

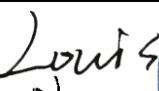
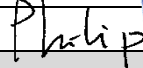
TEST REPORT








LOW VOLTAGE DIRECTIVE
2014/35/EU

Report No.: STD180402NB-L



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TEST REPORT EN 61347-2-12 Part 2: Particular requirements: Section 12: a.c. and/or d.c. supplied electronic ballasts for discharge lamps (excluding fluorescent lamps)	
Report Number	STD180402NB-L
Date of issue	2018-04-16
Total number of pages	51
Testing Laboratory	Standard-Tech Co., Ltd.
Address	Standard-Tech Building, No. 6 Guangsheng Road, Guangzhou Science City, Guangzhou 510663, CHINA
Tested by (name + signature)	Louis Fan 
Approved by (name + signature) ...	Philip Guo 
Applicant's name	FUZHOU SEECHANCE HOLDING CO.,LTD.
Address	UNIT 1906, 19/F HUALIN MANSION, 201 HUALIN RD., FUZHOU CHINA.
Manufacturer's name	FUZHOU SEECHANCE HOLDING CO.,LTD.
Address	UNIT 1906, 19/F HUALIN MANSION, 201 HUALIN RD., FUZHOU CHINA.
Factory's name	FUZHOU SEECHANCE HOLDING CO.,LTD.
Address	UNIT 1906, 19/F HUALIN MANSION, 201 HUALIN RD., FUZHOU CHINA.
Test specification:	
Standard	EN 61347-2-12:2005+A1:2010 used in conjunction with EN 61347-1:2015
Test item description	CMH Electronic Ballast
Trade Mark	/
Model/Type reference	SC-CMH630W-2
Ratings	120-240V~, 50/60Hz, 6.23A 630W; ta:50°C, tc:75°C
List of Attachments (including a total number of pages in each attachment): Attachment 1: Tests of EN 60598-1:2015 for independent controlgear (see page 27 to 35) Attachment 2: Photos (see page 36 to 47) Attachment 3: Circuit diagram and PCB layout (see page 48 to 51)	

Summary of testing:	
Tests performed (name of test and test clause): SC-CMH630W-2 is selected as representative model for full tests.	Testing location: Standard-Tech Building, No. 6 Guanhong Road, Guangzhou Science City, Guangzhou 510663, 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.	
<div style="border: 1px solid black; padding: 10px;"> <p>630W CMH ELECTRONIC BALLAST</p> <p>MOODEL:SC-CMH630W-2</p> <p>LAMP:315W CMH</p> <p>INPUT:120-240V 50/60Hz 6.23A 630W</p> <p>PF\geq0.98 THD \leq10% ta:50°C tc:70°C CF\leq1.7</p> <p>OUPUT: 100Hz-200Hz, U-OUT=400V, Up=5.0kV</p> <p>FUZHOU SEECHANCE HOLDING CO., LTD.</p> <p>UNIT 1906, 19/F HUALIN MANSION, 201 HUALIN RD., FUZHOU CHINA.</p> <div style="display: flex; justify-content: space-around; align-items: center;">        </div> </div>	
Test item particulars	
Classification of installation and use	Independent
Supply Connection	Appliance inlet
.....	
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	2018-04-02
Date (s) of performance of tests	2018-04-02 to 2018-04-16

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.

Clause numbers between brackets refer to clauses in EN 61347-1

General product information:

This report covers the following models of CMH Electronic Ballast which have the similar mechanical and electrical constructions:

No.	Model/Type	Input power
1.	SC-CMH315W-1	315W
2.	SC-CMH315W-2	315W
3.	SC-CMH315W-4	315W
4.	SC-CMH630W-1	630W
5.	SC-CMH630W-2	630W

The differences between above models are:

1. The wattages;
2. The appearances and dimensions.

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Clause	Requirement + Test	Result - Remark	Verdict

4 (4)	GENERAL REQUIREMENTS		P
- (4)	<u>Insulation materials</u> according requirements in Annex N of EN 61347-1	(see Annex N)	N/A
- (4)	Compliance of <u>independent controlgear enclosure</u> with EN 60598-1		P
- (4)	<u>Built-in electronic controlgear</u> with double or reinforced insulation comply with Annex O of EN 61347-1	(see Annex O)	N/A
- (4)	<u>SELV controlgear</u> comply with Annex L of EN 61347-1	(see Annex L)	N/A

6 (6)	CLASSIFICATION		P
	Built-in controlgear :	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	Independent controlgear :	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	Integral controlgear :	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
6.1 (-)	Ignition voltage		—
	≤ 5 kV	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	> 5 kV ≤ 10 kV	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	> 10 kV ≤ 100 kV	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—

7 (7)	MARKING		P
7.1 (7.1)	Mandatory markings		P
	a) mark of origin		P
	b) model number or type reference		P
	c) symbol for independent controlgear, if applicable		P
	d) correlation between interchangeable parts and controlgear marked		N/A
	e) rated supply voltage (V)		P
	supply frequency (Hz)		P
	supply current (A)		P
	f) earthing symbol, if applicable		P
	k) wiring diagram		P
	l) value of t_c		P
7.1 (-)	- control terminals identified, if applicable		N/A
	- output terminals identified		N/A
	- ignition voltage if > 1500V (V) :		P
	- flash symbol if ignition voltage > 5000V		N/A
	Declared maximum working voltage (r.m.s)		P
	- between output terminals		P

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Clause	Requirement + Test	Result - Remark	Verdict

	- between output terminal and earth, if applicable		P
	- given in the description		P
	- marked on the ballast		P
7.1 (7.2)	Marking durable and legible		P
	Rubbing 15 s water, 15 s petroleum; marking legible		P
7.2 (7.1)	Information to be provided, if applicable		P
	h) declaration of protection against accidental contact		N/A
	i) cross-section of conductors (mm ²)		N/A
	j) number, type and wattage of lamp(s)		P
	m) symbol for thermally protected ballast		N/A
	n) heat sink(s)		N/A
7.2 (-)	- marking of ballast if more than one unit		N/A
	- overheating in a multi ballast installation		N/A
	- time limitation of ignition voltage		N/A
	- control terminals not basic insulated		N/A

8 (8)	TERMINALS		N/A
	Screw terminals according section 14 of EN 60598-1:		N/A
	Separately approved; component list	(see Annex 1)	N/A
	Part of the controlgear	(see Annex 2)	N/A
	Screwless terminals according section 15 of EN 60598-1:		N/A
	Separately approved; component list	(see Annex 1)	N/A
	Part of the controlgear	(see Annex 3)	N/A

9 (9)	PROVISION FOR EARTHING		P
- (9.1)	Provisions for protective earthing		P
	Terminal complying with clause 8		P
	Locked against loosening and not possible to loosen by hand		P
	Not possible to loosen clamping means unintentionally on screwless terminals		P
	All parts of material minimizing the danger of electrolytic corrosion		P
	Made of brass or equivalent material		P
	Contact surface bare metal		P
	Test according 7.2.3 of EN 60598-1		P
- (9.2)	Provision for functional earthing		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Comply with clause 8 and 9.1		N/A
	Functional earth insulated from live parts by double or reinforced insulation		N/A
- (9.3)	Lamp controlgear with conductors for protective earthing by tracks on printed circuit board		P
	Test with a current of 25 A between earthing terminal or earthing contact and each of the accessible metal parts; measured resistance (Ω) at ≥ 10 A according 7.2.3 of EN 60598-1: $< 0,5 \Omega$:		P
- (9.4)	Earthing of built-in lamp controlgear		N/A
	Earth by means of fixing to earthed metal of luminaire in compliance of 7.2 of EN 60598-1		N/A
	Earthing terminal only for earthing the built-in controlgear		N/A
- (9.5)	Earthing via independent controlgear		P
- (9.5.1)	Earth connection to other equipment		N/A
	Looping or through connection, conductor min. 1,5 mm ² and of copper or equivalent		N/A
	Protective earthing wires in line with 5.3.1.1 and clause 7 of EN 60598-1		N/A
- (9.5.2)	Earthing of the lamp compartments powered via the independent lamp controlgear		P
	Test with a current of 25 A between input and output earth terminals; measured resistance (Ω) between earthing terminal or earthing contact and each of the accessible metal parts at ≥ 10 A according 7.2.3 of EN 60598-1: $< 0,5 \Omega$:		P
	Output earthing terminal marked as in 7.1 t) of EN 61347-1		P

10 (10)	PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS		P
- (10.1)	Controlgear protected against accidental contact with live parts		P
- (A2)	Voltage measured with 50 k Ω	(see Annex A)	N/A
- (A3)	Voltage > 35 V peak or > 60 V d.c. or protective impedance device	(see Annex A)	P
- (10.1)	Lacquer or enamel not used for protection or insulation		P
	Adequate mechanical strength on parts providing protection		P
- (10.2)	Capacitors $> 0,5 \mu\text{F}$: voltage after 1 min (V): < 50 V :		P
- (10.3)	Controlgear providing SELV		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Accessible conductive parts are insulated from live parts by double or reinforced insulation in SELV controlgear		N/A
	No connection between output circuit and the body or protective earthing circuit		N/A
	No possibility of connection between output circuit and the body or protective earthing circuit through other conductive parts		N/A
	SELV outputs separated by at least basic insulation		N/A
	ELV conductive parts insulated as live parts		N/A
	Tests according Annex L of EN 61347-1	(see Annex L)	N/A
- (10.4)	Accessible conductive parts in SELV circuits		N/A
	Output voltage under load ≤ 25 V r.m.s. or ≤ 60 V d.c.		N/A
	If output voltage > 25 V r.m.s. or > 60 V d.c.; No load output ≤ 35 V peak or ≤ 60 V d.c. and touch current does not exceed 0,7 mA (peak) or 2 mA d.c.:		N/A
	One conductive part is insulated if output voltage or current exceeding the values above and withstand test voltage 500 V		N/A
	Double or reinforced insulation bridged by appropriate and at least two resistors or two Y2 capacitors or one Y1 capacitor		N/A
	Y1 or Y2 capacitors comply with EN 60384-14		N/A
	Resistors comply with test (a) in 14.1 of EN 60065		N/A

11 (11)	MOISTURE RESISTANCE AND INSULATION		P
	After storage 48 h at 91-95% relative humidity and 20-30 °C measuring of insulation resistance:		N/A
	For basic insulation ≥ 2 M Ω :	>100 M Ω	P
	For double or reinforced insulation ≥ 4 M Ω :		N/A
	Between primary and secondary circuits in controlgear providing SELV, values in Annex L in EN 61347-1		N/A

P12 (12)	ELECTRIC STRENGTH		P
- (12)	Immediately after clause 11 electric strength test for 1 min		P
	Basic insulation for SELV, test voltage 500 V		N/A
	Working voltage ≤ 50 V, test voltage 500 V		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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	Working voltage $> 50 \text{ V} \leq 1000 \text{ V}$, test voltage (V):		P
	Basic insulation, $2U + 1000 \text{ V}$		P
	Supplementary insulation, $2U + 1000 \text{ V}$		N/A
	Double or reinforced insulation, $4U + 2000 \text{ V}$		N/A
	No flashover or breakdown		P
	Solid or thin sheet insulation for double or reinforced insulation fulfil the requirements in Annex N in EN 61347-1		P

14 (14)	FAULT CONDITIONS		P
- (14.1)	When operated under fault conditions the controlgear:		P
	- does not emit flames or molten material		P
	- does not produce flammable gases		P
	- protection against accidental contact not impaired		P
	Thermally protected controlgear does not exceed the marked temperature value		N/A
	Fault conditions: capacitors, resistors or inductors without proof of compliance with relevant specifications have been short-circuited or disconnected	(see appended table)	P
- (14.2)	Short-circuit of creepage distances and clearances if less than specified in clause 16 in Part 1 (after any reduction in 14.2 - 14.5)	(see appended table)	P
- (14.3)	Short-circuit or interruption of semiconductor devices	(see appended table)	P
- (14.4)	Short-circuit across insulation consisting of lacquer, enamel or textile	(see appended table)	N/A
- (14.5)	Short-circuit across electrolytic capacitors	(see appended table)	P
- (14.6)	After the tests has been carried out on three samples:		P
	The insulation resistance $\geq 1 \text{ M}\Omega$:	$>100 \text{ M}\Omega$	P
	No flammable gases		P
	No accessible parts have become live		P
	During the tests, a five-layer tissue paper, where the test specimen is wrapped, does not ignite		P
- (14.7)	Relevant fault condition tests with high-power a.c. supply		—

15	PROTECTION OF ASSOCIATED COMPONENTS		P
15.1	Voltage at the output terminals, under normal and abnormal conditions, does not exceed the declared maximum working voltage		P

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Clause	Requirement + Test	Result - Remark	Verdict
15.2	Declared time limitation is not exceeded, under normal and abnormal conditions		P
15.3	Control terminals isolated from the mains circuit by at least basic insulation, or marking according to 7.2		N/A

16	IGNITION VOLTAGE		P
16.1	Measurements by oscilloscope or electrostatic voltmeter		P
16.2	Ignition voltage not exceed 5 kV or 1,3 x Up		P
16.3	Cut-out time:		N/A
	- max. 60 s for ignition voltage 5 to 10 kV		N/A
	- max. 20 min. for ignition voltage 5 to 10 kV if evident that the ballast still trying to ignite		N/A
	- max. 3 or 30 s for ignition voltage > 10 kV		N/A

17	ABNORMAL CONDITIONS		P
	Safety not impaired when ballast is operated at any voltage between 90% and 110% of rated voltage		P
	The following condition(s) was/were applied for 1 h:		—
	a) lamp not inserted or does not ignite		P
	b) burner leaks		P
	c) rectifying effect		P
	No defect impairing safety		P
	No flammable gases, molten material or smoke produced		P

18 (15)	CONSTRUCTION		P
- (15.1)	Wood, cotton, silk, paper and similar fibrous material		P
	Wood, cotton, silk, paper and similar fibrous material not used as insulation		P
- (15.2)	Printed circuits		P
	Printed circuits used as internal connections complies with clause 14		P
- (15.3)	Plugs and socket-outlets used in SELV or ELV circuits		N/A
	No dangerous compatibility between output socket-outlet and a plug for socket-outlets for input circuit in relation to installation rules, voltages and frequencies		N/A
	Plugs and socket-outlets for SELV comply with EN 60906-3 and EN 60884-2-4		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Plugs and socket-outlets for SELV $\leq 3 \text{ A}$, $\leq 25 \text{ V}$ r.m.s. or $\leq 60 \text{ V}$ d.c. and $\leq 72 \text{ W}$ comply with EN 60906-3 and EN 60884-2-4 or:		N/A
	- plugs not able to enter socket-outlets of other standardised system		N/A
	- socket-outlets not admit plugs of other standardised system		N/A
	- socket-outlets without protective earth		N/A
- (15.4)	Insulation between circuits and accessible parts		P
- (15.4.2)	SELV circuits		N/A
	Source used to supply SELV circuits:		N/A
	- safety isolating transformer in accordance with relevant part 2 of EN 61558		N/A
	- controlgear providing SELV in accordance with relevant part 2 of EN 61347		N/A
	- another source		N/A
	Voltage in the circuit not higher than ELV		N/A
	SELV circuits insulated from LV by double or reinforced insulation		N/A
	SELV circuits insulated from non SELV circuits by double or reinforced insulation		N/A
	SELV circuits insulated from FELV circuits by supplementary insulation		N/A
	SELV circuits insulated from other SELV circuits by basic insulation		N/A
	SELV circuits insulated from accessible conductive parts according Table 6 in 15.4.5		N/A
- (15.4.3)	FELV circuits		N/A
	Source used to supply FELV circuits:		N/A
	- separating transformer in accordance with relevant part 2 of EN 61558		N/A
	- separating controlgear providing basic insulation between input and output circuits in accordance with relevant part 2 of EN 61347		N/A
	- another source		N/A
	- source in circuits separated by the LV supply by basic insulation		N/A
	Voltage in the circuit not higher than ELV		N/A
	FELV circuits insulated from LV supply by at least basic insulation		N/A
	FELV circuits insulated from other FELV circuits if functional purpose		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	FELV circuits insulated from accessible conductive parts according Table 6 in 15.4.5		N/A
	Plugs and socket-outlets for FELV system comply with:		
	- plugs not able to enter socket-outlets of other voltage systems		N/A
	- socket-outlets not admit plugs of other voltage systems		N/A
	- socket-outlets have a protective conductor contact		N/A
- (15.4.4)	Other circuits		P
	Insulation between circuits other than SELV or FELV and accessible conductive parts in according Table 6 in 15.4.5.		P
- (15.4.5)	Insulation between circuits and accessible conductive parts		P
	Accessible conductive parts insulated from active parts of electric circuits by insulating according Table 6		P
	Requirements for Class II construction with equipotential bonding for protection against indirect contact with live parts:		N/A
	- all conductive parts are connected together		N/A
	- conductive parts are reliably connected together according test of EN 60598-1 cl. 7.2.3		N/A
	- conductive parts comply with requirements of Annex A in case of insulation fault		N/A

19 (16)	CREEPAGE DISTANCES AND CLEARANCES		P
- (16)	Creepage distances and clearances according to 16.2 and 16.3		P
	Controlgears providing SELV comply with additional requirements in Annex L		N/A
	Insulating lining of metallic enclosures		P
	Controlgear protected against pollution comply with Annex P	(see Annex P)	N/A
- (16.2)	Creepage distances		P
- (16.2.2)	Minimum creepage distances for working voltages		P
	Creepage distances according to Table 7	(see appended table)	P
- (16.2.3)	Creepage distances for working voltages with frequencies above 30 kHz		N/A
	Creepage distances according to Table 8	(see appended table)	N/A
- (16.3)	Clearances		P
- (16.3.2)	Clearances for working voltages		P
	Clearances distances according to Table 9	(see appended table)	P
- (16.3.3)	Clearances for ignition voltages and working voltages with higher frequencies		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Clearances distances for basic or supplementary insulation according to Table 10	(see appended table)	P
	Clearances distances for reinforced insulation according to Table 11	(see appended table)	N/A

20 (17)	SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS		P
	Screws, current-carrying parts and connections in compliance with EN 60598-1 (clause numbers between parentheses refer to EN 60598-1)		P
(4.11)	Electrical connections		P
(4.11.1)	Contact pressure		P
(4.11.2)	Screws:		N/A
	- self-tapping screws		N/A
	- thread-cutting screws		N/A
(4.11.3)	Screw locking:		P
	- spring washer		P
	- rivets		P
(4.11.4)	Material of current-carrying parts		P
(4.11.5)	No contact to wood or mounting surface		P
(4.11.6)	Electro-mechanical contact systems		P
(4.12)	Mechanical connections and glands		P
(4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		N/A
	Torque test: torque (Nm); part..... :	1.20Nm; fixing enclosure	P
	Torque test: torque (Nm); part..... :	0.50Nm; fixing appliance inlet	P
	Torque test: torque (Nm); part..... :	0.50Nm; earthing	P
		2.50Nm; fixing gasket	
(4.12.2)	Screws with diameter < 3 mm screwed into metal		N/A
(4.12.4)	Locked connections:		N/A
	- fixed arms; torque (Nm)		N/A
	- lampholder; torque (Nm)		N/A
	- push-button switches; torque 0,8 Nm		N/A
(4.12.5)	Screwed glands; force (Nm)..... :	3.25Nm	P

21 (18)	RESISTANCE TO HEAT, FIRE AND TRACKING		P
- (18.1)	Ball-pressure test	See Test Table 21 (18.1)	P
- (18.2)	Test of printed boards	See Test Table 21 (18.2)	P
- (18.3)	Glow-wire test	See Test Table 21 (18.3)	P
- (18.4)	Needle flame test	See Test Table 21 (18.4)	P
- (18.5)	Tracking test	See Test Table 21 (18.5)	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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22 (19)	RESISTANCE TO CORROSION		P
	- test according 4.18.1 of EN 60598-1		P
	- adequate varnish on the outer surface		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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19 (16)		TABLE: clearance and creepage distance measurements (mm)						P
Applicable part of EN 61347-1 Table 7 – 11*								
Distances	Insulation type **	Measured clearance	Required		Measured creepage	Required		
			clearance	*Table		creepage	*Table	
between live parts of different polarity:	Basic	>4.0	2.5	9	>4.0	1.7	7	
Working voltage (V)					U-OUT=400V		—	
Frequency if applicable (kHz)					/		—	
PTI.....					< 600 ☒ ≥ 600 ☐		—	
Peak value of the working voltage \hat{U}_{out} if applicable (kV)					/		—	
Pulse voltage if applicable (kV)					1.5kV		—	
between live parts and accessible metal parts:	Basic	>4.0	2.5	9	>4.0	1.7	7	
Working voltage (V)					U-OUT=400V		—	
Frequency if applicable (kHz)					/		—	
PTI.....					< 600 ☒ ≥ 600 ☐		—	
Peak value of the working voltage \hat{U}_{out} if applicable (kV)					/		—	
Pulse voltage if applicable (kV)					1.5kV		—	

21 (18.1)	TABLE: Ball Pressure Test			P
Allowed impression diameter (mm)		2		—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)	
Bobbin	/	125	0.82	
Main PCB	/	125	0.52	
Vertical PCB	/	125	0.55	
Small PCB	/	125	0.61	
Supplementary information: /				

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Clause	Requirement + Test	Result - Remark	Verdict
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21 (18.2)	TABLE: Test of printed boards				P
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (s)	Ignition of specified layer Yes/No	Duration of burning (s)	Verdict
Main PCB	/	30	No	0	P
Vertical PCB	/	30	No	0	P
Small PCB	/	30	No	0	P
Supplementary information: /					

21 (18.3)	TABLE: Glow-wire test				P
Glow wire temperature:			650°C		—
Object/ Part No./ Material	Manufacturer/ trademark		Ignition of specified layer Yes/No	Duration of burning (s)	Verdict
Heat-shrinkable sleeve	/		No	0	P
Insulation sheet	/		No	0	P
Supplementary information: /					

21 (18.4)	TABLE: Needle-flame test				
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (s)	Ignition of specified layer Yes/No	Duration of burning (s)	Verdict
Bobbin	/	10	No	0	P
Supply connector	/	10	No	0	P
Supplementary information: /					

21 (18.5)	TABLE: Proof tracking test					N
Test voltage PTI				175 V		—
Object/ Part No./ Material		Manufacturer/ trademark	Withstand 50 drops without failure on three places or on three specimens			Verdict
/		/	/	/	/	/
Supplementary information: /						

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Clause	Requirement + Test	Result - Remark	Verdict
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14	TABLE: tests of fault conditions		
Part	Simulated fault		Hazard
Cr & Cl less than specified	Short-circuit, no emission of flame, molten material and flammable gas.		YES /NO
Bridge rectifier	Short-circuit, no emission of flame, molten material and flammable gas.		YES /NO
MOS FET	Short-circuit, no emission of flame, molten material and flammable gas.		YES /NO
Electrolytic capacitor	Short-circuit, no emission of flame, molten material and flammable gas.		YES /NO
Diode	Short-circuit, no emission of flame, molten material and flammable gas.		YES /NO

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Clause	Requirement + Test	Result - Remark	Verdict

(A)	ANNEX A - TEST TO ESTABLISH WHETHER A CONDUCTIVE PART IS A LIVE PART WHICH MAY CAUSE AN ELECTRIC SHOCK		P
(A.1)	Comply with A.2 or A.3	A.3	P
(A.2)	Voltage ≤ 35 V peak or ≤ 60 V d.c		N/A
(A.3)	If voltage measured according Clause A.2 exceeds the limit value; touch current does not exceed 0,7 mA (peak) or 2 mA d.c.	0.016mA	P
	Comply with Annex G.2 of EN 60598-1		P

(C)	ANNEX C – PARTICULAR REQUIREMENTS FOR ELECTRONIC LAMP CONTROLGEAR WITH MEANS OF PROTECTION AGAINST OVERHEATING		N/A
(C3)	GENERAL REQUIREMENTS		N/A
(C3.1)	Thermal protection means integral with the convertor, protected against mechanical damage		N/A
	Renewable only by means of a tool		N/A
	If function depending on polarity, for cord-connected equipment protection means in both leads		N/A
	Thermal links comply with EN 60691		N/A
	Electrical controls comply with EN 60730-2-3		N/A
(C3.2)	No risk of fire by breaking (clause C7)		N/A
(C5)	CLASSIFICATION		N/A
	a) automatic resetting type		—
	b) manual resetting type		—
	c) non-renewable, non-resetting type		—
	d) renewable, non-resetting type		—
	e) other type of thermal protection; description ...:		—
(C6)	MARKING		N/A
(C6.1)	Symbol for temperature declared thermally protected ballasts		N/A
(C6.2)	Declaration of the type of protection provided		N/A
(C7)	LIMITATION OF HEATING		N/A
(C7.1)	Preselection test:		N/A
	Test sample placed for at least 12 h in an oven having temperature ($t_c - 5$) K		N/A
	No operation of the protection device		N/A
(C7.2)	Functioning of protection means:		N/A
	Normal operation of the sample in a test enclosure according to Annex D at an ambient temperature such that ($t_c +0; -5$) °C is obtained		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

	No operation of the protection device		N/A
	Introducing of the most onerous test condition determined during test of clause 14.2 to 14.5		N/A
	Output of windings connected to the mains supply short-circuited, and other part of the controlgear operated under normal conditions		N/A
	Increasing of the current through the windings continuously until operation of the protection means		N/A
	Continuous measuring of the highest surface temperature		N/A
	Ballasts according to C5 a) or C5 e) operated until stable conditions are achieved		N/A
	Automatic-resetting thermal protectors working 3 times		N/A
	Ballasts according to C5 b) working 6 times		N/A
	Ballasts according to C5 c) and C5) d) working once		N/A
	Highest temperature does not exceed the marked value		N/A
	Any overshoot of 10% over the marked value within 15 min		N/A
	After 15 min value not exceed marked value		N/A

(D)	ANNEX D – REQUIREMENTS FOR CARRY OUT THE HEATING TESTS OF THERMALLY PROTECTED LAMP CONTROLGEAR		N/A
	Tests in C7 performed in accordance with Annex D, if applicable		N/A

(F)	ANNEX F – DRAUGHT-PROOF ENCLOSURE		P
	Draught-proof enclosure in accordance with the description		P
	Dimensions of the enclosure		P
	Other design; description		P

I (-)	ANNEX I IN THIS PART 2 - – PRECAUTIONS TO BE OBSERVED WHEN MEASURING WITH SPHERICAL SPARK GAPS		N/A
	Precautions according Annex I		N/A

(L)	ANNEX L: PARTICULAR ADDITIONAL REQUIREMENTS FOR CONTROLGEARS PROVIDING SELV		N/A
(L.3)	Classification		N/A
	Class I	Yes <input type="checkbox"/> No <input type="checkbox"/>	—

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Clause	Requirement + Test	Result - Remark	Verdict
	Class II	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
	Class III	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
	non-inherently short circuit proof controlgear	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
	inherently short circuit proof controlgear	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
	fail safe controlgear	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
	non-short-circuit proof controlgear	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
(L.4)	Marking		N/A
	Adequate symbols are used		N/A
(L.5)	Protection against electric shock		N/A
	Comply with clause 9.2 of EN 61558-1		N/A
(L.6)	Heating		N/A
	No excessive temperatures in normal use		N/A
	Value if capacitor t_c marked		—
	Winding insulation classified as Class		—
	Comply with tests of clause 14 of EN 61558-1 with adjustments		N/A
(L.7)	Short-circuit and overload protection		N/A
	Comply with tests of clause 15 of EN 61558-1 with adjustments		N/A
(L.8)	Insulation resistance and electric strength		N/A
(L.8.1)	Conditioned 48 h between 91 % and 95 %		N/A
(L.8.2)	Insulation resistance		N/A
	Between input- and output circuits not less than 5 M Ω		N/A
	Between metal parts of class II convertors which are separated from live parts by basic insulation only and the body not less than 5 M Ω		N/A
	Between metal foil in contact with the inner and outer surfaces of enclosures of insulating material not less than 2 M Ω		N/A
(L.8.3)	Electric strength		N/A
	1) Between live parts of input circuits and live parts of output circuits		N/A
	2) Over basic or supplementary insulation between:		N/A
	a) live parts having different polarity		N/A
	b) live parts and body if intended to be connected to protective earth		N/A
	c) accessible metal parts and a metal rod of the same diameter as the flexible cable or cord		N/A
	d) live parts and an intermediate metal part		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	e) intermediate metal parts and the body		N/A
	f) each input circuit and all other input circuits		N/A
	3) Over reinforced insulation between the body and live parts		N/A
(L.9)	Construction		N/A
(L.9.1)	Transformer comply with 19.12 of EN 61558-1 and 19 of EN 61558-2-6		N/A
	HF transformer comply with 19 of EN 61558-2-16		N/A
(L.10)	Components		N/A
	Protective devices comply with 20.6 – 20.11 of EN 61558-1		N/A
(L.11)	Creepage distances, clearances and distances through insulation		N/A
	Creepage distances and clearances not less than in Clause 16		N/A
	Distance through insulation according Table L.5 in EN 61347-1		N/A
	1) Basic distance through insulation		N/A
	Required distance (mm)		—
	Measured (mm)		N/A
	Supplementary information		—
	2) Supplementary distance through insulation		N/A
	Required distance (mm)		—
	Measured (mm)		N/A
	Supplementary information		—
	3) Reinforced distance through insulation		N/A
	Required distance (mm)		—
	Measured (mm)		N/A
	Supplementary information		—

(N)	ANNEX N: REQUIREMENTS FOR INSULATION MATERIALS USED FOR DOUBLE OR REINFORCED INSULATION		N/A
(N.4)	General requirements		N/A
(N.4.1)	Material comply with EN 60085 and EN 60216 series		N/A
(N.4.2)	Solid insulation		N/A
	Electric strength test at least 5 kV or 1,35 x test voltage in Table N.1		N/A
	If not classified according EN 60085 and EN 60216 series: Electric strength test increased 10 % of 5,5 kV or 1,5 x test voltage in Table N.1		N/A
(N.4.3)	Thin sheet insulation		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
(N.4.3.1)	Thickness and composition of thin sheet insulation		N/A
	- Inside the ballast and not subjected to handling or abrasion during the production and during maintenance		N/A
	- Non-separated layers: Min. 3 layers and fulfil mandrel test of 150N		N/A
	- Separated layers: Min. 2 layers and each layer fulfil mandrel test of 50N		N/A
	- Separated layers (alternative): Min. 3 layers and 2/3 of the layers fulfil mandrel test of 100N		N/A
(N.4.3.2)	Mandrel test (electric strength test during mechanical stress)		N/A
	Electric strength test after mandrel test:		N/A
	- Non-separated layers: min. 5 kV or 1,35 x test voltage in Table N.1		N/A
	- 2/3 of min. 3 separated layers: min. 5 kV or 1,25 x test voltage in Table N.1		N/A
	- one of 2 separated layers: min. 5 kV or 1,25 x test voltage in Table N.1		N/A
	No flashover or breakdown occurred		N/A
(O)	ANNEX O: ADDITIONAL REQUIREMENTS FOR BUILT-IN ELECTRONIC CONTROLGEAR WITH DOUBLE OR REINFORCED INSULATION		N/A
(O.6)	Marking		N/A
	Marking according clause 7 (7)	See clause 7	N/A
	Special symbol		N/A
	Meaning of the special symbol explained in catalogue		N/A
(O.7)	Protection against accidental contact with live parts		N/A
	Requirements of clause 10 (10)	See clause 10	N/A
	Test finger not possible to make contact with basic insulated metal parts		N/A
(O.8)	Terminals		N/A
	Clause 8 (8)	See clause 8	N/A
(O.9)	Provision for earthing		N/A
	Functional earthing terminals comply with clause 9 of part 1		N/A
	No protective earthing terminal		N/A
(O.10)	Moisture resistance and insulation		N/A
	Clause 11 (11)	See clause 11	N/A
(O.11)	Electric strength		N/A
	Clause 12 (12)	See clause 12	N/A
(O.13)	Fault conditions		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Clause 14 (14)	See clause 14	N/A
	End of test, between live part and accessible metal parts or external parts of insulating material in contact with the supporting surface comply with dielectric strength test reduced to 35 % of values according Table 1 in part 1		N/A
	Insulation resistance according to O.10 between live part and accessible metal parts or external parts of insulating material in contact with the supporting surface not less than 4 MΩ		N/A
(O.14)	Construction		N/A
	Clause 18 (15)	See clause 18	N/A
	Accessible metal parts insulated from live parts by double or reinforced insulation		N/A
	Live part insulated from supporting surface in contact with external faces by double or reinforced insulation		N/A
(O.15)	Creepage distances and clearances		N/A
	Clause 19 (16)	See clause 19	N/A
	Comply with corresponding values for luminaries in EN 60598-1		N/A
(O.16)	Screws, current-carrying parts and connections		N/A
	Clause 20 (17)	See clause 20	N/A
(O.17)	Resistance to heat and fire		N/A
	Clause 21 (18)	See clause 21	N/A
(O.18)	Resistance to corrosion		N/A
	Clause 22 (19)	See clause 22	N/A

(P)	Creepage distances and clearances and distance through isolation (DTI) for lamp controlgear which are protected against pollution by the use of coating or potting		N/A
(P.1)	General		N/A
	P.2 applies if creepage distances less than the minimum in Table 7 and 8		N/A
	P.3 applies if clearance less than the minimum in Table 9, 10 and 11		N/A
(P.2)	Creepage distances		N/A
(P.2.2)	Minimum creepage distances for working voltages and rated voltages with frequencies up to 30 kHz (Table P.1)		N/A
	Basic or supplementary insulation:		N/A
	Required creepage.....:		—
	Measured		N/A
	Supplementary information		—

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Clause	Requirement + Test	Result - Remark	Verdict
	Reinforced insulation:		N/A
	Required creepage.....:		—
	Measured		N/A
	Supplementary information		—
(P.2.3)	Creepage distances for working voltages with frequencies above 30 kHz (Table P.2)		N/A
	Voltage \hat{U}_{out} kV		—
	Frequency		—
	Required distance		—
	Measured		N/A
	Supplementary information		—
(P.2.4)	Compliance with the required creepage distances		N/A
(P.2.4.1)	Compliance in accordance with 16.3.3 and test according P.2.4.2		N/A
(P.2.4.3)	Electrical tests after conditioning		N/A
(P.2.4.3.1)	Insulation resistance and electric strength according Clause 11 and 12		N/A
(P.3)	Distance through isolation		N/A
(P.3.4)	Electrical tests after conditioning		N/A
(P.3.4.1)	Insulation resistance and electric strength according Clause 11 and 12		N/A
(P.3.4.2)	Impulse voltage dielectrical test		N/A
	Basic or supplementary insulation:		N/A
	Working/rated voltage		—
	Impulse voltage		N/A
	Supplementary information		—
	Reinforced insulation:		N/A
	Working/rated voltage		—
	Impulse voltage		N/A
	Supplementary information		—

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Clause	Requirement + Test	Result - Remark	Verdict
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ANNEX 2	Screw terminals (part of the luminaire)		N/A
(14)	SCREW TERMINALS		N/A
(14.2)	Type of terminal		—
	Rated current (A)		—
(14.3.2.1)	One or more conductors		N/A
(14.3.2.2)	Special preparation		N/A
(14.3.2.3)	Terminal size		N/A
	Cross-sectional area (mm ²)		—
(14.3.3)	Conductor space (mm)		N/A
(14.4)	Mechanical tests		N/A
(14.4.1)	Minimum distance		N/A
(14.4.2)	Cannot slip out		N/A
(14.4.3)	Special preparation		N/A
(14.4.4)	Nominal diameter of thread (metric ISO thread) M		N/A
	External wiring		N/A
	No soft metal		N/A
(14.4.5)	Corrosion		N/A
(14.4.6)	Nominal diameter of thread (mm)		N/A
	Torque (Nm)		N/A
(14.4.7)	Between metal surfaces		N/A
	Lug terminal		N/A
	Mantle terminal		N/A
	Pull test; pull (N)		N/A
(14.4.8)	Without undue damage		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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ANNEX 3	Screwless terminals (part of the luminaire)		N/A
(15)	SCREWLESS TERMINALS		N/A
(15.2)	Type of terminal		—
	Rated current (A)		—
(15.3.1)	Material		N/A
(15.3.2)	Clamping		N/A
(15.3.3)	Stop		N/A
(15.3.4)	Unprepared conductors		N/A
(15.3.5)	Pressure on insulating material		N/A
(15.3.6)	Clear connection method		N/A
(15.3.7)	Clamping independently		N/A
(15.3.8)	Fixed in position		N/A
(15.3.10)	Conductor size		N/A
	Type of conductor		N/A
(15.5)	Terminals and connections for internal wiring		N/A
(15.5.1)	Mechanical tests		N/A
(15.5.1.1.1)	Pull test spring-type terminals (4 N, 4 samples)		N/A
(15.5.1.1.2)	Pull test pin or tab terminals (4 N, 4 samples)		N/A
	Insertion force not exceeding 50 N		N/A
(15.5.1.2)	Permanent connections: pull-off test (20 N)		N/A
(15.5.2)	Electrical tests		N/A
	Voltage drop (mV) after 1 h (4 samples)		N/A
	Voltage drop of two inseparable joints		N/A
	Number of cycles:		—
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples)		N/A
	Voltage drop (mV) after 50th alt. 100th cycle (4 samples)		N/A
	After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples)		N/A
	After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples)		N/A
(15.6)	Terminals and connections for external wiring		N/A
(15.6.1)	Conductors		N/A
	Terminal size and rating		N/A
15.6.2	Mechanical tests		N/A
(15.6.2.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N)		N/A
(15.6.2.2)	Pull test pin or tab terminals (4 samples); pull (N)		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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(15.6.3)	Electrical tests									N/A
	Tests according 15.6.3.1 + 15.6.3.2 in EN 60598-1									N/A
(15.6.3.1) (15.6.3.2)	TABLE: Contact resistance test / Heating tests									N/A
	Voltage drop (mV) after 1 h									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Voltage drop of two inseparable joints									N/A
	Voltage drop after 10th alt. 25th cycle									N/A
	Max. allowed voltage drop (mV)									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Voltage drop after 50th alt. 100th cycle									N/A
	Max. allowed voltage drop (mV)									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Continued ageing: voltage drop after 10th alt. 25th cycle									N/A
	Max. allowed voltage drop (mV)									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Continued ageing: voltage drop after 50th alt. 100th cycle									N/A
	Max. allowed voltage drop (mV)									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
Supplementary information: /										

Attachment 1: EN 60598-1

Clause	Requirement + Test	Result - Remark	Verdict
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0	GENERAL TEST REQUIREMENTS		P
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2	CLASSIFICATION		P
2.2	Type of protection	Class I	—
2.3	Degree of protection.....	IP20	—
2.4	Luminaire suitable for direct mounting on normally flammable surfaces	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
2.5	Luminaire for normal use	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	Luminaire for rough service	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—

3	MARKING		P
3.2	Mandatory markings		P
3.3	Additional information		P
3.4	Test with water		P
	Test with hexane		P
	Legible after test		P
	Label attached		P

4	CONSTRUCTION		P
4.2	Components replaceable without difficulty		P
4.3	Wireways smooth and free from sharp edges		P
4.4	Lampholders		N/A
4.5	Starter holders		N/A
4.6	Terminal blocks		N/A
4.7	Terminals and supply connections		P
4.8	Switches		N/A
4.9	Insulating lining and sleeves		P
4.10	Double or reinforced insulation		N/A
4.11	Electrical connections and current-carrying parts		P
4.12	Screws and connections (mechanical) and glands		P
4.13	Mechanical strength		P
4.14	Suspensions, fixings and means of adjusting		P
4.15	Flammable materials		N/A
4.16	Luminaires for mounting on normally flammable surfaces		P
4.17	Drain holes		P
4.18	Resistance to corrosion		P
4.19	Igniters compatible with ballast		N/A

Attachment 1: EN 60598-1

Clause	Requirement + Test	Result - Remark	Verdict
4.20	Rough service vibration		N/A
4.21	Protective shield		N/A
4.22	Attachments to lamps not cause overheating or damage		N/A
4.23	Semi-luminaires comply Class II		N/A
4.24	Photobiological hazards		N/A
4.25	Mechanical hazard		P
4.26	Short-circuit protection		N/A
4.27	Terminal blocks with integrated screwless earthing contacts		N/A
4.28	Fixing of thermal sensing control		N/A
4.29	Luminaires with non-replaceable light source		N/A
4.30	Luminaires with non-user replaceable light source		N/A
4.31	Insulation between circuits		P
4.32	Overvoltage protective devices		N/A

11	CREEPAGE DISTANCES AND CLEARANCES		P
11.2	Creepage distances and clearances:		P

7	PROVISION FOR EARTHING		P
7.2.1 + 7.2.3	Accessible metal parts		P
7.2.2 + 7.2.3	Earth continuity in joints, etc.		N/A
7.2.4	Locking of clamping means		P
	Compliance with 4.7.3		P
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
7.2.5	Earth terminal integral part of connector socket		P
7.2.6	Earth terminal adjacent to mains terminals		P
7.2.7	Electrolytic corrosion of the earth terminal		P
7.2.8	Material of earth terminal		P
	Contact surface bare metal		P
7.2.10	Class II luminaire for looping-in		N/A
	Double or reinforced insulation to functional earth		N/A
7.2.11	Earthing core coloured green-yellow		P
	Length of earth conductor		N/A

14	SCREW TERMINALS		N/A
	Separately approved; component list:	(see Annex 1)	P
	Part of the luminaire		N/A

Attachment 1: EN 60598-1

Clause	Requirement + Test	Result - Remark	Verdict
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15	SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS		N/A
	Separately approved; component list:	(see Annex 1)	P
	Part of the luminaire:		N/A

5	EXTERNAL AND INTERNAL WIRING		P
5.2	Supply connection and external wiring		P
5.3	Internal wiring		P

8	PROTECTION AGAINST ELECTRIC SHOCK		P
8.2.1	Live parts not accessible		P
	Basic insulated parts not used on the outer surface without appropriate protection		P
	Basic insulated parts not accessible with standard test finger on portable, settable and adjustable luminaires		N/A
	Basic insulated parts not accessible with Ø 50 mm probe from outside, other types of luminaires		P
	Lamp and starterholders in portable and adjustable luminaires comply with double or reinforced insulation requirements		N/A
	Basic insulation only accessible under lamp or starter replacement		N/A
	Protection in any position		P
	Double-ended tungsten filament lamp		N/A
	Insulation lacquer not reliable		P
	Double-ended high pressure discharge lamp		N/A
	Relevant warning according to 3.2.18 fitted to the luminaire		N/A
8.2.2	Portable luminaire adjusted in most unfavourable position		N/A
8.2.3.a	Class II luminaire:		N/A
8.2.3.b	BC lampholder of metal in class I luminaires shall be earthed		N/A
8.2.3.c	SELV circuits with exposed current carrying parts:		N/A
8.2.4	Portable luminaire have protection independent of supporting surface		N/A
8.2.5	Compliance with the standard test finger or relevant probe		P
8.2.6	Covers reliably secured		P
8.2.7	Discharging of capacitors $\geq 0,5 \mu\text{F}$		P
	Portable plug connected luminaire with capacitor		N/A

Attachment 1: EN 60598-1

Clause	Requirement + Test	Result - Remark	Verdict
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	Other plug connected luminaire with capacitor		N/A
	Discharge device on or within capacitor		N/A
	Discharge device mounted separately		P

12	ENDURANCE TEST AND THERMAL TEST		P
-	If IP > IP 20 relevant test of (12.4), (12.5) and (12.6) after (9.2) before (9.3) specified in 4.13		—
12.3	Endurance test:		P
12.4	Thermal test (normal operation)	(see Annex 2)	P
12.5	Thermal test (abnormal operation)	(see Annex 2)	P
12.6	Thermal test (failed lamp control gear condition):		N/A
12.7	Thermal test (failed lamp control gear in plastic luminaires):		N/A

9	RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE		P
-	If IP > IP 20 the order of tests as specified in clause 1.12		P
9.2	Tests for ingress of dust, solid objects and moisture:		—
9.3	Humidity test 48 h		P

10	INSULATION RESISTANCE AND ELECTRIC STRENGTH		P
10.2.1	Insulation resistance test		P
	Cable or cord covered by metal foil or replaced by a metal rod of mm Ø	Covered by metal foil	—
	Insulation resistance (MΩ):		—
	SELV		N/A
	- between current-carrying parts of different polarity		N/A
	- between current-carrying parts and mounting surface		N/A
	- between current-carrying parts and metal parts of the luminaire		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts		N/A
	- Insulation bushings as described in Section 5		N/A
	Other than SELV		P
	- between live parts of different polarity	> 100 MΩ	P
	- between live parts and mounting surface	> 100 MΩ	P
	- between live parts and metal parts	> 100 MΩ	P
	- between live parts of different polarity through action of a switch	> 100 MΩ	P

Attachment 1: EN 60598-1

Clause	Requirement + Test	Result - Remark	Verdict
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts.....	> 100 MΩ	P
	- Insulation bushings as described in Section 5		N/A
10.2.2	Electric strength test		P
	Dummy lamp		P
	Luminaires with ignitors after 24 h test		N/A
	Luminaires with manual ignitors		N/A
	Test voltage (V):		P
	SELV		N/A
	- between current-carrying parts of different polarity.....		N/A
	- between current-carrying parts and mounting surface.....		N/A
	- between current-carrying parts and metal parts of the luminaire.....		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts.....		N/A
	- Insulation bushings as described in Section 5		N/A
	Other than SELV		P
	- between live parts of different polarity	1800V	P
	- between live parts and mounting surface	1800V	P
	- between live parts and metal parts	1800V	P
	- between live parts of different polarity through action of a switch.....	1800V	P
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts.....	1800V	P
	- Insulation bushings as described in Section 5		N/A
10.3	Touch current or protective conductor current (mA).....	t.c:0.016mA p.c.c:0.080mA	P

13	RESISTANCE TO HEAT, FIRE AND TRACKING		P
13.2.1	Ball-pressure test		P
13.3.1	Needle-flame test (10 s).....		P
13.3.2	Glow-wire test (650°C)		P
13.4	Proof tracking test (IEC 60112).....		N/A

Attachment 1: EN 60598-1

Clause	Requirement + Test	Result - Remark	Verdict
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	ANNEX 1: components	P
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object/part No.	code	manufacturer/ trademark	type/model	technical data	mark(s) of conformity
Supply cord	B	Ningbo Qiaoqu Electric Co ,Ltd	H05VV-F	3x1.5mm ²	VDE 40035531
	D	Ningbo Qiaoqu Electric Co ,Ltd	H05VV-F	3x1.0mm ²	
Internal wire (output)	B	Ningbo Qiaoqu Electric Co ,Ltd	H05VV-F	3x1.5mm ²	VDE 40035531
	D	Ningbo Qiaoqu Electric Co ,Ltd	H05VV-F	3x1.0mm ²	
Internal wire (input)	B	Ningbo Qiaoqu Electric Co ,Ltd	H05VV-F	3x1.5mm ²	VDE 40035531
	D	Ningbo Qiaoqu Electric Co ,Ltd	H05VV-F	3x1.0mm ²	
Switch	B	Zhejiang LECT Electronics Co., LTD	DB-14	10A 250V	CCC No.200601020 4177919
Grounding wire	B	Ningbo Qiaoqu Electric Co ,Ltd	H05VV-F	3x1.5mm ²	VDE 40035531
	D	Ningbo Qiaoqu Electric Co ,Ltd	H05VV-F	3x1.0mm ²	
Heat-shrinkable tube	B	3M COMPANY ELECTRICAL MARKETS DIV (EMD)	SFTW-A	600V,125°C. VW-1.	Test with appliance & UL (E48398)
	D	3M COMPANY ELECTRICAL MARKETS DIV (EMD)	HFT	600V,125°C. VW-1.	Test with appliance & UL (E48398)
	D	CHANGYUAN ELECTRONICS GROUP CO LTD	CB-HFT	600V,125°C. VW-1.	Test with appliance & UL (E180908)
Insulation sheet	B	DUPONT HONGJI FILMS FOSHAN CO LTD	BP	PET. VTM-2. 105°C. 0.05-0.25mm thick	Test with appliance & UL (E241830)
X capacitor	B	XIAMEN FARATRONIC CO LTD	MKP62	Max 0.47uF,min250vac 100°C	VDE 40007023
	D	SHENZHEN SURONG CAPACITORS CO ,LTD	MPX/MKP	Max 0.47uF,min250vac 100°C	VDE 40008924

Attachment 1: EN 60598-1

Clause	Requirement + Test	Result - Remark	Verdict
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object/part No.	code	manufacturer/ trademark	type/model	technical data	mark(s) of conformity
Y capacitor	B	KUNSHAN MICRO CAPACITORS ELECTRONIC CO.,LTD	B-Series	Y2. 2.0-2000pF, 250Vac	VDE 40016130
	D	KUNSHAN MICRO CAPACITORS ELECTRONIC CO.,LTD	F-Series	Y2. 2.0-2000pF, 250Vac	VDE 40016130
Fuse	B	Conquer Electronics CO.,LTD	MST	5A/250V _{AC}	VDE 40017118
Transformer (T3,T4)	B	Haining xinyi electronics co., ltd	PQ3535-250uH (for T3) /PQ3535-200uH	250uH (for T3)/ 200uH	Test with appliance
-Bobbin (T3,T4)	B	HITACHI CHEMICAL CO LTD	T375J	150°C 94V-0	Test with appliance & UL (E42956)
-Wire (T3,T4)	B	ZHEJIANG HONGBO TECHNOLOGY CO LTD	QA-1	155°C	Test with appliance & UL (E221719)
-Tape (T3,T4)	B	HAINING CHULONG TAPE CO LTD	CLtape	130°C 0.025 x 22.5mm	Test with appliance & UL (E464604)
Inductance (L3A)	B	Haining xinyi electronics co., ltd	EE42-15-630uH	. 630uH	Test with appl iance
-Bobbin((L3A)	B	HITACHI CHEMICAL CO LTD	T375J	150°C 94V-0	Test with appliance & UL (E42956)
-Wire (L3A)	B	ZHEJIANG HONGBO TECHNOLOGY CO LTD	QA-1	155°C	Test with appliance & UL (E221719)
-Tape (L3A)	B	HAINING CHULONG TAPE CO LTD	CLtape	130°C 0.025 x 22.5mm	Test with appliance & UL (E464604)

The codes above have the following meaning:

- A - The component is replaceable with another one, also certified, with equivalent characteristics
- B - The component is replaceable if authorised by the test house
- C - Integrated component tested together with the appliance
- D - Alternative component

Attachment 1: EN 60598-1

Clause	Requirement + Test	Result - Remark	Verdict
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12.4	ANNEX 2: temperature measurements, thermal tests of Section 12		P
	Type reference	SC-CMH630W-2	—
	Lamp used.....	630W CMH	—
	Lamp control gear used	SC-CMH630W-2	—
	Mounting position of luminaire	As in normal use	—
	Supply wattage (W)	683.5W	—
	Supply current (A)	2.725A	—
	Calculated power factor	0.985	—
	Table: measured temperatures corrected for $t_a = 50\text{ }^{\circ}\text{C}$:		P
	- abnormal operating mode	Rectifying effect	—
	- test 1: rated voltage	—	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage	1.06Un=254.4V	—
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage	—	—
	- test 4: 1,1 times rated voltage or 1,05 times rated wattage	—	—
	Through wiring or lopping-in wiring loaded by a current of (A) during the tests	—	—

Temperature measurements, ($^{\circ}\text{C}$)

Part	Ambient	Clause 12.4 – normal				Clause 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Appliance inlet	50.0	—	76.7	—	90	—	—
Input wire of ballast	50.0	—	77.8	—	90	—	—
Close-end connector	50.0	—	75.8	—	90.	—	—
Winding of transformer (T4)	50.0	—	93.6	—	120	—	—
Bobbin of transformer (T4)	50.0	—	91.8	—	120	—	—
Winding of transformer (T3)	50.0	—	88.8	—	120	—	—
Bobbin of transformer (T3)	50.0	—	86.9	—	120	—	—
Winding of inductance (L3A)	50.0	—	87.8	—	120	—	—
Bobbin of inductance (L3A)	50.0	—	87.7	—	120	—	—
Electrolytic capacitor (close to T4)	50.0	—	92.1	—	120	—	—

Attachment 1: EN 60598-1

Clause	Requirement + Test	Result - Remark	Verdict
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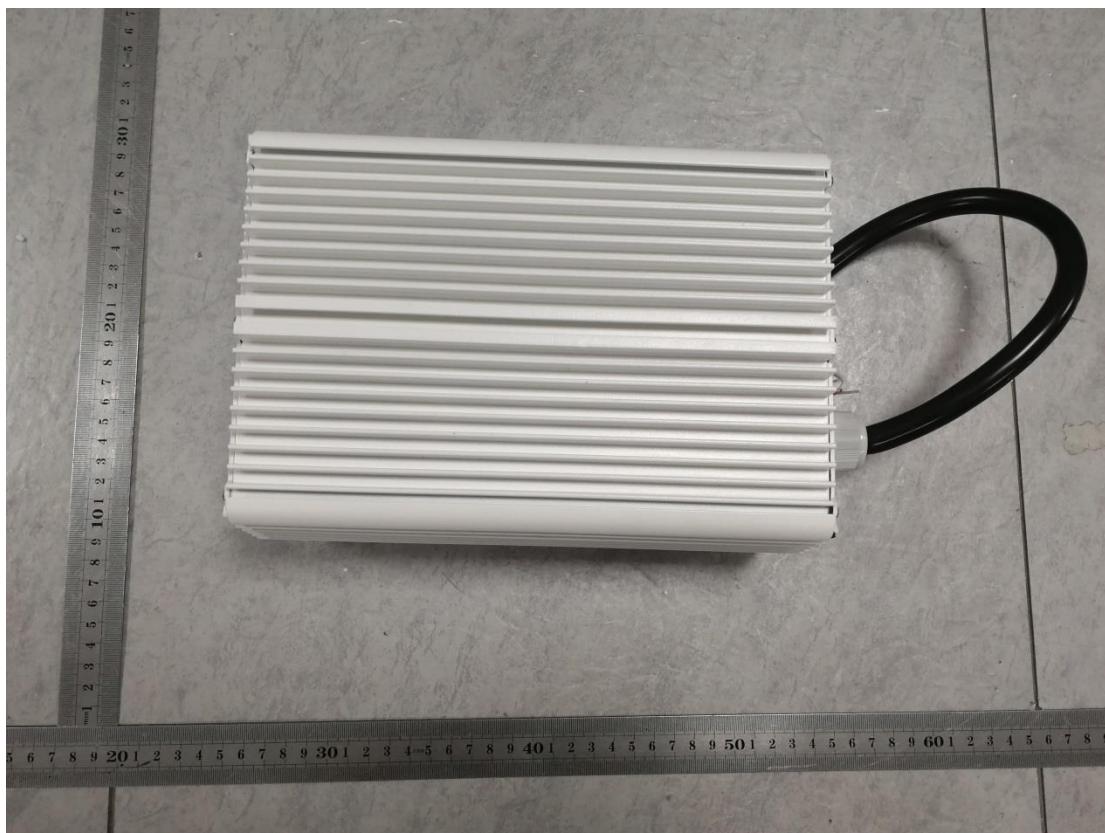
Electrolytic capacitor (close to T3)	50.0	—	90.3	—	120	—	—
Output wire of ballast	50.0	—	79.7	—	90	—	—
Cord anchorage	50.0	—	63.9	—	90		
Case of ballast	50.0	—	72.6	—	75	—	—
Switch	50.0	—	45.7	—	55	—	—
Mounting surface	50.0	—	79.5	—	90	—	—

Supplementary information:

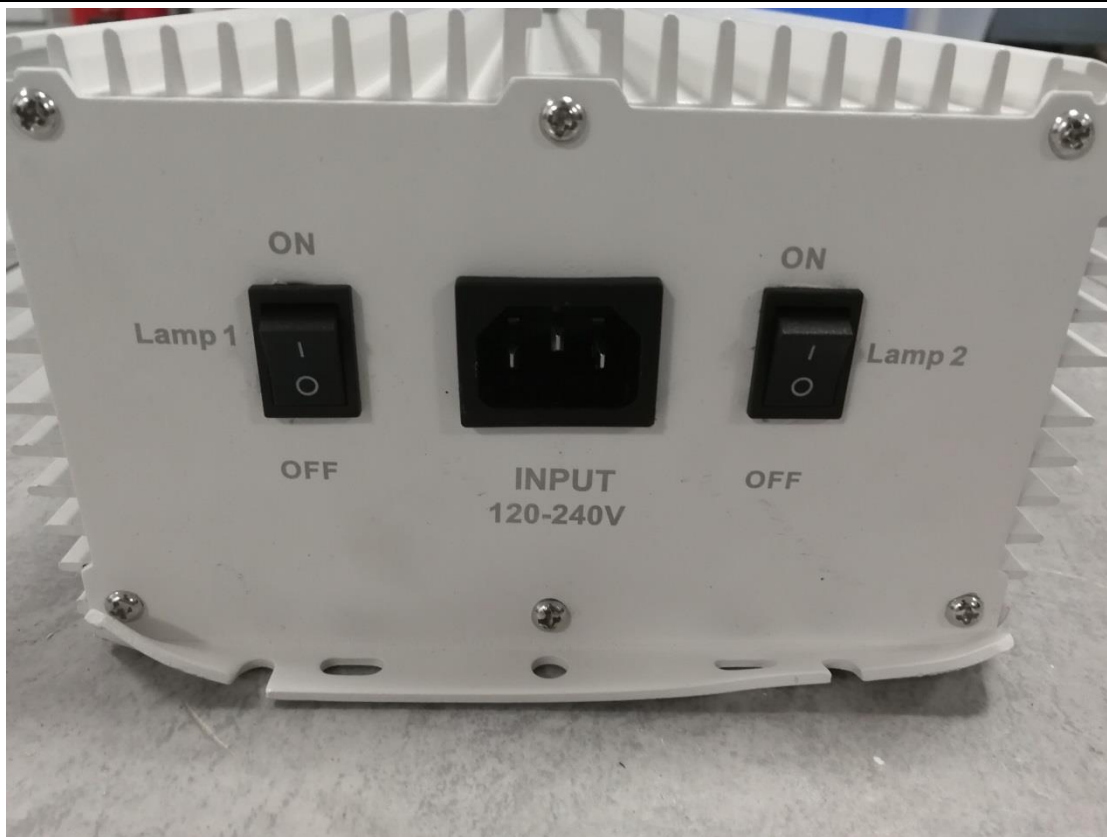
Measurements were taken after the luminaire had stabilized thermally in test 2.

Attachment 2 – Photo

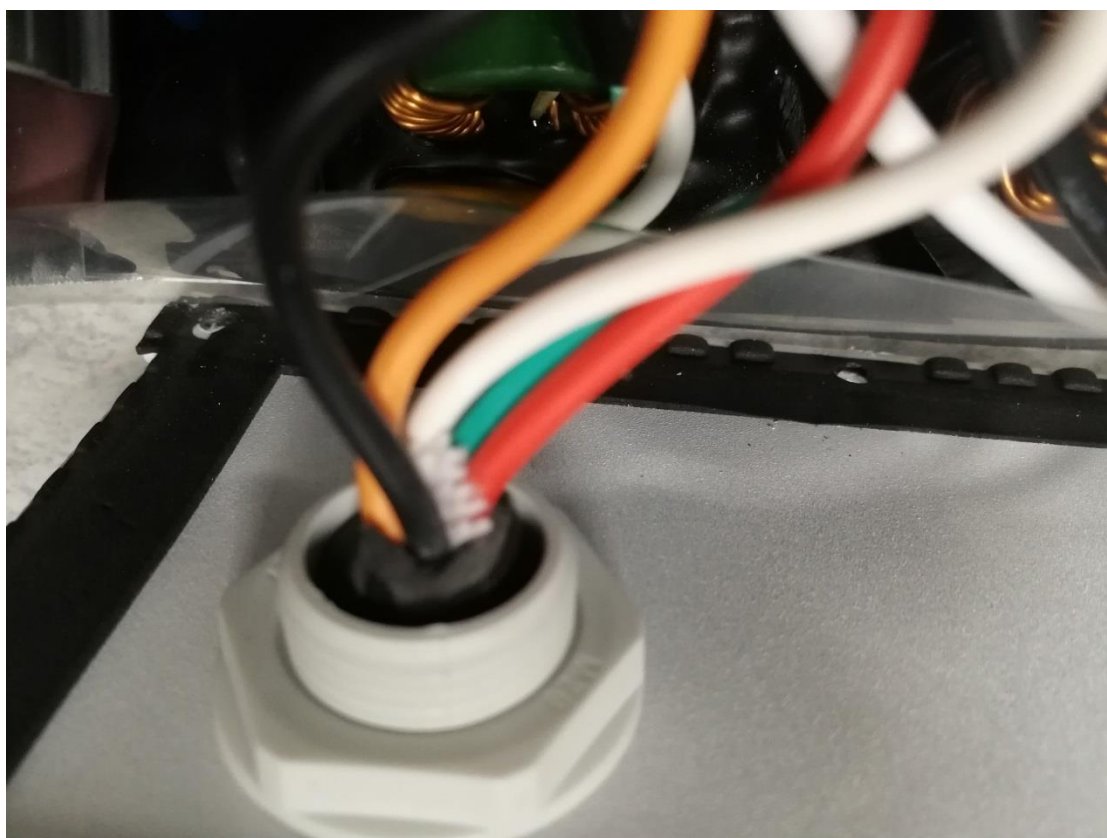
SC-CMH630W-2



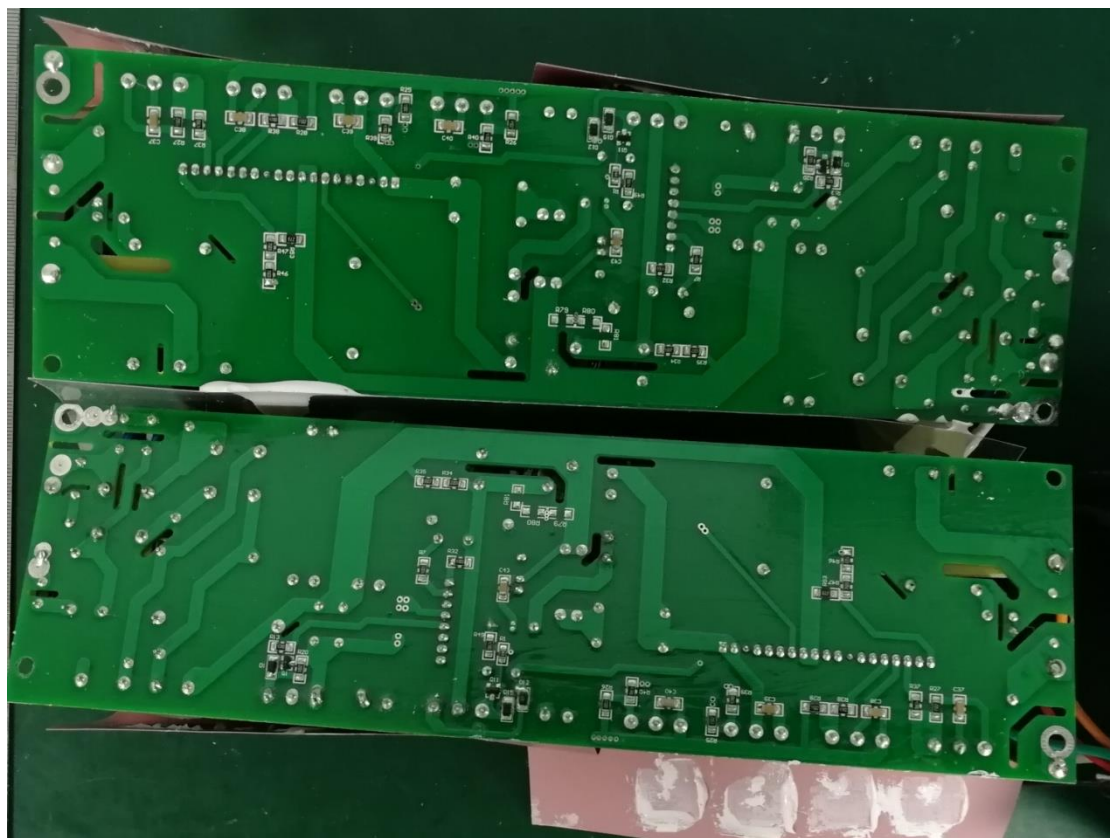
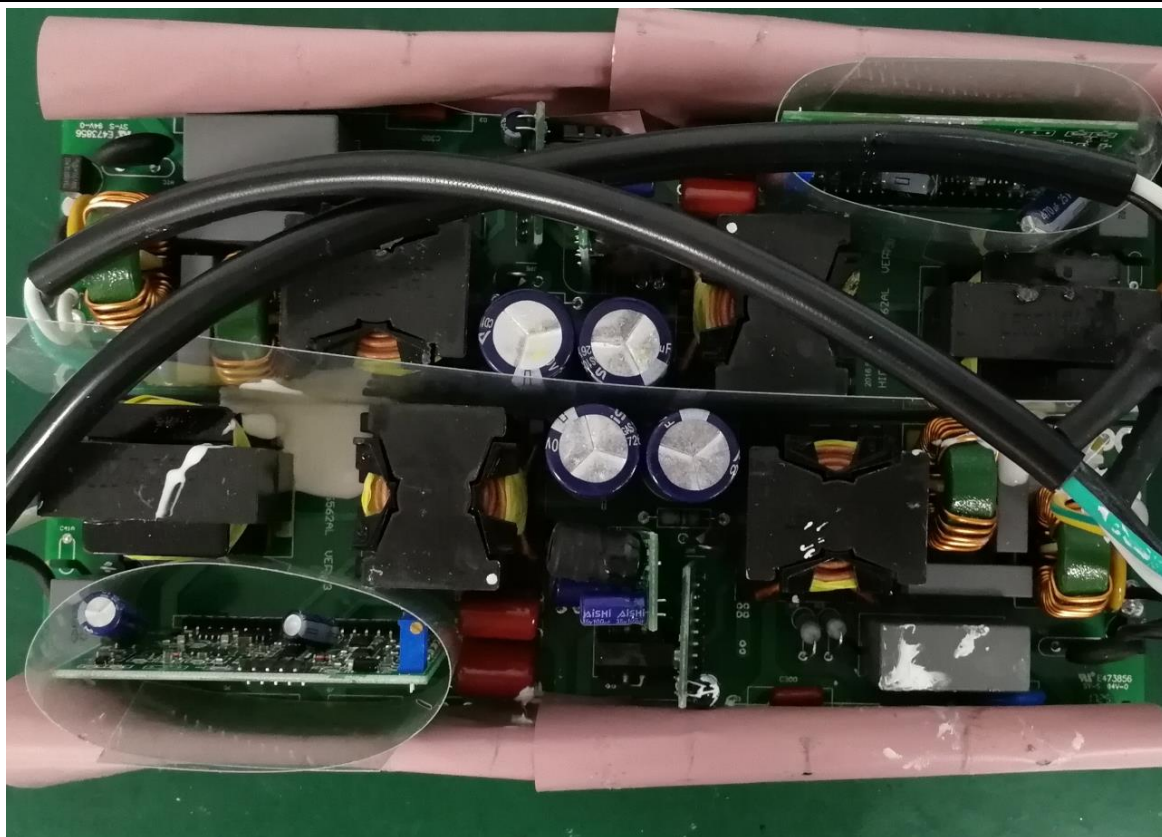
Attachment 2 – Photo



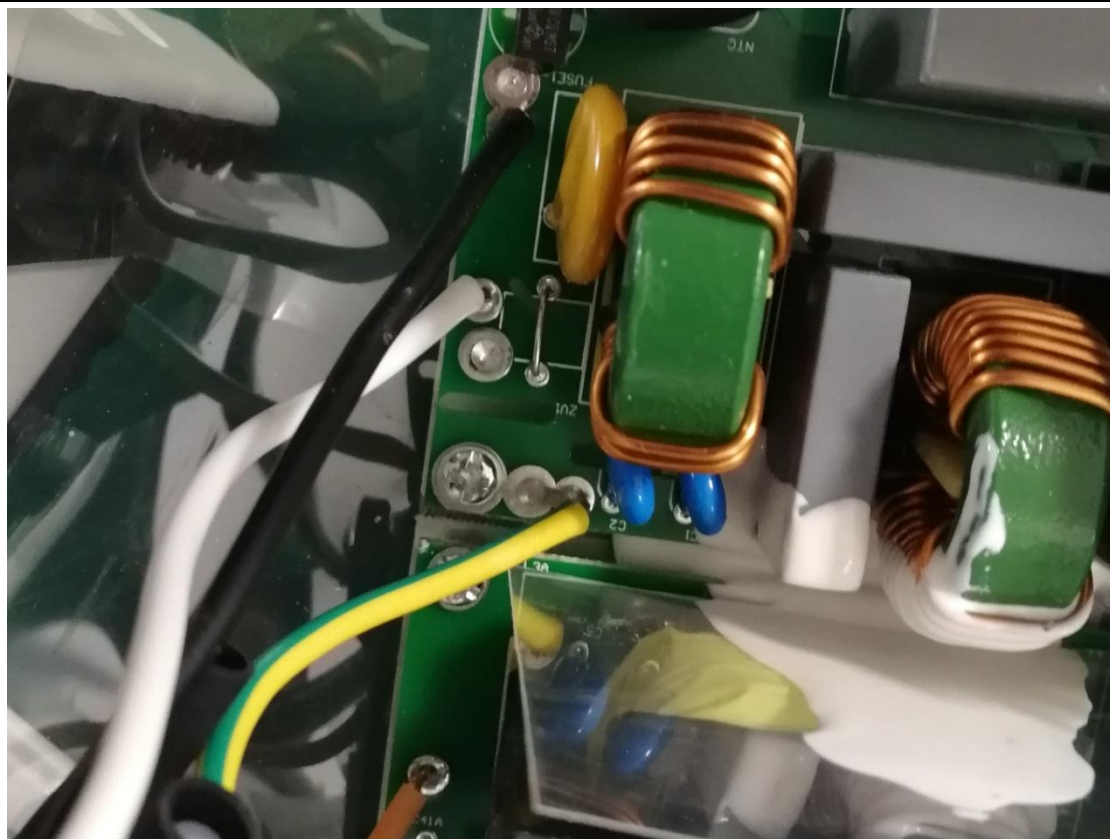
Attachment 2 – Photo



Attachment 2 – Photo

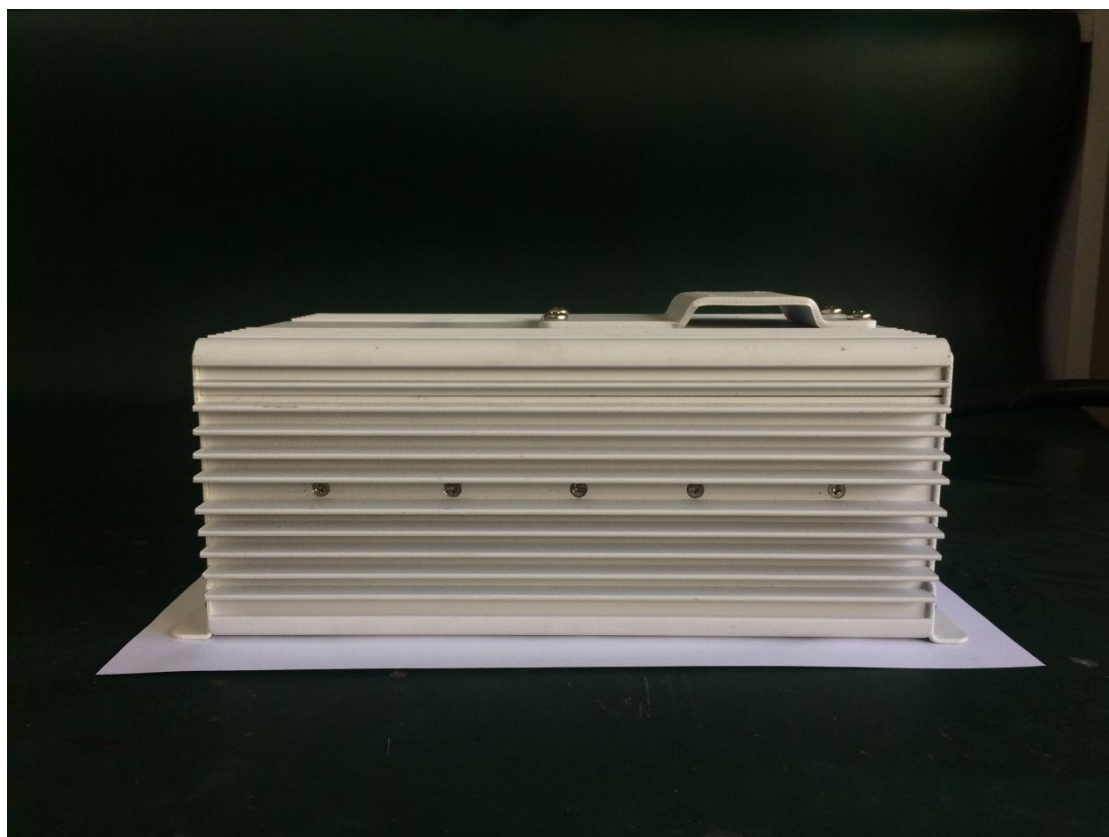
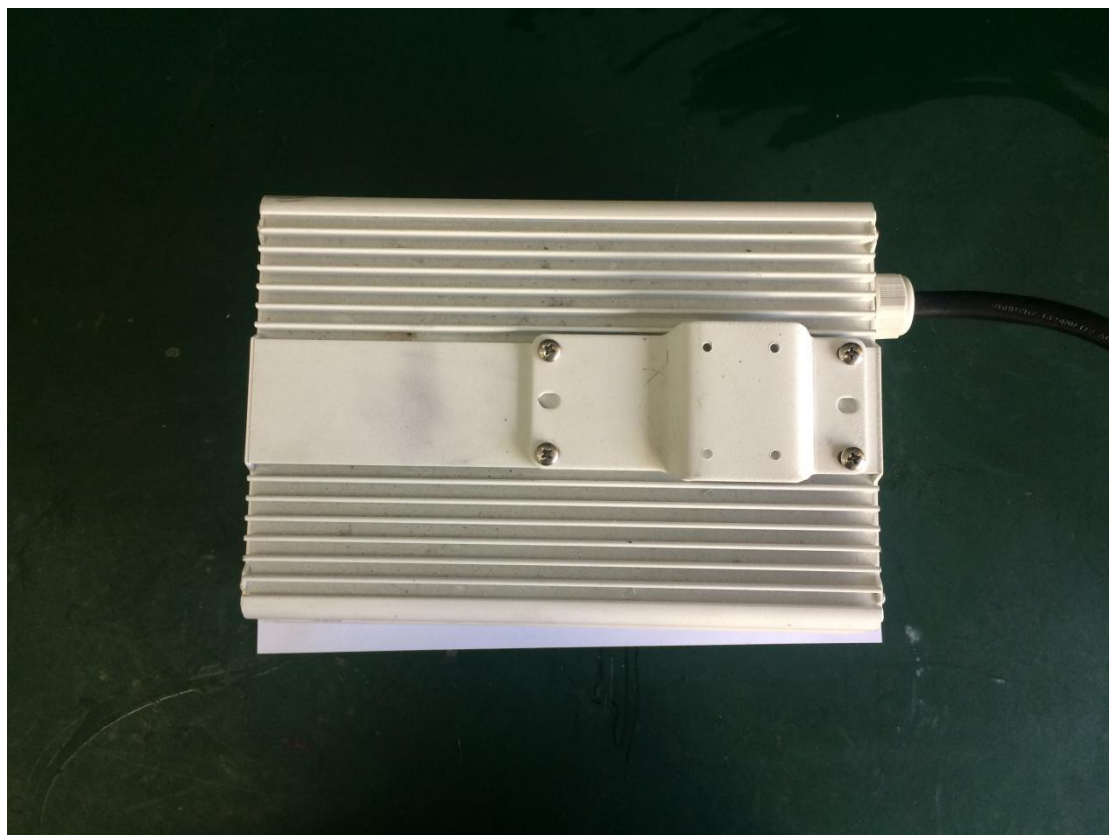


Attachment 2 – Photo



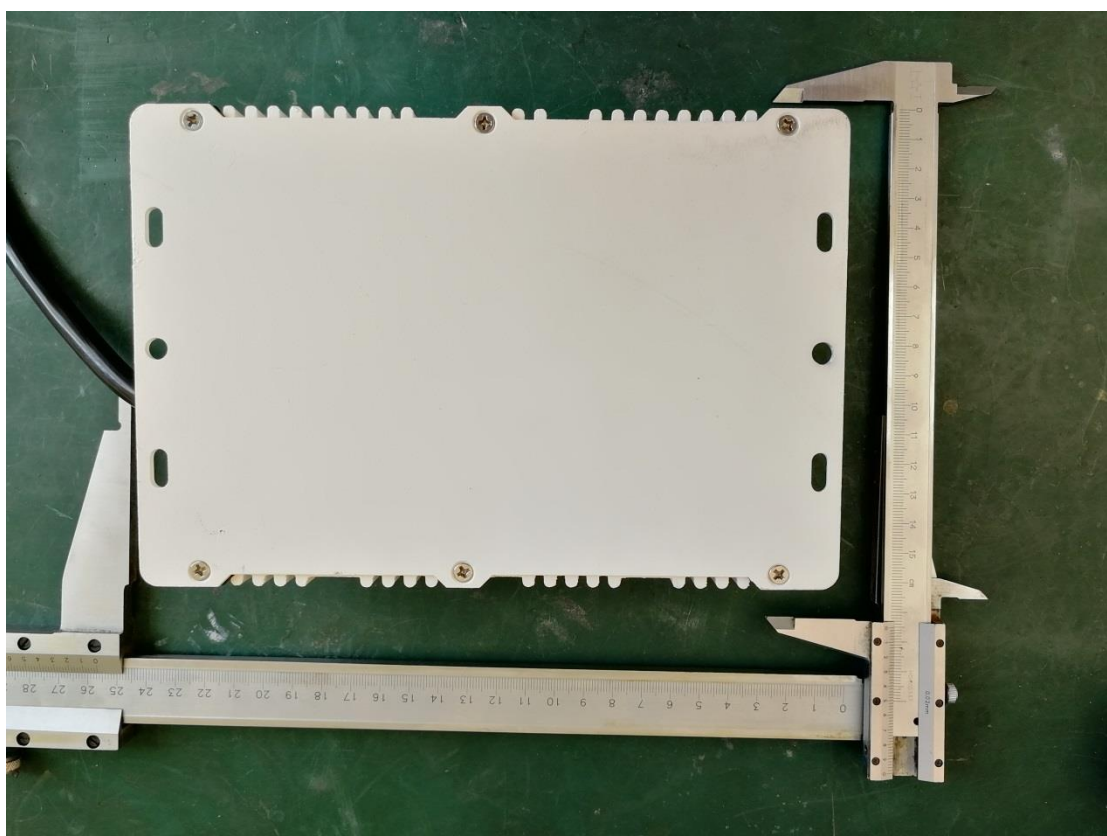
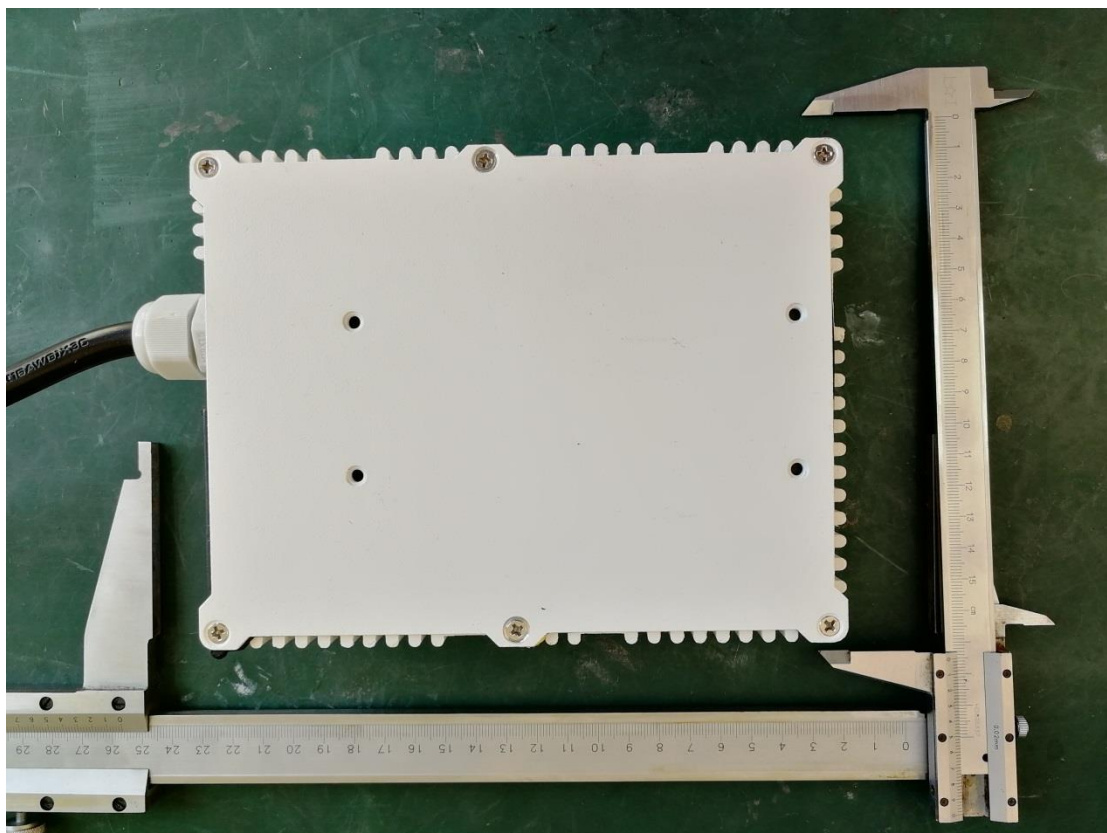
Attachment 2 – Photo

SC-CMH630W-1

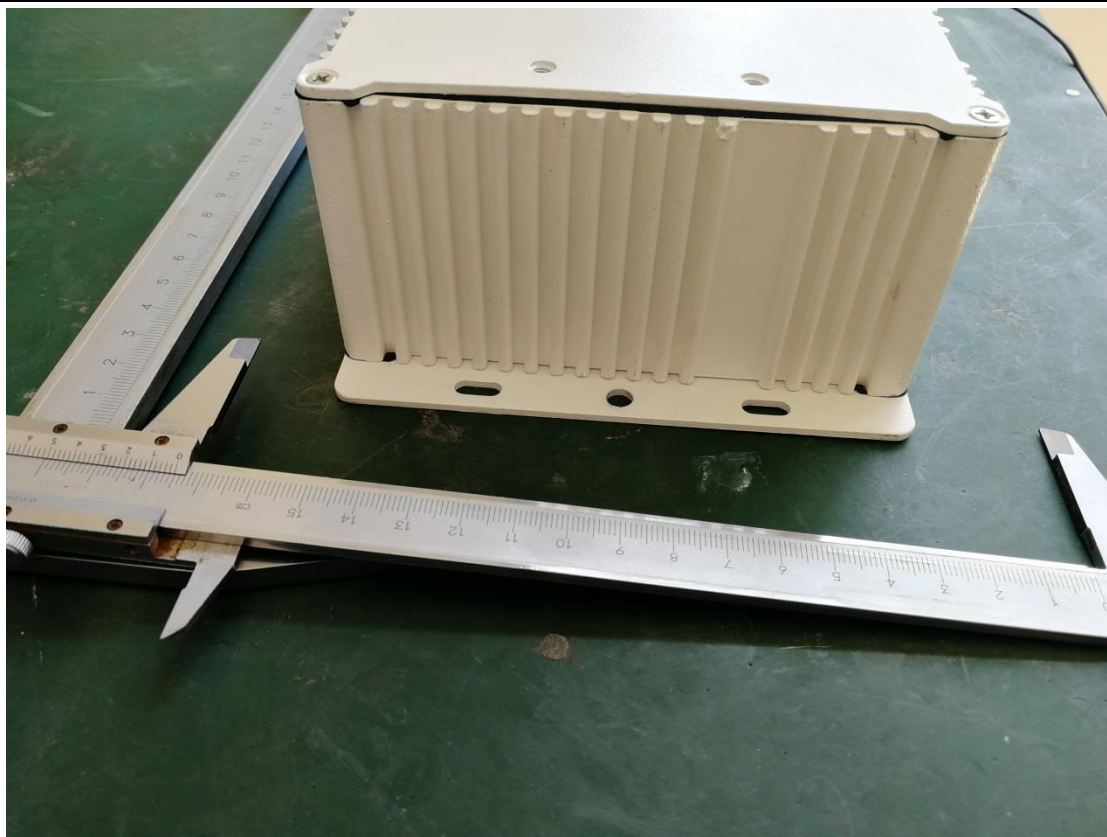


Attachment 2 – Photo

SC-CMH350W-1

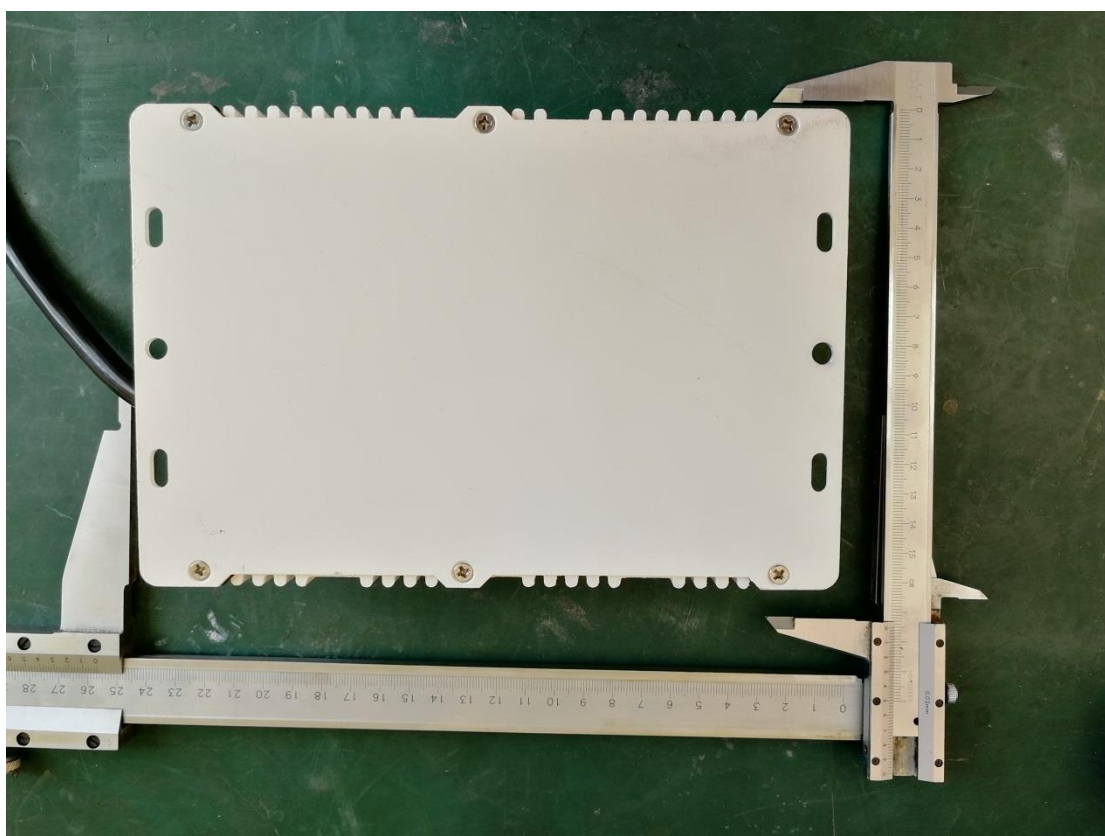
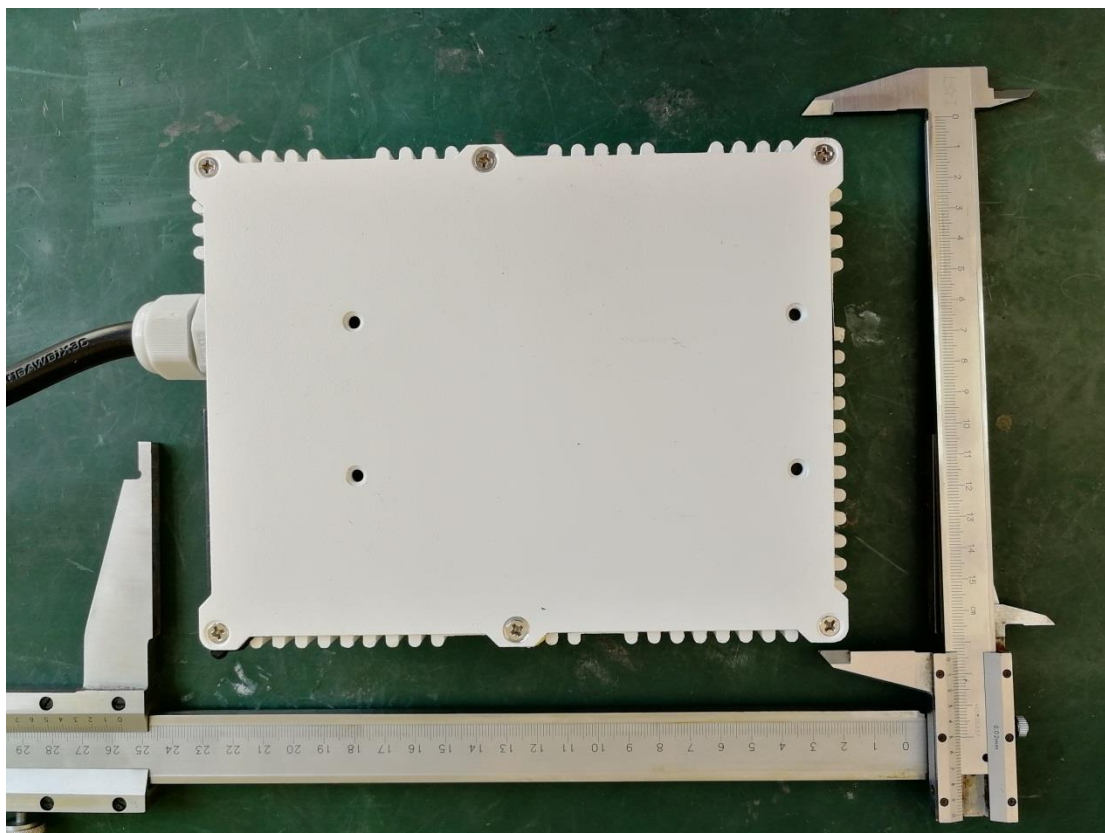


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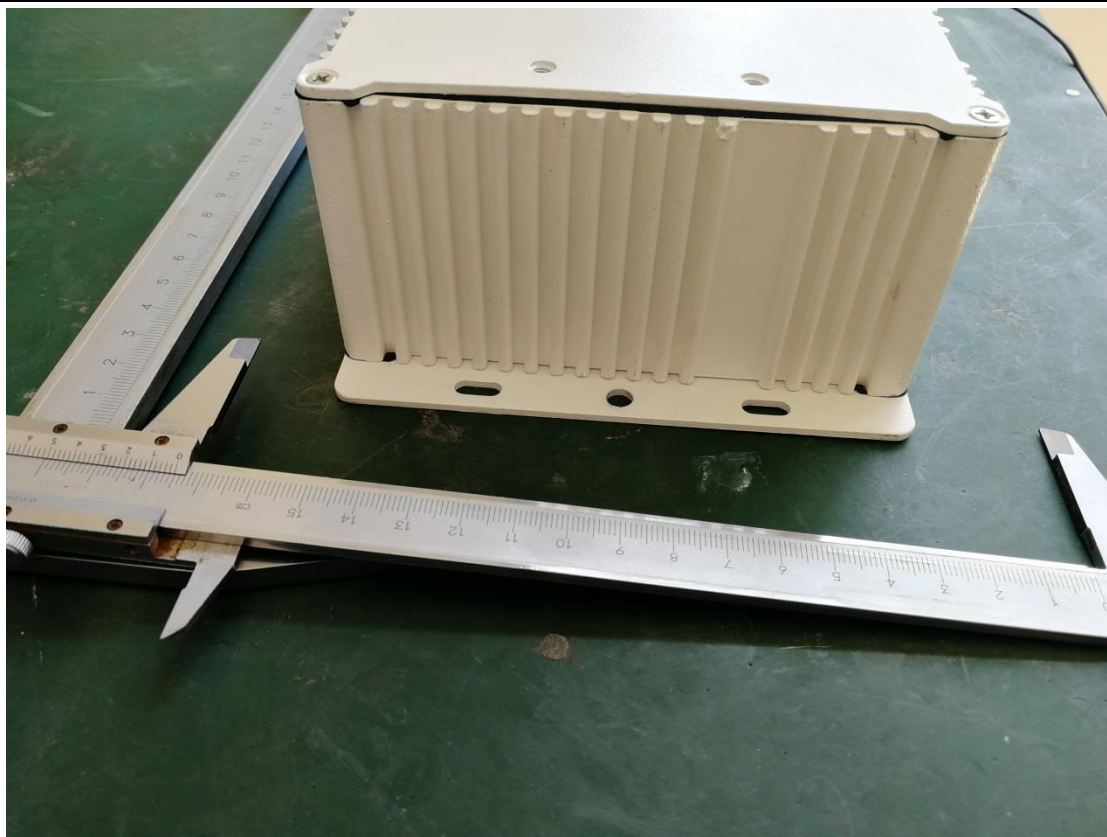


Attachment 2 – Photo

SC-CMH350W-2

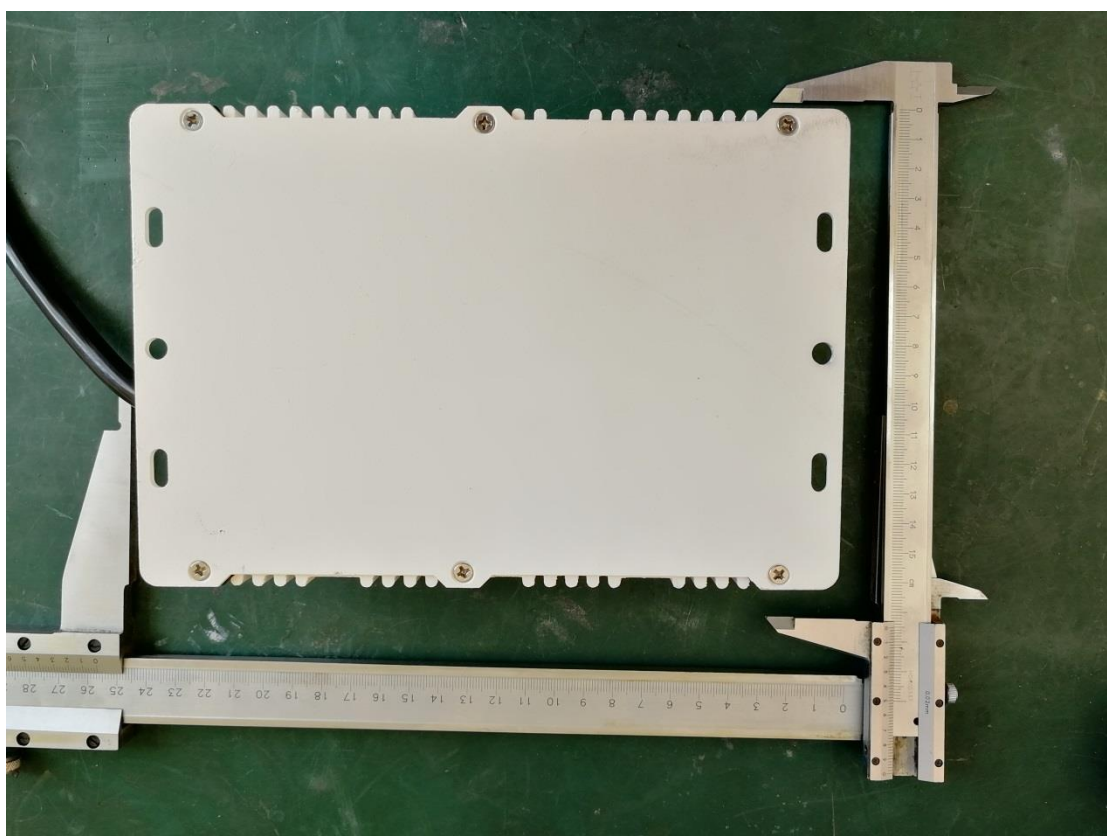
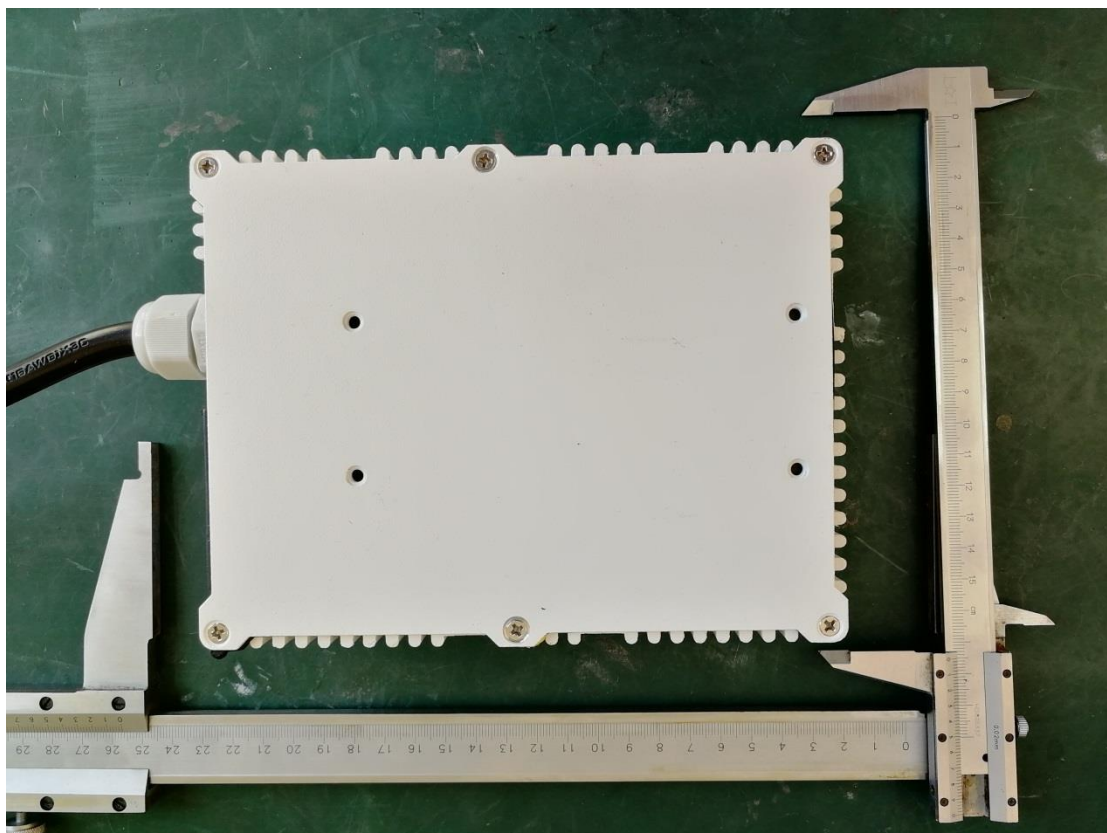


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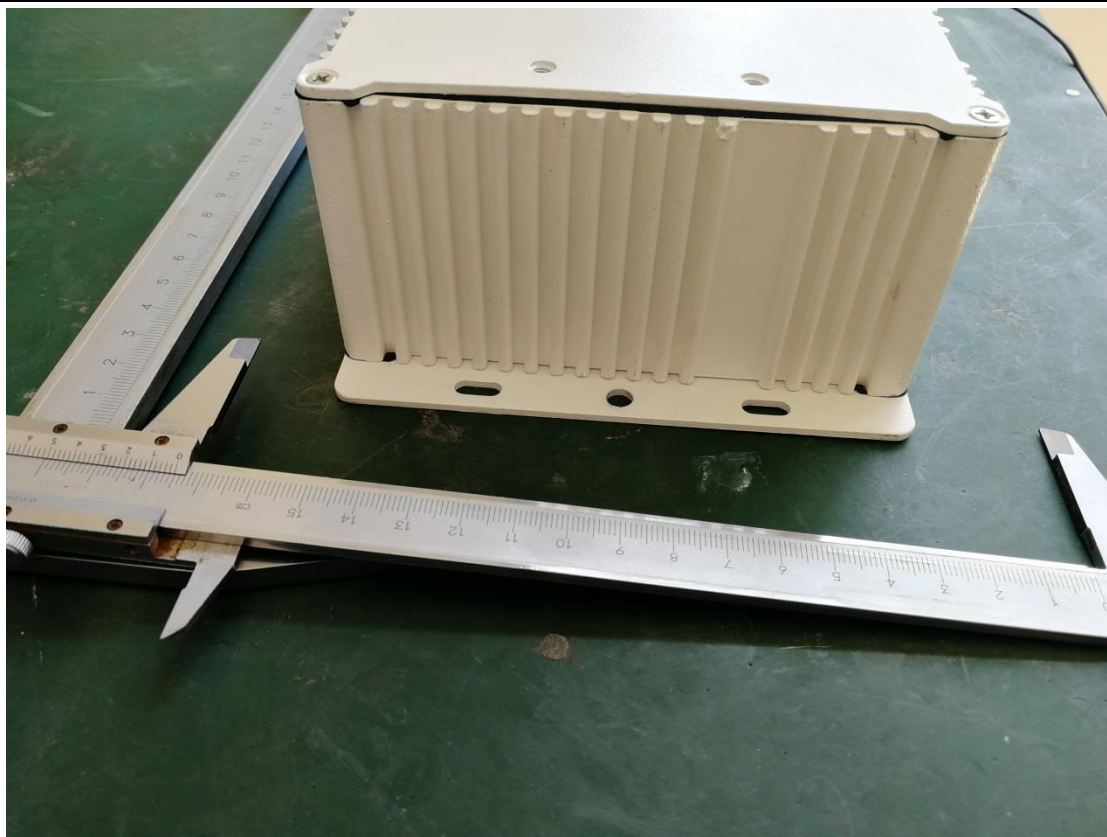


Attachment 2 – Photo

SC-CMH350W-4

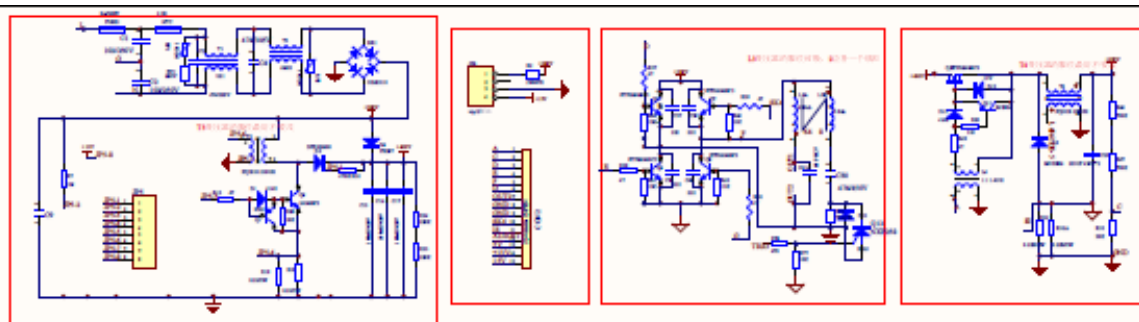


Attachment 2 – Photo



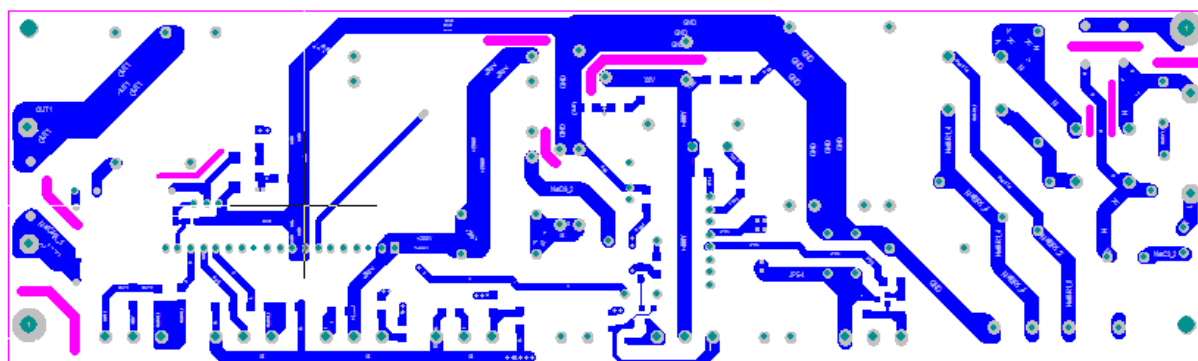
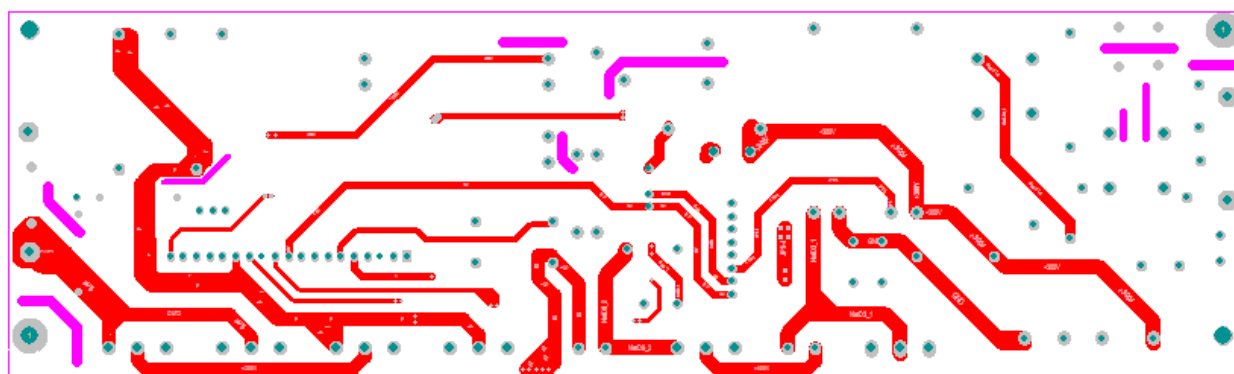
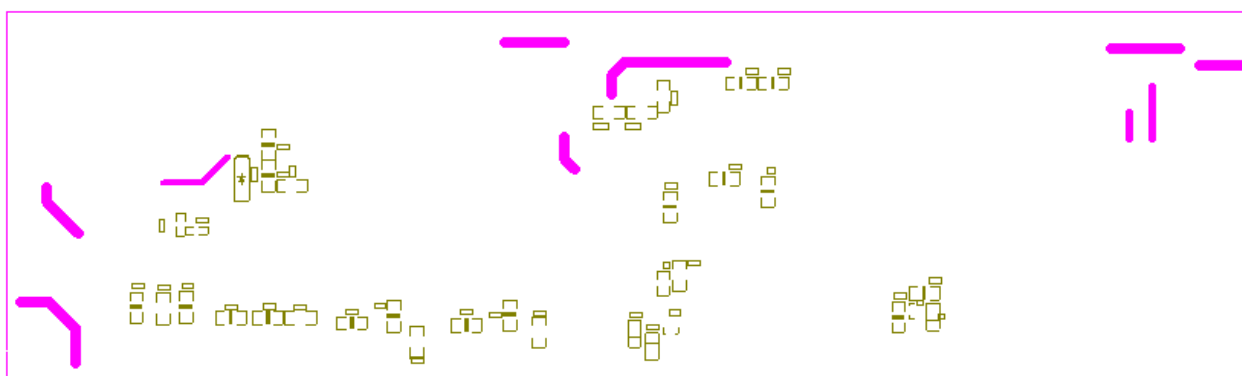
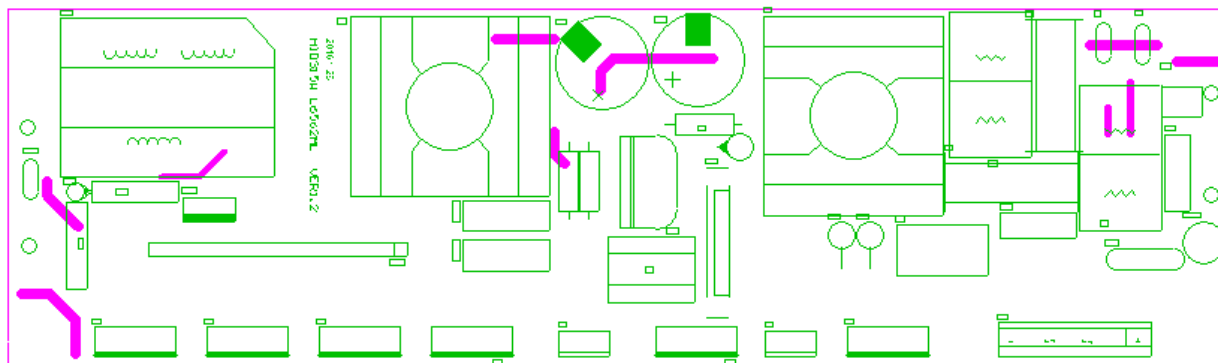
Attachment 2 – Photo

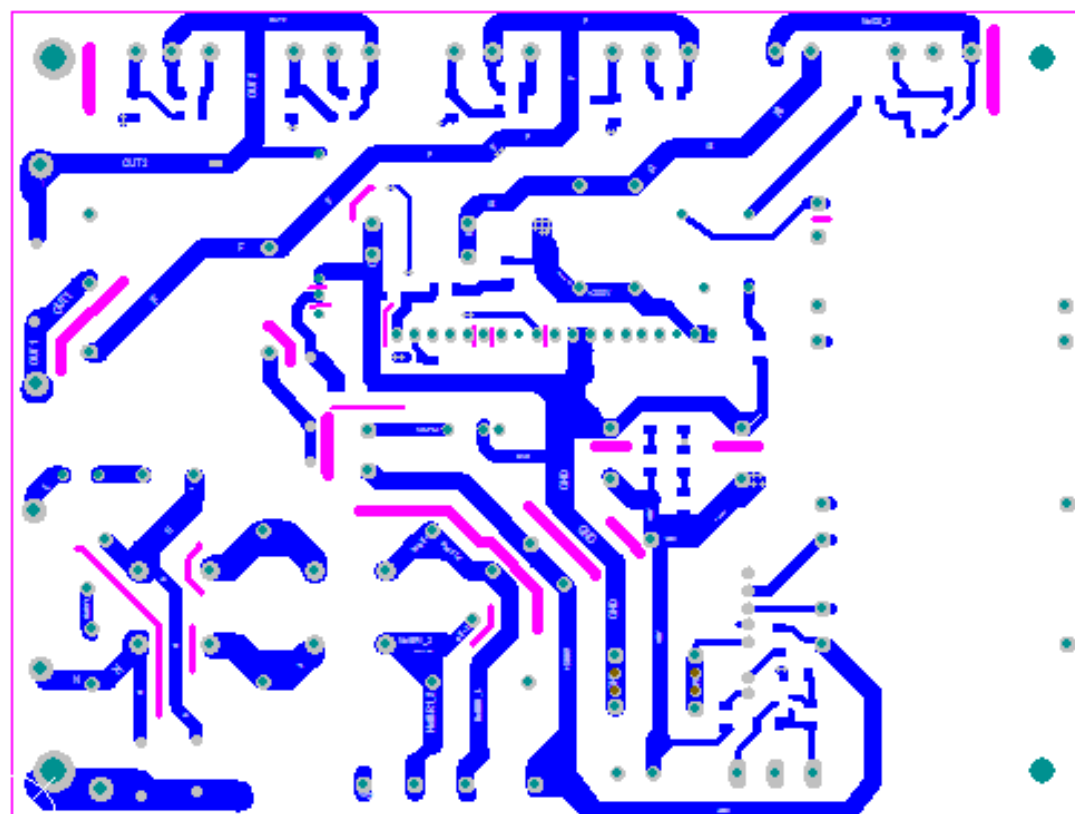
630W and 315W Circuit diagram



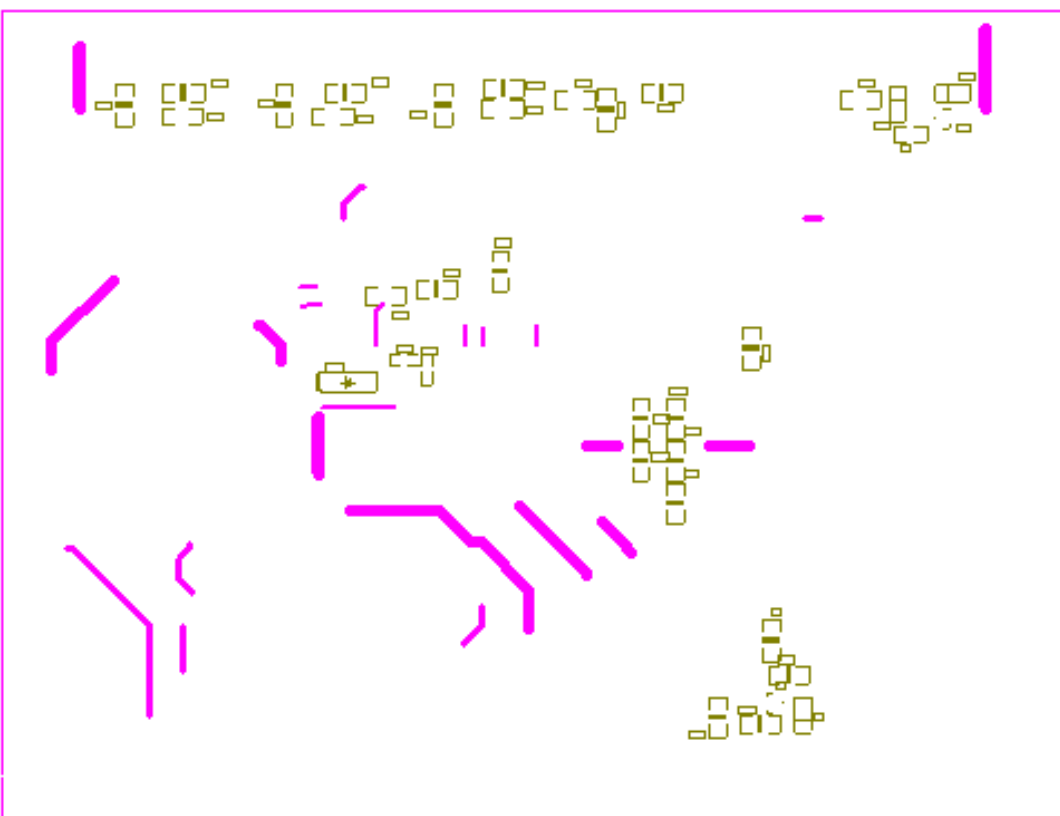
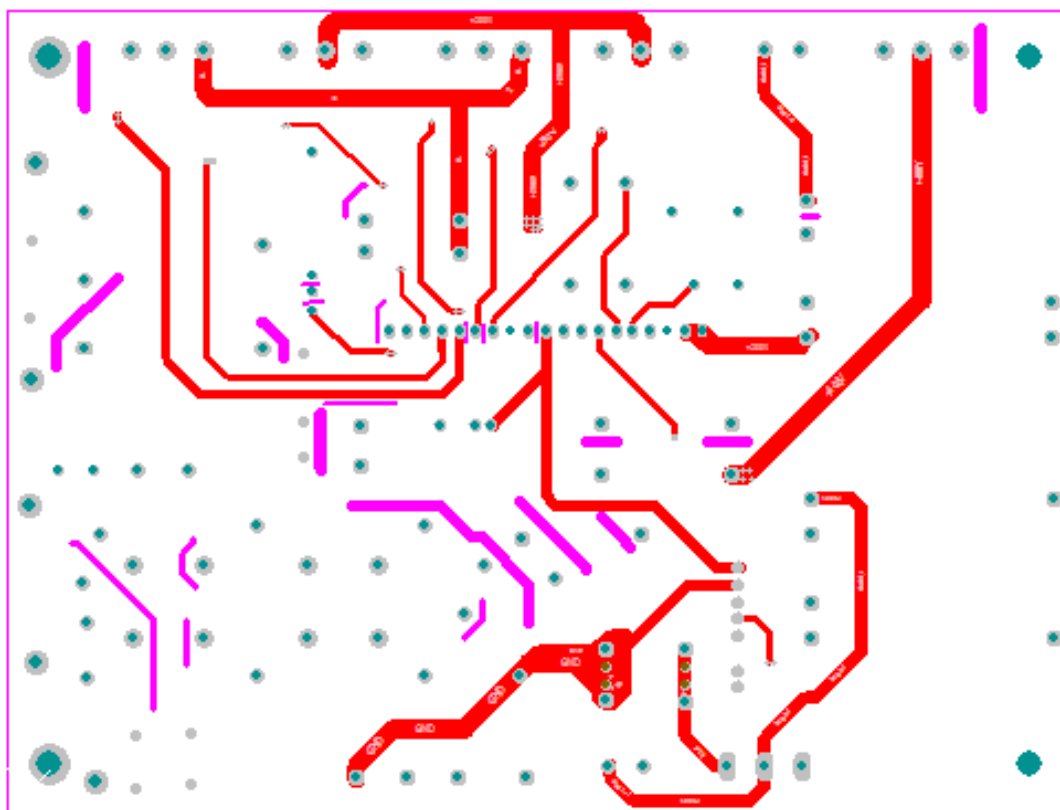
Attachment 2 – Photo

630W PCB layout





Attachment 2 – Photo



STATEMENT

1. Without the written authorization from the laboratory, this test report should not be partially duplicated, unless the whole test report being copied as an entire document.
2. The test report is only valid to the tested sample.
3. If you have any objections on this testing result, please submit a written complain to the laboratory within 10 days after you received this test report.
4. The tested samples must be reclaimed within 60 days after you received this test report, otherwise, the laboratory will dispose them itself.
5. This test report is for applicant's reference only, not for complains or arbitrations as in accordance with.

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