TEST REPORT

On Behalf of

LEDCAT GmbH

LED Compatible-Ballast tube: V-type 240° and round type 120°

T8L1500-24W
(Other model see model list)

Prepared for : **LEDCAT GmbH**

Wagramerstr. 23/1/9.5,A-1220 Vienna, Austria

Prepared By : **World Standardization Certification &Testing CO.,LTD**

Building A, Baoshi Road, Baoshi Science & Technology Park, Bao'an District, Shenzhen, Guangdong, China

TEL: 86-755-26996192; FAX: 86-755-26996253

Date of Test:	**May 09, 2013 to May 19, 2013**
Date of Report:	**May 19, 2013**
Report Number:	**WSCT1305001150S**

Revision History Of Report

Rev.	Issue No.	Revisions	Effect Page	Revised By
00	WSCT1305001150S	Initial Issue	ALL	Wang Fengbing

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Test Report
IEC 60598-1
Particular requirements: for Fixed general purpose luminaires

Report reference No	WSCT1305001150S
Tested by (printed name and signature)	Colin Huang .....
Checked by (printed name and signature) ..... :	Mike Zhao .....
Approved by (printed name and signature)	Wang Fengbing .....
Date of issue ..... :	May 19, 2013
Testing Laboratory Name	World Standardization Certification & Testing Co., Ltd.
Address	Building A, Baoshi Road, Baoshi Science & Technology Park, Bao'an District, Shenzhen, Guangdong, China
Testing location	CBTL ☐ CCATL ☐ SMT ☐ TMP ☐
Address	Same as above.
Applicant's Name	LEDCAT GmbH
Address	Wagramerstr. 23/1/9.5,A-1220 Vienna, Austria
Standard.....	IEC 60598-1:2008 with AS/NZS 60598-1:2003 deviation IEC 61347-1:2010 with AS/NZS 61347-1:2002 deviation IEC 61347-2-13: 2006 IEC62031:2008
Test procedure	SAA test report
Procedure deviation	N/A.
Non-standard test method	N/A.
Test item description	LED Compatible-Ballast tube: V-type 240° and round type 120°
Manufacturer.....	LONYUNG LED LIGHTING CO., LTD
Address	No.39 East Jucheng Rd, Xiaolan Town, Zhong Shan, Guang Dong, China
Trademark	LONYUNG® ; LEDCAT
Model and/or type reference	See model list
Rating(s)	Input: AC180-240V 50/60Hz 24W Max.

Test item particulars :	
Equipment mobility ..... :	Fixed equipment
Operating condition ..... :	Continuous
Tested for IT power systems ..... :	N/A
IT testing, phase-phase voltage (V) ..... :	N/A
Protection against ingress of water ..... :	IP20
Rated max. ambient temperature ..... :	40℃
Test case verdicts:	
Test case does not apply to the test object ..... :	N/A
Test item does meet the requirement..... :	P(ass)
Test item does not meet the requirement..... :	F(ail)
Testing:	
Date of receipt of test item :	May 09, 2013
Date(s) of performance of test :	May 09, 2013 to May 19, 2013

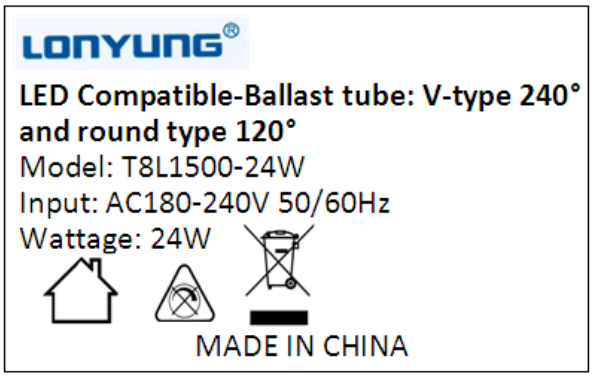
Model list

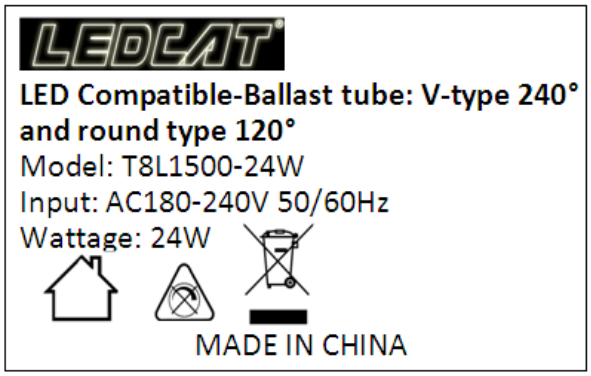
No.	Model Name	Input	Input Power (Max.)
		Voltage Frequency	
1	T8L1500-24W	AC180-240V 50/60Hz	24W
2	T8L600-9W	AC180-240V 50/60Hz	9W
3	T8L600-12W	AC180-240V 50/60Hz	12W
4	T8L900-13W	AC180-240V 50/60Hz	13W
5	T8L1200-18W	AC180-240V 50/60Hz	18W
6	T8L1200-21W	AC180-240V 50/60Hz	21W
7	T8L1500-22W	AC180-240V 50/60Hz	22W

Comments:

1. There are 7 models in the report, all models see model list.
2. All models in each series have same diagram circuit, PCB layout, except different model names and power.
3. All test are carried out on T8L1500-24W.

Copy of marking plate:





Note: Due to similarity of the rating labels, only above label is listed.

General remarks:

"(see remark #)" refers to a remark appended to the report.

"(see appended table)" refers to a table appended to the report.

Throughout this report a comma is used as the decimal separator.

The test results presented in this report relate only to the object tested.

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Unless otherwise specified, test are made under normal conditions at an ambient temperature within the range of 15℃ to 35℃, RH45% to 75% and an air pressure of 860mbar of 1060mbar

Attachment 1: Photo documentation;
Attachment 2: Equipment list.

IEC 60598-1			
Clause	Requirement – Test	Result – Remark	Verdict
0	**GENERAL TEST REQUIREMENTS**		**P**
0.1	Information for luminaire design considered	Yes ☒ No ☐	—
0.3	More sections applicable .....:	Yes ☐ No ☒	—
2	**CLASSIFICATION**		**P**
2.2	Type of protection (Class 0 excluded) .....:	Fulfill requirments of Class Ⅱ	—
2.3	Degree of protection (Requirement: Ordinary) .....:	IP20	—
2.4	Luminaire suitable for direct mounting on normally flammable surfaces.....:	Yes ☒ No ☐	
	Luminaire not suitable for direct mounting on normally flammable surfaces.....:	Yes ☐ No ☒	
2.5	Luminaire for normal use .....:	Yes ☒ No ☐	
	Luminaire for rough service .....:	Yes ☐ No ☒	
3	**MARKING**		**P**
3.2	Mandatory markings		P
	Position of the marking		P
	Format of symbols/text		P
3.3	Additional information		P
	Language of instructions	English	P
3.3.1	Combination luminaires		N/A
3.3.2	Nominal frequency in Hz	50/60Hz	P
3.3.3	Operating temperature		N/A
3.3.4	Symbol or warning notice		N/A
3.3.5	Wiring diagram		N/A
3.3.6	Special conditions		N/A
3.3.7	Metal halide lamp luminaire – warning		N/A
3.3.8	Limitation for semi-luminaires		N/A
3.3.9	Power factor and supply current		N/A
3.3.10	Suitability for use indoors		N/A
3.3.11	Luminaires with remote control		N/A

IEC 60598-1			
Clause	Requirement – Test	Result – Remark	Verdict
3.3.12	Clip-mounted luminaire – warning		N/A
3.3.13	Specifications of protective shields		P
3.3.14	Symbol for nature of supply	AC	P
3.3.15	Rated current of socket outlet		N/A
3.3.16	Rough service luminaire		N/A
3.3.17	Mounting instruction for type Y, type Z and some type X attachments		N/A
3.3.18	Non-ordinary luminaires with PVC cable		N/A
3.3.19	Protective conductor current in instruction if applicable		N/A
3.3.20	Provided with information if not intended to be mounted within arms reach		N/A
3.4	Test with water		P
	Test with hexane		P
	Legible after test		P
	Label attached		P
4	**CONSTRUCTION**		**P**
4.2	Components replaceable without difficulty		N/A
4.3	Wireways smooth and free from sharp edges		P
4.4	Lampholders		N/A
4.4.1	Integral lampholder		N/A
4.4.2	Wiring connection		N/A
4.4.3	Lampholder for end-to-end mounting		N/A
4.4.4	Positioning		N/A
	- pressure test (N) .....:		N/A
	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) .....:		N/A

IEC 60598-1			
Clause	Requirement – Test	Result – Remark	Verdict
	After test the lampholder have not moved from its position and show no permanent deformation		N/A
4.4.5	Peak pulse voltage		N/A
4.4.6	Centre contact		N/A
4.4.7	Parts in rough service luminaires resistant to tracking		N/A
4.4.8	Lamp connectors		N/A
4.4.9	Caps and bases correctly used		N/A
4.5	Starter holders		N/A
	Starter holder in luminaires other than class II		N/A
	Starter holder class II construction		N/A
4.6	Terminal blocks		N/A
	Tails		N/A
	Unsecured blocks		N/A
4.7	Terminals and supply connections		N/A
4.7.1	Contact to metal parts		N/A
4.7.2	Test 8 mm live conductor		N/A
	Test 8 mm earth conductor		N/A
4.7.3	Terminals for supply conductors		N/A
4.7.3.1	Welded connections:		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 15.8.2		N/A
	- electrical test according to 15.9		N/A
	- heat test according to 15.9.2.3 and 15.9.2.4		N/A
4.7.4	Terminals other than supply connection		N/A
4.7.5	Heat-resistant wiring/sleeves		N/A
4.7.6	Multi-pole plug		N/A
	- test at 30 N		N/A

IEC 60598-1			
Clause	Requirement – Test	Result – Remark	Verdict
4.8	Switches:		N/A
	- adequate rating		N/A
	- adequate fixing		N/A
	- polarized supply		N/A
	- compliance with 61058-1 for electronic switches		N/A
4.9	Insulating lining and sleeves		P
4.9.1	Retainement		P
	Method of fixing.....:		P
4.9.2	Insulated linings and sleeves		P
	Resistant to a temperature > 20 °C to the wire temperature or		P
	a) & c) Insulation resistance and electric strength		N/A
	b) Ageing test. Temperature (°C).....:		N/A
4.10	Insulation of Class II luminaires		P
4.10.1	No contact, mounting surface – accessible metal parts – wiring of basic insulation		P
	Safe installation fixed luminaires		N/A
	Capacitors and switches		P
	Interference suppression capacitors according to IEC 60384-14		P
4.10.2	Assembly gaps:		N/A
	- not coincidental		N/A
	- no straight access with test probe		N/A
4.10.3	Retainment of insulation:		P
	- fixed		N/A
	- unable to be replaced; luminaire inoperative		P
	- sleeves retained in position		P
	- lining in lampholder		N/A
4.11	Electrical connections		P
4.11.1	Contact pressure		P
4.11.2	Screws:		N/A

IEC 60598-1			
Clause	Requirement – Test	Result – Remark	Verdict
	- self-tapping screws		N/A
	- thread-cutting screws		N/A
4.11.3	Screw locking:		N/A
	- 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	No wood	P
4.11.6	Electro-mechanical contact systems		N/A
4.12	Mechanical connections and glands		P
4.12.1	Screws not made of soft metal		P
	Screws of insulating material		N/A
	Torque test: torque (Nm); part.....:	Screw fixing lamp cap: 0.4Nm	P
	Torque test: torque (Nm); part.....:	Screw of lamp cap pin: 0.4Nm	P
4.12.2	Screws with diameter < 3 mm screwed into metal		P
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
4.13	Mechanical strength		P
4.13.1	Impact tests:		P
	- fragile parts; energy (Nm) .....:		N/A
	- other parts; energy (Nm).....:	Metal enclosure: 0.35Nm Transparent cover: 0.35Nm	P
	1) live parts		P
	2) linings		N/A
	3) protection		P
	4) covers		P
4.13.3	Straight test finger		P
4.13.4	Rough service luminaires		N/A

IEC 60598-1			
Clause	Requirement – Test	Result – Remark	Verdict
	- 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
4.13.6	Tumbling barrel		N/A
4.14	Suspensions and adjusting devices		N/A
4.14.1	Mechanical load:		N/A
	A) four times the weight		N/A
	B) torque 2,5 Nm		N/A
	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
4.14.2	Load to flexible cables		N/A
	Mass (kg) .....:		N/A
	Stress in conductors (N/mm²) .....:		N/A
	Mass (kg) of semi-luminaire .....:		N/A
	Bending moment (Nm) of semi-luminaire .....:		N/A
4.14.3	Adjusting devices:		N/A
	- flexing test; number of cycles.....:		N/A
	- strands broken		N/A
	- electric strength test afterwards		N/A
4.14.4	Telescopic tubes: cords not fixed to tube; no strain on conductors		N/A
4.14.5	Guide pulleys		N/A
4.14.6	Strain on socket-outlets		N/A

IEC 60598-1			
Clause	Requirement – Test	Result – Remark	Verdict
4.15	Flammable materials:		N/A
	- glow wire test 650 °C		N/A
	- spacing ≥ 30 mm		N/A
	- screen withstanding test of 13.3.1		N/A
	- screen dimensions		N/A
	- no fiercely burning material		N/A
	- thermal protection		N/A
	- electronic circuits exempted		N/A
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
4.16	Luminaires for mounting on normally flammable surfaces		N/A
	No lamp control gear		N/A
4.16.1	Lamp control gear spacing:		N/A
	- spacing 35 mm		N/A
	- spacing 10 mm		N/A
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
4.16.3	Design to satisfy the test of 12.6		N/A
4.17	Drain holes		N/A
	Clearance at least 5 mm		N/A
4.18	Resistance to corrosion:		N/A
4.18.1	- rust-resistance		N/A
4.18.2	- season cracking in copper		N/A
4.18.3	- corrosion of aluminium		N/A
4.19	Ignitors compatible with ballast		N/A

IEC 60598-1			
Clause	Requirement – Test	Result – Remark	Verdict
4.20	Rough service vibration		N/A
4.21	Protective shield:		N/A
4.21.1	Shield fitted		N/A
	Shield of glass if tungsten halogen lamps		N/A
4.21.2	Particles from a shattering lamp not impair safety		N/A
4.21.3	No direct path		N/A
4.21.4	Impact test on shield		N/A
	Glow-wire test on lamp compartment		N/A
4.22	Attachments to lamps		P
4.23	Semi-luminaires comply Class II		N/A
4.24	UV radiation for tungsten halogen lamps and metal halide lamps (Annex P)		N/A
4.25	No sharp point or edges		P
4.26	Short-circuit protection:		N/A
4.26.1	Uninsulated accessible SELV parts		N/A
4.26.2	Short-circuit test		N/A
4.26.3	Test chain according to Figure 29		N/A

5	**EXTERNAL AND INTERNAL WIRING**		**P**
5.2	Supply connection and external wiring		N/A
5.2.1	Means of connection .....:		N/A
5.2.2	Type of cable.....:		N/A
	Nominal cross-sectional area (mm²) .....:		N/A
	Cables equal to IEC 60227 or IEC 60245		N/A
5.2.3	Type of attachment, X, Y or Z		N/A
5.2.5	Type Z not connected to screws		N/A
5.2.6	Cable entries:		N/A
	- suitable for introduction		N/A
	- adequate degree of protection		N/A
5.2.7	Cable entries through rigid material have rounded edges		N/A

IEC 60598-1			
Clause	Requirement – Test	Result – Remark	Verdict
5.2.8	Insulating bushings:		N/A
	- suitably fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- tubes or guards made of insulating material		N/A
5.2.9	Locking of screwed bushings		N/A
5.2.10	Cord anchorage:		N/A
	- covering protected from abrasion		N/A
	- clear how to be effective		N/A
	- no mechanical or thermal stress		N/A
	- no tying of cables into knots etc.		N/A
	- insulating material or lining		N/A
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
5.2.10.2	Adequate cord anchorage for type Y and type Z attachment		N/A
5.2.10.3	Tests:		N/A
	- impossible to push cable; unsafe		N/A
	- pull test: 25 times; pull (N) .....:		N/A
	- torque test: torque (Nm).....:		N/A
	- displacement ≤ 2 mm		N/A
	- no movement of conductors		N/A
	- no damage of cable or cord		N/A

IEC 60598-1			
Clause	Requirement – Test	Result – Remark	Verdict
5.2.11	External wiring passing into luminaire		N/A
5.2.12	Looping-in terminals		N/A
5.2.13	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		N/A
5.2.14	Mains plug same protection		N/A
	Class III luminaire plug		N/A
5.2.16	Appliance inlets (IEC 60320)		N/A
	Appliance couplers of class II type		N/A
5.2.17	No standardized interconnecting cables properly assembled		N/A
5.2.18	Used plug in accordance with		N/A
	- IEC 60083		N/A
	- other standard		N/A
5.3	Internal wiring		P
5.3.1	Internal wiring of suitable size and type		P
	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 earth only		P
5.3.1.1	Internal wiring connected directly to fixed wiring		P
	Cross-sectional area (mm²).....:		N/A
	Insulation thickness		N/A
	Extra insulation added where necessary		N/A
5.3.1.2	Internal wiring connected to fixed wiring via internal current-limiting device		P
	Adequate cross-sectional area and insulation thickness		P
5.3.1.3	Double or reinforced insulation for class II		P
5.3.1.4	Conductors without insulation		N/A
5.3.1.5	SELV current-carrying parts		P
5.3.1.6	Insulation thickness other than PVC or rubber		N/A

IEC 60598-1			
Clause	Requirement – Test	Result – Remark	Verdict
5.3.2	Sharp edges etc.		P
	No moving parts of switches etc.		N/A
	Joints, raising/lowering devices		N/A
	Telescopic tubes etc.		N/A
	No twisting over 360°		P
5.3.3	Insulating bushings:		N/A
	- suitable fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- cables with protective sheath		N/A
5.3.4	Joints and junctions effectively insulated		N/A
5.3.5	Strain on internal wiring		N/A
5.3.6	Wire carriers		N/A
5.3.7	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		P

7	**PROVISION FOR EARTHING**		**N/A**
7.2.1+ 7.2.3	Accessible metal parts		N/A
	Metal parts in contact with supporting surface		N/A
	Resistance < 0,5 Ω		N/A
	Self-tapping screws used		N/A
	Thread-forming screws		N/A
	Thread-forming screw used in a grove		N/A
	Earth makes contact first		N/A
7.2.2 + 7.2.3	Earth continuity in joints etc.		N/A
7.2.4	Locking of clamping means		N/A
	Compliance with 4.7.3		N/A
7.2.5	Earth terminal integral part of connector socket		N/A

IEC 60598-1			
Clause	Requirement – Test	Result – Remark	Verdict
7.2.6	Earth terminal adjacent to mains terminals		N/A
7.2.7	Electrolytic corrosion of the earth terminal		N/A
7.2.8	Material of earth terminal		N/A
	Contact surface bare metal		N/A
7.2.10	Class II luminaire for looping-in		N/A
	Double or reinforced insulation to functional earth		N/A
7.2.11	Earthing core coloured green-yellow		N/A
	Length of earth conductor		N/A
8	**PROTECTION AGAINST ELECTRIC SHOCK**		**P**
8.2.1	Live parts not accessible with standard test finger		P
	Basic insulated parts not used on the outer surface without appropriate protection		P
	Basic insulated parts not accessible with standard test finger on portable and adjustable luminaires		P
	Basic insulated parts not accessible with Ø 50 mm probe from outside, within arms reach, on wall-mounted luminaires		N/A
	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/A
	Protection in any position		P
	Double-ended tungsten filament lamp		N/A
	Insulation lacquer not reliable		N/A
	Double-ended high pressure discharge lamp		N/A
	Relevant warning according to 3.2.18 fitted to the luminaire		N/A
8.2.2	Portable luminaire adjusted in most unfavourable position		N/A
8.2.3.a	Class II luminaire:		P
	- basic insulated metal parts not accessible during starter or lamp replacement		N/A

IEC 60598-1			
Clause	Requirement – Test	Result – Remark	Verdict
	- basic insulation not accessible other than during starter or lamp replacement		P
	- glass protective shields not used as supplementary insulation		N/A
8.2.3.b	BC lampholder of metal in class I luminaires shall be earthed		N/A
8.2.3.c	Class III luminaires with exposed SELV parts:		N/A
	Ordinary luminaire:		N/A
	- touch current ..... :		N/A
	- no-load voltage ..... :		N/A
	Other than ordinary luminaire:		N/A
	- nominal voltage ..... :		N/A
8.2.4	Portable luminaire:		N/A
	- protection independent of supporting surface		N/A
	- terminal block completely covered		N/A
8.2.5	Compliance with the standard test finger or relevant probe		P
8.2.6	Covers reliably secured		P
8.2.7	Discharging of capacitors ≥ 0.5 μF		P
	Portable plug connected luminaire with capacitor		N/A
	Other plug connected luminaire with capacitor		N/A
	Discharge device on or within capacitor		N/A
	Discharge device mounted separately		N/A

9	**RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE**		**P**
9.2	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP ..... :	IP20	—
	- mounting position during test..... :	As in normal use	—
	- fixing screws tightened; torque (Nm)..... :	—	—
	- tests according to clauses ..... :	Clause 9.2.0	—
	- electric strength test afterwards		N/A
	a) no deposit in dust-proof luminaire		N/A
	b) no talcum in dust-tight luminaire		N/A

IEC 60598-1			
Clause	Requirement – Test	Result – Remark	Verdict
	c) no trace of water on current-carrying parts or SELV parts or where it could become a hazard		N/A
	d) i) For luminaires without drain holes – no water entry		N/A
	d) ii) For luminaires with drain holes – no hazardous water entry		N/A
	e) no water in watertight luminaire		N/A
	f) no contact with live parts (IP 2X)	IP20	P
	f) no entry into enclosure (IP 3X and IP 4X)		N/A
	f) no contact with live parts (IP3X and IP4X)		N/A
	g) no trace of water on part of lamp requiring protection from splashing water		N/A
	h) no damage of protective shield or glass envelope		N/A
9.3	Humidity test 48 h	25℃; 93%R.H	P

10	**INSULATION RESISTANCE AND ELECTRIC STRENGTH**		**P**
10.2.1	Insulation resistance test		P
	Cable or cord covered by metal foil or replaced by a metal rod of mm Ø .....:		—
	Insulation resistance (MΩ)		—
	SELV:		P
	- between current-carrying parts of different polarity :		N/A
	- between current-carrying parts and mounting surface :		N/A
	- between current-carrying parts and metal parts of the luminaire.....:	500MΩ(Required 1MΩ)	N/A
	Other than SELV:		P
	- between live parts of different polarity .....:	500MΩ(Required 2MΩ)	P
	- between live parts and mounting surface .....:		N/A
	- between live parts and metal parts .....:	500MΩ(Required 4MΩ)	P
	- between live parts of different polarity through action of a switch .....:		N/A
10.2.2	Electric strength test		P

IEC 60598-1			
Clause	Requirement – Test	Result – Remark	Verdict
	Dummy lamp		N/A
	Luminaires with ignitors after 24 h test		N/A
	Luminaires with manual ignitors		N/A
	Test voltage (V):		—
	SELV:		P
	- between current-carrying parts of different polarity :		N/A
	- between current-carrying parts and mounting surface :		N/A
	- between current-carrying parts and metal parts of the luminaire.....:	500V	P
	Other than SELV:		P
	- between live parts of different polarity .....:	AC1480V	P
	- between live parts and mounting surface .....:		N/A
	- between live parts and metal parts .....:	AC3710V	P
	- between live parts of different polarity through action of a switch .....:		N/A
10.3	Touch current (mA) .....:	0.05mA (Limit: 0.7mA)	P

11	**CREEPAGE DISTANCES AND CLEARANCES**		**P**
	Working voltage (V)..... :	AC180-240V	—
	Voltage form	Sinusoidal [√] Non-sinusoidal [ ]	—
	PTI	< 600 [√] ≥600 [ ]	—
	Impulse withstand category (Normal category II) (Category III Annex U)	Category II ☒ Category III ☐	—
	Rated pulse voltage (kV)..... :	--	—
	(1) Current-carrying parts of different polarity: cr (mm); cl (mm)..... :	Measured on different polarity of L-N: cl.=3.2 mm(Required1.5mm); cr.=3.2mm(Required2.4mm)	P

IEC 60598-1			
Clause	Requirement – Test	Result – Remark	Verdict

	(2) Current-carrying parts and accessible parts: cr (mm); cl (mm) ..... :	Live parts to metal enclosure:
		cr.=5.0mm(Required4.8mm);
		cl.=5.0mm(Required2.9mm)
		Current-carrying parts of LED
		module to metal enclosure:
		cr.=5.1mm(Required1.3mm);
		cl.=5.1mm(Required 0.3mm)
			P

	(3) Parts becoming live due to breakdown of basic insulation and metal parts: cr (mm); cl (mm) ..... :		N/A
	(4) Outer surface of cable where it is clamped and metal parts: cr (mm); cl (mm) ..... :		N/A
	(5) Not used		—
	(6) Current-carrying parts and supporting surface: cr (mm); cl (mm)..... :		P

12	**ENDURANCE TEST AND THERMAL TEST**		**P**
12.3	Endurance test:		**P**
	- mounting-position ..... :	As in normal use	—
	- test temperature (°C) ..... :	40°C+10°C	—
	- total duration (h) ..... :	240	—
	- supply voltage: Un factor; calculated voltage (V):	264V	—
	- lamp used ..... :	LED module	—
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
12.4	Thermal test (normal operation)	(see Annex 2)	P

IEC 60598-1			
Clause	Requirement – Test	Result – Remark	Verdict
12.5	Thermal test (abnormal operation)	(see Annex 2)	N/A
12.6	Thermal test (failed lamp control gear condition):		N/A
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
12.6.2	Temperature sensing control		N/A
	- case of abnormal conditions ..... :		—
	- thermal link		N/A
	- manual reset cut-out		N/A
	- auto reset cut-out		N/A
	- measured mounting surface temperature (°C)...:		N/A
	- track-mounted luminaires		N/A
12.7	Thermal test (failed lamp control gear in plastic luminaires):		N/A
12.7.1	Luminaire without temperature sensing control		N/A
12.7.1.1	Luminaire with fluorescent lamp ≤ 70W		N/A
	Test method 12.7.1.1 or Annex V..... :		—
	Test according to 12.7.1.1:		N/A
	- 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 V:		N/A
	- case of abnormal conditions		—
	- measured winding temperature (°C): at 1.1 Un . :		—

IEC 60598-1			
Clause	Requirement – Test	Result – Remark	Verdict
	- measured temperature of fixing point/exposed part (°C): at 1.1 Un ..... :		—
	- calculated temperature of fixing point/exposed part (°C):		—
	Ball-pressure test:		N/A
	- part tested; temperature (°C) ..... :		N/A
	- part tested; temperature (°C) ..... :		N/A
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:		N/A
	- part tested; temperature (°C) ..... :		N/A
	- part tested; temperature (°C) ..... :		N/A
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
12.7.2	Luminaire with temperature sensing control		N/A
	- thermal link	Yes ☐ No ☐	—
	- manual reset cut-out	Yes ☐ No ☐	—
	- auto reset cut-out	Yes ☐ No ☐	—
	- case of abnormal conditions		—
	- highest measured temperature of fixing point/exposed part (°C): ..... :		—
	Ball-pressure test:		N/A
	- part tested; temperature (°C) ..... :		N/A
	- part tested; temperature (°C) ..... :		N/A

IEC 60598-1			
Clause	Requirement – Test	Result – Remark	Verdict
13	**RESISTANCE TO HEAT, FIRE AND TRACKING**		**P**
13.2.1	Ball-pressure test:		P
	- part tested; temperature (°C)....:	Lamp cap:125°C	P
	- part tested; temperature (°C)....:	PCB of LED module: 125°C	P
	- part; test temperature (℃) ....:	Transformer bobbin:125°C	P
	- part tested; temperature (°C)....:	LED driver PCB:125°C	P
	- part tested; temperature (°C)....:	Translucent cover: 125°C	P
13.3.1	Needle flame test (10 s):		P
	- part tested....:	Lamp cap	P
	- part tested....:	LED driver PCB	P
	- part tested....:	LED moduce PCB	P
	- part tested....:	Transformer bobbin	P
13.3.2	Glow-wire test (650°C):		P
	- part tested....:	Lamp cap	P
	- part tested....:	Translucent cover	P
		LED moduce PCB	
13.4.1	Tracking test: part tested ....:		N/A

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

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

	ANNEX 1: components				P
object/part No.	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity

IEC 60598-1			
Clause	Requirement – Test	Result – Remark	Verdict

Enclosure	SABIC INNOVATIVE PLASTICS US L L C	955(GG)	V-0; 120°C	UL746	UL E121562
Lamp cap	MITSUBISHI	S-2000+(f1)	HB; 125°C	UL 746	UL E41179
Input wire	PACIFIC	1672	125°C; 20AWG; 300V	UL 758	UL E41396
Output wire	PACIFIC	1672	Double insulation 125°C; 20AWG; 300V	UL 758	UL E41396
Hear-shrinkable tube	SHENZHEN WOER HEAT-SHRINKABLE	RSFR-H	600V; 125°C	UL 224	UL E203950
Insulation tube (enclosure LED driver)	TEIJIN	LN-1250G(#)(f1)(*)	PC; V-0; 125°C	UL 746	UL E50075
PCB	SHENZHEN DEZHONGXIN CIRCUIT CO LTD	DZX0002G2A	V-0; 130°C	UL 796	UL E353932
Fuse	SHENZHEN LANSON ELECTRONICS CO LTD	3N	T2A; 250Vac	IEC 60127-1	VDE 40016660
(Alternative)	JOYIN CO LTD	10D511K	AC 320V; 85°C	IEC 61051	VDE005937
Transformer	SHENZHEN RUIGEN TECHNOLOGY CO., LTD	LF-G308	Class B	IEC 61347-1 IEC 61347-2-13	Test whit appliance
-insulation system	ANHUI TIANRUI ELECTRONIC TECHNOLOGY CO LTD	SBI4.2	CLASS B	UL1446	UL E348245
- Triple wire	SHENZHEN DARUN SCIENCE AND TECHNOLOGY CO LTD	DRTIW-B	130°C	UL2353	UL E335841
- Bobbin	CHANG CHUN PLASTICS CO LTD	T375J	V-0; 150°C	UL94	UL E59481
- insulation tape	JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD	PZ, CT	130ºC	UL 510	UL E165111
- Varnish	ELANTAS ELECTRICAL INSULATION ELANTAS PDG INC	-543C, -543FC	155 degree C	UL1446	UL E87039
- Tube	FLUO TECH INDUSTRIES CO LTD	TFT	200 degree C	UL224	UL E175982
- Magnet Wire	SHEN ZHEN CITY CHENGWEI INDUSTRY CO LTD	2UEW-155°C	155°C	UL1446	UL E227475

IEC 60598-1			
Clause	Requirement – Test	Result – Remark	Verdict

Internal wire	NIZING ELECTRONICS CO.,LTD	3122	26AWG; 200°C	UL758	UL E215834

	ANNEX 2: temperature measurements, thermal tests of Section 12		**P**
	Type reference ..... :	T8L1500-24W	–
	Lamp used..... :	LED module	–
	Ballast used..... :	Integral LED driver	–
	Mounting position of luminaire ..... :	As in normal use	–
	Supply wattage (W)..... :	–	–
	Supply current (A) ..... :	–	–
	Table: measured temperatures corrected for Ta = 45°C:		P
	- abnormal operating mode ..... :	–	–
	- test 1: rated voltage..... :	AC180V 22.9W and AC240V 23.6W	–
	- test 2: 1.06 times rated voltage or 1.05 times rated wattage..... :	AC1.06×240V 24.8W	–
	- test 3: Load on wiring to socket-outlet, 1.06 times voltage or 1.05 times wattage ..... :	–	–
	- test 4: 1.1 times rated voltage or 1.05 times rated wattage..... :	–	–

temperature (°C) of part	clause 12.4 - normal					clause 12.5 - abnormal	
	test 1		test 2	test 3	limits	test 4	limit
	180V	240V	254.4V				
lamp cap	48.9	49.6	50.5	–	Ref.	–	–
input wire	50.6	51.6	51.7	–	80	–	–
PCB near D97	56.3	57.6	57.7	–	130	–	–
PCB near U90	80.8	83.6	84.2	–	130	–	–
PCB near Q2	80.9	90.2	90.5	–	130	–	–
PCB near D1	99.5	113.3	117.2	–	130	–	–
EC1	92.7	95.5	100.2	–	105	–	–
L1 winding	72.4	76.1	76.3	–	130	–	–
L1 core	71.3	74.1	74.2	–	Ref.	–	–

IEC 60598-1							
Clause	Requirement – Test				Result – Remark		Verdict
output wire		71.1	74.0	74.2	–	105	–	–
PCB near LED		57.3	58.8	58.5	–	130	–	–
Enclosure inside		61.1	62.4	62.1	–	120	–	–

	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 (mm²)..... :		N/A
(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) . :		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

	ANNEX 4: screwless terminals (part of the luminaire)	**N/A**

IEC 60598-1			
Clause	Requirement – Test	Result – Remark	Verdict
(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
(15.5.2)	Permanent connections: pull-off test (20 N)		N/A
(15.6)	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
(15.7)	Terminals external wiring		N/A
	Terminal size and rating		N/A

IEC 60598-1			
Clause	Requirement – Test	Result – Remark	Verdict
(15.8.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N) .....:		N/A
	Pull test pin or tab terminals (4 samples); pull (N) .....:		N/A
(15.9)	Contact resistance test		N/A
	Voltage drop (mV) after 1 h		N/A

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)										

IEC 60598-1			
Clause	Requirement – Test	Result – Remark	Verdict

Sub-clause	**Variations to IEC 60598-1: 2008 for application in Australia and New Zealand (AS/NZS 60598-1:2003)**		—
1.5 (3)	**MARKING**		P
1.5 (3.3.101)	Adequate warning on the package		P
1.10 (5)	**EXTERNAL AND INTERNAL WIRING**		P
1.10 (5.2.1)	Connecting leads		P
	- without a means for connection to the supply		N/A
	- terminal block specified		N/A
	- relevant information provided		P
	- compliance with 4.6, 4.7.1, 4.7.2, 4.10.1, 11.2, 12 and 13.2 of Part 1		N/A
1.10 (5.2.2)	Cables equal to HD21 S2 or HD22 S2		N/A

ZB	**ANNEX ZB, SPECIAL NATIONAL CONDITIONS**		**N/A**
(3.3)	DK: power supply cord with label		N/A
	IT: warning label on Class 0 luminaire		N/A
(4.5.1)	DK: socket-outlets		N/A
(5.2.1)	CY, DK, FI, SE, GB: type of plug		N/A

ZC	**ANNEX ZC, NATIONAL DEVIATIONS (EN)**		**N/A**
(4 & 5)	FR: Shuttered socket-outlets 10/16A		N/A
(13.3)	DK: Needle flame test during 30 s		N/A
(13.3)	GB: Requirements according to United Kingdom Building Regulation		N/A
(13.3.2)	FR: Glow-wire test 850°C alt. 750°C for luminaires in premises open to public or 960°C for luminaires in emergency exits		N/A

ZZ	**ANNEX ZZ – AS/NZS 60598-1**	**P**

IEC 60598-1			
Clause	Requirement – Test	Result – Remark	Verdict
ZZ1	**Introduction**		P
ZZ2	**Variations**		P
1.1 (0)	**SCOPE**		P
1.1 (0.2)	Normative references		P
1.1 (0.4.2)	Rated voltage of 240V / 415V	AC180-240V	P
1.1 (1.2.41)	Flammable material		N/A
1.1 (1.2.62)	Mains socket-outlet-mounted luminaire		N/A
1.4 (2)	**CLASSIFICATION**		P
1.4(2.2)	Type of protection (restricted) :		P
1.5 (3)	**MARKING**		P
1.5 (3.2)	Mandatory markings		P
1.5 (3.3)	Additional information		P
	Language of instruction	In English	P
1.5 (3.3.10)	Indoor and outdoor use	Indoor use	P
1.6 (4)	**CONSTRUCTION**		N/A
1.6 (4.4.1)	G5 lampholder		N/A
1.6 (4.16)	Luminaires for mounting on normally flammable surface		N/A
	No lamp control gear		N/A
1.7 (11)	**CREEPAGE DISTANCES AND CLEARANCES**		N/A
1.9 (14)	**SCREW TERMINALS**		N/A
1.9 (15)	**SCREWLESS TERMINALS**		N/A
1.10 (5)	**EXTERNAL AND INTERNAL WIRING**		**N/A**
1.10 (5.2.1)	Non-detachable cables or cords		N/A
1.10.1(5.2.2)	Type of cable:		N/A
	Nominal cross-sectional area (mm2)		N/A

IEC 60598-1			
Clause	Requirement – Test	Result – Remark	Verdict
1.10 (5.2.16)	Installation couplers		N/A
1.11 (8)	**PROTECTION AGAINST ELECTRIC SHOCK**		N/A
1.11 (8.2.1)	G5 lampholder		N/A
1.11 (8.2.4)	Portable luminaire:		N/A
	- Class I portable luminaires and luminaires for wall mounting within arm's reach and terminal block		N/A
1.12 (12)	**ENDURANCE TEST AND THERMAL TEST**		P
1.13 (9)	**RESISTANCE TO DUST, SOLID OBJECTS AND MOISTURE**		P
1.14 (10)	**INSULATION RESISTANCE AND ELECTRIC STRENGTH**		P
1.15 (13)	**1.15 (13) RESISTANCE TO HEAT, FIRE AND TRACKING**		P
1.15 (13.3.1)	Glow wire test (750°C):	PCB of LED driver: 750°C	P
	Glow wire test (750°C):	PCB of LED model: 750°C	P
	Glow wire test (750°C):	T1 bobbin: 750°C	P
1.15 (13.3.3)	Needle flame test (30 s):	PCB of LED driver; PCB of LED model; T1 bobbin;Lamp cap; Flame extinguished immediately after removal of the flame.	P

IEC61347-2-13			
Clause	Requirement – Test	Result – Remark	Verdict
4	**GENERAL REQUIREMENTS**		**N/A**
	Compliance of independent controlgear enclosure with EN 60598-1		N/A
	Independent SELV controlgear comply with Annex I		N/A
6 (6)	**CLASSIFICATION**		**P**
	Independent control gear.....:		N/A
	Built-in control gear .....:		N/A
	Integral control gear .....:		P
	SELV-equivalent or isolating control gear .....:		P
	Auto-wound control gear .....:		N/A
	Independent SELV control gear		N/A
7	**MARKING**		**N/A**
7.1 (7.1)	Mandatory markings:		N/A
	- mark of origin	Integral model	N/A
	- model number, type reference .....:		N/A
	- symbol for independent control gear, if applicable		N/A
	- correlation between interchangeable parts and control gear marked		N/A
	- legend on the control gear		N/A
	- manufacturer's catalogue		N/A
	- rated supply voltage (V) .....:		N/A
	- value of t_c		N/A
	- wiring diagram		N/A
	- earthing symbol		N/A
	- symbol for declared temperature		N/A
	- rated output voltage		N/A
	- rated output current and maximum output voltage		N/A
7.2 (7.1)	- information to be provided, if applicable		N/A
	- declaration on protection against accidental contact		N/A
	- cross-section of conductors (mm²) .....:		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
	- number, type and wattage of lamp(s)		N/A
	- declaration of control gear has mains connected windings		N/A
	- declaration for SELV-equivalent control gear		N/A
	- no marking on integral ballast		N/A
- (7.2)	Marking durable and legible		N/A
	Rubbing 15 s water, 15 s petroleum; marking legible		N/A
8 (10)	**PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS**		**P**
- (10.1)	Control gear protected against accidental contact with live parts		P
- (A1)	Current measured according to IEC 60990, figure 4 and clause 7.1: max. 0.7 mA (peak) or 2.0 mA d.c., for f ≥1000 Hz max. 70 mA .....:	0.24mA; limt 0.7mA	P
- (A2)	Voltage at 50 kΩ(V): max. 34 V (peak) .....:	15V	P
	Lacquer or enemal not used		P
	Adequate mechanical strength on parts providing protection		P
8.1	Accessible parts insulated from live parts by double or reinforced insulation		P
	Compliance with 8.6 and 13.1 of IEC 60065		P
8.2	Exposed terminals if - rated or maximum output voltages does not exceeding 25 V r.m.s and - the no-load output voltage does not exceed 30 Vr.m.s or $33\sqrt{2}$ V peak		N/A
	Control gear with rated output exceeding 25 V are insulated		N/A
	One capacitor Y1 or two capacitors Y2 or resistors of the same values used in series between primary and secondary circuit - Capacitor complying with IEC 60384-14 - Resistor complying with EN 60065, clause 14	One capacitor Y1 used	P
9 (8)	**TERMINALS**		**N/A**

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Clause	Requirement – Test	Result – Remark	Verdict
	Screw terminals: compliance with Section 14 of EN 60598-1		N/A
	Screwless terminals: compliance with Section 15 of EN 60598-1		N/A
8(15)	**SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS**		N/A
	Separately approved; component list		N/A
	Part of the luminaire		N/A
8(15.2)	Definitions		N/A
8(15.2.1)	Screwless terminals		N/A
8(15.2.2)	Permanent connections		N/A
8(15.2.3)	Non-permanent connections		N/A
8(15.2.4)	Lead assemblies		N/A
8(15.2.5)	Non-prepared conductors		N/A
8(15.2.6)	Test current		N/A
8(15.3)	General requirements		N/A
8(15.3.1)	Parts of terminals or connections for carrying current shall be made of one of the following materials		N/A
8(15.3.2)	Terminals and connections shall clamp the conductor with sufficient pressure and without undue damage to the conductor.		N/A
8(15.3.3)	Terminals shall be so designed that, when the conductor has been adequately inserted into the terminal, further insertion of its end is prevented by a stop.		N/A
8(15.3.4)	Terminals other than those for lead assemblies shall accept "non-prepared conductors"		N/A
8(15.3.5)	the pressure essential for good electrical conductivity is not transmitted through insulating material		N/A
8(15.3.6)	spring-type non-permanent screwless terminals		N/A
8(15.3.7)	Terminals for connection to several conductors under spring clamps shall clamp each conductor independently		N/A
8(15.3.8)	Terminals shall be suitably fixed to the equipment or to a terminal block or otherwise fixed in position.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
8(15..3.9)	Terminals and connections shall withstand the mechanical, electrical and thermal stresses occurring in normal use.		N/A
8(15.3.10)	Manufacturers shall state the conductor size or sizes for which the component is designed and the type of conductor, for example, solid or stranded		N/A
8(15.4)	General instructions on tests		N/A
8(15.4.1)	Preparation of samples		N/A
8(15.4.2)	Test conductors		N/A
8(15.4.3)	Multi-conductor terminals		N/A
8(15.4.4)	Multi-way terminals		N/A
8(15.4.5)	Test quantities		N/A
8(15.5)	Terminal and connections for internal wiring		N/A
8(15.5.1)	Mechanical tests		N/A
8(15.5.1.1)	Non-permanent connections		N/A
8(15.5.1.1.1)	In the case of spring-type terminals, the test is made with solid copper conductors of the size or sizes specified by the manufacturer.		N/A
8(15.5.1.1.2)	Pin or tab and receptacle type connections…		N/A
8(15.5.1.2)	The connection shall remain fully effective		N/A
8(15.6)	Electrical tests		N/A
8(15.6.1)	Contact resistance test		N/A
8(15.6.1.1)	spring-type terminals		N/A
8(15.6.1.2)	pin or tab and receptacle type terminals		N/A
8(15.6.1.3)	voltage drop		N/A
8(15.6.2)	Heating tests		N/A
8(15.6.2.1)	ageing test,		N/A
8(15.6.2.2)	The voltage drop is again measured on each terminal:		N/A
8(15.6.2.3)	this surface shall not be deformed during these heating tests		N/A
8(15.7)	Terminals and connections for external wiring		N/A
8(15.7.1)	Conductors		N/A
8(15.8)	Mechanical tests		N/A
8(15.8.1)	spring-type terminals		N/A
8(15.8.2)	Pin or tab and receptacle type connections		N/A

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Clause	Requirement – Test	Result – Remark	Verdict

10 (9)	**PROVISION FOR EARTHING**		**N/A**
	External metal parts connected to the earth- terminal:		N/A
	- compliance with 7.2.1 in IEC 60598-1		N/A
	Test with a current of 10 A between earthing terminal and each of the accessible metal parts; measured resistance (Ω): < 0,5 Ω .....:		N/A
	Protective earth, symbol		N/A
	Terminal complying with clause 8 in Part 1		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 equicvalent material		N/A
	Contact surface bare metal		N/A
	Conductors by tracks on printed circuit boards:		N/A
	- a.c. current of 25 A for 1 min between earthing terminal and accessible metal parts		N/A
	- compliance with clause 7.2.1 in EN 60598-1		N/A

11 (11)	**MOISTURE RESISTANCE AND INSULATION**		**P**
	After storage 48 h at 91-95% relative humidity and 20-30 ℃ measuring of insulation resistance with d.c. 500 V (MΩ): ≥ 2 MΩ .....:	500MΩ	P
	Adequate insulation between input and output terminals not bounded together		P
	For double or reinforced insulation the resistance exceeds 4 MΩ	500MΩ	P

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Clause	Requirement – Test	Result – Remark	Verdict
12 (12)	**ELECTRIC STRENGTH**		**P**
	Immediately after clause 11 electric strength test for 1 min		P
	Working voltage < 42 V, test voltage 500 V		N/A
	Working voltage > 42 V, test voltage (V): 2U + 1000 V .....:	Different polarity L-N (after fuse open): AC1480V	P
	Reinforced insulation, test voltage (V): .....:	Between inputs terminal and outputs terminal :AC3710V	P
	Reinforced insulation, test voltage (V): .....:	Between live part and enclosure : AC3710V	P
	No flashover or breakdown	No brokendown	P
	Windings in separating transformers in SELV-equivalent control gear according to 14.3.2 of EN 60065		P
13 (13)	**THERMAL ENDURANCE FOR WINDINGS**		**N/A**
	Not applicable		N/A
14 (14)	**FAULT CONDITIONS**		**P**
	When operated under fault conditions the control gear does not emit flames or molten material		P
	- does not produce flammable gases		P
	- protection against accidental contact not impaired		P
	Thermally protected ballasts 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		P
14.1 (14.1)	Short-circuit of creepage distances and clearances if less than specified in clause 18 (except between live parts and accessible metal parts)	(see appended table)	P
	Distances on printed boards provided with coating according to IEC 60664-3		N/A
14.2 (14.2)	Short-circuit or interruption of semiconductor devices	(see appended table)	P

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Clause	Requirement – Test	Result – Remark	Verdict
14.3 (14.3)	Short-circuit across insulation consisting of lacquer, enamel or textile		N/A
14.4 (14.4)	Short-circuit across electrolytic capacitors	(see appended table)	P
14.4 (14.5)	After the tests has been carried out on three samples:		P
	The insulation resistance ≥ 1 MΩ	500 MΩ	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
15	**TRANSFORMER HEATING**		**P**
	Windings of separating transformer in a SELV- equivalent control gear tested according to 7.1 and 11.2 of EN 60065 are complied with		P
15.1	Normal operation: the values in column 2 of Table 3 are complied with		P
15.2	Abnormal operation: operation under abnormal conditions of Cl. 16 and fault conditions of Cl. 14, the values in column 3 of Table 3 of EN 60065 are complied with		P
	(Tests made when tc is reached)	45°C	P
16	**ABNORMAL CONDITIONS**		**P**
	Safety not impaired when the control gear is operated at any voltage between 90% and 110% of rated voltage		P
16.1	Control gear which are of the constant voltage output type		N/A
	Test voltage (V)..... :		N/A
	a) No LED module inserted		N/A
	b) Double the LED modules or equivalent load connected in parallel to the output terminals		N/A
	c) Output terminals short-circuited (20 cm and 200 cm or declared length)		N/A
	During and at the end of the tests no defect impairing safety, nor any smoke or flammable gases produced		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
16.2	Control gear which are of the constant current output type:		P
	Test voltage (V).....	AC264V	P
	a) No LED module inserted		P
	b) Double the LED modules or equivalent load connected in series to the output terminals		P
	c) Output terminals short-circuited (20 cm and 200 cm or declared length)		P
	The maximum output voltage shall not be exceeded		P
	During and at the end of the tests no defect impairing safety, nor any smoke or flammable gases produced		P
17 (15)	**CONSTRUCTION**		**P**
15.1 (15.1)	Wood, cotton, silk, paper and similar fibrous material not used as insulation		P
15.2 (15.2)	Printed boards used as internal connections complies with clause 14		P
	Socket-outlet in the output circuit does not accept plugs complying with IEC 60083 and IEC 60906		N/A
	Not possible to engage plugs accepted by socket- outlet in the output circuit with socket-outlets complying with IEC 60083 and IEC 60906		N/A
18 (16)	**CREEPAGE DISTANCES AND CLEARANCES**		**P**
	Creepage distances and clearances according to Table 3 and 4, as appropriate	(see appended table)	P
	Printed boards see clause 14		P
	Insulating lining of metallic enclosures		N/A
19 (17)	**SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS**		**P**
	Screws, current-carrying parts and connections in compliance with EN 60598-1 (clause numbers between parentheses refer to EN 60598-1)		P
(4.11)	Electrical connections		P
(4.11.1)	Contact pressure		N/A
(4.11.2)	Screws:		N/A
	- self-tapping screws		N/A
	- thread-cutting screws		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
	- at least two self-tapping screws		N/A
(4.11.3)	Screw locking:		N/A
	- spring washer		N/A
	- rivets		N/A
(4.11.4)	Material of current-carrying parts		P
(4.11.5)	No contact to wood	No wood	P
(4.12)	Mechanical connections and glands		P
(4.12.1)	Mechanical stress		N/A
	Screws not made of soft metal		N/A
	Screws of insulating material		N/A
	Torque test: part; torque (Nm) .....:		N/A
	Torque test: part; torque (Nm) .....:		N/A
	Torque test: part; torque (Nm) .....:		N/A
(4.12.2)	Screw diameter < 3 mm screwed into metal		N/A
(4.12.3)	Void		N/A
(4.12.4)	Locked connections		N/A
(4.12.5)	Screwed glands: force (N) .....:		N/A

20 (18)	**RESISTANCE TO HEAT, FIRE AND TRACKING**		**P**
(18.1)	Parts of insulating material retaining live parts in position, ball-pressure test:		P
	- part; test temperature (℃) .....:	T1 bobbin:125°C	P
	- part; test temperature (℃) .....:	Lamp cap:125°C	P
	-part; test temperature (℃) .....:	PCB: 125°C	P
(18.2)	Printed boards in accordance with IEC 60249-1.4.3		P
(18.3)	External parts of insulating material preventing electric shock glow-wire test 650℃	Enclosure	P
(18.4)	Parts of insulating material retaining live parts in position, needle-flame test 10 s:		P
	- flame extinguished within 30 s	PCB of LED driver; PCB of LED module;T1 bobbin; Lamp cap	P
	- no flaming drops igniting tissue paper	Flame extinguished immediately after removal of the flame.	P
(18.5)	Tracking test		N/A

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Clause	Requirement – Test	Result – Remark	Verdict

21 (19)	**RESISTANCE TO CORROSION**		N/A
	Rust protection:		N/A
	- 10% solution of ammonium chloride in water		N/A
	- adequate varnish on the outer surface		N/A

14-1	**TABLE: tests of fault conditions** For model: T8L1500-24W			**P**
Part	Test voltage (V)	Simulated fault	Result	Hazard
MOV1	240	Short-circuited	1s fuse opened	No hazardous.
D1	240	Short-circuited	1s fuse opened	No hazardous.
T1(pin 1-2)	240	Short-circuited	Shutdown, recoverable, lamp flashes	No hazardous.
T1(pin 4-5)	240	Short-circuited	1s fuse opened	No hazardous.
D5	240	Short-circuited	Shutdown, recoverable	No hazardous.
Q1(G-S)	240	Short-circuited	Shutdown, recoverable	No hazardous.
Q1(G-D)	240	Short-circuited	1s fuse opened	No hazardous.
Q1(D-S)	240	Short-circuited	1s fuse opened	No hazardous.
R17	240	Short-circuited	Shutdown, recoverable, lamp flashes	No hazardous.
D6	240	Short-circuited	Shutdown, recoverable	No hazardous.
T1(pin 6-8)	240	Short-circuited	Shutdown, recoverable	No hazardous.

18 (16)	**TABLE: creepage distances and clearances**					**P**
	Minimum distances for a.c. (50/60 Hz) sinusoidal voltages					P
RMS working voltage (V) not exceeding	50	150	250	500	750	1000
1 minimum distances between live parts of different polarity. Specify the value measured.	-	-	Cr=3.2 Cl=3.2	-	-	-
2 minimum distances between live parts and accessible parts which are permanently fixed to the ballast, including screws or devices for fixing covers or fixing the ballast to its support. Specify	-	-	Cr=5.0 Cl=5.0	-	-	-
- required creepage distances (mm), insulation PTI ≥ 600	0.6	0.8	1.5	3	4	5.5
- required creepage distances (mm), insulation PTI < 600	1.2	1.6	2.5	5	8	10
- required clearances (mm)	-	3.2	5	6	8	11
3 minimum distances between live parts and a flat supporting surface or a loose metal cover, if any, if the construction does not ensure that the values under 2 above are maintained under the most	-	-	-	-	-	-

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Clause	Requirement – Test	Result – Remark	Verdict

- required clearances (mm)		-	1.6	3	6	8	11
	Minimum distances for non-sinusoidal pulse voltages						N/A
rated pulse voltage (peak kV)	2.0	2.5	3.0	4.0	5.0	6.0	8.0
required minimum distances, clearances (mm)	1.0	1.5	2	3	4	5.5	8
Specify the value measured	-	-	-	-	-	-	-
rated pulse voltage (peak kV)	10	12	15	20	25	30	40
required minimum distances, clearances (mm)	11	14	18	25	33	40	60
Specify the value measured	-	-	-	-	-	-	-
rated pulse voltage (peak kV)	50	60	80	100	-	-	-
required minimum distances, clearances (mm)	75	90	130	170	-	-	-
Specify the value measured	-	-	-	-	-	-	-

A	**ANNEX A (NORMATIVE), TEST TO ESTABLISH WHETHER A CONDUCTIVE PART IS A LIVE PART WHICH MAY CAUSE AN ELECTRIC SHOCK**		**P**
A.1	The current flowing between the part concerned and earth is measued and does not exceed 0.7 mA (peak) or 2 mA d.c. .....:		P
	For frequencies above 1 kHz, the limit does not exceed 70 mA (peak).....:		P
	The voltage between the part concerned and any accessible part is measured and does not exceed 34 V (peak) .....:		N/A

C	**ANNEX C – PARTICULAR REQUIREMENTS FOR CONTROL GEAR WITH MEANS OF PROTECTION AGAINST OVERHEATING**		**N/A**
C3	**GENERAL REQUIREMENTS**		N/A
C3.1	Thermal protection means integral with the control gear, protected against mechanical damage		N/A
	Renewable only by means of a tool		N/A
	If function depending on polarity, for cord- connected equipment protection means in both leads		N/A
	Thermal links comply with EN 60691		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
	Electrical controls comply with EN 60730-2-3		N/A
C3.2	No risk of fire by breaking (clause C7)		N/A
C5	**CLASSIFICATION**		N/A
	a) automatic resetting type		N/A
	b) manual resetting type		N/A
	c) non-renewable, non-resetting type		N/A
	d) renewable, non-resetting type		N/A
	e) other type of thermal protection; description		N/A
C6	**MARKING**		N/A
C6.1	Symbol for temperature declared thermally protected ballasts		N/A
C6.2	Declaration of the type of protection provided		N/A
C7	**LIMITATION OF HEATING**		N/A
C7.1	Preselection test		N/A
	Test sample placed for at least 12 h in an oven having temperature (tc - 5) K		N/A
	No operation of the protection device		N/A
C7.2	Functioning of protection means		N/A
	Normal operation of the sample in a test enclosure according to Annex D at an ambient temperature such that (t_c +0; -5) ℃ is obtained		N/A
	No operation of the protection device		N/A
	Introducing of the most onerous test condition determined during test of clause 14		N/A
	Output of windings connected to the mains supply short-circuited, and other part of the control gear operated under normal conditions		N/A
	Increasing of the current through the windings continuously until operation of the protection means		N/A
	Continuous measuring of the highest surface temperature		N/A
	Ballasts according to C5 a) or C5 e) operated until stable conditions are achieved		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
	Automatic-resetting thermal protectors working 3 times		N/A
	Ballasts according to C5 b) working 6 times		N/A
	Ballasts according to C5 c) and C5) d) working once		N/A
	Highest temperature does not exceed the marked value		N/A
	Any overshoot of 10% over the marked value within15 min		N/A

E	**ANNEX E – USE OF CONSTANT S OTHER THAN 4500 IN t_w TESTS**		**N/A**
E1	Constant S claimed		N/A
	Claimed test method		N/A
E2	Procedure A		N/A
	Adequate data provided by the manufacturer		N/A
	The inverse of the slope is greater than or equal to the claimed value of S		N/A
	Compliance with the failure criteria for procedure B		N/A
E3	Procedure B		N/A
	Claimed value of T_1		N/A
	Claimed value of T_2		N/A
	Endurance test carried out at:		N/A
	T_1 (7 samples)		N/A
	T_2 (7 samples)		N/A
	Duration of test calculated from equation (2)		N/A
	T_1		N/A
	T_2		N/A
	During the test: - No open circuit - No breakdown in insulation		N/A
	The claimed constant S is deemed to be verified		N/A

F	**ANNEX F - DRAUGHT-PROOF ENCLOSURE**		**P**
	Draught-proof enclosure in accordance with the description		P
	Dimensions of the enclosure perforation		P

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Clause	Requirement – Test	Result – Remark	Verdict
	Other design; description		N/A
H	**ANNEX H - TESTS**		**P**
	All tests performed in accordance with the advise given in Annex H, if applicable		P
I	**ANNEX I - PARTICULAR ADDITIONAL REQUIREMENTS FOR INDEPENDENT SELV D.C. OR A.C. SUPPLIED ELECTRONIC CONTROL GEAR FOR LED MODULES**		**N/A**
I.3	Classification		N/A
I.3.1	Class I		N/A
	Class II		N/A
I.3.2	Non inherently short-circuit proof control gear		N/A
	Non inherently open-circuit proof control gear		N/A
	Inherently short-circuit proof control gear		N/A
	Inherently open-circuit proof control gear		N/A
	Fail safe control gear		N/A
	Non short-circuit proof control gear		N/A
	Non open-circuit proof control gear		N/A
I.4	Marking		N/A
	Adequate symbols are used		N/A
I.5	Protection against electric shock		N/A
I.5.1	No connection between output winding and body		N/A
	No connection between output winding and protective earthing circuit		N/A
I.5.2	Input and output circuits electrically separated from each other		N/A
I.5.2.1	Insulation between input and output winding of the HF-transformer consists of double or reinforced insulation		N/A
	Class II: insulation between input/output and body consists of double or reinforced insulation		N/A
	Class I: insulation between input and body consists of basic and between output and body supplementary insulation		N/A
I.5.2.2	Insulation between input and output winding via the core consists of double or reinforced insulation		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
	Insulation between core and windings of the HD-transformer consists of basic insulation		N/A
I.5.2.3	Serrated tape, additional layer		N/A
I.5.2.4	Class I control gear for fixed connection provided with basic insulation plus protective screening comply with the following conditions:		N/A
	a) Insulation between the input winding and the protective screen complies with the requirements for basic insulation		N/A
	b) Insulation between the protective screen and the output winding complies with the requirements for basic insulation		N/A
	c) Metal screen consists of a metal foil or of a wire wound screen		N/A
	d) Metal screen so arranged that both edges cannot simultaneously touch a magnetic core		N/A
	e) Metal screen and its lead-out wire have a cross- section sufficient to ensure that an overload device will open the circuit before the screen is destroyed		N/A
	f) Lead-out wire sufficiently fixed to the metal screen		N/A
I.5.2.5	Last turn of each winding of the transformer retained by positive means		N/A
	Impregnated winding		N/A
	Winding held together by means of insulating material		N/A
I.5.3	Components bridging between input and output circuit		N/A
I.5.3.1	Used capacitors and resistors comply with 8.2		N/A
I.5.3.2	Used opto-couplers		N/A
I.6	Heating		N/A
I.6.1	No excessive temperatures in normal use		N/A
	Used material classified as Class		N/A
	Stated value of t_a		N/A
I.6.2	Upri: 1.06 time supply rated voltage		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
	Determined temperature rises in windings: (for model QM003): - Primary: - Limit max: - Secondary:		N/A
	Determined temperature rises in windings: (for model QM006): - Primary: - Limit max: - Secondary: - Limit max:		N/A
	After the test:		N/A
	- no connections have worked loose		N/A
	- no reduction of creepage distances and clearances		N/A
	- no flow of sealing compound		N/A
	- no operation of protecting devices		N/A
	- electric strength test between input and output windings		N/A
I.6.3	Cycling test (10 cycles):		N/A
I.6.3.1	- heat run at _____ K		N/A
I.6.3.2	- moisture treatment 48 h		N/A
I.6.3.3	- vibration test 1 h; 1,5 g		N/A
I.6.3.4	After the tests:		N/A
	- insulation resistance		N/A
	- dielectric strength test at 35 % of specified value; test voltage _____ V		N/A
	- Current or the ohmic component does not deviates by more than 30 %		N/A
I.7	Short-circuit and overload protection		N/A
I.7.1	Upri: 1.06 times rated voltage or 0.94 and 1.06 times rated supply voltage - used voltage _____ V		N/A

IEC61347-2-13			
Clause	Requirement – Test	Result – Remark	Verdict
I.7.2 I.7.3 I.7.3.1 I.7.3.2 I.7.3.3 I.7.3.4 I.7.3.5 I.7.4	Determined temperature rise in windings and on other parts:		N/A
	- test according to Clause		N/A
	- Primary winding		N/A
	- Limit max		N/A
	- Secondary winding		N/A
	- Limit max		N/A
	- External enclosure		N/A
	- Limit max		N/A
	- Rubber insulation of wiring		N/A
	- Limit max		N/A
	- PVC insulation of wiring		N/A
	- Limit max		N/A
	- Supports		N/A
	- Limit max		N/A
I.7.5	Fail-safe control gears		N/A
I.7.5.1	- Upri: 1.06 times rated supply voltage ..... V:		N/A
	- Isec: 1.5 times rated output current ..... A:		N/A
	- time until steady-state conditions t1 (h) .....:		N/A
	- time until failure t2 (h): ≤ t1; ≤ 5 h .....:		N/A
I.7.5.2	During the test:		N/A
	- no flames, molten material, etc.		N/A
	- temperature rise of enclosure ≤ 150 K		N/A
	- temperature rise of plywood support ≤ 100 K		N/A
	After the test:		N/A
	- electric strength (test voltage; 35 % of specified value); no flashover or breakdown for primary-to- secondary and for primary-to-body		N/A
	- live parts not accessible by test finger through holes of enclosure		N/A

IEC61347-2-13			
Clause	Requirement – Test	Result – Remark	Verdict
I.8	**Insulation resistance and electric strength**		N/A
I.8.1	Conditioned 48 h between 91 % and 95 %		N/A
I.8.2	Adequate insulation (500 V d.c. for 1 min) between:		N/A
	Live parts and the enclosure -for basic insulation not less than 2 MΩ ..... :		N/A
	Live parts and the enclosure -for reinforced insulation not less than 4 MΩ ..... :		N/A
	Input- and output circuits not less than 5 MΩ ..... :		N/A
	Metal parts of class II control gears which are separated from live parts by basic insulation only and the enclosure not less than 5 MΩ ..... :		N/A
	Metal foil in contact with the inner and outer surfaces of enclosures of insulating material not less than 2 MΩ ..... :		N/A
I.8.3	Electric strength test:		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 which are or may become of different polarity ..... :		N/A
	b) live parts and enclosure 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 enclosure ..... :		N/A
	3) Over reinforced insulation between the enclosure and live parts ..... :		N/A
	No flashover or breakdown occurred		N/A
I.9	**Construction**		N/A
I.9.1	Comply with all requirements		N/A
I.9.2	The distance between input and output terminals shall not be less than 25 mm ..... :		N/A
I.10	Components		N/A

IEC61347-2-13			
Clause	Requirement – Test	Result – Remark	Verdict
I.10.1	Socket-outlets in the output circuit does not accept plugs complying with IEC 60083 and IEC 60906-1		N/A
I.10.2	Self-resetting devices shall not be used unless it is certain that there will be no hazards		N/A
	Compliance is checked by connecting the control gear for 48 h at 1.06 times the rated voltage with the output short-circuited		N/A
I.11	**Creepage distances and clearances**		N/A
	1. Insulation between input and output circuits:		N/A
	a) measured values ≥ specified values (mm) ..... :		N/A
	b) measured values ≥ specified values (mm) ..... :		N/A
	c) measured values ≥ specified values (mm) ..... :		N/A
	2. Insulation between adjacent input circuits: measured values ≥ specified values (mm) ..... :		N/A
	2. Insulation between adjacent output circuits: measured values ≥ specified values (mm) ..... :		N/A
	3. Insulation between terminals for external connection:		N/A
	a) measured values ≥ specified values (mm) ..... :		N/A
	b) measured values ≥ specified values (mm) ..... :		N/A
	c) measured values ≥ specified values (mm) ..... :		N/A
	4. Basic or supplementary insulation:		N/A
	a) measured values ≥ specified values (mm) ..... :		N/A
	b) measured values ≥ specified values (mm) ..... :		N/A
	c) measured values ≥ specified values (mm) ..... :		N/A
	5. Reinforced insulation: measured values ≥specified values (mm) ..... :		N/A
	6. Distande through insulation:		N/A
	a) measured values ≥ specified values (mm) ..... :		N/A
	b) measured values ≥ specified values (mm) ..... :		N/A
	c) measured values ≥ specified values (mm) ..... :		N/A
	d) measured values ≥ specified values (mm) ..... :		N/A

IEC62031			
Clause	Requirement – Test	Result – Remark	Verdict
4	**GENERAL REQUIREMENTS**		**P**
4.4	Integral modules treated as part of luminaires defined in clause 0.5 of EN 60598-1		P
4.5	Independent modules complies with requirements in IEC60598-1		N/A
5	**GENERAL TEST REQUIREMENTS**		**N/A**
5.5	SELV-operated LED modules comply with Annex I of IEC61347-2-13	See Annex B	N/A
6	**CLASSIFICATION**		**P**
	Built-in module	Yes ☐ No ☒	--
	Independent module	Yes ☐ No ☒	--
	Integral module	Yes ☒ No ☐	--
	For Integral module; Note to 1.2.1 in EN 60598-1 applies;		N/A
7	**MARKING**		**N/A**
7.1	Mandatory markings:		N/A
	- mark of origin		N/A
	- model number, type reference		N/A
	- rated supply voltage(V)		N/A
	- rated supply current(A)		N/A
	-rated input power(W)		N/A
	- incication of connections, wiring diagram		N/A
	- value of T_C		N/A
	- eye protection		N/A
	- marking of built-in modules only		N/A
7.2	- location of marking		N/A
7.3	Marking durable and legible		N/A
	Rubbing 15 S water, marking legible		N/A
8	**SCREW TERMINALS**		**N/A**
	Compliance with section 14 of EN 60598-1		N/A

IEC62031			
Clause	Requirement – Test	Result – Remark	Verdict
	SCREWLESS TERMINALS		N/A
	Compliance with section 15 of EN 60598-1		N/A
	CONNECTORS		N/A
	Compliance with IEC 60838-2-2		N/A
9	**PROVISION FOR EARTHING**		**N/A**
	Provision fo protective earthing in compliance with clause 9 of IEC61347-1		N/A
10(10)	**PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS**		**N/A**
	Protection against accidental contact with live parts in compliance with IEC61347-1		N/A
11 (11)	**MOISTURE RESISTANCE AND INSULATION**		**P**
	Protection against moisture and insulation in compliance with Clause 11, IEC61347-1		P
12 (12)	**ELECTRIC STRENGTH**		**P**
	Electric strength in compliance with Clause 12 of IEC 61347-1		P
13	**FAULT CONDITIONS**		**P**
13.1	**In compliance with IEC 61347-1 (clause numbers between parentheses refer to IEC 61347-1)**		P
	In compliance with clause 14 of IEC61347-1		P
13.2	Module withstands over power condition ＞15 min.		P
	Module with automatic protective device or power limiter, test performed 15 min, at limit.		N/A
	During the tests, tissue paper, spread below module, does not ignite		P
15	**CONSTRUCTION**		**P**
	Wood, cotton, silk, paper and similar fibrous material not used as insulation		P
16	**CREEPAGE DISTANCES AND CLEARANCES**		**P**
	Creepage and distances and clearances in compliance with IEC60598-1		P

IEC62031			
Clause	Requirement – Test	Result – Remark	Verdict
17(17)	**SCREWS, CURRENT- CARRYIN PARTS AND CONNECTIONS**		**P**
	Screws, current- carrying parts and connections in compliance with IEC 60598-1 (clause numbers between parentheses refer to EN 60598-1)		P
18 (18)	**RESISTANCE TO HEAT, FIRE AND TRACKING**		**P**
	Resistance to Heat, Fire and Tracking in compliance with clause 18 of IEC 61347-1		P
19	**RESISTANCE TO CORROSION**		**N/A**
	Resistance to corrosion in compliance with EN 61347-1		N/A
	Rust protection:		N/A
	- test according 4.18.1 of EN 60598-1		N/A
	- adequate varnish on the outer surface		N/A
A	**ANNEX A – TESTS**		**P**
	All tests performed in accordance with the advise given in Annex H of EN 61347-1, if applicable		P
B	**ANNEX B – SELV- operated LED modules**		**N/A**
	Requirements not applicable to the evaluated products.		N/A

Appendix 1

Photo documentation

Photo 1

View:
T8L1500-24W
[√] front

[ ] rear

[ ] right side

[ ] left side

[ ] top

[ ] bottom

[ ] internal

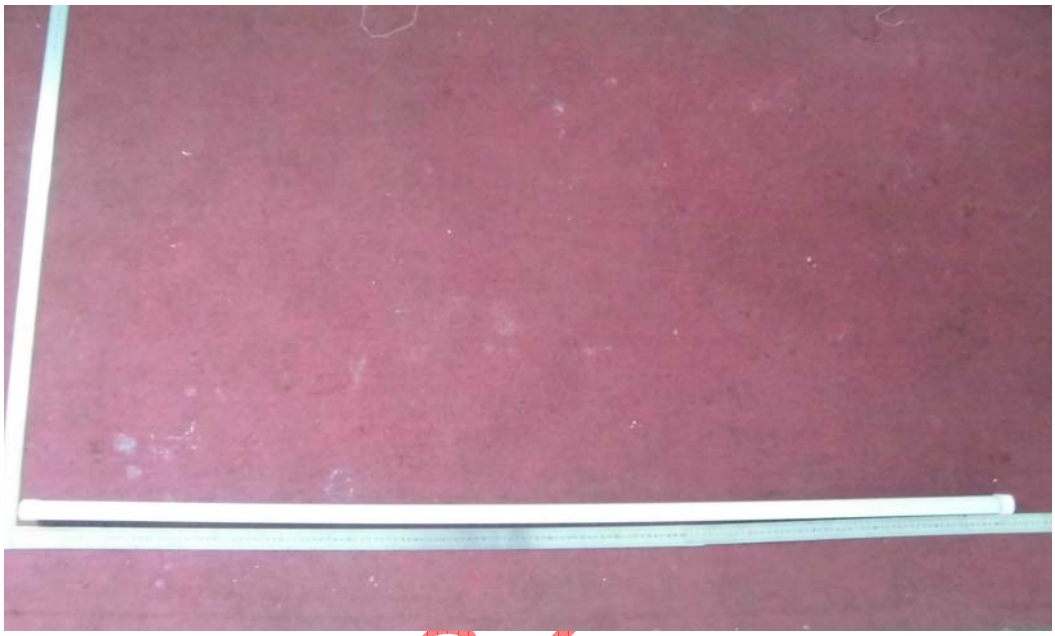

Photo 2

View:
T8L1500-24W
[ ] front

[ ] rear

[ ] right side

[√] left side

[ ] top

[ ] bottom

[ ] internal

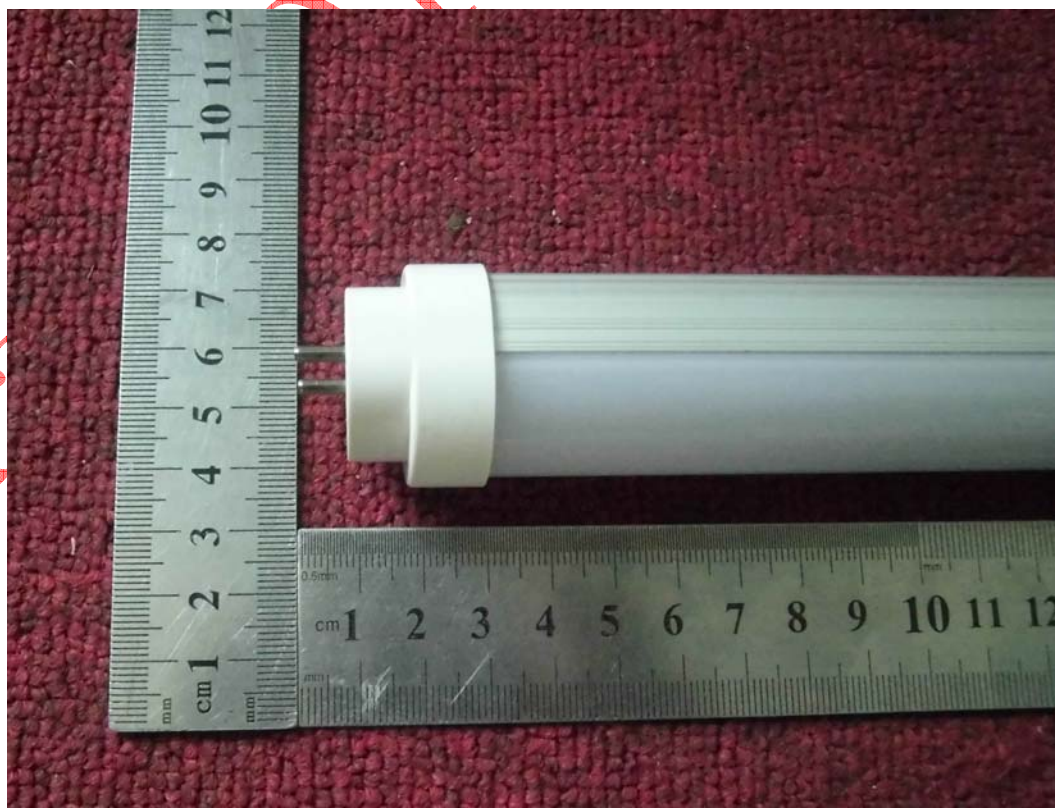

Photo 3

View:
T8L1500-24W
[ ] front

[ ] rear

[ ] right side

[ ] left side

[ ] top

[ ] bottom

[ ] internal

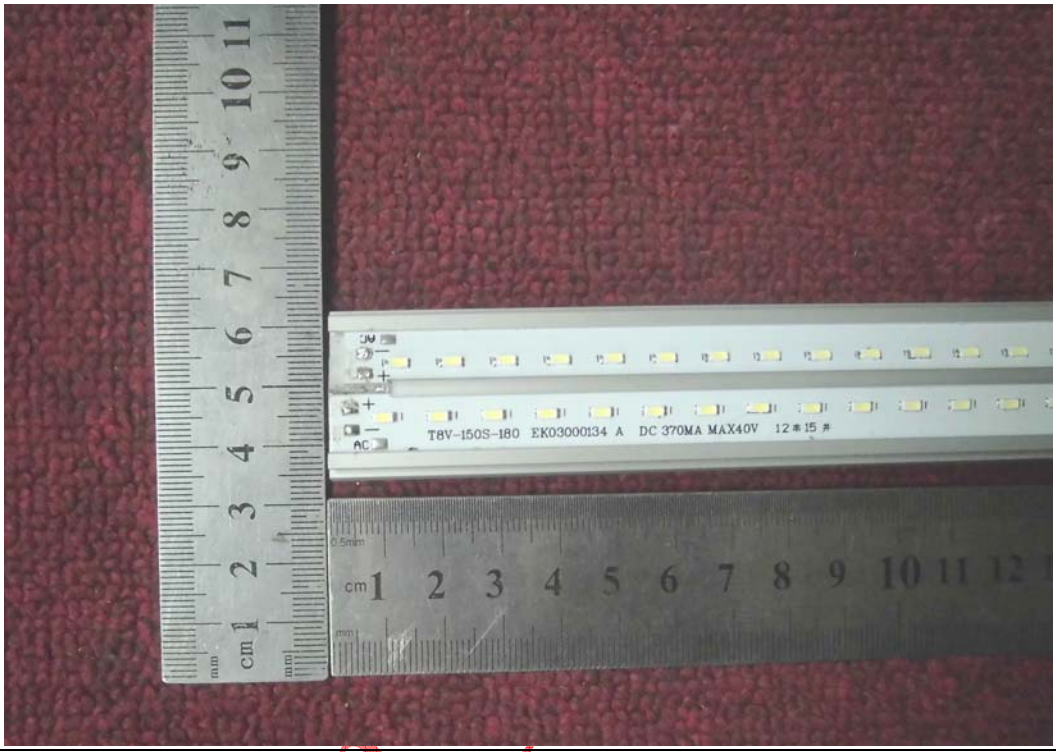

Photo 4

View:
T8L1500-24W
[ ] front

[ ] rear

[ ] right side

[ ] left side

[ ] top

[ ] bottom

[√] internal

Photo 5

View:
T8L1500-24W
[ ] front

[ ] rear

[ ] right side

[ ] left side

[ ] top

[ ] bottom

[√] internal

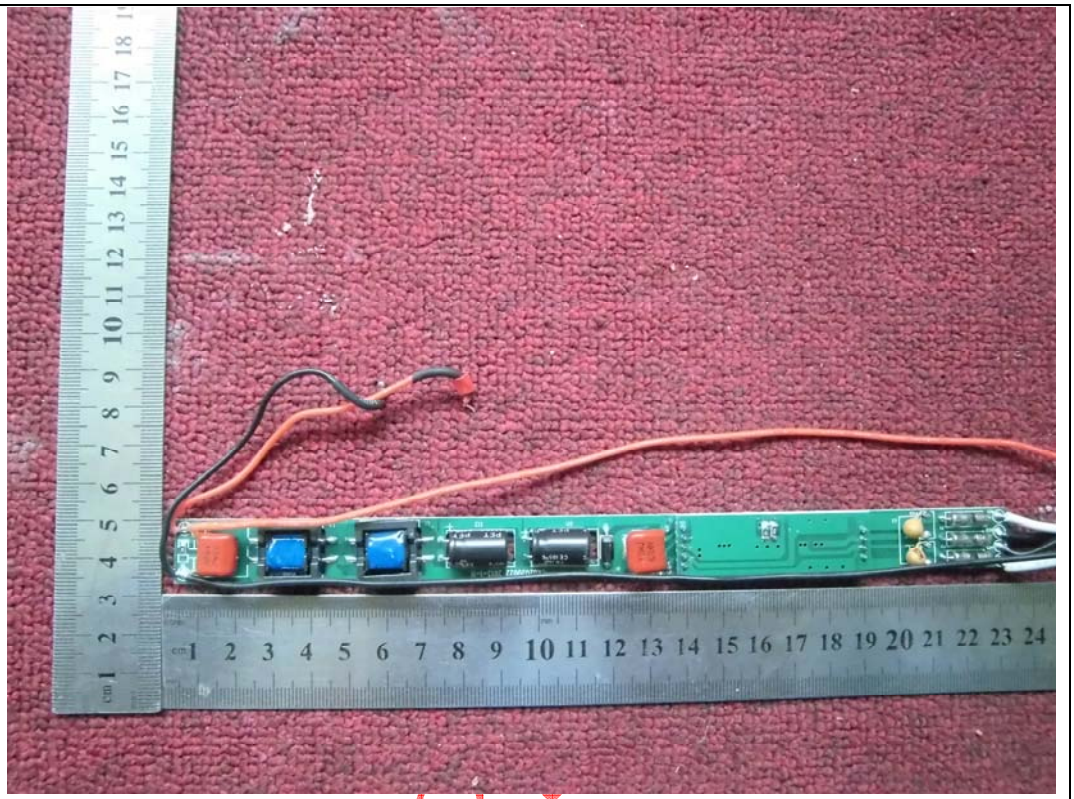

Photo 6

View:
T8L1500-24W
[ ] front

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[ ] bottom

[√] internal

Appendix 2

Equipment list

Code	Name	Model/ Type	S/N	Calibrated date	Next Calibration Date	Manufacture	Used or not
WSCT S-001	Torque Meter	LJ-1	LJ010407	2012.06.10	2013.06.09	Guangzhou Zhilitong	
WSCT S-002	Tumbling Barrel	GT-1	G011307	2013.02.19	2014.02.18	Guangzhou Zhilitong	
WSCT S-003	Stability Board	WD-1	W010507	2013.02.19	2014.02.18	Guangzhou Zhilitong	
WSCT S-004	Glow Wire Test Set	GTR-B	R023207	2013.02.19	2014.02.18	Guangzhou Zhilitong	√
WSCT S-005	Needle Flame Test Set	ZY-Z	Y021207	2013.02.19	2014.02.18	Guangzhou Zhilitong	√
WSCT S-006	Hot line Coil Resistance Meter	RC-2	200978	2013.02.19	2014.02.18	Hangzhou Weibo	
WSCT S-007	Automatic Frequency Converter	AN9703 0TS	069712327L	2013.02.19	2014.02.18	Ainuo	√
WSCT S-008	Automatic Frequency Converter	AN9703 0TS	069712393L	2013.02.19	2014.02.18	Ainuo	√
WSCT S-009	Insulation Resistance Tester	AN9671	079602136	2013.02.19	2014.02.18	Ainuo	√
WSCT S-010	Digital Power Meter	PF210	199764	2013.02.19	2014.02.18	Hangzhou Weibo	√
WSCT S-011	Digital Power Meter	8716C	870611014	2013.02.19	2014.02.18	Qingdao Qingzhi	
WSCT S-012	Data Acquisition/Switch Unit	Agilent/ 34970A	MY44035738	2012.06.22	2013.06.21	Agilent	√
WSCT S-013	Desktop Multi Meter	GDM-8245	CG810127	2013.02.19	2014.02.18	Good Will	
WSCT S-014	Desktop Multi Meter	GDM-8245	CG810128	2013.02.19	2014.02.18	Good Will	
WSCT S-015	Temp.&Humi. Chamber	GDJS-500-40	0329	2013.02.19	2014.02.18	Guangzhou Gongwen	√
WSCT S-016	Temp.&Humi. Record	TT-492	607	2012.05.26	2013.05.25	Tanita	
WSCT S-017	Pink Noise Generator	DF-1681	DH06006133	2013.02.19	2014.02.18	Ningbo Zhongce	
WSCT S-018	Function Generator	GFG-8216A	CH811153	2013.02.19	2014.02.18	Good Will	
WSCT S-019	Digital LCR	YD2810B	3104	2013.02.19	2014.02.18	Yangzi	
WSCT S-020	Electronic weight	BCSS-3kg	080556	2013.02.19	2014.02.18	Balance Electron	√
WSCT S-021	Audio Generator	GAG-809	EG850712	2013.02.19	2014.02.18	Good Will	
WSCT S-022	Oven	101A-3	33016	2013.02.19	2014.02.18	Rongfeng	√
WSCT S-023	Digital Caliper	SD-089	300609	2013.02.19	2014.02.18	Shanghai	√
WSCT S-024	Torque Driven	30LTDK	06K189	2013.02.19	2014.02.18	Nakamura	

Code	Name	Model/ Type	S/N	Calibrated date	Next Calibration Date	Manufacture	Used or not
WSCT S-025	Oscilloscope	TDS3012B	B042290	2013.02.19	2014.02.18	Tektronix	√
WSCT S-026	Pull & Push Scale	FB-30B	192869	2013.02.19	2014.02.18	Imada	√
WSCT S-027	AC/DC Dielectric Resistance Test Meter	AN9634H	069610322	2013.02.19	2014.02.18	Ainuo	√
WSCT S-028	Ground Bond Meter	AN9616H	079602157	2013.02.19	2014.02.18	Ainuo	
WSCT S-029	Leakage Current	AN9620H	079601341	2013.02.19	2014.02.18	Ainuo	√
WSCT S-030	DC Resistance Meter	YD2511	2073	2013.02.19	2014.02.18	Yangzi	
WSCT S-031	Voltage Regulator	SVC-20K	0502072	2013.02.19	2014.02.18	Yangzhou Huatai	√
WSCT S-032	DC Power	TPR-3010D	0384970	2013.02.19	2014.02.18	Longwei	
WSCT S-033	Data Acquisition/ Switch Unit	Agilent/ 34970A	MY44020255	2013.02.19	2014.02.18	Agilent	
WSCT S-034	Plug Gauge	4P0533	4P0533	2013.02.19	2014.02.18	Jinghua	
WSCT S-035	Spring Hammer	CJ-3	C031207	2013.02.19	2014.02.18	Guangzhou Zhilitong	
WSCT S-036	Spring Hammer	CJ-3	C031307	2013.02.19	2014.02.18	Guangzhou Zhilitong	
WSCT S-037	Spring Hammer	CJ-3	C031107	2013.02.19	2014.02.18	Guangzhou Zhilitong	√
WSCT S-038	Ball Pressure	QY-1	Q010707	2012.05.31	2013.05.30	Guangzhou Zhilitong	√
WSCT S-039	Stop Watch	PC396	101	2012.06.10	2013.06.09	Shenzhen Huibo	√
WSCT S-040	Digital Multimeter	F-115C	93420101	2013.02.19	2014.02.18	Fluke	
WSCT S-041	Digital Multimeter	F-115C	93420057	2013.02.19	2014.02.18	Fluke	
WSCT S-042	Test pin	TZ-31	V310307	2012.06.22	2013.06.21	Guangzhou Zhilitong	√
WSCT S-043	Test pin	TZ-32	V320307	2012.06.22	2013.06.21	Guangzhou Zhilitong	
WSCT S-044	Test probe	ST-1	S011107	2012.06.22	2013.06.21	Guangzhou Zhilitong	
WSCT S-045	Test pin	ZX-14	X140107	2012.06.22	2013.06.21	Guangzhou Zhilitong	
WSCT S-046	Ball Pressure	QY-1	Q012807	2012.06.22	2013.06.21	Guangzhou Zhilitong	
WSCT S-047	Test finger	WZ-1	E010907	2012.06.22	2013.06.21	Guangzhou Zhilitong	
WSCT S-048	Test finger	WZ-2	E020907	2012.06.22	2013.06.21	Guangzhou Zhilitong	
WSCT S-049	Test Flat pin	TZ-40	V400107	2012.06.22	2013.06.21	Guangzhou Zhilitong	
WSCT S-050	Test Small pin	TZ-14	V140207	2012.06.22	2013.06.21	Zhilitong	

Code	Name	Model/ Type	S/N	Calibrated date	Next Calibration Date	Manufacture	Used or not
WSCT S-051	Test finger	TZ-12	H020507	2012.06.22	2013.06.21	Guangzhou Zhilitong	
WSCT S-052	Test finger	ZJ-1	Z011207	2012.06.22	2013.06.21	Guangzhou Zhilitong	
WSCT S-053	Articulated test Finger	PA100A	U080807	2012.06.22	2013.06.21	Guangzhou Zhilitong	
WSCT S-055	Test finger	ZX-1	X010707-1	2012.06.22	2013.06.21	Guangzhou Zhilitong	
WSCT S-056	Test pin	ZX-1	X010707-2	2012.06.22	2013.06.21	Guangzhou Zhilitong	
WSCT S-057	Test pin	ZX-1	X010707-3	2012.06.22	2013.06.21	Guangzhou Zhilitong	
WSCT S-058	UL test pin	PA140A	U020107	2012.06.22	2013.06.21	Guangzhou Zhilitong	
WSCT S-059	UL test pin	PA160B	U010107	2012.06.22	2013.06.21	Guangzhou Zhilitong	
WSCT S-060	UL test pin	S2140	U050107	2012.06.22	2013.06.21	Guangzhou Zhilitong	
WSCT S-061	UL test pin	PA135A	U030107	2012.06.22	2013.06.21	Guangzhou Zhilitong	
WSCT S-062	Test hook	--	001	2012.06.22	2013.06.21	Shenzhen Hengxintai	
WSCT S-063	Clock	8120	--	2012.06.10	2013.06.09	PanyuMingzhuxing	√
WSCT S-064	Tape	7.5m	7025	2012.05.29	2013.05.28	Rongsheng	√
WSCT S-065	Data Acquisition/ Switch Unit	Agilent/ 34970A	MY44026389	2012.06.22	2013.06.21	Agilent	
WSCT S-066	DC Power	RXN-3010D	2008006875	2012.02.19	2013.02.18	Zhaoxin	
WSCT S-067	Digital Power Meter	CP-280	280902	2013.02.19	2014.02.18	Chyng hong	
WSCT S-068	Electronic scale	--	002	2012.06.22	2013.06.21	Yinuowei	
WSCT S-069	Leakage Current	Simpson 228	10-866030	2012.06.22	2013.06.21	USA Simpson	
WSCT S-070	Steel Ball	GQ-1	GQ011307	2012.06.22	2013.06.21	Guangzhou Zhilitong	
WSCT S-071	Insulation Comparison Tester	--	002	2012.06.22	2013.06.21	Shenzhen Hengxintai	
WSCT S-072	Touch Current	420B	0706GD47	2012.06.22	2013.06.21	CEPREI	√
WSCT S-073	Digital Power Meter	PF9800	709393	2012.02.19	2013.02.18	YUANFANG	
WSCT S-074	Digital Power Meter	PF9800	709387	2012.02.19	2013.02.18	YUANFANG	
WSCT S-076	Digital Multi Meter	VC890D	991844117	2012.02.19	2013.02.18	VICTOR	
WSCT S-078	Metal Rod	--	0021877	2012.09.23	2013.09.22	--	
WSCT S-081	Electronic Load	IT8512	002002186376001076	2013.02.19	2014.02.18	ITECH Eletronics	

Code	Name	Model/ Type	S/N	Calibrated date	Next Calibration Date	Manufacture	Used or not
WSCT S-082	Electronic Load	IT8512	002002186376001077	2013.02.19	2014.02.18	ITECH Eletronics	
WSCT S-087	Oven	101A-3	32232	2012.06.22	2013.06.21	SHENZHEN RONGFENG	
WSCT S-088	Steel Ball	GQ-2	0021486	2012.09.23	2013.09.22	Zhilitong	
WSCT S-090	Weight	M1-35	--	2013.02.28	2014.02.27	Penglaishi Shuiling	
WSCT S-091	Weight	M1-30	--	2013.02.28	2014.02.27	Penglaishi Shuiling	
WSCT S-092	Weight	M1-20	--	2013.02.28	2014.02.27	Penglaishi Shuiling	
WSCT S-093	Weight	M1-10	--	2013.02.28	2014.02.27	Penglaishi Shuiling	
WSCT S-094	Weight	M1-05	--	2013.02.28	2014.02.27	Penglaishi Shuiling	
WSCT S-095	Weight	M1-01	--	2013.02.28	2014.02.27	Penglaishi Shuiling	
WSCT S-096	Digital Power Meter	8705B	870906342	2012.06.22	2013.06.21	Qingdao Qingzhi	
WSCT S-097	Digital Power Meter	8705B	870906341	2012.06.22	2013.06.21	Qingdao Qingzhi	
WSCT S-098	Digital Power Meter	8716C	870906281	2012.06.22	2013.06.21	Qingdao Qingzhi	
WSCT S-099	Digital Power Meter	8716C	870906280	2012.06.22	2013.06.21	Qingdao Qingzhi	
WSCT S-100	Data Acquisition/Switch Unit	34970A	MY44047073	2012.06.22	2013.06.21	Agilent	
WSCT S-101	Data Acquisition/Switch Unit	34970A	MY44046852	2012.06.22	2013.06.21	Agilent	
WSCT S-102	ELectronic Load	IT8512	002002186376001048	2012.06.22	2013.06.21	ITECH Eletronics	
WSCT S-103	ELectronic Load	IT8512	002002186374001002	2012.06.22	2013.06.21	ITECH Eletronics	
WSCT S-105	Probe	TZ-60	V600108	2012.09.05	2013.09.04	--	
WSCT S-106	Probe	TZ-60	V600208	2012.09.05	2013.09.04	--	
WSCT S-107	Oscilloscope Carbon	P310	020213402	2012.09.05	2013.09.04	Tektronix	
WSCT S-108	Oscilloscope Carbon	TX3125	020213401	2013.02.19	2014.02.18	Tektronix	√
WSCT S-109	Magnifier	CT-200 U	--	2012.06.22	2013.06.21	--	
WSCT S-110	digital power Meter	WT210	91LA25633	2012.12.25	2013.12.24	YOKOGAWA	
WSCT S-112	Salt mist tester	GL-015	8930148	2012.12.27	2013.12.26	GOTO	
WSCT S-113	Tracking Index Tester	HD-NH-1	11012725	2013.01.05	2014.01.04	HongDu	

Code	Name	Model/ Type	S/N	Calibrated date	Next Calibration Date	Manufacture	Used or not
WSCT S-114	Spring Hammer	CJ-3	C031107	2013.02.19	2014.02.18	Guangzhou Zhilitong	√
WSCT P-001	Breaking Capacity & Normal Operation Tester	HD-LL-2	11012730	2012.12.24	2013.12.23	HongDu	
WSCT P-002	Pure Resistance Load Power Supplier	HD-RL-40B	11012727	2012.12.24	2013.12.23	HongDu	
WSCT P-003	Voltage drop Tester	HD-YL-2	11012728	2012.12.24	2013.12.23	HongDu	
WSCT P-004	Touch polarity tester	HD-303 AX	11012734	2012.12.24	2013.12.23	HongDu	
WSCT P-006	Dumbbell-knife	C	--	2012.12.24	2013.12.23	Zhilitong	
WSCT P-007	Dumbbell-knife	D	--	2012.12.24	2013.12.23	Zhilitong	
WSCT P-008	Soft cable's flexibility tester	HD-730 2	11012729	2012.12.24	2013.12.23	HongDu	
WSCT P-009	Image measurement instrument	YVM201 0VT	8660	2012.12.25	2013.12.24	DONGGUAN YUANXIN	
WSCT P-010	Cable retention tester	JN-BCL-2099	BCL-2099-11 76	2013.02.07	2014.02.06	JEN	
WSCT P-011	Plug Bending Tester	HD-887 0	11012726	2013.01.05	2014.01.05	HongDu	
WSCT P-012	testing under high temperature & pressure equipment	HD-PHT -1	001	2013.01.05	2014.01.05	HongDu	
WSCT P-013	Heat cable distortion tester	110462	HD-8120	2012.12.25	2013.12.25	HongDu	