



**Test Report issued under the responsibility of:**

Intertek Testing Services Shenzhen Ltd.

Guangzhou Branch

**TEST REPORT  
IEC 61347-2-13  
Part 2: Particular requirements:  
Section Thirteen – d.c. or a.c. supplied electronic controlgear for  
LED modules**

**Report Number**.....: GZ12050725-1

**Date of issue**.....: 27 Jun. 2012

**Total number of pages**..... 35

**Applicant's name**.....: Eaglerise Electric & Electronic (Foshan) Co., Ltd.

**Address**.....: Guicheng Sci-Tech Industrial Park, Jianping Road, Nanhai District,  
Foshan City, Guangdong Province, P.R. China

**Test specification:**

**Standard** .....:  IEC 61347-2-13:2006 used in conjunction with IEC 61347-1  
(Second Edition) : 2007+A1:2010

EN 61347-2-13:2006 used in conjunction with  
EN 61347-1:2008 + A1: 2011

(See appendix of TRF No.: IEC61347\_2\_13C)

**Test procedure**.....: S + LVD

**Non-standard test method**.....: N/A

**Test Report Form No.** .....: IEC61347\_2\_13C

**Test Report Form(s) Originator** .....: Intertek Semko AB


**Master TRF** .....: 2011-06

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<b>Test item description.....</b>	Electronic convertor for LED (Electronic LED driver)
Trade Mark .....	
Manufacturer.....	Same as applicant
Model/Type reference.....	EBP003C0350SS; EBP003C0500SS; EBP003C0700SS
Ratings.....	Input: 100-240 VAC; 50/60 Hz; 0,1 A; Class II; IP 20; SELV; ta 50 °C; tc 75 °C; Built-in type; 110 °C thermal protection; Inherently short-circuit proof; Suitable for direct mounting on normally flammable surfaces; EBP003C0350SS: Output: Constant current; 350 mA; 2,8-12 VDC; max. 16 VDC for No load; EBP003C0500SS: Output: Constant current; 500 mA; 2,5-8 VDC; max. 12 VDC for No load; EBP003C0700SS: Output: Constant current; 700 mA; 2,5-4 VDC; max. 6 VDC for No load



<b>Testing procedure and testing location:</b>	
<input checked="" type="checkbox"/> <b>CB Testing Laboratory:</b>	Intertek Testing Services Shenzhen Ltd. Guangzhou Branch
Testing location/ address .....	Block E, No.7-2 Guang Dong Software Science Park, Caipin Road, Guangzhou Science City, GETDD, Guangzhou, China
<input type="checkbox"/> <b>Associated CB Laboratory:</b>	
Testing location/ address .....	
Tested by (name + signature).....	Julia Hu <i>Julia Hu</i>
Approved by (+ signature) .....	Shelley Ying <i>Shelley Ying</i>
<input type="checkbox"/> Testing procedure: TMP	
Testing location/ address .....	
Tested by (name + signature).....	—
Approved by (+ signature) .....	—
<input type="checkbox"/> Testing procedure: WMT	
Testing location/ address .....	
Tested by (name + signature).....	—
Witnessed by (+ signature).....	—
Approved by (+ signature) .....	—
<input type="checkbox"/> Testing procedure: SMT	
Testing location/ address .....	
Tested by (name + signature).....	—
Approved by (+ signature) .....	—
Supervised by (+ signature).....	—
<input type="checkbox"/> Testing procedure: RMT	
Testing location/ address .....	
Tested by (name + signature).....	—
Approved by (+ signature) .....	—
Supervised by (+ signature).....	—

<p><b>Tests performed (name of test and test clause):</b></p> <ul style="list-style-type: none"> <li>7 Marking</li> <li>8 Protection against accidental contact with live parts</li> <li>9 Terminals</li> <li>11 Moisture resistance and insulation</li> <li>12 Electric strength</li> <li>14 Fault conditions</li> <li>16 Abnormal conditions</li> <li>17 Construction</li> <li>18 Creepage distances and clearances</li> <li>19 Screws, current-carrying parts and connections</li> <li>20 Resistance to heat, fire and tracking</li> <li>21 Resistance to corrosion</li> <li>Annex C Particular requirements for electronic lamp controlgear with means of protection against overheating</li> <li>Annex I Particular additional requirements for independent SELV d.c. or a.c. supplied electronic step-down convertors for filament lamps</li> </ul>	<p><b>Testing location:</b></p> <p>Block E, No.7-2 Guang Dong Software Science Park, Caipin Road, Guangzhou Science City, GETDD, Guangzhou, China</p>
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**Summary of compliance with National Differences:**

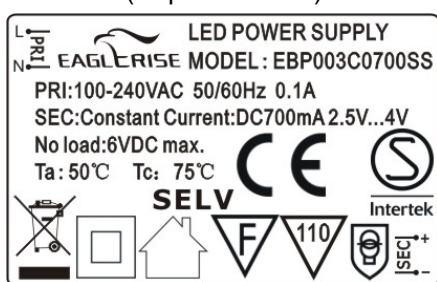
List of countries addressed:

Not checked

**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.

(Representative)



Location: attached on the enclosure and visible during installation

Remark on above marking:

1. The height of graphical symbols shall not be less than 5 mm;
2. The height of letters and numerals shall be not less than 2 mm.

<b>Test item particulars</b> .....:	
Classification of installation and use.....:	Built-in; Class II; for use with LED
Supply Connection.....:	Lead wires
<b>Possible test case verdicts:</b>	
- 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)
<b>Testing</b> .....	
Date of receipt of test item.....:	11 May 2012
Date (s) of performance of tests .....	11 May 2012 to 27 Jun. 2012

**General remarks:**

The test results presented in this report relate only to the object tested.

This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

"(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 is used as the decimal separator.

Clause numbers between brackets refer to clauses in IEC 61347-1.

When determining for test conclusion, measurement uncertainty of tests has been considered.

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The test report only allows to be revised only within the report defined retention period unless standard or regulation was withdrawn or invalid.

The clause which indicated with \* is the subcontract test item.

**Manufacturer's Declaration per sub-clause 6.2.5 of IEC 60335-1:**

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided .....:  Yes  Not applicable

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

**Name and address of factory (ies) .....** : Name: Eaglerise Electric & Electronic (Foshan) Co., Ltd.  
Address: Guicheng Sci-Tech Industrial Park, Jianping Road, Nanhai District, Foshan City, Guangdong Province, P.R. China.

**General product information:**

The products covered by this report are built-in; SELV; LED power supply.

IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict

<b>4</b>	<b>GENERAL REQUIREMENTS</b>		<b>N/A</b>
	Compliance of independent controlgear enclosure with EN 60 598-1		N/A
	Independent SELV controlgear comply with Annex I	(see Annex I)	N/A

<b>6 (6)</b>	<b>CLASSIFICATION</b>		—
	Independent convertor.....	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	Built-in convertor .....	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	Integral convertor .....	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	SELV-equivalent or isolating convertor .....	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> isolating convertor	—
	Auto-wound convertor .....	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	Independent SELV controlgear .....	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—

<b>7</b>	<b>MARKING</b>		P
7.1 (7.1)	Mandatory markings:		P
	- mark of origin		P
	- model number, type reference .....	EBP003C0700SS (Representative)	P
	- symbol for independent convertor, if applicable		N/A
	- correlation between interchangeable parts and convertor marked		N/A
	- rated supply voltage (V) .....	100-240	P
	- earthing symbol		N/A
	- wiring diagram		P
	- value of t <sub>c</sub>	75 °C	P
	- symbol for declared temperature	110 °C	P
	Constant voltage type:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	- rated supply voltage (V) .....		N/A
	Constant current type:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	- rated output current (A) .....	700 mA	P
	- rated maximum output voltage (V) .....	6 VDC	P
	- indication if for LED modules only		N/A
7.2 (7.1)	- information to be provided, if applicable:		P

IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict
	- declaration on protection against accidental contact		P
	- cross-section of conductors (mm <sup>2</sup> ) .....		P
	- number, type and wattage of lamp(s)		P
	- declaration of mains connected windings		N/A
	- declaration for SELV-equivalent convertor		N/A
- (7.2)	Marking durable and legible		P
	Rubbing 15 s water, 15 s petroleum; marking legible		P

8 (10)	PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS		P
- (10.1)	Controlgear protected against accidental contact with live parts		P
- (A2)	The current flowing between the part concerned and earth is measured and does not exceed 0,7 mA (peak) or 2 mA d.c. .... :		N/A
- (A2)	For frequencies above 1 kHz, the current does not exceed 0,7 mA (peak) multiplied by the value of the frequency in kilohertz or 70 mA (peak) .....		N/A
- (A3)	The voltage between the part concerned and any accessible part is measured and does not exceed 34 V (peak) .....		N/A
- (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 μF: voltage after 1 min (V): < 50 V .....	<0,1 μF	N/A
8.1	SELV-equivalent controlgear accessible parts are insulated from live parts by double or reinforced insulation according 8.6 and 13.1 in IEC 60065		N/A
8.2	Exposed terminals of SELV or SELV-equivalent controlgear if: - the rated or maximum rated output voltages ≤ 25 V r.m.s. - the no-load output voltage ≤ 30 V r.m.s. or 33 √2 V peak		N/A
	Insulated terminals if convertor with rated output voltage > 25 V		N/A
	One capacitor Y1 or two capacitors Y2 complying with IEC 60384-14 of the same values used in series between SELV or SELV-equivalent output and primary circuits		P



IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict

	Other components bridging the separating transformer complying with IEC 60065, clause 14		N/A
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<b>9 (8)</b>	<b>TERMINALS</b>		N/A
	Separately approved, component list	(see Annex 1)	N/A
	Screw terminals: compliance with Section 14 of IEC 60598-1	(see Annex 2)	N/A
	Screwless terminals: compliance with Section 15 of IEC 60598-1	(see Annex 3)	N/A

<b>10 (9)</b>	<b>PROVISION FOR EARTHING</b>		N/A
	Terminal complying with clause 8 in Part 1		N/A
	Locked against loosening and not possible to loosen by hand		N/A
	Not possible to loosen clamping means unintentionally on screwless terminals		N/A
	Earthing via means of fixing		N/A
	Earthing terminal only used for the earthing of the control gear		N/A
	All parts of material minimizing the danger of electrolytic corrosion		N/A
	Made of brass or equivalent material		N/A
	Contact surface bare metal		N/A
	Earth contact via the track on the printed board		N/A
	Test with a current of 25 A between earthing terminal and each of the accessible metal parts; measured resistance ( $\Omega$ ): $< 0,5 \Omega$ .....		N/A

<b>11 (11)</b>	<b>MOISTURE RESISTANCE AND INSULATION</b>		<b>P</b>
	After storage 48 h at 91-95% relative humidity and 20-30 °C measuring of insulation resistance with d.c. 500 V ( $M\Omega$ ):		P
	For basic insulation $\geq 2 M\Omega$ .....	$>100 M\Omega$	P
	For double or reinforced insulation $\geq 4 M\Omega$ .....	$>100 M\Omega$	P
	Adequate insulation between input and output terminals not bounded together in SELV-equivalent controlgear		—

<b>12 (12)</b>	<b>ELECTRIC STRENGTH</b>		<b>P</b>
	Immediately after clause 11 electric strength test for 1 min		P

IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict
	Working voltage $\leq 42$ V, test voltage 500 V	500 V	P
	Working voltage $> 42$ V $\leq 1000$ V, test voltage (V):		P
	Basic insulation, 2U + 1000 V	1480 V	P
	Supplementary insulation, 2U + 1750 V		N/A
	Double or reinforced insulation, 4U + 2750 V	3710 V	P
	No flashover or breakdown		P
	Windings in separating transformers in SELV-equivalent convertors according to 14.3.2 of IEC 60065		N/A

<b>14 (14)</b>	<b>FAULT CONDITIONS</b> (Carried out on three samples)		<b>P</b>
	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 ballasts does not exceed the marked temperature value		P
	Fault conditions: capacitors, resistors or inductors without proof of compliance with relevant specifications have been short-circuited or disconnected		P
- (14.1)	Short-circuit of creepage distances and clearances if less than specified in clause 18 (except between live parts and accessible metal parts)	(see appended table)	N/A
	Creepage distances on printed boards less than specified in clause 18 provided with coating according to IEC 60664-3		N/A
- (14.2)	Short-circuit or interruption of semiconductor devices	(see appended table)	P
- (14.3)	Short-circuit across insulation consisting of lacquer, enamel or textile	(see appended table)	P
- (14.4)	Short-circuit across electrolytic capacitors	(see appended table)	P
- (14.5)	After the tests has been carried out on three samples:		P
	The insulation resistance $\geq 1$ M $\Omega$	$>100$ 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

IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict
- (14.6)	Relevant fault condition tests with high-power supply	Yes	—
	Temperature declared thermally protected lamp controlgear fulfil requirements in Annex C		P

15	TRANSFORMER HEATING		N/A
	Windings of separating transformer in a SELV-equivalent controlgear fulfil the requirements according to 7.1 and 11.2 of IEC 60065		N/A
15.1	Temperatures do not exceed the changed values of the values in column 2 of Table 3 of IEC 60065, in respect to relevant ambient temperature at $t_c$ , under normal operation		N/A
15.2	Temperatures do not exceed the changed values of the values in column 3 of Table 3 of IEC 60065, in respect to relevant ambient temperature at $t_c$ , under abnormal conditions of Cl. 16 and fault conditions of Cl. 14		N/A
	Ambient temperature at $t_c$ .....		—

16	ABNORMAL CONDITIONS		P
	Safety not impaired when the controlgear is operated at any voltage between 90% and 110% of rated voltage		P
16.1	Control gear which are of the constant voltage output type:		N/A
	a) No LED module inserted		N/A
	b) Double LED modules or equivalent load connected to the output terminals		N/A
	c) Output terminal short-circuited (20 cm and 200 cm or declared length)		N/A
	During and at the end of the tests no defect impairing safety, nor any smoke or flammable gases produced		N/A
16.2	Control gear which are of the constant current output type:		P
	a) No LED module connected		P
	b) Double the LED modules or equivalent load connected in series to the output terminals		P
	c) Output terminal short-circuited (20 cm and 200 cm or declared length )	10 cm and 250 cm	P
	Maximum output voltage not exceeded		P
	During and at the end of the tests no defect impairing safety, nor any smoke or flammable gases produced		P

IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict

<b>17 (15)</b>	<b>CONSTRUCTION</b>		<b>P</b>
- (15.1)	Wood, cotton, silk, paper and similar fibrous material not used as insulation		P
- (15.2)	Printed boards used as internal connections complies with clause 14		P
	Socket-outlet in the output circuit does not accept plugs complying with IEC 60083 and IEC 60906		N/A
	Not possible to engage plugs accepted by socket-outlet in the output circuit with socket-outlets complying with IEC 60083 and IEC 60906		N/A

<b>18 (16)</b>	<b>CREEPAGE DISTANCES AND CLEARANCES</b>		<b>P</b>
	Creepage distances and clearances according to Table 3 and 4, as appropriate	(see appended table)	P
	Printed boards see clause 14		P
	Insulating lining of metallic enclosures		N/A

<b>19 (17)</b>	<b>SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS</b>		<b>P</b>
	Screws, current-carrying parts and connections in compliance with IEC 60598-1 (clause numbers between parentheses refer to IEC 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
	- at least two self-tapping screws		N/A
(4.11.3)	Screw locking:		N/A
	- spring washer		N/A
	- rivets		N/A
(4.11.4)	Material of current-carrying parts		P
(4.11.5)	No contact to wood		P
(4.12)	Mechanical connections and glands		N/A
(4.12.1)	Mechanical stress		N/A
	Screws not made of soft metal		N/A
	Screws of insulating material		N/A
	Torque test: part; torque (Nm) .....		N/A
	Torque test: part; torque (Nm) .....		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

	Torque test: part; torque (Nm) .....		N/A
(4.12.2)	Screw diameter < 3 mm screwed into metal		N/A
(4.12.4)	Locked connections		N/A
(4.12.5)	Screwed glands: force (N) .....		N/A

<b>20 (18)</b>	<b>RESISTANCE TO HEAT, FIRE AND TRACKING</b>		<b>P</b>
- (18.1)	Parts of insulating material retaining live parts in position, ball-pressure test:		P
	- part; test temperature (°C) .....	Enclosure; 90 °C	P
	- part; test temperature (°C) .....	Bobbin of T1; 125 °C	P
- (18.2)	Printed boards in accordance with 8.7 of IEC 61189-2 and relevant parts of IEC 61249-2		N/A
- (18.3)	External parts of insulating material preventing electric shock glow-wire test 650 °C	Enclosure	P
- (18.4)	Parts of insulating material retaining live parts in position, needle-flame test 10 s:		P
	- flame extinguished within 30 s	Bobbin of T1	P
	- no flaming drops igniting tissue paper		P
- (18.5)	Tracking test according section 13 of IEC 60598-1 if required		N/A

<b>21 (19)</b>	<b>RESISTANCE TO CORROSION</b>		N/A
	Applicable parts comply with 4.18.1 of IEC 60598-1		N/A
	Adequate varnish on the outer surface		N/A

<b>- (20)</b>	<b>NO-LOAD OUTPUT VOLTAGE</b>		N/A
	No load output voltage not differ more than 10 % from rated voltage		N/A

<b>14</b>	<b>TABLE: tests of fault conditions</b>		<b>P</b>
Part	Simulated fault		Hazard
BR1 primary input (Un=100V)	Short-circuited; No hazards, F1 broken when removed the fault condition		No
BR1 primary input (Un=240V)	Short-circuited; No hazards, F1 broken when removed the fault condition		No

IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict
C1	Short-circuited; No hazards, F1 broken when removed the fault condition		No
C5	Short-circuited; No hazards, L1 broken		No
C6	Short-circuited; No hazards, recoverable when removed the fault		No
D1	Short-circuited; No hazards, recoverable when removed the fault		No
D3	Short-circuited; No hazards, recoverable when removed the fault		No

18 (16)	TABLE: creepage distances and clearances						N/A
	Minimum distances for a.c. (50/60 Hz) sinusoidal voltages						N/A
RMS working voltage (V) not exceeding	50	150	250	500	750	1000	
1) minimum distances between live parts of different polarity. Specify the value measured.							
2) minimum distances between live parts and accessible parts which are permanently fixed to the ballast, including screws or devices for fixing covers or fixing the ballast to its support. Specify the value measured.							
- required creepage distances (mm), insulation PTI ≥ 600	0,6	1,4	1,7	3	4	5,5	
- required creepage distances (mm), insulation PTI < 600	1,2	1,6	2,5	5	8	10	
- required clearances (mm)	0,2	1,4	1,7	3	4	5,5	
3) minimum distances between live parts and a flat supporting surface or a loose metal cover, if any, if the construction does not ensure that the values under 2 above are maintained under the most unfavourable circumstances							
- required clearances (mm)	2	3,2	3,6	4,8	6	8	
	Minimum distances for non-sinusoidal pulse voltages						N/A
rated pulse voltage (peak kV)	2,0	2,5	3,0	4,0	5,0	6,0	8,0
required minimum distances, clearances (mm)	1,0	1,5	2	3	4	5,5	8
Specify the value measured							
rated pulse voltage (peak kV)	10	12	15	20	25	30	40
required minimum distances, clearances (mm)							
Specify the value measured							
rated pulse voltage (peak kV)	50	60	80	100	-	-	-
required minimum distances, clearances (mm)	75	90	130	170	-	-	-
Specify the value measured							

IEC 61347-2-13			
Clause	Requirement + Test	Result - Remark	Verdict

<b>A</b>	<b>ANNEX A (NORMATIVE), TEST TO ESTABLISH WHETHER A CONDUCTIVE PART IS A LIVE PART WHICH MAY CAUSE AN ELECTRIC SHOCK</b>		N/A
A.2	See clause 8 A.2 in this Test Report		N/A
A.3	See clause 8 A.3 in this Test Report		N/A

<b>C</b>	<b>ANNEX C – PARTICULAR REQUIREMENTS FOR ELECTRONIC LAMP CONTROLGEAR WITH MEANS OF PROTECTION AGAINST OVERHEATING</b>		<b>P</b>
<b>C3</b>	<b>GENERAL REQUIREMENTS</b>		<b>P</b>
C3.1	Thermal protection means integral with the convertor, protected against mechanical damage		P
	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 IEC 60691		N/A
	Electrical controls comply with IEC 60730-2-3		N/A
C3.2	No risk of fire by breaking (clause C7)		P
<b>C5</b>	<b>CLASSIFICATION</b>		<b>P</b>
	a) automatic resetting type	No	—
	b) manual resetting type	No	—
	c) non-renewable, non-resetting type	No	—
	d) renewable, non-resetting type	No	—
	e) other type of thermal protection; description ....:	Yes, Inherently circuit feedback protection	P
<b>C6</b>	<b>MARKING</b>		<b>P</b>
C6.1	Symbol for temperature declared thermally protected ballasts	110 °C	P
C6.2	Declaration of the type of protection provided	In the user manual	P
<b>C7</b>	<b>LIMITATION OF HEATING</b>		<b>P</b>
C7.1	Preselection test:		P
	Test sample placed for at least 12 h in an oven having temperature (t <sub>c</sub> - 5) K	70 °C	P
	No operation of the protection device		P
C7.2	Functioning of protection means		P
	Normal operation of the sample in a test enclosure according to Annex D at an ambient temperature such that (t <sub>c</sub> +0; -5) °C is obtained		P

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Clause	Requirement + Test	Result - Remark	Verdict
	No operation of the protection device		P
	Introducing of the most onerous test condition determined during test of clause 14		P
	Output of windings connected to the mains supply short-circuited, and other part of the convertor operated under normal conditions		N/A
	Increasing of the current through the windings continuously until operation of the protection means		P
	Continuous measuring of the highest surface temperature		P
	Ballasts according to C5 a) or C5 e) operated until stable conditions are achieved		P
	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	Measured Max. 81 °C	P
	Any overshoot of 10% over the marked value within 15 min		N/A

<b>D</b>	<b>ANNEX D – REQUIREMENTS FOR CARRY OUT THE HEATING TESTS OF THERMALLY PROTECTED LAMP CONTROLGEAR</b>		<b>P</b>
	Tests in C7 performed in accordance with Annex D, if applicable		P

<b>E</b>	<b>ANNEX E – USE OF CONSTANT S OTHER THAN 4500 IN <math>t_w</math> TESTS</b>		N/A
	Annex E if windings of 50 Hz/60 Hz		N/A
E1	Constant S claimed		N/A
	Claimed test method		N/A
E2	Procedure A		N/A
	Adequate data provided by the manufacturer		N/A
	The inverse of the slope is greater than or equal to the claimed value of S		N/A
	Compliance with the failure criteria for procedure B		N/A
E3	Procedure B		N/A
	Claimed value of $T_1$		N/A
	Claimed value of $T_2$		N/A



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Clause	Requirement + Test	Result - Remark	Verdict
	Endurance test carried out at:		N/A
	T <sub>1</sub> (7 samples)		N/A
	T <sub>2</sub> (7 samples)		N/A
	Duration of test calculated from equation (2)		N/A
	T <sub>1</sub>		N/A
	T <sub>2</sub>		N/A
	During the test: - No open circuit - No breakdown insulation		N/A
	The claimed constant S is deemed to be verified		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	N/A

H	ANNEX H - TESTS	P
	All tests performed in accordance with the advice given in Annex H, if applicable	P

I	ANNEX I - PARTICULAR ADDITIONAL REQUIREMENTS FOR INDEPENDENT SELV D.C. OR A.C. SUPPLIED ELECTRONIC CONTROLGEAR FOR LED MODULES	P
I.3	Classification	—
I.3.1	Class I	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Class II	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
I.3.2	a) non-inherently short circuit proof controlgear	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	b) non-inherently open circuit proof controlgear	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	c) inherently short circuit proof controlgear	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
	d) inherently open circuit proof controlgear	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	e) fail safe controlgear	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	f) non-short-circuit proof controlgear	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	g) non-open-circuit proof controlgear	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
I.4	Marking	P
	Adequate symbols are used	P

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Clause	Requirement + Test	Result - Remark	Verdict
I.5	Protection against electric shock		P
I.5.1	No connection between output winding and body		P
	No connection between output winding and protective earthing circuit		N/A
I.5.2	Input and output circuits electrically separated from each other		P
I.5.2.1	Insulation between input and output winding of the HF-transformer consists of double or reinforced insulation		P
	Class II: insulation between input/output and body consists of double or reinforced insulation		P
	Class I: insulation between input and body consists of basic and between output and body supplementary insulation		N/A
I.5.2.2	Insulation between input and output winding via the core consists of double or reinforced insulation		P
	Insulation between cord and windings of the HF-transformer consists of basic insulation		P
I.5.2.3	Serrated tape, additional layer		N/A
I.5.2.4	Class I controlgear for fixed connection provided with basic insulation plus protective screening comply with the following conditions:		N/A
	a) Insulation between the input winding and the protective screen complies with the requirements for basic insulation		N/A
	b) Insulation between the protective screen and the output winding complies with the requirements for basic insulation		N/A
	c) Metal screen consists of a metal foil or of a wire wound screen		N/A
	d) Metal screen so arranged that both edges cannot simultaneously touch a magnetic core		N/A
	e) Metal screen and its lead-out wire have a cross-section sufficient to ensure that an overload device will open the circuit before the screen is destroyed		N/A
	f) Lead-out wire sufficiently fixed to the metal screen		N/A
I.5.2.5	Last turn of each winding of the transformer retained by positive means		P
	Impregnated winding		N/A
	Winding held together by means of insulating material		P

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Clause	Requirement + Test	Result - Remark	Verdict
I.5.3	Components bridging between input and output circuit		P
I.5.3.1	Used capacitors and resistors comply with 8.2	Y1	P
I.5.3.2	Used opto-couplers		N/A
I.6	Heating		—
I.6.1	No excessive temperatures in normal use		P
	Used material classified as Class _____	E	—
	Stated value of $t_a$ _____	50 °C	—
I.6.2	Upri: 1.06 time supply rated voltage	254,4 V	—
	Determined temperature rises in windings: - Primary: _____ K 27 - Limit max: _____ K 70 - Secondary: _____ K 27 - Limit max: _____ K 70		P
	After the test:		P
	- no connections have worked loose		P
	- no reduction of creepage distances and clearances		P
	- no flow of sealing compound		N/A
	- no operation of protecting devices		P
	- electric strength test between input and output windings		P
I.6.3	Cycling test (10 cycles):		N/A
I.6.3.1	- heat run at _____ K		N/A
I.6.3.2	- moisture treatment 48 h		N/A
I.6.3.3	- vibration test 1 h; 1,5 g		N/A
I.6.3.4	After the tests:		N/A
	- insulation resistance		N/A
	- dielectric strength test at 35 % of specified value; test voltage _____ V		N/A
	- Current or the ohmic component does not deviates by more than 30 %		N/A
I.7	Short-circuit and overload protection		P
I.7.1	Upri: 1.06 times rated voltage or 0.94 and 1.06 times rated supply voltage - used voltage _____ V	254,4	P
I.7.2 I.7.3 I.7.4	Determined temperature rise in windings and on other parts:		P

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Clause	Requirement + Test	Result - Remark	Verdict
	- test according to Clause _____	I.7.2	P
	- Primary winding _____ K	27	P
	- Limit max _____ K	115	P
	- Secondary winding _____ K	28	P
	- Limit max _____ K	115	P
	- External enclosure _____ K	14	P
	- Limit max _____ K	55	P
	- PVC insulation of input wiring _____ K	7	P
	- Limit max _____ K	35	P
	- PVC insulation of output wiring _____ K	16	P
	- Limit max _____ K	35	P
	- Supports _____ K	14	P
	- Limit max _____ K	55	P
I.7.5	Fail-safe convertors		N/A
I.7.5.1	- U <sub>pri</sub> : 1.06 times rated supply voltage ..... V:		—
	- I <sub>sec</sub> : 1.5 times rated output current ..... A:		—
	- time until steady-state conditions t <sub>1</sub> (h) .....		—
	- time until failure t <sub>2</sub> (h): ≤ t <sub>1</sub> ; ≤ 5 h .....		N/A
I.7.5.2	During the test:		N/A
	- no flames, molten material, etc.		N/A
	- temperature rise of enclosure ≤ 150 K		N/A
	- temperature rise of plywood support ≤ 100 K		N/A
	After the test:		N/A
	- electric strength (test voltage; 35 % of specified value); no flashover or breakdown for primary-to-secondary and for primary-to-body		N/A
	- live parts not accessible by test finger through holes of enclosure		N/A
I.8	Insulation resistance and electric strength		P
I.8.1	Conditioned 48 h between 91 % and 95 %		P
I.8.2	Adequate insulation (500 V d.c. for 1 min) between:		P
	Live parts and the body -for basic insulation not less than 2 MΩ .....		N/A
	Live parts and the body -for reinforced insulation not less than 4 MΩ .....	>100 MΩ	P
	Input- and output circuits not less than 5 MΩ .....	>100 MΩ	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Metal parts of class II controlgear which are separated from live parts by basic insulation only and the body not less than 5 MΩ .....		N/A
	Metal foil in contact with the inner and outer surfaces of enclosures of insulating material not less than 2 MΩ .....	>100 MΩ	P
I.8.3	Electric strength test:		P
	1) Between live parts of input circuits and live parts of output circuits .....	3750 V	P
	2) Over basic or supplementary insulation between:		P
	a) live parts which are or may become of different polarity .....	1875 V	P
	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
	e) intermediate metal parts and the body .....		N/A
	3) Over reinforced insulation between the body and live parts .....	3750 V	P
	No flashover or breakdown occurred		P
I.9	Construction		P
I.9.1	Comply with all requirements		P
I.9.2	The distance between input and output terminals shall not be less than 25 mm .....	43 mm	P
I.10	Components		N/A
I.10.1	Socket-outlets in the output circuit does not accept plugs complying with IEC 60083 and IEC 60906-1		N/A
I.10.2	Self-resetting protective devices shall not be used unless it is certain that there will be no hazards		N/A
	Compliance is checked by connecting the controlgear for 48 h at 1.06 times the rated voltage with the output short-circuited		N/A
I.11	Creepage distances and clearances		P
	1. Insulation between input and output circuits:		P
	a) measured values > specified values (mm) .....	Between component of primary circuit and secondary circuit: >=7,0 mm (limited: 6,0 mm);	P
	b) measured values > specified values (mm) .....		N/A
	c) measured values > specified values (mm) .....	Certificated reinforce insulation winding as secondary winding; Three layers insulation tapes: 0,12 mm thickness (limited: 0,1 mm)	P

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Clause	Requirement + Test	Result - Remark	Verdict
	2. Insulation between adjacent input circuits: measured values > specified values (mm) .....		N/A
	2. Insulation between adjacent output circuits: measured values > specified values (mm) .....		N/A
	3. Insulation between terminals for external connection:		N/A
	a) measured values > specified values (mm) .....		N/A
	b) measured values > specified values (mm) .....		N/A
	c) measured values > specified values (mm) .....		N/A
	4. Basic or supplementary insulation:		N/A
	a) measured values > specified values (mm) .....	Fuse resistor	N/A
	b) measured values > specified values (mm) .....		N/A
	c) measured values > specified values (mm) .....		N/A
	5. Reinforced insulation: measured values > specified values (mm) .....	live parts and the enclosure: >= 6,03 mm (limit: 6,0 mm)	P
	6. Distance through insulation:		P
	a) measured values > specified values (mm) .....		N/A
	b) measured values > specified values (mm) .....	live parts separated by enclosure (reinforced insulation): >= 1,0 mm (limit: 1,0 mm)	P
	c) measured values > specified values (mm) .....		N/A
	d) measured values > specified values (mm) .....		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	<b>ANNEX 2: screw terminals (part of the controlgear)</b>		N/A
<b>(14)</b>	<b>SCREW TERMINALS</b>		N/A
	<b>ANNEX 3: screwless terminals (part of the controlgear)</b>		N/A
<b>(15)</b>	<b>SCREWLESS TERMINALS</b>		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

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	CENELEC COMMON MODIFICATIONS (EN)	P
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16 (16)	TABLE: creepage distances and clearances						P	
	Minimum distances for a.c. (50/60 Hz) sinusoidal voltages						P	
	RMS working voltage (V) not exceeding	50	150	250	500	750	1000	
1	between live parts of different polarity	--	--	3,74 mm	--	--	--	
2	between live parts and accessible metal parts which are permanently fixed to the ballast, including screws or devices for fixing covers or fixing the ballast to its support	--	--	>= 6,03 mm	--	--	--	
3	for ballasts declared not to rely on the luminaire enclosure for protection against electric shock – between live parts and outer accessible surface of insulating parts	--	--	>= 6,03 mm	--	--	--	
Creepage distances	Basic insulation	PTI ≥ 600	0,6	0,8	1,5	3	4	5,5
		PTI < 600	1,2	1,6	2,5	5	8	10
	Supplementary insulation	PTI ≥ 600	--	0,8	1,5	3	4	5,5
		PTI < 600	--	1,6	2,5	5	8	10
	Reinforced insulation	--	3,2	5	6	8	11	
Clearances	Basic insulation	0,2	0,8	1,5	3	4	5,5	
	Supplementary insulation	--	0,8	1,5	3	4	5,5	
	Reinforced insulation	--	1,6	3	6	8	11	