



TEST REPORT IEC 60968 and/or EN 60968 Luminaires Part 1: General Requirements And Tests	
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Applicant's name	Fobsun Electronics Limited
Address	4F, Building A6, Tianrui Industrial Park, Fuyuan 1st. Rd., Fuyong Town, Bao'an Dist., 518103, Shenzhen, China
Test specification:	
Standard	<input checked="" type="checkbox"/> IEC 60968:88 (1st Edition) + A1:91 + A2:99 and/or <input type="checkbox"/> EN 60968:90 (1st Edition) + A1:93 + A2:99
Test procedure	GTS
Non-standard test method.....	N/A
Test Report Form No	IECEN 60598_2_1C
Test Report Form(s) Originator	SGS Fimko Ltd.
Master TRF	Dated 2007-06
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This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.	
Test item description	LED Light Bulbs
Trade Mark	N/A
Manufacturer	Same as applicant
Manufacturer Address	Same as applicant
Model/Type reference	FLB-TC-E17 (Note: See next page for more types and their differences declaration)
Ratings	AC 100V, 50/60Hz, 3W, class II, IP20

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Summary of testing:**Testing location:**

Global United Technology Services Co., Ltd.

2nd Floor, Block No.2, Laodong Industrial Zone, Xixiang Road Baoan District, Shenzhen, China 518102

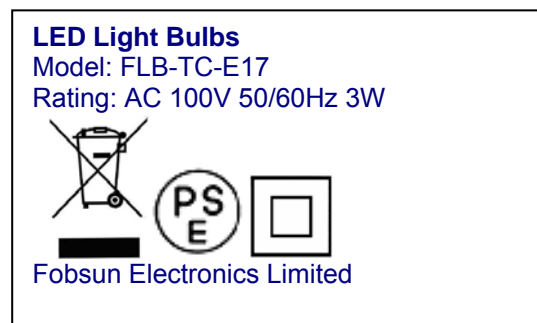
Tests performed (name of test and test clause):

- IEC 60968:88 (1st Edition) + A1:91 + A2:99 in combination with following parts
- IEC 60598-1:2008
- IEC 61347-1:2007 & IEC 61347-2-13:2006
- IEC 62031:2008

The submitted samples were found to comply with the requirements of above test specification.

Summary of compliance with National Differences:

Compliance with the National requirements of CENELEC common modification.

Copy of marking plate**Differences Declaration**

The product model(s) FLB-TC-E17, FLB-FC-E17, FLB-FF-E17, FLB-TF-E17, FLB-FD-3W-E17 is(or are) identical in the PCB layout, interior structure and electrical circuits with the model FLB-FD-E17 which tested in Global United Technology Services Co., Ltd., the only differences are the model name, heat sink appearance, glass cover and lighting color for commercial purpose.

Unless otherwise specified, the model FLB-TC-E17 was chosen as representative model performing all the tests.

Test item particulars	
Lamp cap	E14
Lamp identification	Self-ballasted LED light bulb
Commission received from	applicant

Possible test case verdicts:	
- test case does not apply to the test object.....	N (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	25 June , 2012
Date(s) of performance of tests	26 June, 2012 to 29 June, 2012


General remarks:

This report shall not be reproduced except in full without the written approval of the testing laboratory. The test results presented in this report relate only to the item(s) tested.

"(see appendix #)" 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

IEC/EN 60968			
Clause	Requirement + Test	Result – Remark	Verdict
3	SAFETY REQUIREMENTS		P
4	MARKING		P
4.1	1) Mark of origin		P
	2) Rated voltage/voltage range (V)	AC 110V	P
	3) Rated wattage (W)	3W	P
	4) Rated frequency (Hz)	50/60Hz	P
4.2	1) Lamp current (A)		N
	2) Burning position if restricted	Not restricted	N
	3) The mechanical stress caused by the weight of the lamp in the luminaire		N
	4) Special conditions or restrictions observed for lamp operation; operation in dimming circuits		N
	Not suitable for dimming; symbol used 	Not suitable for dimming, given in instructions	P
4.3	1) Presence and legibility of the marking by visual inspection		P
	2) The durability of the marking is checked by rubbing lightly with water and hexane for 15 s	Making not damage	P
	3) Availability of information by visual inspection		P
5	INTERCHANGEABILITY		P
5.1	Interchangeability shall be ensured by the use of caps in accordance with IEC 60061-1	See below	P
5.2	Compliance of the combination of cap and bulb is checked by the use of gauges		P
	B22d or B15d:		N
	A max. and A min. gauge 7006-10/11		N
	D1 max. gauge 7006-10/11		N
	N min. gauge 7006-10/11		N
	Diametrical position of the pins:		N
	Insertion in lampholder gauge 7006-4A		N
	Retention in lampholder gauge 7006-4B		N
	E27:		N
	Max. dimension of the screw thread gauge 7006-27B		N
	Min. major diameter of the screw thread gauge 7006-28A		N
	Contact making gauge 7006-50		N
	E26:		N

IEC/EN 60968			
Clause	Requirement + Test	Result – Remark	Verdict
	Max. dimensions of the screw thread 7006-27D		N
	Max. major diameter of the screw thread 7006-27E		N
	E14:		P
	Max. dimensions of the screw thread 7006-27F		P
	Min. major diameter of the screw thread 7006-28B		P
	Contact making 7006-54		P
5.3	Mass not exceeding 1 kg	0.085kg	P
	Bending moment not exceeding 2 Nm	Less than 2Nm	P

6	PROTECTION AGAINST ELECTRIC SHOCK		P
	Lamps shall be so constructed that no internal metal parts or live parts are accessible, when the lamps is installed in a prescribed lampholder. Compliance is checked by means of the standard test finger with force of 10N	10N force, no hazard	P
	Edison screw caps compliance with gauge IEC 60061-3, sheet 7006-51A for E27 caps		P
	and sheet 7006-55 for E14 caps		N
	B22 or B15 caps compliances with normal incandescent lamps		N
	External metal parts shall be so designed that live parts are not accessible (test of Cl. 7)		P

7	INSULATION RESISTANCE AND ELECTRIC STRENGTH AFTER HUMIDITY TREATMENT		P
7.1	After storage 48 h at a 91~95 % relative humidity and at 20~30 °C	93%, 25°C, 48h	P
	Insulation resistance with 500 V d.c., required $\geq 4M\Omega$.	$>4M\Omega$.	P
7.2	Immediately after the insulation resistance test, electric strength test for 1 min.		P
	Type HV (220 ... 250 V): 4000 V rms		N
	Type BV (100 ... 120 V): 2xU + 1000 V	1200Vrms	P
	No flashover or breakdown	No breakdown	P

8.	MECHANICAL STRENGTH		P
	Torsion resistance		P
	The cap is remain firmly attached when subjected to torque levels	Test holders of Figure 2	P
	- B22d..... 3 Nm :		N
	- B15d..... 1,15 Nm:		N
	- E26 and E27 3 Nm:		N
	- E14 1,15 Nm:	Test and passed	P

IEC/EN 60968			
Clause	Requirement + Test	Result – Remark	Verdict
	Torque increased continuously from zero to specified value		P
	Uncemented caps; relative movement between cap and bulb does not exceed 10°	Cap cemented	N
	After mechanical strength test sample complies requirements of accessibility		P

9	CAP TEMPERATURE RISE		P
	Cap temperature rise ΔT_S not exceeding the condition specified in IEC 60360:		P
	- B22d 125 K:		N
	- B15d 120 K:		N
	- E27 120 K:		N
	- E14 120 K:	6.1 K	P
	- E26 under consideration		N

10	RESISTANCE TO HEAT		P
	External parts of insulating material providing protection against electric shock, and parts of insulating material retaining live parts in position, ball pressure test:		P
	Part tested; temperature (°C); diameter of impression (≤ 2 mm) :	Enclosure; 125°C, 1.59mm	P
	Part tested; temperature (°C); diameter of impression (≤ 2 mm)..... :	Bobbin of T1; 125°C, 1.0mm	P
	Part tested; temperature (°C); diameter of impression (≤ 2 mm)..... :	PCB: 125°C, 0.2mm	P

11	RESISTANCE TO FLAME AND IGNITION		P
	Parts of insulating material retaining live parts in position and external parts of insulating material providing protection against electric shock, glow-wire test 650 °C	650°C glow-wire test	P
	Part tested; temperature (°C) :	Enclosure	P
	Part tested; temperature (°C).. :	Bobbin	P
	Part tested; temperature (°C) :	PCB	P
	No visible flame and no sustained glowing		P
	Flames and glowing, extinguish within 30 s.....:	No flame	P
	No ignition of the tissue paper		P
12	FAULT CONDITIONS		P
	a) In a switch-start circuit, the starter is short-circuited	No starter	N
	b) Short-circuit across capacitors	(See appended table 12)	P

IEC/EN 60968			
Clause	Requirement + Test	Result – Remark	Verdict
	c) The lamp does not start, because one of the cathodes is broken	No cathodes, self-ballasted bulb only	N
	d) The lamp does not start, although the cathode circuits are intact (de-activated lamp)	No cathodes, self-ballasted bulb only	N
	e) The lamp operates, but one of the cathodes is de-activated or broken (rectifying effect)	No cathodes, self-ballasted bulb only	N
	f) Opening or bridging other points in the circuit where the diagram indicates that such a fault condition may impair safety	(See appended table 12)	P

	COMMON MODIFICATIONS (EN 60968:1990)		N
5, 6, 8 and 9	Delete all references to E26 lamp caps		N

ANNEX 1	components					P
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity	
Chip resistors	Yageo	RC1206	1/4 W, zero Ohm Jumper < 0.05 Ω, 200V, 2.0A	--	Tested with appliance	
Optical coupler	Everlight Electronics Co., Ltd	EL357N	Int. Cr / Ext. Cr / Dti.: ≥6,0 / ≥7,6 / ≥0,4 mm; 110°C	EN 60747-5-2	VDE 132249	
Internal wire	Various	1007	VW-1, 300V, 80 °C, 24 AWG	--	UL	
Transformer	SOBSUN	FB-TG3W- 018	N1:2UEW-N φ 0.12mm×1C, 180T N2:2UEW-N φ 0.12mm×1C,9T N3:2UEW-N φ 0.25mm×1C,22T	--	Tested with appliance	
- Primary winding	Various	Various	Class B, 130 °C	--	UL	
- Triple wire	FURUKAWA ELECTRIC CO LTD	TEX-E	130 °C, ClassB	--	UL E206440	
- Bobbin	CHANG CHUN PLASTICS CO LTD	T375J	94-V0, 150 °C	--	UL E59481	
- Insulation tape	Various	Various	VW-1	--	UL	
PCB	Various	Various	V-0, 130 °C	--	UL	

IEC/EN 60968					
Clause	Requirement + Test			Result – Remark	Verdict
Enclosure	BAYER MATERIALSCIENCE AG	6557 + (z)(f1)	V-2, 115 °C	--	UL E41613
LED module	Leiri optoelectronics co., Ltd	LR-TS2835PWE 1	3.0-3.4V, 20/30mA, 105 °C, Daylight White: 5500K-7000K	--	Tested with appliance

ANNEX 2:	temperature measurements, thermal tests of Section 12 of IEC 60598-1					P
Type reference	FLB-TC-E17				---	
Lamp used.....	LED Light Bulbs				---	
Lamp control gear used	integrated				---	
Mounting position of luminaire	As in normal use				---	
Supply wattage (W).....	3W				---	
Supply current (A)	--				---	
Calculated power factor	--				---	
Table: measured temperatures corrected for $t_a = 25\text{ °C}$: (Note: Corrected to the ambient temperature of 25 °C according to product instruction)					N	
- abnormal operating mode	--				---	
- test 1: rated voltage	--				---	
- test 2: 1,06 times rated voltage or 1,05 times rated wattage.....	Test 1 : $100 \times 1.06 = 106\text{V}$				---	
- 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 looping-in wiring loaded by a current of A during the test	--				---	
temperature (°C) of part	Clause 12.4 – normal				Clause 12.5 – abnormal	
	test 1	test 2	test 3	limit	test 4	limit
Ambient	28.6	--	--	--	--	--
Lamp cap	34.7	--	--	145	--	--
Plastic enclosure	37.2	--	--	115	--	--
T1 winding	57.4	--	--	130	--	--
T1 bobbin	56.2	--	--	150	--	--
Internal wire	57.3	--	--	80	--	--
U1 body (Optical coupler)	57.2	--	--	110	--	--

IEC/EN 60968			
Clause	Requirement + Test	Result – Remark	Verdict

12	TABLE : tests of fault conditions				P
Part	0.9-1,1xUn	short-circuited	dis-connected	Observations	Hazard YES/NO
1	110V/50Hz	U1 pin 3-4	-	0.006A, 0.05W Unit shut down immediately, No damage	No
2	110V/50Hz	T1 pin 6-10	-	0.008A, 0.06W Unit shut down immediately, No damage	No
3	110V/50Hz	C2	-	0A, 0W F1 opened	No
4	110V/50Hz	Q1 Pin G-D	-	0A, 0W F1 opened	No
5	110V/50Hz	Q1 Pin G-S	-	0A, 0W F1 opened	No
6	110V/50Hz	DB1 1-4	-	0A, 0W F1 opened	No

Appendix
Photo documentation

Overall



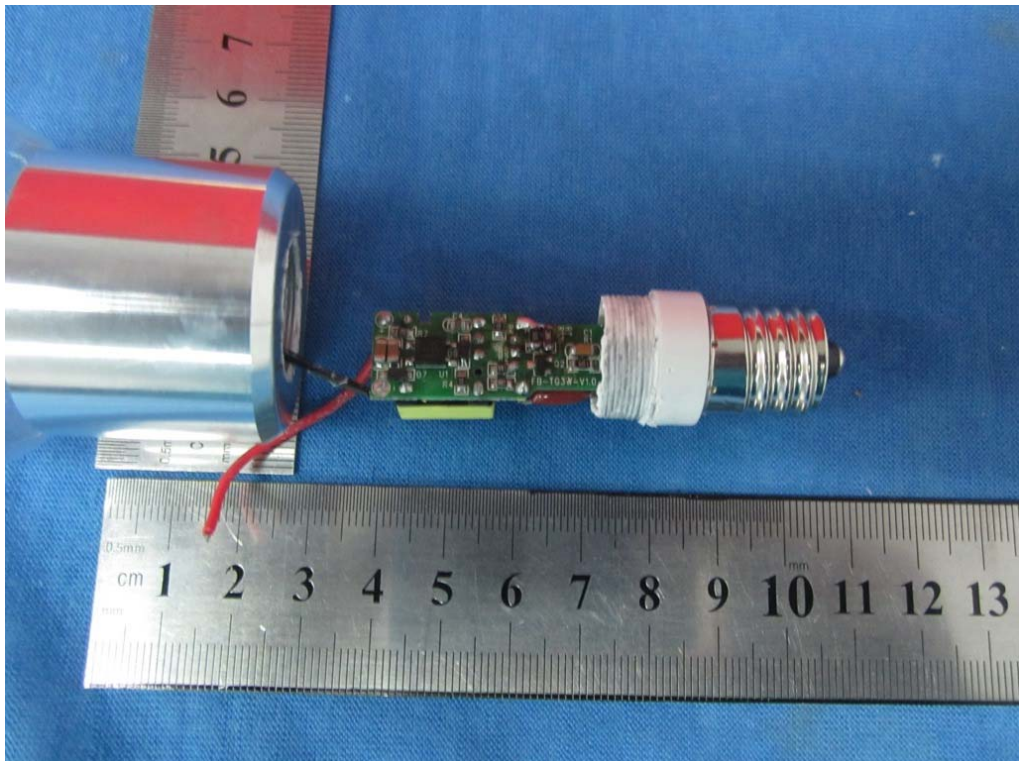
Overall



Internal



Internal



IEC 61347-2-13			
Clause	Requirement + Test	Result – Remark	Verdict
4 (4)	CLASSIFICATION		—
	Compliance of independent controlgear enclosure with EN 60 598-1		N
	Independent SELV controlgear comply with Annex I	(see Annex I)	N
6 (6)	CLASSIFICATION		—
	Independent controlgear.....	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	Built-in controlgear	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	Integral controlgear	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	SELV-equivalent or isolating controlgear	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	Auto-wound controlgear	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	Independent SELV controlgear	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
7	Marking		N
	Requirements not applicable to the evaluated product.		—
8 (10)	PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS		—
- (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
- (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
- (A3)	The voltage between the part concerned and any accessible part is measured and does not exceed 34 V (peak)		N
- (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		N
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		P

IEC 61347-2-13			
Clause	Requirement + Test	Result – Remark	Verdict
8.2 (-)	Exposed terminals of SELV or SELV-equivalent controlgear are allowed if: - the rated or maximum output voltage does not exceeding 25 V r.m.s. - the no-load output voltage does not exceed 30 V r.m.s. or $33 \sqrt{2}$ V peak	SELV:AC 20.8V measured	P
	Insulated terminals if rated output voltage >25 V		N
	One capacitor Y1 or two capacitors Y2 of the same values used in series between SELV or SELV-equivalent output and primary circuits - Capacitor complying with IEC 60384-14 - Other components bridging the separating transformer complying with IEC 60065, clause 14		N
9 (8)	TERMINALS		N
	Requirements not applicable to the evaluated product.		—
10 (9)	PROVISION FOR EARTHING		N
	Requirements not applicable to the evaluated product.		—
11 (11)	MOISTURE RESISTANCE AND INSULATION		—
	After storage 48 h at 91-95% relative humidity and 20-30 °C measuring of insulation resistance with d.c. 500 V (MΩ): ≥ 2 MΩ	500 MΩ	P
	Adequate insulation between input and output terminals not bounded together in SELV-equivalent controlgear		P
	For double or reinforced insulation the resistance exceed 4 MΩ	500 MΩ	P
12 (12)	ELECTRIC STRENGTH		—
	Immediately after clause 11 electric strength test for 1 min		P
	Working voltage ≤ 42 V, test voltage 500 V		N
	Working voltage > 42 V, test voltage (V): $2U+1000$ V	1200V	P
	Reinforced insulation, test voltage (V):	3150V	P
	No flashover or breakdown		P
	Windings in separating transformers in SELV-equivalent control gear according to 14.3.2 of EN 60065		P

IEC 61347-2-13			
Clause	Requirement + Test	Result – Remark	Verdict
13 (13)	THERMAL ENDURANCE FOR WINDINGS (Not applicable)		—
14 (14)	FAULT CONDITIONS		—
	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
	Fault conditions: capacitors, resistors or inductors without proof of compliance with relevant specifications have been short-circuited or disconnected	(see appended table)	P
- (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)		P
	Distances on printed boards provided with coating according to IEC 60664-3		N
- (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		P
- (14.4)	Short-circuit across electrolytic capacitors	(see appended table)	P
- (14.5)	During the tests, a five-layer tissue paper, where the test specimen is wrapped, does not ignite		P
	After the tests the insulation resistance with d.c. 500 V (MΩ) are ≥ 1 MΩ	500 MΩ	P
	Temperature declared thermally protected controlgear fulfil the requirements in Annex C		N
15	TRANSFORMER HEATING		N
	Requirements not applicable to the evaluated product.		—
16	ABNORMAL CONDITIONS		N
	Requirements not applicable to the evaluated product.		—
17 (15)	CONSTRUCTION		—
	Socket-outlet in the output circuit does not accept plugs complying with IEC 60083 and IEC 60906		N
	Not possible to engage plugs accepted by socket-outlet in the output circuit with socket-outlets complying with IEC 60083 and IEC 60906		N

IEC 61347-2-13			
Clause	Requirement + Test	Result – Remark	Verdict
- (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 of IEC 61347-1		P
18 (16)	CREEPAGE DISTANCES AND CLEARANCES		—
	Creepage distances and clearances according to Table 3 and 4, as appropriate	(see appended table)	P
	Printed boards see clause 14 of IEC 61347-1		P
	Insulating lining of metallic enclosures		N
19 (17)	SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS		—
	Screws, current-carrying parts and connections in compliance with IEC 60598-1 (clause numbers between parentheses refer to IEC 60598-1)		P
20 (18)	RESISTANCE TO HEAT, FIRE AND TRACKING		—
(18.1)	Parts of insulating material retaining live parts in position, ball-pressure test:		—
	- part; test temperature (°C)	Bobbin of T1; 125°C, 1.0mm	P
	- part; test temperature (°C)	PCB: 125°C, 0.2mm	P
	- part; test temperature (°C)		N
	- part; test temperature (°C).....		N
(18.2)	Printed boards in accordance with IEC 60249-1, 4.3		N
(18.3)	External parts of insulating material preventing electric shock glow-wire test 650 °C		N
	- part tested (°C).....		N
(18.4)	Parts of insulating material retaining live parts in position, needle-flame test 10 s:		P
	- part tested (°C).....	Bobbin	P
	- part tested (°C).....	PCB	P
	- part tested (°C).....		N
	- flame extinguished within 30 s	No flame	P
	- no flaming drops igniting tissue paper		P
(18.5)	Tracking test		N
21 (19)	RESISTANCE TO CORROSION		N
	Requirements not applicable to the evaluated product.		—

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

14	TABLE: tests of fault conditions		—
Part	Simulated fault		Hazard
U1 pin 3-4	110V, Short circuit, 0.006A, 0.05W, Unit shut down immediately, No damage		NO
T1 pin 6-10	110V, Short circuit, 0.008A, 0.06W, Unit shut down immediately, No damage		NO
C2	110V, Short circuit, 0A, 0W, F1 opened		NO
Q1 Pin G-D	110V, Short circuit, 0A, 0W, F1 opened		NO
Q1 Pin G-S	110V, Short circuit, 0A, 0W, F1 opened		NO
DB1 1-4	110V, Short circuit, 0A, 0W, F1 opened		NO
+/- LED module	110V, Short circuit, 0.009A, 0.82W unit shut down, can recoverable.		NO

Working voltage:

Component	From	To	V peak		V rms	
FLB-TC-E17						
Transformer	Pin 1	Pin 6	156	-	71.4	-
Transformer	Pin 1	Pin 10	158	-	66.7	-
Transformer	Pin 2	Pin 6	155	-	71.6	-
Transformer	Pin 2	Pin 10	166	-	67.5	-
Transformer	Pin 3	Pin 6	314	-	134	-
Transformer	Pin 3	Pin 10	292	-	122	-
Transformer	Pin 5	Pin 6	168	-	77.1	-
Transformer	Pin 5	Pin 10	186	-	79.2	-
U1	Pin 1	Pin 3	168	-	72.5	-
U1	Pin 1	Pin 4	169	-	73.4	-
U1	Pin 2	Pin 3	168	-	72.3	-
U1	Pin 2	Pin 4	169	-	73.2	-

18 (16)	TABLE: creepage distances and clearances						P
	Minimum distances for a.c. (50/60 Hz) sinusoidal voltages						
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.	--	2.3	--	--	--	--	

Attachment No. 1

IEC 61347-2-13						
Clause	Requirement + Test	Result – Remark				Verdict
2.	minimum distances between live parts and accessible parts which are permanently fixed to the lamp control gear, including screws or devices for fixing covers or fixing the lamp control gear to its support. Specify the value measured.	--	>3.2	--	--	--
3.	minimum distances for ballasts declared protected against accidental contact between live parts and the outer accessible surface of insulating parts	--	--	--	--	--
4	PCB under CY1 or Optical coupler	--	5.0	--	--	--
5	Between primary circuit and secondary circuit	--	5.0	--	--	--
6	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	--	--	-	--	--
7	minimum distances between two terminals of thermal cut-off	--	2.3	--	--	--
	-required creepage distances (mm), Basic insulation PTI ≥ 600	--	--	--	--	--
	-required creepage distances (mm), Basic insulation PTI < 600	1,2	1,6	2,5	--	--
	-required creepage distances (mm), Supplementary insulation PTI ≥ 600	--	--	--	--	--
	-required creepage distances (mm), Supplementary insulation PTI < 600	--	1,6	2,5	--	--
	-required creepage distances (mm), Reinforced insulation	--	3.2	5.0	--	--
1.	minimum distances between live parts of different polarity. Specify the value measured.	--	2.3	--	--	--
2.	minimum distances between live parts and accessible parts which are permanently fixed to the lamp control gear, including screws or devices for fixing covers or fixing the lamp control gear to its support. Specify the value measured.	--	>3.2	--	--	--
3.	minimum distances for ballasts declared protected against accidental contact between live parts and the outer accessible surface of insulating parts	--	--	--	--	--
4	PCB under CY1 or Optical coupler	--	5.0	--	--	--
5	Between primary circuit and secondary circuit	--	5.0	--	--	--

Attachment No. 1

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

6 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	--	--	-	--	--	--	--
7 minimum distances between two terminals of thermal cut-off	--	--	4.5	--	--	--	--
-required clearance distances (mm), Basic insulation	0,2	1.4	1,7	3	4	5,5	
-required clearance distances (mm), Supplementary insulation	--	1.4	1,7	3	4	5,5	
-required clearance distances (mm), Reinforced insulation	--	2.8	3.4	6	8	11	
Minimum distances for non-sinusoidal pulse voltages							
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)	11	14	18	25	33	40	60
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	-	-	-	-	-	-	-

A	ANNEX A (NORMATIVE), TEST TO ESTABLISH WHETHER A CONDUCTIVE PART IS A LIVE PART WHICH MAY CAUSE AN ELECTRIC SHOCK	N
	Requirements not applicable to the evaluated product.	—

C	ANNEX C – PARTICULAR REQUIREMENTS FOR ELECTRONIC LAMP CONTROLGEAR WITH MEANS OF PROTECTION AGAINST OVERHEATING	N
	Requirements not applicable to the evaluated product.	—

E	ANNEX E – USE OF CONSTANT S OTHER THAN 4500 IN tw TESTS	N
	Requirements not applicable to the evaluated product.	—

F	ANNEX F - DRAUGHT-PROOF ENCLOSURE	—
	Draught-proof enclosure in accordance with the description	P

IEC 61347-2-13			
Clause	Requirement + Test	Result – Remark	Verdict
	Dimensions of the enclosure		P
	Other design; description		N
H	ANNEX H - TESTS		—
	All tests performed in accordance with the advise 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		N
	Requirements not applicable to the evaluated product.		—
- (20)	NO-LOAD OUTPUT VOLTAGE		—
	No load output voltage no differ more than 10% from rated voltage.		N

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Clause	Requirement + Test	Result – Remark	Verdict
4	GENERAL REQUIREMENTS		—
4.4	Integral modules treated as part of luminaires defined in clause 0.5 of IEC 60598-1	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
4.5	Independent modules complies with requirements in IEC 60598-1	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
5	GENERAL TEST REQUIREMENTS		—
5.5	SELV-operated LED modules comply with Annex I of IEC 61347-2-13	(see Annex B)	—
6	CLASSIFICATION		
	Built-in module	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	Independent module	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	Integral module	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	For Integral module; Note to 1.2.1 in IEC 60598-1 applies.		—
7	MARKING		N
	Requirements not applicable to the evaluated product.		—
8	SCREW TERMINALS		—
	Compliance with section 14 of IEC 60598-1		N
	SCREWLESS TERMINALS		—
	Compliance with section 15 of IEC 60598-1		P
	CONNECTORS		—
	Compliance with IEC 60838-2-2		N
9	PROVISION FOR PROTECTIVE EARTHING		N
	Requirements not applicable to the evaluated product.		—
8 (10)	PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS		N
	Requirements not applicable to the evaluated product.		—
11	MOISTURE RESISTANCE AND INSULATION		—
	Protection against moisture and insulation in compliance with Clause 11, IEC 61347-1		P

IEC 62031			
Clause	Requirement + Test	Result – Remark	Verdict
12	ELECTRIC STRENGTH		—
	Electric strength in compliance with Clause 12 of IEC 61347-1		P
13	FAULT CONDITIONS		—
13.1	In compliance with IEC 61347-1 (clause numbers between parentheses refer to IEC 61347-1)		P
13.2	Module withstands overpower condition >15 min.		P
	Module with automatic protective device or power limiter, test performed 15 min. at limit.		N
	During the tests, tissue paper, spread below module, does not ignite.		P
15	CONSTRUCTION		—
	Wood, cotton, silk, paper and similar fibrous material not used as insulation		P
16	CREEPAGE DISTANCES AND CLEARANCES		—
	Creepage and distances and clearances in compliance with IEC 60598-1		P
17 (17)	SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS		—
	Screws, current-carrying parts and connections in compliance with IEC 60598-1		P
18 (18)	RESISTANCE TO HEAT, FIRE AND TRACKING		—
	Resistance to Heat, Fire and Tracking in compliance with IEC 61347-1 (clause numbers between parentheses refer to IEC 61347-1)		P
19	RESISTANCE TO CORROSION		—
	Resistance to corrosion in compliance with IEC 61347-1		N
A	ANNEX A - TESTS		—
	All tests performed in accordance with the advise given in Annex H of IEC 61347-1, if applicable		P
B	ANNEX B - SELV-operated LED modules		—
	SLVE-operated LED modules in compliance with Annex I of IEC 61347-2-13		N