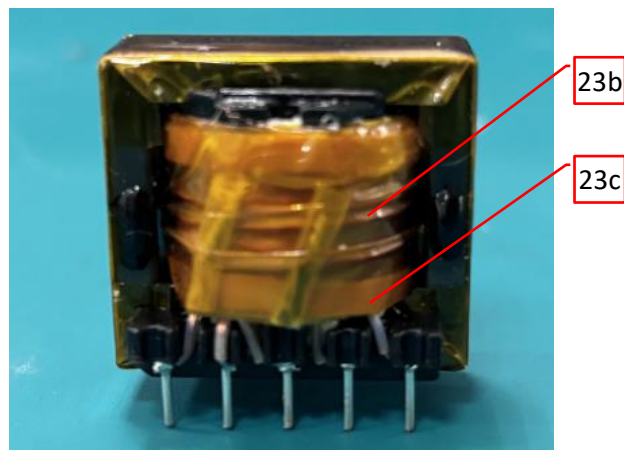
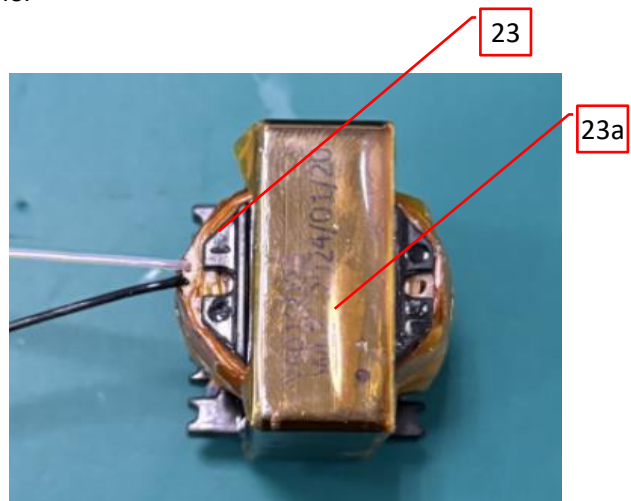
3.0 Product Photographs

Photo 4 - Internal view of the sample - LLC part



3.0 Product Photographs

Photo 5 - The on PWB transformer



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	Suzhou Niuera Energy Co., Ltd	Various	Plated steel minimum 1.2 mm thick, overall dimensions 437 x 300 x 84 mm, screws securing. Type 1 with two side openings.	NR
2	2	Fans	DONGGUAN PROTECHNIC ELECTRIC E187236	MGT8012XB-W38 F	12Vdc, 1.2A, secured to enclosure frame by screws.	cURus
			SHENZHEN HUAXIA HENGTAI E254715	DZ08038B12SH	12Vdc, 3.0A, secured to enclosure frame by screws.	cURus
			DELTA ELECTRONICS E132003	THB0812BE	12Vdc, 1.2A, secured to enclosure frame by screws.	cURus
				THB0812BEL7 D	12Vdc, 3.0A, secured to enclosure frame by screws.	cURus
2, 3	3	AC Connector	SHENZHEN CONNECTION ELECTRONIC E525208	HSTB4-S-R8	Input connector, 4-pin, 1000V, 70A, used for 30kW module.	cURus
			SHENZHEN TONGMAO E229741	DJL17-4TJW1	Input connector, 4-pin, 1000V, 70A, used for 30kW module.	cURus
				DJL17-4TJW1-4	Input connector, 4-pin, 1000V, 100A, used for 40kW module.	cURus
2, 4	4	DC Connector	SHENZHEN CONNECTION ELECTRONIC E525208	HSTB14-S-R1	Output connector, 12-pin, 1000V, 70A, used for 30kW module.	cURus
			SHENZHEN TONGMAO E229741	DJL17-14G12 TJW1	Output connector, 12-pin, 1000V, 70A, used for 30kW module.	cURus
				DJL17-14G12 TJW1-3	Output connector, 12-pin, 1000V, 100A. Used for 40kW module.	cURus
3	5	X2 Capacitors	Sichuan Zhongxing Electr. E217215	MKP61	4.7uF, 305VAC	cURus
			XIAMEN FARATRONIC E186600	MKP62	0.01~15uF, 305VAC	cURus
			CHIEFCON ELECTRONICS E209251	MKP62	0.01~15uF, 305VAC	cURus
3	6	Y Capacitors	Sichuan Zhongxing Electr. E217215	MKP63	22nF, AC 300V	cURus
			XIAMEN FARATRONIC E186600	MKP63	22nF, AC 300V	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
3	7	Inductors	TianChang Fuan Electronic	Y5040001	1.24mH, N1:2.0mm*2P*8T, N2: 2.0mm * 2P * 8T, N3: 2.0mm * 2P * 8T, critical parts as below	NR
			Xuzhou Hanrun Electronics	Y5040001	1.24mH, N1:2.0mm*2P*8T, N2: 2.0mm * 2P * 8T, N3: 2.0mm * 2P * 8T, critical parts as below	NR
			SHANGDONG SAINT ELECTRIC E194410	PEW/180, QZ-*/180, MW30-C	Copper wires, 180°C	UR
			WUXI JUFENG COMPOUND LINE E206882	QZY-2	Copper wires, 180°C	UR
			HENG YA ELECTRIC KUN SHAN LTD E245514	QZY-2	Copper wires, 180°C	UR
3	8	Y1 Capacitors	Success Electronics E114280	SL series	47pF, 250Vac	cURus
			Xiamen Wanming Electronics E221839	HJ series	47pF, 250Vac	cURus
3	9	Fuses	LITTELFUSSE E10480	504 Series	500Vac, 30A.	cURus
			Nanrong Electric E343461	HDP601	500Vac, 30A, 200A.	cURus
			Nanrong Electric E343461	HDP603	660Vac, 40A, 200A.	cURus
			SHANGHAI FULLNESS ELECTRICAL E485357	CTH2400	660Vac, 40A, 200A.	cURus
			HONGHU BLUELIGHT ELECTRONIC E324232	6DT2240	660Vac, 40A, 200A.	cURus
3	10	Discharge tube	BESTBRIGHT ELECTRONICS E244458	2R-8*6 SERIES	600Vac, 1300 Vpeak, 10 KA.	cURus
			Shenzhen Bencent E337906	B8G600H	600Vac, 1300 Vpeak, 10 KA.	cURus
3	11	Varistors	BRIGHTKING SHENZHEN E327997	511KD20	510V, D20, 3kA MOV.	cURus
				102KD20J	1000V, D14, 3kA MOV.	cURus
			Guangdong Fenghua High tech E325462	FNR-20K511	510V, D20, 3kA MOV.	cURus
3	12	Relays	Churod Electronics E341422	CHP8-112DB2-S90	250VAC, 90A	cURus

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Photo #	Item no. ¹	Name	Manufacturer/ trademark ²	Type / model ²	Technical data and securement means	Mark(s) of conformity ³
3	13	Inductors	TianChang Fuan Electronic	Y5030001	266uH, N1:5*1.5mm*1P*26T N2:5*1.5mm*1P*26T, critical parts as below	NR
			Xuzhou Hanrun Electronics	Y5030001	266uH, N1:5*1.5mm*1P*26T N2:5*1.5mm*1P*26T, critical parts as below	NR
			Ningbo Jintian New Material E227047	QZY-2/200	200°C	UR
			SHANGDONG SAINT ELECTRIC E194410	AIW/1.5*5	200°C (*EI/AIW, Q(ZY/XY)-*/200, MW35-C)	UR
			WUXI JUFENG COMPOUND LINE E206882	AIW/1.5*5	200°C (xEI/AIW, Q(ZY/XY)-x/200)	UR
			HENG YA ELECTRIC KUN SHAN E245514	AIW/1.5*5	200°C (LZ-AIW-R-1)	UR
3	14	Electrolytic Capacitors	Nantong Jianghai Capacitor E355297	CD294	550V; 150/270/330uF; 105°	cURus
			HUNAN AIHUA GROUP	ELC2WM331Q 35KT	330uF; 450V; 105°	NR
				ELC2WM271Q 30KT	270uF; 20%; 450V; 105°	NR
3	15	Diodes	Jie Jie Microelectronics	ECR7506SL	75A; 600V; TO-247	NR
			Various	Various	75A; 600V; TO-247	NR
			VISHAY SEMICONDUCTORS	E5PX6012L	60A; 1200V; TO-247	NR
			Various	Various	60A; 1200V; TO-247	NR
			GLOBAL POWER TECHNOLOGY	G5S12020PMT	20A; 1200V; TO-247.	NR
			INVENTCHIP	1V1D12020T2	20A; 1200V; TO-247-2.	NR
			Various	Various	20A; 1200V; TO-247	NR
			Various	Various	20A; 1200V; TO-247	NR
3	16	MOSFETs	Shanghai CoolSemi	CPW60R030FT 4B	600V; 30mΩ; TO-247	NR
			Various	Various	600V; 30mΩ; TO-247	NR
			Hangzhou Silan Microelectronics	SGTP75V65SD B1P7	75A; 650V; TO-247	NR
			Various	Various	75A; 650V; TO-247	NR

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Photo #	Item no. ¹	Name	Manufacturer/ trademark ²	Type / model ²	Technical data and securement means	Mark(s) of conformity ³
3	17	PWB (of PFC, LLC boards)	KUNSHAN JINPENG ELECTRONICS E306084	JP-2, JP-1	Multiple layer min 105°C, V-0, 130°C	UR
			JIANGSU DIFEIDA ELECTRONICS E213009	DFD-4	Multiple layer min 105°C, V-0, 130°C	UR
			TONGLING ONBOLE PCB E488128	M2/M1	Multiple layer min 105°C, V-0, 130°C	UR
			VABAELELECTRONIC TECHNOLOGY E495184	V-D V-F V-M V-AL	Multiple layer min 105°C, V-0, 130°C	UR
			Various	Various	Multiple layer min 105°C, V-0, 130°C	UR
4	18	Relays	DONGGUAN CHUOD ELECTRONICS E341422	CHS01-V-112LA2	277VAC, 60A	cURus
				CHS01-S-112LA	277VAC, 40A	cURus
			Xiamen Hongfa Electroacoustic E134517	HF165F	277VAC, 60A	cURus
				HF165F	277VAC, 40A	cURus
4	19	Inductors	Suzhou Molei Electronic Technology	Y5040005	1.2mH, N1:1.6mm×4P*4T, N2:1.6mm×4P*4T, critical parts as below	NR
			HAINING HAOHUA ELECTRONICS	Y5040005	1.2mH, N1:1.6mm×4P*4T, N2:1.6mm×4P*4T, critical parts as below	NR
			SHANDONG SAINT ELECTRIC E194410	QZY-2/180	180°C, Magnet wires	UR
			ZHEJIANG HONGBO TECHNOLOGY E221719	QZY-2/180	180°C, Magnet wires	UR
			Ningbo Jintian New Material E227047	QZY-2/180	180°C, Magnet wires	UR

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Photo #	Item no. ¹	Name	Manufacturer/ trademark ²	Type / model ²	Technical data and securement means	Mark(s) of conformity ³
4	20	Inductors	HAINING HAOHUA ELECTRONICS	Y5120001	10uH, 1.5mm*6.0mm*1P*8T, critical parts as below	NR
			Xuzhou Hanrun Electronics	Y5120001	10uH, 1.5mm*6.0mm*1P*8T, critical parts as below	NR
			SHANDONG SAINT ELECTRIC E194410	1PEW/200	200°C, Magnet wires	UR
			WUXI JUFENG COMPOUND LINE E206882	AIW	200°C, Magnet wires	UR
			HENG YA ELECTRIC KUN SHAN E245514	AIW	200°C, Magnet wires	UR
			ZHEJIANG HONGBO TECHNOLOGY E221719	AIW	200°C, Magnet wires	UR
4	21	Transformer	HAINING HAOHUA ELECTRONICS	Y5010003	30uH, N1:0.07mm*1200*1P*7T N2:0.07mm*900*1P*9T, critical parts as below	NR
			Xuzhou Hanrun Electronics	Y5010003	30uH, N1:0.07mm*1200*1P*7T N2:0.07mm*900*1P*9T, critical parts as below	NR
4	21a	Base	CHANG CHUN PLASTICS E59481	PHENOLIC	155°C, Epoxy Resin/Phenolic (EP/PF) furnished	UR
			SUMITOMO BAKELITE E41429	PHENOLIC	155°C, Epoxy Resin/Phenolic (EP/PF) furnished	UR
4	21b	Magnet wires	SHANDONG SAINT ELECTRIC E194410	3UEW/180	180°C, Magnet wires	UR
			HANGZHOU WEIFENG ELECTRONIC E229341	3UEW/180	180°C, Magnet wires	UR
			WUXI JUFENG COMPOUND LINE E206882	3UEW/180	180°C, Magnet wires	UR
			HENG YA ELECTRIC KUN SHAN E245514	3UEW/180	180°C, Magnet wires	UR
4	21c	Insulating Tapes (not shown)	SYMBIO INC E50292	PF	180°C, Polyimide film insulating tapes	UR
			JINGJIANG JINGYANG INSULATING E309872	PF	180°C, Polyimide film insulating tapes	UR
			JINGJIANG YAHUA PRESSURE SENSITIVE GLUE E165111	PF	180°C, Polyimide film insulating tapes	UR
4	21d	Insulation Paper (not shown)	Zhejiang Wazam New Materials E136069	NMN	155°C, Epoxy Industrial laminates furnished as sheets	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
4	22	Resonant Inductor	HAINING HAOHUA ELECTRONICS	Y5990003	12.5uH, N1:0.05mm*650*2P*9T N2:0.05mm*650*2P*9T, critical parts as below	NR
			Xuzhou Hanrun Electronics	Y5990003	12.5uH, N1:0.05mm*650*2P*9T N2:0.05mm*650*2P*9T, critical parts as below	NR
			SHANDONG SAINT ELECTRIC E194410	3UEW/180	180°C, Magnet wires	UR
			HANGZHOU WEIFENG ELECTRONIC E229341	3UEW/180	180°C, Magnet wires	UR
			WUXI JUFENG COMPOUND LINE E206882	3UEW/180	180°C, Magnet wires	UR
			HENG YA ELECTRIC KUN SHAN E245514	3UEW/180	180°C, Magnet wires	UR
4, 5	23	Transformer	FUANTRONICS	Y5010002	515uH, N1: 0.30mm*2P*28T, N2: 0.30mm*2P*28T, N3: 0.50mm*4P*5T, N4:0.30mm*3P*5T, N5: 0.30mm*2P*28T, N6: 0.30mm*2P*28T, N7:0.30mm*1P*5T, N8: 0.40mm*1P*3T	NR
			Xuzhou Hanrun Electronics	Y5010002	515uH, N1: 0.30mm*2P*28T, N2: 0.30mm*2P*28T, N3: 0.50mm*4P*5T, N4:0.30mm*3P*5T, N5: 0.30mm*2P*28T, N6: 0.30mm*2P*28T, N7:0.30mm*1P*5T, N8: 0.40mm*1P*3T	NR
5	23a	Bobbin	CHANG CHUN PLASTICS E59481	ER-2809	T375HF / 150°C	UR
5	23b	Magnet wires	Shang Dong Saint Electric E394410	2UEW-F	155°C, Magnet wires, 0.3 or 0.4 mm	UR
			SHANGDONG SAINT ELECTRIC E194410	2UEW-F	155°C, Magnet wires, 0.3 or 0.4 mm	UR
			WUXI JUFENG COMPOUND LINE E206882	2UEW-F	155°C, Magnet wires, 0.3 or 0.4 mm	UR
			HENG YA ELECTRIC KUN SHAN E245514	2UEW-F	155°C, Magnet wires, 0.3 or 0.4 mm	UR
			ZHEJIANG HONGBO TECHNOLOGY E221719	2UEW-F	155°C, Magnet wires, 0.3 or 0.4 mm	UR
5	23c	Insulating Tapes	JINGJIANG JINGYANG ADHESIVE PRODUCT E309872	J16	180°C, insulating tape.	UR
				WF310	130°C, insulating tape.	UR
				JY-133	130°C, insulating tape.	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
5	23d	Varnish (not shown)	Suzhou Taihu E228349	T4260(a)	130°C, MW 28-C varnish	UR
			JOHN C DOLPH E317427	BC-346-A	130°C, MW 28-C varnish	UR
4	24	Insulation Paper	SHENZHEN TEESUN TECHNOLOGY E329660	TS-FR370DL	UL94 V-0, 105°C	cURus
			CHENGDU KANGLONGXIN PLASTICS E315185	KLX FRPC-1860B	UL94 V-0, 105°C	cURus
4	25	Internal wires	Suzhou Dianhang Electronics E354173	U L3385	26AWG; 105 degC, 300 Vac, HF	cURus
				UL 2468	22/26AWG, 80°C, 300V, VW-1	UL, CSA
			DONG GUAN SHENG PAI ELECTRIC WIRE & CABLE E347603	UL 1015	10 AWG, 105°C, 1000 V, VW-1	UL, CSA
4	26	Optical isolators (not shown)	EVERLIGHT ELECTRONICS E214129	EL1018	VISO 5000V, VCEO 80V IF 5mA	cURus
			LITE-ON Technology Corporation E113898	LTV-1018	VISO 5000V, VCEO 80V IF 5mA	cURus
4	27	Insulation Tapes (not shown)	Jingjiang Jingyi Adhesive Product E246950	J16	180°C	cURus
			SYMBIO INC E50292	PF*(d)(g)	180°C	cURus
			JINGYANG INSULATING PRODUCT E309872	PF*(d)(g)	180°C	cURus
			JINGJIANG YAHUA PRESSURE SENSITIVE GLUE E165111	PF*(d)(g)	180°C	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
4	28	Teflon Tube (not shown)	ChangYuan Electronics Group E180908	CB-TT-L	200°C	cURus
			Dongguan Lingfei Hardware and Plastic products E352366	LING FREE PTFE	200°C	cURus
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.						

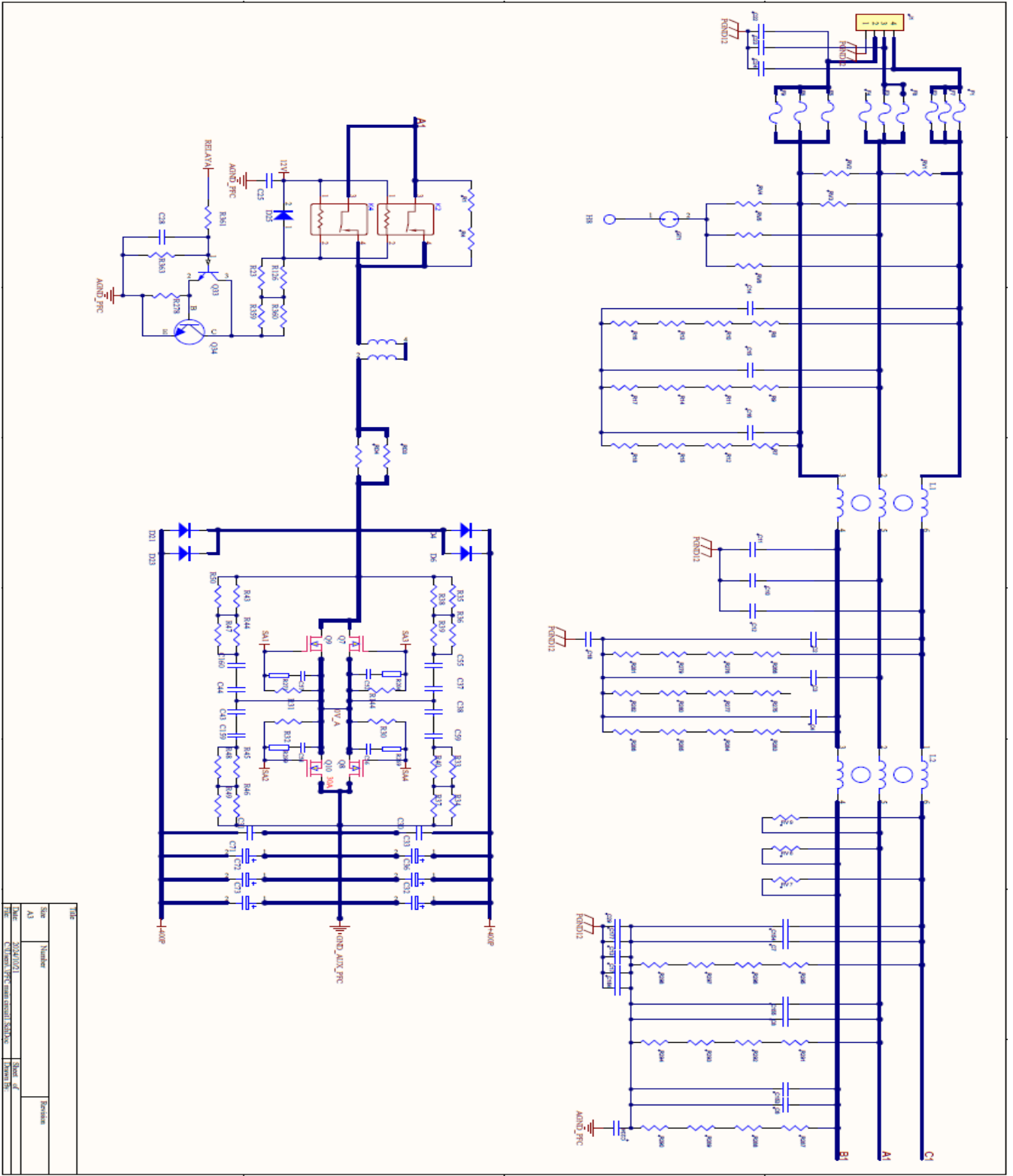
5.0 Critical Unlisted CEC Components

No Unlisted CEC components are used in this report.

6.0 Critical Features
<u>Recognized Component</u> - 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.
<u>Listed Component</u> - 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.
<u>Unlisted Component</u> - 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.
<u>Critical Features/Components</u> - 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.
<u>Construction Details</u> - 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. <u>Spacing</u> - In primary DC circuits, 10 mm minimum spacing are maintained through air and over surfaces of insulating material between current-carrying parts of DC opposite polarity and over 14 mm between such current-carrying parts and dead-metal parts or low voltage isolated circuits. In primary AC circuits, 5 mm minimum spacing are maintained through air and over surfaces of insulating material between current-carrying parts of DC opposite polarity and over 5 mm between such current-carrying parts and dead-metal parts or low voltage isolated circuits. These are based on PD2, OVCIII for circuits on PWB acc.to UL840
2. <u>Mechanical Assembly</u> - 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. <u>Corrosion Protection</u> - All ferrous metal parts are protected against corrosion by painting, plating or the equivalent.
4. <u>Accessibility of Live Parts</u> - All uninsulated live parts in primary circuitry are housed within a metal enclosure constructed with no openings other than those specifically described in Sections 4 and 5.
5. <u>Grounding</u> - All exposed dead-metal parts and all dead-metal parts within the enclosure that are exposed are connected to the grounding lead of the power supply cord or the equipment grounding terminal.
6. <u>Polarized Connection</u> - NA
7. <u>Internal Wiring</u> - 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 26AWG, with a minimum rating of 300V, 105°C for power wires, and 80°C for communication wires.
8. <u>Schematics</u> - Refer to Illustration 1, 1a, 1b and 1c for electric schematics requiring verification during Field Representative Inspection Audits.
9. <u>Markings</u> - The product is marked on a label as follows: Applicant's name, brand name; model number; date of manufacturer; and electrical ratings.
10. <u>Cautionary Markings</u> - The following are required: Electric Shock warning symbol marking on product.
11. <u>Installation, Operating and Safety Instructions</u> - Instructions for installation and use of this product are provided by the manufacturer. Refer to Illustrations 2, 2a and 2b for details.
12. <u>Transformers</u> - Supplier records must be provided that indicate the received shipment of transformers (section 4.0, item 21, 23) were constructed as indicated in Illustrations 3 and 3a. This records must be available at the factory for inspection on every received shipment.

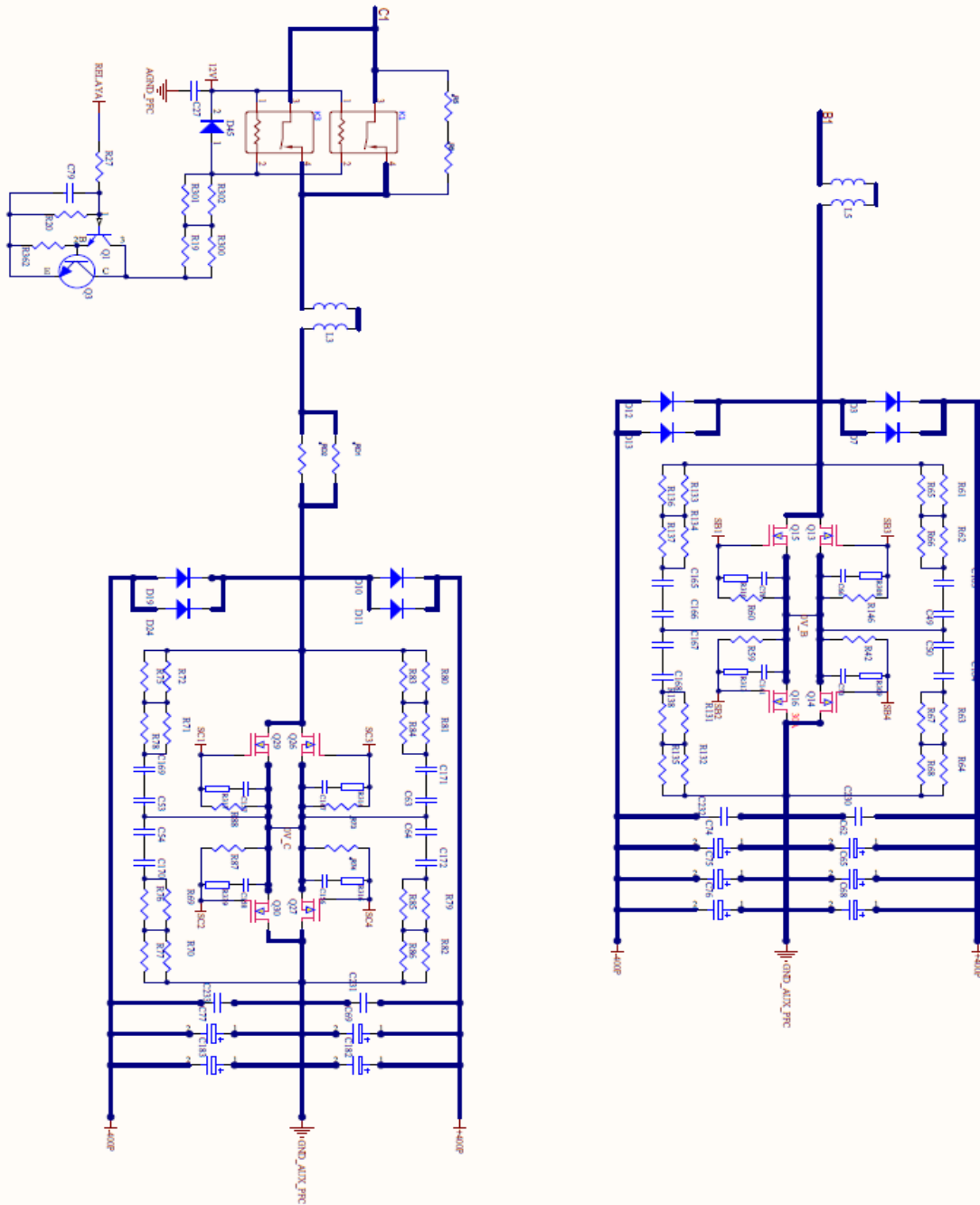
7.0 Illustrations

Illustration 1 - Electric diagrams (PFC main circuit 1)



Title		Revision	
A3		1	
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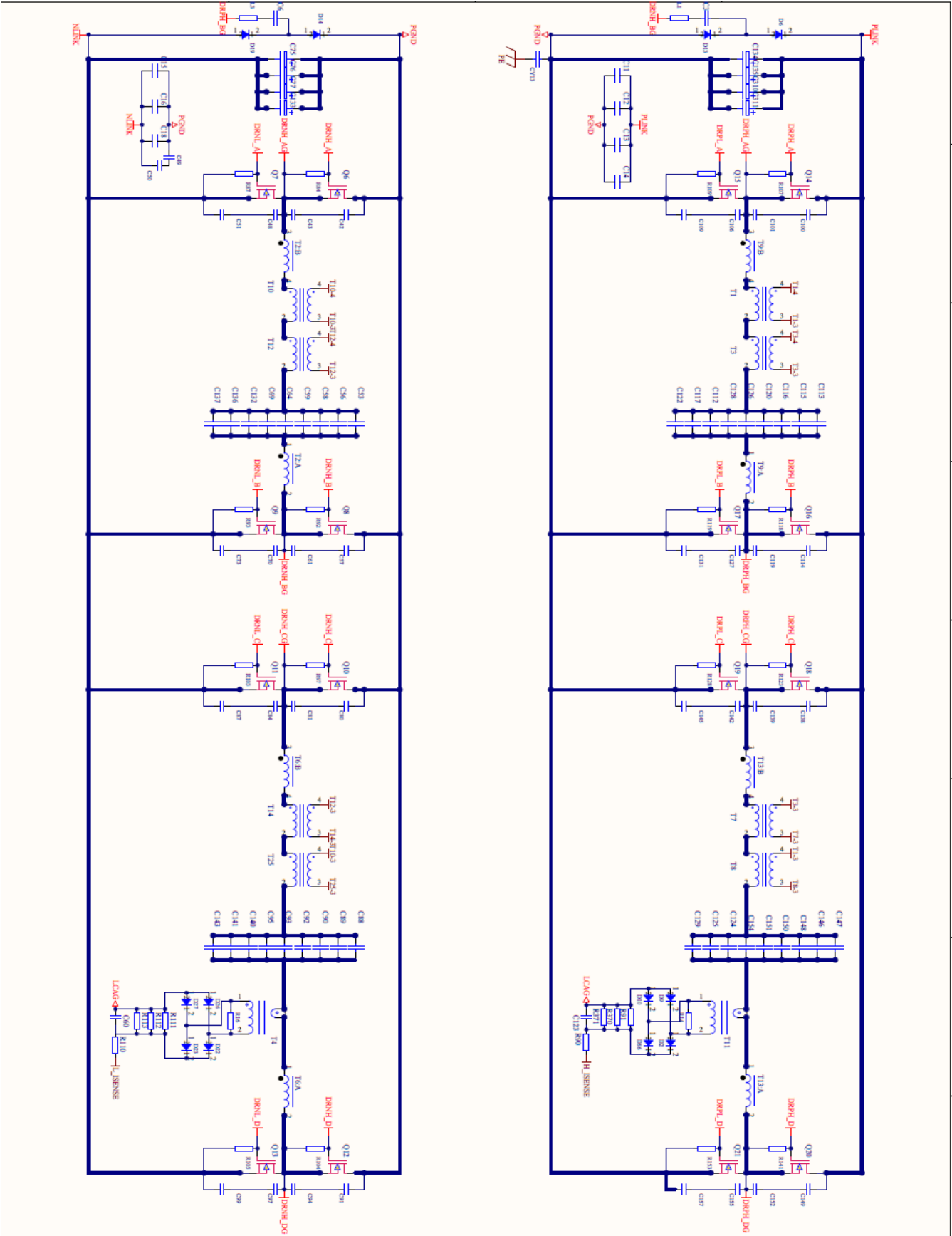
Illustration 1a - Electric diagrams (PFC main circuit 2)



Title		
Size	Number	Revision
A3		
Date	Sheet of	
20/04/021		
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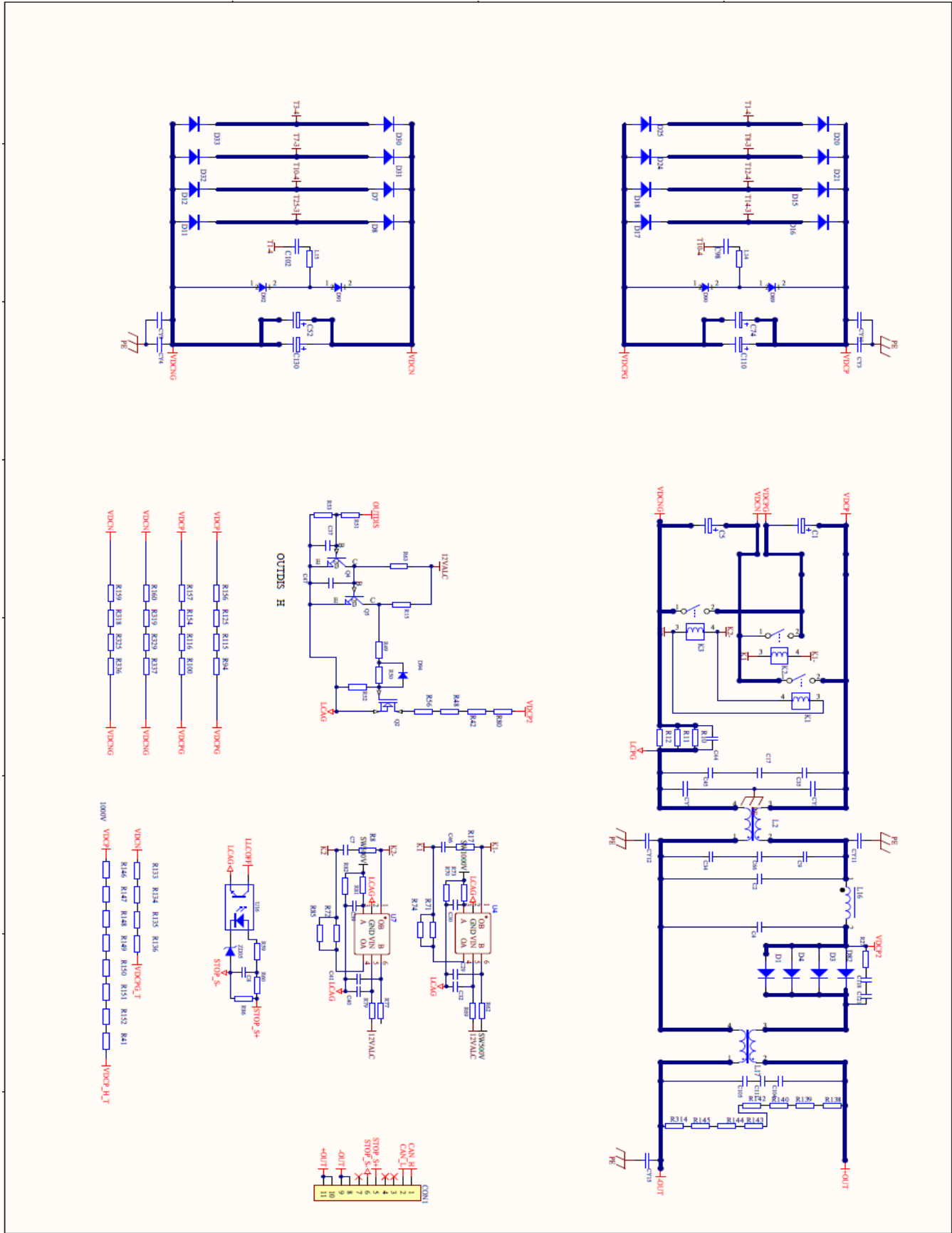
7.0 Illustrations

Illustration 1b - Electric diagrams (LLC main circuit 1)



7.0 Illustrations

Illustration 1c - Electric diagrams (LLC main circuit 2)



7.0 Illustrations

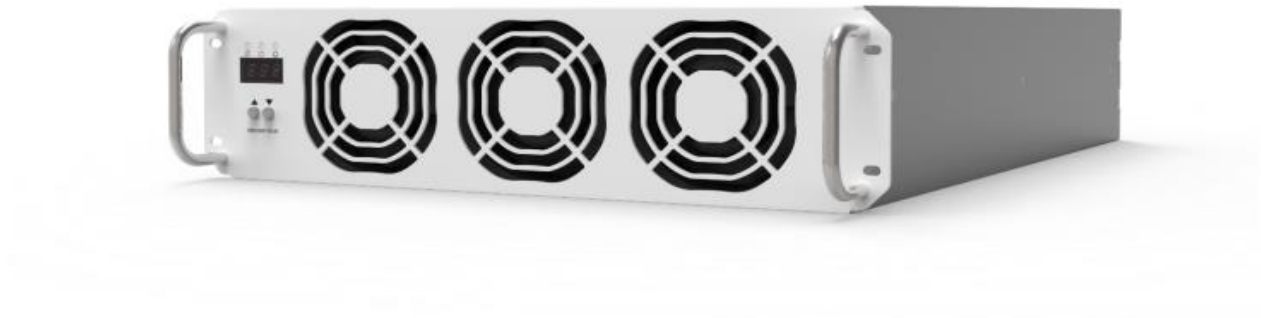
Illustration 2 - User manual (first page, XEH-40K-TX-02 as example)



Suzhou Niuera Energy Co., Ltd

The XEH-40K-TX-02 Charging Module

User's Manual



7.0 Illustrations

Illustration 2a - User manual (Safety requirements)



Suzhou Niuera Energy Co., Ltd

IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS

SAFETY

SYMBOL USE

In order to ensure the personal and property safety of users when using the products, and use the products more efficiently and optimized, the manual provides phase

Pass information and is highlighted using the following symbols.

The following lists the symbols that may be used in this manual. Please read them carefully to better use this manual.



DANGER

Indicates a highly hazardous situation which, if not avoided, will result in death or serious injury



WARN

Indicates a hazard with a medium level of risk that could result in death or serious injury if not avoided.



BE CAREFUL

Indicates a hazard with a low level of risk that, if not avoided, could result in moderate or minor injury.



LOOK OUT

Indicates a potentially hazardous situation that, if not avoided, may cause equipment failure or property damage

SAFETY PRECAUTIONS

Before electrical connection, professionals must wear protective equipment during electrical operation.



DANGER

- There may be high pressure in the system!
- Ensure insulation during system installation
- Do not close the AC/DC circuit breaker before completing the electrical connection, and prevent misconnection
- Before electrical connection, ensure that all cables are free from power

7.0 Illustrations

Illustration 2b - User manual (Safety requirements)



Suzhou Niuera Energy Co., Ltd



WARN

- Any improper operation may cause device damage or personal injury
- Cables used in the system must be securely connected, intact, properly insulated, and of appropriate specifications
- Only professional personnel are allowed to connect cables



LOOK OUT

- The wiring process must follow the relevant rules and safety instructions
- All electrical installations must comply with the electrical standards of the country in which they are installed
- After the product is installed, it must be connected with a matching load

NOTES FOR MAINTENANCE



DANGER

- Improper maintenance operations may result in injury or equipment damage!
- Always remember that the following steps must be followed before performing any maintenance operations:
- First, disconnect the AC circuit breaker on the power grid side, and then disconnect the DC switch
- Wait at least 30 seconds until the internal energy storage components are discharged before performing maintenance or repair operations inside the device
- Check with testing equipment to ensure that no voltage or current is present

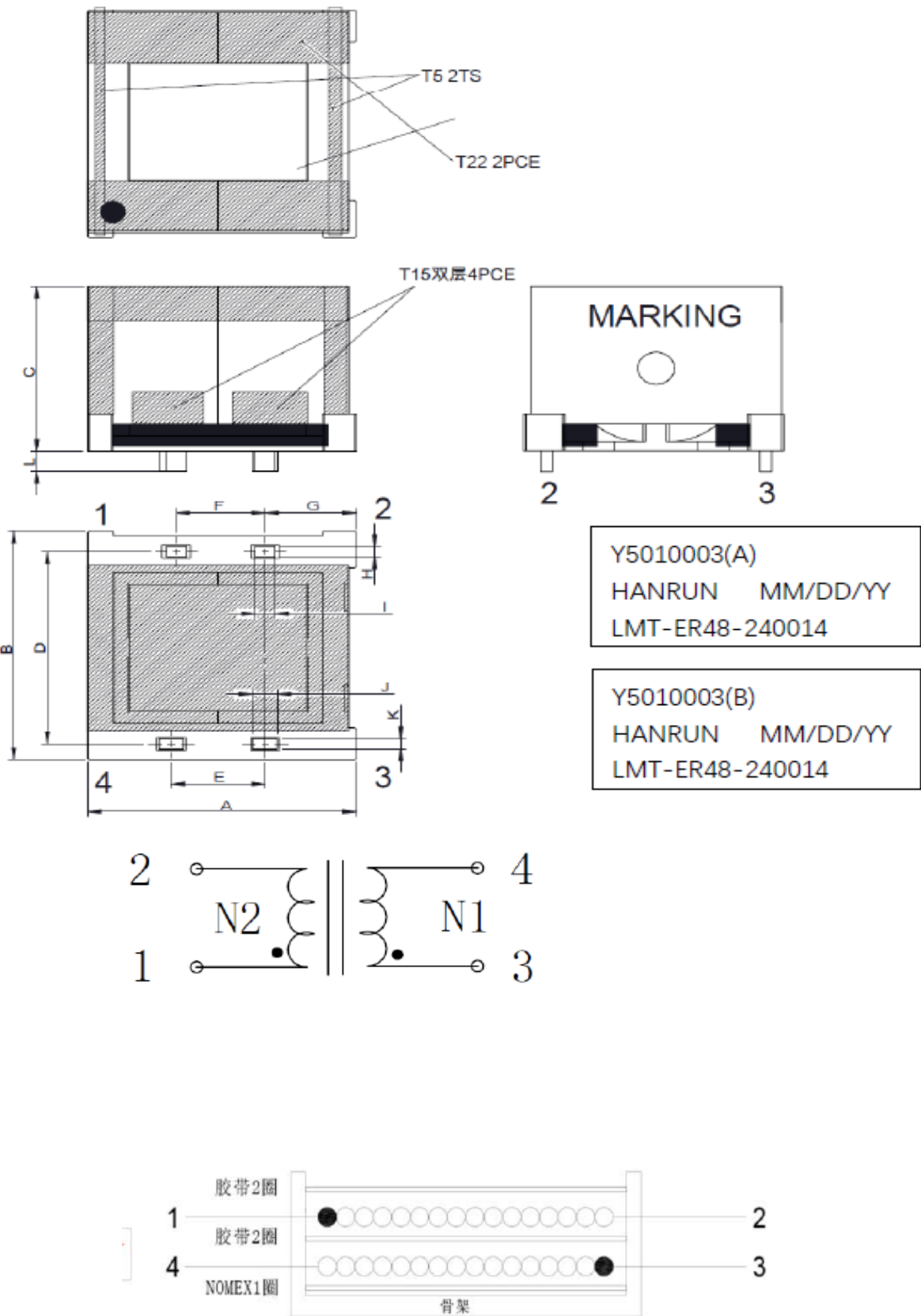


BE CAREFUL

When electrical connection and repair work is performed, temporary warning signs must be posted or barriers erected to prevent unrelated persons from entering the electrical connection or maintenance area

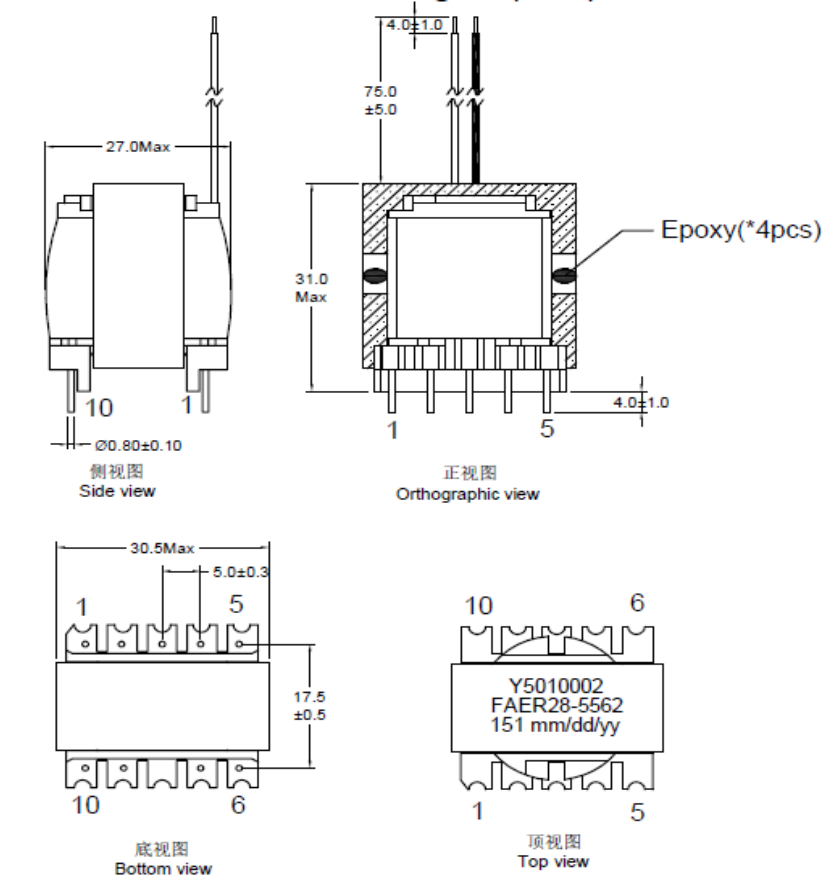
7.0 Illustrations

Illustration 3 - Configuration and schematics of transformer (item 21 in Sec. 4)

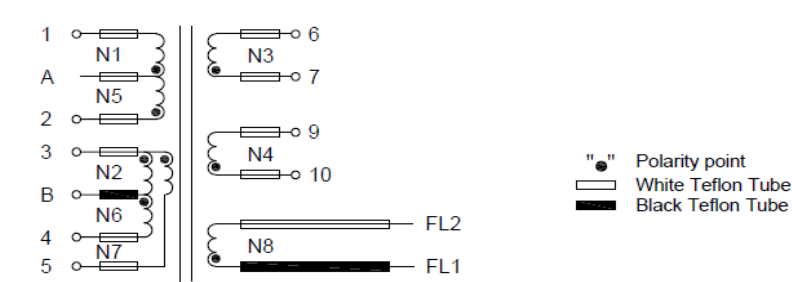


7.0 Illustrations

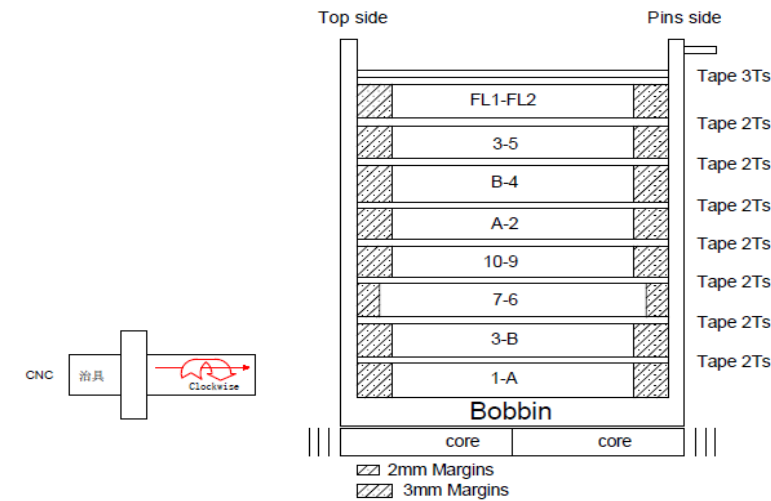
Illustration 3a - Configuration and schematics of transformer (item 23 in Sec. 4)



原理图/Circuit diagram.



绕线结构/Winding Construction.



8.0 Test Summary					
Evaluation Period	2024.08.20 - 2024.11.01			Project No.	2408B1422SHA
Sample Rec. Date	2024.08.20	Condition	Prototype	Sample ID.	NY40-2433220001
Test Location	No. 81 Chunlan Road, Huangdai Town, Xiangcheng District, Suzhou City, 215100 CHINA				
Test Procedure	Testing at Manufacturers Premises (TMP) - Level 1				
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 2202: 2022 Ed.3 Clause	CSA C22.2 #346: 2022 Ed.1 Clause	
Power Verification Test			48	48	
Normal Temperature Test			49	49	
Dielectric Voltage-withstand Test			50	50	
Short Circuit Test			52.4	52.4	
Forced Ventilation Test			52.6	52.6	
Component Short and Open Circuit Test			52.7	52.7	
Bonding / Grounding Continuity Test			57.2	57.2	
Harmonic Distortino Test			67	67	
Impact Test			68	68	
Test Description			Functional Safety		
			NA		

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:	Robert Li	Reviewed by:	Kevin Zhu
Title:	Technical Supervisor	Title:	Technical Manager
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	Suzhou Niuera Energy Co Ltd
Address	3rd Floor, No. 81 Chunlan Road, Huangdai Town, Xiangcheng District, Suzhou City, 215100
Country	China
Product	DC charging module

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 (Shanghai FTZ) Co., Ltd

ETL Component Evaluation Center

Building No. 86, 1198 Qinzhou Road (North)

Shanghai 200233, China

Attn: Ms. Emiliana Zhou

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

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

Hipot tester

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:

<u>Product</u>	<u>Test Voltage</u>	<u>Test Time</u>
DC output circuits to module enclosure/PE	3000Vdc	60s
AC input circuits to module enclosure/PE	1960Vac	60s
<u>Product</u> - One sample from each shipment of section 4.0 item 21	<u>Test Voltage</u>	<u>Test Time</u>
Between primary winding and core	1000Vac	60s
Between secondary winding and core	1000Vac	60s
Between primary winding and secondary winding	3000Vac	60s
<u>Product</u> - One sample from each shipment of section 4.0 item 23	<u>Test Voltage</u>	<u>Test Time</u>
Between primary winding and core	1500Vac	60s
Between secondary winding and core	1500Vac	60s
Between primary winding and secondary winding	3200Vac	60s

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

ED 16.3.15 (1-Jul-2022) Mandatory