

LVD Test Report

Application No. : TB13035196
Applicant : BREE LIGHTING Co., LIMITED

Equipment Under Test (EUT)

EUT Name : Led Flood Light
Model No. : BR-FL-10W-01-PIR
BR-FL-10W, BR-FL-20W, BR-FL-30W, BR-FL-50W,
BR-FL-70W, BR-FL-100W, BR-FL-120W, BR-FL-140W,
Serial No. : BR-FL-20W-01-PIR, BR-FL-30W-01-PIR, BR-FL-50W-01-PIR,
BR-FL-10W-01-RGB, BR-FL-20W-01-RGB, BR-FL-30W-01-RGB,
BR-FL-60W-01-RGB.
Brand Name : BREE LIGHTING
Issue Date : 2013-2-25
Standards : EN 60598-2-3:2003
EN 60598-1: 2008 + A11: 2009
Conclusions : **PASS**

This report shows that the product technically complies with the Council LVD Directive **2006/95/EC** requirements.

Report by : *Fanny Chen*

Checked by : *Aaron Zhai*

Approved by : *Jinghui Zhang*



This test report is valid for above tested sample only and shall not be reproduced in part without written approval of the laboratory.

TEST REPORT IEC/EN 60598-2-3 Luminaires Part 2: Particular requirements: Section Three – Luminaires for road and street lighting	
Report Reference No.	TB-LVD136837
Date of issue	Feb. 25, 2013
Total number of pages	33
Testing Laboratory	Shenzhen Toby Technology Co., Ltd.
Address	10/F., A Block, Jiada R & D Bldg., No.5 Songpingshan Road, Science & Technology Park, Nanshan District, Shenzhen, China
Applicant's name	BREE LIGHTING Co., LIMITED
Address	Bld. M & J, Maoyuan Industrial, Zhangkenjing Xiawei, Guanlan, Bao'an, Shenzhen, China
Test specification:	
Standard	<input type="checkbox"/> IEC 60598-2-3:2002 used in conjunction with <input checked="" type="checkbox"/> EN 60598-2-3:2003+A1: 2011 used in conjunction with <input type="checkbox"/> IEC 60598-1:2008 <input checked="" type="checkbox"/> EN 60598-1: 2008 + A11: 2009
Test procedure	LVD
Non-standard test method	N/A
Test Report Form No.	IEC/EN 60598_2_3G
Test Report Form(s) Originator:	Intertek Semko AB
Master TRF	2009-03
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Test item description	Led Flood Light
Trade Mark :	BREE LIGHTING
Manufacturer :	Same as applicant
Factory :	Same as applicant
Model/Type reference :	BR-FL-10W -01-PIR (See the page 4 for models differences information)
Ratings :	Pri: AC220-240 V, 280mA, 50-60Hz, 10W

Summary of testing:

Testing location:

Shenzhen Toby Technology Co., Ltd.

10/F., A Block, Jiada R & D Bldg., No.5 Songpingshan Road, Science & Technology Park, Nanshan District, Shenzhen, China

Tests performed (name of test and test clause):

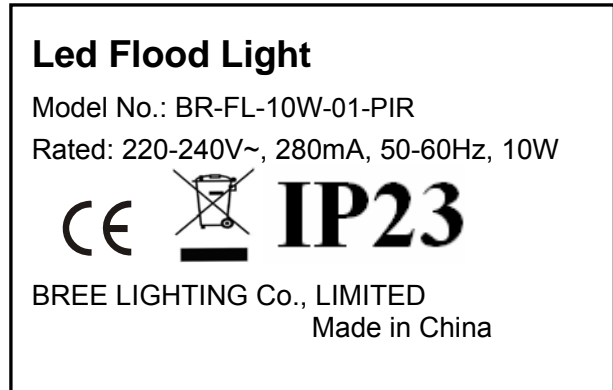
EN 60598-2-3:2003+A1: 2011 used in conjunction with EN 60598-1: 2008 + A11: 2009

Summary of compliance with National Differences:

Compliance with the National requirements of CENELEC common modification.

Copy of marking plate

Location: sticking on the pedestal of luminaire.



Model	Rated Voltage/ Frequency	Power
BR-FL-10W-01-PIR	AC 220-240V 50-60 Hz	10W
BR-FL-10W		10W
BR-FL-20W		20W
BR-FL-30W		30W
BR-FL-50W		50W
BR-FL-70W		70W
BR-FL-100W		100W
BR-FL-120W		120 W
BR-FL-140W		140 W
BR-FL-20W-01-PIR		20 W
BR-FL-30W-01-PIR		30 W
BR-FL-50W-01-PIR		50 W
BR-FL-10W-01-RGB		10 W
BR-FL-20W-01-RGB		20 W
BR-FL-30W-01-RGB		30 W
BR-FL-60W-01-RGB		60 W

Unless otherwise specified, the model BR-FL-10W-01-PIR was chosen as representative model to perform all tests.


Test item particulars	
Equipment mobility.....	Fixed
Class of equipment.....	Class I
Degree of protection	IP23
Mass of the equipment.....	Appr. 0.75kg
Supply construction.....	Directly connect to supply mains
Possible test case verdicts:	
- test case does not apply to the test object:	N/A
- test object does meet the requirement.....	P (Pass)
- test object does not meet the requirement:	F (Fail)
Testing	
Date of receipt of test item	Feb. 17, 2013
Date (s) of performance of tests.....	Feb. 18, 2013 to Feb. 22, 2013
General remarks:	
<p>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 clause in EN 60598-1</p>	
General product information:	
LED flood light, consists of two parts, one is lamp, the other is ballast, for outdoor use only.	

EN 60598-1: 2008+A11: 2009 & EN 60598-2-3: 2003+A1: 2011.			
Clause	Requirement + Test	Result - Remark	Verdict

3.2 (0)	GENERAL TEST REQUIREMENTS		P
3.2 (0.1)	Information for luminaire design considered	Standard Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
3.2 (0.3)	More sections applicable	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—

3.4 (2)	CLASSIFICATION		P
3.4 (2.2)	Type of protection (Class 0 excluded).....	Fulfill requirements of Class I	—
3.4 (2.3)	Degree of protection (Requirement: Ordinary) . :		—
3.4 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	Luminaire not suitable for direct mounting on normally flammable surfaces	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
3.4 (2.5)	Luminaire for normal use	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	Luminaire for rough service	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
3.4 (-)	Modes of installation of road or street lighting		—
	- on a pipe (bracket) or like	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	- on a mast arm	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	- on a post top	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	- on span or suspension wires	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	- on a wall	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—

3.5 (3)	MARKING		P
3.5 (3.2)	Mandatory markings	See marking plate	P
	Position of the marking	See marking plate	P
	Format of symbols/text		P
3.5 (3.3)	Additional information		P
	Language of instructions	English	P
3.5 (3.3.1)	Combination luminaires		N
3.5 (3.3.2)	Nominal frequency in Hz	50/60Hz	P
3.5 (3.3.3)	Operating temperature		N
3.5 (3.3.4)	Symbol or warning notice		N
3.5 (3.3.5)	Wiring diagram		N
3.5 (3.3.6)	Special conditions		N
3.5 (3.3.7)	Metal halide lamp luminaire – warning		N

EN 60598-1: 2008+A11: 2009 & EN 60598-2-3: 2003+A1: 2011.			
Clause	Requirement + Test	Result - Remark	Verdict
3.5 (3.3.8)	Limitation for semi-luminaires		N
3.5 (3.3.9)	Power factor and supply current	280mA	P
3.5 (3.3.10)	Suitability for use indoors		N
3.5 (3.3.11)	Luminaires with remote control		N
3.5 (3.3.12)	Clip-mounted luminaire – warning		N
3.5 (3.3.13)	Specifications of protective shields		N
3.5 (3.3.14)	Symbol for nature of supply		P
3.5 (3.3.15)	Rated current of socket outlet		N
3.5 (3.3.16)	Rough service luminaire		N
3.5 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments	Type Y	P
3.5 (3.3.18)	Non-ordinary luminaires with PVC cable		N
3.5 (3.3.19)	Protective conductor current in instruction if applicable		N
3.5 (3.3.20)	Provided with information if not intended to be mounted within arms reach		N
3.5 (3.4)	Test with water		P
	Test with hexane		P
	Legible after test		P
	Label attached		P
3.5 (-)	Additional information in instruction leaflet		P
	Design attitude		P
	Weight		P
	Overall dimensions		P
	Maximum projected area if applicable		N
	Cross-sectional area of wires if applicable		N
	Suitability for indoors use		N
	Dimensions of the compartment		N
	Torque setting to be applied to bolts or screws		N

3.6 (4)	CONSTRUCTION		P
3.6 (4.2)	Components replaceable without difficulty		P
3.6 (4.3)	Wireways smooth and free from sharp edges		P
3.6 (4.4)	Lampholders		N
3.6 (4.4.1)	Integral lampholder		N

EN 60598-1: 2008+A11: 2009 & EN 60598-2-3: 2003+A1: 2011.			
Clause	Requirement + Test	Result - Remark	Verdict
3.6 (4.4.2)	Wiring connection		P
3.6 (4.4.3)	Lampholder for end-to-end mounting		P
3.6 (4.4.4)	Positioning		P
	- pressure test (N)		N
	After test the lampholder comply with relevant standard sheets and show no damage		P
	After test on single-capped lampholder the lampholder have not moved from its position and show no permanent deformation		N
	- bending test (N)		P
	After test the lampholder have not moved from its position and show no permanent deformation		P
3.6 (4.4.5)	Peak pulse voltage		N
3.6 (4.4.6)	Centre contact		N
3.6 (4.4.7)	Parts in rough service luminaires resistant to tracking		N
3.6 (4.4.8)	Lamp connectors		N
3.6 (4.4.9)	Caps and bases correctly used		N
3.6 (4.5)	Starter holders		N
	Starter holder in luminaires other than class II		N
	Starter holder class II construction		N
3.6 (4.6)	Terminal blocks		N
	Tails		N
	Unsecured blocks		N
3.6 (4.7)	Terminals and supply connections		N
3.6 (4.7.1)	Contact to metal parts		N
3.6 (4.7.2)	Test 8 mm live conductor		N
	Test 8 mm earth conductor		N
3.6 (4.7.3)	Terminals for supply conductors		P
3.6 (4.7.3.1)	Welded connections:		P
	- stranded or solid conductor		N
	- spot welding		N
	- welding between wires		N
	- Type Z attachment		N
	- mechanical test according to 15.8.2		N
	- electrical test according to 15.9		N

EN 60598-1: 2008+A11: 2009 & EN 60598-2-3: 2003+A1: 2011.			
Clause	Requirement + Test	Result - Remark	Verdict
	- heat test according to 15.9.2.3 and 15.9.2.4		N
3.6 (4.7.4)	Terminals other than supply connection		N
3.6 (4.7.5)	Heat-resistant wiring/sleeves		N
3.6 (4.7.6)	Multi-pole plug		N
	- test at 30 N		N
3.6 (4.8)	Switches:		P
	- adequate rating		P
	- adequate fixing		N
	- polarized supply		N
	- compliance with 61058-1 for electronic switches		P
3.6 (4.9)	Insulating lining and sleeves		P
3.6 (4.9.1)	Retainment		N
	Method of fixing		N
3.6 (4.9.2)	Insulated linings and sleeves		P
	Resistant to a temperature > 20 °C to the wire temperature or		P
	a) & c) Insulation resistance and electric strength		N
	b) Ageing test. Temperature (°C)		N
3.6 (4.10)	Insulation of Class II luminaires		N
3.6 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation		N
	Safe installation fixed luminaires		N
	Capacitors and switches		N
	Interference suppression capacitors according to IEC 60384-14		N
3.6 (4.10.2)	Assembly gaps:		P
	- not coincidental		P
	- no straight access with test probe		P
3.6 (4.10.3)	Retainment of insulation:		N
	- fixed		N
	- unable to be replaced; luminaire inoperative		N
	- sleeves retained in position		N
	- lining in lampholder		N
3.6 (4.11)	Electrical connections		P
3.6 (4.11.1)	Contact pressure		P

EN 60598-1: 2008+A11: 2009 & EN 60598-2-3: 2003+A1: 2011.			
Clause	Requirement + Test	Result - Remark	Verdict
3.6 (4.11.2)	Screws:		P
	- self-tapping screws	0.5N.m for lamp cap and terminal block, 1.N.m for lampholder,	P
	- thread-cutting screws		N
3.6 (4.11.3)	Screw locking:		N
	- spring washer		N
	- rivets		N
3.6 (4.11.4)	Material of current-carrying parts		P
3.6 (4.11.5)	No contact to wood or mounting surface		N
3.6 (4.11.6)	Electro-mechanical contact systems		N
3.6 (4.12)	Mechanical connections and glands		N
3.6 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		N
	Torque test: torque (Nm); part	Screw diameter for enclosure: 3.9mm Test torque:1.2Nm	P
	Torque test: torque (Nm); part		N
	Torque test: torque (Nm); part		N
3.6 (4.12.2)	Screws with diameter < 3 mm screwed into metal		N
3.6 (4.12.4)	Locked connections:		N
	- fixed arms; torque (Nm)		N
	- lampholder; torque (Nm)		N
	- push-button switches; torque 0,8 Nm		N
3.6 (4.12.5)	Screwed glands; force (Nm)		N
3.6 (4.13)	Mechanical strength		P
3.6 (4.13.1)	Impact tests:		P
	- fragile parts; energy (Nm).....	.0.5N.m for transparent cover	P
	- other parts; energy (Nm)	0.7N.m for pedestal	P
	1) live parts		P
	2) linings		P
	3) protection		P
	4) covers		P
3.6 (4.13.3)	Straight test finger		P
3.6 (4.13.4)	Rough service luminaires		N

EN 60598-1: 2008+A11: 2009 & EN 60598-2-3: 2003+A1: 2011.			
Clause	Requirement + Test	Result - Remark	Verdict
	- IP54 or higher		N
	a) fixed		N
	b) hand-held		N
	c) delivered with a stand		N
	d) for temporary installations and suitable for mounting on a stand		N
3.6 (4.13.6)	Tumbling barrel		N
3.6 (4.14)	Suspensions and adjusting devices		N
3.6 (4.14.1)	Mechanical load:		N
	A) four times the weight		N
	B) torque 2,5 Nm		N
	C) bracket arm; bending moment (Nm)		N
	D) load track-mounted luminaires		N
	E) clip-mounted luminaires, glass-shelve. Thickness (mm)		N
	Metal rod. diameter (mm)		N
	Fixed luminaire or independent control gear without fixing devices		N
3.6 (4.14.2)	Load to flexible cables		N
	Mass (kg)		N
	Stress in conductors (N/mm ²)		N
	Mass (kg) of semi-luminaire		N
	Bending moment (Nm) of semi-luminaire		N
3.6 (4.14.3)	Adjusting devices:		N
	- flexing test; number of cycles		N
	- strands broken		N
	- electric strength test afterwards		N
3.6 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors		N
3.6 (4.14.5)	Guide pulleys		N
3.6 (4.14.6)	Strain on socket-outlets		N
3.6 (4.15)	Flammable materials:		N
	- glow-wire test 650 °C		N
	- spacing ≥ 30 mm		N
	- screen withstanding test of 13.3.1		N
	- screen dimensions		N
	- no fiercely burning material		N

EN 60598-1: 2008+A11: 2009 & EN 60598-2-3: 2003+A1: 2011.			
Clause	Requirement + Test	Result - Remark	Verdict
	- thermal protection		N
	- electronic circuits exempted		N
3.6 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		N
	a) construction		N
	b) temperature sensing control		N
	c) surface temperature		N
3.6 (4.16)	Luminaires for mounting on normally flammable surfaces		P
	No lamp control gear	(compliance with Section 12)	P
3.6 (4.16.1)	Lamp control gear spacing:		N
	- spacing 35 mm		N
	- spacing 10 mm		N
3.6 (4.16.2)	Thermal protection:		N
	- in lamp control gear		N
	- external		N
	- fixed position		N
	- temperature marked lamp control gear		N
3.6 (4.16.3)	Design to satisfy the test of 12.6	(see 12.6)	N
3.6 (4.17)	Drain holes		N
	Clearance at least 5 mm		N
3.6 (4.18)	Resistance to corrosion:		P
3.6 (4.18.1)	- rust-resistance		P
3.6 (4.18.2)	- season cracking in copper		N
3.6 (4.18.3)	- corrosion of aluminium		N
3.6 (4.19)	Ignitors compatible with ballast		N
3.6 (4.20)	Rough service vibration		N
3.6 (4.21)	Protective shield:		N
3.6 (4.21.1)	Shield fitted		N
	Shield of glass if tungsten halogen lamps		N
3.6 (4.21.2)	Particles from a shattering lamp not impair safety		N
3.6 (4.21.3)	No direct path		N
3.6 (4.21.4)	Impact test on shield		N
	Glow-wire test on lamp compartment		N
3.6 (4.22)	Attachments to lamps		N
3.6 (4.23)	Semi-luminaires comply Class II		N

EN 60598-1: 2008+A11: 2009 & EN 60598-2-3: 2003+A1: 2011.			
Clause	Requirement + Test	Result - Remark	Verdict
3.6 (4.24)	UV radiation for tungsten halogen lamps and metal halide lamps (Annex P)		N
3.6 (4.25)	No sharp point or edges		P
3.6 (4.26)	Short-circuit protection:		N
3.6 (4.26.1)	Uninsulated accessible SELV parts		N
3.6 (4.26.2)	Short-circuit test		N
3.6 (4.26.3)	Test chain according to Figure 29		N
3.6.1 (-)	At least IP X3 or X5 respectively		P
	Column-integrated luminaires:		P
	- parts below 2,5 m		N
	- parts above 2,5 m		N
3.6.2 (-)	Suspension on span wires		N
3.6.3 (-)	Means for attaching the luminaire or external parts to its support appropriate to the weight		N
3.6.3.1 (-)	Static load test		N
	- drag coefficient..... :		N
	- loaded area (m ²)..... :		N
	- used load (N)..... :		N
	- measured deformation (cm/m) :		N
	- no rotation		N
3.6.4 (-)	Adjustable lampholders		N
3.6.5 (-)	Glass cover:		P
	- means of protection..... :		P
	- number of particles..... :		P
3.6.6 (-)	Connection compartment of column-integrated luminaire		N
	- provides adequate space		N
	- means for attachment		N
3.6.7 (-)	Compliance with :		N
3.6.8 (-)	Doors of column-integrated luminaires:		N
	- corrosion resistance		N
	- opening only possible for an authorized person		N
	- impact test		N
3.6.9 (-)	Column-integrated luminaire:		N
	- dimension of the entry slot (mm)..... :		N
	- cable path from the slot to the connection compartment (mm) :		N

EN 60598-1: 2008+A11: 2009 & EN 60598-2-3: 2003+A1: 2011.			
Clause	Requirement + Test	Result - Remark	Verdict
	- cable path free from obstruction that might cause abrasion of the cable		N

3.7 (11)	CREEPAGE DISTANCES AND CLEARANCES		P
	Working voltage (V).....:	220-240V~, 50/60Hz,	—
	Voltage form	Sinusoidal <input checked="" type="checkbox"/> Non-sinusoidal <input type="checkbox"/>	—
	PTI	< 600 <input checked="" type="checkbox"/> ≥ 600 <input type="checkbox"/>	—
	Impulse withstand category (Normal category II) (Category III Annex U)	Category II <input type="checkbox"/> Category III <input type="checkbox"/>	—
	Rated pulse voltage (kV).....:	--	—
	(1) Current-carrying parts of different polarity: cr (mm); cl (mm).....:	L and N: Cr=3.2mm (limit 2.5mm); Cl=2.8mm (limit 1.5mm);	P
	(2) Current-carrying parts and accessible parts: cr (mm); cl (mm).....:	L and N to enclosure (PTI<600): Cr=2.86mm (2.5mm); Cl=2.64mm (1.5mm);	P
	(3) Parts becoming live due to breakdown of basic insulation and metal parts: cr (mm); cl (mm).....:		N
	(4) Outer surface of cable where it is clamped and metal parts: cr (mm); cl (mm).....:		N
	(5) Not used		—
	(6) Current-carrying parts and supporting surface: cr (mm); cl (mm).....:		P

3.8 (7)	PROVISION FOR EARTHING		P
3.8 (7.2.1 + 7.2.3)	Accessible metal parts		P
	Metal parts in contact with supporting surface		P
	Resistance < 0,5 Ω	0.15Ω	P
	Self-tapping screws used		N
	Thread-forming screws		N
	Thread-forming screw used in a groove		N
	Earth makes contact first		P
3.8 (7.2.2 + 7.2.3)	Earth continuity in joints etc.		P

EN 60598-1: 2008+A11: 2009 & EN 60598-2-3: 2003+A1: 2011.			
Clause	Requirement + Test	Result - Remark	Verdict
3.8 (7.2.4)	Locking of clamping means		N
	Compliance with 4.7.3		N
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N
3.8 (7.2.5)	Earth terminal integral part of connector socket		P
3.8 (7.2.6)	Earth terminal adjacent to mains terminals		N
3.8 (7.2.7)	Electrolytic corrosion of the earth terminal		P
3.8 (7.2.8)	Material of earth terminal		P
	Contact surface bare metal		P
3.8 (7.2.10)	Class II luminaire for looping-in		N
	Double or reinforced insulation to functional earth		N
3.8 (7.2.11)	Earthing core coloured green-yellow		P
	Length of earth conductor		P
3.8.1 (-)	Attachment prevented from rotation		P

3.9 (14)	SCREW TERMINALS		N
	Separately approved; component list	(see Annex 1)	N
	Part of the luminaire	(see Annex 3)	N

3.9 (15)	SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS		N
	Separately approved; component list	(see Annex 1)	N
	Part of the luminaire	(see Annex 4)	N

3.10 (5)	EXTERNAL AND INTERNAL WIRING		P
3.10 (5.2)	Supply connection and external wiring		P
3.10 (5.2.1)	Means of connection		P
3.10 (5.2.2)	Type of cable.....		N
	Nominal cross-sectional area (mm ²).....		N
	Cables equal to IEC 60227 or IEC 60245		N
3.10 (5.2.3)	Type of attachment, X, Y or Z	Type Y	P
3.10 (5.2.5)	Type Z not connected to screws		N
3.10 (5.2.6)	Cable entries:		P
	- suitable for introduction		P
	- adequate degree of protection		N

EN 60598-1: 2008+A11: 2009 & EN 60598-2-3: 2003+A1: 2011.			
Clause	Requirement + Test	Result - Remark	Verdict
3.10 (5.2.7)	Cable entries through rigid material have rounded edges		N
3.10 (5.2.8)	Insulating bushings:		N
	- suitably fixed		N
	- material in bushings		N
	- material not likely to deteriorate		N
	- tubes or guards made of insulating material		N
3.10 (5.2.9)	Locking of screwed bushings		N
3.10 (5.2.10)	Cord anchorage:		N
	- covering protected from abrasion		N
	- clear how to be effective		N
	- no mechanical or thermal stress		N
	- no tying of cables into knots etc.		N
	- insulating material or lining		N
3.10 (5.2.10.1)	Cord anchorage for type X attachment:		N
	a) at least one part fixed		N
	b) types of cable		N
	c) no damaging of the cable		N
	d) whole cable can be mounted		N
	e) no touching of clamping screws		N
	f) metal screw not directly on cable		N
	g) replacement without special tool		N
	Glands not used as anchorage		N
	Labyrinth type anchorages		N
3.10 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment	type Y	P
3.10 (5.2.10.3)	Tests:		P
	- impossible to push cable; unsafe		P
	- pull test: 25 times; pull (N).....: 60N		P
	- torque test: torque (Nm): 0.25 Nm		P
	- displacement \leq 2 mm	0.2mm	P
	- no movement of conductors		p
	- no damage of cable or cord		p
3.10 (5.2.11)	External wiring passing into luminaire		P
3.10 (5.2.12)	Looping-in terminals		N

EN 60598-1: 2008+A11: 2009 & EN 60598-2-3: 2003+A1: 2011.			
Clause	Requirement + Test	Result - Remark	Verdict
3.10 (5.2.13)	Wire ends not tinned		P
	Wire ends tinned: no cold flow		N
3.10 (5.2.14)	Mains plug same protection		N
	Class III luminaire plug		N
3.10 (5.2.16)	Appliance inlets (IEC 60320)		N
	Appliance couplers of class II type		N
3.10 (5.2.17)	No standardized interconnecting cables properly assembled		N
3.10 (5.2.18)	Used plug in accordance with		N
	- IEC 60083		N
	- other standard		N
3.10 (5.3)	Internal wiring		P
3.10 (5.3.1)	Internal wiring of suitable size and type	Approved by UL	P
	Through wiring		P
	- not delivered/ mounting instruction		N
	- factory assembled		N
	- socket outlet loaded (A)		N
	- temperatures	(see Annex 2)	P
	Green-yellow for earth only		P
3.10 (5.3.1.1)	Internal wiring connected directly to fixed wiring		P
	Cross-sectional area (mm ²)	0.75mm ² (18AWG)	P
	Insulation thickness	0.4mm minimum	P
	Extra insulation added where necessary		N
3.10 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		N
	Adequate cross-sectional area and insulation thickness		N
3.10 (5.3.1.3)	Double or reinforced insulation for class II		N
3.10 (5.3.1.4)	Conductors without insulation		N
3.10 (5.3.1.5)	SELV current-carrying parts		P
3.10 (5.3.1.6)	Insulation thickness other than PVC or rubber		N
3.10 (5.3.2)	Sharp edges etc.		P
	No moving parts of switches etc.		P

EN 60598-1: 2008+A11: 2009 & EN 60598-2-3: 2003+A1: 2011.			
Clause	Requirement + Test	Result - Remark	Verdict
	Joints, raising/lowering devices		N
	Telescopic tubes etc.		N
	No twisting over 360°		N
3.10 (5.3.3)	Insulating bushings:		N
	- suitable fixed		N
	- material in bushings		N
	- material not likely to deteriorate		N
	- cables with protective sheath		N
3.10 (5.3.4)	Joints and junctions effectively insulated		N
3.10 (5.3.5)	Strain on internal wiring		P
3.10 (5.3.6)	Wire carriers		N
3.10 (5.3.7)	Wire ends not tinned		P
	Wire ends tinned: no cold flow		N
3.10.1 (-)	Cord anchorage if applicable		P
	- pull test: 25 times; pull (N).....:		P
	- torque test: torque (Nm)		P

3.11 (8)	PROTECTION AGAINST ELECTRIC SHOCK		P
3.11 (8.2.1)	Live parts not accessible with standard test finger		P
	Basic insulated parts not used on the outer surface without appropriate protection		P
	Basic insulated parts not accessible with standard test finger on portable and adjustable luminaires		N
	Basic insulated parts not accessible with Ø 50 mm probe from outside, within arms reach, on wall-mounted luminaires		P
	Lamp and starterholders in portable and adjustable luminaires comply with double or reinforced insulation requirements		N
	Basic insulation only accessible under lamp or starter replacement		N
	Protection in any position		P
	Double-ended tungsten filament lamp		N
	Insulation lacquer not reliable		N
	Double-ended high pressure discharge lamp		N
	Relevant warning according to 3.2.18 fitted to the luminaire		N

EN 60598-1: 2008+A11: 2009 & EN 60598-2-3: 2003+A1: 2011.			
Clause	Requirement + Test	Result - Remark	Verdict
3.11 (8.2.2)	Portable luminaire adjusted in most unfavourable position		N
3.11 (8.2.3.a)	Class II luminaire:		N
	- basic insulated metal parts not accessible during starter or lamp replacement		N
	- basic insulation not accessible other than during starter or lamp replacement		N
	- glass protective shields not used as supplementary insulation		N
3.11 (8.2.3.b)	BC lampholder of metal in class I luminaires shall be earthed		P
3.11 (8.2.3.c)	Class III luminaires with exposed SELV parts:		N
	Ordinary luminaire:		N
	- touch current		N
	- no-load voltage.....		N
	Other than ordinary luminaire:		N
	- nominal voltage		N
3.11 (8.2.4)	Portable luminaire:		N
	- protection independent of supporting surface		N
	- terminal block completely covered		N
3.11 (8.2.5)	Compliance with the standard test finger or relevant probe		P
3.11 (8.2.6)	Covers reliably secured		P
3.11 (8.2.7)	Discharging of capacitors $\geq 0,5 \mu\text{F}$		N
	Portable plug connected luminaire with capacitor		N
	Other plug connected luminaire with capacitor		N
	Discharge device on or within capacitor		N
	Discharge device mounted separately		N

3.12 (12)	ENDURANCE TEST AND THERMAL TEST		P
3.12 (12.3)	Endurance test:		P
	- mounting-position.....	As in normal use (this test was performed directly supplied by power source)	—
	- test temperature (°C).....		—
	- total duration (h).....	240	—
	- supply voltage: Un factor; calculated voltage (V)	1.06*240=254.4V	—

EN 60598-1: 2008+A11: 2009 & EN 60598-2-3: 2003+A1: 2011.			
Clause	Requirement + Test	Result - Remark	Verdict
	- lamp used.....:		—
3.12 (12.3.2)	After endurance test:		P
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to track system		N
	- marking legible		P
	- no cracks, deformation etc.		P
3.12 (12.4)	Thermal test (normal operation)		P
3.12 (12.5)	Thermal test (abnormal operation)		P
3.12 (12.6)	Thermal test (failed lamp control gear condition):		N
3.12 (12.6.1)	Through wiring or looping-in wiring loaded by a current of (A)		—
	- case of abnormal conditions.....:		—
	- electronic lamp control gear		N
	- measured winding temperature (°C): at 1,1 Un		—
	- measured mounting surface temperature (°C) at 1,1 Un.....:		N
	- calculated mounting surface temperature (°C)		N
	- track-mounted luminaires		N
3.12 (12.6.2)	Temperature sensing control		N
	- case of abnormal conditions.....:		—
	- thermal link		N
	- manual reset cut-out		N
	- auto reset cut-out		N
	- measured mounting surface temperature (°C):		P
	- track-mounted luminaires		N
3.12 (12.7)	Thermal test (failed lamp control gear in plastic luminaires):		N
3.12 (12.7.1)	Luminaire without temperature sensing control		N
3.12 (12.7.1.1)	Luminaire with fluorescent lamp ≤ 70W		N
	Test method 12.7.1.1 or Annex V.....:		—
	Test according to 12.7.1.1:		N
	- case of abnormal conditions		—
	- Ballast failure at supply voltage (V)		—
	- Components retained in place after the test		N

EN 60598-1: 2008+A11: 2009 & EN 60598-2-3: 2003+A1: 2011.			
Clause	Requirement + Test	Result - Remark	Verdict
	- Test with standard test finger after the test		
	Test according to Annex V:		N
	- case of abnormal conditions		—
	- measured winding temperature (°C): at 1,1 Un:		—
	- measured temperature of fixing point/exposed part (°C): at 1,1 Un		—
	- calculated temperature of fixing point/exposed part (°C).....		—
	Ball-pressure test:		N
	- part tested; temperature (°C)		N
	- part tested; temperature (°C)		N
3.12 (12.7.1.2)	Luminaire with discharge lamp, fluorescent lamp > 70W, transformer > 10 VA		N
	- case of abnormal conditions		—
	- measured winding temperature (°C): at 1,1 Un:		—
	- measured temperature of fixing point/exposed part (°C): at 1,1 Un		—
	- calculated temperature of fixing point/exposed part (°C).....		—
	Ball-pressure test:		N
	- part tested; temperature (°C)		N
	- part tested; temperature (°C)		N
3.12 (12.7.1.3)	Luminaire with short circuit proof transformers ≤ 10 VA		N
	- case of abnormal conditions		—
	- Components retained in place after the test		N
	- Test with standard test finger after the test		N
3.12 (12.7.2)	Luminaire with temperature sensing control		N
	- thermal link	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
	- manual reset cut-out	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
	- auto reset cut-out	Yes <input type="checkbox"/> No <input type="checkbox"/>	—
	- case of abnormal conditions		—
	- highest measured temperature of fixing point/exposed part (°C):		—
	Ball-pressure test:		N
	- part tested; temperature (°C)		N

EN 60598-1: 2008+A11: 2009 & EN 60598-2-3: 2003+A1: 2011.			
Clause	Requirement + Test	Result - Remark	Verdict
	- part tested; temperature (°C)		N
3.12.1 (-)	Temperature reduction if for outdoor use only		N
3.12.2 (-)	Tests order for luminaires with > IP 20		N

3.13 (9)	RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE		P
3.13 (9.2)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP		—
	- mounting position during test	As in normal use	—
	- fixing screws tightened; torque (Nm)	--	—
	- tests according to clauses	Clause 9.2	—
	- electric strength test afterwards		P
	a) no deposit in dust-proof luminaire		N
	b) no talcum in dust-tight luminaire		P
	c) no trace of water on current-carrying parts or SELV parts or where it could become a hazard		P
	d) i) For luminaires without drain holes – no water entry		P
	d) ii) For luminaires with drain holes – no hazardous water entry		N
	e) no water in watertight luminaire		N
	f) no contact with live parts (IP 2X)	IP23	P
	f) no entry into enclosure (IP 3X and IP 4X)		N
	f) no contact with live parts (IP3X and IP4X)		N
	g) no trace of water on part of lamp requiring protection from splashing water		P
	h) no damage of protective shield or glass envelope		P
3.13 (9.3)	Humidity test 48 h		P
3.13.1 (-)	Tests order for luminaires with > IP 20		—

3.14 (10)	INSULATION RESISTANCE AND ELECTRIC STRENGTH		—
3.14 (10.2.1)	Insulation resistance test		P
	Cable or cord covered by metal foil or replaced by a metal rod of mm Ø		—
	Insulation resistance (MΩ)		—
	SELV:		P

EN 60598-1: 2008+A11: 2009 & EN 60598-2-3: 2003+A1: 2011.			
Clause	Requirement + Test	Result - Remark	Verdict
	- between current-carrying parts of different polarity.....:	>500MΩ	P
	- between current-carrying parts and mounting surface	>500MΩ	P
	- between current-carrying parts and metal parts of the luminaire.....:	>500MΩ	P
	Other than SELV:		P
	- between live parts of different polarity	>500MΩ	P
	- between live parts and mounting surface	>500MΩ	P
	- between live parts and metal parts.....:	>500MΩ	P
	- between live parts of different polarity through action of a switch.....:		N
3.14 (10.2.2)	Electric strength test		P
	Dummy lamp		N
	Luminaires with ignitors after 24 h test		N
	Luminaires with manual ignitors		N
	Test voltage (V):		N
	SELV:		P
	- between current-carrying parts of different polarity.....:	500V	P
	- between current-carrying parts and mounting surface	500V	P
	- between current-carrying parts and metal parts of the luminaire.....:	500V	P
	Other than SELV:		P
	- between live parts of different polarity	2*240+1000=1480V	P
	- between live parts and mounting surface	4*240+2000=2960V	P
	- between live parts and metal parts.....:	2*240+1000=1480V	P
	- between live parts of different polarity through action of a switch.....:		N
3.14 (10.3)	Touch current (mA)	0.135 mA	P

3.15 (13)	RESISTANCE TO HEAT, FIRE AND TRACKING		-
3.15 (13.2.1)	Ball-pressure test:		P
	- part tested; temperature (°C)	Bobbin of T1: 125°C	P
	- part tested; temperature (°C)	PCB of ballast: 125°C	P
	- part tested; temperature (°C)		N

EN 60598-1: 2008+A11: 2009 & EN 60598-2-3: 2003+A1: 2011.			
Clause	Requirement + Test	Result - Remark	Verdict
	- part tested; temperature (°C)		N
	- part tested; temperature (°C)		N
	- part tested; temperature (°C)		N
3.15 (13.3.1)	Needle flame test (10 s):		P
	- part tested	Bobbin of T1: 125°C	P
	- part tested	PCB of ballast: 125°C	P
	- part tested	L1 bobbin	P
	- part tested		N
	- part tested		N
	- part tested		N
3.15 (13.3.2)	Glow-wire test (650°C):		P
	- part tested	Insulation tape of T1	P
	- part tested		N
	- part tested		N
	- part tested		N
3.15 (13.4.1)	Tracking test: part tested		N

EN 60598-1: 2008+A11: 2009 & EN 60598-2-3: 2003+A1: 2011.

Clause	Requirement + Test	Result - Remark	Verdict
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ANNEX 1: components					
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity
Internal wire	Various	Various	VW-1, 300V, 80 °C, 22/18 AWG	--	UL
Supply cord	Various	HO5RN-F	3*0.75mm2, 300/500V	--	VDE
Fuse (F1)	Various	Various	F1AL, 250 VAC,	EN 60127-1 EN 60127-3	VDE
CY1 capacitor	Various	Various	2200Uf, 250 VAC, 100C, Y1	IEC 60384-14: 2005 EN 60384-14: 2005	VDE
Transformer (T1)	--	--	Class B	EN 61347-1 EN 61347-2-13	UL
- Primary winding	Various	Various	Polyurethane, 130 °C	--	UL
-Triple wire	Various	Various	130 °C	--	UL
- Bobbin	Various	Various	Phenolic; V-0, 130 °C, thicknes 0.4 mm minimum	--	UL
-Insulation tape	Various	Various	130 °C	UL 510	UL
PCB of driver	Various	Various	V-0; 130 °C	--	UL
Transparent cover	Various	Various	HB, 50 °C min.	--	UL

Input				Output			
Voltage (V)	Freq. (Hz)	Current (mA)	Power (W)	Voltage (V)		Current (A)	
				Load	No-load	Load	No-load
BR-FL-10W							
220	50	276	10.2	--	--	--	--
220	60	273	10.1	--	--	--	--
240	50	264	9.8	--	--	--	--
240	60	267	9.9	--	--	--	--

EN 60598-1: 2008+A11: 2009 & EN 60598-2-3: 2003+A1: 2011.						
Clause	Requirement + Test			Result - Remark		Verdict
	ANNEX 2: temperature measurements, thermal tests of Section 12					P
	Type reference	:		BR-FL-10W-01-PIR		---
	Lamp used	:				---
	Lamp control gear used	:		Electronic driver		---
	Mounting position of luminaire	:		As in normal use		---
	Supply wattage (W)	:		10W		---
	Supply current (A)	:		280mA		---
	Calculated power factor	:		--		---
	Table: measured temperatures corrected for $t_a = 40\text{ }^\circ\text{C}$:					P
	- abnormal operating mode	:		--		---
	- test 1: rated voltage:		220V		---
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage:		240*1.06=254.4V		---
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage:		--		---
	- test 4: 1,1 times rated voltage or 1,05 times rated wattage:		--		---
	Through wiring or looping-in wiring loaded by a current of A during the test:		--		---
	temperature ($^\circ\text{C}$) of part	Clause 12.4 – normal			Clause 12.5 – abnormal	
		test 1 220V	test 2 254.4V	test 3	limit	test 4
						limit
	Internal wire	30.5	32.5	--	80	--
	Surface of E-cap(C1)	55.8	58.4	--	105	--
	PCB under T1	76.8	77.4	--	130	--
	Winding(T1)	82.1	79.5	--	120	--
	Bobbin	73.6	70.2	--	Ref.	--
	Surface of Y-Cap	52.3	48.8	--	105	--
	Metal enclosure	45.2	43.0	--	90	--
	Transparent cover outer surface	44.0	42.5	--	90	--
	Testing ambient	25.1	25.3	--	--	--

EN 60598-1: 2008+A11: 2009 & EN 60598-2-3: 2003+A1: 2011.

Clause	Requirement + Test	Result - Remark	Verdict
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	ANNEX 3: 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)		N
	External wiring		N
	No soft metal		N
(14.4.5)	Corrosion		N
(14.4.6)	Nominal diameter of thread (mm)		N
	Torque (Nm)		N
(14.4.7)	Between metal surfaces		N
	Lug terminal		N
	Mantle terminal		N
	Pull test; pull (N)		N
(14.4.8)	Without undue damage		N

EN 60598-1: 2008+A11: 2009 & EN 60598-2-3: 2003+A1: 2011.			
Clause	Requirement + Test	Result - Remark	Verdict

	ANNEX 4: screwless terminals (part of the luminaire)		—
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(15)	SCREWLESS TERMINALS		N
(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		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		N
	Voltage drop (mV) after 1 h (4 samples).....:		N
	Voltage drop of two inseparable joints		N
	Number of cycles		—
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples).....:		N
	Voltage drop (mV) after 50th alt. 100th cycle (4 samples).....:		N
	After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples).....:		N
	After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples).....:		N
(15.7)	Terminals external wiring		N
	Terminal size and rating		N
(15.8.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N)		N

EN 60598-1: 2008+A11: 2009 & EN 60598-2-3: 2003+A1: 2011.										
Clause	Requirement + Test									Verdict
	Pull test pin or tab terminals (4 samples); pull (N)									N
(15.9)	Contact resistance test									N
	Voltage drop (mV) after 1 h									N
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Voltage drop of two inseparable joints									
	Voltage drop after 10th alt. 25th cycle									
	Max. allowed voltage drop (mV)									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Voltage drop after 50th alt. 100th cycle									
	Max. allowed voltage drop (mV)									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Continued ageing: voltage drop after 10th alt. 25th cycle									
	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)										

EUT Photos

Photo 1 View of EUT



Photo 2 View of EUT



Photo 3 Internal of EUT

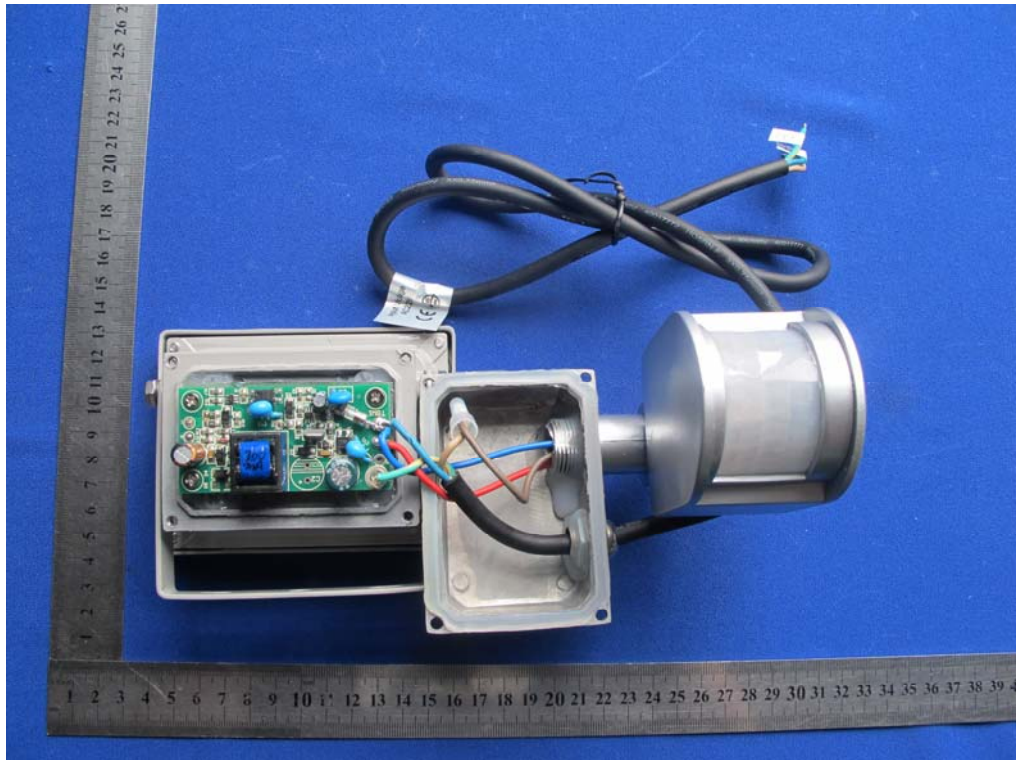


Photo 4 PCB of EUT

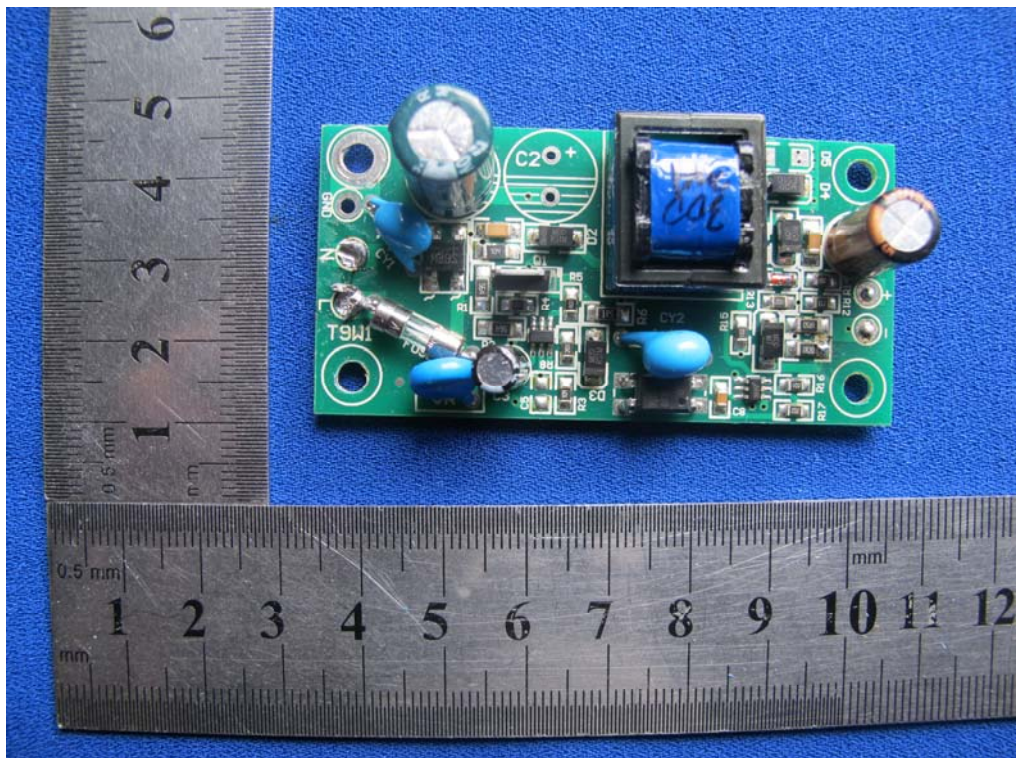


Photo 5 PCB of EUT

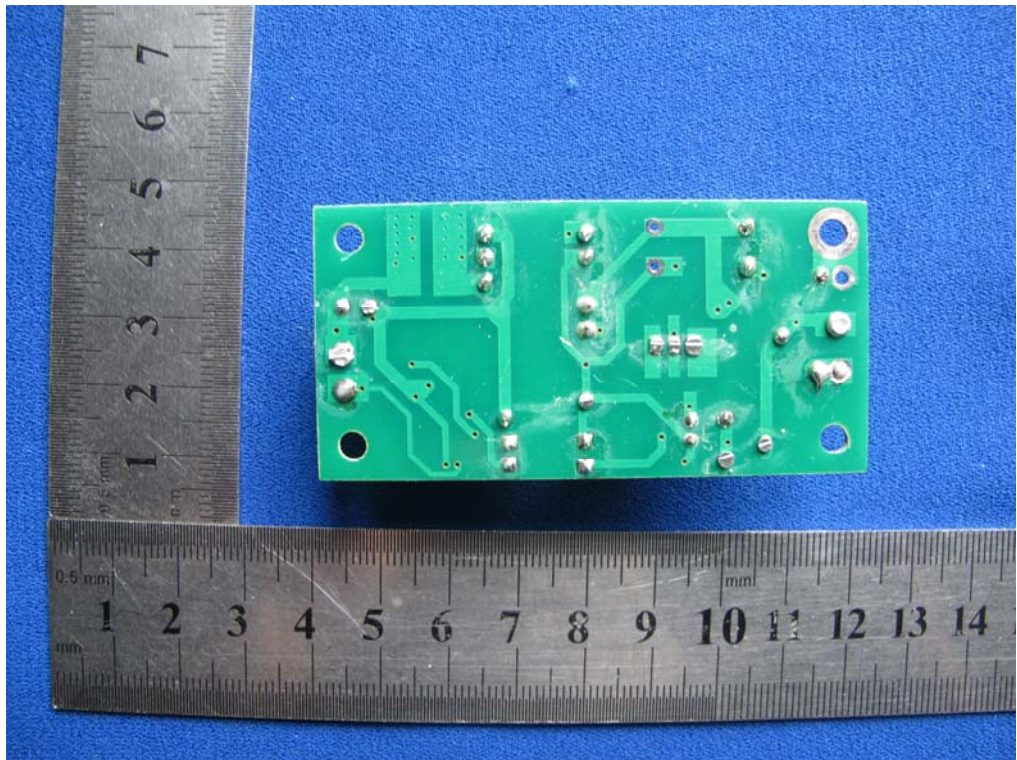


Photo 6 View of EUT

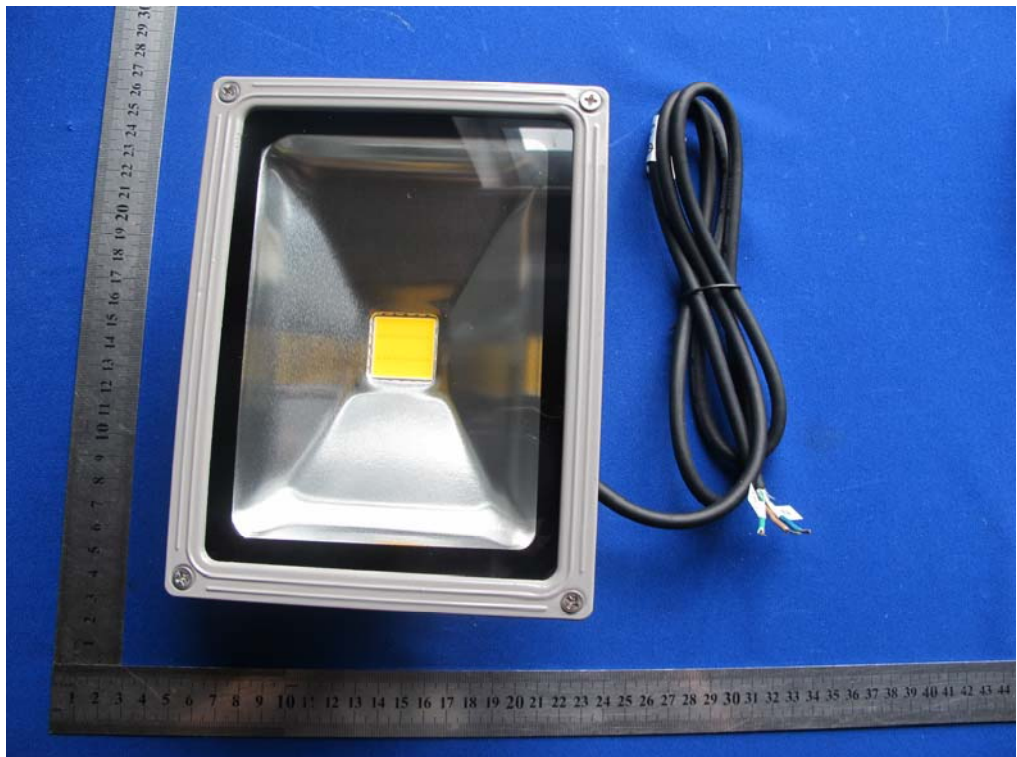


Photo 7 View of EUT



END OF REPORT