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LED照明产品如何 突破欧洲市场

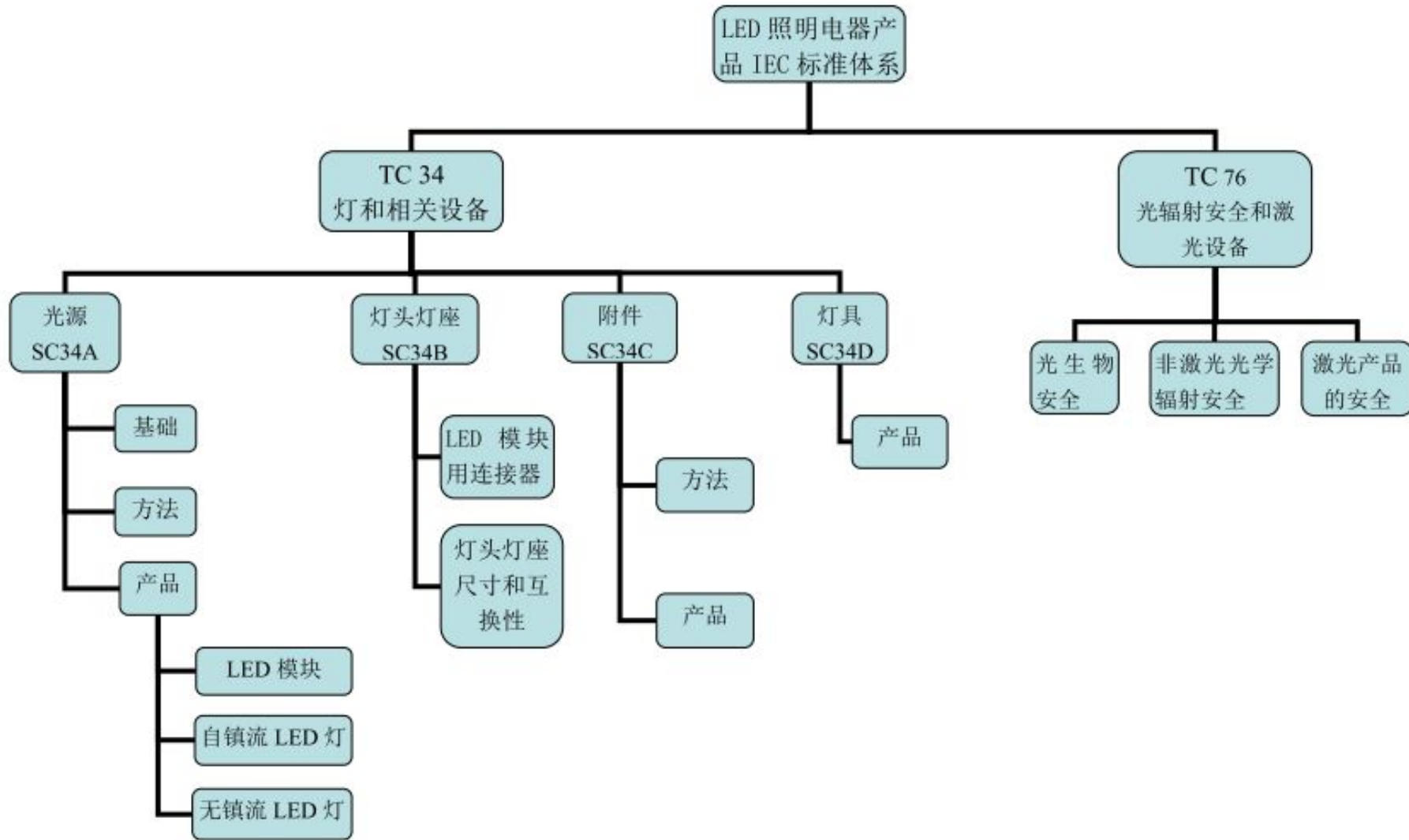
测试、检验、认证、培训解决方案
成就您的成功

演讲者 [姚猛]
[2014-08-07]



1	照明产品已发布的IEC标准和即将发布的IEC标准
2	LED灯泡安全认证注意事项
3	LED灯管安全认证注意事项
4	LED灯具安全认证注意事项
5	工厂例行测试要求简介
6	总结

LED照明产品IEC标准现状



SC 34A Lamps - Publications



IEC 60064	Tungsten filament lamps for domestic and similar general lighting purposes - Performance requirements
IEC 60081	Double-capped fluorescent lamps - Performance specifications
IEC 60155	Glow-starters for fluorescent lamps
IEC 60188	High-pressure mercury vapour lamps - Performance specifications
IEC 60192	Low-pressure sodium vapour lamps - Performance specifications
IEC 60240-1	Characteristics of electric infra-red emitters for industrial heating - Part 1: Short wave infra-red emitters
IEC 60357	Tungsten halogen lamps (non-vehicle) - Performance specifications
IEC 60360	Standard method of measurement of lamp cap temperature rise
IEC 60432-1	Incandescent lamps - Safety specifications - Part 1: Tungsten filament lamps for domestic and similar general lighting purposes
IEC 60432-2	Incandescent lamps - Safety specifications - Part 2: Tungsten halogen lamps for domestic and similar general lighting purposes
IEC 60432-3	Incandescent lamps - Safety specifications - Part 3: Tungsten halogen lamps (non-vehicle)
IEC 60434	Aircraft electrical filament lamps
IEC 60630	Maximum lamp outlines for incandescent lamps
IEC 60634	Heat test source (H.T.S.) lamps for carrying out heating tests on luminaires

SC 34A Lamps - Publications



IEC 60662	High-pressure sodium vapour lamps - Performance specifications
IEC 60682	Standard method of measuring the pinch temperature of quartz-tungsten-halogen lamps
IEC 60809	Lamps for road vehicles - Dimensional, electrical and luminous requirements
IEC 60810	Lamps for road vehicles - Performance requirements
IEC TR 60882	Pre-heat requirements for starterless tubular fluorescent lamps
IEC TR 60887	Glass bulb designation system for lamps
IEC 60901	Single-capped fluorescent lamps - Performance specifications
IEC 60968	Self-ballasted lamps for general lighting services - Safety requirements
IEC 60969	Self-ballasted lamps for general lighting services - Performance requirements
IEC TR 60972	Classification and interpretation of new lighting products
IEC 60983	Miniature lamps
IEC 61126	Procedure for use in the preparation of maximum lamp outlines
IEC TR 61127	High pressure xenon short arc lamps - Dimensional, electrical and photometric data and cap types
IEC 61167	Metal halide lamps - Performance specification

SC 34A Lamps - Publications



IEC 61195	Double-capped fluorescent lamps - Safety specifications
IEC 61199	Single-capped fluorescent lamps - Safety specifications
IEC 61228	Fluorescent ultraviolet lamps used for tanning - Measurement and specification method
IEC 61231	International lamp coding system (ILCOS)
IEC TR 61341	Method of measurement of centre beam intensity and beam angle(s) of reflector lamps
IEC 61549	Miscellaneous lamps
IEC 62031	LED modules for general lighting - Safety specifications
IEC 62035	Discharge lamps (excluding fluorescent lamps) - Safety specifications
IEC 62532	Fluorescent induction lamps - Safety specifications
IEC 62554	Sample preparation for measurement of mercury level in fluorescent lamps
IEC 62560	Self-ballasted LED-lamps for general lighting services by voltage >50 V - Safety specifications
IEC 62612	Self-ballasted LED lamps for general lighting services with supply voltages >50 V - Performance requirements
IEC 62639	Fluorescent induction lamps - Performance specification
IEC 62707-1	LED-binning - Part 1: General requirements and white colour grid

SC 34A Lamps - Publications



IEC PAS 62717	LED modules for general lighting - Performance requirements
IEC TR 62732	Three-digit code for designation of colour rendering and correlated colour temperature
IEC TR 62750	Unified fluorescent lamp dimming standard calculations
IEC TR 62778	Application of IEC 62471 for the assessment of blue light hazard to light sources and luminaires
IEC PAS 62815-1	Cold cathode fluorescent lamps - Part 1: Safety specifications
IEC PAS 62815-2	Cold cathode fluorescent lamps - Part 2: Performance specifications
IEC PAS 62816-1	External electrode fluorescent lamps - Part 1: Safety specifications
IEC PAS 62816-2	External electrode fluorescent lamps - Part 2: Performance specifications

SC 34A Lamps – Work Program (not published)



IEC 62663-1	Non-ballasted LED-lamps - Part 1: Safety specifications
IEC 62663-2	Non-ballasted LED lamps for general lighting - Part 2: Performance requirements
IEC 62776	Double-capped LED lamps for general lighting services - Safety specifications
IEC 62838	Semi-integrated LED-lamps for general lighting services with supply voltages not exceeding 50 V a.c. r.m.s. or 120 V ripple free d.c. - Safety specifications
IEC 62868	Organic light emitting diode (OLED) panels for general lighting - Safety requirements
IEC 62922	Organic light emitting diode (OLED) panels for general lighting - Performance requirements
IEC 62931	GX16t-5 capped tubular LED lamp-safety specifications
IEC/TS 62861	Principal component reliability testing for LED-based products
PNW 34A-1776	General lighting - Organic light emitting diode (OLED) products and related equipment - Terms and definitions

SC 34B Lamp caps and holders - Publications



IEC 60061	Lamp caps and holders together with gauges for the control of interchangeability and safety
IEC 60061-1	Lamp caps and holders together with gauges for the control of interchangeability and safety - Part 1: Lamp caps
IEC 60061-2	Lamp caps and holders together with gauges for the control of interchangeability and safety - Part 2: Lampholders
IEC 60061-3	Lamp caps and holders together with gauges for the control of interchangeability and safety - Part 3: Gauges
IEC 60061-4	Lamp caps and holders together with gauges for the control of interchangeability and safety - Part 4: Guidelines and general information
IEC 60238	Edison screw lampholders
IEC 60399	Barrel thread for lampholders with shade holder ring
IEC 60400	Lampholders for tubular fluorescent lamps and starterholders
IEC 60838-1	Miscellaneous lampholders - Part 1: General requirements and tests
IEC 60838-2-1	Miscellaneous lampholders - Part 2-1: Particular requirements - Lampholders S14
IEC 60838-2-2	Miscellaneous lampholders - Part 2-2: Particular requirements - Connectors for LED-modules
IEC 61184	Bayonet lampholders

SC 34B Lamp caps and holders – Work Program (not published)



IEC 60838-2-3

Miscellaneous lampholders - Part 2-3: Particular requirements - Lampholders for double-ended LED lamps

SC 34C Auxiliaries for lamps - Publications



IEC 60921	Ballasts for tubular fluorescent lamps - Performance requirements
IEC 60923	Auxiliaries for lamps - Ballasts for discharge lamps (excluding tubular fluorescent lamps) - Performance requirements
IEC 60927	Auxiliaries for lamps - Starting devices (other than glow starters) - Performance requirements
IEC 60929	AC and/or DC-supplied electronic control gear for tubular fluorescent lamps - Performance requirements
IEC 61047	DC or AC supplied electronic step-down convertors for filament lamps - Performance requirements
IEC 61048	Auxiliaries for lamps - Capacitors for use in tubular fluorescent and other discharge lamp circuits - General and safety requirements
IEC 61049	Capacitors for use in tubular fluorescent and other discharge lamp circuits. Performance requirements
IEC 61050	Transformers for tubular discharge lamps having a no-load output voltage exceeding 1000 V (generally called neon-transformers). General and safety requirements
IEC 61347-1	Lamp controlgear - Part 1: General and safety requirements
IEC 61347-2-1	Lamp controlgear - Part 2-1: Particular requirements for starting devices (other than glow starters)
IEC 61347-2-2	Lamp controlgear - Part 2-2: Particular requirements for d.c. or a.c. supplied electronic step-down convertors for filament lamps
IEC 61347-2-3	Lamp control gear - Part 2-3: Particular requirements for a.c. and/or d.c. supplied electronic control gear for fluorescent lamps
IEC 61347-2-7	Lamp controlgear - Part 2-7: Particular requirements for battery supplied electronic controlgear for emergency lighting (self-contained)
IEC 61347-2-8	Lamp controlgear - Part 2-8: Particular requirements for ballasts for fluorescent lamps

SC 34C Auxiliaries for lamps - Publications



IEC 61347-2-9	Lamp controlgear - Part 2-9: Particular requirements for electromagnetic controlgear for discharge lamps (excluding fluorescent lamps)
IEC 61347-2-10	Lamp controlgear - Part 2-10: Particular requirements for electronic invertors and convertors for high-frequency operation of cold start tubular discharge lamps (neon tubes)
IEC 61347-2-11	Lamp controlgear - Part 2-11: Particular requirements for miscellaneous electronic circuits used with luminaires
IEC 61347-2-12	Lamp controlgear - Part 2-12: Particular requirements for d.c. or a.c. supplied electronic ballasts for discharge lamps (excluding fluorescent lamps)
IEC 61347-2-13	Lamp controlgear - Part 2-13: Particular requirements for d.c. or a.c. supplied electronic controlgear for LED modules
IEC 62384	DC or AC supplied electronic control gear for LED modules - Performance requirements
IEC 62386-101	Digital addressable lighting interface - Part 101: General requirements - System
IEC 62386-102	Digital addressable lighting interface - Part 102: General requirements - Control gear
IEC 62386-201	Digital addressable lighting interface - Part 201: Particular requirements for control gear - Fluorescent lamps (device type 0)
IEC 62386-202	Digital addressable lighting interface - Part 202: Particular requirements for control gear - Self-contained emergency lighting (device type 1)
IEC 62386-203	Digital addressable lighting interface - Part 203: Particular requirements for control gear - Discharge lamps (excluding fluorescent lamps) (device type 2)
IEC 62386-204	Digital addressable lighting interface - Part 204: Particular requirements for control gear - Low voltage halogen lamps (device type 3)
IEC 62386-205	Digital addressable lighting interface - Part 205: Particular requirements for control gear - Supply voltage controller for incandescent lamps (device type 4)
IEC 62386-206	Digital addressable lighting interface - Part 206: Particular requirements for control gear - Conversion from digital signal into d.c. voltage (device type 5)

SC 34C Auxiliaries for lamps - Publications



IEC 62386-207	Digital addressable lighting interface - Part 207: Particular requirements for control gear - LED modules (device type 6)
IEC 62386-208	Digital addressable lighting interface - Part 208: Particular requirements for control gear - Switching function (device type 7)
IEC 62386-209	Digital addressable lighting interface - Part 209: Particular requirements for control gear - Colour control (device type 8)
IEC 62386-210	Digital addressable lighting interface - Part 210: Particular requirements for control gear - Sequencer (device type 9)
IEC 62442-1	Energy performance of lamp controlgear - Part 1: Controlgear for fluorescent lamps - Method of measurement to determine the total input power of controlgear circuits and the efficiency of the controlgear
IEC 62442-2	Energy performance of lamp controlgear - Part 2: Controlgear for high intensity discharge lamps (excluding fluorescent lamps) - Method of measurement to determine the efficiency of the controlgear
IEC 62442-3	Energy performance of lamp controlgear - Part 3: Controlgear for halogen lamps and LED modules - Method of measurement to determine the efficiency of the controlgear

SC 34C Auxiliaries for lamps – Work Program (not published)



IEC 62386-301	Digital addressable lighting interface - Part 301: General requirements - Input devices - Push buttons and binary inputs
IEC 62386-332	Digital addressable lighting interface - Part 332: Particular requirements - Input control devices - Feedback
IEC 62733	Programmable components in electronic lamp controlgear - General and safety requirements
IEC 62756-1	Digital load side transmission lighting control - Part 1: Basic requirements
IEC 62811	AC and/or DC-supplied electronic controlgear for discharge lamps (excluding fluorescent lamps) - Performance requirements for low frequency square wave operation
PNW 34C-1076	Lamp controlgear - Part 2-xx: Particular requirements for d.c. and/or a.c. supplied electronic controlgear for fluorescent induction lamps

SC 34D Luminaires – Publications



IEC 60570	Electrical supply track systems for luminaires
IEC 60598-1	Luminaires - Part 1: General requirements and tests
IEC 60598-2-1	Luminaires - Part 2-1: Particular requirements - Fixed general purpose luminaires
IEC 60598-2-2	Luminaires - Part 2-2: Particular requirements - Recessed luminaires
IEC 60598-2-3	Luminaires - Part 2-3: Particular requirements - Luminaires for road and street lighting
IEC 60598-2-4	Luminaires - Part 2-4: Particular requirements - Portable general purpose luminaires
IEC 60598-2-5	Luminaires - Part 2-5: Particular requirements - Floodlights
IEC 60598-2-6	Luminaires - Part 2-6: Particular requirements - Luminaires with built-in transformers for filament lamps
IEC 60598-2-7	Luminaires - Part 2-7: Particular requirements - Portable luminaires for garden use
IEC 60598-2-8	Luminaires - Part 2-8: Particular requirements - Handlamps
IEC 60598-2-9	Luminaires - Part 2-9: Particular requirements - Photo and film luminaires (non-professional)
IEC 60598-2-10	Luminaires - Part 2-10: Particular requirements - Portable luminaires for children
IEC 60598-2-11	Luminaires - Part 2-11: Particular requirements - Aquarium luminaires
IEC 60598-2-12	Luminaires - Part 2-12: Particular requirements - Mains socket-outlet mounted nightlights

SC 34D Luminaires – Publications



IEC 60598-2-13	Luminaires - Part 2-13: Particular requirements - Ground recessed luminaires
IEC 60598-2-17	Luminaires. Part 2-17: Particular requirements. Section Seventeen - Luminaires for stage lighting, television and film studios (outdoor and indoor)
IEC 60598-2-18	Luminaires - Part 2-18: Particular requirements - Luminaires for swimming pools and similar applications
IEC 60598-2-19	Luminaires. Part 2-19: Particular requirements - Air-handling luminaires (safety requirements)
IEC 60598-2-20	Luminaires - Part 2-20: Particular requirements - Lighting chains
IEC 60598-2-22	Luminaires - Part 2-22: Particular requirements - Luminaires for emergency lighting
IEC 60598-2-23	Luminaires - Part 2-23: Particular requirements - Extra low voltage lighting systems for filament lamps
IEC 60598-2-24	Luminaires - Part 2-24: Particular requirements - Luminaires with limited surface temperatures
IEC 60598-2-25	Luminaires - Part 2-25: Particular requirements - Luminaires for use in clinical areas of hospitals and health care buildings
IEC 62034	Automatic test systems for battery powered emergency escape lighting
IEC TR 62696	Luminaires - Application of the IK code IEC 62262
IEC PAS 62722-1	Luminaire performance - Part 1: General requirements
IEC PAS 62722-2-1	Luminaire performance - Part 2-1: Particular requirements for LED luminaires
IEC TR 62854	Sharp edge testing apparatus and test procedure for lighting equipment - Tests for sharpness of edge

SC 34D Luminaires – Work Program (not published)



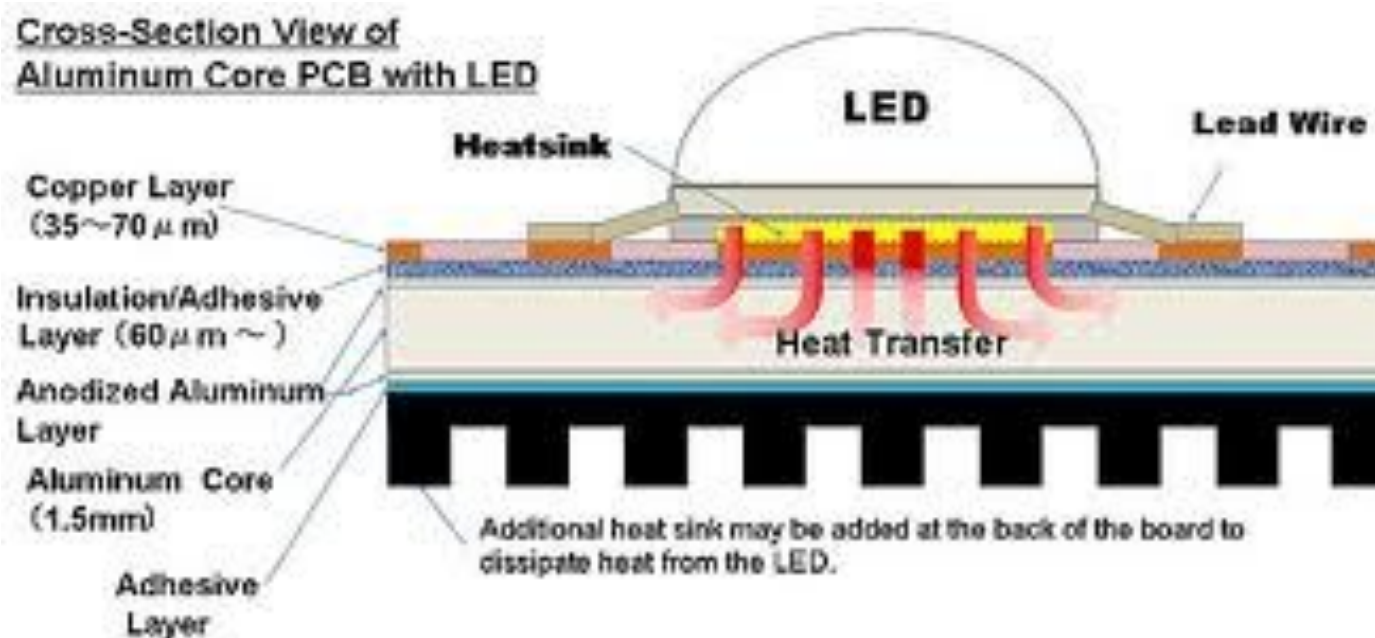
IEC 60598-2-21

Luminaires - Part 2-21: Particular requirements - Rope lights

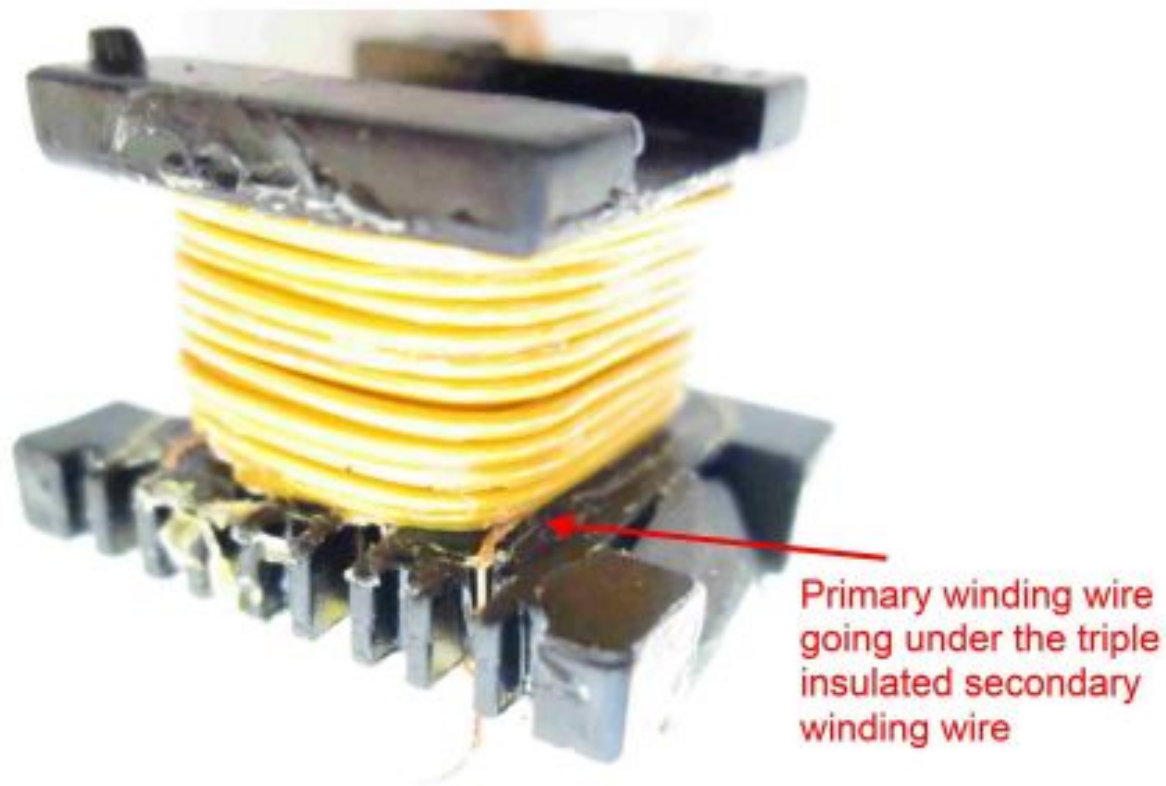


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5	工厂例行测试要求简介
6	总结

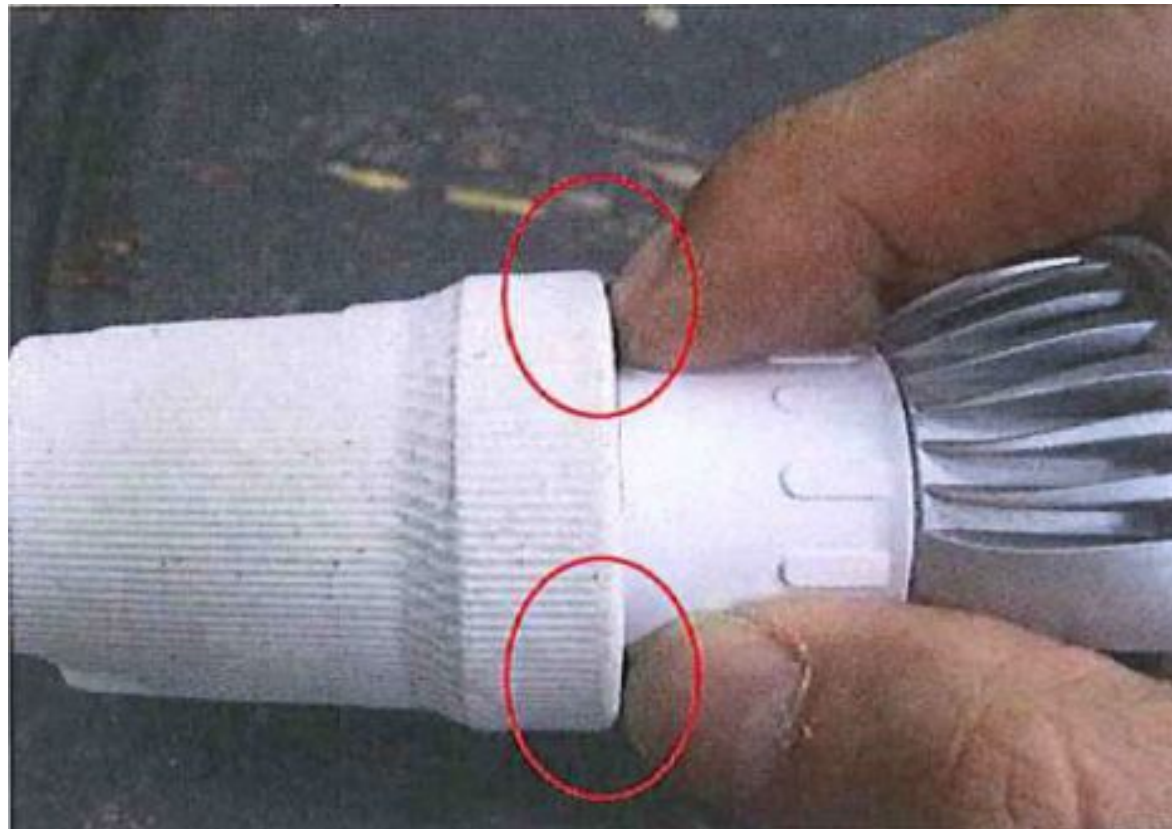
- 铝基板的绝缘层只能当做基本绝缘或附加绝缘，不能当做加强绝缘



- 隔离变压器次级TIW线不能与初级的漆包线直接接触



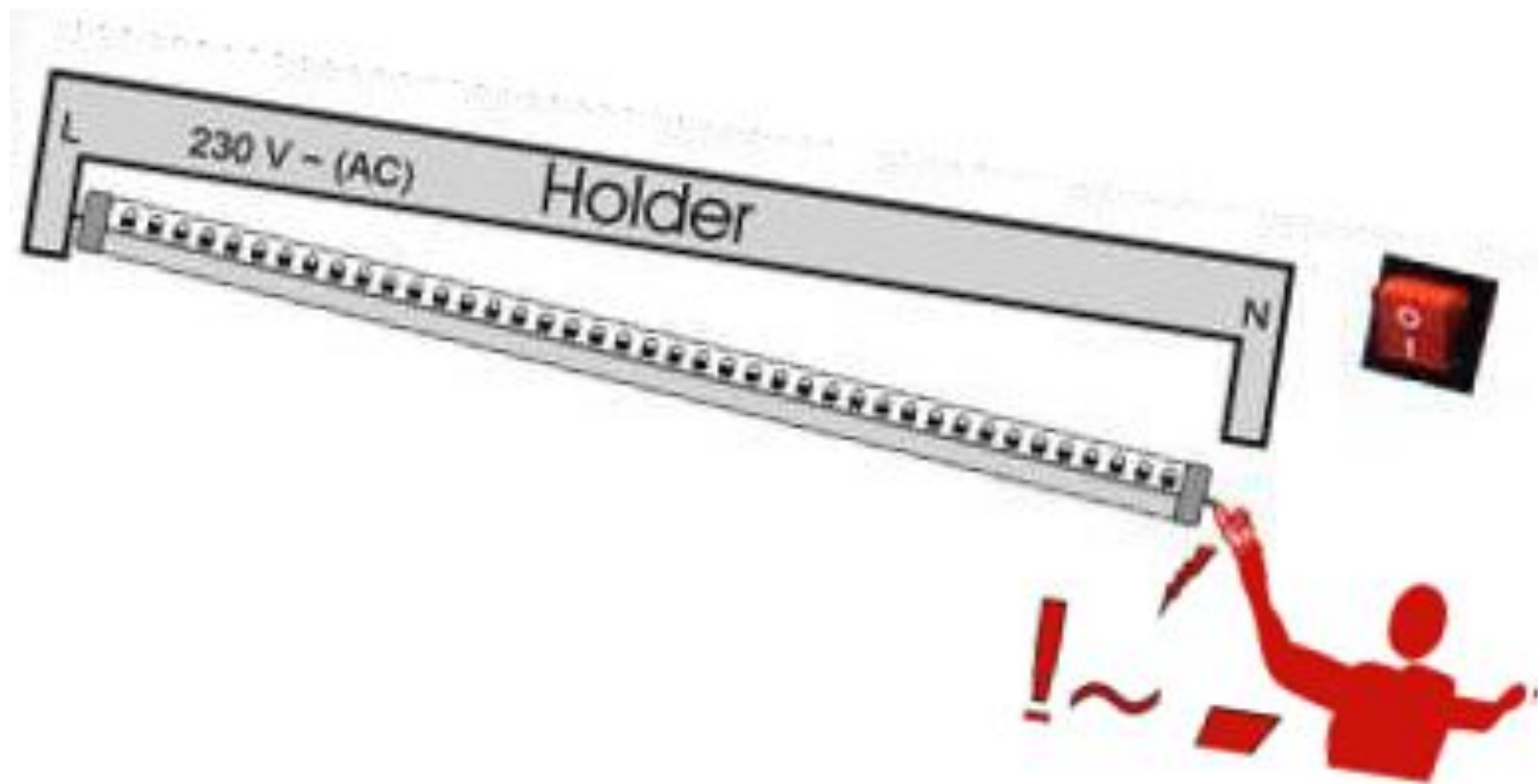
- EK1 550-13 关于灯头旋入或旋出灯座过程中灯头防触电的要求





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- LED灯管双端带电引起触电危险



- LED灯管的结构要满足加强绝缘或双重绝缘的要求



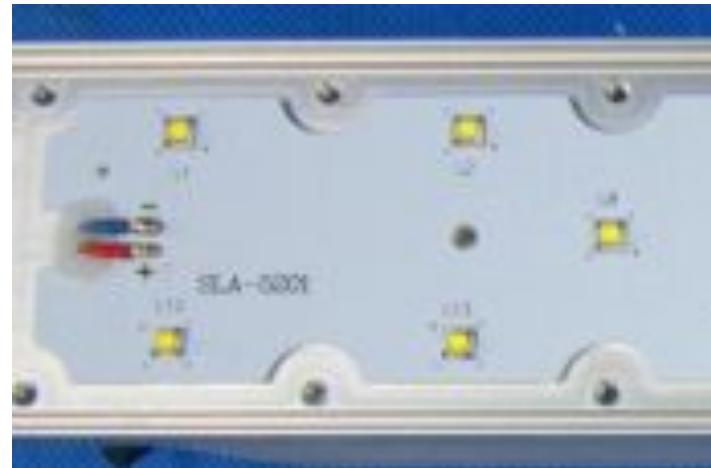


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LED灯具安全认证注意事项



- Class II LED路灯设计注意事项



120V to 277V
50/60Hz
4441 200 52432 REV. B

CE, RoHS COMPLIANT, DALI, Power Unit Dry & Damp location

Driver Ver	1
Firmware Ver	V06E03

PHILIPS
LED Electronic Driver
929000702202
ASSEMBLED IN CHINA

Tc
MAX 80°C

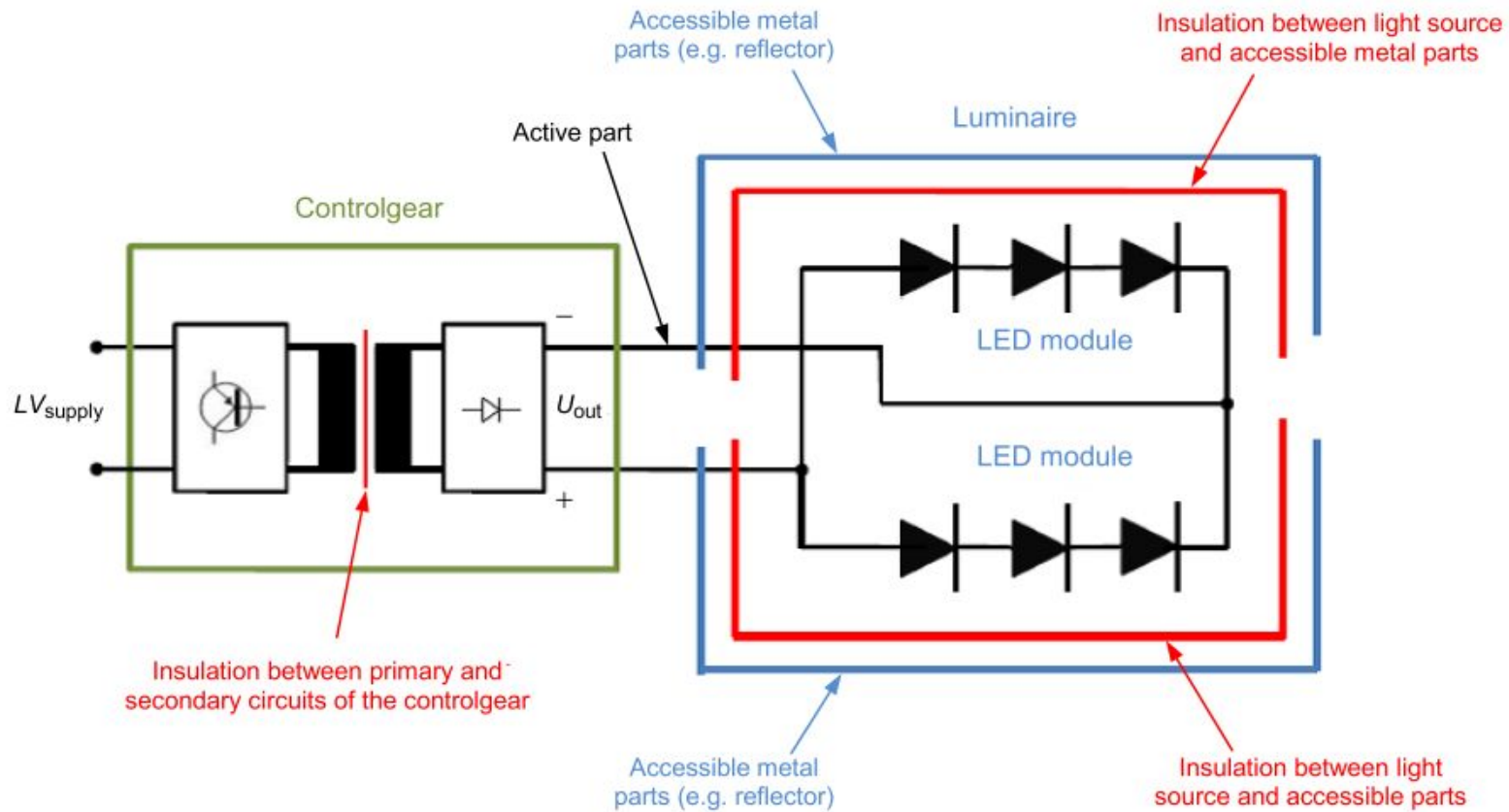
X TITANIUM™
150W .35 - .70A
GL Prog sXt

Vin (V)	120	200	220	240	277
Iin (A)	1.4	0.85	0.75	0.7	0.6
PF	=0.9				
Vout (V)	125-280				
Iout (mA)	350-700				

Vout (Max. open circuit)=296V

PF	=0.9
Vout (V)	125-280
Iout (mA)	350-700
Vout (Max. open circuit)=296V	

- LED驱动初次级不同隔离情况下次级的绝缘判定



IEC 1271/14

LED灯具安全认证注意事项



Controlgear		Required insulation between active parts and accessible conductive parts		
Insulation between LV supply and secondary circuits	Output voltage	Class I Insulation of accessible earthed conductive parts	Class II Insulation of one accessible conductive part or more than one with equipotential bonding	Class II Insulation of more than one accessible conductive parts without equipotential bonding
None	$U_{out} > LV_{supply}$	Basic insulation complying with U_{out}	Double or reinforced insulation complying with U_{out}	Double or reinforced Insulation complying with U_{out}
	$U_{out} \leq LV_{supply}$	Basic insulation complying with LV_{supply}	Double or reinforced insulation complying with LV_{supply}	Double or reinforced Insulation complying with LV_{supply}
Basic	Voltages above ELV	Basic insulation complying with U_{out}	Supplementary insulation complying with U_{out} plus LV_{supply}	Insulation has to fulfil the higher requirement of a) or b): a) Supplementary insulation complying with U_{out} plus LV_{supply} b) Double or reinforced insulation complying with U_{out}
	ELV (FELV)	Basic insulation complying with U_{out}	Supplementary insulation complying with U_{out} plus LV_{supply}	Supplementary Insulation complying with U_{out} plus LV_{supply}
Double or reinforced	Voltages above ELV	Basic insulation complying with U_{out}	Basic insulation complying with U_{out}	Double or reinforced Insulation complying with U_{out}
	ELV (SELV)	Basic insulation complying with U_{out} See also requirements in IEC 60598-1, Sections 8, 10 and 11	Basic insulation complying with U_{out} See also requirements in IEC 60598-1, Sections 8, 10 and 11	Basic Insulation complying with U_{out} See also requirements in IEC 60598-1, Sections 8, 10 and 11



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- LED照明产品例行试验规则
 - LED灯具
 - LED灯泡
 - LED灯管
 - LED驱动



- LED灯具

Test	Class of luminaire and compliance			
	Class I luminaires	Class II luminaires metal encased	Class III metal encased with supply > 25 V a.c. (r.m.s) or 60 V d.c., ripple free	Class II and class III luminaires insulation encased
FUNCTION TEST/CIRCUIT CONTINUITY (with lamp or simulation lamp)	Generally at normal operating voltage			
EARTH CONTINUITY Applied between earthing terminal on luminaire and the most accessible parts likely to become live. Settable and adjustable luminaires placed in most onerous position.	Maximum resistance 0,50 Ω Measured by passing a minimum current of 10 A at between 6 V and 12 V for at least 1 s	Not applicable		



- LED灯具 (续)

<p>a) ELECTRIC STRENGTH</p> <p>OR</p> <p>b) INSULATION RESISTANCE</p> <p>Measured between the live and neutral terminals linked together and the earth terminal or between the conductors of class II and class III luminaires and the metal enclosure</p>	<p>Maximum breakdown current 5 mA</p> <p>Measured by applying a minimum voltage of 1,5 kV a.c. for a minimum of 1 s or 1,5 $\sqrt{2}$ d.c. kV</p> <p>OR</p> <p>Minimum resistance 2 MΩ</p> <p>Measured by applying 500 V d.c. for 1 s</p>	<p>Maximum breakdown current 5 mA</p> <p>Measured by applying a minimum voltage of 1,5 kV a.c. for a minimum of 1 s or 1,5 $\sqrt{2}$ d.c. kV</p> <p>OR</p> <p>Minimum resistance 2 MΩ</p> <p>Measured by applying 500 V d.c. for 1 s</p>	<p>Maximum breakdown current 5 mA</p> <p>Measured by applying a minimum voltage of 400 V a.c. for a minimum of 1 s or 400 $\sqrt{2}$ d.c. V</p> <p>OR</p> <p>Minimum resistance 2 MΩ</p> <p>Measured by applying 100 V d.c. for 1 s</p>	<p>Not applicable</p>
<p>POLARITY</p> <p>Tested at incoming terminals</p>	<p>Where necessary for correct functioning of luminaire</p>	<p>Not applicable</p>		



- LED灯泡

Recommendations for whole product testing or batch testing are identical to those given in Annex C of IEC 62031.

Annex C (informative)

Conformity testing during manufacture

This test is carried out at 100 % of production. It is combined with the measurement of input power at rated voltage/current. The luminous flux of no module should be significantly lower than that of the rest of the production.

NOTE Very low values of the luminous flux indicate internal losses that may be safety relevant, like current bridges.

For independent and built-in modules, IEC 60598-1, Annex Q, is applicable, but without polarity check.



- LED灯管

Test	Test details
FUNCTION TEST	Check for lamp operation at normal operating voltage
ELECTRIC STRENGTH	<p>a) Checked between lamp pins and lamp cap:</p> <ul style="list-style-type: none">Maximum breakdown current 5mAMeasured by applying a minimum voltage of 1,5 kV a.c. or 1,5 $\sqrt{2}$ kV d.c. for a minimum of 1 s <p>b) Checked between lamp pins and other conductive parts of the lamp:</p> <ul style="list-style-type: none">Maximum breakdown current 5mA ^{a)}Measured by applying a minimum voltage of 3 kV a.c. or 3 $\sqrt{2}$ kV d.c. for a minimum of 1 s
OR	OR
INSULATION RESISTANCE	<p>a) Checked between lamp pins and lamp cap:</p> <ul style="list-style-type: none">Minimum resistance 2 MΩMeasured by applying 500 V d.c. for 1 s <p>b) Checked between lamp pins and other conductive part of the lamp:</p>



• LED驱动

Tes	Type of control gear and compliance				
	Magnetic ballast	a.c. and d.c. electronic ballast	Step down convertor for low voltage filament lamps and LED module	Invertor and convertor for high frequency cold start lamps	Ignitor
Visual inspection ^a	applicable				
Function test/circuit continuity (with lamp or simulation lamp)	Impedance test ^b	Lamp / Operating voltage	Lamp / Operating voltage	Lamp / Operating voltage	At 90% minimum rated supply voltage: Peak voltage
Earth continuity ^c Applied between earthing terminal on control gear and accessible parts likely to become live (only for class I independent control gear)	Maximum resistance 0,50 Ω, measured by passing a minimum current of 10 A with a no-load voltage not exceeding 12 V for at least 1 s.	Maximum resistance 0,50 Ω, measured by passing a minimum current of 10 A with a no-load voltage not exceeding 12 V for at least 1 s.	Maximum resistance 0,50 Ω, measured by passing a minimum current of 10 A with a no-load voltage not exceeding 12 V for at least 1 s.	Maximum resistance 0,50 Ω, measured by passing a minimum current of 10 A with a no-load voltage not exceeding 12 V for at least 1 s.	Maximum resistance 0,50 Ω, measured by passing a minimum current of 10 A with a no-load voltage not exceeding 12 V for at least 1 s.
Electric strength ^c	Measured by applying a minimum voltage of 1,5 kV a.c. for a minimum of 1 s or 1,5 √2 kV d.c. Made between terminals short-circuited and body.	Measured by applying a minimum voltage of 1,5 kV a.c. for a minimum of 1 s or 1,5 √2 kV d.c. Made between input/output terminals short-circuited and body.	Measured by applying a minimum voltage of: -between input/output terminals short-circuited and body 1,5 kV a.c. or 1,5 √2 kV d.c. for a minimum of 1 s -between input and output terminals 3 kV a.c. or 3 √2 kV d.c. for a minimum of 1 s	Measured by applying a minimum voltage of 1,5 kV a.c. for a minimum of 1 s or 1,5 √2 kV d.c. Made between: • Input/output terminals short-circuited and body • Input and output	Measured by applying a minimum voltage of 1,5 kV a.c. for a minimum of 1 s or 1,5 √2 kV d.c. Made between terminals short-circuited and body.
^a Visual inspection:	Visual inspection should ensure that the control gear is fully assembled and free from sharp edges etc. which may cause damage or injuries. It should also ensure that any labels are legible and properly attached and any printing legible.				
^b Impedance test:	The impedance test is carried out by measuring the ballast voltage when the ballast has been loaded with its rated current; alternatively, it may be carried out at a fixed voltage (defined by the appropriate lamp data sheet) and measuring the ballast current.				
^c Class II (independent) control gear or control gear with plastic case and without earthing terminal:	the earth continuity, the electrical strength and the insulation resistance tests do not apply.				



1	照明产品已发布的IEC标准和即将发布的IEC标准
2	LED灯泡安全认证注意事项
3	LED灯管安全认证注意事项
4	LED灯具安全认证注意事项
5	工厂例行测试要求简介
6	总结



LED照明产品进入欧洲市场，除了需要考虑前面讲到的安全要求之外（LVD），还要考虑下面适用的相关指令，才能完全满足欧盟市场的准入要求。

- **Energy efficiency**

- [Ecodesign and energy labeling](#)

- **Electric and electronic engineering**

- [Electromagnetic compatibility \(EMC\)](#)

- [Equipment for explosive atmospheres \(ATEX\)](#)

- [Low Voltage \(LVD\)](#)

- [Radio and Telecommunications Terminal Equipment \(RTTE\)](#)

- [Restriction of the use of certain hazardous substances \(RoHS\)](#)



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