



Test Report issued under the responsibility of:



TEST REPORT
IEC 60598-2-3
Luminaires
Part 2: Particular requirements
Section 3: Luminaires for road and street lighting

Report Number. R22110911
Date of issue 2022-12-12
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Name of Testing Laboratory preparing the Report..... Bay Area Compliance Laboratories Corp. (Dongguan)
No. 12, Pulong East 1st Road, Tangxia Town, Dongguan,
Guangdong China

Applicant's name..... SHANGHAI CET ELECTRIC CO.,LTD
Address RM916, #8633 ZHONGCHUN ROAD, MINHANG DISTRICT,
SHANGHAI CITY, CHINA

Test specification:

Standard IEC 60598-2-3:2002, IEC 60598-2-3:2002/AMD1:2011 used in
conjunction with IEC 60598-1:2020
Test procedure CB Scheme
Non-standard test method..... N/A

TRF template used IECEE OD-2020-F1:2021, Ed.1.4

Test Report Form No...... IEC60598_2_3M

Test Report Form(s) Originator Intertek Semko AB

Master TRF 2021-11-11

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General disclaimer:

The test results presented in this report relate only to the object tested.
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Test item description	LED Street Light	
Trade Mark(s)	N/A	
Manufacturer	Same as applicant	
Model/Type reference.....	CET-124SMD-200W, CET-124SMD-150W, CET-124SMD-100W, CET-124SMD-50W, CET-124COB-250W, CET-124COB-200W, CET-124COB-150W, CET-124COB-100W, CET-124COB-50W, CET-126-300W, CET-126-250W, CET-126-200W, CET-126-150W, CET-126-100W, CET-126-50W, CET-150-300W, CET-150-250W, CET-150-200W, CET-150-150W, CET-150-100W, CET-150-50W, CET-122-300W, CET-122-250W, CET-122-200W, CET-122-150W, CET-122-100W, CET-122-50W	
Ratings.....	120-240/277V~ or 120-277V~, 50/60Hz, Class I, ta:45°C, IP65, (others refer to General product information for details)	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
<input checked="" type="checkbox"/>	CB Testing Laboratory:	Bay Area Compliance Laboratories Corp. (Dongguan)
Testing location/ address		No. 12, Pulong East 1 st Road, Tangxia Town, Dongguan, Guangdong China
Tested by (name, function, signature)		Carl Ma (Project Handler) <i>Carl Ma</i>
Approved by (name, function, signature) ..		Andy Fu (Designated Reviewer) <i>Andy.fu</i>
<input type="checkbox"/>	Testing procedure: CTF Stage 1:	
Testing location/ address		
Tested by (name, function, signature)		
Approved by (name, function, signature) ..		
<input type="checkbox"/>	Testing procedure: CTF Stage 2:	
Testing location/ address		
Tested by (name + signature).....		
Witnessed by (name, function, signature) . :		
Approved by (name, function, signature) .. :		
<input type="checkbox"/>	Testing procedure: CTF Stage 3:	
<input type="checkbox"/>	Testing procedure: CTF Stage 4:	
Testing location/ address		
Tested by (name, function, signature)		
Witnessed by (name, function, signature) . :		
Approved by (name, function, signature) .. :		
Supervised by (name, function, signature) :		

List of Attachments (including a total number of pages in each attachment):

Attachment 1: EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES (2 pages)
Attachment 2: Requirement for Saudi Arabia deviations (1 page)
Attachment 3: Requirement for United Arab Emirates (1 page)
Attachment 4: Test report for IEC 62031:2018 for integral LED module(19 pages)
Attachment 5: Photo-biological hazards according to IEC TR 62778:2014 (12 pages)
Attachment 6: Photos (22 pages)

Summary of testing:

Tests performed (name of test and test clause):

The submitted samples were found to comply with the requirements of:

IEC 60598-2-3:2002

IEC 60598-2-3:2002/AMD1:2011

IEC 60598-1:2020

IEC 62031:2018

IEC TR 62778:2014

Model CET-124SMD-200W, CET-124COB-250W, CET-126-300W, CET-150-300W, CET-122-300W was selected to perform full testing, construction check were performed on all models.

Testing location:

Bay Area Compliance Laboratories Corp.
(Dongguan)

No. 12, Pulong East 1st Road, Tangxia Town,
Dongguan, Guangdong China

Summary of compliance with National Differences (List of countries addressed):

-European Group difference, Saudi Arabia deviations and United Arab Emirates were considered

☒ **The product fulfils the requirements of EN 60598-2-3:2003+A1:2011 used in conjunction with EN IEC 60598-1:2021+AMD11:2022, SASO-GSO-IEC-60598-2-3:2011 used in conjunction with SASO-GSO-IEC-60598-1:2020.**

Use of uncertainty of measurement for decisions on conformity (decision rule) :

☒ No decision rule is specified by the IEC standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty ("simple acceptance" decision rule, previously known as "accuracy method").

☐ Other:... (to be specified, for example when required by the standard or client, or if national accreditation requirements apply)

Information on uncertainty of measurement:

The uncertainties of measurement are calculated by the laboratory based on application of criteria given by OD-5014 for test equipment and application of test methods, decision sheets and operational procedures of IECEE.

IEC Guide 115 provides guidance on the application of measurement uncertainty principles and applying the decision rule when reporting test results within IECEE scheme, noting that the reporting of the measurement uncertainty for measurements is not necessary unless required by the test standard or customer.

Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.

Copy of marking plate:

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

LED Street Light

Model: CET-124SMD-200W

Input: 120-240/277V~ 50/60Hz

Power: 200W

ta: 45°C

IP65

SHANGHAI CET ELECTRIC CO., LTD

MAND IN CHINA

LED Street Light

Model: CET-124COB-250W

Input: 120-277V~ 50/60Hz

Power: 250W

ta: 45°C

IP65

SHANGHAI CET ELECTRIC CO., LTD

MAND IN CHINA

LED Street Light

Model: CET-126-300W

Input: 120-277V~ 50/60Hz

Power: 300W

ta: 45°C

IP65

SHANGHAI CET ELECTRIC CO., LTD

MAND IN CHINA

LED Street Light

Model: CET-150-300W

Input: 120-277V~ 50/60Hz

Power: 300W

ta: 45°C

IP65

SHANGHAI CET ELECTRIC CO., LTD

MAND IN CHINA

LED Street Light

Model: CET-122-300W

Input: 120-277V~ 50/60Hz

Power: 300W

ta: 45°C

IP65

SHANGHAI CET ELECTRIC CO., LTD

MAND IN CHINA

Note:

1. The above markings are the minimum requirements required by this safety standard. For the final production samples, the additional markings which do not give rise to misunderstanding may be added.
2. The label for others model is identical to it except for model name and Rated parameters.
3. Below symbol marked on the white plastic cover with minimum height 15 mm.



Test item particulars: LED Street Light	
Classification of installation and use: Class I, for outdoor use only	
Supply Connection: Supply Cord	
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: 2022-11-07	
Date (s) of performance of tests: 2022-11-07 to 2022-12-12	
General remarks:	
"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report. Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator. Clause numbers between brackets refer to clauses in IEC 60598-1	
Manufacturer's Declaration per sub-clause 4.2.5 of IEC 60598-1:	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies): ZHONGSHAN CHUHUI LIGHTING CO.,LTD No.2 XinLong Road, Henglan Town, ZhongShan City, GuangDong, P.R.C	

General product information and other remarks:

1. The products are LED Street Lights, with independent SELV LED driver and integral LED module, Class I, IP65, ta:45°C, suitable for direct mounting on normally flammable surfaces, for outdoor use only.
2. All models have similar electrical and mechanical construction, the differences between them are dimension, power, LED driver, and the quantity and type of LEDs.
3. Before the product ship to Israel, it must comply with Israel all local regulations and/or standards requirement, including language requirement.
4. See below model list for more details:

Model	Rating	Size/mm	LED driver	Quantity of LED(pcs)
CET-124SMD-200W	120-240/277V~, 50/60Hz, ta:45°C, IP65, 200W	770*280*100	DL-200W-V56A-MXG(1pcs)	200
CET-124SMD-150W	AC120-240/277V~, 50/60Hz, ta:45°C, IP65, 150W	770*280*100	DL-200W-V56A-MXG(1pcs)	150
CET-124SMD-100W	AC120-240/277V~, 50/60Hz, ta:45°C, IP65, 100W	700*245*100	DL-50W-V56A-MXG(2pcs)	100
CET-124SMD-50W	AC120-240/277V~, 50/60Hz, ta:45°C, IP65, 50W	550*200*75	DL-50W-V56A-MXG(1pcs)	50
CET-124COB-250W	AC120-277V~, 50/60Hz, ta:45°C, IP65, 250W	1100*335*85	DL-320W-V56X-MXG(1pcs)	5(COB)
CET-124COB-200W	AC120-240/277V~, 50/60Hz, ta:45°C, IP65, 200W	950*330*80	DL-200W-V56A-MXG(1pcs)	4(COB)
CET-124COB-150W	AC120-240/277V~, 50/60Hz, ta:45°C, IP65, 150W	860*320*80	DL-200W-V56A-MXG(1pcs)	3(COB)
CET-124COB-100W	AC120-240/277V~, 50/60Hz, ta:45°C, IP65, 100W	720*280*80	DL-50W-V56A-MXG(2pcs)	2(COB)
CET-124COB-50W	AC120-240/277V~, 50/60Hz, ta:45°C, IP65, 50W	500*210*75	DL-50W-V56A-MXG(1pcs)	1(COB)
CET-126-300W	AC120-277V~, 50/60Hz, ta:45°C, IP65, 300W	685*300*106	DL-320W-V56X-MXG(1pcs)	300
CET-126-250W	AC120-277V~, 50/60Hz, ta:45°C, IP65, 250W	685*300*106	DL-320W-V56X-MXG(1pcs)	250
CET-126-200W	AC120-240/277V~, 50/60Hz, ta:45°C, IP65, 200W	685*300*106	DL-200W-V56A-MXG(1pcs)	240

CET-126-150W	AC120-240/277V~, 50/60Hz, ta:45°C, IP65, 150W	580*242*77	DL-200W-V56A- MXG(1pcs)	180
CET-126-100W	AC120-240/277V~, 50/60Hz, ta:45°C, IP65, 100W	484*211*77	DL-50W-V56A- MXG(2pcs)	120
CET-126-50W	AC120-240/277V~, 50/60Hz, ta:45°C, IP65, 50W	405*166*72	DL-50W-V56A- MXG(1pcs)	60
CET-150-300W	AC120-277V~, 50/60Hz, ta:45°C, IP65, 300W	734*300*108	DL-320W-V56X- MXG(1pcs)	300
CET-150-250W	AC120-277V~, 50/60Hz, ta:45°C, IP65, 250W	734*300*108	DL-320W-V56X- MXG(1pcs)	250
CET-150-200W	AC120-240/277V~, 50/60Hz, ta:45°C, IP65, 200W	734*300*108	DL-200W-V56A- MXG(1pcs)	240
CET-150-150W	AC120-240/277V~, 50/60Hz, ta:45°C, IP65, 150W	659*250*88	DL-200W-V56A- MXG(1pcs)	180
CET-150-100W	AC120-240/277V, 50/60Hz, ta:45°C, IP65, 100W	568*210*88	DL-50W-V56A- MXG(2pcs)	120
CET-150-50W	AC120-240/277V~, 50/60Hz, ta:45°C, IP65, 50W	503*169*88	DL-50W-V56A- MXG(1pcs)	60
CET-122-300W	AC120-277V~, 50/60Hz, ta:45°C, IP65, 300W	860*315*90	DL-320W-V56X- MXG(1pcs)	300
CET-122-250W	AC120-277V~, 50/60Hz, ta:45°C, IP65, 250W	780*315*90	DL-320W-V56X- MXG(1pcs)	250
CET-122-200W	AC120-240/277V~, 50/60Hz, ta:45°C, IP65, 200W	700*315*90	DL-200W-V56A- MXG(1pcs)	200
CET-122-150W	AC120-240/277V~, 50/60Hz, ta:45°C, IP65, 150W	620*315*90	DL-200W-V56A- MXG(1pcs)	150
CET-122-100W	AC120-240/277V~, 50/60Hz, ta:45°C, IP65, 100W	540*315*90	DL-50W-V56A- MXG(2pcs)	100
CET-122-50W	AC120-240/277V~, 50/60Hz, ta:45°C, IP65, 50W	460*315*90	DL-50W-V56A- MXG(1pcs)	50

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.2 (0)	GENERAL TEST REQUIREMENTS		P
3.2 (0.3)	More sections applicable..... :	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Section/s:	—
3.2 (0.5)	Components	(see Annex 1)	—
3.2 (0.7)	Information for luminaire design in light sources standards		—
3.2 (0.7.2)	Light source safety standard	-	—
	Luminaire design in the light source safety standard	IEC 62031:2018 IEC TR 62778:2014	P

3.4 (2)	CLASSIFICATION OF LUMINAIRES		P
3.4 (2.2)	Type of protection	Class I	P
3.4 (2.3)	Degree of protection.....	IP65	P
3.4 (2.4)	Luminaire 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		—
	a) on a pipe	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	b) on a mast arm	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	—
	c) on a post top	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	d) on span or suspension wires	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—
	e) on a wall	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	—

3.5 (3)	MARKING		P
3.5 (3.2)	Mandatory markings		P
	Position of the marking		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/A
3.5 (3.3.2)	Nominal frequency in Hz	50/60 Hz	P
3.5 (3.3.3)	Operating temperature		N/A
3.5 (3.3.5)	Wiring diagram		N/A
3.5 (3.3.6)	Special conditions		N/A
3.5 (3.3.7)	Metal halide lamp luminaire – warning		N/A
3.5 (3.3.8)	Limitation for semi-luminaires		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
3.5 (3.3.9)	Power factor and supply current		N/A
3.5 (3.3.10)	Suitability for use indoors		N/A
3.5 (3.3.11)	Luminaires with remote control		N/A
3.5 (3.3.12)	Clip-mounted luminaire – warning		N/A
3.5 (3.3.13)	Specifications of protective shields		N/A
3.5 (3.3.14)	Symbol for nature of supply	~	P
3.5 (3.3.15)	Rated current of socket outlet		N/A
3.5 (3.3.16)	Rough service luminaire		N/A
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/A
3.5 (3.3.19)	Protective conductor current in instruction if applicable		N/A
3.5 (3.3.20)	Provided with information if not intended to be mounted within arm's reach		N/A
3.5 (3.3.21)	Non replaceable and non-user replaceable light sources information provided	non-user replaceable light sources	P
3.5 (3.3.22)	Controllable luminaires, classification of insulation provided		N/A
3.5 (3.3.23)	Luminaires without control gear provided with necessary information for selection of appropriate component		N/A
3.5 (3.3.24)	If not supplied with terminal block, information on the packaging		P
3.5 (3.3.25)	Luminaires employing light sources emitting UV on mains wiring, information provided		N/A
3.5 (3.3.26)	Wall mounted luminaire using external flexible cable or cord longer than 0.3 m, information provided		N/A
3.5 (3.4)	Test with water	15s	P
	Test with hexane	15s	P
	Legible after test		P
	Label attached		P
3.5 (-)	Additional information in instruction leaflet		P
	a) Design attitude		P
	b) Weight		P
	c) Overall dimensions		P
	d) Maximum projected area if applicable		P
	e) Cross-sectional area of wires if applicable		N/A
	f) Suitability for indoors use		N/A
	g) Dimensions of the compartment		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict

	h) Torque setting to be applied to bolts or screws		P
	i) Maximum mounting height	<15m	P

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/A
3.6 (4.4.1)	Integral lampholder		N/A
3.6 (4.4.2)	Wiring connection		N/A
3.6 (4.4.3)	Lampholder for end-to-end mounting		N/A
3.6 (4.4.4)	Positioning		N/A
	- pressure test (N)		—
	After test the lampholder comply with relevant standard sheets and show no damage		N/A
	After test on single-capped lampholder the lampholder have not moved from its position and show no permanent deformation		N/A
	- bending test (N)		—
	After test the lampholder have not moved from its position and show no permanent deformation		N/A
3.6 (4.4.5)	Peak pulse voltage		N/A
3.6 (4.4.6)	Centre contact		N/A
3.6 (4.4.7)	Parts in rough service luminaires resistant to tracking		N/A
3.6 (4.4.8)	Lamp connectors		N/A
3.6 (4.4.9)	Caps and bases correctly used		N/A
3.6 (4.4.10)	Light source for lampholder or connection according IEC 60061 not connected another way		N/A
3.6 (4.5)	Starter holders		N/A
	Starter holder in luminaires other than class II		N/A
	Starter holder class II construction		N/A
3.6 (4.6)	Terminal blocks		N/A
	Tails		N/A
	Unsecured blocks		N/A
3.6 (4.7)	Terminals and supply connections		P
3.6 (4.7.1)	Contact to metal parts		N/A
3.6 (4.7.2)	Test 8 mm live conductor		P
	Test 8 mm earth conductor		P
3.6 (4.7.3)	Terminals for supply conductors		P

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Clause	Requirement + Test	Result - Remark	Verdict
3.6 (4.7.3.1)	Welded method and material		N/A
	- stranded or solid conductor		N/A
	- spot welding		N/A
	- welding between wires		N/A
	- Type Z attachment		N/A
	- mechanical test according to 15.6.2		N/A
	- electrical test according to 15.6.3		N/A
	- heat test according to 15.6.3.2.3 and 15.6.3.2.4		N/A
3.6 (4.7.4)	Terminals other than supply connection		P
3.6 (4.7.5)	Heat-resistant wiring/sleeves		N/A
3.6 (4.7.6)	Multi-pole plug		N/A
	- test at 30 N		N/A
3.6 (4.8)	Switches		N/A
	- adequate rating		N/A
	- adequate fixing		N/A
	- polarized supply		N/A
	- compliance with IEC 61058-1 for electronic switches		N/A
3.6 (4.9)	Insulating lining and sleeves		P
3.6 (4.9.1)	Retainment		P
	Method of fixing..... : Heat-shrinkable tube used		P
3.6 (4.9.2)	Insulated linings and sleeves:		P
	Resistant to a temperature > 20 °C to the wire temperature or		N/A
	a) & c) Insulation resistance and electric strength		N/A
	b) Ageing test. Temperature (°C)..... :		N/A
3.6 (4.10)	Double or reinforced insulation		N/A
3.6 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation		N/A
	Safe installation fixed luminaires		N/A
	Capacitors and switches		N/A
3.6 (4.10.2)	Assembly gaps:		N/A
	- not coincidental		N/A
	- no straight access with test probe		N/A
3.6 (4.10.3)	Retainment of insulation:		N/A
	- fixed		N/A
	- unable to be replaced; luminaire inoperative		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- sleeves retained in position		N/A
	- lining in lampholder		N/A
3.6 (4.10.4)	Protective impedance device		N/A
	Basic and supplementary insulation bridged by resistor(s) or appropriate capacitor		N/A
	Double or reinforced insulation bridged by appropriate and at least two resistors or two Y2 capacitors or one Y1 capacitor		N/A
	Capacitors comply with IEC 60384-14		N/A
	Resistors comply with test (a) in 14.1 of IEC 60065		N/A
3.6 (4.11)	Electrical connections and current-carrying parts		P
3.6 (4.11.1)	Contact pressure		P
3.6 (4.11.2)	Screws:		N/A
	- self-tapping screws		N/A
	- thread-cutting screws		N/A
3.6 (4.11.3)	Screw locking:		N/A
	- spring washer		N/A
	- rivets		N/A
3.6 (4.11.4)	Material of current-carrying parts		P
3.6 (4.11.5)	No contact to wood or mounting surface		P
3.6 (4.11.6)	Electro-mechanical contact systems		N/A
3.6 (4.12)	Screws and connections (mechanical) and glands		P
3.6 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		N/A
	Torque test: torque (Nm); part : Screw for fixed LED cover: Ø 2.9mm, 0.5Nm and Ø 3.9mm, 1.2Nm; Screw for fixed LED PCB: Ø 2.9mm, 0.5Nm and Ø 2.8mm, 0.4Nm		P
	Torque test: torque (Nm); part : Screw for fixed earthing wire: Ø 2.8mm, 0.4Nm		P
	Torque test: torque (Nm); part : Screw for fixing suspension tube: Ø 9.7mm, 17Nm and Ø 6.2mm, 8Nm Screw for fixing adjusting device: Ø 9.5mm, 17Nm and Ø 11.5mm, 29Nm		P
3.6 (4.12.2)	Screws with diameter < 3 mm screwed into metal		P

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Clause	Requirement + Test	Result - Remark	Verdict
3.6 (4.12.4)	Locked connections:		N/A
	- fixed arms; torque (Nm)	-	N/A
	- lampholder; torque (Nm)	-	N/A
	- push-button switches; torque 0,8 Nm	-	N/A
3.6 (4.12.5)	Screwed glands; force (Nm)	Plastic gland: Max. Ø6.8mm, 2.5Nm; Metal gland: Max. Ø6.8mm, 4.0Nm	P
3.6 (4.13)	Mechanical strength		P
3.6 (4.13.1)	Impact tests:		P
	- fragile parts; energy (Nm)	-	N/A
	- other parts; energy (Nm)	0.7J for LED cover, metal enclosure	P
	1) live parts		P
	2) linings		N/A
	3) protection		P
	4) covers		P
3.6 (4.13.2)	Metal parts have adequate mechanical strength		P
3.6 (4.13.3)	Straight test finger		P
3.6 (4.13.4)	Rough service luminaires		N/A
	- IP54 or higher		N/A
	a) fixed		N/A
	b) hand-held		N/A
	c) delivered with a stand		N/A
	d) for temporary installations and suitable for mounting on a stand		N/A
3.6 (4.13.6)	Tumbling barrel		N/A
3.6 (4.14)	Suspensions, fixings and means of adjusting		P
3.6 (4.14.1)	Mechanical load:		P
	A) four times the weight	CET-124SMD-200W: 4X3.5=14kg CET-124COB-250W: 4X5.8=23.2kg CET-126-300W: 4X5.8=23.2kg CET-150-300W: 4X6.3=25.2Kg CET-122-300W: 4X6.2=24.8kg	P
	B) torque 2,5 Nm		P

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Clause	Requirement + Test	Result - Remark	Verdict
	C) bracket arm; bending moment (Nm)	-	N/A
	D) load track-mounted luminaires		N/A
	E) clip-mounted luminaires, glass-shelve. Thickness (mm)		N/A
	Metal rod. diameter (mm)	-	N/A
	Fixed luminaire or independent control gear without fixing devices		N/A
3.6 (4.14.2)	Load to flexible cables		N/A
	Mass (kg)	-	—
	Stress in conductors (N/mm ²)	-	N/A
	Mass (kg) of semi-luminaire	-	N/A
	Bending moment (Nm) of semi-luminaire	-	N/A
3.6 (4.14.3)	Adjusting devices:		P
	- flexing test; number of cycles	45 cycles	P
	- strands broken	0	P
	- electric strength test afterwards	complied	P
3.6 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors		N/A
3.6 (4.14.5)	Guide pulleys		N/A
3.6 (4.14.6)	Strain on socket-outlets		N/A
3.6 (4.15)	Flammable materials		P
	- glow-wire test 650°C	See Test Table 3.15 (13.3.2)	P
	- spacing ≥30 mm		N/A
	- screen withstanding test of 13.3.1		N/A
	- screen dimensions		N/A
	- no fiercely burning material		P
	- thermal protection		N/A
	- electronic circuits exempted		N/A
3.6 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		N/A
	a) construction		N/A
	b) temperature sensing control		N/A
	c) surface temperature		N/A
3.6 (4.16)	Luminaires for mounting on normally flammable surfaces		P
	No lamp control gear	(compliance with Section 12)	N/A
	Provided with adaptor for a track meet the requirements for direct mounting on normally flammable surfaces		N/A
3.6 (4.16.1)	Lamp control gear spacing:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- spacing 35 mm		N/A
	- spacing 10 mm		N/A
3.6 (4.16.2)	Thermal protection:		N/A
	- in lamp control gear		N/A
	- external		N/A
	- fixed position		N/A
	- temperature marked lamp control gear		N/A
3.6 (4.16.3)	Design to satisfy the test of 12.6	(see clause 12.6)	N/A
3.6 (4.17)	Drain holes		N/A
	Clearance at least 5 mm		N/A
3.6 (4.18)	Resistance to corrosion		P
3.6 (4.18.1)	- rust-resistance		N/A
3.6 (4.18.2)	- season cracking in copper		N/A
3.6 (4.18.3)	- corrosion of aluminium		P
3.6 (4.19)	Igniters compatible with ballast		N/A
3.6 (4.20)	Rough service vibration		N/A
3.6 (4.21)	Protective shield		N/A
3.6 (4.21.1)	Shield fitted if tungsten halogen lamps or metal halide lamps		N/A
	Shield of glass if tungsten halogen lamps		N/A
3.6 (4.21.2)	Particles from a shattering lamp not impair safety		N/A
3.6 (4.21.3)	No direct path		N/A
3.6 (4.21.4)	Impact test on shield		N/A
	Glow-wire test on lamp compartment	See Test Table 3.15 (13.3.2)	N/A
3.6 (4.22)	Attachments to lamps not cause overheating or damage		N/A
3.6 (4.23)	Semi-luminaires comply Class II		N/A
3.6 (4.24)	Photobiological hazards		P
3.6 (4.24.1)	No excessive UV radiation if tungsten halogen lamps and metal halide lamps (Annex P)		N/A
3.6 (4.24.2)	Retinal blue light hazard		P
	Class of risk group assessed according to IEC/TR 62778	RG1 and see attachment 4 for IEC TR 62778 test report	—
	Luminaires with E_{thr} :		N/A
	a) Fixed luminaires		N/A
	- distance x m, borderline between RG1 and RG2 ..	-	N/A
	- marking and instruction according 3.2.23		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	b) Portable and handheld luminaires		N/A
	- marking according 3.2.23 if RG1 exceeded at 200 mm according to IEC/TR 62778		N/A
	Portable luminaires for children IEC 60598-2-10 and Mains socket outlet nightlights IEC 60598-2-12 not exceed RG1 at 200 mm according to IEC/62778		N/A
3.6 (4.25)	Mechanical hazard		P
	No sharp point or edges		P
3.6 (4.26)	Short-circuit protection		N/A
3.6 (4.26.1)	Adequate means of uninsulated accessible SELV parts		N/A
3.6 (4.26.2)	Short-circuit test with test chain according 4.26.3		N/A
	Supply source ES1 PSE		N/A
	Test chain not melt through		N/A
	Test sample not exceed values of Table 12.1 and 12.2		N/A
3.6 (4.27)	Terminal blocks with integrated screwless earthing contacts		N/A
	Test according Annex V		N/A
	Pull test of terminal fixing (20 N)		N/A
	After test, resistance < 0,05 Ω		N/A
	Pull test of mechanical connection (50 N)		N/A
	After test, resistance < 0,05 Ω		N/A
	Voltage drop test, resistance < 0,05 Ω		N/A
3.6 (4.28)	Fixing of thermal sensing control		N/A
	Not plug-in or easily replaceable type		N/A
	Reliably kept in position		N/A
	No adhesive fixing if UV radiations from a lamp can degrade the fixing		N/A
	Not outside the luminaire enclosure		N/A
	Test of adhesive fixing:		N/A
	Max. temperature on adhesive material (°C) : -		—
	100 cycles between t min and t max		N/A
	Temperature sensing control still in position		N/A
3.6 (4.29)	Luminaires with non-replaceable light source		N/A
	Not possible to replace light source		N/A
	Live part not accessible after parts have been opened by hand or tools		N/A
3.6 (4.30)	Luminaires with non-user replaceable light source		P

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Clause	Requirement + Test	Result - Remark	Verdict
	If protective cover provide protection against electric shock and marked with "caution, electric shock risk" symbol:		P
	At least one fixing means requiring use of tool		P
3.6 (4.31)	Insulation between circuits		P
	Circuits insulated from LV supply fulfil requirements according 4.31.1 – 4.31.3		P
	Controllable luminaires requiring same level of insulation for all components, the insulation between control terminals and LV supply fulfil requirements according 4.31.1 – 4.31.3		N/A
3.6 (4.31.1)	SELV or PELV circuits		P
	Used SELV/PELV source		P
	Voltage \leq ELV		P
	Insulating of SELV/PELV circuits from LV supply		P
	Insulating of SELV/PELV circuits from other non SELV/PELV circuits		N/A
	Insulating of SELV/PELV circuits from FELV		N/A
	Insulating of SELV/PELV circuits from other SELV/PELV circuits		N/A
	SELV/PELV circuits insulated from accessible parts according Table X.1		P
	Plugs not able to make any electrical contact with socket-outlets of other voltage systems		N/A
	Socket outlets does not admit plugs of other voltage systems		N/A
	Plugs and socket-outlets does not have protective conductor contact		N/A
3.6 (4.31.2)	FELV circuits		N/A
	Used FELV source		N/A
	Voltage \leq ELV		N/A
	Insulating of FELV circuits from LV supply		N/A
	FELV circuits insulated from accessible parts according Table X.1		N/A
	Plugs not able to make any electrical contact with socket-outlets of other voltage systems		N/A
	Socket outlets does not admit plugs of other voltage systems		N/A
	Socket-outlets does not have protective conductor contact		N/A
3.6 (4.31.3)	Other circuits		P
	Other circuits insulated from accessible parts according Table X.1		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Class II construction with equipotential bonding for protection against indirect contacts with live parts:		N/A
	- conductive parts are connected together		N/A
	- test according 7.2.3		N/A
	- conductive part not cause an electric shock in case of an insulation fault		N/A
	- equipotential bonding in master/slave applications		N/A
	- master luminaire provided with terminal for accessible conductive parts of slave luminaires		N/A
	- slave luminaire constructed as class I		N/A
3.6 (4.32)	Overvoltage protective devices		N/A
	Comply with IEC 61643-11		N/A
	External to controlgear and connected to earth:		N/A
	- only in fixed luminaires		N/A
	- only connected to protective earth		N/A
3.6 (4.33)	Luminaire powered via information technology communication cabling		N/A
	Requirements for Class III luminaire		N/A
	Rated voltage within the range of ES1 and does not exceed maximum voltage of used connector		N/A
	Luminaire does not create any hazard from overvoltage	(see Annex 2)	N/A
3.6 (4.34)	Electromagnetic fields (EMF)		P
	No harmful electromagnetic fields	LED light source used	P
3.6 (4.35)	Protection against moving fan blades		N/A
	Test with a standard test finger		N/A
	Test with test probe acc. to Figure 13 (IEC 61032) for portable luminaire		N/A
	Blades rounded with radius ≥ 0.5 mm and:		N/A
	-hardness less than D60 Shore		N/A
	-peripheral speed less than 15 m/s		N/A
	-input power of fan ≤ 2 W at rated voltage		N/A
3.6 (4.36)	Track-mounted luminaires		N/A
	Test in accordance with Annex A of IEC60570:2003/AMD2:2019		N/A
3.6.1 (-)	At least IP X3 or X5 respectively. IP	IP65	P
	Column-integrated luminaires:		N/A
	- parts below 2,5 m. IP	-	N/A
	- parts above 2,5 m. IP	-	N/A
3.6.2 (-)	Suspension on span wires		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
3.6.3 (-)	Means for attaching the luminaire or external parts to its support appropriate to the weight		P
3.6.3.1 (-)	Static load test		P
	- drag coefficient.....:	1.2	P
	- loaded area (m ²)	CET-124SMD-200W: Max.0.199m ² CET-124COB-250W: Max.0.35m ² CET-126-300W: Max.0.166m ² CET-150-300W: Max.0.168m ² CET-122-300W: Max.0.201m ²	P
	- used load (N)	CET-124SMD-200W: Max.395.5N CET-124COB-250W: Max.635.6N CET-126-300W: Max.329.9N CET-150-300W: Max.333.9N CET-122-300W: Max.399.5N	P
	- measured deformation (cm/m)	No permanent deformation	P
	- no rotation		P
3.6.4 (-)	Adjustable lampholders		N/A
3.6.5 (-)	Luminaires installed above 5 m, glass covers shall be:		P
	a) glass that fractures into small pieces (test according to 3.6.5.1), or		N/A
	b) glass having a high impact shock resistance (test according to 3.6.5.2), or		N/A
	c) protected by any means to retain glass fragments	Film coating	P
	For tunnel luminaires 3.6.5.1 apply		N/A
	Method of protection declared by the manufacturer		N/A
3.6.5.1 (-)	Protection by the use of glass that fractures into small pieces		N/A
	- number of particles is more than 40	-	N/A
3.6.5.2 (-)	Protection by the use of high impact resistant glass		N/A
3.6.5.2.1 (-)	Glass covers have high mechanical strength		N/A
	Test according IEC 62262 with test apparatus according IEC 60068-2-75 with impact energy of 5J on preconditioned sample		N/A
3.6.5.2.2 (-)	Glass covers not break into large pieces		N/A
	- test according 3.6.5.1, number of particles is more than 20		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
3.6.6 (-)	Connection compartment of column-integrated luminaire		N/A
	- provides adequate space		N/A
	- means for attachment		N/A
	- means for attachment of metal corrosion-resistant		N/A
3.6.7 (-)	Compliance with ISO standard or other		N/A
3.6.8 (-)	Doors of column-integrated luminaires:		N/A
	- corrosion-resistant		N/A
	- opening only possible for an authorized person		N/A
	- impact test 5 Nm		N/A
	- sample show no damage		N/A
3.6.9 (-)	Column-integrated luminaire:		N/A
	- dimension of the cable entry slot (mm).....:	-	N/A
	- cable path from the slot to the connection compartment (mm)	-	N/A
	- cable path free from obstruction that might cause abrasion of the cable		N/A

3.7 (11)	CREEPAGE DISTANCES AND CLEARANCES		P
3.7 (11.2)	Creepage distances and clearances..... :	See Table 3.7 (11.2)	P
	Impulse withstand category (Normal category II) (Category III Annex U, Table U.1)	Category II <input checked="" type="checkbox"/> Category III <input type="checkbox"/>	—
	Protected against pollution, reduced creepage and clearance according Annex P of IEC 61347-1		N/A
3.7 (11.2.2)	Creepage distances for frequency up to 30 kHz	See Test Table 3.7 (11.2) I	P
	Creepage distances for frequency over 30 kHz:		N/A
	- Controlgear marked with \hat{U}_{OUT} and f_{UOUT} according IEC 61347-1, clause 7.1, item w	See Test Table 3.7 (11.2) II	N/A
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347	See Test Table 3.7 (11.2) II	N/A
3.7 (11.2.3)	Clearances for frequency up to 30 kHz	See Test Table 3.7 (11.2) I	P
	Clearances distances for frequency over 30 kHz:		N/A
	- Controlgear marked with U_P	See Test Table 3.7 (11.2) II	N/A
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347	See Test Table 3.7 (11.2) II	N/A

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

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Clause	Requirement + Test	Result - Remark	Verdict

	Resistance < 0,5 Ω	Max.0.045 Ω	P
	Self-tapping screws used		N/A
	Thread-forming screws		N/A
	Thread-forming screw used in a groove		N/A
	Protective earth makes contact first		N/A
	Terminal blocks with integrated screwless protective earthing contacts tested according Annex V		N/A
	Protective earthing of the luminaire not via built-in control gear		P
3.8 (7.2.2 + 7.2.3)	Protective earth continuity in joints, etc.		N/A
3.8 (7.2.4)	Locking of clamping means		P
	Compliance with 4.7.3		P
3.8 (7.2.5)	Protective earth terminal integral part of connector socket		N/A
3.8 (7.2.6)	Protective earth terminal adjacent to mains terminals		P
3.8 (7.2.7)	Electrolytic corrosion of the protective earth terminal		P
3.8 (7.2.8)	Material of protective earth terminal		P
	Contact surface bare metal		P
3.8 (7.2.10)	Class II luminaire for looping-in		N/A
	Double or reinforced insulation to functional earth		N/A
3.8 (7.2.11)	Protective earthing core coloured green-yellow		P
	Length of earth conductor		P
3.8 (7.2.12)	PELV circuit connected to protective earth for functional purpose		N/A

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

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

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	Supply cord	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Outdoor luminaire has not PVC insulated external wiring if not Class III or SELV/PELV circuits ≤ 25 V AC/60 V DC/25 V peak interrupted DC voltage with frequency 10Hz -200 Hz or protected from outdoor environment		N/A
3.10 (5.2.2)	Type of cable..... :	H05RN-F	P
	Nominal cross-sectional area (mm ²) :	3X1.0 mm ²	P
	Cables equal to IEC 60227 or IEC 60245	EN 50525-2-21	P
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/A
3.10 (5.2.6)	Cable entries:		P
	- suitable for introduction		P
	- adequate degree of protection		P
3.10 (5.2.7)	Cable entries through rigid material have rounded edges		P
3.10 (5.2.8)	Insulating bushings:		P
	- suitably fixed		P
	- material in bushings		P
	- material not likely to deteriorate		P
	- tubes or guards made of insulating material		P
3.10 (5.2.9)	Locking of screwed bushings		N/A
3.10 (5.2.10)	Cord anchorage:		P
	- covering protected from abrasion		P
	- clear how to be effective		P
	- no mechanical or thermal stress		P
	- no tying of cables into knots etc.		P
	- insulating material or lining		P
3.10 (5.2.10.1)	Cord anchorage for type X attachment:		N/A
	a) at least one part fixed		N/A
	b) types of cable		N/A
	c) no damaging of the cable		N/A
	d) whole cable can be mounted		N/A
	e) no touching of clamping screws		N/A
	f) metal screw not directly on cable		N/A
	g) replacement without special tool		N/A
	Glands not used as anchorage		N/A
	Labyrinth type anchorages		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
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) : 60		P
	- torque test: torque (Nm)..... : 0.25		P
	- displacement ≤ 2 mm	0.5	P
	- no movement of conductors		P
	- no damage of cable or cord		P
	- function independent of electrical connection		P
3.10 (5.2.10.4)	Luminaire with/ designed for use with supply cord with maximum current of 2A:		N/A
	- Ordinary Class III luminaire supplied with SELV ≤ 25 V RMS/60V DC		N/A
	- Ordinary Class III luminaire supplied with PELV ≤ 12 V RMS/30V DC		N/A
	- Other than ordinary Class III luminaire supplied with voltage ≤ 12 V RMS/30V DC		N/A
	Pull test of 30N		N/A
3.10 (5.2.11)	External wiring passing into luminaire		P
3.10 (5.2.12)	Looping-in terminals		N/A
3.10 (5.2.13)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		P
3.10 (5.2.14)	Mains plug same protection		N/A
	Class III luminaire plug		N/A
	No unsafe compatibility		N/A
3.10 (5.2.15)	Connectors for Class III luminaires (IEC 60603 or IEC 62680)		N/A
3.10 (5.2.16)	Appliance inlets (IEC 60320)		N/A
	Installation couplers (IEC 61535)		N/A
	Appliance inlet or connector systems (IEC 61984)		N/A
3.10 (5.2.17)	No standardized interconnecting cables properly assembled		N/A
3.10 (5.2.18)	Used plug in accordance with		N/A
	- IEC 60083		N/A
	- other standard		N/A
3.10 (5.3)	Internal wiring		P
3.10 (5.3.1)	Internal wiring of suitable size and type		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Through wiring		N/A
	- not delivered/ mounting instruction		N/A
	- factory assembled		N/A
	- socket outlet loaded (A) :		N/A
	- temperatures..... :	(see Annex 2)	N/A
	Green-yellow for protective earth only		P
3.10 (5.3.1.1)	Internal wiring connected directly to fixed wiring		P
	Cross-sectional area (mm ²) :	(see Annex 1)	P
	Insulation thickness	(see Annex 1)	P
	Extra insulation added where necessary		P
3.10 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		N/A
	Cross-sectional area (mm ²):	(see Annex 1)	N/A
3.10 (5.3.1.3)	Double or reinforced insulation for class II		N/A
3.10 (5.3.1.4)	Conductors without insulation		N/A
3.10 (5.3.1.5)	SELV/PELV current-carrying parts		P
3.10 (5.3.1.6)	Insulation thickness other than PVC or rubber		N/A
3.10 (5.3.2)	Sharp edges etc.		P
	No moving parts of switches etc.		N/A
	Joints, raising/lowering devices		P
	Telescopic tubes etc.		N/A
	No twisting over 360°		P
3.10 (5.3.3)	Insulating bushings:		P
	- suitable fixed		P
	- material in bushings		P
	- material not likely to deteriorate		P
	- cables with protective sheath		P
3.10 (5.3.4)	Joints and junctions effectively insulated		P
3.10 (5.3.5)	Strain on internal wiring		P
3.10 (5.3.6)	Wire carriers		N/A
3.10 (5.3.7)	Wire ends not tinned		P
	Wire ends tinned: no cold flow		P
3.10 (5.4)	Test to determine suitability of conductors having a reduced cross-sectional area		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Under test the temperature of the luminaire wiring insulation not exceed the limits stated in Table 12.2	(see Annex 2)	N/A
	No damage to luminaire wiring after test		N/A
3.10.1 (-)	Cord anchorage if applicable		P
	- pull test: 25 times; pull (N):	60N	P
	- torque test: torque (Nm).....:	0.25 Nm	P

3.11 (8)	PROTECTION AGAINST ELECTRIC SHOCK		P
3.11 (8.2.1)	Live parts not accessible		P
	Basic insulated parts not used on the outer surface without appropriate protection		P
	Basic insulated parts not accessible with standard test finger on portable, settable and adjustable luminaires		P
	Basic insulated parts not accessible with Ø 50 mm probe from outside, other types of luminaires		P
	Lamp and starterholders in portable and adjustable luminaires comply with double or reinforced insulation requirements		N/A
	Basic insulation only accessible under lamp or starter replacement		N
	Protection in any position		P
	Double-ended tungsten filament lamp		N/A
	Insulation lacquer not reliable		P
	Double-ended high pressure discharge lamp		N/A
	Relevant warning according to 3.2.18 fitted to the luminaire		N/A
3.11 (8.2.2)	Portable luminaire adjusted in most unfavourable position		N/A
3.11 (8.2.3.a)	Class II luminaire:		N/A
	- basic insulated metal parts not accessible during starter or lamp replacement		N/A
	- basic insulation not accessible other than during starter or lamp replacement		N/A
	- glass protective shields not used as supplementary insulation		N/A
3.11 (8.2.3.b)	BC lamp holder of metal in class I luminaires shall be connected to protective earth		N/A
3.11 (8.2.3.c)	SELV circuits with exposed current carrying parts:		N/A
	Ordinary luminaire:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- voltage under load/ no-load AC (V)		N/A
	- voltage under load/ no-load DC (V).....		N/A
	- interrupted DC voltage (V)		N/A
	- touch current if applicable (mA)		N/A
	One conductive part insulated if required		N/A
	Other than ordinary luminaire:		N/A
	- voltage under load/ no-load AC (V)		N/A
	- voltage under load/ no-load DC (V).....		N/A
	- interrupted DC voltage (V)		N/A
	Class III luminaire only for connection to SELV		N/A
	Class III luminaire not provided with means for protective earthing		N/A
3.11 (8.2.3.d)	PELV circuits with exposed current carrying parts:		N/A
	Ordinary luminaire:		N/A
	- voltage under load/ no-load AC (V)		N/A
	- voltage under load/ no-load DC (V).....		N/A
	Other than ordinary luminaire:		N/A
	- voltage under load/ no-load AC (V)		N/A
	- voltage under load/ no-load DC (V).....		N/A
	One pole insulated if required		N/A
3.11 (8.2.4)	Portable luminaire have protection independent of supporting surface		N/A
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)	Luminaire other than below with capacitor > 0,5 μ F not exceed 50 V 1 min after disconnection	0V after disconnection 1min	P
	Portable luminaire with capacitor > 0,1 μ F (0.25) not exceed 34 V 1 s after disconnection		N/A
	Other luminaires with capacitor > 0,1 μ F (0.25) with plug and track adaptors not exceed 60 V 5 s after disconnection		N/A
3.12 (12)	ENDURANCE TEST AND THERMAL TEST		P
3.12 (-)	If IP > IP 20 relevant test of (12.4), (12.5), (12.6) and (12.7) after (9.2) before (9.3) as specified in 3.13		—
3.12 (12.2)	Selection of lamps and ballasts		—
	Lamp used according Annex B	(Lamp used see Annex 2)	—

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Clause	Requirement + Test	Result - Remark	Verdict
	Control gear if separate and not supplied	(Control gear used see Annex 2)	—
3.12 (12.3)	Endurance test:		P
	a) mounting-position :	As normal use	—
	b) test temperature (°C) :	55	—
	c) total duration (h) :	240	—
	d) supply voltage (V) :	304.7	—
	d) if not equipped with control gear, constant voltage/current (V) or (A) :		—
3.12 (12.3.1d)	d) Class III luminaires powered via information technology communication cable:		N/A
	- voltage under normal operation (V).....:		—
	- voltage under abnormal operation (V).....:		—
	e) luminaire ceases to operate		—
	f) luminaire with constant light output function		N/A
3.12 (12.3.2)	After endurance test:		P
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to track system		N/A
	- marking legible		P
	- no cracks, deformation etc.		P
3.12 (12.4)	Thermal test (normal operation)	(see Annex 2)	P
3.12 (12.5)	Thermal test (abnormal operation)	(see Annex 2) Approved independent SELV controlgear used	P
3.12 (12.6)	Thermal test (failed lamp control gear condition):		N/A
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/A
	- measured winding temperature (°C): at 1,1 Un :		—
	- measured mounting surface temperature (°C) at 1,1 Un..... :		N/A
	- calculated mounting surface temperature (°C) :		N/A
	- track-mounted luminaires		N/A
3.12 (12.6.2)	Temperature sensing control		N/A
	- case of abnormal conditions :		—
	- thermal link		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- manual reset cut-out		N/A
	- auto reset cut-out		N/A
	- measured mounting surface temperature (°C) :		N/A
	- track-mounted luminaires		N/A
3.12 (12.7)	Thermal test (failed lamp control gear in plastic luminaires):		N/A
3.12 (12.7.1)	Luminaire without temperature sensing control		N/A
3.12 (12.7.1.1)	Luminaire with fluorescent lamp ≤ 70W		N/A
	Test method 12.7.1.1 or Annex W :		—
	Test according to 12.7.1.1:		
	- case of abnormal conditions :		—
	- Ballast failure at supply voltage (V) :		—
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
	Test according to Annex W:		N/A
	- 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 :	See Table 3.15 (13.2.1)	N/A
3.12 (12.7.1.2)	Luminaire with discharge lamp, fluorescent lamp > 70W, transformer > 10 VA		N/A
	- 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 :	See Table 3.15 (13.2.1)	N/A
3.12 (12.7.1.3)	Luminaire with short circuit proof transformers ≤ 10 VA		N/A
	- case of abnormal conditions :		—
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
3.12 (12.7.2)	Luminaire with temperature sensing control		N/A
	- thermal link :	Yes <input type="checkbox"/> No <input type="checkbox"/>	—

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
	- 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:	See Table 3.15 (13.2.1)	N/A
3.12.1 (-)	Temperature reduction if for outdoor use only		P
3.12.2 (-)	(See above)		—
3.12.3 (-)	Glass covers used within the thermal limits declared by the glass manufacturer		P

3.13 (9)	RESISTANCE TO DUST AND MOISTURE		P
3.13.1 (-)	If IP > IP 20 the order of tests as specified in clause 3.12		P
3.13 (9.2)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP	IP65	—
	- mounting position during test	As normal use	—
	- fixing screws tightened; torque (Nm)	Screw for fixed LED cover (CET-124SMD-200W): 0.33Nm; Screw for fixed LED cover (CET-124COB-250W): 0.8Nm; Screw for fixed LED cover (CET-126-300W): 0.33Nm; Screw for fixed LED cover (CET-150-300W): 0.33Nm; Screw for fixed LED cover (CET-122-300W): 0.33Nm	—
	- tests according to clauses	9.2.2&9.2.6	—
	- electric strength test afterwards		P
	a) no deposit in dust-proof luminaire		N/A
	b) no talcum in dust-tight luminaire		P
	c) no trace of water on current-carrying parts or on insulation where it could become a hazard		P
	c.1) For luminaires without drain holes – no water entry		P
	c.2) For luminaires with drain holes – no hazardous water entry		N/A
	d) no water in watertight, pressure watertight, high pressure and temperature water jet-proof or high pressure and cold water jet-proof luminaire		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	e) no contact with live parts (IP 2X)		N/A
	e) no entry into enclosure (IP 3X and IP 4X)		N/A
	e) no contact with live parts through drain holes and ventilation slots (IP3X and IP4X)		N/A
	f) no trace of water on part of lamp requiring protection from splashing water		N/A
	g) no damage of protective shield or glass envelope		N/A
3.13 (9.3)	Humidity test 48 h	25°C, 93%R.H. Complied.	P

3.14 (10)	INSULATION RESISTANCE AND ELECTRIC STRENGTH		P
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/PELV:		P
	- between current-carrying parts of different polarity :	>100 MΩ	P
	- between current-carrying parts and mounting surface	>100 MΩ	P
	- between current-carrying parts and metal parts of the luminaire.....	>100 MΩ	P
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts.....		N/A
	- Insulation bushings as described in Section 5		N/A
	Other than SELV/PELV:		P
	- between live parts of different polarity	>100 MΩ	P
	- between live parts and mounting surface	>100 MΩ	P
	- between live parts and metal parts	>100 MΩ	P
	- between live parts of different polarity through action of a switch.....		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts.....		N/A
	- Insulation bushings as described in Section 5		N/A
3.14 (10.2.2)	Electric strength test		P
	Dummy lamp		N/A
	Luminaires with ignitors after 24 h test		N/A
	Luminaires with manual ignitors		N/A
	Test voltage (V)		P
	SELV/PELV:		P

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Clause	Requirement + Test	Result - Remark	Verdict
	- between current-carrying parts of different polarity :	500V,1min,No break down	P
	- between current-carrying parts and mounting surface	500V,1min,No break down	P
	- between current-carrying parts and metal parts of the luminaire.....	500V,1min,No break down	P
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts.....		N/A
	- Insulation bushings as described in Section 5		N/A
	Other than SELV/PELV:		P
	- between live parts of different polarity	1554V,1min,No break down	P
	- between live parts and mounting surface	1554V,1min,No break down	P
	- between live parts and metal parts	1554V,1min,No break down	P
	- between live parts of different polarity through action of a switch.....		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts.....		N/A
	- Insulation bushings as described in Section 5		N/A
3.14 (10.3)	Touch current (mA).....	Touch current: Max.0.1 mA <Limit:0.7 mA	P
	Protective conductor current (mA).....	Protective conductor current: Max.0.1mA<Limit:3.5 mA	P
3.15 (13)	RESISTANCE TO HEAT, FIRE AND TRACKING		P
3.15 (13.2.1)	Ball-pressure test	See Test Table 3.15 (13.2.1)	P
3.15 (13.3.1)	Needle-flame test (10 s).....	See Test Table 3.15 (13.3.1)	P
3.15 (13.3.2)	Glow-wire test (650°C).....	See Test Table 3.15 (13.3.2)	P
3.15 (13.4)	Proof tracking test (IEC 60112).....	See Test Table 3.15 (13.4)	P

3.7 (11.2)	TABLE I: Creepage distances and clearances						P
	Minimum distances (mm) for a.c. up to 30 kHz sinusoidal voltages						P
	Applicable part of IEC 60598-1 Table 11.1.A*, 11.1.B* and 11.2*						P
	Insulation type **	Measured clearance	Required		Measured creepage	Required	
			clearance	*Table		creepage	*Table
Distance 1:	B	>3.0	1.5	11.1.B	>3.0	2.77	11.1.A
Working voltage (V)					277Vac		—
PTI.....					< 600 ☒ ≥ 600 ☐		—
Pulse voltage or U_P if applicable (kV)					-		—
Supplementary information: Between different polarity of live part.							
Distance 2:	B	>5.0	1.5	11.1.B	>5.0	2.77	11.1.A

IEC 60598-2-3								
Clause		Requirement + Test				Result - Remark		Verdict
Working voltage (V)						277Vac		—
PTI.....						< 600 ☒ ≥ 600 ☐		—
Pulse voltage or U_P if applicable (kV)						-		—
Supplementary information: Between live parts and accessible earthing parts/mounting surface								
Distance 3:	B	1.4	0.5	11.1.B	1.4	1.3	11.1.A	
Working voltage (V)						Max.75VDC		—
PTI.....						< 600 ☒ ≥ 600 ☐		—
Pulse voltage or U_P if applicable (kV)						-		—
Supplementary information: Between SELV parts and accessible earthing parts								

** Insulation type: B – Basic; S – Supplementary; R – Reinforced. See also IEC 60598-1 Annex M.

3.7 (11.2)	TABLE II: Creepage distances and clearances						N/A
Minimum distances (mm) for a.c. higher than 30 kHz sinusoidal voltages							
Applicable part of IEC 61347-1 Table 7 and 8* or IEC 60664-4 Table 1 and 2							
Distances	Insulation type **	Measured clearance	Required		Measured creepage	Required	
			clearance	*Table		creepage	*Table
Distance 1:							
Working voltage (V).....:							—
Frequency if applicable (kHz).....:							—
PTI.....:					< 600 <input type="checkbox"/> ≥ 600 <input type="checkbox"/>		—
Peak value of the working voltage \hat{U}_{out} if applicable (kV)							—
Supplementary information:							
Distance 2:							
Working voltage (V).....:							—
Frequency if applicable (kHz).....:							—
PTI.....:					< 600 <input type="checkbox"/> ≥ 600 <input type="checkbox"/>		—
Peak value of the working voltage \hat{U}_{out} if applicable (kV)							—
Supplementary information:							
Distance 3:							
Working voltage (V).....:							—
Frequency if applicable (kHz).....:							—
PTI.....:					< 600 <input type="checkbox"/> ≥ 600 <input type="checkbox"/>		—
Peak value of the working voltage \hat{U}_{out} if applicable (kV)							—
Supplementary information:							

** Insulation type: B – Basic; S – Supplementary; R – Reinforced.

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Clause	Requirement + Test	Result - Remark	Verdict

3.15 (13.2.1)	TABLE: Ball Pressure Test of Thermoplastics			P
Allowed impression diameter (mm)		2		—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)	
Splicing wire connectors	See Annex 1	125	1.3	
LED cover	See Annex 1	126.4	1.5	
Supplementary information:				

3.15 (13.3.1)	TABLE: Needle-flame test				P
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
Splicing wire connectors	See Annex 1	10	No	0	P
Supplementary information:					

3.15 (13.3.2)	TABLE: Glow-wire test (IEC 60695-2-11)				P
Glow wire temperature:			650°C		—
Object/ Part No./ Material	Manufacturer/ trademark		Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
LED cover	See Annex 1		No	0	P
—	—		—	—	—
—	—		—	—	—
Supplementary information:					

3.15 (13.4)	TABLE: Proof tracking test (IEC 60112)				P
Test voltage PTI		175 V	—		
Object/ Part No./ Material	Manufacturer/ trademark	Withstand 50 drops without failure on three places or on three specimens			Verdict
LED cover	See Annex 1	Yes	Yes	Yes	P
Supplementary information:					

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Clause	Requirement + Test	Result - Remark	Verdict
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ANNEX 1 TABLE: Critical components information						P
Object / part No.	Code	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾
Supply cord	B	Guangdong Rifeng Electrical Cable Co.,Ltd	H05RN-F	3X1.0mm ²	EN 50525-2-21	VDE 40015999
Earth wire	B	Yang Tai Wire&Cable Co.,Ltd	H05V-K	0.75mm ²	EN 50525-2-31	VDE 40027461
Heat-shrinkable tube	B	DONGGUAN SALIPT CO., LTD	SALIPT S-901-600	600V,105°C	IEC 60598-1 IEC 60598-2-3	UL E209436+ Test with appliance
Splicing wire connectors	B	GUANGDONG OJUN TECHNOLOGY CO., LTD	OJ-286	12-20AWG, 300V, 105°C	IEC 60598-1 IEC 60598-2-3	UL E504633+ Test with appliance
Input wire of LED driver	B	DONG GUAN RECHER ELECTRIC WIRE & CABLE CO LTD	SJOW	3X1.0mm ² , 105°C	IEC 60598-1 IEC 60598-2-3	UL E252733+ Test with appliance
LED driver for 320W	B	Guangdong Done Power Technology Co.,Ltd.	DL-320W-V56X-MXG	Input: AC 120-277V, 50/60Hz, 3.3A, ta:60°C, tc:90 °C Output: DC 25-56V, Uout: 63VDC, 4.2-7.65A, Max. 320W, independent, SELV, IP67, Class I	IEC 61347-2-13 IEC 61347-1	TÜV Rh: JPTUV-130368 JPTUV-130368-M1
LED driver for 200W	B	Guangdong Done Power Technology Co.,Ltd.	DL-200W-V56A-MXG	Input: AC 120-240/277V, 50/60Hz, 2.0A, ta/tc:55°C/90°C, AC 201-240V, AC 277V, ta/tc:45°C/90°C, AC 120-200V, Output: DC 25-56V, Uout: 75VDC, 2.6-5.6A, Max. 200W, independent, SELV, IP67, Class I	IEC 61347-2-13 IEC 61347-1	TÜV Rh: JPTUV-125520

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Clause	Requirement + Test			Result - Remark		Verdict
LED driver for 50W	B	Guangdong Done Power Technology Co.,Ltd.	DL-50W-V56A-MXG	Input: AC 120-240/277V, 50/60Hz, 0.5A, ta/tc:55°C/90°C, AC 201-240V, AC 277V, ta/tc:45°C/90°C, AC 120-200V, Output: DC 25-56V, 0.6-1.7A, Max. 50W, Uout: 75VDC, independent, SELV, IP67, Class I	IEC 61347-2-13 IEC 61347-1	TÜV Rh: JPTUV-125115
Input wire of LED driver	B	DONG GUAN RECHEER ELECTRIC WIRE & CABLE CO LTD	SJOW	2X1.0mm ² , 105°C	IEC 60598-1 IEC 60598-2-3	UL E252733+ Test with appliance
Internal wire connected to LED module	B	DONG GUAN RECHEER ELECTRIC WIRE & CABLE CO LTD	SJOW	1.0mm ² / 0.75 mm ² , 105°C	IEC 60598-1 IEC 60598-2-3	UL E252733+ Test with appliance
LED PCB	B	Shenzhen Junxin Aluminum Substrate Co Ltd	JX-L	130°C, V-0	IEC 60598-1 IEC 60598-2-3	UL E502851+ Tested with appliance
LED cover	C	LOTTE CHEMICAL CORPORATION	PC-1150(+)	V-2, 125°C	IEC 60598-1 IEC 60598-2-3	UL E85371+ Tested with appliance
LEDs chip for CET-124COB series	C	Zhongshan Yiyuan Electronic Technology Co., Ltd	PR4046-C1210-60B	IF:1.5A, VF: 30V COB, 6022-7042K	IEC TR 62778	Tested with appliance
LEDs chip for other models	C	XUYU OPTOELECTRONICS (SHENZHEN) CO.,LTD.	9.3030XXV3 2F J04	IF:150 mA, VF: Max.6.4V 3030, 6000-6500K	IEC TR 62778	Tested with appliance
Glue	C	GUANGZHOU BAIYUN CHEMICAL INDUSTRY CO LTD	SKF323	V-0, 105°C	IEC 60598-1 IEC 60598-2-3	UL E252101+ Tested with appliance
<p>Supplementary information:</p> <p>¹⁾ Provided evidence ensures the agreed level of compliance. See OD-CB2039.</p> <p>The codes above have the following meaning:</p> <p>A - The component is replaceable with another one, also certified, with equivalent characteristics</p> <p>B - The component is replaceable if authorised by the test house</p> <p>C - Integrated component tested together with the appliance</p> <p>D - Alternative component</p>						

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Clause	Requirement + Test	Result - Remark	Verdict
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ANNEX 2	TABLE: Thermal tests of Section 12		P
	Type reference	CET-124SMD-200W	—
	Lamp used.....	Integrated LED module used.	—
	Lamp control gear used	DL-200W-V56A-MXG	—
	Mounting position of luminaire	According to manual instruction	—
	Supply wattage (W)	test 1: 190.2W test 2: 184.6W	—
	Supply current (A)	test 1: 0.703A test 2: 0.669A	—
	Temperatures in test 1 - 4 below are corrected for ta (°C)	45	—
	- abnormal operating mode	Short-circuit the output of LED driver*	—
1.12 (12.4)	- test 1: rated voltage	277 Vac	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current	1.06 x 277 Vac =293.6 Vac	—
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage	—	—
	Through wiring or looping-in wiring loaded by a current of A during the test	—	—
1.12 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current	—	—

Temperature measurements (°C)

Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Supply cord	45	—	70.4 (60.4)	—	90	—	—
Splicing wire connectors	45	—	69.5 (59.5)	—	105	—	—
Input wire of LED driver	45	—	79.1 (69.1)	—	105	—	—
Output wire of LED driver	45	—	87.3 (77.3)	—	105	—	—
tc (LED driver surface)	45	95.3 (85.3)	—	—	90	—	—
Internal wire connected to LED module	45	—	76.5 (66.5)	—	105	—	—
LED PCB	45	—	90.3 (80.3)	—	130	—	—

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Clause	Requirement + Test			Result - Remark			Verdict
LED cover(inside)	45	—	92.0 (82.0)	—	Ref.	—	—
LED cover(outside)	45	—	85.7 (75.7)	—	Ref.	—	—
Lighted object(10cm)	45	—	75.4 (64.4)	—	90	—	—
Mounting surface	45	—	59.6 (49.6)	—	90	—	—
Supplementary information: According to 3.12.1 products intend for use outdoors only, 10 °C shall be deducted from the temperatures measured on the road light in the test enclosure to allow for the effects of natural air movement which occur in the working environment of the street light, the value outside of brackets are the actual measured temperature. *While performed the abnormal test (Short-circuit the output of LED driver), the product shut down immediately, no temperature recorded any more.							

ANNEX 2	TABLE: Thermal tests of Section 12		P
	Type reference	CET-124SMD-200W	—
	Lamp used.....	Integrated LED module used.	—
	Lamp control gear used	DL-200W-V56A-MXG	—
	Mounting position of luminaire	According to manual instruction	—
	Supply wattage (W)	test 1: 197.4W test 2: 188.1W	—
	Supply current (A)	test 1: 1.671A test 2: 1.481A	—
	Temperatures in test 1 - 4 below are corrected for ta (°C)	45	—
	- abnormal operating mode	Short-circuit the output of LED driver*	—
1.12 (12.4)	- test 1: rated voltage	120Vac	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current	1.06 x 120 Vac =127.2 Vac	—
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage	—	—
	Through wiring or looping-in wiring loaded by a current of A during the test	—	—
1.12 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current	—	—
Temperature measurements (°C)			
Part	Ambient	Cl. 12.4 – normal	Cl. 12.5 – abnormal

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Clause	Requirement + Test	Result - Remark	Verdict

		test 1	test 2	test 3	limit	test 4	limit
Supply cord	45	—	73.4 (63.4)	—	90	—	—
Splicing wire connectors	45	—	87.5 (77.5)	—	105	—	—
Input wire of LED driver	45	—	82.4 (72.4)	—	105	—	—
Output wire of LED driver	45	—	89.2 (79.2)	—	105	—	—
tc (LED driver surface)	45	97.6 (87.6)	—	—	90	—	—
Internal wire connected to LED module	45	—	76.9 (66.9)	—	105	—	—
LED PCB	45	—	87.7 (77.7)	—	130	—	—
LED cover(inside)	45	—	93.2 (83.2)	—	Ref.	—	—
LED cover(outside)	45	—	78.8 (68.8)	—	Ref.	—	—
Lighted object(10cm)	45	—	60.4 (50.4)	—	90	—	—
Mounting surface	45	—	45.7 (35.7)	—	90	—	—

Supplementary information:

According to 3.12.1 products intend for use outdoors only, 10 °C shall be deducted from the temperatures measured on the road light in the test enclosure to allow for the effects of natural air movement which occur in the working environment of the street light, the value outside of brackets are the actual measured temperature.

*While performed the abnormal test (Short-circuit the output of LED driver), the product shut down immediately, no temperature recorded any more.

ANNEX 2	TABLE: Thermal tests of Section 12		P
	Type reference	CET-124SMD-200W	—
	Lamp used.....	Integrated LED module used.	—
	Lamp control gear used	DL-200W-V56A-MXG	—
	Mounting position of luminaire	According to manual instruction	—
	Supply wattage (W)	191.8W	—
	Supply current (A)	0.807A	—
	Temperatures in test 1 - 4 below are corrected for ta (°C)	45	—

IEC 60598-2-3								
Clause		Requirement + Test			Result - Remark		Verdict	
		- abnormal operating mode :			Short-circuit the output of LED driver*		—	
1.12 (12.4)		- test 1: rated voltage :			240Vac		—	
		- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current :			—		—	
		- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage :			—		—	
		Through wiring or looping-in wiring loaded by a current of A during the test :			—		—	
1.12 (12.5)		- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current :			—		—	
Temperature measurements (°C)								
Part		Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
			test 1	test 2	test 3	limit	test 4	limit
tc (LED driver surface)		45	97.0 (87.0)	—	—	90	—	—
Supplementary information: According to 3.12.1 products intend for use outdoors only, 10 °C shall be deducted from the temperatures measured on the road light in the test enclosure to allow for the effects of natural air movement which occur in the working environment of the street light, the value outside of brackets are the actual measured temperature. *While performed the abnormal test (Short-circuit the output of LED driver), the product shut down immediately, no temperature recorded any more.								

ANNEX 2	TABLE: Thermal tests of Section 12		P
	Type reference	CET-124COB-250W	—
	Lamp used.....	Integrated LED module used.	—
	Lamp control gear used	DL-320W-V56X-MXG	—
	Mounting position of luminaire	According to manual instruction	—
	Supply wattage (W)	test 1: 247.7W test 2: 248.1W	—
	Supply current (A)	test 1: 0.926A test 2: 0.889A	—
	Temperatures in test 1 - 4 below are corrected for ta (°C)	45	—
	- abnormal operating mode	Short-circuit the output of LED driver*	—
1.12 (12.4)	- test 1: rated voltage	277 Vac	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current	1.06 x 277 Vac =293.6 Vac	—
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage	—	—

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Clause	Requirement + Test	Result - Remark	Verdict

	Through wiring or looping-in wiring loaded by a current of A during the test	—	—
1.12 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current	—	—

Temperature measurements (°C)							
Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Supply cord	45	—	63.9 (53.9)	—	90	—	—
Splicing wire connectors	45	—	64.7 (54.7)	—	105	—	—
Input wire of LED driver	45	—	73.7 (63.7)	—	105	—	—
Output wire of LED driver	45	—	84.9 (74.9)	—	105	—	—
tc (LED driver surface)	45	87.3 (77.3)	—	—	90	—	—
Internal wire connected to LED module	45	—	91.1 (81.1)	—	105	—	—
LED PCB	45	—	93.6 (83.6)	—	130	—	—
LED cover(glass inside)	45	—	76.4 (66.4)	—	Ref.	—	—
LED cover(glass outside)	45	—	75.5 (65.5)	—	Ref.	—	—
Lighted object(10cm)	45	—	60.9 (50.9)	—	90.	—	—
Mounting surface	45	—	56.2 (46.2)	—	90	—	—

Supplementary information:

According to 3.12.1 products intend for use outdoors only, 10 °C shall be deducted from the temperatures measured on the road light in the test enclosure to allow for the effects of natural air movement which occur in the working environment of the street light, the value outside of brackets are the actual measured temperature.

*While performed the abnormal test (Short-circuit the output of LED driver), the product shut down immediately, no temperature recorded any more.

ANNEX 2	TABLE: Thermal tests of Section 12		P
	Type reference	CET-126-300W	—
	Lamp used.....	Integrated LED module used.	—
	Lamp control gear used	DL-320W-V56X-MXG	—

IEC 60598-2-3							
Clause	Requirement + Test			Result - Remark		Verdict	
	Mounting position of luminaire :			According to manual instruction		—	
	Supply wattage (W) :			test 1: 300.7W test 2: 300.6W		—	
	Supply current (A) :			test 1: 1.116A test 2: 1.063A		—	
	Temperatures in test 1 - 4 below are corrected for ta (°C) :			45		—	
	- abnormal operating mode :			Short-circuit the output of LED driver*		—	
1.12 (12.4)	- test 1: rated voltage :			277 Vac		—	
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current :			1.06 x 277 Vac =293.6 Vac		—	
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage :			—		—	
	Through wiring or looping-in wiring loaded by a current of A during the test :			—		—	
1.12 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current :			—		—	
Temperature measurements (°C)							
Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Supply cord	45	—	72.6 (62.6)	—	90	—	—
Splicing wire connectors	45	—	78.6 (68.6)	—	105	—	—
Input wire of LED driver	45	—	87.1 (77.1)	—	105	—	—
Output wire of LED driver	45	—	102.6 (92.6)	—	105	—	—
tc (LED driver surface)	45	92.2 (82.2)	—	—	90	—	—
Internal wire connected to LED module	45	—	96.7 (86.7)	—	105	—	—
LED PCB	45	—	105.3 (95.3)	—	130	—	—
LED cover(inside)	45	—	99.8 (89.8)	—	Ref.	—	—
LED cover(outside)	45	—	95.6 (85.6)	—	Ref.	—	—

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Clause	Requirement + Test			Result - Remark			Verdict
Lighted object(10cm)	45	—	81.3 (71.3)	—	90.	—	—
Mounting surface	45	—	61.5 (51.5)	—	90	—	—
<p>Supplementary information:</p> <p>According to 3.12.1 products intend for use outdoors only, 10 °C shall be deducted from the temperatures measured on the road light in the test enclosure to allow for the effects of natural air movement which occur in the working environment of the street light, the value outside of brackets are the actual measured temperature.</p> <p>*While performed the abnormal test (Short-circuit the output of LED driver), the product shut down immediately, no temperature recorded any more.</p>							

IEC 60598-2-3

Clause	Requirement + Test	Result - Remark	Verdict
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ANNEX 2	TABLE: Thermal tests of Section 12		P
	Type reference	CET-150-300W	—
	Lamp used.....	Integrated LED module used.	—
	Lamp control gear used	DL-320W-V56X-MXG	—
	Mounting position of luminaire	According to manual instruction	—
	Supply wattage (W)	test 1: 301.2W test 2: 300.3W	—
	Supply current (A)	test 1: 1.119A test 2: 1.059A	—
	Temperatures in test 1 - 4 below are corrected for ta (°C)	45	—
	- abnormal operating mode	Short-circuit the output of LED driver*	—
1.12 (12.4)	- test 1: rated voltage	277 Vac	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current	1.06 x 277 Vac =293.6 Vac	—
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage	—	—
	Through wiring or looping-in wiring loaded by a current of A during the test	—	—
1.12 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current	—	—

Temperature measurements (°C)

Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Supply cord	45	—	74.5 (64.5)	—	90	—	—
Splicing wire connectors	45	—	77.4 (67.4)	—	105	—	—
Input wire of LED driver	45	—	90.0 (80.0)	—	105	—	—
Output wire of LED driver	45	—	102.5 (92.5)	—	105	—	—
tc (LED driver surface)	45	93.8 (83.8)	—	—	90	—	—
Internal wire connected to LED module	45	—	99.5 (89.5)	—	105	—	—
LED PCB	45	—	104.3 (94.3)	—	130	—	—

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Clause	Requirement + Test			Result - Remark			Verdict
LED cover(inside)	45	—	101.4 (91.4)	—	Ref.	—	—
LED cover(outside)	45	—	95.1 (85.1)	—	Ref.	—	—
Lighted object(10cm)	45	—	77.9 (67.9)	—	90.	—	—
Mounting surface	45	—	62.2 (52.2)	—	90	—	—
Supplementary information: According to 3.12.1 products intend for use outdoors only, 10 °C shall be deducted from the temperatures measured on the road light in the test enclosure to allow for the effects of natural air movement which occur in the working environment of the street light, the value outside of brackets are the actual measured temperature. *While performed the abnormal test (Short-circuit the output of LED driver), the product shut down immediately, no temperature recorded any more.							

ANNEX 2	TABLE: Thermal tests of Section 12			P		
	Type reference	CET-150-300W		—		
	Lamp used.....	Integrated LED module used.		—		
	Lamp control gear used	DL-320W-V56X-MXG		—		
	Mounting position of luminaire	According to manual instruction		—		
	Supply wattage (W)	Test 1: 307.9W Test 2: 300.5W		—		
	Supply current (A)	Test 1: 2.614A Test 2: 2.372A		—		
	Temperatures in test 1 - 4 below are corrected for ta (°C)	45		—		
	- abnormal operating mode	Short-circuit the output of LED driver*		—		
1.12 (12.4)	- test 1: rated voltage	120 V		—		
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current	1.06 x 120 Vac =127.2 Vac		—		
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage	—		—		
	Through wiring or looping-in wiring loaded by a current of A during the test	—		—		
1.12 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current	—		—		
Temperature measurements (°C)						
Part	Ambient	Cl. 12.4 – normal			Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4

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Clause	Requirement + Test			Result - Remark			Verdict
Supply cord	45	—	45.0	—	90	—	—
Splicing wire connectors	45	—	50.1 (40.1)	—	105	—	—
Input wire of LED driver	45	—	75.2 (65.2)	—	105	—	—
Output wire of LED driver	45	—	78.8 (68.8)	—	105	—	—
tc (LED driver surface)	45	95.1 (85.1)	—	—	90	—	—
Internal wire connected to LED module	45	—	—	—	105	—	—
LED PCB	45	—	81.7 (71.7)	—	130	—	—
LED cover(inside)	45	—	95.1 (85.1)	—	Ref.	—	—
LED cover(outside)	45	—	90.7 (80.7)	—	Ref.	—	—
Lighted object(10cm)	45	—	80.3 (70.3)	—	90	—	—
Mounting surface	45	—	67.9 (57.9)	—	90	—	—
Supplementary information: According to 3.12.1 products intend for use outdoors only, 10 °C shall be deducted from the temperatures measured on the road light in the test enclosure to allow for the effects of natural air movement which occur in the working environment of the street light, the value outside of brackets are the actual measured temperature. *While performed the abnormal test (Short-circuit the output of LED driver), the product shut down immediately, no temperature recorded any more.							

ANNEX 2	TABLE: Thermal tests of Section 12		P
	Type reference	CET-150-100W	—
	Lamp used.....	Integrated LED module used.	—
	Lamp control gear used	DL-50W-V56X-MXG(2pcs)	—
	Mounting position of luminaire	According to manual instruction	—
	Supply wattage (W)	102W	—
	Supply current (A)	0.385A	—
	Temperatures in test 1 - 4 below are corrected for ta (°C)	45	—
	- abnormal operating mode	Short-circuit the output of LED driver*	—
1.12 (12.4)	- test 1: rated voltage	120 Vac	—

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Clause	Requirement + Test				Result - Remark		Verdict
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current :				—		—
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage :				—		—
	Through wiring or looping-in wiring loaded by a current of A during the test :				—		—
1.12 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current :				—		—
Temperature measurements (°C)							
Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
tc (LED driver surface)	45	88.9 (78.9)	—	—	90	—	—
Supplementary information: According to 3.12.1 products intend for use outdoors only, 10 °C shall be deducted from the temperatures measured on the road light in the test enclosure to allow for the effects of natural air movement which occur in the working environment of the street light, the value outside of brackets are the actual measured temperature. *While performed the abnormal test (Short-circuit the output of LED driver), the product shut down immediately, no temperature recorded any more.							

IEC 60598-2-3

Clause	Requirement + Test	Result - Remark	Verdict
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ANNEX 2	TABLE: Thermal tests of Section 12		P
	Type reference	CET-150-100W	—
	Lamp used.....	Integrated LED module used.	—
	Lamp control gear used	DL-50W-V56X-MXG(2pcs)	—
	Mounting position of luminaire	According to manual instruction	—
	Supply wattage (W)	102.9W	—
	Supply current (A)	0.449A	—
	Temperatures in test 1 - 4 below are corrected for t_a (°C)	45	—
	- abnormal operating mode	Short-circuit the output of LED driver*	—
1.12 (12.4)	- test 1: rated voltage	240Vac	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current	—	—
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage	—	—
	Through wiring or looping-in wiring loaded by a current of A during the test	—	—
1.12 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current	—	—

Temperature measurements (°C)

Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
tc (LED driver surface)	45	87.6 (77.6)	—	—	90	—	—

Supplementary information:

According to 3.12.1 products intend for use outdoors only, 10 °C shall be deducted from the temperatures measured on the road light in the test enclosure to allow for the effects of natural air movement which occur in the working environment of the street light, the value outside of brackets are the actual measured temperature.

*While performed the abnormal test (Short-circuit the output of LED driver), the product shut down immediately, no temperature recorded any more.

ANNEX 2	TABLE: Thermal tests of Section 12		P
	Type reference	CET-150-100W	—
	Lamp used.....	Integrated LED module used.	—
	Lamp control gear used	DL-50W-V56X-MXG(2pcs)	—
	Mounting position of luminaire	According to manual instruction	—
	Supply wattage (W)	103.1W	—

IEC 60598-2-3							
Clause	Requirement + Test				Result - Remark		Verdict
	Supply current (A) :				0.402A		—
	Temperatures in test 1 - 4 below are corrected for ta (°C) :				45		—
	- abnormal operating mode :				Short-circuit the output of LED driver*		—
1.12 (12.4)	- test 1: rated voltage :				277Vac		—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current :				—		—
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage :				—		—
	Through wiring or looping-in wiring loaded by a current of A during the test :				—		—
1.12 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current :				—		—
Temperature measurements (°C)							
Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
tc (LED driver surface)	45	88.6 (78.6)	—	—	90	—	—
Supplementary information: According to 3.12.1 products intend for use outdoors only, 10 °C shall be deducted from the temperatures measured on the road light in the test enclosure to allow for the effects of natural air movement which occur in the working environment of the street light, the value outside of brackets are the actual measured temperature. *While performed the abnormal test (Short-circuit the output of LED driver), the product shut down immediately, no temperature recorded any more.							

ANNEX 2	TABLE: Thermal tests of Section 12			P
	Type reference	CET-122-300W		—
	Lamp used.....	Integrated LED module used.		—
	Lamp control gear used	DL-320W-V56X-MXG		—
	Mounting position of luminaire	According to manual instruction		—
	Supply wattage (W)	test 1: 301.2W test 2: 300.3W		—
	Supply current (A)	test 1: 1.119A test 2: 1.059A		—
	Temperatures in test 1 - 4 below are corrected for ta (°C)	45		—
	- abnormal operating mode	Short-circuit the output of LED driver*		—
1.12 (12.4)	- test 1: rated voltage	277 Vac		—

IEC 60598-2-3							
Clause	Requirement + Test			Result - Remark		Verdict	
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current :			1.06 x 277 Vac =293.6 Vac		—	
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage :			—		—	
	Through wiring or looping-in wiring loaded by a current of A during the test :			—		—	
1.12 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current :			—		—	
Temperature measurements (°C)							
Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Supply cord	45	—	70.9 (60.9)	—	90	—	—
Splicing wire connectors	45	—	71.7 (61.7)	—	105	—	—
Input wire of LED driver	45	—	78.6 (68.6)	—	105	—	—
Output wire of LED driver	45	—	87.8 (77.8)	—	105	—	—
tc (LED driver surface)	45	93.5 (83.5)	—	—	90	—	—
Internal wire connected to LED module	45	—	83.9 (73.9)	—	105	—	—
LED PCB	45	—	88.6 (78.6)	—	130	—	—
LED cover(inside)	45	—	97.3 (87.3)	—	Ref.	—	—
LED cover(outside)	45	—	81.1 (71.1)	—	Ref.	—	—
Lighted object(10cm)	45	—	52.5 (42.5)	—	90.	—	—
Mounting surface	45	—	74.4 (64.4)	—	90	—	—
Supplementary information: According to 3.12.1 products intend for use outdoors only, 10 °C shall be deducted from the temperatures measured on the road light in the test enclosure to allow for the effects of natural air movement which occur in the working environment of the street light, the value outside of brackets are the actual measured temperature. *While performed the abnormal test (Short-circuit the output of LED driver), the product shut down immediately, no temperature recorded any more.							

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
ANNEX 3	Screw terminals (part of the luminaire)		N/A
(14)	SCREW TERMINALS		N/A
(14.2)	Type of terminal		—
	Rated current (A).....		—
(14.3.2.1)	One or more conductors		N/A
(14.3.2.2)	Special preparation		N/A
(14.3.2.3)	Terminal size		N/A
	Cross-sectional area (mm ²)		—
(14.3.3)	Conductor space (mm)		N/A
(14.4)	Mechanical tests		N/A
(14.4.1)	Minimum distance		N/A
(14.4.2)	Cannot slip out		N/A
(14.4.3)	Special preparation		N/A
(14.4.4)	Nominal diameter of thread (metric ISO thread).....	M	N/A
	External wiring		N/A
	No soft metal		N/A
(14.4.5)	Corrosion		N/A
(14.4.6)	Nominal diameter of thread (mm)		N/A
	Torque (Nm)		N/A
(14.4.7)	Between metal surfaces		N/A
	Lug terminal		N/A
	Mantle terminal		N/A
	Pull test; pull (N)		N/A
(14.4.8)	Without undue damage		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
ANNEX 4	Screwless terminals (part of the luminaire)		N/A
(15)	SCREWLESS TERMINALS		N/A
(15.2)	Type of terminal :		—
	Rated current (A)..... :		—
(15.3.1)	Material		N/A
(15.3.2)	Clamping		N/A
(15.3.3)	Stop		N/A
(15.3.4)	Unprepared conductors		N/A
(15.3.5)	Pressure on insulating material		N/A
(15.3.6)	Clear connection method		N/A
(15.3.7)	Clamping independently		N/A
(15.3.8)	Fixed in position		N/A
(15.3.10)	Conductor size		N/A
	Type of conductor		N/A
(15.5)	Terminals and connections for internal wiring		N/A
(15.5.1)	Mechanical tests		N/A
(15.5.1.1.1)	Pull test spring-type terminals (4 N, 4 samples) :		N/A
(15.5.1.1.2)	Pull test pin or tab terminals (4 N, 4 samples) :		N/A
	Insertion force not exceeding 50 N		N/A
(15.5.1.2)	Permanent connections: pull-off test (20 N)		N/A
(15.5.2)	Electrical tests		N/A
	Voltage drop (mV) after 1 h (4 samples)..... :		N/A
	Voltage drop of two inseparable joints		N/A
	Number of cycles:		—
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples) :		N/A
	Voltage drop (mV) after 50th alt. 100th cycle (4 samples) :		N/A
	After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples) :		N/A
	After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples) :		N/A
(15.6)	Terminals and connections for external wiring		N/A
(15.6.1)	Conductors		N/A
	Terminal size and rating		N/A
15.6.2	Mechanical tests		N/A

IEC 60598-2-3			
Clause	Requirement + Test	Result - Remark	Verdict
(15.6.2.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N)		N/A
(15.6.2.2)	Pull test pin or tab terminals (4 samples); pull (N)		N/A
(15.6.3)	Electrical tests		N/A
	Tests according 15.6.3.1 + 15.6.3.2 in IEC 60598-1		N/A

(15.6.3.1) (15.6.3.2)	TABLE: Contact resistance test / Heating tests										N/A
	Voltage drop (mV) after 1 h										—
terminal	1	2	3	4	5	6	7	8	9	10	
voltage drop (mV)											
	Voltage drop of two inseparable joints										
	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)											
Supplementary information:											

Attachment 1

IEC60598_2_3M ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
<p align="center">ATTACHMENT TO TEST REPORT IEC 60598-2-3 EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES Luminaires Part 2: Particular requirements Section 3: Luminaires for road and street lighting</p>			
Differences according to : EN 60598-2-3:2003 + A1:2011 used in conjunction with EN IEC 60598-1:2021 + A11:2022			
TRF template used : IECEE OD-2020-F2:2020, Ed. 1.1			
Attachment Form No. : EU_GD_IEC60598_2_3M			
Attachment Originator : UL(Demko)			
Master Attachment : 2022-05-24			
Copyright © 2022 IEC System for Conformity Testing and Certification of Electrical Equipment (IECEE), Geneva, Switzerland. All rights reserved.			
	CENELEC COMMON MODIFICATIONS (EN)		P
3.5 (3)	MARKING		P
3.5 (3.2.12)	Note 4 deleted		N
3.6 (4)	CONSTRUCTION		P
4.7 (4.11.6)	Electro-mechanical contact systems: electric strength test at 1 500 V		N
3.10 (5)	EXTERNAL AND INTERNAL WIRING		N
3.10 (5.2.2)	Cables equal to EN 50525 (all parts)		N
	Paragraph 2 deleted		N
	Replace table 5.1 – Supply cord		N
3.12 (12)	ENDURANCE TESTS AND THERMAL TESTS		P
3.12 (12.4.2c)	Thermal test (normal operation) see footnote c to table 12.2 relating to unsleeved fixed wiring		N
ZB	ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)		N
(3.3)	DK: power supply cords of class I luminaires with label		N
(5.2.1)	CY, DK, FI, UK: type of plug		N
(5.2.18)	DK: socket-outlets		N
ZC	ANNEX ZC, NATIONAL DEVIATIONS (EN)		N
(4 & 5)	FR: Shuttered socket-outlets 10/16A		N

Attachment 1

IEC60598_2_3M ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict
	FR: Safety requirements for high buildings (Decree of 30 December 2011 on safety regulations for the construction of high-rise buildings and their protection against fire and panic risks; Section VIII; Article GH 48, Lighting) Glow-wire test for outer parts of luminaires:		N
	- 850°C for luminaires in stairways and horizontal travel paths		N
	- 650°C for indoor luminaires		N
	UK: Requirements according to United Kingdom Building Regulation		N

Attachment 2

Attachment 2	General requirement of electrical and electronic equipment for SASO	P
Electrical equipment which are fitted with a plug, the Plug shall comply with SASO 2203 and IEC 60083:2006(SA2 only)		N/A
Class 0 appliances and Class 0I appliances are not allowed		N/A
The standard voltages and frequency in Saudi Arabia are 220Vac and 230Vac ,60Hz(for single phase) and 380V and 400V (for three phase)		P
Markings on the name plate shall be either in Arabic or English language or both Remark: See rating label for Country of original marked on the product(Made in China) The Arabic version was not checked, it shall be checked before issuing SASO IECEE license		P
Safety Instructions and Manual shall be in both Arabic and English language Remark: The Arabic version was not checked, it shall be checked before issuing SASO IECEE license		P

Attachment 3

Attachment 3	UAE Regulations for Low Voltage Equipment for United Arab Emirates	P
EMIRATES CONFORMITY ASSESSMENT SCHEME REQUIREMENTS FOR REGISTRATION OF LOW VOLTAGE EQUIPMENT (Identification no.: CARL-01 Revision: 4)		--
The standard voltages and frequency in United Arab Emirates are 230Vac ,50Hz(for single phase)		P
Markings on the name plate shall be either in Arabic or English language or both Remark: See rating label for Country of original marked on the product(Made in China) The Arabic version was not checked, it shall be checked before shipped to United Arab Emirates		P
Safety Instructions and Manual shall be in both Arabic and English language Remark: The Arabic version was not checked, it shall be checked before shipped to United Arab Emirates		P



Test Report issued under the responsibility of:



TEST REPORT
IEC 62031
LED modules for general lighting – Safety specifications

Report Number. : R22110911
Date of issue : See main report of IEC 60598-2-3
Total number of pages : 19

Name of Testing Laboratory preparing the Report : Bay Area Compliance Laboratories Corp. (Dongguan)
No. 12, Pulong East 1st Road, Tangxia Town, Dongguan, Guangdong, China

Applicant's name : See main report of IEC 60598-2-1
Address : See main report of IEC 60598-2-1

Test specification:

Standard : IEC 62031:2018
Test procedure : CB Scheme
Non-standard test method : N/A

Test Report Form No. : IEC62031F
Test Report Form(s) Originator : Intertek Semko AB
Master TRF : 2018-06-14

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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.

General disclaimer:

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 CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

Test item description..... :	See main report of IEC 60598-2-3	
Trade Mark..... :	See main report of IEC 60598-2-3	
Manufacturer	See main report of IEC 60598-2-3	
Model/Type reference..... :	See main report of IEC 60598-2-3	
Ratings..... :	See main report of IEC 60598-2-3	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
<input checked="" type="checkbox"/> CB Testing Laboratory:	Bay Area Compliance Laboratories Corp. (Dongguan)	
Testing location/ address	No. 12, Pulong East 1 st Road, Tangxia Town, Dongguan, Guangdong, China	
Tested by (name, function, signature)..... :	See main report of IEC 60598-2-3	
Approved by (name, function, signature) .. :	See main report of IEC 60598-2-3	
Testing procedure: CTF Stage 1:		
Testing location/ address		
Tested by (name, function, signature)..... :		
Approved by (name, function, signature) .. :		
Testing procedure: CTF Stage 2:		
Testing location/ address		
Tested by (name + signature)..... :		
Witnessed by (name, function, signature) . :		
Approved by (name, function, signature) .. :		
Testing procedure: CTF Stage 3:		
Testing procedure: CTF Stage 4:		
Testing location/ address		
Tested by (name, function, signature)..... :		
Witnessed by (name, function, signature) . :		
Approved by (name, function, signature) .. :		
Supervised by (name, function, signature) :		

Attachment 4

List of Attachments (including a total number of pages in each attachment):

--

Summary of testing:

Tests performed (name of test and test clause):

See main report of IEC 60598-2-3

Testing location:

Bay Area Compliance Laboratories Corp.
(Dongguan)

No. 12, Pulong East 1st Road, Tangxia Town,
Dongguan, Guangdong, China

Summary of compliance with National Differences:

List of countries addressed

See main report of IEC 60598-2-3

Copy of marking plate:

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

See main report of IEC 60598-2-3

Attachment 4

Test item particulars.....:	
Classification of installation and use.....: Integral module	
Supply Connection.....: Connecting leads	
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 : See main report of IEC 60598-2-3	
Date (s) of performance of tests : See main report of IEC 60598-2-3	
General remarks:	
<p>"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report.</p> <p>Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.</p> <p>Clause numbers between brackets refer to clauses in IEC 61347-1</p>	
Manufacturer's Declaration per sub-clause 4.2.5 of IEC 60598-2-3:	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies).....: See main report of IEC 60598-2-3	
General product information:	
The integral module is used in product: LED STREET LIGHT, it is tested with the product.	

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
4	GENERAL REQUIREMENTS		P
4.2	Classification		P
	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"/>		—
4.6	Independent modules comply with requirements in IEC 60598-1:2014/AMD1:2017		N/A
4.8	Modules with integrated controlgear providing SELV comply with requirements according to IEC 61347-1:2015/AMD1:2017 clause L.5 to L.11.	(see Annex 1)	N/A
6	MARKING		N/A
6.2	Contents of marking for built-in and for independent LED modules		N/A
	a) mark of origin		N/A
	b) model number, type reference		N/A
	c1) constant voltage module; rated supply voltage and supply frequency		N/A
	c2) constant current module; rated supply current and supply frequency		N/A
	d) rated power		N/A
	e) indication of connections, wiring diagram		N/A
	f) value of t_c and place on the module		N/A
	g) E_{thr} if required		N/A
	h) symbol for built-in modules		N/A
	i) heat transfer temperature t_d		N/A
	j) power for heat-conduction P_d		N/A
	k) working voltage for insulation		N/A
6.3	Location of marking for built-in LED modules		N/A
	- marking of a) and b) in 6.2 on the modules		N/A
	- marking of other applicable items in 6.2 on the modules or in data sheet, leaflet or website		N/A
6.4	Location of marking for independent LED modules		N/A
	- marking of a), b), c) and f) in 6.2 on the modules		N/A
	- marking of other applicable items in 6.2 on the modules or in data sheet, leaflet or website		N/A
6.5	Marking of integral LED modules		N/A
	- information in 6.2 a) to g) in data sheet, leaflet or website		N/A
6.6	Durable and legibility of marking		N/A

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
	- marking on the LED module legible after test with water		N/A
	- marking not on the LED module legible		N/A
7	TERMINALS		N/A
7.1	Integral terminals		N/A
	Screw terminals comply with section 14 of IEC 60598-1	(see Annex 3)	N/A
	Screwless terminals comply with section 15 of IEC 60598-1	(see Annex 4)	N/A
7.2	Terminals other than integral terminals		N/A
	Separately approved; component list	(see Annex 2)	N/A
	Ratings suit the conditions		N/A
	Satisfy additional relevant requirements of this standard		N/A
8 (9)	EARTHING		N/A
- (9.1)	Provisions for protective earthing		N/A
	Terminal complying with clause 8		N/A
	Locked against loosening and not possible to loosen by hand		N/A
	Not possible to loosen clamping means unintentionally on screwless terminals		N/A
	Earthing via means of fixing		N/A
	Earthing terminal only used for the earthing of the control gear		N/A
	All parts of material minimizing the danger of electrolytic corrosion		N/A
	Made of brass or equivalent material		N/A
	Contact surface bare metal		N/A
	Test according 7.2.3 of IEC 60598-1		N/A
- (9.2)	Provision for functional earthing		N/A
	Comply with clause 8 and 9.1		N/A
	Functional earth insulated from live parts by double or reinforced insulation		N/A
- (9.3)	Lamp controlgear with conductors for protective earthing by tracks on printed circuit board		N/A
	Test with a current of 25 A between earthing terminal and each of the accessible metal parts; measured resistance (Ω) at ≥ 10 A according 7.2.3 of IEC 60598-1: $< 0,5 \Omega$		N/A

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
- (9.4)	Earthing of built-in lamp controlgear		N/A
	Earth by means of fixing to earthed metal of luminaire in compliance of 7.2 of IEC 60598-1		N/A
	Earthing terminal only for earthing the built-in controlgear		N/A
- (9.5)	Earthing via independent controlgear		N/A
- (9.5.1)	Earth connection to other equipment		N/A
	Looping or through connection, conductor min. 1,5 mm ² and of copper or equivalent		N/A
	Protective earthing wires in line with 5.3.1.1 and clause 7		N/A
- (9.5.2)	Earthing of the lamp compartments powered via the independent lamp controlgear		N/A
	Test with a current of 25 A between input and output earth terminals; measured resistance (Ω) between earthing terminal and each of the accessible metal parts at ≥ 10 A according 7.2.3 of IEC 60598-1: < 0,5 Ω		N/A
	Output earthing terminal marked as in 7.1 t) of IEC 61347-1		N/A
9 (10)	PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS		N/A
- (10.1)	Controlgear protected against accidental contact with live parts		N/A
- (A2)	Voltage measured with 50 k Ω	(see Annex A)	N/A
- (A3)	Voltage > 35 V peak or > 60 V d.c. or protective impedance device	(see Annex A)	N/A
- (10.1)	Lacquer or enamel not used for protection or insulation		N/A
	Adequate mechanical strength on parts providing protection		N/A
- (10.2)	Capacitors > 0,5 μ F: voltage after 1 min (V): < 50 V		N/A
- (10.3)	Controlgear providing SELV		N/A
	Accessible conductive parts are insulated from live parts by double or reinforced insulation in SELV controlgear		N/A
	No connection between output circuit and the body or protective earthing circuit		N/A
	No possibility of connection between output circuit and the body or protective earthing circuit through other conductive parts		N/A
	SELV outputs separated from earth by at least basic insulation		N/A

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
	ELV conductive parts insulated as live parts		N/A
	Tests according Annex L of IEC 61347-1		N/A
- (10.4)	Accessible conductive parts in SELV circuits		N/A
	Output voltage under load ≤ 25 V r.m.s. or ≤ 60 V d.c.		N/A
	If output voltage > 25 V r.m.s. or > 60 V d.c.; No load output ≤ 35 V peak or ≤ 60 V d.c and touch current does not exceed 0,7 mA (peak) or 2 mA d.c. :		N/A
	One conductive part is insulated if output voltage or current exceeding the values above and withstand test voltage 500 V		N/A
	Double or reinforced insulation bridged by appropriate and at least two resistors or two Y2 capacitors or one Y1 capacitor		N/A
	Y1 or Y2 capacitors comply with IEC 60384-14		N/A
	Resistors comply with test (a) in 14.1 of IEC 60065		N/A

10 (11)	MOISTURE RESISTANCE AND INSULATION		P
	After storage 48 h at 91-95% relative humidity and 20-30 °C measuring of insulation resistance with d.c. 500 V (M Ω):		P
	For basic insulation ≥ 2 M Ω	> 100 M Ω (test with luminaire)	P
	For double or reinforced insulation ≥ 4 M Ω		N/A
	Between primary and secondary circuits in controlgear providing SELV, values in Annex L in IEC 61347-1		N/A

11 (12)	ELECTRIC STRENGTH		P
	Immediately after clause 11 electric strength test for 1 min		P
	Basic insulation for SELV, test voltage 500 V		P
	Working voltage ≤ 50 V, test voltage 500 V		N/A
	Working voltage > 50 V ≤ 1000 V, test voltage (V):		N/A
	Basic insulation, 2U + 1000 V		N/A
	Supplementary insulation, 2U + 1000 V		N/A
	Double or reinforced insulation, 4U + 2000 V		N/A
	No flashover or breakdown		P
	Solid or thin sheet insulation for double or reinforced insulation fulfil the requirements in Annex N in IEC 61347-1		N/A

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
12 (14)	FAULT CONDITIONS		P
- (14.1)	When operated under fault conditions the controlgear:		P
	- does not emit flames or molten material		P
	- does not produce flammable gases		P
	- protection against accidental contact not impaired		P
	Thermally protected controlgear does not exceed the marked temperature value		N/A
	Fault conditions: capacitors, resistors or inductors without proof of compliance with relevant specifications have been short-circuited or disconnected		N/A
- (14.2)	Short-circuit of creepage distances and clearances if less than specified in clause 16 in Part 1 (after any reduction in 14.2 - 14.5)		N/A
- (14.3)	Short-circuit or interruption of semiconductor devices	Short circuit/open circuit one LED chip	P
- (14.4)	Short-circuit across insulation consisting of lacquer, enamel or textile		N/A
- (14.5)	Short-circuit across electrolytic capacitors		N/A
	Short-circuit or interruption of SPDs		N/A
- (14.6)	After the tests has been carried out on three samples:		P
	The insulation resistance $\geq 1 \text{ M}\Omega$	>100 M Ω	P
	No flammable gases		P
	No accessible parts have become live		P
	During the tests, a five-layer tissue paper, where the test specimen is wrapped, does not ignite		P
- (14.7)	Relevant fault condition tests with high-power a.c. supply and in turn to a d.c. supply		—
12.2	Overpower condition		P
	Module withstands overpower condition >15 min.		P
	Module with automatic protective device or power limiter, test performed 15 min. at limit.		P
	No fire, smoke or flammable gas is produced		P
	Molten material does not ignite tissue paper, spread below the module		P

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
14 (15)	CONSTRUCTION		P
- (15.1)	Wood, cotton, silk, paper and similar fibrous material		P
	Wood, cotton, silk, paper and similar fibrous material not used as insulation	No such material	P
- (15.2)	Printed circuits		P
	Printed circuits used as internal connections complies with clause 14		P
15 (16)	CREEPAGE DISTANCES AND CLEARANCES		N/A
- (16.1)	General		N/A
	Creepage distances and clearances according to 16.2 and 16.3		N/A
	Controlgears providing SELV comply with additional requirements in Annex L		N/A
	Insulating lining of metallic enclosures		N/A
	Controlgear protected against pollution comply with Annex P		N/A
- (16.2)	Creepage distances		N/A
- (16.2.2)	Minimum creepage distances for working voltages		N/A
	Creepage distances according to Table 7	(see appended table)	N/A
- (16.2.3)	Creepage distances for working voltages with frequencies above 30 kHz		N/A
	Creepage distances according to Table 8	(see appended table)	N/A
- (16.3)	Clearances		N/A
- (16.3.2)	Clearances for working voltages		N/A
	Clearances distances according to Table 9	(see appended table)	N/A
- (16.3.3)	Clearances for ignition voltages and working voltages with higher frequencies		N/A
	Clearances distances for basic or supplementary insulation according to Table 10		N/A
	Clearances distances for reinforced insulation according to Table 11		N/A
16 (17)	SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS		P
	Screws, current-carrying parts and connections in compliance with IEC 60598-1 (clause numbers between parentheses refer to IEC 60598-1)		—
(4.11)	Electrical connections		P
(4.11.1)	Contact pressure		P
(4.11.2)	Screws:		N/A
	- self-tapping screws		N/A
	- thread-cutting screws		N/A
(4.11.3)	Screw locking:		N/A

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
	- spring washer		N/A
	- rivets		N/A
(4.11.4)	Material of current-carrying parts		P
(4.11.5)	No contact to wood or mounting surface		P
(4.11.6)	Electro-mechanical contact systems		N/A
(4.12)	Mechanical connections and glands		N/A
(4.12.1)	Screws not made of soft metal		N/A
	Screws of insulating material		N/A
	Torque test: torque (Nm); part :		N/A
	Torque test: torque (Nm); part :		N/A
	Torque test: torque (Nm); part :		N/A
(4.12.2)	Screws with diameter < 3 mm screwed into metal		N/A
(4.12.4)	Locked connections:		N/A
	- fixed arms; torque (Nm) :		N/A
	- lampholder; torque (Nm) :		N/A
	- push-button switches; torque 0,8 Nm :		N/A
(4.12.5)	Screwed glands; force (Nm) :		N/A
17 (18)	RESISTANCE TO HEAT, FIRE AND TRACKING		N/A
- (18.1)	Ball-pressure test :	See Test Table 17 (18.1)	N/A
- (18.2)	Test of printed boards :	See Test Table 17 (18.2)	N/A
- (18.3)	Glow-wire test (650°C) :	See Test Table 17 (18.3)	N/A
- (18.4)	Needle-flame test (10 s) :	See Test Table 17 (18.4)	N/A
- (18.5)	Proof tracking test :	See Test Table 17 (18.5)	N/A
18	RESISTANCE TO CORROSION		N/A
	Comply with requirements according 4.18 of IEC 60598-1		N/A
20	HEAT MANAGEMENT		N/A
20.1	General		N/A
	Fulfil clause 20 if replaceable LED module and when heat conducting thermal interface is needed.		N/A
20.2	Thermal interface material		N/A
	Thermal interface material delivered with the module if necessary		N/A
20.3	Heat protection		N/A
	Not impair safety when operated under poor heat-conduction conditions according Annex D		N/A

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict

21	PHOTOBIOLOGICAL SAFETY		P
21.1	UV radiation		N/A
	Luminous radiation not exceed 2mW/klm		N/A
21.2	Blue light hazard		P
	Assessed according to IEC TR 62778	RG1, See attachment 4 for IEC TR 62778 test report.	P
21.3	Infrared radiation		N/A
	Requirements for infrared radiation when required		N/A

A	ANNEX A - TESTS		P
	All tests performed in accordance with the advice given in Annex H of IEC 61347-1, if applicable		P

12 (14)	TABLE: tests of fault conditions		P
Part	Simulated fault		Hazard
LED	S-C, the unit shut down, recovered		YES/NO
LED	O-C, the power became smaller, No hazard, recovered		YES/NO

15 (16)	TABLE: clearance and creepage distance measurements (mm)							N/A
Applicable part of IEC 61347-1 Table 7 – 11*								
Distances	Insulation type **	Measured clearance	Required		Measured creepage	Required		
			clearance	*Table		creepage	*Table	
Distance 1:								
Working voltage (V)							—	
Frequency if applicable (kHz)							—	
PTI					< 600 <input type="checkbox"/> ≥ 600 <input type="checkbox"/>		—	
Peak value of the working voltage \hat{U}_{out} if applicable (kV)							—	
Pulse voltage if applicable (kV)							—	
Supplementary information:								
Distance 2:								
Working voltage (V)							—	
Frequency if applicable (kHz)							—	
PTI					< 600 <input type="checkbox"/> ≥ 600 <input type="checkbox"/>		—	
Peak value of the working voltage \hat{U}_{out} if applicable (kV)							—	
Pulse voltage if applicable (kV)							—	
Supplementary information:								

IEC 62031							
Clause	Requirement + Test	Result - Remark	Verdict				
Distance 3:							
Working voltage (V)	:		—				
Frequency if applicable (kHz)	:		—				
PTI	:	< 600 <input type="checkbox"/> ≥ 600 <input type="checkbox"/>	—				
Peak value of the working voltage \hat{U}_{out} if applicable (kV)	:		—				
Pulse voltage if applicable (kV)	:		—				
Supplementary information:							

** Insulation type: B – Basic; S – Supplementary; R – Reinforced

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict

17 (18.1)	TABLE: Ball Pressure Test of Thermoplastics			N/A
Allowed impression diameter (mm):		2		—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)	
Supplementary information:				

17 (18.2)	TABLE: Test of printed boards				N/A
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (s)	Ignition of specified layer Yes/No	Duration of burning (s)	Verdict
Supplementary information:					

17 (18.3)	TABLE: Glow-wire test				N/A
Glow wire temperature		650°C			—
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
Any flame or glowing of the sample extinguished within 30 s of withdrawing the glow-wire, and any burning or molten drop did not ignite the underlying parts (Yes/No).....					-
Supplementary information:					

17 (18.4)	TABLE: Needle-flame test				N/A
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
Supplementary information:					

17 (18.5)	TABLE: Proof tracking test			N/A
Test voltage PTI		175 V		—
Object/ Part No./ Material	Manufacturer/ trademark	Withstand 50 drops without failure on three places or on three specimens		Verdict
Supplementary information:				

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict

(A)	ANNEX A - TEST TO ESTABLISH WHETHER A CONDUCTIVE PART IS A LIVE PART WHICH MAY CAUSE AN ELECTRIC SHOCK		N/A
(A.1)	Comply with A.2 or A.3		N/A

ANNEX 1	LED MODULES WITH INTEGRAL CONTROLGEAR PROVIDING SELV		N/A
(L.5)	Protection against electric shock		N/A
	Comply with 9.2 of IEC 61558-1		N/A
(L.6)	Heating		N/A
	No excessive temperatures in normal use		N/A
	Value if capacitor tc marked		—
	Winding insulation classified as Class		—
	Comply with tests of clause 14 of IEC 61558-1 with adjustments		N/A
(L.7)	Short-circuit and overload protection		N/A
	Comply with tests of clause 15 of IEC 61558-1 with adjustments		N/A
(L.8)	Insulation resistance and electric strength		N/A
(L.8.1)	Conditioned 48 h between 91 % and 95 %		N/A
(L.8.2)	Insulation resistance		N/A
	Between input- and output circuits not less than 5 MΩ		N/A
	Between metal parts of class II convertors which are separated from live parts by basic insulation only and the body not less than 5 MΩ		N/A
	Between metal foil in contact with the inner and outer surfaces of enclosures of insulating material not less than 2 MΩ		N/A
(L.8.3)	Electric strength		N/A
	1) Between live parts of input circuits and live parts of output circuits		N/A
	2) Over basic or supplementary insulation between:		N/A
	a) live parts having different polarity		N/A
	b) live parts and body if intended to be connected to protective earth		N/A
	c) accessible metal parts and a metal rod of the same diameter as the flexible cable or cord		N/A
	d) live parts and an intermediate metal part		N/A
	e) intermediate metal parts and the body		N/A
	f) each input circuit and all other input circuits		N/A

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
	3) Over reinforced insulation between the body and live parts		N/A
(L.9)	Construction		N/A
(L.9.1)	Transformer comply with 19.12 of IEC 61558-1 and 19 of IEC 61558-2-6		N/A
	HF transformer comply with 19 of IEC 61558-2-16		N/A
(L.10)	Components		N/A
	Protective devices comply with 20.6 – 20.11 of IEC 61558-1		N/A
(L.11)	Creepage distances, clearances and distances through insulation		N/A
	Creepage distances and clearances not less than in Clause 16		N/A
	Distance through insulation according Table L.5 in IEC 61347-1		N/A
	1) Basic distance through insulation		N/A
	Required distance (mm)		—
	Measured (mm)		N/A
	Supplementary information		—
	2) Supplementary distance through insulation		N/A
	Required distance (mm)		—
	Measured (mm)		N/A
	Supplementary information		—
	3) Reinforced distance through insulation		N/A
	Required distance (mm)		—
	Measured (mm)		N/A
	Supplementary information		—

ANNEX 2		TABLE: Critical components information					P
Object / part No.	Code	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾	
See main report of IEC 60598-2-3							
Supplementary information: ¹⁾ Provided evidence ensures the agreed level of compliance. See OD-CB2039. 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							

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
ANNEX 3	Screw terminals (part of the luminaire)		N/A
(14)	SCREW TERMINALS		N/A
(14.2)	Type of terminal		—
	Rated current (A)		—
(14.3.2.1)	One or more conductors		N/A
(14.3.2.2)	Special preparation		N/A
(14.3.2.3)	Terminal size		N/A
	Cross-sectional area (mm ²)		—
(14.3.3)	Conductor space (mm)		N/A
(14.4)	Mechanical tests		N/A
(14.4.1)	Minimum distance		N/A
(14.4.2)	Cannot slip out		N/A
(14.4.3)	Special preparation		N/A
(14.4.4)	Nominal diameter of thread (metric ISO thread).....	M	N/A
	External wiring		N/A
	No soft metal		N/A
(14.4.5)	Corrosion		N/A
(14.4.6)	Nominal diameter of thread (mm)		N/A
	Torque (Nm).....		N/A
(14.4.7)	Between metal surfaces		N/A
	Lug terminal		N/A
	Mantle terminal		N/A
	Pull test; pull (N).....		N/A
(14.4.8)	Without undue damage		N/A

IEC 62031			
Clause	Requirement + Test	Result - Remark	Verdict
ANNEX 4	Screwless terminals (part of the luminaire)		N/A
(15)	SCREWLESS TERMINALS		N/A
(15.2)	Type of terminal		—
	Rated current (A)		—
(15.3.1)	Material		N/A
(15.3.2)	Clamping		N/A
(15.3.3)	Stop		N/A
(15.3.4)	Unprepared conductors		N/A
(15.3.5)	Pressure on insulating material		N/A
(15.3.6)	Clear connection method		N/A
(15.3.7)	Clamping independently		N/A
(15.3.8)	Fixed in position		N/A
(15.3.10)	Conductor size		N/A
	Type of conductor		N/A
(15.5.1)	Terminals internal wiring		N/A
(15.5.1.1)	Pull test spring-type terminals (4 N, 4 samples)		N/A
(15.5.1.2)	Pull test pin or tab terminals (4 N, 4 samples)		N/A
	Insertion force not exceeding 50 N		N/A
(15.5.1.2)	Permanent connections: pull-off test (20 N)		N/A
(15.5.2)	Electrical tests		N/A
	Voltage drop (mV) after 1 h (4 samples).....		N/A
	Voltage drop of two inseparable joints		N/A
	Number of cycles:		—
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples)		N/A
	Voltage drop (mV) after 50th alt. 100th cycle (4 samples)		N/A
	After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples)		N/A
	After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples)		N/A
(15.6)	Terminals and connections for external wiring		N/A
(15.6.1)	Conductors		N/A
	Terminal size and rating		N/A
(15.6.2)	Mechanical tests		N/A
(15.6.2.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N)		N/A

IEC 62031										
Clause	Requirement + Test					Result - Remark				Verdict
(15.6.2.2)	Pull test pin or tab terminals (4 samples); pull (N) :									N/A
(15.6.3)	Electrical tests									N/A
	Tests according 15.6.3.1 + 15.6.3.2 in IEC 60598-1									N/A
(15.6.3.1) (15.6.3.2)	TABLE: Contact resistance test / Heating tests									N/A
	Voltage drop (mV) after 1 h									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)	-	-	-	-	-	-	-	-	-	-
	Voltage drop of two inseparable joints					-				N/A
	Voltage drop after 10th alt. 25th cycle									N/A
	Max. allowed voltage drop (mV):					-				—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)	-	-	-	-	-	-	-	-	-	-
	Voltage drop after 50th alt. 100th cycle									N/A
	Max. allowed voltage drop (mV):					-				—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)	-	-	-	-	-	-	-	-	-	-
	Continued ageing: voltage drop after 10th alt. 25th cycle									N/A
	Max. allowed voltage drop (mV):					-				—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)	-	-	-	-	-	-	-	-	-	-
	Continued ageing: voltage drop after 50th alt. 100th cycle									N/A
	Max. allowed voltage drop (mV):					-				—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)	-	-	-	-	-	-	-	-	-	-
Supplementary information:										



Test Report issued under the responsibility of:



TEST REPORT IEC TR 62778 Application of IEC 62471 for the assessment of blue light hazard to light sources and luminaires	
Report Number.....	R22110911
Date of issue	See main report of IEC 60598-2-3
Total number of pages	12
Name of Testing Laboratory preparing the Report	Bay Area Compliance Laboratories Corp. (Dongguan) No. 12, Pulong East 1 st Road, Tangxia Town, Dongguan, Guangdong China
Applicant's name	See main report of IEC 60598-2-3
Address.....	See main report of IEC 60598-2-3
Test specification:	
Standard	IEC TR 62778:2014 (Second Edition)
Test procedure.....	CB Scheme
Non-standard test method	N/A
Test Report Form No.	IEC62778A
Test Report Form(s) Originator	TÜV SÜD Product Service GmbH
Master TRF	Dated 2016-02
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General disclaimer: 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 CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.	

Test item description..... :	See main report of IEC 60598-2-3	
Trade Mark..... :	See main report of IEC 60598-2-3	
Manufacturer :	See main report of IEC 60598-2-3	
Model/Type reference :	See main report of IEC 60598-2-3	
Ratings :	See main report of IEC 60598-2-3	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
<input checked="" type="checkbox"/>	CB Testing Laboratory:	
Testing location/ address..... :		Bay Area Compliance Laboratories Corp. (Dongguan) No. 12, Pulong East 1 st Road, Tangxia Town, Dongguan, Guangdong, China
<input type="checkbox"/>	Associated CB Testing Laboratory:	
Testing location/ address..... :		
Tested by (name, function, signature)..... :		See main report of IEC 60598-2-3
Approved by (name, function, signature).... :		See main report of IEC 60598-2-3
<input type="checkbox"/>	Testing procedure: CTF Stage 1:	
Testing location/ address..... :		
Tested by (name, function, signature)..... :		
Approved by (name, function, signature).... :		
<input type="checkbox"/>	Testing procedure: CTF Stage 2:	
Testing location/ address..... :		
Tested by (name + signature) :		
Witnessed by (name, function, signature) . :		
Approved by (name, function, signature).... :		
<input type="checkbox"/>	Testing procedure: CTF Stage 3:	
<input type="checkbox"/>	Testing procedure: CTF Stage 4:	
Testing location/ address..... :		
Tested by (name, function, signature)..... :		
Witnessed by (name, function, signature) . :		
Approved by (name, function, signature).... :		
Supervised by (name, function, signature) :		

List of Attachments (including a total number of pages in each attachment):

--

Summary of testing:

Tests performed (name of test and test clause):

See main report of IEC 60598-2-3

Testing location:

Bay Area Compliance Laboratories Corp.
(Dongguan)

No. 12, Pulong East 1st Road, Tangxia Town,
Dongguan, Guangdong, China

Summary of compliance with National Differences (List of countries addressed):

See main report of IEC 60598-2-3

Copy of marking plate:

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

See main report of IEC 60598-2-3

Test item particulars.....:	
Product evaluated.....: Rated voltage (V) Rated current (mA) Rated CCT (K)..... Rated Luminance (Mcd/m²) Component report data used	<input type="checkbox"/> LED package <input type="checkbox"/> LED module <input type="checkbox"/> Lamp <input checked="" type="checkbox"/> Luminaire See main report of IEC 60598-2-3 -- -- -- <input checked="" type="checkbox"/> Not applicable <input type="checkbox"/> LED package <input type="checkbox"/> LED module <input type="checkbox"/> Lamp Report number:
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 Date (s) of performance of tests	
See main report of IEC 60598-2-3 See main report of IEC 60598-2-3	
General remarks:	
"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report. Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.	
Manufacturer's Declaration per sub-clause 4.2.5 of IEC 60598-2-3:	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable

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

Name and address of factory (ies) : See main report of IEC 60598-2-3

General product information:

See main report of IEC 60598-2-3

Attachment 5

IEC TR 62778

Clause	Requirement + Test	Result - Remark	Verdict
7	MEASUREMENT INFORMATION FLOW		P
7.1	Basic flow		P
	'Law of conservation of luminance' applied		P
	Use of only true luminance/radiance values		P
	In case of luminaire: The light source is operated in the luminaire under similar conditions as when tested as a component		N/A
	In case E_{thr} value for RG2 was established the peak value was derived from angular light distribution		N/A
7.2	Conditions for the radiance measurement		P
	Standard condition applied (200mm distance, 0,011rad field of view)		P
	Non-standard condition applied		N/A
7.3	Special cases (I): Replacement by a lamp or LED module of another type		N/A
	Light source is a white light source		N/A
	Evaluation done based on highest luminance		N/A
	Evaluation done based on CCT value		N/A
7.4	Special cases (II): Arrays and clusters of primary light sources		N/A
	LED package is evaluated as : <input type="checkbox"/> RG0 unlimited <input type="checkbox"/> RG1 unlimited		N/A
	E_{thr} of LED package applies to array		N/A
8	RISK GROUP CLASSIFICATION		P
	Risk group achieved:		P
	- .. Risk Group 0 unlimited		N/A
	- .. Risk Group 1 unlimited		P
	- E_{thr} (lx) : Distance to reach RG1 (m) :		N/A

IEC TR 62778

Clause	Requirement + Test	Result - Remark	Verdict	
	TABLE: Spectroradiometric measurement		P	
	Measurement performed on: <input type="checkbox"/> LED package <input type="checkbox"/> LED module <input type="checkbox"/> Lamp <input checked="" type="checkbox"/> Luminaire			
	Model number	CET-124SMD-200W		
	Test voltage (V)	277V~	—	
	Test current (mA)	-	—	
	Test frequency (Hz)	50	—	
	Ambient, t (°C)	21.2	—	
	Measurement distance <input checked="" type="checkbox"/> 20 cm <input type="checkbox"/> ... cm		—	
	Source size <input checked="" type="checkbox"/> Non-small <input type="checkbox"/> Small : mm		—	
	Field of view <input type="checkbox"/> 100 mrad <input checked="" type="checkbox"/> 11 mrad <input type="checkbox"/> 1,7 mrad (for small sources)		—	
Item	Symbol	Units	Result	Remark
Correlated colour temperature	CCT	K	--	--
x/y colour coordinates			--	--
Blue light hazard radiance	L _B	W/(m ² •sr ¹)	4.730e+003	RG1
Blue light hazard irradiance	E _B	W/m ²	--	--
Luminance	L	cd/m ²	5.529e+006	--
Illuminance	E	lx	--	--
Supplementary information:				

IEC TR 62778

Clause	Requirement + Test	Result - Remark	Verdict
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	TABLE: Spectroradiometric measurement				P
	Measurement performed on:		<input type="checkbox"/> LED package <input type="checkbox"/> LED module <input type="checkbox"/> Lamp <input checked="" type="checkbox"/> Luminaire		
	Model number		CET-124COB-250W		
	Test voltage (V)		277V~		—
	Test current (mA)		-		—
	Test frequency (Hz).....		50		—
	Ambient, t (°C).....		21.2		—
	Measurement distance		<input checked="" type="checkbox"/> 20 cm <input type="checkbox"/> ... cm		—
	Source size		<input checked="" type="checkbox"/> Non-small <input type="checkbox"/> Small : mm		—
	Field of view		<input type="checkbox"/> 100 mrad <input checked="" type="checkbox"/> 11 mrad <input type="checkbox"/> 1,7 mrad (for small sources)		—
Item	Symbol	Units	Result	Remark	
Correlated colour temperature	CCT	K	--	--	
x/y colour coordinates			--	--	
Blue light hazard radiance	L _B	W/(m ² •sr ¹)	1.929e+003	RG1	
Blue light hazard irradiance	E _B	W/m ²	--	--	
Luminance	L	cd/m ²	2.241e+006	--	
Illuminance	E	lx	--	--	
Supplementary information:					

Attachment 5

IEC TR 62778

Clause	Requirement + Test	Result - Remark	Verdict
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TABLE: Spectroradiometric measurement					P
	Measurement performed on:		<input type="checkbox"/> LED package <input type="checkbox"/> LED module <input type="checkbox"/> Lamp <input checked="" type="checkbox"/> Luminaire		—
	Model number.....		CET-126-300W		—
	Test voltage (V)		277V~		—
	Test current (mA)		-		—
	Test frequency (Hz).....		50		—
	Ambient, t (°C).....		21.2		—
	Measurement distance		<input checked="" type="checkbox"/> 20 cm <input type="checkbox"/> ... cm		—
	Source size		<input checked="" type="checkbox"/> Non-small <input type="checkbox"/> Small : mm		—
	Field of view		<input type="checkbox"/> 100 mrad <input checked="" type="checkbox"/> 11 mrad <input type="checkbox"/> 1,7 mrad (for small sources)		—
Item		Symb ol	Units	Result	Remark
Correlated colour temperature		CCT	K	--	--
x/y colour coordinates				--	--
Blue light hazard radiance		L _B	W/(m ² •sr ¹)	3.944e+003	RG1
Blue light hazard irradiance		E _B	W/m ²	--	--
Luminance		L	cd/m ²	4.530e+006	--
Illuminance		E	lx	--	--
Supplementary information:					

Attachment 5

IEC TR 62778

Clause	Requirement + Test	Result - Remark	Verdict
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	TABLE: Spectroradiometric measurement				P
	Measurement performed on:		<input type="checkbox"/> LED package <input type="checkbox"/> LED module <input type="checkbox"/> Lamp <input checked="" type="checkbox"/> Luminaire		—
	Model number		CET-150-300W		—
	Test voltage (V)		277V~		—
	Test current (mA)		-		—
	Test frequency (Hz).....		50		—
	Ambient, t (°C).....		21.2		—
	Measurement distance		<input checked="" type="checkbox"/> 20 cm <input type="checkbox"/> ... cm		—
	Source size		<input checked="" type="checkbox"/> Non-small <input type="checkbox"/> Small : mm		—
	Field of view		<input type="checkbox"/> 100 mrad <input checked="" type="checkbox"/> 11 mrad <input type="checkbox"/> 1,7 mrad (for small sources)		—
Item	Symbol	Units	Result	Remark	
Correlated colour temperature	CCT	K	--	--	
x/y colour coordinates			--	--	
Blue light hazard radiance	L _B	W/(m ² •sr ¹)	3.303e+003	RG1	
Blue light hazard irradiance	E _B	W/m ²	--	--	
Luminance	L	cd/m ²	3.906e+006	--	
Illuminance	E	lx	--	--	
Supplementary information:					

Attachment 5

IEC TR 62778

Clause	Requirement + Test	Result - Remark	Verdict	
	TABLE: Spectroradiometric measurement		P	
	Measurement performed on: <input type="checkbox"/> LED package <input type="checkbox"/> LED module <input type="checkbox"/> Lamp <input checked="" type="checkbox"/> Luminaire		—	
	Model number	CET-122-300W	—	
	Test voltage (V)	277V~	—	
	Test current (mA)	-	—	
	Test frequency (Hz)	50	—	
	Ambient, t (°C)	21.2	—	
	Measurement distance <input checked="" type="checkbox"/> 20 cm <input type="checkbox"/> ... cm		—	
	Source size <input checked="" type="checkbox"/> Non-small <input type="checkbox"/> Small : mm		—	
	Field of view <input type="checkbox"/> 100 mrad <input checked="" type="checkbox"/> 11 mrad <input type="checkbox"/> 1,7 mrad (for small sources)		—	
Item	Symbol	Units	Result	Remark
Correlated colour temperature	CCT	K	--	--
x/y colour coordinates			--	--
Blue light hazard radiance	L _B	W/(m ² •sr ¹)	4.685e+003	RG1
Blue light hazard irradiance	E _B	W/m ²	--	--
Luminance	L	cd/m ²	5.460e+006	--
Illuminance	E	lx	--	--
Supplementary information:				

Attachment 6

Attachment 5	Photos	-
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Overall view for CET-124SMD-200W



Rear view for CET-124SMD-200W



Attachment 6

Uncover internal view for CET-124SMD-200W



Earth wire for CET-124SMD-200W

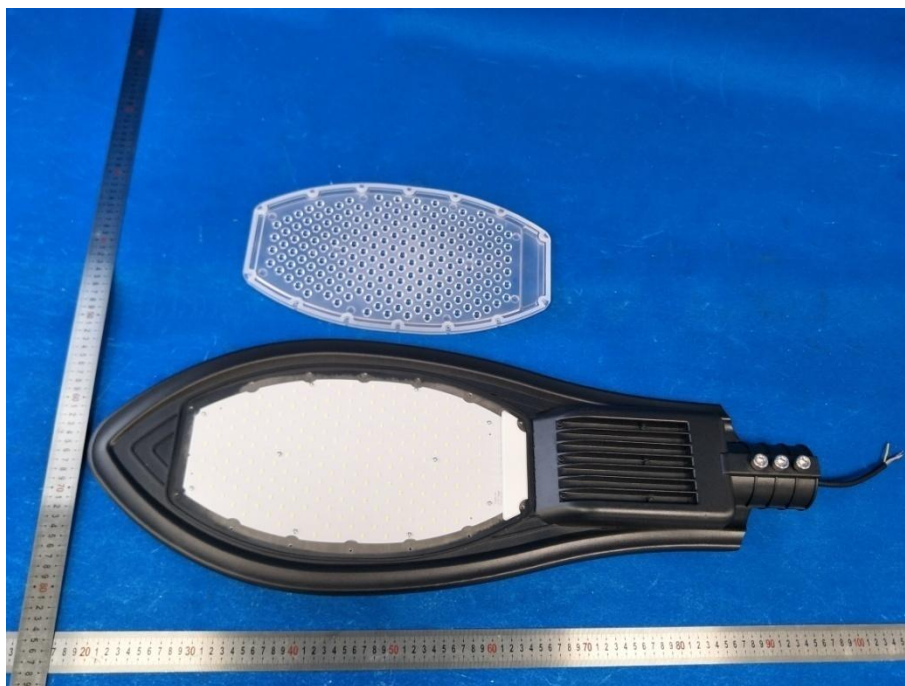


Attachment 6

Back cover for CET-124SMD-200W

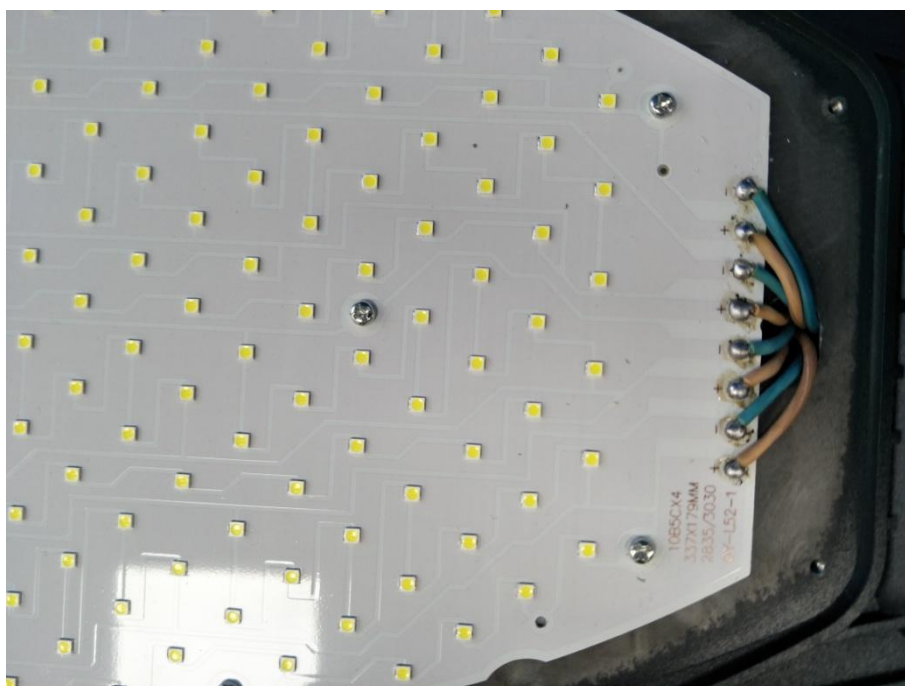


Uncover internal view for CET-124SMD-200W



Attachment 6

Internal view for CET-124SMD-200W



LED PCB view for CET-124SMD-200W



Attachment 6

Cord anchorage for CET-124SMD-200W



Overall view for CET-124COB-250W



Attachment 6

Rear view for CET-124COB-250W



Uncover internal view for CET-124COB-250W



Attachment 6

Internal view for CET-124COB-250W

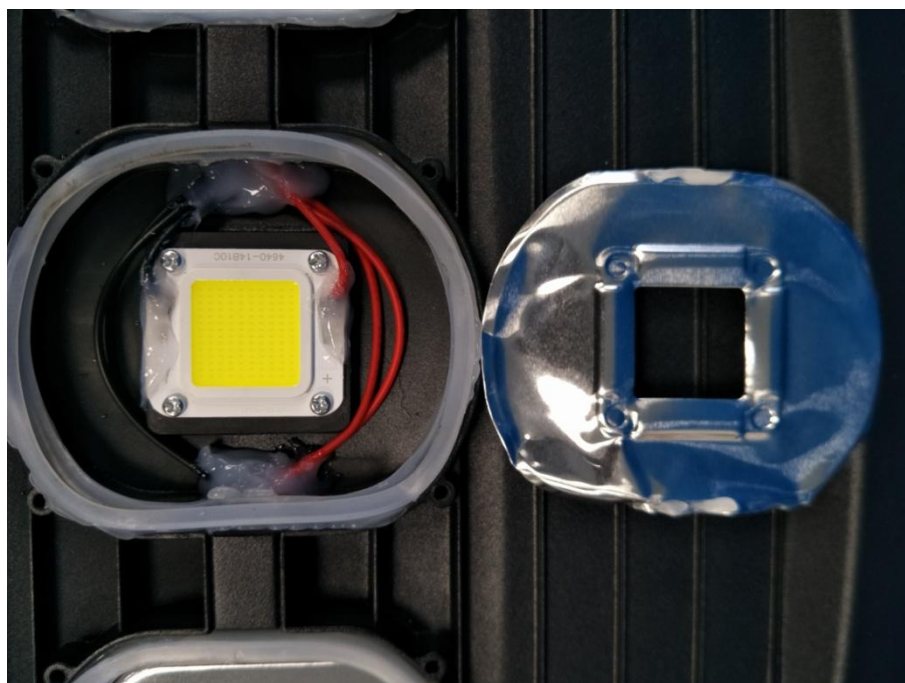


Uncover internal view for CET-124COB-250W

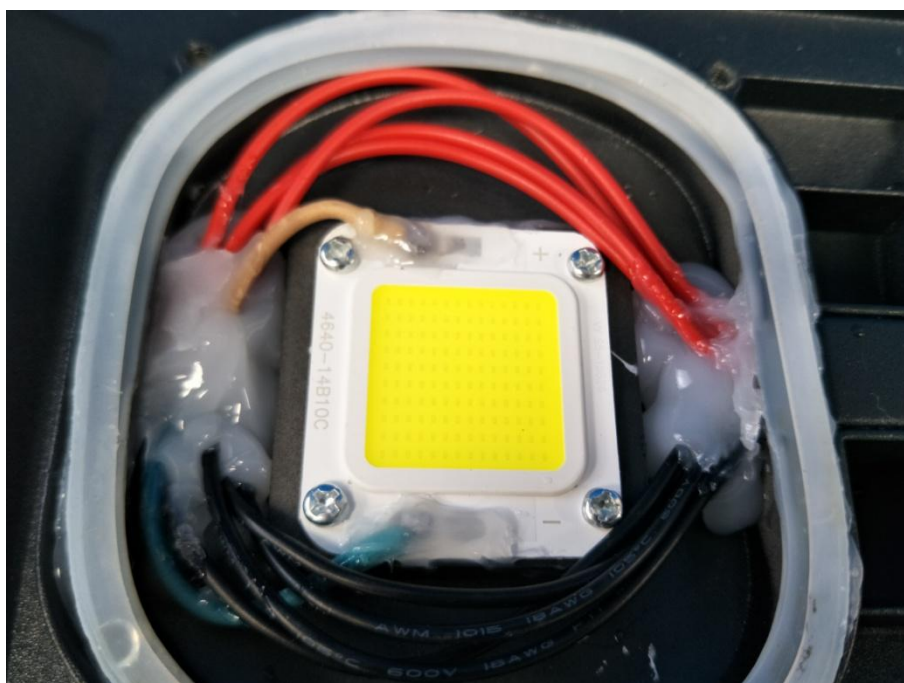


Attachment 6

Internal view for CET-124COB-250W



COB LEDs view for CET-124COB-250W

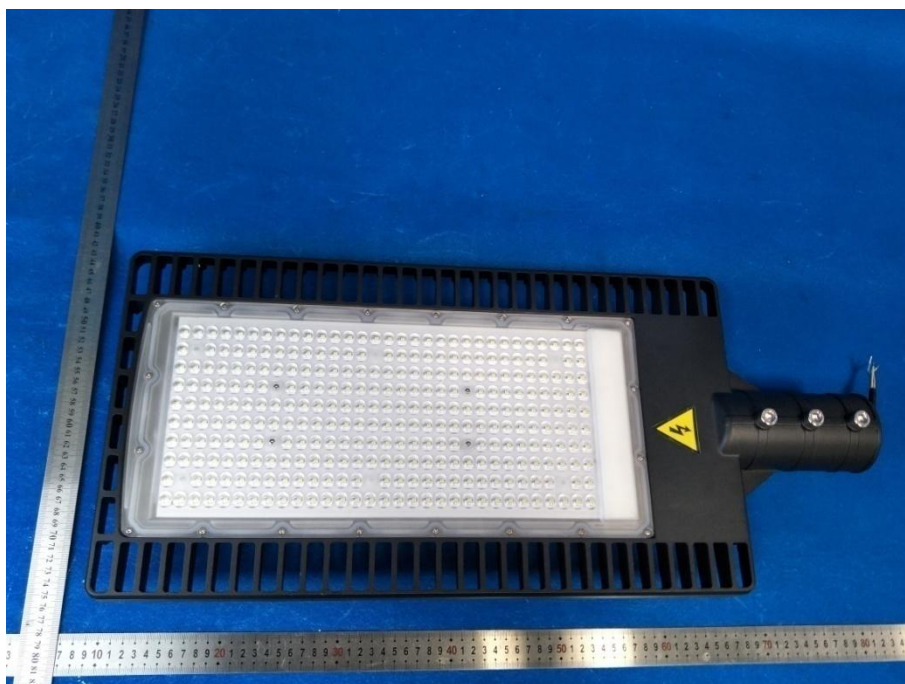


Attachment 6

Back cover view for CET-124COB-250W

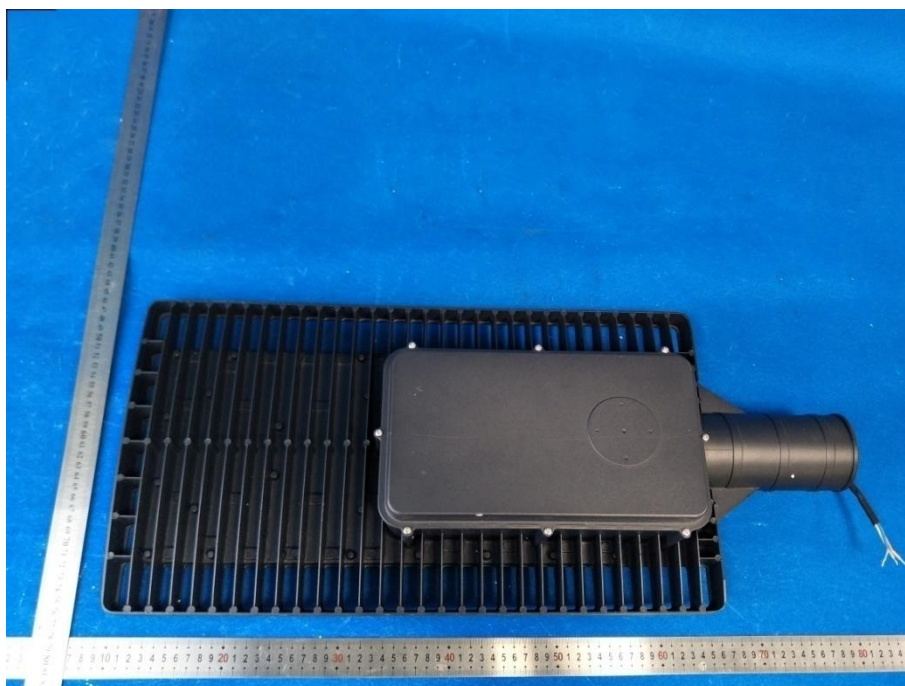


Overall view for CET-126-300W



Attachment 6

Rear view for CET-126-300W



Uncover internal view for CET-126-300W



Attachment 6

Back cover view for CET-126-300W

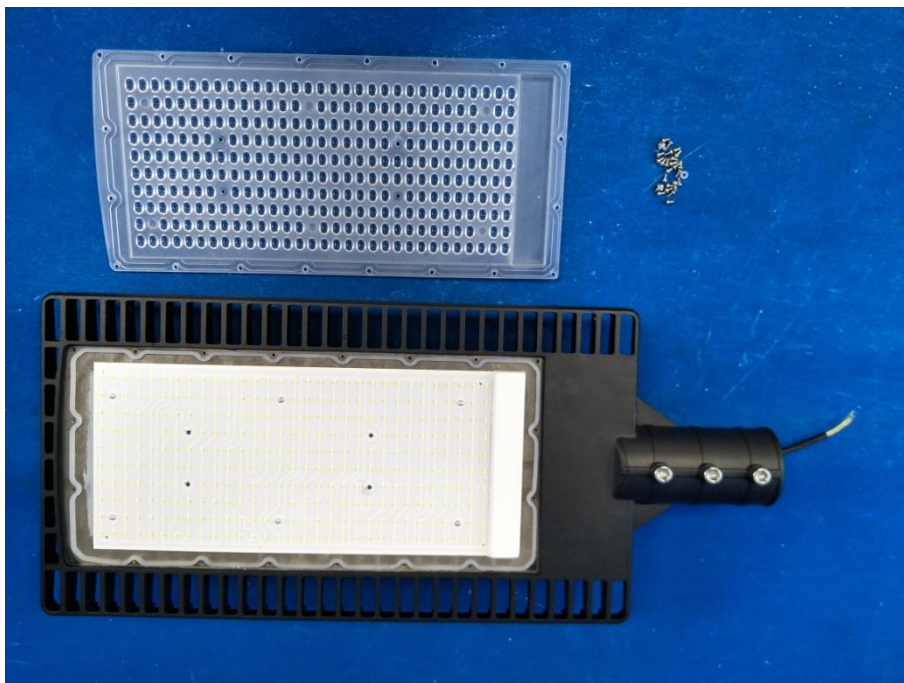


Earthing part view of CET-126-300W

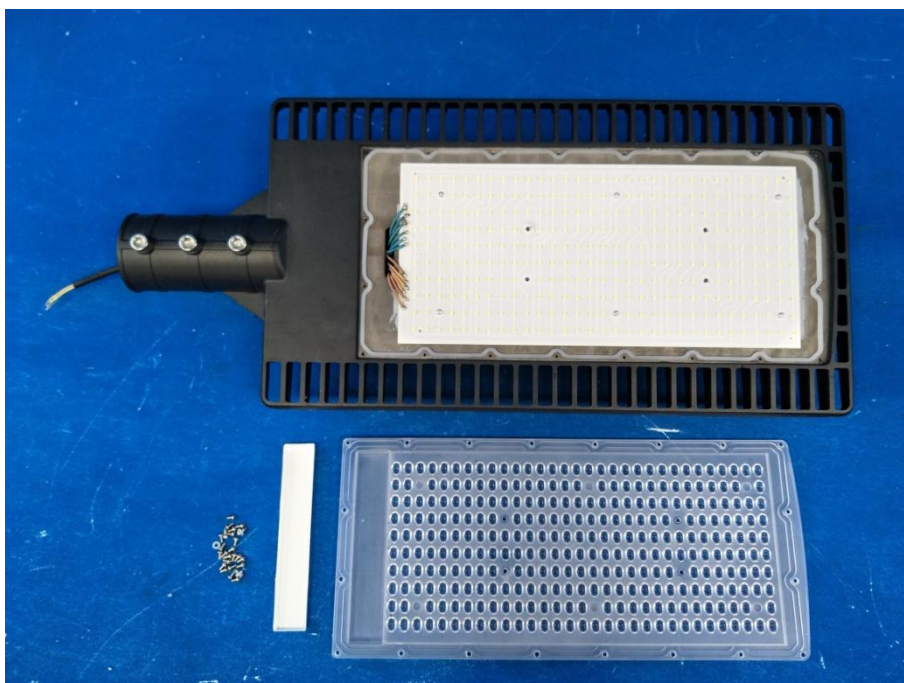


Attachment 6

Uncover internal view for CET-126-300W

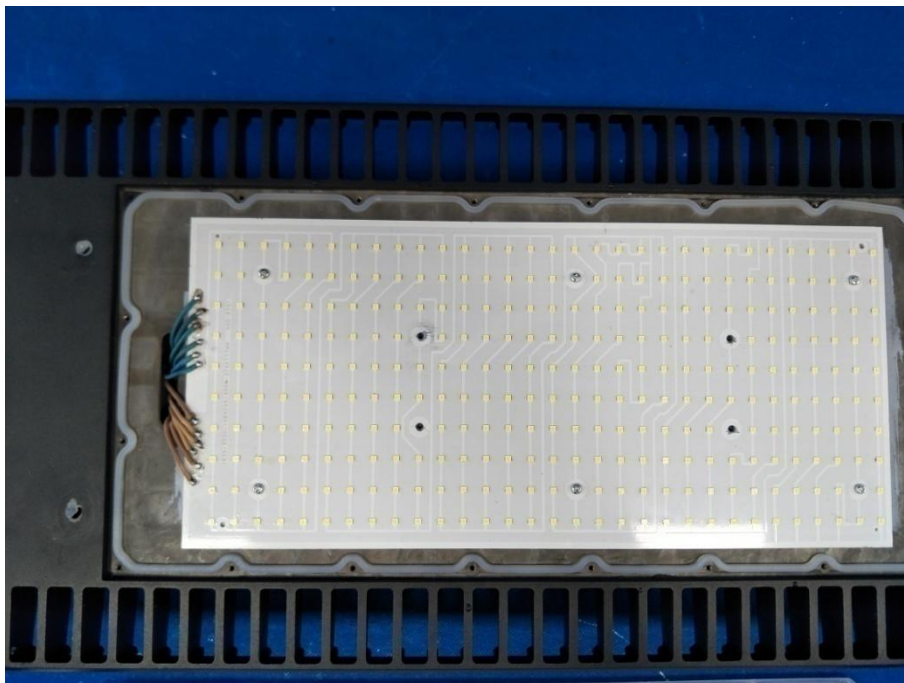


Uncover internal view for CET-126-300W

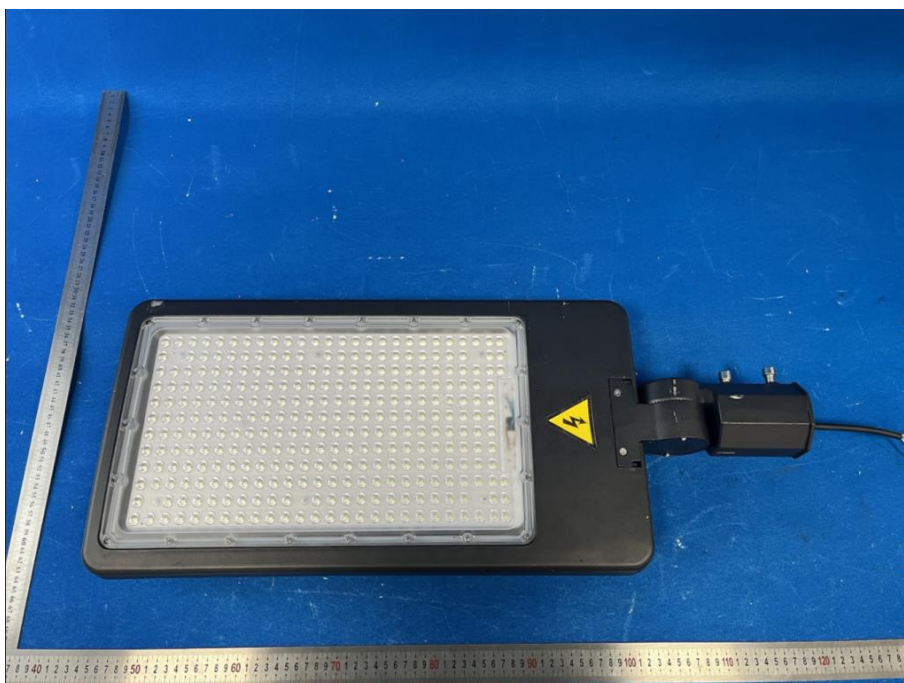


Attachment 6

LED module view for CET-126-300W



Overall view for CET-150-300W



Attachment 6

Rear view for CET-150-300W



Uncover internal view for CET-150-300W

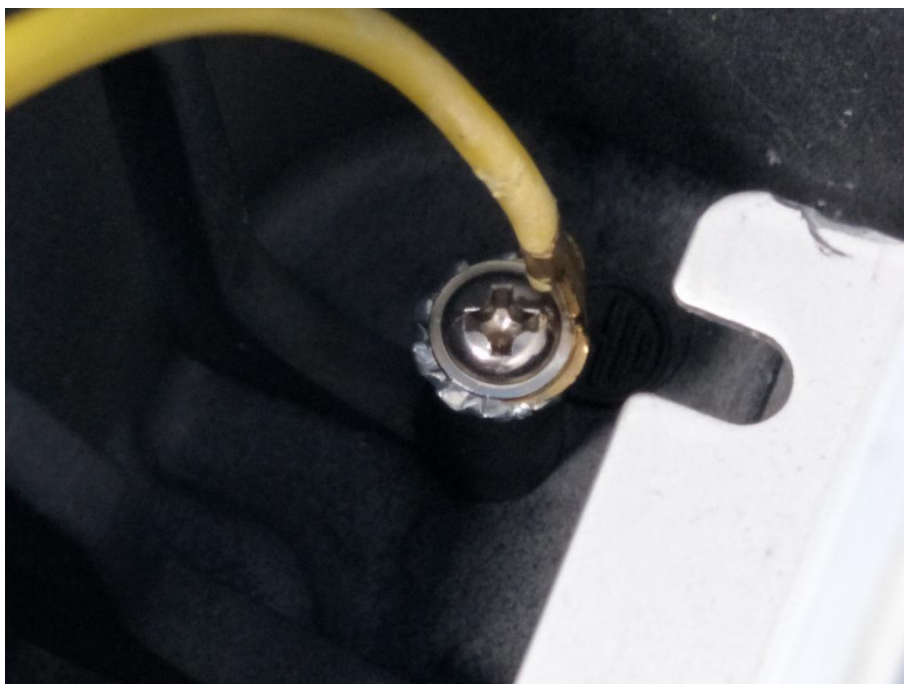


Attachment 6

Back cover view for CET-150-300W

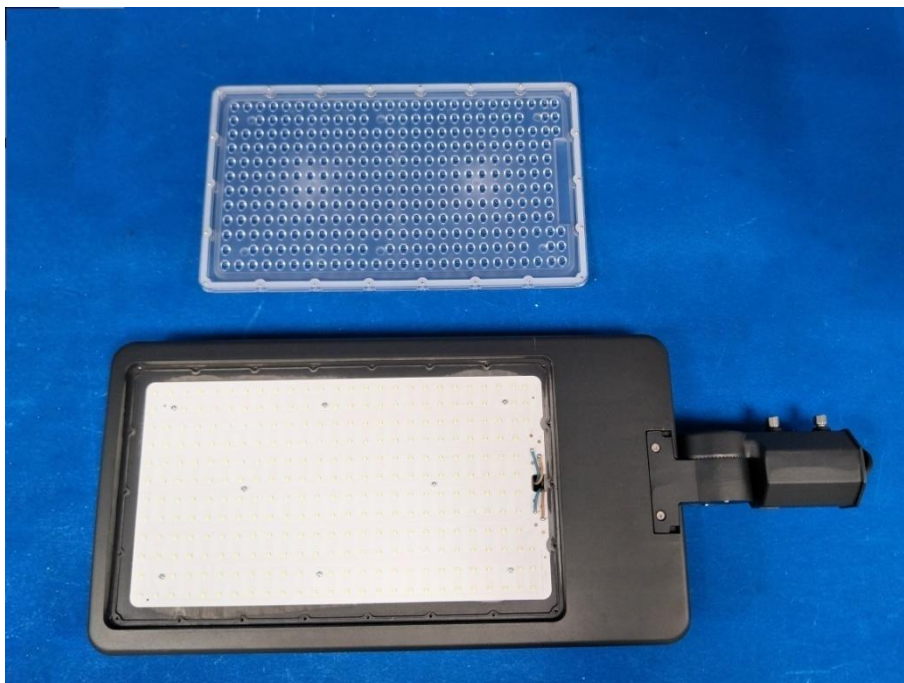


Earthing part view of CET-150-300W

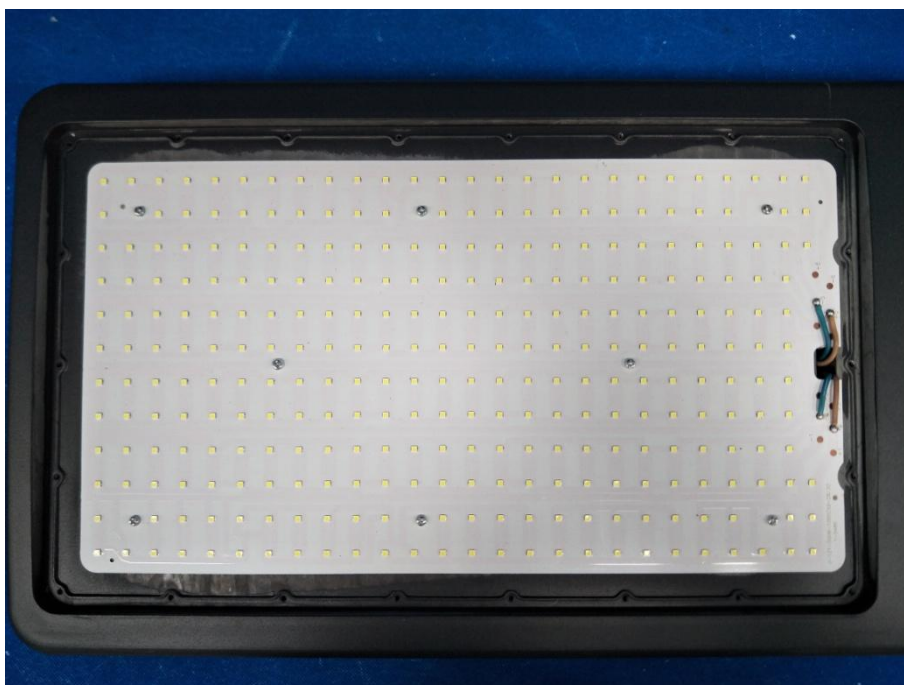


Attachment 6

Uncover internal view for CET-150-300W

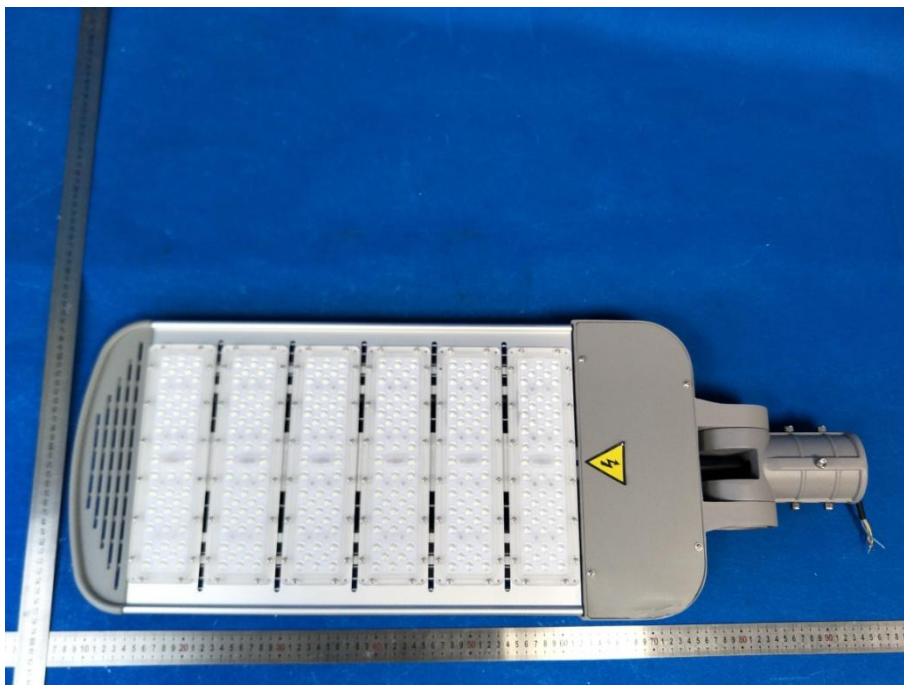


LED module view for CET-150-300W

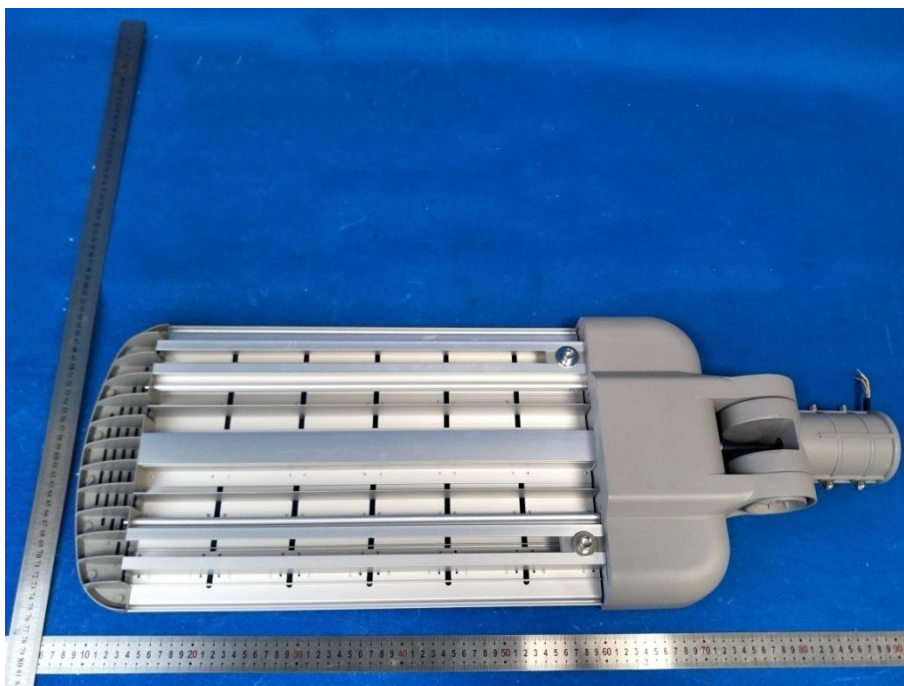


Attachment 6

Overall view for CET-122-300W (cover for driver fixed by glue)



Rear view for CET-122-300W



Attachment 6

Uncover internal view for CET-122-300W



Uncover internal view for CET-122-300W



Attachment 6

Earthing part view of CET-122-300W

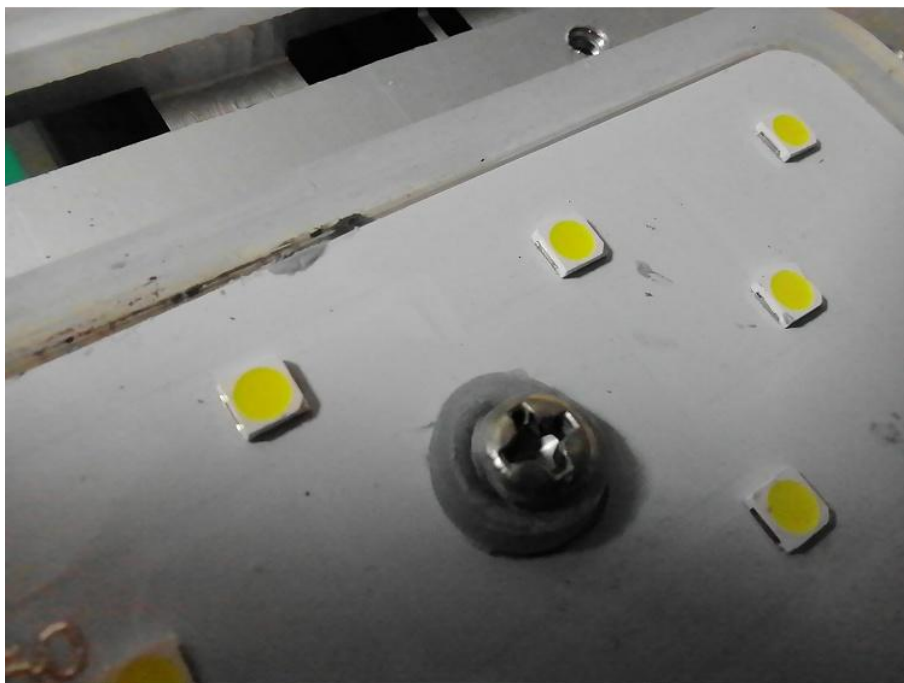


LED module view for CET-122-300W



Attachment 6

Screw view for CET-122-300W



Cord anchorage view for CET-122-300W



Attachment 6

LED driver of DL-320W-V56X-MXG



LED driver of DL-200W-V56X-MXG



Attachment 6

LED driver of DL-50W-V56X-MXG



--End of report--