

中国认可 国际互认 检测 TESTING CNAS L5772

-90000-			
TEST REPORT			
	EN 61347-2-13		
Dert 0.40. Dertienden vorsinene	Lamp controlgear		
Part 2-13: Particular requireme	LED modules		
Report Number:	PTCDQ02170721805S-LD01		
Date(s) of performance of tests:	July 26, 2017 ~ July 29, 2017 6		
Date of issue:	August 2, 2017		
Tested by (name + signature)::	Even Li		
Approved by (name + signature) :	Chris Du		
Testing Laboratory Name:	Dongguan Precise Testing & Certification Corp., Ltd.		
Address:	Building D, Baoding Technology Park, Guangming Road 2,		
	Guangming Community, Dongcheng District, Dongguan, Guangdong, China		
Applicant's name:	Berdis Lighting Co.,LTD.		
Address:	6F,No.1, South 2nd Lane,HuaTai East Road,Caosan Industrial		
	Park,Guzhen Town,Zhongshan City,Guangdong Province,China		
Manufacturer's name:	Berdis Lighting Co.,LTD.		
Address:	6F,No.1, South 2nd Lane,HuaTai East Road,Caosan Industrial		
	Park, Guzhen Town, Zhongshan City, Guangdong Province, China		
Test specification:			
Standard:	EN 61347-2-13: 2014; EN 61347-1: 2015; EN 62493: 2015		
Test procedure:	CE-LVD		
Test item description:	LED Dimmable Driver		
Trade Mark:	BERDIS		
Model/Type reference:	A03-D0022/ A03-DXXXX (Circuit and structure are the same)		
Ratings:	200-240V~;50/60Hz;0.16A		
This report is only for applicant use. Any	copying this report to/for any other person or entity, and use our		
name or trademark, is permitted only with our prior written permission. This report sets forth our findings			
solely with respect to the test samples identified herein. The results set forth in this report are not indicative			
or representative of the quality or characteristics of the lot from which a test sample was taken or any similar			
or identical product unless specifically and expressly noted. Our report includes all of the tests requested by			
you and the results thereof based upon the information that you provided to us. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-			
compliance to the specification			

Test item particulars			
Construction	Independent SELV controlgear		
Lamp type	LED lamp		
Operation model	Continuous		
Maximum case temperature	85 ℃		
Supply connect	Terminal block		
Output voltage	See labels		
Test case verdicts			
Test case does not apply to the test object	N(N/A) (not applicable)		
Test item does meet the requirement	P(Pass)		
Test item does not meet the requirement	F(Fail)		
General remarks	Attachment with:		
"(see remark #)" refers to a remark appended to the	-ANNEX A: Photo Documents.		
report.			
"(see Annex #)" refers to an annex appended to the			
report.			
Clause numbers between brackets refer to clauses			
in EN 61347-1.			
Throughout this report a comma is used as the			
decimal separator.			
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 testing			
laboratory.			
Unless otherwise specified, test are made under			
normal conditions at an ambient temperature within			
the range of 15 °C			
air pressure of 860mbar of 1060mbar			
Summary of testing:			
- The sample found to comply with the requirements	of the relevant standard(s).		
- All models are similar in appearance and inner stru	cture except a little second components and their		
ratings are different. Their transformer are the sam	e structure except their second number of turns, their		
schematic circuit diagrams, PCB layouts are the sa	ime completely. All tests were conducted on model		
AU3-DU022.			
Dengquen Dreeien Tenting & Certification Corrected			
Dongguan Precise Testing & Certification Corp., Ltd.			
Dengeuen Guengdeng, China			
Summary of compliance with National Difference			



Model	Rating	Transformer
A03-D0023	Input: 200-240V~, 50Hz, 160mA Output: DC55-85V, Max.96V, 280mA ta:-25-40°C, tc:80°C	TREFD25- 011-280HR
A03-D0022	Input: 200-240V~, 50Hz, 160mA Output: DC30-42V, Max.48V, 580mA ta:-25-40°C, tc:80°C	TREFD25- 010-560HR
A03-D0024	Input: 200-240V~, 50Hz, 160mA Output: DC30-50V, Max.58V, 480mA ta:-25-40°C, tc:80°C	TREFD25- 010-560HR
A03-D0025	Input: 200-240V~, 50Hz, 160mA Output: DC30-65V, Max.80V, 280mA ta:-25-40°C, tc:80°C	TREFD25- 011-280HR
A03-D0026	Input: 200-240V~, 50Hz, 160mA Output: DC30-40V, Max.48V, 450mA ta:-25-40°C, tc:80°C	TREFD25- 010-560HR
A03-D0027	Input: 200-240V~, 50Hz, 160mA Output: DC30-48V, Max.58V, 380mA ta:-25-40°C, tc:80°C	TREFD25- 010-560HR
A03-D0028	Input: 200-240V~, 50Hz, 160mA Output: DC22-42V, Max.48V, 280mA ta:-25-40°C, tc:80°C	TREFD25- 013-280HR
A03-D0029	Input: 200-240V~, 50Hz, 160mA Output: DC28-37V, Max.48V, 350mA ta:-25-40°C, tc:80°C	TREFD25- 013-280HR
A03-D0030	Input: 200-240V~, 50Hz, 160mA Output: DC28-45V, Max.55V, 200mA ta:-25-40°C, tc:80°C	TREFD25- 013-280HR
A03-D0031	Input: 200-240V~, 50Hz, 160mA Output: DC13-25V, Max.32V, 280mA ta:-25-40°C, tc:80°C	TREFD25- 013-280HR
A03-D0032	Input: 200-240V~, 50Hz, 160mA Output: DC30-42V, Max.48V, 140mA ta:-25-40°C, tc:80°C	TREFD25- 012-140HR
A03-D0033	Input: 200-240V~, 50Hz, 160mA Output: DC10-20V, Max.23V, 280mA ta:-25-40°C, tc:80°C	TREFD25- 013-280HR

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Clause	Requirement – Test	Result - Remark	Verdict

4(4)	GENERAL REQUIREMENTS		
	Insulation materials compliance with Annex N		Р
	Independent lamp controlgear compliance with EN 60598-1		Р
	Built-in ballasts with double or reinforced insulation compliance with Annex I		Ν
	IP classification		Ν
	"F" mark		Ν
	Integral lamp controlgear compliance with clause 0.5 of EN 60598-1		Ν
	Built-in electronic controgear compliance with Annex O		Ν
	SELV controlgear comply with Annex L		Р
4()	SELV controlgear comply with the requirements of Annex I		Р
4()	A separating, isolating or autotransformer is used, it comply with the relevant parts of IEC 61558.		Р

5(5) GENERAL NOTES ON TEST

6 (6)	CLASSIFICATION			
	Built-in controlgear	Yes	No 🖂	
	Independent controlgear	Yes⊠	No 🗌	
	Integral controlgear	Yes	No 🖂	
	Auto-wound controlgear:	Yes	No 🖂	
	Separating controlgear	Yes	No 🖂	
	Isolating controlgear	Yes⊠	No 🗌	
	SELV controlgear	Yes⊠	No 🗌	

7(7)	MARKING		
7.1(7.1)	Mandatory markings:		Р
	- mark of origin	See marking label	Р
	- model number, type reference	see marking label	Р

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Clause	Requirement – Test	Result - Remark	Verdict

	- symbol for independent controlgear, if applicable		Р
	- correlation between interchangeable parts and controlgear marked		N
	- rated supply voltage	AC200-240V	Р
	- earthing symbol	Class II appliance.	N
	- symbol of tw		Ν
	- max. enclosure temperature of ta	ta:-25-55℃	Р
	- cross -section of conductors of terminal	See label	Р
	- lamp type and rated wattage or wattage range		N
	- wiring diagram		N
	- value of tc	tc:85℃	Р
	- symbol for temperature declared, thermally protected controlgear		N
	- heat sink(s) required		N
	 limiting temperature of the winding under abnormal conditions 		N
	- the rated no-load output voltage		N
	- symbol of SELV		Р
	- maximum working voltage Uout		Р
7.1()	Constant voltage types		N
	- rated output power		N
	- rated output voltage		N
	Constant current types		Р
	- rated output power		Ν
	- rated output current		Р
	Operation with LED modules only		N
7.2()	Information to be provided if applicable		N
	- mains-connected windings of transformer		N
(7.2)	Marking durable and legible		Р
	Rubbing 15 s water, 15 s petroleum; marking legible		Р

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Clause	Requirement – Test	Result - Remark	Verdict

8.1(10.1)	Lamp controlgear which do not rely upon the luminaire enclosure for protection against electric shock compliance Annex A	Р
	Integral lamp controlgear, which relies upon the luminaire enclosure for protection	Ν
	Lacquer or enamel is not considered	Ν
	Parts providing protection against accidental contact have adequate mechanical strength	Р
	- a force of 10 N test with test finger	Р
8.2(10.2)	Capacitors > 0,5 μ F: voltage after 1 min (V): < 50V:	Ν
8.3(10.3)	SELV-equivalent controlgear accessible parts are insulated from live parts by double or reinforced insulation	Ν
	SELV output circuits is be electrically separated from earth by at least basic insulation	Ν
	Controlgears providing ELV conductive parts is insulation	Ν
8.4(10.4)	SELV may be have accessible	Ν
	The rated output voltage under load does not exceed 25Vr.m.s. or 60Vd.c	Ν
	Ripple free d.c. where the voltage exceeds 25Vr.m.s. or 60Vripple free d.c.	Ν
	- for a.c.: 0,7 mA (peak);	Ν
	- for d.c.: 2,0 mA;	Ν
	 the no-load output does not exceed 35Vpeak or 60Vripple free d.c. 	Ν
	If exceeding the values given above, compliance with 500Vdc insulation test	Ν
	One capacitor Y1 or two capacitors Y2 of the same values used in series between live parts and the body or primary and secondary circuits - Capacitor complying with IEC 60384-14 - Other components bridging the separating transformer complying with IEC 60065, clause 14	Ρ

9(8)	TERMINAL		
	Screw terminals shall comply with Clause 14 of IEC60598-1.		Р

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Clause	Requirement – Test	Result - Remark	Verdict

Screwless terminals shall comply with Clause 15 of IEC60598-1.		Ν
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10(9)	PROVISIONS FOR PROTECTIVE EARTHING (EAR	RTHING)	
10.1(9.1)	Provisions for protective earthing		Ν
	Earthing terminals compliance with clause 8 of EN 61347-1		Ν
	Contact no-rusting or bare metal		Ν
	Protective earth, symbol		Ν
10.2(9.2)	Provisions for functional earthing		Ν
10.3(9.3)	Lamp controlgear with conductors for protective earthing by tracks on printed circuit boards		Ν
	a.c. current of 25 A for 1 min between the earthing terminal or earthing contact and each of the accessible metal parts, measured resistance (Ω): < 0,5 Ω		Ν
10.4(9.4)	Earthing of built-in lamp controlgear		Ν
10.5(9.5)	Earthing via independent controlgear		Ν
10.5.1(9.5. 1)	Earth connection to other equipment		Ν
	minimum cross-section of 1,5mm ² and be of copper, or an equivalent conductive material		Ν
10.5.2(9.5. 2)	Earthing of the lamp compartments powered via the independent lamp controlgear		Ν
	a.c. current of 25 A for 1 min between the earthing terminal or earthing contact and each of the accessible metal parts, measured resistance (Ω): < 0,5 Ω		Ν
	a.c. current of 10 A for 1 min between the earthing terminal or earthing contact and the accessible metal parts, measured resistance (Ω): < 0,5 Ω		Ν

11 (11)	MOISTURE RESISTANCE AND INSULATION		
	After storage 48 h at 91-95% relative humidity and 20-30 $^\circ\!\!C$ measuring of insulation resistance with d.c. 500 V (M\Omega):		Ρ
	\geqslant 2 M $_{\Omega}$ for basic insulation:	L/N: 100M Ω , limit: 2 M Ω	Р
	\geqslant 4 M Ω for double or reinforced insulation :	Live part and accessible parts: 100M Ω , limit: 4 M Ω	Р

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Clause	Requirement – Test	Result - Remark	Verdict

	a a b	_
For insulation between primary and secondary	See Annex L	Р
circuits with SELV controlgear		

12(12)	ELECTRIC STRENGTH		
	Immediately after clause 11 electric strength test for	1 min	Р
	Basic insulation for voltages of SELV		Ν
	Up to and including 50 V		Ν
	Above 50Vup to and including 1 000 V		Ν
	- basic insulation (2U+1000)	L/N: 1480V, no breakdown	Р
	- supplementary insulation (2U+1000)		Ν
	- double or reinforced insulation (4U+2000)	Live part and accessible parts: 2960V, no breakdown	Р
	Solid or thin sheet insulation	Plastic enclosure	Р
	No flashover or breakdown after electric strength test		Р

13(13)

THERMAL ENDURANCE TEST FOR WINDINGS OF BALLAST

14(14)	FAULT CONDITIONS		
	When operated under fault conditions the controlgea	ır:	Р
	- does not emit flames or molten Material		Р
	- does not produce flammable gases		Р
	- protection against accidental contact not impaired		Р
	lamp controlgear marked with a protective earthing symbol		N
	lamp controlgear marked with a functional earthing symbol		N
	Thermally protected controlgear does not exceed the marked temperature value		N
	Fault conditions: capacitors, resistors or inductors without proof of compliance with relevant specifications have been short-circuited or disconnected	See below.	Ρ
14.1(14.1)	Short-circuit of creepage distances and clearances if less than specified in clause 16 in Part 1 (except between live parts and accessible metal parts)	Refer to table 14	Р
	Distances on printed boards provided with coating according to IEC 60664-3		Р

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Clause	Requirement – Test	Result - Remark	Verdict

14.2(14.2)	Short-circuit or interruption of semiconductor devices	Refer to table 14	Р
14.3(14.3)	Short-circuit across insulation consisting of lacquer, enamel or textile	Refer to table 14	Р
14.4(14.4)	Short-circuit across electrolytic capacitors	Refer to table 14	Р
14.5(14.5)	After the tests the insulation resistance with d.c. 500 V (M Ω) are \geq 1 M Ω :		Р
	After the tests the accessible parts has not become live		Р
	During the tests, a five-layer tissue paper, where the test specimen is wrapped, does not ignite		Р
	Accessible parts compliance with Annex A		Р
14()	controlgear provided with the marking W, comply with the requirements specified in Annex C		Ν

15()	TRANSFORMER HEATING	
15.1	controlgear contains an SELV, isolating and separating transformer, compliance with Clauses L.6 and L.7 of EN 61347-1:2007/AMD2:2012	Р
15.2	Normal operation	Р
	Test voltage at rated supply voltage	Р
15.3	Abnormal operation	Р
	Test voltage between 90 % and 110 % of the rated supply voltage	Р
	Connect double the LED modules or equivalent load	Р
	- in parallel to the output terminals, for constant voltage output types	Р
	- in series to the output terminals, for the constant current output types	Ν
	No LED module inserted	Р
	Output terminal short-circuited	Р

16(15)	CONSTRUCTION	
16.1(15.1)	Wood, cotton, silk, paper and similar fibrous	Р
	Material not used as insulation	

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Clause	Requirement – Test	Result - Remark	Verdict

16.2(15.2)	Printed boards used as internal connections complies with clause 14 of EN 61347-1	Р
16.3(15.3)	Plugs and socket-outlets used in SELV or ELV circuits	N
	Plugs and socket-outlets for SELV system comply with the requirements of IEC 60906-3 and IEC60884-2-4.	Ν
	Plugs and socket-outlets for SELV systems with both a rated current ~ 3A and a maximum voltage of 25Va.c. or 60Vd.c. with a power not exceeding 72W	N
	 plugs not be able to enter socket-outlets of other standardised systems; 	Ν
	 socket-outlets shall not admit plugs of other standardised voltage systems; 	N
	 socket-outlets shall not have a protective earth contact 	Ν

17(16)	CREEPAGE DISTANCES AND CLEARANCES		
	Creepage distances and clearances according to Table 3 and 4, as appropriate	Live part and accessible parts: Cl: 6.4mm Cr: 6.9mm	Р
	Printed boards see clause 14 of EN 61347-1	L/N: CI: 4.0mm Cr: 4.0mm	Р
	SELV controlgears according to Annex L	See Annex L	Р

18(17)	SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS		
	Screws, current-carrying parts and connections in compliance with EN 60598-1		Р

19(18)	RESISTANCE TO HEAT, FIRE AND TRACKING		
19.1(18.1)	Parts of insulating Material retaining live parts in position, ball-pressure test:		Р
	- part; test temperature (°C)	Plastic enclosure: 125℃, 1.1mm	Ρ
	- part; test temperature ($^{\circ}C$):	Terminal block: 125℃, 1.3mm	Р
	- part; test temperature (°C):	PCB: 125℃, 0.5mm	Р
	- part; test temperature ($^{\circ}C$):	Bobbin of transformer: $125^\circ\!\!\!\!^\circ\!\!\!^\circ$, 0.9mm	Р
19.2(18.2)	Printed boards in accordance with IEC 60249-1,		Р

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Clause	Requirement – Test		Result - Remark	Verdict

19.3(18.3)	External parts of insulating Material preventing electric shock glow-wire test 650 $^\circ\!\mathrm{C}$	Plastic enclosure: 650℃, no burning	Р
		Terminal block: 650℃, no	
		burning	
		PCB: 650℃, no burning	
		Bobbin of transformer: 650℃, no burning	
19.4(18.4)	Parts of insulating Material retaining live parts in pos	ition, needle-flame test 10 s:	Р
	- flame extinguished within 30 s	PCB, Plastic enclosure, Terminal block, Bobbin of transformer	Р
	- no flaming drops igniting tissue paper		Р
19.5(18.5)	Tracking test		N

20(19)	RESISTANCE TO CORROSION		
	Rust protection:		Р
	- test according 4.18.1 of EN 60598-1	Plastic enclosure	Р
	- adequate varnish on the outer surface		N

(20)	NO-LOAD OUTPUT VOLTAGE		
	Only applicable for magnetic lamp controlgear with integrated tra operating with supply frequencies	ansformer,	Ρ
	No load output voltage not differ more than 10 % from rated voltage		Ρ

Annex A	TEST TO ESTABLISH WHETHER A CONDUCTIVE PART IS A LIVE PART WHICH MAY CAUSE AN ELECTRIC SHOCK		
A.1	According to Clause A.2 and A.3		Р
A.2	The voltage not exceed 35Va.c. peak or 60Vripple free d.c.		N
A.3	Where the voltage exceeds 35Va.c. peak or 60Vripple free d.c. or a protective impedance device is used the touch-current shall not exceed:		Р
	- for a.c.:0,7 mA (peak);	Max.0.15mA	Р
	- for d.c.: 2,0 mA		N

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Clause	Requirement – Test	Result - Remark	Verdict

Annex B	B PARTICULAR REQUIREMENTS FOR THERMALLY PROTECTED LAMP CONTROLGEAR		
B.7	Marking		Ν
	- the symbol for "class P" thermally protected lamp controlgear	P	Ν
	- the symbol for temperature declared thermally protected lamp controlgear	$\overline{\nabla}$	Ν
B.8	Thermal endurance of windings		Ν
B.9	Lamp controlgear heating		Ν
B.9.1	Preselection test		Ν
B.9.2	"Class P" thermally protected lamp controlgear		Ν
B.9.3	Temperature declared thermally protected lamp controlgear as specified inIEC61347-2-8, with a rated maximum case temperature of 130°C or lower		Ν
B.9.4	Temperature declared thermally protected lamp controlgear as specifiedin IEC61347-2-8 with a rated maximum case temperature exceeding 130°C		Ν
B.9.5	Temperature declared thermally protected lamp controlgear as specified in IEC61347-2-9		Ν

Annex C	C PARTICULAR REQUIREMENTS FOR ELECTRONIC BALLASTS WITH MEANS OF PROTECTION AGAINST OVERHEATING		
C3	GENERAL REQUIREMENTS		Ν
C3.1	Thermal protection means integral with the controlgear, protected against mechanical damage		Ν
	Renewable only by means of a tool		Ν
	If function depending on polarity, for cord- connected equipment protection means in both leads		Ν
	Thermal links comply with IEC 60691		N
	Electrical controls comply with IEC 60730-2-3		N
C3.2	No risk of fire by breaking (clause C7)		N
C.4	General notes on tests		Ν
C.5	Classification		Ν
	a) automatic resetting type		Ν
	b) manual resetting type		N

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Clause	Requirement – Test	Result - Remark	Verdict

	c) non-renewable, non-resetting type	N
	d) renewable, non-resetting type	Ν
	e) other type of thermal protection; description	N
C.6	Marking	N
C6.1	Symbol for temperature declared thermally protected ballasts	N
C6.2	Declaration of the type of protection provided	N
C7	Limitation of heating	Ν
C7.1	Preselection test	Ν
	Test sample placed for at least 12 h in an oven having temperature (tc - 5) K	Ν
	No operation of the protection device	Ν
C7.2	Functioning of protection means	Ν
	Normal operation of the sample in a test enclosure according to Annex D at an ambient temperature such that (tc +0; -5) $^{\circ}C$ is obtained	Ν
	No operation of the protection device	N
	Introducing of the most onerous test condition determined during test of clause 14	N
	Output of windings connected to the mains supply short-circuited, and other part of the controlgear operated under normal conditions	Ν
	Increasing of the current through the windings continuously until operation of the protection means	N
	Continuous measuring of the highest surface temperature	N
	Controlgear according to C5 a) or C5 e) operated until stable conditions are achieved	N
	Automatic-resetting thermal protectors working 3 times	N
	Controlgear according to C5 b) working 6 times	N
	Controlgear according to C5 c) and C5) d) working once	N
	Highest temperature does not exceed the marked value	N
	Any overshoot of 10% over the marked value within 15 min	Ν

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Clause	Requirement – Test	Result - Remark	Verdict

Annex D	REQUIREMENTS FOR CARRY OUT THE HEATING TESTS OF THERMALLY PROTECTED LAMP CONTROLGEAR	
D.1	Test enclosure	N
D.2	Heating of enclosure	N
D.3	Lamp controlgear operating conditions	N
D.4	Lamp controlgear position in the enclosure	Ν
D.5	Temperature measurements	N

Annex E	ANNEX E – USE OF CONSTANT S OTHER THAN 4	1500 IN tw TESTS	
E1	Constant S claimed		Ν
	Claimed test method		Ν
E2	Procedure A		Ν
	Adequate data provided by the manufacturer		Ν
	The inverse of the slope is greater than or equal to the claimed value of S		Ν
	Compliance with the failure criteria for procedure B		Ν
E3	Procedure B		Ν
	Claimed value of T1		Ν
	Claimed value of T2		Ν
	Endurance test carried out at:		Ν
	T1 (7 samples)		Ν
	T2 (7 samples)		Ν
	Duration of test calculated from equation (2)		Ν
	T1		Ν
	T2		Ν
	During the test:		Ν
	- No open circuit		
	- No breakdown insulation		
	The claimed constant S is deemed to be verified		Ν

Annex F	ANNEX F - DRAUGHT-PROOF ENCLOSURE	
	Draught-proof enclosure in accordance with the description	N

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Clause	Requirement – Test	Result - Remark	Verdict

Dimensions of the enclosure	Ν
Other design; description	Ν

Annex G EXPLANATION OF THE DERIVATION OF THE VALUES OF PULSE VOLTAGES ----

Annex H TEST

Annex I (Annex L)	Particular additional requirements for SELV d.c. or a.c. supplied electronic controlgear for LED modules (PARTICULAR ADDITIONAL REQUIREMENTS FOR CONTROLGEARS PROVIDING SELV)			
I.3 (L.3)	Classification			Р
	-Class I	YES 🗌	NO 🖂	
	-Class II	YES 🛛	NO 🗌	
	-Class III	YES 🗌	NO 🖂	
	- non-inherently short circuit proof controlgear	YES 🖂	NO 🗌	
	 inherently short-circuit proof controlgear; 	YES 🗌	NO 🖂	
	 fail-safe controlgear; 	YES 🗌	NO 🖂	
	 non-short-circuit proof controlgear. 	YES 🗌	NO 🖂	
I.4 (L.4)	Marking			Р
	Adequate symbols are used			Р
I.5 (L.5)	Protection against electric shock			Р
	Controlgears providing SELV shall, in addition to the requirements given in 10.3 and 10.4, comply with relevant requirements specified in 9.2 of IEC 61558-1:2005			Р
I.6 (L.6)	Heating			Р
	Compliance is checked by the relevant tests of Clause 14 of IEC 61558-1:2005, but with the following adjustments:			Р
	 Subclause 14.1, 10th paragraph: Replace 10 % by 6 %; 			Р
	– Replace Table 1 by the following Table L.2:			Р
I.7 (L.7)	Short-circuit and overload protection			Р
	Compliance is checked by the relevant tests of Clause 15 of IEC 61558-1:2005, but with the following adjustments:			Р

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Clause	Requirement – Test	Result - Remark	Verdict

	- Subclause 15.1, second paragraph; Replace the		Р
	reference to "14.1" by "L.6" of this annex		I
	- Subclause 15.1, third paragraph after Table 3:		Р
	Replace the reference to "18.3" by "L.8.3" of this		
	– Subclause 15.3.4:		N
	This subclause is not applicable.		IN
	- Subclause 15.5.1, third paragraph:		Р
	Replace the reference to "14.2" by "L.6" of this annex.		
I.8 (L.8)	Insulation resistance and electric strength		Р
1.8.2	Insulation resistance is measured with a d.c.		Р
(L.8.2)	voltage of approximately 500 V applied, the		
	measurement being made 1 min after application of		
	- Between input circuits and output circuits		D
	≥5MΩ	>100 MΩ	Г
	Between metal part of class II convertors which are		Ν
	separated from live parts by basic insulation		
	≥5MO		
	Between metal foil in contact with the inner and		N
	outer surfaces of enclosures of insulating material		
100	$\geq 2M\Omega$		
1.8.3	value of the test voltage and the	Primary circuit and secondary	Р
(L.0.0)		circuit: 3000Vac, no	
		Live part and accessible part	
		3000Vac no breakdown	
	Operation		
1.9 (L.9)			Р
(1.9.1)	The construction of transformers used in controlgears		Р
(Ľ.9.1)	specified in 19.12 of IEC 61558-1:2005		
I.10 (L.10)	Components		Р
	Components used as protective devices in		Р
	controlgears providing SELV shall comply with		
	20.9 20.10 and 20.11 of IEC 61558-1:2005		
1.11 (1.11)	Creepage distances, clearances and distances		Р
	through insulation		•
	Creepage distances, clearances and distances	Primary circuit and secondary	P
	through insulation shall be not less than the values	circuit:	I
	shown in Table 3 and Table L.5.	Cr: 6 8mm Cl: 6 8mm	
		Live part and accessible part:	
		Cr: 6.9mm. Cl: 6.4mm	

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Clause	Requirement – Test	Result - Remark	Verdict

In addition transformers which form an integral part of a controlgear providing SELV shall comply with	Р
Clause 26 of IEC 61558-1:2005	

Annex J	Particular additional safety requirements for a.c.,	a.c./d.c. or d.c. supplied	
()	electronic controlgear for emergency lighting	1	
J.1 ()	General		Ν
J.2 ()	Marking		Ν
J.2.1	Mandatory markings		
	a) symbol of a.c., a.c./d.c. or d.c maintained emergency electronic controlgear	EL	N
	b) rated emergency power supply voltage or voltage range		N
J.2.2	Information to be provided if applicable		N
	a) Limits of the ambient temperature range		Ν
	b) Emergency output factor		N
	c) Information on whether the control gear is intended for use in luminaires for high-risk task area lighting		N
J.3	General notes on tests		N
J.4	Starting conditions		N
	Control gears shall start rated load(s) without adversely affecting the performance when operated in emergency mode		N
J.5	Operating condition		N
	The provisions of 7.2 of IEC 62384:2006 apply at 90 % and 110 % of the rated emergency supply voltage		N
J.6	Emergency supply current		N
	At the rated emergency supply voltage or voltage range, the emergency supply current shall not differ by more than ±15 % from the declared value when the control gear is operated in emergency mode with maximum load power		N
J.7	EMC immunity		N
J.8	Pulse voltage from central battery systems		N
	The d.c. supplied emergency controlgear shall withstand, without failure, any pulses caused by switching other equipment in the same circuit		N
J.9	Tests for abnormal conditions		N

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Clause	Requirement – Test	Result - Remark	Verdict

	The provisions of Clause 12 of IEC 62284:2006	1	
	apply		N
J.10	Temperature cycling test and endurance test		Ν
	The provisions of Clause 13 of IEC 62384:2006 apply		N
J.11	Functional safety		N
	EOFx is measured 5 s and 60 s after switch on of the control gear in emergency mode at maximum emergency supply voltage and at minimum emergency supply voltage		N
	For the calculation of EOFx the lower value of the measurements below is used:		N
	 a) electrical output parameter measured after 60 s at maximum voltage/electrical output parameter measured in reference setting 		N
	b) electrical output parameter measured in steady state conditions at minimum supply voltage/electrical output parameter measured in reference setting		N
	After 5 s of operation with maximum emergency supply voltage at least 50 % of the declared EOFx shall be reached		N

(Annex I) ADDITIONAL REQUIREMENTS FOR BUILT-IN MAGNATIC BALLASTS WITH DOUBLE OR REINFORCED INSULATION

(Annex J) SCHEDULE OF MORE ONEROUS REQUIREMENTS

(Annex K) CONFORMITY TESTING DURING MANUFACTURE

(Annex M)	DIELECTRIC STRENGTH TEST VOLTAGES FOR CONTROLGEAR INTENDED	
	FOR THE USE IN IMPULSE WITHSTAND CATEGORY III	

(Annex N)	REQUIREMENTS FOR INSULATION MATERIALS USED FOR DOUBLE OR REINFORCED INSULATION		
(N.4)	Material requirements	Plastic enclosure	Р
(N.4.1)	The insulation material shall comply with IEC 60085 and the IEC 60216 series.		N
(N.4.2)	The adequacy of solid insulation is verified by the electric strength test (Clause 12) of at least 5 kV or the applicable test voltage specified in Table N.1 multiplied by 1,35, whichever is the greater		Ν
(N.4.3)	Thin sheet insulation		Ν
(N.4.3.1)	Thickness and composition of thin sheet insulation	1.45mm	Р

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Clause	Requirement – Test	Result - Remark	Verdict

(N.4.3.2)	Mandrel test (electric strength test during	N
	mechanical stress)	

(Annex O)	ADDITIONAL REQUIREMENTS FOR BUILT-IN ELE WITH DOUBLE OR REINFORCED INSULATION	CTRONIC CONTROLGEAR	
(O.6)	Marking		N
	Built-in Electronic controlgear with double or reinforced insulation marking		N
(O.7)	Protection against accidental contact with live parts		N
	it shall not be possible for the test finger to make contact with metal parts protected by basic insulation only.		N
(O.8)	Terminals		N
	Clause 8 of this standard applies.		Ν
(O.9)	Provision for earthing		N
	For doubled or reinforced built-in electronic controlgear only functional earthing terminals are permitted. The requirements of Clause 9 of this standard apply to the functional earthing terminals.		N
(O.10)	Moisture resistance and insulation		Ν
	Clause 11 of this standard applies.		N
(O.11)	Electric strength		N
	Clause 12 of this standard applies.		N
(O.13)	Fault conditions		N
	At the end of the tests, when the controlgear has returned to the ambient temperature, shall comply in addition to Clause 0.12 between live part and accessible metal parts or external parts of insulating material in contact with the supporting surface, but with the values of the dielectric strength test reduced to 35 % of the value requested in Table 1.		N
	Furthermore, the insulation resistance according to Clause 0.10 between live part and accessible metal parts or external parts of insulating material in contact with the supporting surface shall not be less than 4 M.		Ν
(O.14)	Construction		N
	All accessible metal parts of the electronic built-in electronic controlgear shall be insulated from live parts by double or reinforced insulation.		N
(O.15)	Creepage distances and clearances		N

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Clause	Requirement – Test	Result - Remark	Verdict

(0.16)	double or reinforced insulation, the corresponding values given for luminaires in EN 60598-1 apply.	N
(0.16)	Screws, current-carrying parts and connections	N
	Clause 17 of this standard applies.	Ν
(0.17)	Resistance to heat and fire	Ν
	Clause 18 of this standard applies.	Ν
(O.18)	Resistance tocorrosion	Ν
	Clause 19 of this standard applies.	N

14	TABLE: tes	ts of fault conditions	Р
Part	Simulated fault	Test result	Hazard
D2	s-c	Fuse open, no flame, no flammable gas, no molten parts, no hazard.	YES /NO
RV1	S-C	Fuse open, no flame, no flammable gas, no molten parts, no hazard.	YES /NO
C5	s-c	Fuse open, no flame, no flammable gas, no molten parts, no hazard.	YES /NO
D6	s-c	Fuse open, no flame, no flammable gas, no molten parts, no hazard.	YES /NO
R25	S-C	Shut down, recoverable, no flame, no flammable gas, no molten parts, recoverable, no hazard.	YES /NO
R12	S-C	Shut down, recoverable, no flame, no flammable gas, no molten parts, recoverable, no hazard.	YES /NO
U1(2-14)	S-C	Fuse open, no flame, no flammable gas, no molten parts, no hazard.	YES /NO
U1(4-6)	S-C	Fuse open, no flame, no flammable gas, no molten parts, no hazard.	YES /NO
U1(13-14)	S-C	Shut down, recoverable, no flame, no flammable gas, no molten parts, recoverable, no hazard.	YES /NO
Q1(G-S)	s-c	Shut down, recoverable, no flame, no flammable gas, no molten parts, recoverable, no hazard.	YES /NO
Q1(G-D)	S-C	Fuse open, no flame, no flammable gas, no molten parts, no hazard.	YES /NO
Q1(D-S)	S-C	Fuse open, no flame, no flammable gas, no molten parts, no hazard.	YES /NO
D7	S-C	Shut down, recoverable, no flame, no flammable gas, no molten parts, recoverable, no hazard.	YES /NO
R21	S-C	Shut down, recoverable, no flame, no flammable gas, no molten parts, recoverable, no hazard.	YES /NO
T1(output)	s-c	Shut down, recoverable, no flame, no flammable gas, no molten parts, recoverable, no hazard.	YES /NO
Output (+&-)	S-C	Shut down, recoverable, no flame, no flammable gas, no molten parts, recoverable, no hazard.	YES /NO

16	TABLE: creepage distances and clearances							Р
	Minimum distances for	Minimum distances for a.c. (50/60 Hz) sinusoidal voltages						
RMS working voltage (V) not exceeding50150250500750					1000			
Creepage distance								
- 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

Clearance						
- Basic insulation PTI	0.2	0.8	1.5	3	4	5.5
- Supplementary insulation PTI		0.8	1.5	3	4	5.5
- Reinforced insulation		1.6	3	6	8	11

	Anne	x 1 Critical component				
object/part No.	Code	manufacturer/trademark	type/model	technical data	standard	mark(s) of conformity
Terminal block	В	CIXI KAIFENG	KF126	300V,10A,- 40-+105°C	EN 60998-1	VDE
Plastic enclosure	В	LG CHEMICAL (GUANGZHOU) ENGINEERING PLASTICS CO LTD	GN-2106F	125°C, V0	UL94, UL746C	UL E224772
Fuse resistor	В	Shenzhen Great Electronics Co. Ltd.	RXF	10Ω, 1W	DIN EN 60065	VDE 40026608
RV1	В	HONGZHI ENTERPRISES LTD	HEL10D47 1	470V,-40~ +105°C		UL E324904
L1,L2,L3	В	ZHONGSHAN CITY CHENGZHI ELECTRONIC FACTORY	PK1016- 332	0.26A,3.3mH	IEC/EN 61347-1 IEC/EN 61347-2-13	Test with appliance
Y Capacitor (CY1, CY2)	В	JYH HSU ELECTRONICS LTD.	Y1	1000pF,400Vac	UL	UL E356696
Transformer T1	В	JIANGMEN IAMINGDA	TREFD25- 011HR	1.15mH	AS/NZS 61347.1 AS/NZS IEC 61347.2.13	test with appliance
-bobbin	В	CHANG CHUN PLASTICS CO LTD	T375J	150°C, V-0	UL94	UL E136137
-Winding	В	DONG GUAN YIDA INDUSTRIAL CO LTD	UEW/155	155°C	ANSI/UL 1446	UL E344055
-Triple insulation wire	В	Young Chang Silicone CO.,Ltd	STW-B	130°C	IEC 60950-1	YUV:B 04 05 3008 001
-Insulation tape	В	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	CT-280B	130°C, V0	UL510	UL 165111
Varnish	В	WU JIANG TAIHU INSULATING MATERIAL CO LTD	ET-90	180°C, V0	ANSI/UL 1446	UL E228349
-Tube	В	SHENZHEN TOKON ELECTRONIC CO.,LTD	WF	200°C,VW-1	ANSI/UL 1446	UL E203950
РСВ	В	GOLDENMAX INTERNATIONAL TECHNOLOGY LTD	ILM-R1	130°C, V-0	UL94, UL796	UL E224772

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

	_			
	Annex 2: Normal temp	I	Р	
	Type reference	······	A03-D0022	Р
	Lamp used	:	LED	Р
	Lamp control gear used	l:		Р
	Mounting position of lur	ninaire:		Р
	Supply wattage (W)		24.6W	Р
	Supply current (A)			Р
	Calculated power factor	·		Р
	Table: Test is be made	under ta: 55℃		Р
	Normal operating mode	:		Р
	- test 1: rated voltage			N
	- test 2: 1.06 times rate	d voltage	1.06x200V~ or 1.06x240V, normal operation	Р
		normal	temperature test	
Temperature(°C) c	of part	Test 1 (℃/K)	Test 2 (℃/K)	Limits (°C/K)
Input terminal		59.5/4.5		105/50
Output terminal			62.3/7.3	105/50
RV1			81.9/26.9	85/30
L1			89.2/34.2	130/75
C5			92.6/37.6	105/50
C6			94.3/39.3	105/50
C7			95.8/55.3	105/50
CY1			110.9/55.9	125/70
CY2			111.7/56.7	125/70
Winding of transformer T1			114.5/59.4	120/65
Bobbin of transform	mer T1		106.7/51.7	120/65
PCB under transfo	ormer T1		90.6/35.6	130/75
CE1			89.2/34.2	105/50
CE2			92.8/37.8	105/50
LF2			96.4/41.4	130/75

Plastic enclosure (inside, above T1)	 84.7/29.7	Ref
Plastic enclosure (outside, above T1)- tc.	 82.5/27.5	80/25
Mounting surface	 67.5/12.5	90/35
Ambient	 55.0	

	Annex 2: Normal temp	Р		
	Type reference		A03-D0022	Р
	Lamp used		LED	Р
	Lamp control gear used	I:		Р
	Mounting position of lur	ninaire		Р
	Supply wattage (W)		23.4W	Р
	Supply current (A)	:		Р
	Calculated power factor	r:		Р
	Table: Test is be made	under tc: 55°C		Р
	Normal operating mode	:		Р
	- test 1: rated voltage	:		N
	- test 2: 1.06 times rate	d voltage	1.06x200V~ or 1.06x240V, normal operation	Р
Towns and we (%o) a	6	normal	temperature test	
Temperature(C) C	or part	Test 1 (℃/K)	Test 2 (℃/K)	Limits (℃/K)
Input terminal			58.2/3.2	105/50
Output terminal			61.1/6.1	105/50
RV1			79.3/24.3	85/30
L1			87.6/32.6	130/75
C5			90.5/35.5	105/50
C6			93.4/38.4	105/50
C7			92.2/37.2	105/50
CY1			96.7/41.7	125/70
CY2			108.6/53.6	125/70
Winding of transfo	rmer T1	107.2/52.2		120/65
Bobbin of transfor	mer T1		102.3/47.3	120/65
PCB under transfo	ormer T1		87.8/32.8	130/75
CE1			83.5/28.5	105/50
CE2			84.6/29.6	105/50

LF2	 91.2/36.2	130/75
Plastic enclosure (inside, above T1)	 84.6/29.6	Ref
Plastic enclosure (outside, above T1)- tc.	 81.3/26.3	80/25
Mounting surface	 63.6/8.6	90/35
Ambient	 55.0	

	Annex 3: Abnormal conditions test						Р
	Type reference			:	A03	-D0022	Р
	Lamp used			:	LED	lamp	Р
	Lamp control gear used						Р
	Mounting positi	on of luminaire		:	See	user manual	Р
	Supply wattage	(W)		:			Р
	Supply current	(A)		:			Р
	Calculated pow	er factor		:			Р
	Table: Test is b	e made under ta: 5	5℃		•		Р
	- test Voltage:1	1.06 times rated voltage 1.1x240V					Р
	Abnormal opera	erating mode					Р
	- test 1: No LED	ED module connected S				t down	Р
	- test 2: Double connected:	the LED modules of	or equivalent	load	Shut down		Р
	- test 3: Output	terminal short-circu	iited	:	Shu	t down	Р
	- test 4: Transfo	ormer overload		:			Р
Tanan and an (°o) a		Abnormal temperature test (Test under the severe)					
Temperature(C) C	or part	Test 1	Test 2	Tes	t 3	Test 4	Limits
		(°C)	(°C)	(℃	C)	(°C)	(°C)
Winding of transfo	rmer T1					119.6	175
Plastic enclosure (T1)- tc.	outside, above					84.3	130
Mounting surface						72.1	130
Ambient						55.0	

Annex 3: Abnormal conditions test				
Type reference	A03-D0022	Р		
Lamp used	LED lamp	Р		

	Lamp control ge	ear used	Р				
	Mounting positi	on of luminaire		:	See	user manual	Р
	Supply wattage	upply wattage (W)					
	Supply current	(A)		:			Р
	Calculated pow	er factor		:			Р
	Table: Test is b	e made under ta: 5	5℃				Р
	- test Voltage:1	.06 times rated volt	age		1.1x	240V	Р
	Abnormal opera	ating mode		:			Р
	- test 1: No LED	D module connected	module connected Shut down				
	- test 2: Double connected:	the LED modules or equivalent load Shut down					Р
	- test 3: Output	terminal short-circu	iited	:	Shu	t down	Р
	- test 4: Transfo	ormer overload		:			Р
_		Abnormal temperature test (Test under the severe)					
Temperature(°C) c	of part	Test 1	Test 2	Tes	t 3	Test 4	Limits
		(°C)	(°C)	(°C)	(°C)	(°C)
Winding of transfo	rmer T1					116.3	175
Plastic enclosure (outside, above T1)- tc.						83.1	130
Mounting surface						70.7	130
Ambient						55.0	

	ANNEX 4: Screw terminals (part of the luminaire)					
14	SCREW TERMINALS	N				
14.2	Type of terminal	_				
	Rated current (A)					
14.3.2.1	One or more conductors	N				
14.3.2.2	Special preparation	N				
14.3.2.3	Terminal size	N				
	Cross-sectional area (mm ²):	N				
14.3.3	Conductor space (mm):	N				
14.4	Mechanical tests	N				
14.4.1	Minimum distance	N				
14.4.2	Cannot slip out	N				
14.4.3	Special preparation	N				

14.4.4	Nominal diameter of thread (metric ISO thread):					
	External wiring					
	No soft metal		Ν			
14.4.5	Corrosion					
14.4.6	Nominal diameter of thread (mm)		Ν			
	Torque (Nm):		Ν			
14.4.7	Between metal surfaces		Ν			
	Lug terminal		Ν			
	MAntle terminal		Ν			
	Pull test; pull (N):		Ν			
14.4.8	Without undue damage	No damage	Ν			

	ANNEX 5: Screwless terminals (part of the		
15	SCREWLESS TERMINALS		
15.2	Type of terminal:		
	Rated current (A):		
15.3.1	Material		N
15.3.2	Clamping		N
15.3.3	Stop		N
15.3.4	Unprepared conductors		N
15.3.5	Pressure on insulating Material		N
15.3.6	Clear connection method		N
15.3.7	Clamping independently		N
15.3.8	Fixed in position	Fixed on PCB	N
15.3.10	Conductor size		N
	Type of conductor		N
15.5.1	Terminals internal wiring		N
15.5.1.1	Pull test spring-type terminals (4 N, 4 samples)		N
15.5.1.2	Pull test pin or tab terminals (4 N, 4 samples)		N
	Insertion force not exceeding 50 N		N
15.5.2	Permanent connections: pull-off test (20 N)		N
15.6	Electrical tests		
	Voltage drop (mV) after 1 h (4 samples) :		N

	Voltage drop of two inseparable joints								Ν	
	Number of cycles								Ν	
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples):								Ν	
	Voltage drop (mV) after 50th alt. 100th cycle (4 samples)								N	
	After ageing, voltage drop (mV) after 10th alt. 25 th cycle (4 samples)								Ν	
	After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples)								Ν	
15.7	Terminals external wiring								Ν	
	Terminal	size and r	ating							Ν
15.8.1	Pull test s pull (N)	pring-type	e termina	ls (4 sam	ples);					N
	Pull test pin or tab terminals (4 samples); pull (N)								N	
15.9	Contact re	esistance	test							Ν
	Voltage drop (mV) after 1 h									N
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Voltage d	rop of two	insepara	able joints	6					
	Voltage drop after 10th alt. 25th cycle									
	Max. allow	ved voltag	je drop (r	mV)	:					—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Voltage d	rop after 5	0th alt. 1	00 th cycl	e					•
	Max. allow	ved voltag	je drop (r	mV)	:					_
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Continue	d ageing: \	/oltage d	rop after	10th alt.	25th cyc	le			
	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									
	Max. allowed voltage drop (mV):							—		
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										

	ANNEX 5: EMF test result according to EN 62493:2015					
4.2.d	MEASUREMENT RESULTS					
	Measuring with "Van der Hoofden" test head					
	EUT operation model: Normal operation Other operation:					
	Voltage:	AC200-240V	Frequency:	50/60Hz		
	Temperature:	25°C	Humidity:	55% R.H.		
	Location of EuT	Measuring distance (cm)	Result (F)	Limit (F)	Verdict	
	A03-D0022	50	0.0364	0.85	Р	

ANNEX A Photo











-The end of report-