UL 2594:2016
TEST REPORT

Client Name	:	Nanjing JNTIMUYA New Energy Technology Co., Ltd.
Address	:	Rm 107, Build 1, Apple City Build, No. 228, Tianyuan East Rd, Jiangning Dist, Nanjing (Jiangning High-tech Park)
Product Name	:	EV CHARGER
Test Model No.	:	TAP-32
Report No.	:	CCTI-2024061105S
Test Date	:	Jun. 07, 2024 to Jun. 13, 2024
Issued Date	:	Jun. 13, 2024

Prepared By	:	Shenzhen CCTI Technology Co., Ltd.
Address	:	102, 1/F, Block A, Building E, Yongwei Industrial Park, No. 118, Yongfu Road, Qiaotou, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
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Scan code for report

TEST REPORT

UL 2594

STANDARD FOR SAFETY Electric Vehicle Supply Equipment

Report reference No ..... :	CCTI-2024061105S
Date of issue ..... :	Jun. 13, 2024
Tested by (name + signature) ..... :	Nick Chan
Approved by (name + signature) ..:	Corey Mao
Total number of pages..... :	46

Testing Laboratory..... :	Shenzhen CCTI Technology Co., Ltd.
Address..... :	102, 1/F, Block A, Building E, Yongwei Industrial Park, No. 118, Yongfu Road, Qiaotou, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China.
Testing location ..... :	Same as above
Applicant's name ..... :	Nanjing JNTIMUYA New Energy Technology Co., Ltd.
Address..... :	Rm 107, Build 1, Apple City Build, No. 228, Tianyuan East Rd, Jiangning Dist, Nanjing (Jiangning High-tech Park)

Test specification

Standard..... :	UL 2594:December 21, 2016
Test procedure ..... :	UL Report
Non-standard test method ..... :	N/A

This test report is specially limited to the above client company and product model only. It may not be duplicated without prior written consent of CCTI Test.

Test item description ..... :	EV CHARGER
Trademark ..... :	N/A
Manufacturer's name ..... :	Nanjing JNTIMUYA New Energy Technology Co., Ltd.
Address..... :	Rm 107, Build 1, Apple City Build, No. 228, Tianyuan East Rd, Jiangning Dist, Nanjing (Jiangning High-tech Park)
Model and/or type reference ..... :	TAP-32 See ATTACHMENT 2-- EUT SERIES MODEL LIST
Model difference ..... :	The product is different for appearance color and model.
Rating(s) ..... :	Input: 110Vac, 60Hz, 32A, 7680W, Class II

Summary of testing:

Tests performed (name of test and test clause):	**Testing location:**
All clauses.	Shenzhen CCTI Technology Co., Ltd. 102, 1/F, Block A, Building E, Yongwei Industrial Park, No. 118, Yongfu Road, Qiaotou, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China.

Copy of marking plate:

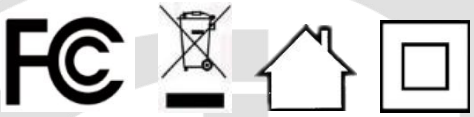
The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

(Additional requirements for markings. See 1.7 NOTE)

EV CHARGER

Model No.: TAP-32

Rating: Input: 110Vac, 60Hz, 32A, 7680W



Importer: XXX

Address: YYY

Manufacturer: Nanjing JNTIMUYA New Energy Technology Co., Ltd.

Address: Rm 107, Build 1, Apple City Build, No. 228, Tianyuan East Rd, Jiangning Dist, Nanjing (Jiangning High-tech Park)

Made in China

Remark on above marking:

1, The height of the letters is not less than 2mm; The height of WEEE symbols is more than 7 mm;

2, XXX means Importer name; YYY means Importer address.

TEST ITEM PARTICULARS:	
Class of equipment .....:	☐ Class I ☒ Class II ☐ Class III
IP protection class .....:	☒ IP67
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 ..... :	Jun. 07, 2024
Date(s) of performance of tests ..... :	Jun. 07, 2024 to Jun. 13, 2024

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

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

Name and address of factory (ies) ..... :	Same as manufacturer

GENERAL PRODUCT INFORMATION:

Product Description:
1, The product is an EV CHARGER
2, The model TAP-32 is selected to conduct the full test as the representative test model.
3, The product is different for appearance color and model.

Circuit diagram: /

UL 2594			
Clause	Requirement – Test	Result – Remark	Verdict
7	**Frame and Enclosure**		**P**
7.1	General		P
7.1.1	An enclosure shall be formed and assembled so that it has the strength and rigidity required to resist the abuses to which it may be subjected without resulting in a risk of fire or electrical shock due to total or partial collapse with resulting reduction of spacings, loosening or displacement of parts, or other defects.		P
7.1.2	The enclosure shall prevent molten metal, burning insulation, flaming particles, or similar materials from falling on combustible materials outside the enclosure.		P
7.1.3	A part, such as a dial, display face, or nameplate, that serves as a functional part of the enclosure shall comply with the enclosure requirements in this Standard.		P
7.1.4	A product that is intended for use in a commercial garage and contains a component that produces arcing or sparking, such as a snap switch, a relay, or a receptacle, shall have that component inherently located a specified height above the floor as described below. For products where these components are not inherently located above this specified height, the requirements in 7.1.5 – 7.1.6 apply		P
	a) For Mexico and the United States, arcing and sparking parts shall be inherently located at least 457 mm (18 inches) above the floor.		P
	b) For Canada, arcing and sparking parts shall be inherently located at least 50 mm (2 inches) above the floor.		P
7.1.4.1	Arcing and sparking components that have been evaluated and found to be suitable for use in a Class 1, Division 2 location using one of the following Standards, need not comply with 7.1.4:		N/A
	a) Annex A, Ref. No. 10, or		N/A
	b) Annex A, Ref. No. 11.		N/A
7.1.5	With reference to 7.1.4, products that are intended to be carried by hand and are capable of being placed on the floor and which would allow arcing and sparking components to be located less than 457 mm (18 inches) from the floor shall be marked in accordance with 74.9.		P
7.1.6	With reference to 7.1.4, products that are intended to be floor supported and contain arcing and sparking components inherently located above 457 mm (18 inches) shall be marked in accordance with 74.10.		P

UL 2594			
Clause	Requirement – Test	Result – Remark	Verdict
7.1.7	All enclosures shall be rated for a specific degree of environmental protection as outlined in 7.7.		P
7.2	Access covers		P
7.2.1	An access cover shall be hinged where it gives access to a fuse or other overload protective device located in a hazardous live circuit, the functioning of which requires renewal or resetting by the user, or where it is required for the user to open the cover in connection with intended operation of the device. A means shall be provided to hold the cover positively closed.		P
7.2.2	A door or cover giving access to a fuse shall be tight fitting.		P
7.3	Metallic enclosures		N/A
7.4	Nonmetallic enclosures		P
7.4.1	General		P
7.4.1.1	A nonmetallic enclosure shall comply with the requirements for mechanical strength in 7.6.		P
7.4.1.2	Nonmetallic materials used in the construction of enclosures shall have a flammability rating in accordance with Flammability, 18.		P
7.4.1.3	A nonmetallic enclosure shall comply with the applicable environmental considerations for the intended use in accordance with 7.7.		P
7.4.1.4	Enclosures of molded or formed thermoplastic material shall be constructed so that any shrinkage or distortion of the material over time will not allow for the user to be exposed to hazardous live parts. Compliance is determined by the Mold Stress Test, 66.		N/A
7.4.1.5	The minimum thickness of a nonmetallic enclosure shall be such as to comply with the requirements of 7.4.1.1 – 7.4.1.4.		P
7.4.1.6	A polymeric material enclosure having in any single unbroken section, a projected surface area greater than 0.93 m^2 (10 square feet) or a single linear dimension greater than 1.83 m (6 feet) shall have a flame-spread rating of 200 or less when tested in accordance with:		N/A
	a) Annex A, Ref. No. 13, or		N/A
	b) Annex A, Ref. No. 14.		N/A
7.4.2	Electrical properties		P
7.4.2.1	A polymeric material used for enclosures of live parts shall comply with Table 4.		N/A

UL 2594			
Clause	Requirement – Test	Result – Remark	Verdict
7.4.2.2	A polymeric material which encloses insulated live parts where the insulation thickness is greater than 0.071 mm (0.028 inch), need not comply with the HWI requirements listed in Table 4.		P
7.4.2.3	A polymeric material used in an enclosure that is separated through air by more than 0.8 mm (1/32 inch) from uninsulated live parts and more than 12.7 mm (1/2 inch) from arcing parts need not comply with the requirements in 7.4.2.1.		P
7.4.3	Thermal properties		N/
7.4.3.1	Except as indicated in 7.4.3.1.1, a polymeric material used for the enclosure of live parts shall have a relative thermal index rating higher than the temperature observed on that polymeric part during the Temperature Test, 49, for the specific application of the insulating material.		N/
7.4.3.1.1	This requirement does not apply to epoxy potting materials.		N/
7.5	Openings in enclosures		N/A
7.5.1	General		N/A
7.5.1.1	The enclosure of a device shall be designed and constructed to reduce the risk of emission of flame, molten metal, flaming or glowing particles, or flaming drops.		N/A
	7.5.1.2 Enclosures, regardless of the materials, shall not be provided with ventilation openings unless designated as Type 1 or Type 2 enclosures.		N/A
7.5.2	Enclosure top ventilation openings		N/A
7.5.3	Enclosure side ventilation openings		N/A
7.5.3.1	The ventilation openings on the sides of an enclosure shall comply with one of the following:		N/A
	a) They shall not exceed 4.8 mm (3/16 inch) in any dimension;		N/A
	b) They shall not exceed 1 mm (0.04 inch) in width regardless of length;		N/A
	c) They shall be provided with louvers that are shaped to deflect outwards an external vertically falling object – see Figure 2; or		N/A
	d) They shall be so located that an object, upon entering the enclosure, is unlikely to fall on uninsulated live parts involving a risk of fire or electric shock – see 7.5.3.2.		N/A

UL 2594			
Clause	Requirement – Test	Result – Remark	Verdict
7.5.3.2	Where a portion of the side of the enclosure falls within the area as traced out by the 5 degree angle in Figure 3, the limitations for bottom ventilation openings shall apply to that portion of the side.		N/A
7.5.4	Enclosure bottom ventilation openings		N/A
7.5.5	Openings for wiring		N/A
7.5.6.1	Drainage openings		N/A
7.5.6.1	Type 2 and 3R enclosures shall have provisions for drainage. Drainage openings shall not be less than 3.2 mm in diameter (1/8 inch in diameter) or more than 6.4 mm in diameter (1/4 inch in diameter),unless baffled or provided with a drainage fitting.		N/A
7.5.6.2	For Type 2 and 3R enclosures that also meet the requirements of other enclosure types, the drainage openings shall be closed by a removable plug, and instructions shall be provided in accordance with 78.4.		N/A
7.5.6.3	Type 2 and 3R enclosures that also meet the requirements of other enclosure types need not have drainage holes if the enclosure is provided with instructions in accordance with 78.5.		N/A
7.5.7	Openings for mounting		N/A
7.5.8	Glass covered openings		N/A
7.6	Mechanical strength of enclosures		
7.6.1	An enclosure, whether metallic or nonmetallic, shall comply with the applicable strength of enclosure tests, including the Impact Test, 57, Vehicle Drive Over Test, 58, and Drop Test, 59. See 39.		N/A
7.7	Environmental considerations		N/A
7.7.1	All enclosures shall be rated for one of the enclosure types in Annex A, Ref. No. 20. The enclosure rating shall be appropriate for the intended conditions of use.		N/A
7.7.2	All enclosures shall comply with the applicable test requirements for the applicable enclosure type in accordance with Annex A, Ref. No. 20. In addition, the requirements in 7.7.3 – 7.7.5 shall apply to nonmetallic enclosures or metallic enclosures with coatings that require test.		N/A
7.7.3	All nonmetallic enclosures, or metallic enclosures with coatings that require test, that are intended for outdoor use shall comply with the UV Exposure Test in Annex A, Ref. No. 21.		N/A

UL 2594			
Clause	Requirement – Test	Result – Remark	Verdict
7.7.4	For EV cord sets, all nonmetallic enclosures, or metallic enclosures with coatings that require test, shall be subjected to the Chemical Exposure Test, 67.4.		N/A
7.7.5	All nonmetallic enclosures, or metallic enclosures with coatings that require test, that are intended for use outdoors, shall be subjected to the Water Exposure Test, 67.2.		N/A
7.7.6	A gasket that is provided on an enclosure to meet the environmental construction and performance requirements for that enclosure type shall comply with the Gasket tests in Annex A, Ref. No. 20		N/A
8	**Protection of Users – Accessibility and User Servicing**		N/A
8.1	General		N/A
8.1.1	The requirements in this section apply to parts that are accessible to the user. For protection of service personnel requirements, refer to Protection of Service Personnel, 32.		N/A
8.2	Accessibility		
8.2.1	To reduce the risk of unintentional contact that results in electric shock from an uninsulated live part or film-coated wire, an opening in an enclosure shall comply with either:		N/A
	a) For an opening that has a minor dimension less than 25.4 mm (1 inch), such a part or wire shall not be contacted by the probe illustrated in Figure 6, or		N/A
	b) For an opening that has a minor dimension of 25.4 mm (1 inch) or more, such a part or wire shall be spaced from the opening as specified in Table 8.		N/A
8.3	User servicing		N/A
8.3.1	Service functions that are intended to be carried out by the user, in accordance with the User Maintenance Instructions, 79, shall comply with the requirements in 8.3.2 and 8.3.3.		N/A
8.3.2	The user shall not have access to any circuits or uninsulated parts that exceed the limits for an LVLE circuit. If the user is intended to access circuits or parts of the device above these limits, an interlock system shall be provided that will completely remove the hazard prior to the user accessing the area.		N/A

UL 2594			
Clause	Requirement – Test	Result – Remark	Verdict
8.3.3	Any user servicing that is intended to be performed shall not require the use of a tool to access the area where the servicing is to be performed, unless the tool is specified and that tool cannot be used to access any other area of the device.		N/A
9	**Protection Against Electric Shock**		**P**
9.1	Genera		P
9.1.1	The user shall be protected against the risk of electric shock. All accessible circuits shall have a potential to earth not exceeding 42.4 V peak or 60 V dc.		P
9.1.2	In addition to the requirement in 9.1.1, the requirements in 9.2 and 9.3 also apply.		P
9.2	Personnel protection systems		P
9.2.1	Electric vehicle supply equipment, with the exclusion of EV Power Outlets, shall be provided with a personnel protection system. The personnel protection system shall comply with the requirements in Annex A, Ref. No. 22 and Annex A, Ref. No. 23.		P
9.2.2	The personnel protection system shall be protected by enclosing the components in an enclosure in accordance with Frame and Enclosure, 7.		P
9.2.3	The interrupting device provided as part of the personnel protection system is required to be located at the attachment plug or not more than indicated in (a) and (b) from the attachment plug:		P
	a) For Mexico and the United States, 300 mm (12 inches) for all products.		P
	b) For Canada, 1.8 m (6 feet) for all products.		P
10	**Corrosion Protection Against Electric Shock**		**N/A**
10.1	All enclosures shall be provided with the applicable corrosion protection outlined in Annex A, Ref.No. 20.		N/A
11	**Mechanical Assembly**		**N/A**
11.1	Loosening of parts as a result of handling and intended operation of the device shall not result in a risk of fire, a risk of electric shock, or a risk of injury to persons.		N/A

UL 2594			
Clause	Requirement – Test	Result – Remark	Verdict
11.2	Screws with lock washers applied as intended, screws tightened by means of a power tool, rivets,and staked and upset screws are considered to comply without further valuation. See 11.3.		N/A
11.3	The construction of staked and upset screws is to consist of an interference fit between the nut and bolt resulting in uneasy turning of the screw. This shall be accomplished by the use of a center punch applied to the end of a bolt after assembly, mismatching of the nut and bolt threads, or the equivalent.		N/A
11.4	Except as indicated in 11.4.1, a rotating part that, when loosened, results in a risk of fire, electric shock, or injury to persons shall be assembled so that the direction of the rotation tends to tighten the means that hold the rotating part in place.		N/A
11.4.1	A keyed part, a press fit, a part locked in place with a pin, or equivalent means to hold a rotating part in place is considered to comply with this requirement.		N/A
11.5	A switch, fuseholder, attachment plug, or other component that is handled by the operator shall be mounted securely, and shall not turn when handled. In addition, the connection shall comply with the requirements in 11.6.		N/A
11.6	The means of securing components mentioned in 11.5 shall include more than friction between surfaces. A lock washer is an example of a means to secure a device having a single hole mounting means.		N/A
12	**Supply Connections**		**P**
12.1	Permanently connected devices		P
12.1.1	General		P
12.1.1.1	Except as indicated in 12.1.1.1.1, a permanently connected device shall have provision for connection of a wiring system. This provision shall consist of either wiring terminals as specified in 12.1.1.3 – 12.1.2.10 or wiring leads as specified in 12.1.1.3 and 12.1.3.1 – 12.1.3.6 and a means for connection of cable or conduit as specified in 12.2.1.		P
12.1.1.1.1	The requirements described in 12.1.1.3 – 12.1.3.6 do not apply to the means for connection to accessible signal circuits.		N/A

UL 2594			
Clause	Requirement – Test	Result – Remark	Verdict
12.1.1.2	The requirement in 12.1.1.1 applies to the wiring connection means for alternating current and direct current power circuits of a device. These connections are intended to be made in the field when the device is installed.		P
12.1.1.3	A wiring terminal or lead shall be used for the connection of a conductor having an ampacity based on Annex A, Ref. No. 70.		N/A
12.1.2	Wiring terminals		N/A
12.1.2.1	A wiring terminal shall comply with the requirements in Annex A, Ref. No. 24 for a wire of each metal for which it is marked. See 72.12.		N/A
12.1.2.2	Except as indicated in 12.1.2.2.1 – 12.1.2.2.2, a wiring terminal shall be provided with a pressure terminal connector of other than the crimping type and the terminal shall be securely fastened in place – for example, firmly bolted or held by a screw.		N/A
12.1.2.2.1	A pressure terminal connector, including a crimping type, may be field installed in accordance with 12.1.2.4.		N/A
12.1.2.2.2	A wire binding screw may be employed at a wiring terminal intended for connection of a 10 AWG (5.3 mm^2) or smaller conductor where upturned lugs, a cupped washer, or the equivalent is provided to hold the wire in position.		N/A
12.1.2.3	Except as indicated in 12.1.2.3.1, a wiring terminal shall be prevented from turning or shifting in position by a means other than friction between surfaces. This shall be accomplished by two screws or rivets; by square shoulders or mortises; by a dowel pin, lug, or offset; by a connecting strap or clip fitted into an adjacent part; or by an equivalent method.		N/A
12.1.2.3.1	A pressure terminal connector of the type that secures the wire by crimping and used in accordance with the requirements in 12.1.2.4 may turn when the least spacing between adjacent terminals and also between terminals and dead metal parts complies with Spacings, 22, for when connectors are oriented in such a position that results in these spacings.		N/A
12.1.2.4	As allowed per 12.1.2.2 and 12.1.2.3, a pressure terminal connector is not required to be provided when the conditions in (a) – (e) are complied with:		N/A

UL 2594			
Clause	Requirement – Test	Result – Remark	Verdict
	a) One or more component terminal assemblies shall be available from the device manufacturer or others, and they shall be specified in the instruction manual. See 76.3 (f).		N/A
	b) The fastening hardware such as a stud, nut, bolt, spring, or flat washer, or similar part is mounted on or separately packaged with the device, or specified in the instruction manual.		N/A
	c) The installation of the terminal assembly shall not involve the loosening or disassembly of parts other than a cover or other part giving access to the terminal location. The means for securing the terminal connector shall be readily accessible for tightening before and after installation of conductors.		N/A
	d) Where the pressure terminal connector provided in a terminal assembly requires the use of other than an ordinary tool for securing the conductor, the tool and any required instructions for using the tool shall be included with the device. See 76.3 (h).		N/A
	e) Installation of the pressure terminal connector in the intended manner shall result in a device complying with the requirements of this Standard.		N/A
12.1.2.5	An insulating base for support of a pressure terminal connector shall be subjected to the Strength of Terminal Insulating Base and Support Test, 60.		N/A
12.1.2.6	Except as indicated in 12.1.2.6.1, a wire binding screw at a field wiring terminal shall not be smaller than No. 10 (4.8 mm diameter).		N/A
12.1.2.6.1	A No. 8 (4.2 mm diameter) screw being used at a terminal intended only for the connection of a 14 AWG (2.1 mm2) conductor, or a No. 8 or 6 (4.2 mm or 3.5 mm diameter) screw being used at a terminal intended for connection of a 16 or 18 AWG (1.3 or 0.82 mm2) control circuit conductor, is allowed.		N/A
12.1.2.7	A wire binding screw shall thread into metal.		N/A
12.1.2.8	Except as indicated in 12.1.2.8.1, a terminal plate tapped for a wire binding screw shall be of metal not less than 1.27 mm (0.050 inch) thick.		N/A
12.1.2.8.1	A terminal plate less than 1.27 mm (0.050 inch) thick may be used in a low voltage, limited energy circuit when the tapped threads withstand the tightening torque specified in Table 9 without stripping.		N/A

UL 2594			
Clause	Requirement – Test	Result – Remark	Verdict
12.1.2.9	There shall be two or more full threads in the metal of a terminal plate. When the metal is extruded at the tapped hole, at least two full threads shall be provided.		N/A
12.1.2.10	A terminal for connection of a grounded conductor of an alternating current power circuit shall be identified as described in 72.14.		N/A
12.1.3	Field wiring leads		N/A
12.1.3.1	Except as indicated in 12.1.3.1.1, a field-wiring lead shall not be more than two wire sizes smaller than the copper conductor to which it is connected, and shall not be smaller than 18 AWG (0.82mm^2), for example, a 10 AWG (5.3 mm2) or larger field-wiring lead is required for connection to a 6 AWG (13.3 mm^2) field-provided conductor. A field-wiring lead shall not be less than 152.4 mm (6 inches) long.		N/A
12.1.3.1.1	An 18 AWG (0.82 mm2) size field wiring lead may be used for connection to a 12 AWG (3.3 mm2) size branch circuit conductor.		N/A
12.1.3.2	A field wiring lead shall consist of general building wire, or other wiring where it has an insulation of:		N/A
	a) At least 0.8 mm (1/32 inch) thick thermoplastic material;		N/A
	b) At least 0.4 mm (1/64 inch) thick rubber plus a braid cover for applications of 300 V or less;		N/A
	c) At least 0.8 mm (1/32 inch) thick rubber plus a braid cover for applications between 301 and 600 volts.		N/A
12.1.3.3	A field wiring lead shall be subjected to the test specified in 54.2.4		N/A
12.1.3.4	A field wiring lead provided for connection to an external line voltage circuit shall not be connected to a wire binding screw or pressure terminal connector located in the same compartment as the free end of the wiring lead unless the screw or connector is rendered unusable for field wiring connection or the lead is insulated at the unconnected end, and a marking is provided on the device in accordance with 72.15.		N/A
12.1.3.5	The free end of a field wiring terminal that is not used in every installation, such as a tap for a multivoltage transformer, shall be insulated.		N/A
12.1.3.6	A field wiring lead for connection of a grounded conductor shall be identified as described in 72.14.		N/A

UL 2594			
Clause	Requirement – Test	Result – Remark	Verdict
12.1.4	Wiring compartments		N/A
12.1.4.1	A wiring compartment on a fixed device shall be located so that wire connections therein are accessible for inspection, without disturbing either factory or field connected wiring, after the device is installed in the intended manner.		N/A
12.1.4.2	Wiring compartments, raceways, or similar devices for routing and stowage of conductors connected in the field shall not contain rough, sharp, or moving parts that are capable of damaging conductor insulation.		N/A
12.1.5	Openings for conduit or cable connection		N/A
12.1.5.1	For a permanently connected device, openings for wiring and conduit shall comply with the requirements specified in 7.5.5.		N/A
12.1.6	Wire bending space		P
12.1.6.1	In Mexico and the United States, a permanently connected device employing pressure terminal connectors for field connection of circuits described in 12.1.1.2 shall be provided with space within the enclosure as specified in 12.1.6.3 – 12.1.6.7 for the installation of conductors, including grounding conductors that are employed in the installation.		P
12.1.6.2	The conductor size used in judging the wiring space shall be based on the use of a conductor sized in accordance with 12.1.1.3.		P
12.1.6.3	Wire bending space for field installed conductors shall be provided opposite any pressure wire connector as specified in 12.1.6.4 or 12.1.6.5 and opening or knockout for a wireway or conduit in a gutter as specified in 12.1.6.9.		N/A
12.1.6.4	When a conductor is capable of entering or leaving the enclosure surface opposite its wire connector, the wire bending space shall be as specified in Table 10. A wire is capable of entering or leaving a top, back, bottom, or side surface when there is an opening for conduit or a wireway.		N/A
12.2	**Cord connected devices**		**P**
12.2.1	General		P
12.2.1.1	For cord connected devices, flexible cords and attachment plugs shall be used for connection to the alternating current input circuit.		P

UL 2594			
Clause	Requirement – Test	Result – Remark	Verdict
12.2.1.2	The cord shall be type G, SEO, SO, STO, SJEO, SJO, SJTO, or W, or a cord that is equally serviceable. The flexible power cord shall terminate at the enclosure of the device. The overall length of the power cord shall comply with one of the following. The overall length of the power cord is measured from the face of the attachment plug to the point where it enters the enclosure:		N/A
	a) When the interrupting device of the personnel protection system is located within the enclosure of the device, the power cord shall have a length corresponding to the values shown in 9.2.3 and the device shall be marked in accordance with 72.17.		N/A
	b) When the interrupting device of the personnel protection system is located at the attachment plug, or within the distances required by 9.2.3, the overall cord length shall be a minimum of 1.8m (6 feet) and shall be no greater than 4.6 m (15 feet).		N/A
12.2.1.3	A flexible power cord shall be rated for a voltage not less than the rated voltage of the equipment, and shall have a current rating not less than the current rating of the device.		P
12.2.1.4	The attachment plug of a supply cord shall be of a non-locking type and shall have a current rating in accordance with 12.2.1.7 and have a voltage rating corresponding to the voltage rating of the device.		P
12.2.1.5	A cord connected device having a rating of 208 V, single phase, may be provided with an attachment plug for a supply cord, or an EV receptacle or EV connector at the output, rated 250 V, provided that:		P
	a) There is no evidence of a shock or fire hazard with the device is tested based on a 240 V rating (see 46.1);		P
	b) The supply cord is marked in accordance with 74.20; and		P
	c) The output EV Receptacle or EV Connector is marked in accordance with 74.21.		P
12.2.1.6	Notwithstanding 12.2.1.5 (b), no marking is required on the supply cord if:		N/A
	a) The device complies with the requirements of the Leakage Current Test (46), the Input Test (48), and the Temperature Test (49); and		N/A
	b) The output value of the device does not exceed its output rating by more than 10 percent while energized from a 240 V source of supply.		N/A

UL 2594			
Clause	Requirement – Test	Result – Remark	Verdict
12.2.1.7	With reference to 12.2.1.3, the current rating of an attachment plug for the alternating current input circuit shall not be less than 125 percent of the rated input current of the device.		P
12.2.1.8	The attachment plug shall be a grounding type attachment plug.		N/A
12.2.2	Strain relief		N/A
12.2.2.1	Strain relief shall be provided on the flexible power cord to reduce the risk of mechanical stress being transmitted to terminals, splices, or interior wiring. See Pull Strain Relief Test, 54.2. A knot in the flexible power cord is not considered an acceptable form of strain relief.		N/A
12.2.2.2	A metal strain relief clamp or band provided in accordance with 12.2.2.1 shall be provided with auxiliary insulation over the cord if damage to the cord insulation results when the strain relief tests are conducted without auxiliary insulation.		N/A
12.2.2.3	Means shall be provided to prevent a flexible power cord from being pushed into the equipment through the cord entry hole if such displacement would:		N/A
	a) Result in mechanical damage to the cord;		N/A
	b) Expose the cord to a temperature higher than that for which it is rated; or		N/A
	c) Reduce spacings below the acceptable minimum values.		N/A
12.2.2.4	Strain relief bushings used for indoor products shall comply with Annex A, Ref. No. 26. Strain relief bushings used for outdoor products shall comply with the following:		N/A
	a) The material used to form the strain relief bushing shall have a minimum flammability rating of HB;		N/A
	b) The Relative Thermal Index (RTI) value of the material, for both electrical and mechanical, shall be higher than the maximum temperature observed on the material during the Temperature Test, 49;		N/A
	c) The strain relief bushing shall be subjected to the Effects of Cyclic Conditions in Annex A, Ref. No. 21, using the Outdoor Use Application conditions;		N/A
	d) After the strain relief bushing is subjected to (c), the product with the strain relief bushing installed as intended shall be subjected to a repeated Strain Relief Test, 54;		N/A

UL 2594			
Clause	Requirement – Test	Result – Remark	Verdict
	e) Following the test in (d), the device shall be subjected to the applicable environmental test in accordance with Annex A, Ref. No. 20;		N/A
	f) The material shall be subjected to Chemical Exposure Tests in accordance with 67.4 if it is applicable to the product type.		N/A
12.2.3	Bushings		N/A
12.2.3.1	At the point where the flexible power cord passes through an opening in a wall, barrier, or the enclosure, there shall be a bushing or the equivalent that is secured in place, and that has a smooth, well-rounded surface against which the cord may bear. An insulating bushing shall be provided, if the wall or barrier is of metal, or if the construction is such that the cord may be subjected to strain or motion. For indoor use products, the bushing shall comply with the requirements in Annex A, Ref. No. 26 . For outdoor use products, the bushing shall comply with 12.2.2.4 (a) – (c) and (e) – (f).		N/A
12.2.3.2	A hole in porcelain, phenolic composition, or other non-conducting material, having a smooth, rounded surface, is considered to be equivalent to a bushing.		N/A
12.2.3.3	A bushing of the same material as, and molded integrally with, a flexible power cord, is acceptable if the built up section is not less than 1.6 mm (1/16 inch) thick at the point where the cord passes through the enclosure.		N/A
12.2.3.4	At a point of flexure, no additional wires or cables shall be routed through a bushing or opening with the flexible power cord.		N/A
12.3	Direct plug-in devices		P
12.3.1	A product that is constructed with a direct plug-in feature shall not be provided with a means for connection to the alternating current source other than the blades provided for the direct plug-in feature. In addition, the product shall comply with the requirements in 12.3.2 – 12.3.9.		P
12.3.2	The mechanical assembly of a direct plug-in device intended for indoor use shall be considered acceptable if the device:		P
	a) Complies with the requirements in 12.3.3 – 12.3.9, or		P
	b) Complies with Annex A, Ref. No. 27.		P
12.3.3	The integral blade assembly of a direct plug-in device shall comply with the construction requirements in Annex A, Ref. No. 28. See 12.3.9.		P

UL 2594			
Clause	Requirement – Test	Result – Remark	Verdict
12.3.4	The mechanical assembly of a direct plug-in device intended for outdoor use shall be considered acceptable if the enclosure complies with the requirements for Additional Environmental Tests, 67, in addition to the requirements in 12.3.2.		P
12.3.5	The maximum acceptable moment, center of gravity, dimensions and weight of a direct plug-in device shall comply with each of the following requirements (see 12.3.6):		P
	a) The quotient of WY/Z shall not exceed 1361 grams (48 ounces);		P
	b) The quotient of WY/S shall not exceed 1361 grams (48 ounces);		P
	c) The product of WX shall not exceed 0.56 N·m (80 ounce-inches); and		P
	d) The weight of the device shall not exceed 794 grams (28 ounces).		P
13	**Output Connections and Wiring**		**P**
13.1	General		P
13.1.1	The requirements in 13.1.2 – 13.1.6 apply to the output supply connection means at the EV supply equipment. In addition, 13.1.2 – 13.1.11 apply to the EV cable or wiring from the EV supply equipment to the EV connector if provided; and 13.1.12 – 13.1.13 apply to the EV connector if provided.		N/A
13.1.2	The EV supply equipment shall be provided with one of the following means at the output:		P
	a) An EV receptacle in accordance with Annex A, Ref. No. 5.		N/A
	b) A suitably rated grounding type receptacle in accordance with Annex A, Ref. No. 28.		N/A
	c) Wire terminals for a permanently connected EV cable. The terminals shall comply with the requirements for wiring terminals in ccordance with 12.1.2.		P
13.1.3	With reference to 13.1.2 (c), the permanently connected EV cable shall comply with the strain relief requirements in 13.2 and the requirements for bushings in 13.3.		P
13.1.4	With reference to 13.1.2 (a) and 13.1.2 (b), the receptacle shall have a voltage and current rating corresponding to the rated output of the EV supply equipment.	220-240Vac	P

UL 2594			
Clause	Requirement – Test	Result – Remark	Verdict
13.1.5	With reference to 13.1.2 (a), an EV receptacle shall be designed in accordance with the standardized interface outlined in Annex A, Ref. No. 29 or the connection and interface shall be evaluated based on possible misconnection and shall be marked in accordance with 74.14.		P
13.1.6	With reference to 13.1.2 (a) and 13.1.2 (b), the output connection shall be marked with the rated voltage and current that is available at that connection. See 72.1 (c).		N/A
13.1.7	EV cables provided to complete the connection from the EV supply equipment to the vehicle shall be in accordance with Annex A, Ref. No. 3.		P
13.1.8	The EV cables shall be type EV, EVJ, EVE, EVJE, EVT, or EVJT, and shall have a minimum voltage rating corresponding to the overall output rating of the EV supply equipment.		P
13.1.9	The EV cable shall contain conductors that are suitably sized for the intended output rating of the EV supply equipment.		N/A
13.2	Strain relief		N/A
13.2.1	An EV cable permanently connected to the EV supply equipment, or an EV cable connected to an EV plug on one end and an EV connector on the other, shall be provided with a means of strain relief in accordance with EV Cable Secureness Test, 55.		N/A
13.2.2	A metal strain relief clamp or band provided in accordance with 13.2.1 shall be provided with auxiliary insulation over the EV cable if damage to the EV cable insulation results when the strain relief tests are conducted without auxiliary insulation.		N/A
13.3	Bushings		N/A
13.3.1	Where the EV cable passes through a wall or enclosure, whether the enclosure of the EV supply equipment or the EV plug or EV connector, a bushing shall be provided to protect the EV cable. The bushing shall comply with the requirements in 12.2.3.		N/A
14	**Equipment Grounding**		P
14.1	The grounding and bonding terms used in this Standard are in accordance with the UL column in Figure 11. The corresponding CSA and ANCE terms are also provided for information.		P

UL 2594			
Clause	Requirement – Test	Result – Remark	Verdict
14.2	A product shall have provisions for grounding all exposed non-current-carrying conductive parts, and all internal metal parts that are exposed to contact during servicing, that may become energized through an electrical fault. A part shall be considered capable of becoming energized if failure of electrical spacing or insulation or both can result in conductive connection to a current carrying part.		N/A
14.3	Except as indicated in 14.3.1, all non-current-carrying conductive parts shall be bonded together and connected to the electrical supply equipment grounding means in accordance with Bonding, 15.		P
14.4	Connection to the electrical supply equipment grounding means shall be accomplished as follows:		P
	a) In a product intended to be permanently connected, to:		N/A
	1) A knockout or equivalent opening means in a metal enclosure intended to be connected to a metal enclosed wiring system suitable for grounding, or		N/A
	2) The equipment grounding field wiring terminal or lead.		N/A
	b) In a product provided with a flexible power supply cord and an attachment plug, to the equipment grounding conductor of the flexible power supply cord.		P
14.5	Except as indicated in 14.5.1, the equipment grounding connection shall not contain any splices.		P
14.5.1	Products provided with a ground monitor interrupter as part of the Personnel Protection System in accordance with Annex A, Ref. No. 22 and No. 23 may have a splice in the ground path provided the ground monitor interrupter will function correctly if the spliced connection is lost.		N/A
14.6	An equipment grounding connection shall penetrate a nonconductive coating, such as paint or vitreous enamel.		N/A
14.7	An equipment grounding conductor shall be:		
	a) If insulated, provided with insulation having an outer surface that is green with or without one or more yellow stripes, and		P
	b) Of a size acceptable for the application in accordance with Table 12, but shall not be required to be larger than the circuit conductors supplying the equipment.		N/A

UL 2594			
Clause	Requirement – Test	Result – Remark	Verdict
14.8	An equipment grounding conductor of a power supply cord shall be connected to the grounding blade of the attachment plug.		P
14.9	For a product provided with a flexible power cord, a stud and nut combination used to secure the grounding conductor to the frame shall be secured to the frame by welding the stud in place. The ground conductor shall be connected first and be in contact with the frame and secured in place by a dedicated nut and lock washer. Other bonding jumpers may be connected to the stud, but they shall be connected above the main ground connection and secured by a separate nut and lock washer.		N/A
14.10	In a product provided with a flexible power supply cord and an attachment plug, the connection between the dead metal parts required to be grounded and the equipment grounding conductor shall be made by a positive means in accordance with 15.1 and 15.3. The connection shall be made by a means not likely to be removed during ordinary servicing not involving the flexible power supply cord.		N/A
14.11	A sheet metal screw shall not be used to connect equipment grounding conductors to enclosures.		N/A
14.12	A grounding screw shall engage at least two full threads and shall be used in conjunction with upturned lugs, a cupped washer, or an equivalent method that is capable of retaining a 5.26 mm^2 (10 AWG) conductor under the head of the screw.		N/A
14.13	A ferrous metal part in a grounding path shall be protected against corrosion by enameling, galvanizing, plating, or equivalent means.		N/A
14.14	A terminal intended for the connection of an equipment grounding conductor shall be identified by:		P
	a) Use of a wire binding screw with a green colored head that is slotted or hexagonal, or both;		N/A
	b) Use of a threaded stud with a green colored hexagonal nut;		N/A
	c) Use of a green colored pressure terminal connector;		N/A
	d) Being marked “G”, “GR”, “GND”, “Ground”, “Grounding”, or the like;		P
	e) A marking on a wiring diagram provided on the product; or		N/A

UL 2594			
Clause	Requirement – Test	Result – Remark	Verdict
	f) The grounding symbol illustrated in Figure 12 on or adjacent to the terminal or on a wiring diagram provided on the product.		N/A
15	**Bonding**		**N/A**
15.1	A conductor, including a strap, jumper, or similar part, that is used only for bonding shall:		N/A
	a) Be of copper, copper alloy, aluminum, or other material that has been investigated and found acceptable for use as an electrical conductor;		N/A
	b) Be protected from mechanical damage;		N/A
	c) Not be secured by a removable fastener used for any purpose other than bonding, unless the bonding conductor is not likely to be omitted after removal and replacement of the fastener;and		N/A
	d) Have the flexibility needed to withstand mechanical stress due to vibration or flexing during use.		N/A
15.2	Metal parts in a bonding path shall be galvanically compatible so as to reduce electrolytic action between dissimilar metals. The combined electrochemical potential between dissimilar metals which are in contact shall be less than 0.6 V as determined in accordance with Figure 13. Combinations of metals that fall above the line in the table shall not be used.		N/A
	a) For conductor sizes 0.824 – 1.31 mm2 (18 – 16 AWG), the minimum connector and tab width shall be 2.8 mm (0.110 in).		N/A
	b) For conductor size 2.08 mm2 (14 AWG), the minimum connector and tab width shall be 6.4mm (0.250 in).		N/A
	c) Quick connect tabs shall not be less than 0.8 mm (0.032 in) thick.		N/A
15.4	A bonding screw shall engage at least two full threads and shall be used in conjunction with upturned lugs, a cupped washer, or an equivalent method that is capable of retaining a 5.26 mm2 (10 AWG) conductor under the head of the screw.		N/A
15.5	A bonding connection means shall penetrate nonconductive coatings, such as paint or vitreous enamel.		N/A
15.6	A metal-to-metal hinge-bearing member of a door or cover used as a means for bonding the door or cover shall be of the multiple bearing pin (piano) type.		N/A

UL 2594			
Clause	Requirement – Test	Result – Remark	Verdict
15.7	Except as indicated in 15.7.1 and 15.7.2, in a product provided with a power supply cord and an attachment plug:		N/A
	a) A copper bonding jumper, including a clamp or strap, shall have a cross-sectional area not less than that of the equipment-grounding conductor of the power supply cord; and		N/A
	b) An aluminum bonding jumper, including a clamp or strap, shall have a cross-sectional area not less than that of a conductor two AWG sizes larger than the circuit equipment grounding conductor of the power supply cord.		N/A
15.7.1	A conductor, including a strap, jumper, or similar part, having a smaller cross-sectional area is acceptable if it complies with the requirements in the Bonding Conductor Test, 62.		N/A
15.7.2	A conductor, including a strap, jumper, or similar part, for a component or electrical enclosure need not be larger than the largest conductors supplying power to the component or components adjacent to the dead metal parts.		N/A
15.8	Except as indicated in 15.8.1 and 15.8.2, in a product intended to be permanently connected to the electrical supply, a copper or aluminum bonding jumper, including clamp or strap, shall not be smaller than, or have an equivalent cross-sectional area less than, the size specified in Table 12.		N/A
15.8.1	A smaller bonding jumper may be used as provided in 15.7.1 and 15.7.2.		N/A
15.8.2	A bonding jumper need not be larger than the circuit conductors supplying the equipment.		N/A
16	**EV Bonding**		**N/A**
16.1	If the EV cable and associated connections are provided with the EV supply equipment, means shall be provided for incorporating the bonding means for the vehicle, or the vehicle shall be isolated from the source in accordance with the applicable requirements for personnel protection systems in 9.2.		N/A
17	**Internal Wiring**		**P**
17.1	Wires		P
17.1.1	The internal wiring of a device shall be rated for the particular application with respect to the temperature and voltage, exposure to oil or grease, and other conditions of service to which the wiring is subjected.		P

UL 2594			
Clause	Requirement – Test	Result – Remark	Verdict
17.1.2	With respect to 17.1.1, the effects of vibration, if installed on-board an EV, impact, and exposure shall be evaluated for wires smaller than 0.21 mm2 (24 AWG).		N/A
17.1.3	All wiring shall be polyvinyl chloride (PVC), polytetrafluoroethylene (PTFE), fluorinated ethylene propylene (FEP), or neoprene insulated, or shall comply with the vertical wire flame test requirements in Annex A, Ref. No. 31, as evidenced by a surface marking “VW-1”.		P
17.1.4	The length of a power supply cord inside a device shall be limited to that needed for electrical connections.		P
17.2	Protection of wires		N/A
17.2.1	Internal wiring shall not be accessible when judged in accordance with Protection of Users – Accessibility and User Servicing, 8, unless it is located and secured within the enclosure such that the risk of it being subjected to stress or mechanical damage is reduced.		N/A
17.2.2	Wires within an enclosure, compartment, raceway, or similar part shall be located or protected to reduce the risk of unintentional contact with any sharp edge, burr, fin, or similar part that damages the conductor insulation		N/A
17.2.3	Internal wiring shall be so routed and secured that neither it nor related electrical connections shall be subjected to stress or mechanical damage.		N/A
17.2.4	A hole in a sheet metal wall through which insulated wires pass and on which they bear shall be provided with a smoothly rounded bushing or shall have smooth, rounded surfaces upon which the wires bear, to avoid abrasion of insulation.		N/A
17.2.5	A bushing provided in accordance with 17.2.4 shall comply with 12.2.3.		N/A
17.2.6	Metal clamps and guides used for routing stationary internal wiring shall be provided with smooth well-rounded edges.		N/A
17.2.7	Auxiliary mechanical protection that is not electrically conductive shall be provided under a metal clamp at which pressure is exerted on a conductor having thermoplastic insulation less than 0.76 mm (0.030 inch) thick and no overall braid, and on any wire or wires that are subject to motion.		N/A
18	**Flammability**		**P**

UL 2594			
Clause	Requirement – Test	Result – Remark	Verdict
18.1	Nonmetallic materials used for insulation, barriers, internal parts, enclosures, decorative parts, and so on, shall comply with the following requirements.		P
18.2	Nonmetallic materials used to form enclosures shall have a minimum flammability rating in accordance with Table 13.	V-1	P
18.3	Nonmetallic materials internal to the enclosure, but not intended for direct support of live parts, shall be rated V-2 minimum; however, the internal insulating system of components where component requirements exist need not have a flame class rating. A small part, gasket, or other nonmetallic part that is located such that it cannot propagate flame from one area to another within the equipment, and is not located in close proximity to uninsulated live parts, is a not required to have a flame class rating.		N/A
18.4	Nonmetallic materials located outside of the enclosure, and not used to complete the enclosure, are considered decorative parts. These parts shall be rated HB minimum, except as indicated in 18.5.		N/A
18.5	Cables entering and exiting the enclosure shall be rated FT2 minimum. Other components, such as electric vehicle couplers and attachment plugs, shall comply with the flammability requirements in the applicable component Standard for that component.		P
18.6	Printed wiring board materials shall be rated V-2 minimum.		P
18.7	For the requirements outlined in 18.2 – 18.6, the flammability rating of the material shall be provided as part of the material rating, or the flammability rating may be determined by the applicable tests in Annex A, Ref. No. 16.		P

19	**Current Carrying Parts**		**P**
19.1	A current carrying part shall be of silver, copper, a copper-based alloy, stainless steel, aluminum, or other material determined to be acceptable for the application. Plated iron or steel shall not be used for parts that are depended upon to carry current. Wire binding screws shall not be of iron or steel.		P

UL 2594			
Clause	Requirement – Test	Result – Remark	Verdict
19.2	Iron or steel, if protected against corrosion by zinc, tin, or equivalent plating, can be used for screws, plates, yokes, or other parts that are employed as a means of clamping the conductor, providing such parts are not the primary current carrying members.		N/A
19.3	Suitable means shall be provided for retaining live parts within such limits of alignment as to ensure that plugs will enter receptacles, connectors, and the like in the intended manner.		N/A
19.4	Uninsulated live parts shall be secured in place so that they do not turn or shift, when turning or shifting results in a reduction in the clearance and creepage distances below those required in Spacings,22.		N/A
19.5	A current carrying part shall be prevented from turning relative to the surface on which it is mounted if such turning would adversely affect the performance of the device.		N/A
20	**Electrical Connections**		**N/A**
20.1	The requirements described in 20.2 – 20.7 apply to connections of internal wiring that are factory installed in the device.		N/A
20.2	A splice or connection shall be mechanically secure and shall make electrical contact.		N/A
20.3	A soldered connection is determined to be mechanically secure when the lead is:		N/A
	a) Wrapped one full turn around a terminal;		N/A
	b) Bent at a right angle after being passed through an eyelet or opening, except on printed wiring boards where components are inserted or secured (as in a surface mounted component) and wave- or lap-soldered; or		N/A
	c) Twisted with other conductors.		N/A
21	**Gaskets**		**N/A**
21.1	A gasket of elastomeric or thermoplastic material or a composition gasket utilizing an elastomeric material that is provided on an enclosure to meet the environmental construction and performance requirements of this Standard shall be in accordance with Annex A, Ref. No. 32, and considered suitable for this use, or it shall comply with the Gasket Test, in Annex A, Ref. No. 20.		N/A

UL 2594			
Clause	Requirement – Test	Result – Remark	Verdict
21.2	A gasket shall be secured with adhesive or by mechanical means. The gasket and its securing means shall not be damaged when the joint is opened.		N/A
22	**Spacings**		**P**
22.1	General		P
22.1.1	Except as indicated in 22.1.1.1, the spacings for a device shall not be less than the applicable values specified in Table 14 or as provided in Alternate Spacings – Clearances and Creepage Distances,23. For spacings requirements where liners and barriers are used, see 22.2.1.		P
22.1.1.1	The spacings requirements in Table 14 do not apply to inherent spacings of a component such as a switch, power switching semiconductor, or similar component. See 22.1.6.		P
22.1.2	Where an uninsulated live part is not rigidly secured in position by means other than friction between surfaces or where a movable dead metal part is in proximity to an uninsulated live part, the construction shall be such that, for any position resulting from turning or other movement of the parts in question, at least the minimum required spacings shall be maintained.		N/A
22.1.3	With reference to 22.1.2, a lock washer is not a method of rigidly securing a part.		N/A
22.1.4	Inherent spacings of the components in accordance with 22.1.1.1 shall comply with the requirements for the component in question where the spacings are less than the values specified in this Standard. Spacings from such components to another component and to the enclosure shall comply with the applicable spacings specified in this Standard.		N/A
22.1.5	With respect to judging spacings, an uninsulated live part is at opposite polarity to uninsulated live parts in another circuit. Spacings shall be based on the highest of the circuit voltages.		N/A
22.1.6	Film coated wire is an uninsulated live part when judging spacings.		P
22.1.7	Spacings at field wiring terminals shall be measured with conductors installed in the terminals. The gauge of these conductors shall be based on the rating of the circuit containing the terminals.		N/A

UL 2594			
Clause	Requirement – Test	Result – Remark	Verdict
22.1.8	Spacings between uninsulated live parts of different potential and between such parts and dead metal that are capable of being grounded in service are not specified for parts of limited energy circuits in accordance with 5.31.		N/A
22.2	Insulation barriers		N/A
22.2.1	Except as indicated in 22.2.1.1 and 22.2.1.2, an insulating liner or barrier of material such as vulcanized fiber may be employed in lieu of required spacings (see 22.1.1), but not as the sole support of uninsulated live parts involving a risk of fire or electric shock, when it is not less than 0.71 mm (0.028 inch) thick and it is so located that it is not adversely affected by arcing. Other insulating materials used as a barrier or as either direct or indirect support of uninsulated live parts involving a risk of fire or electric shock shall comply with the requirements in Annex A, Ref. No. 21.		N/A
22.2.1.1	Vulcanized fiber not less than 0.33 mm (0.013 inch) thick shall be used only when:		N/A
	a) In conjunction with an air spacing of not less than 50 percent of the minimum through air spacing; and		N/A
	b) Between a heat sink and a metal mounting surface, including the enclosure, of an isolated secondary circuit rated 50 volts rms or less.		N/A
22.2.1.2	Mica not less than 0.165 mm (0.006 inch) can be used as insulation between a heat sink and a live case of a semiconductor device.		N/A
22.2.2	Insulating tubing complying with the requirements in Annex A, Ref. No. 33, is used as insulation of a conductor in lieu of the minimum spacings and for capacitor cases in lieu of bonding the case for grounding, only when the following conditions are met:		N/A
	a) The conductor is not subjected to compression, repeated flexure, or sharp bends;		N/A
	b) The conductor or case covered with the tubing is well rounded and free from sharp edges;		N/A
	c) The tubing is used in accordance with the manufacturer's instructions; and		N/A
	d) The conductor or case is not subjected to a temperature or voltage higher than that for which the tubing is rated.		N/A
22.2.3	A wrap of thermoplastic tape, complying with the requirements in Annex A, Ref. No. 34, is allowable when all of the following conditions are met:		N/A

UL 2594			
Clause	Requirement – Test	Result – Remark	Verdict
	a) The wrap is no less than 0.33 mm (0.013 inch) thick, is applied in two or more layers, and is used in conjunction with no less than one-half the required through air spacing.		N/A
	b) The wrap is no less than 0.72 mm (0.028 inch) thick when used in conjunction with less than one-half the required through air spacing.		N/A
	c) Its temperature rating is no less than the maximum temperature observed during the temperature test.		N/A
	d) The tape is not subject to compression.		N/A
	e) The tape is not wrapped over a sharp edge.		N/A
23	**Alternate Spacings – Clearances and Creepage Distances**		**N/A**
23.1	As an alternative to the spacing requirements of 22, as applicable, the spacing requirements in Annex A, Ref. No. 35, may be used. The spacing requirements of Annex A, Ref. No. 35 shall not be used for field wiring terminals and spacings to a dead metal enclosure. In determining the pollution degree and overvoltage category, the end use application shall be taken into account and shall be capable of modifying those characteristics given in 23.2 and 23.3.		N/A
23.2	The level of pollution for indoor use equipment shall be pollution degree 2. For outdoor use equipment, the level of pollution shall be pollution degree 3. Hermetically sealed or encapsulated enclosures, or coated printed wiring boards in compliance with the Printed Wiring Board Coating Performance Test of Annex A, Ref. No. 35, are pollution degree 1.		N/A
23.3	The equipment shall be rated overvoltage category II as defined in Annex A, Ref. No. 35.		N/A
	In order to apply Clearance B (controlled overvoltage) clearances, control of overvoltage shall be achieved by providing an overvoltage device or system as an integral part of the product.		N/A
23.5	All printed wiring boards shall be considered to have a minimum comparative tracking index of 100 without further investigation.		N/A
24	**Separation of Circuits**		**N/A**
24.1	Factory wiring		N/A

UL 2594			
Clause	Requirement – Test	Result – Remark	Verdict
24.1.1	Except as indicated in 24.1.1.1, insulated conductors of different circuits within a device, including wires in a terminal box or compartment, shall be either separated by barriers or segregated and shall be so separated or segregated from uninsulated live parts connected to different circuits.		N/A
24.1.1.1	For insulated conductors of different circuits, when each conductor is provided with insulation intended for the highest of the circuit voltages, no barriers or segregation are required.		N/A
24.1.2	For the purpose of the requirement in 24.1.1, different circuits include:		N/A
	a) Circuits connected to the primary and secondary windings of an isolation transformer;		N/A
	b) Circuits connected to different isolated secondary windings of a multi-secondary transformer;		N/A
	c) Circuits connected to secondary windings of different transformers;		N/A
	d) Input and output circuits of an optical isolator; and		N/A
	e) AC power input and AC power output circuits;		N/A
24.1.3	Segregation of insulated conductors shall be accomplished by clamping, routing, or an equivalent means that maintains permanent separation from insulated and uninsulated live parts and from conductors of a different circuit.		N/A
24.2	Separation barriers		N/A
24.3	**Field wiring**		N/A
24.3.1	The equipment shall be constructed so that a field-installed conductor of a circuit shall be separated as specified in 24.3.2 or separated by barriers as specified in 24.2.1 and 24.2.2 from:		N/A
	a) Factory-installed conductors connected to any other circuit, unless the conductors of both circuits are insulated for the maximum voltage of either circuit.		N/A
	b) An uninsulated live part of another circuit and from an uninsulated live part where short circuit with it results in a risk of fire, electric shock, electrical energy involving high current levels, or injury to persons.		N/A
25	**Control Circuits**		N/A

UL 2594			
Clause	Requirement – Test	Result – Remark	Verdict
25.1	Secondary control circuits		N/A
25.1.1	An LVLE circuit as described in 5.33 or a limited energy circuit as described in 5.31 may be connected to a single point reference ground.		N/A
25.1.2	Except as indicated in 25.1.3, an LVLE circuit is not required to be investigated. Printed wiring boards and insulated wire used in such circuits shall be types that are required for the application. See 17.1.1 and 30.1.		N/A
25.1.3	Safety circuits shall be judged by the requirements for primary circuits.		N/A
25.2	Primary control circuits		N/A
25.2.1	A control circuit that extends from the device to a remote control panel, status panel, or similar device shall be protected in accordance with 25.2.2 – 25.2.7 to reduce the risk of fire and electric shock that is capable of resulting from overload and short circuit conditions		N/A
25.2.2	The overcurrent protective device specified in 25.2.1 shall be a supplementary type, thermal link, fuse, or circuit breaker that is intended for branch circuit use. See Overcurrent Protective Devices, 28.Where the protective device consists of a fuse, the device shall be marked in accordance with 74.8.		N/A
25.2.3	A Class 1 power limited circuit, in accordance with Annex A, Ref. No. 72, used to supply an external control circuit shall be supplied from a source having a rated output of no more than 30 volts and 1000 volt amperes. When the source is other than a transformer, the circuit shall be protected by an overcurrent protection device rated no more than 167 percent of the volt ampere rating divided by the rated voltage. The overcurrent device shall not be interchangeable with overcurrent devices of higher ratings.		N/A
25.2.4	An external control circuit derived from a Class 2 transformer is not required to be provided with the overcurrent protection specified in 25.2.1.		N/A
25.2.5	An external control circuit derived from the secondary of a transformer other than that described in 25.2.3 and 25.2.4 shall be provided with overcurrent protection in accordance with 25.2.6 and 25.2.7.For transformers not having a rating, the rated primary or secondary current mentioned in 25.2.6 and 25.2.7 shall consist of the maximum current during normal operation of the device.		N/A

UL 2594			
Clause	Requirement – Test	Result – Remark	Verdict
25.2.6	Except as indicated in 25.2.6.1 and except as described in 25.2.7, a transformer used to supply a control circuit shall be provided with overcurrent protection in the primary circuit rated as indicated in Table 17.		N/A
25.2.7	Except as indicated in 25.2.7.1 and 25.2.7.2, when a control circuit is derived from the secondary of a transformer that is provided with primary circuit overcurrent protection rated at no more than 250 percent of the rated primary current of the transformer, additional overcurrent protection is not required in the primary circuit when the secondary circuit is protected at no more than 125 percent of the rated secondary current of the transformer.		N/A
26	**Switches and controls**		**N/A**
26.1	A switch or other control device shall have current and voltage ratings not less than those of the circuit that it controls when the device is operated in its intended manner.		N/A
26.2	A primary-circuit switch that controls an inductive load having a power factor less than 75 percent,such as a transformer, shall be either rated not less than twice the maximum load current under normal operating conditions, or be investigated for the application.		N/A
26.3	A switch used to connect a load to various sources or potentials shall be a type that has been investigated and rated for such use.		N/A
26.4	A switch or other device controlling a relay, solenoid coil, or similar device shall have a pilot duty rating intended for the application.		N/A
26.5	Each pole of a snap switch rated as a 2-circuit, 3-circuit, or multicircuit switch may control a separate load at the full voltage rating of the switch.		N/A
26.6	A 240-volt or 250-volt snap switch used in a circuit involving more than 120 volts to ground shall be rated for such use as indicated by a double underlining under the voltage rating.		N/A
26.7	A switch shall not disconnect the grounded conductor of a circuit unless:		N/A
	a) The switch simultaneously disconnects all conductors of the circuit, or		N/A
	b) The switch is so arranged that the grounded conductor is not disconnected until the ungrounded conductors of the circuit have been disconnected.		N/A

UL 2594			
Clause	Requirement – Test	Result – Remark	Verdict
26.8	Solid state switches shall comply with the requirements in this Standard. Mechanical and electromechanical switches shall comply with the applicable requirements for switches such as in Annex A, Ref. No. 37, or Annex A, Ref. No. 38.		N/A
26.9	Where a device switch or circuit breaker is mounted such that movement of the operating handle between the on position and off position results in one position being above the other position, the upper position shall be the ON position.		N/A
27	**Capacitors, Resistors, and Suppressors**		**N/A**
27.1	Capacitors		N/A
27.1.1	The materials and construction of a capacitor, its case, or both shall be such that emission of flame from the enclosure of the device during malfunction of the capacitor does not occur. See 27.1.3.		N/A
27.1.2	The materials and construction of a capacitor or its case within a device shall be such that pressures capable of causing injury to persons do not develop in the capacitor in the event of malfunction of the capacitor or the circuit in which it is connected. See 27.1.3.		N/A
27.1.3	Compliance with the requirements described in 27.1.1 and 27.1.2 shall be determined by the Abnormal Tests specified in 52.		N/A
27.1.4	Under both normal and abnormal conditions of use, including internal shorting of the capacitor, a capacitor containing oil that is more combustible than askarel shall not result in a risk of fire or electric shock and shall be constructed to reduce the risk of expelling dielectric medium from the enclosure of the device. See 27.1.5 and 27.1.6.		N/A
27.1.5	With reference to the requirement in 27.1.4, a capacitor complying with the requirements for protected oil-filled capacitors in Annex A, Ref. No. 39, shall be constructed to reduce the risk of expelling the dielectric medium.		N/A
27.1.6	With reference to 27.1.4, a device having a capacitor other than that described in 27.1.5 shall be provided with:		N/A
	a) A complete noncombustible bottom panel below the capacitor;		N/A
	b) A ventilated, bottom-panel construction complying with 7.5.4.1; or		N/A

UL 2594			
Clause	Requirement – Test	Result – Remark	Verdict
	c) A ventilated, bottom-panel construction complying with the capacitor fault test described in 52.5.		N/A
27.1.7	A means such as a bleeder resistor shall be provided to drain the charge stored in a capacitor so that it does not provide a risk of electric shock. See 9.3.1.		N/A
27.1.8	Capacitors connected across an input ac circuit shall comply with the requirements for across-the-line capacitors in Annex A, Ref. No. 40.		N/A
27.2.1	27.2 Resistors		N/A
27.2.1	The assembly of a power resistor, such as a wire wound type requiring a separate support, shall be reliable. The resistor shall be prevented from loosening or rotating by a means other than friction between surfaces.		N/A
27.2.2	An assembly employing lock washers complies with the requirement in 27.2.1.		N/A
27.3	Suppressors		N/A
27.3.1	Suppressors shall be enclosed by housings of noncombustible, moisture-absorption-resistant material. If sheet steel is used, it shall be not thinner than 0.52 mm (0.02 inches).		N/A
27.3.2	The housing required by 27.3.1 may be dispensed with if a suppressor is mounted in an enclosure that affords protection equivalent to that of the housing.		N/A
28	**Overcurrent Protective Devices**		**N/A**
28.1	General		N/A
28.1.1	Supplementary overcurrent devices are not required unless specifically stated as such in other parts of this Standard or to reduce the risk of electric shock, fire, or injury to persons.		N/A
28.2	Supplementary protectors		N/A
28.2.1	Supplementary protectors shall not be used for overcurrent protection of circuits defined as " branch circuits" as defined in Annex A, Ref. No.1.		N/A
28.2.2	Supplementary protection devices shall be in accordance with Annex A, Ref. No. 41. Supplementary protection devices that are user replaceable shall be accessible from outside the enclosure, or shall be located behind a hinged cover – see 7.2.1.		N/A

UL 2594			
Clause	Requirement – Test	Result – Remark	Verdict
28.2.3	Except as indicated in 28.2.4, a supplementary protection device shall not be connected in the grounded (neutral) side of the line.		N/A
28.2.4	Additional protection in the grounded side of the supply circuit is allowed when the protection simultaneously disconnects all grounded and ungrounded conductors of the supply circuit.		N/A
28.2.5	Where the device has provision for connection of a grounded neutral conductor, individual single-pole circuit breakers may be used as the protection for each ungrounded conductor of a 3-wire single-phase circuit or for each ungrounded conductor of a 4-wire, 3-phase circuit, when no conductor involves a potential to ground in excess of 150 volts. See 74.15.		N/A
28.3	Thermal links		N/A
28.3.1	Non-resettable thermal links incorporated as overcurrent protection shall comply with the applicable requirements in Annex A, Ref. No. 42.		N/A
28.4	Fuses		N/A
28.4.1	Fuses used for overcurrent protection shall be plug fuses or cartridge fuses. Plug fuses shall be Edison base or Type S fuses and shall comply with 28.4.2. Cartridge fuses shall be Class CC, G, H, J, K,RK1, RK5, or T, and shall comply with 28.4.3		N/A
28.4.2	Plug fuses shall comply with Annex A, Ref. No. 43 and Ref. No 44. The fuseholder shall comply with Annex A, Ref. No. 46.		N/A
28.4.3	Cartridge fuses shall comply with Annex A, Ref. No. 43 and additionally, the Standard based on fuse class in accordance with Annex A, Ref. Nos. 47 and 49. Fuseholders shall comply with Annex A, Ref.No. 45 and additionally, the Standard based on fuse class in accordance with Annex A, Ref. No. 48.		N/A
28.4.4	For plug fuses and cartridge fuses, except as indicated in 28.4.5, a disconnecting means shall be provided on the supply side of each fuse. The disconnecting means shall be such that each individual circuit can be independently disconnected from the source of supply.		N/A
28.4.5	For service replaceable fuses, the disconnecting means can be the circuit breaker in the building installation. If so used, no additional disconnecting means is necessary, provided that manufacturer's service instructions inform the service personnel to disconnect power to the unit prior to changing the fuse.		N/A

UL 2594			
Clause	Requirement – Test	Result – Remark	Verdict
28.4.6	A device shall be constructed so that fuses will be readily accessible when the disconnecting means is opened so that the fuse may be replaced without the service personnel or user inadvertently contacting live parts.		N/A
28.4.7	If a Type S fuseholder, or Edison base fuseholder with or without a Type S adapter, is used, the line connection shall be made to the center contact		N/A
28.4.8	A fuse and fuseholder shall have a voltage and current rating not less than those for the circuit in which they are connected. Plug fuses are not allowed in a circuit rated more than 125 volts or 125/250 volts, 3-wire.		N/A
28.4.10	Fuses shall be located in all ungrounded conductors.		N/A
28.4.10	A device shall be marked in ccordance with 74.8 when it is provided with overcurrent protection consisting of an interchangeable fuse that is accessible to the user, whether the user is instructed to change the fuse or not.		N/A
28.5	Circuit breakers		N/A
28.5.1	Circuit breakers incorporated as overcurrent protection shall comply with the applicable requirements in Annex A, Ref. No. 74.		N/A
29	**Transformers**		**N/A**
29.1	General		N/A
29.2	Coil insulation		N/A
30	**Printed Wiring Boards**		**P**
30.1	Except as indicated in 30.1.1, a printed-circuit board shall comply with the requirements in Annex A, Ref. No. 53, and shall be classed V-1 in accordance with the requirements in Annex A, Ref. No. 16.		P
30.1.1	A printed wiring board located outside an enclosure, such as in an external control circuit, and located in a LVLE circuit or a limited-energy circuit shall be classed as minimum V-2.		N/A

UL 2594			
Clause	Requirement – Test	Result – Remark	Verdict
30.2	A resistor, capacitor, inductor, or other part that is mounted on a printed-circuit board to form a printed-circuit assembly shall be secured so that it does not become displaced and cause a risk of electric shock or fire by a force that is capable of being exerted on it during assembly, intended operation, or servicing of the power supply.		P
30.3	Further evaluation shall be conducted for a barrier or a partition that is part of the device assembly and that provides mechanical protection and electrical insulation of a component connected to the printed-circuit board.		N/A
31	**Insulating Materials**		**P**
31.1	An insulating material used for supporting live parts and a barrier material shall be moisture-resistant and not be adversely affected by the temperature and stresses to which it is subjected under conditions of use.		N/A
31.2	Insulating material shall be judged with respect to the application for which it is to be used. Materials such as mica, some molded compounds, and certain refractory materials are usually used for the sole support of live parts.		N/A
31.3	Ordinary vulcanized fibers used for insulating bushings, washers, separators, and barriers shall not be the sole support for uninsulated live parts.		P
31.4	A sensor such as a current transformer, transducer, or similar device shall be provided with insulation that has been evaluated for the maximum voltage and temperature involved in its application, while taking into account the presence of other circuits.		N/A
32	**Protection of Service Personnel**		**N/A**
32.1	The requirements in 32 apply only to service personnel who find they must reach over, under, across, or around uninsulated electrical parts or moving parts to make adjustments or measurements while the device is energized.		N/A
32.2	Live parts shall be so arranged and covers so located as to reduce the risk of electric shock or exposure to energy hazardous parts while covers are being removed and replaced.		N/A

UL 2594			
Clause	Requirement – Test	Result – Remark	Verdict
32.3	An uninsulated live part involving a risk of electric shock or exposure to hazardous energy shall be located, guarded, or enclosed so as to reduce the risk of unintentional contact by service personnel adjusting or resetting controls, or similar action or performing mechanical service functions with the equipment energized, such as adjusting the setting of a control with or without marked dial settings, resetting a trip mechanism, or operating a manual switch.		N/A
32.4	Live parts involving a risk of electric shock, or exposure to hazardous energy, located on the back side of a door or cover shall be either guarded or insulated to reduce the risk of unintentional contact of the live parts by service personnel.		N/A
32.5	A component that requires examination, resetting adjustment, servicing, or maintenance while energized shall be so located and mounted with respect to other components and with respect to grounded metal parts that it is accessible for electrical service functions without subjecting the service person to the risk of electric shock or exposure to hazardous energy levels. Access to a component shall not be impeded by other components or by wiring.		N/A
32.6	For an adjustment that is to be made with a screwdriver or similar tool when the device is energized, 32.5 requires that protection be provided so that the risk of inadvertent contact with adjacent uninsulated live parts involving a risk of electric shock is reduced, taking into account that misalignment of the tool with the adjustment means is capable of resulting where an adjustment is attempted.		N/A
32.7	A live relay frame or similar device involving a risk of electric shock or exposure to hazardous energy levels and that is capable of being mistaken for dead metal shall be guarded to reduce the risk of unintentional contact by the service person or be marked in accordance with 74.16.		N/A
32.8	Moving parts that can cause injury to service personnel that must be in motion during service operations that do not involve the moving parts shall be so located or protected that unintentional contact with the moving parts is not likely.		N/A
33	**Electronic Protection Circuits**		**N/A**

UL 2594			
Clause	Requirement – Test	Result – Remark	Verdict
33.1	When circuit analysis or test results indicate that single component failure affects the ability of an electronic or solid-state circuit to perform its back-up, limiting, or other safety related function intended to reduce the risk of fire, electric shock, or injury to persons the circuit shall comply with the requirements in Annex A, Ref. No. 36, including environmental and stress tests applicable to the intended usage of the end-product. When such circuits employ a microprocessor executing software to perform the safety-related function, the software shall comply with the requirements in Annex A, Ref. No. 54.		N/A
33.2	When it is determined that environmental tests are required, the protection control shall be subjected to the following tests in accordance with the method described in Annex A, Ref. No. 36:		N/A
	a) Transient Overvoltage Test;		N/A
	b) Ramp Voltage Test;		N/A
	c) Electromagnetic Susceptibility Tests;		N/A
	d) Electrostatic Discharge Test;		N/A
	e) Thermal Cycling Test;		N/A
	f) Humidity Test; and		N/A
	g) Effects of Shipping and Storage Test.		N/A
33.3	The following test parameters shall be used in the investigation of the control covered by 33.1 for compliance with Annex A, Ref. No. 36:		N/A
	a) Electrical supervision of critical components;		N/A
	b) Visibility or audibility as a trouble indicator for an electrical supervision circuit;		N/A
	c) A field strength of 3 volts per meter (0.91 volts per foot) shall be used for the Radiated EMI Test; and		N/A
	d) Exposure Class H5 shall be used for the Humidity Test.		N/A
33.4	The following test parameters shall be used in the investigation of the circuit employing software covered by 33.1 for compliance with Annex A, Ref. No. 54:		N/A
	a) The requirements for Software Class 1 shall be applied, and		N/A
	b) A failure in the software during its intended operation does not affect compliance under the following conditions:		N/A

UL 2594			
Clause	Requirement – Test	Result – Remark	Verdict
	1) There is no loss of protective function as specified by the manufacturer, or		N/A
	2) The EV supply equipment is de-energized such that there is no longer a risk.		N/A
34	**Cord Reels**		**N/A**
34.1	For EV supply equipment provided with a cord reel, the cord reel shall comply with Annex A, Ref. No. 55.		N/A
34.2	If the EV supply equipment is provided with hooks, or similar means, for manually winding a cord for storage, whether it is the flexible power cord or the EV cable, the requirement in 34.1 does not apply. The wound cord shall be subjected to temperature rating verification by temperature measurements on the cord during the Temperature Test, 49, with 2/3 of the cord length wound as intended.		N/A
35	**Luminaires**		**N/A**
	Electric vehicle supply equipment provided with an external luminaire shall comply with the requirements specified in 35.2 – 35.5. The luminaire shall comply with the applicable requirements in Annex A, Ref. No. 56.		N/A
35.2	Luminaires provided as part of the electric vehicle supply equipment shall be provided with overcurrent protection in accordance with Overcurrent Protective Devices, 28, unless as indicated in 35.3.		N/A
35.3	Except as indicated in 35.3.1, a luminaire supplied by the same source as the electric vehicle supply equipment shall be provided with a switch rated 20 A minimum on the supply side of the overcurrent protection.		N/A
35.3.1	A switch is not required to be provided if the overcurrent protection can only be accessed after power is removed or if the access panel, cover, or door, is provided with an interlock.		N/A
35.4	A luminaire supplied by a separate source from the electric vehicle supply equipment need not be provided with a switch and overcurrent protection when the electric vehicle supply equipment is marked in accordance with 74.18.		N/A
35.5	With reference to 35.4, the electric vehicle supply equipment shall be marked in accordance with 74.17.		N/A

Attachment 1: Photo documentations

View 1:

- ☒ Overall
- ☒ Front
- ☐ Rear
- ☐ Left
- ☐ Right
- ☐ Bottom
- ☐ Internal
- ☐ PCB

View 2:

- ☒ Overall
- ☐ Front
- ☒ Rear
- ☐ Left
- ☐ Right
- ☐ Bottom
- ☐ Internal
- ☐ PCB

Attachment 1: Photo documentations

View 3:

- ☐ Overall
- ☐ Front
- ☐ Rear
- ☐ Left
- ☒ Right
- ☐ Bottom
- ☐ Internal
- ☐ PCB

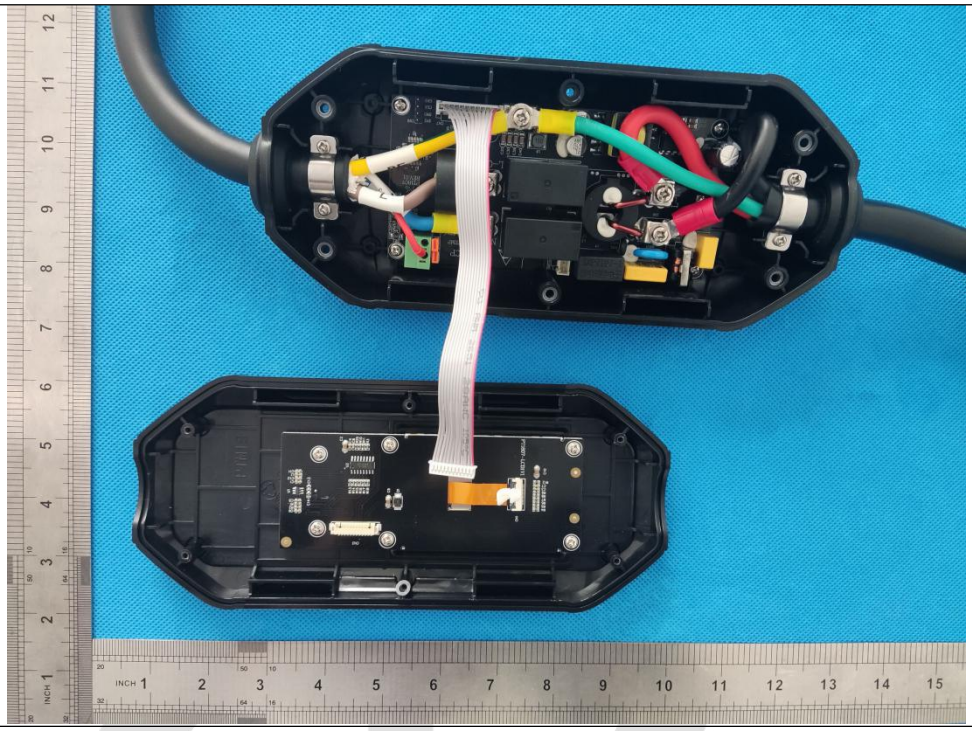
View 4:

- ☐ Overall
- ☐ Front
- ☐ Rear
- ☒ Left
- ☐ Right
- ☐ Bottom
- ☐ Internal
- ☐ PCB

Attachment 1: Photo documentations

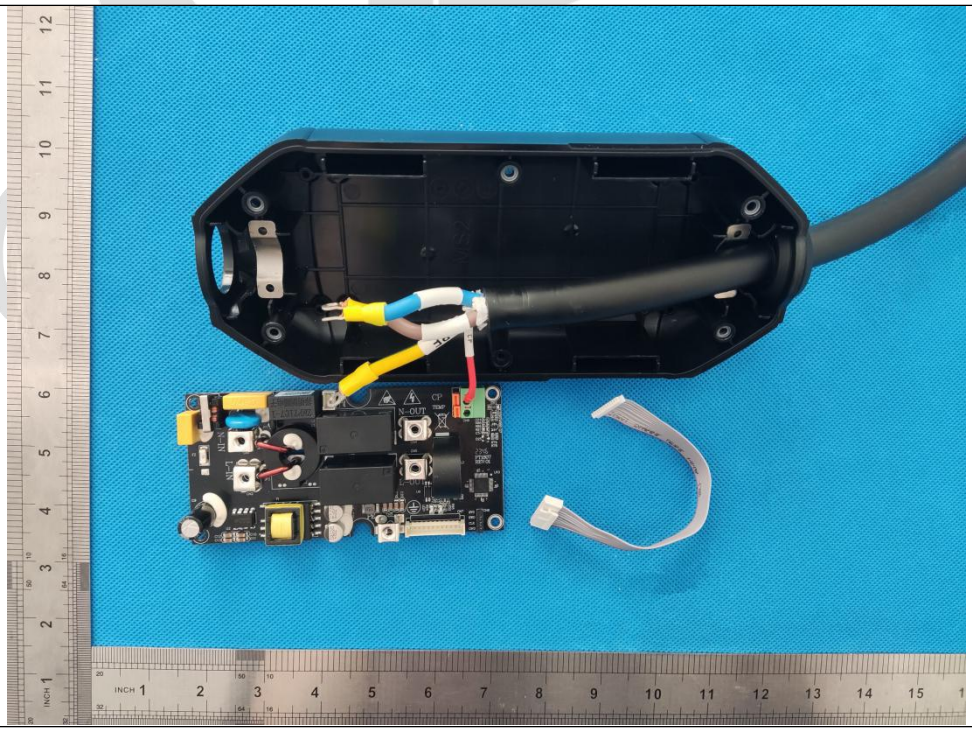
View 5:

- ☐ Overall
- ☐ Front
- ☐ Rear
- ☐ Left
- ☐ Right
- ☐ Bottom
- ☒ Internal
- ☐ PCB



View 6:

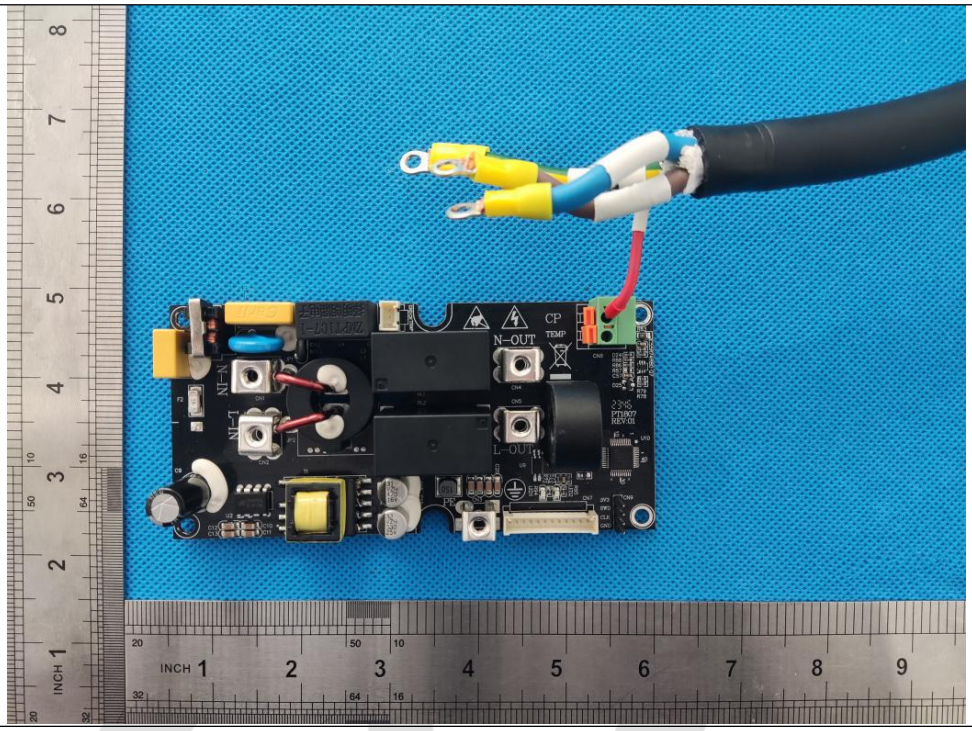
- ☐ Overall
- ☐ Front
- ☐ Rear
- ☐ Left
- ☐ Right
- ☐ Bottom
- ☒ Internal
- ☐ PCB



Attachment 1: Photo documentations

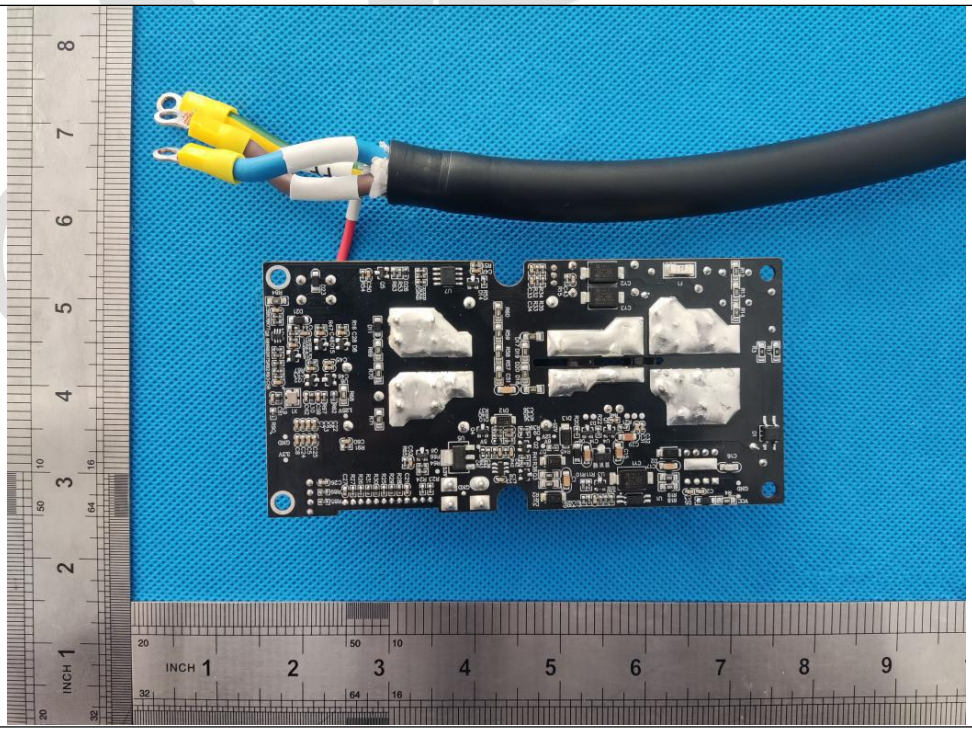
View 7:

- ☐ Overall
- ☐ Front
- ☐ Rear
- ☐ Left
- ☐ Right
- ☐ Bottom
- ☒ Internal
- ☒ PCB



View 8:

- ☐ Overall
- ☐ Front
- ☐ Rear
- ☐ Left
- ☐ Right
- ☐ Bottom
- ☒ Internal
- ☒ PCB



--- End of Attachment 1 ---

ATTACHMENT 2 -- EUT SERIES MODEL LIST

SERIES MODEL LIST					
TAP-16	TAP-16-EU	TAP-16-US	TAP-16-TS	TAP-32-EU	TAP-32-US
TAP-32-TS	TAP-40	TAP-48	TAP-80	TAP-11	TAP-21
TAP-22	TAP-11KW	TAP-21KW	TAP-22KW	TAP-PRO	TAP-PLUS
TAP-16-PRO	TAP-16-PLUS	TAP-32-PRO	TAP-32-PLUS	TAP-40-PRO	TAP-40-PLUS
TAP-48-PRO	TAP-48-PLUS	TAP-80-PRO	TAP-80-PLUS	TDC-01	TDC-02
TDC-03	TDC-04	TDC-05	TDC-06	TDC-07	TDC-08
TDC-09	TDC-10	TDC-16	TDC-18	TDC-19	TDC-20
TDC-30	TDC-40	TDC-50	TDC-60	TDC-70	TDC-80
TDC-90	TDC-79	TDC-97	TDC-99	TDC-Pro	TDC-PLUS
TDC-18-Pro	TDC-18-PLUS	TDC-19-Pro	TDC-19-PLUS	TDC-79-Pro	TDC-79-PLUS
TDC-2008-Pro	TDC-2008-PLUS	TDC-99-Pro	TDC-99-PLUS	TDC-120	TDC-120-PRO
TDC-120-PLUS	TDC-200	TDC-600	TDC-800	TDC-1000	TAW
TAW-7	TAW-11	TAW-21	TAW-22	TAW-14	TAW-01
TAW-09	TAW-10	TAE-20	TAW-30	TAW-60	TAW-70
TAW-80	TAW-90	TAW-99	TAW-88	TAW-79	TAW-97
TAW-50	TAW-16	TAW-32	TAW-PRO	TAW-7-PRO	TAW-11-PRO
TAW-21-PRO	TAW-22-PRO	TAW-14-PRO	TAW-01-PRO	TAW-09-PRO	TAW-10-PRO
TAE-20-PRO	TAW-30-PRO	TAW-60-PRO	TAW-70-PRO	TAW-80-PRO	TAW-90-PRO
TAW-99-PRO	TAW-88-PRO	TAW-79-PRO	TAW-97-PRO	TAW-5-PRO	TAW-16-PRO
TAW-32-PRO	T2168-16	T2168-32	T2168-40	T2168-50	T2168-16-Pro
T2168-32-Pro	T2168-40-Pro	T2168-50-Pro	T2168-16-Plus	T2168-32-Plus	T2168-40-Plus
T2168-50-Plus	TAW-PLUS	TAW-7-PLUS	TAW-11-PLUS	TAW-21-PLUS	TAW-22-PLUS
TAW-14-PLUS	TAW-01-PLUS	TAW-09-PLUS	TAW-10-PLUS	TAE-20-PLUS	TAW-30-PLUS
TAW-60-PLUS	TAW-70-PLUS	TAW-80-PLUS	TAW-90-PLUS	TAW-99-PLUS	TAW-88-PLUS
TAW-79-PLUS	TAW-97-PLUS	TAW-50-PLUS	TAW-16-PLUS	TAW-32-PLUS	TAP-16-UK
TAP-32-UK	TAP-22-UK	TAP-11-UK	TAC-16	TAC-32	TAC-40
TAC-11	TAC-22	TAC-21	TAC-16-PRO	TAC-32-PRO	TAC-40-PRO
TAC-11-PRO	TAC-22-PRO	TAC-21-PRO	TAC-PRO	TAC-PLUS	TE-V8
TE-V8-PRO	TE-V8-PLUS	TE-V9	TE-V9-PRO	TE-V9-PLUS	TE-V6
TE-V6-PRO	TE-V6-PLUS	TE-V7	TE-V7-PRO	TE-V7-PLUS	TE-V5
TE-V5-PRO	TE-V5-PLUS	TE-V3	TE-V3-PRO	TE-V3-PLUS	TE-V1
TE-V1-PRO	TE-V1-PLUS	TE-V2	TE-V2-PRO	TE-V2-PLUS	JT1
JT2	JT3	JT4	JT5	JT6	JT7
JT8	JT9	JT10	JT20	JT80	JT79
JT99	JT90	JT91	JT92	JT95	JT96
J97					

--- End of Attachment 2 ---