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

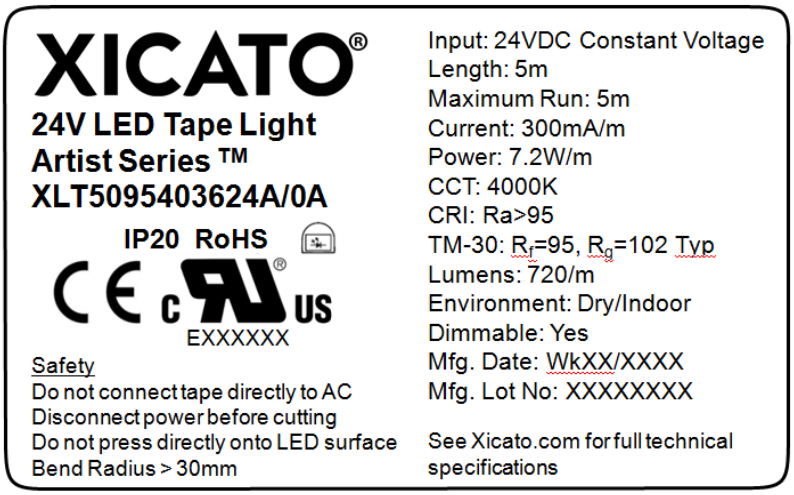
Report Reference No. ..... :	RDG180408050-03	
Compiled by (+ signature) ..... :	Testing Engineer:King.K.Zhu	king k. zhu
Approved by (+ signature) ..... :	Project Engineer: Andy Fu	Andy.fu
Date of issue ..... :	2018-04-20	
Testing Laboratory ..... :	Bay Area Compliance Laboratories Corp. (Dongguan)	
Address ..... :	No.69, Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China	
Testing location ..... :	Same as above	
Applicant's name ..... :	Xicato Inc.	
Address ..... :	101 Daggett Drive San Jose, CA 95134	
Standard ..... :	EN 62031:2008 + A1:2013 + A2:2015 IEC TR 62778: 2014	
Test sample(s) received.....:	2018-04-08	
Test in period.....:	2018-04-08 to 2018-04-12	
Procedure deviation ..... :	N.A.	
Non-standard test method……..:	N.A.	

Note: The test data was only valid for the test sample(s). This test report is prepared for the customer shown above and for the specific product described herein. It must not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Dongguan)

Test item description ..... :	LED Strip Light
Trade Mark ..... :	N.A
Manufacturer ..... :	Xicato Inc..
Address ..... :	101 Daggett Drive San Jose, CA 95134.
Model/Type reference ..... :	XLT5095403624A/01
Multiple Model ..... :	XLTBBCCDDEEFFF/XX
	BB represent Length, CC represent CRI, DD represent CCT, EE represent Lumens, FFF represent Suffix, XX represent Revision.
Ratings ..... :	Input: 24Vdc(CV),28mA, 4000K.

FINAL

Copy of marking plate (Representative):



Test item particulars……:N/A

Possible test case verdicts:
- test case does not apply to the test object…….. : N(/A).
- test object does meet the requirement…… : P(ass)
- test object does not meet the requirement……: F(ail)

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 point is used as the decimal separator.
The test results presented in this report relate only to the object tested.
This report shall not be reproduced except in full without the written approval of the testing laboratory.

Attachment No.1:

Test report for IEC TR 62778:2014

Test result: **Risk Group 1**

Attachment No.2

EUT Photos

Attachment No.3

EUT circuit schematics diagram & PCB layout diagram

Attachment No.4

Equipment list

FINAL

General product information:

XLTBBCCDDEEFFF/XX have the same circuit and PCB layout with XLT5095403624A/01, the only difference between them are LED CRI and CCT. CC represent LED CRI, it can be 80,90,95; DD represent LED CCT, it can be 2700K-4000K. details as bellow:

The Testing Model	The Multiple Model	Different Item	The Different Details
XLT5095403624A/01	XLTBBCCDDEEFFF/XX	BB: Length CC: CRI DD: CCT EE: Lumen FFF: Suffix XX: Revision	BB=50(500cm run length) CC=95CRI(can also be 80 or 90) DD=40(4000K)(can also be 27=2700K,30=3000K,35=3500K) EE=36(3600lm/500cm) FFF=24A(customizable suffix) /XX=/01(revision01,pre-production)

the whole length is 5m,the smallest subunit is 10mm,rated:24Vdc,0.028A,0.672W.

Unless otherwise specified, the smallest subunit of XLT5095403624A/01,4000K were chosen as the representative model to perform all tests.

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Clause	Requirement + Test	Result - Remark	Verdict
4	**GENERAL REQUIREMENTS**		P
4.4	Integral modules tested assembled in the luminaire		N
4.5	Independent modules complies with requirements in EN 60598-1		P
5	**GENERAL TEST REQUIREMENTS**		P
5.5	SELV-operated LED modules comply with Annex I of IEC 61347-2-13	(see Annex 1)	N
	General conditions for tests in Annex A	(see Annex A)	N
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.		—
7	**MARKING**		P
7.1	**Mandatory markings for built-in or independent modules**		P
	a) mark of origin	See marking plate.	P
	b) model number, type reference	See marking plate.	P
	c1) constant voltage module; rated supply voltage and supply frequency	See marking plate.	N
	c2) constant current module; rated supply current and supply frequency		P
	d) nominal power	See marking plate.	P
	e) indication of connections, wiring diagram	Considered.	P
	f) value of t_c and place on the module	See marking plate.	P
	g) *E*thr if required		N
	h) symbol for built-in modules		P
	i) heat transfer temperature t_d		N
	j) power for heat-conduction P_d		N
	k) working voltage for insulation		N
7.2	**Location of marking**		**P**
	- marking of a), b), c) and f) on the modules	See marking plate.	P

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Clause	Requirement + Test	Result - Remark	Verdict
	- marking of d), e), g), h), i) and j) on the modules or data sheet		P
	- marking of k) in manufactures literature	Checked.	P
	- integral modules a) to g) in literature		N
7.3	**Durable and legibility of marking**		P
	- marking of a), b), c) and f) legible after test with water	Tested and complied.	P
	- marking of d) to j) inspection of compliance	Checked and complied.	P
8	**TERMINALS**		P
	Screw terminals according section 14 of EN 60598-1:		N
	Separately approved; component list	(see Annex 2)	N
	Part of the luminaire	(see Annex 3)	N
	Screwless terminals according section 15 of EN 60598-1:		P
	Separately approved; component list	(see Annex 2)	P
	Part of the luminaire	(see Annex 4)	N
	Connectors according IEC 60838-2-2:		N
	Separately approved; component list	(see Annex 2)	N
9 (9)	**PROVISION FOR PROTECTIVE EARTHING**		N
- (9.1)	**Provisions for protective earthing**		N
	Terminal complying with clause 8		N
	Locked against loosening and not possible to loosen by hand		N
	Not possible to loosen clamping means unintentionally on screwless terminals		N
	Earthing via means of fixing		N
	Earthing terminal only used for the earthing of the control gear		N
	All parts of material minimizing the danger of electrolytic corrosion		N
	Made of brass or equivalent material		N
	Contact surface bare metal		N
- (9.2)	**Provision for functional earthing**		N
	Comply with clause 8 and 9.1		N
- (9.3)	**Earth contact via the track on the printed board**		N

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Clause	Requirement + Test	Result - Remark	Verdict
	Test with a current of 25 A between earthing terminal and each of the accessible metal parts; measured resistance (Ω) at ≥ 10 A according 7.2.3 of EN 60598-1: < 0,5 Ω ..... :		N
- (9.4)	**Earthing of built-in lamp controlgear**		N
	Earth by means of fixing to earthed metal of luminaire in compliance of 7.2 of EN 60598-1		N
	Earthing terminal only for earthing the built-in controlgear		N
- (9.5)	**Earthing via independent controlgear**		N
- (9.5.1)	Earth connection to other equipment		N
	Looping or through connection, conductor min. 1,5 mm² and of copper or equivalent		N
	Protective earthing wires in line with 5.3.1.1 and clause 7		N
- (9.5.2)	Earthing of the lamp compartments powered via the independent lamp controlgear		N
	Test with a current of 25 A between input and output earth terminals; measured resistance (Ω) between earthing terminal and each of the accessible metal parts at ≥ 10 A according 7.2.3 of EN 60598-1: < 0,5 Ω ..... :		N
	Output earthing terminal marked as in 7.1 t) of EN 61347-1		N
10 (10)	**PROTECTION AGAINST ACCIDENTAL CONTACT WITH LIVE PARTS**		N
- (10.1)	Controlgear protected against accidental contact with live parts		N
- (A2)	The current flowing between the part concerned and earth is measured and does not exceed 0,7 mA (peak) or 2 mA d.c. ..... :		N
- (A2)	For frequencies above 1 kHz, the current does not exceed 0,7 mA (peak) multiplied by the value of the frequency in kilohertz or 70 mA (peak) ..... :		N
- (A3)	The voltage between the part concerned and any accessible part is measured and does not exceed 34 V (peak) ..... :		N
- (10.1)	Lacquer or enamel not used for protection or insulation		N
	Adequate mechanical strength on parts providing protection		N
- (10.2)	Capacitors > 0,5 µF: voltage after 1 min (V): < 50 V ..... :		N

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Clause	Requirement + Test	Result - Remark	Verdict
- (10.3)	Controlgear providing SELV		N
	Accessible conductive parts are insulated from live parts by double or reinforced insulation in SELV controlgear		N
	No connection between output circuit and the body or protective earthing circuit		N
	No possibility of connection between output circuit and the body or protective earthing circuit through other conductive parts		N
	SELV outputs separated by at least basic insulation		N
	ELV conductive parts insulated as live parts		N
	Tests according Annex L of EN 61347-1		N
- (10.4)	Accessible conductive parts in SELV circuits		N
	Output voltage under load ≤ 25 V r.m.s. or ≤ 60 V d.c.		N
	If output voltage > 25 V r.m.s. or > 60 V d.c.; No load output ≤ 35 V peak or ≤ 60 V d.c and touch current does not exceed 0,7 mA (peak) or 2 mA d.c. .....:		N
	One conductive part is insulated if output voltage or current exceeding the values above and withstand test voltage 500 V		N
	Double or reinforced insulation bridged by appropriate and at least two resistors or two Y2 capacitors or one Y1 capacitor		N
	Y1 or Y2 capacitors comply with IEC 60384-14		N
	Resistors comply with test (a) in 14.1 of IEC 60065		N
11 (11)	**MOISTURE RESISTANCE AND INSULATION**		P
	After storage 48 h at 91-95% relative humidity and 20-30 °C measuring of insulation resistance with d.c. 500 V (MΩ):		P
	For basic insulation ≥ 2 MΩ .....:		P
	For double or reinforced insulation ≥ 4 MΩ .....:		N
	Between primary and secondary circuits in controlgear providing SELV, values in Annex L in EN 61347-1	Supply with SELV 24V adapter	P
12 (12)	**ELECTRIC STRENGTH**		P
	Immediately after clause 11 electric strength test for 1 min		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Basic insulation for SELV, test voltage 500 V		P
	Working voltage ≤ 50 V, test voltage 500 V		N
	Working voltage > 50 V ≤ 1000 V, test voltage (V):		N
	Basic insulation, 2U + 1000 V		N
	Supplementary insulation, 2U + 1000 V		N
	Double or reinforced insulation, 4U + 2000 V		N
	No flashover or breakdown	Complied.	P
	Solid or thin sheet insulation for double or reinforced insulation fulfil the requirements in Annex N in EN 61347-1		N

13 (14)	**FAULT CONDITIONS**		P
- (14)	When operated under fault conditions the controlgear:		N
	- does not emit flames or molten material		N
	- does not produce flammable gases		N
	- protection against accidental contact not impaired		N
	Thermally protected controlgear does not exceed the marked temperature value		N
	Fault conditions: capacitors, resistors or inductors without proof of compliance with relevant specifications have been short-circuited or disconnected	(see appended table)	N
- (14.1)	Short-circuit of creepage distances and clearances if less than specified in clause 16 in Part 1 (except between live parts and accessible metal parts)	(see appended table)	N
	Creepage distances on printed boards less than specified in clause 16 in Part 1 provided with coating according to IEC 60664-3		N
- (14.2)	Short-circuit or interruption of semiconductor devices	(see appended table)	N
- (14.3)	Short-circuit across insulation consisting of lacquer, enamel or textile	(see appended table)	N
- (14.4)	Short-circuit across electrolytic capacitors	(see appended table)	N
- (14.5)	After the tests has been carried out on three samples:		N
	The insulation resistance ≥ 1 MΩ .....:		N
	No flammable gases		N
	No accessible parts have become live		N
	During the tests, a five-layer tissue paper, where the test specimen is wrapped, does not ignite		N

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Clause	Requirement + Test	Result - Remark	Verdict
- (14.6)	Relevant fault condition tests with high-power supply	Considered.	--
13.2	**Overpower condition**		P
	Module withstands overpower condition >15 min.		P
	Module with automatic protective device or power limiter, test performed 15 min. at limit.		P
	No fire, smoke or flammable gas is produced		P
	Molten material does not ignite tissue paper, spread below the module		P
15	**CONSTRUCTION**		P
	Wood, cotton, silk, paper and similar fibrous material not used as insulation	Considered.	P
16 (16)	**CREEPAGE DISTANCES AND CLEARANCES**		P
- (16)	Creepage and distances and clearances in compliance with EN 61347-1		P
	Insulating lining of metallic enclosures		N
	Basic insulation on printed boards tested according to clause 14		N
	Distances subjected to both sinusoidal voltage as non-sinusoidal pulses not less than value in Table 16		N
	Creepage distances not less than minimum clearance		N
16 (-)	Conductive accessible parts in compliance with applicable parts of EN 60598-1		N
17 (17)	**SCREWS, CURRENT-CARRYING PARTS AND CONNECTIONS**		P
	Cl. 17 refer to Cl. 17 of EN 61347-1 which refer to Cl. 4.11 and 4.12 of EN 60598-1 (clause numbers between parentheses refer to EN 60598-1)		—
(4.11)	**Electrical connections**		N
(4.11.1)	Contact pressure		N
(4.11.2)	Screws:		N
	- self-tapping screws		N
	- thread-cutting screws		N
(4.11.3)	Screw locking:		N
	- spring washer		N

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Clause	Requirement + Test	Result - Remark	Verdict
	- rivets		N
(4.11.4)	Material of current-carrying parts		N
(4.11.5)	No contact to wood or mounting surface		N
(4.11.6)	Electro-mechanical contact systems		N
(4.12)	**Mechanical connections and glands**		N
(4.12.1)	Screws not made of soft metal		N
	Screws of insulating material	No such screws.	N
	Torque test: torque (Nm); part ..... :	0.4Nm, Fix cover screws.	N
	Torque test: torque (Nm); part ..... :		N
	Torque test: torque (Nm); part ..... :		N
(4.12.2)	Screws with diameter < 3 mm screwed into metal		N
(4.12.4)	Locked connections:		N
	- fixed arms; torque (Nm)..... :		N
	- lampholder; torque (Nm)..... :		N
	- push-button switches; torque 0,8 Nm..... :		N
(4.12.5)	Screwed glands; force (Nm) ..... :		N

18 (18)	**RESISTANCE TO HEAT, FIRE AND TRACKING**		P
- (18.1)	Ball-pressure test ..... :	See Test Table 18 (18.1)	P
- (18.3)	Glow-wire test (650°C) ..... :	See Test Table 18 (18.3)	P
- (18.4)	Needle-flame test (10 s) ..... :	See Test Table 18 (18.4)	N
- (18.5)	Proof tracking test ..... :	See Test Table 18 (18.5)	N

19 (19)	**RESISTANCE TO CORROSION**		P
	- test according 4.18.1 of EN 60598-1		N
	- adequate varnish on the outer surface	Considered.	P

20	**INFORMATION FOR LUMINAIRE DESIGN**		--
	Information in Annex D (informative)	Considered.	—

21	**HEAT MANAGEMENT**		N
21.1	**General**		N
	Exchangeability is safeguarded by cap or base		N
21.2	**Heat-conducting foil and paste**		N

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Clause	Requirement + Test	Result - Remark	Verdict
	Heat-conducting foil delivered with the module if necessary		N
22	**PHOTOBIOLOGICAL SAFETY**		P
22.1	**UV radiation**		N
	Luminous radiation not exceed 2mW/klm	LED modules not relying on the conversion of UV radiation.	N
22.2	**Blue light hazard**		P
	Assessed according to IEC TR 62778	RG1	P
22.3	**Infrared radiation**		N
	Requirements for infrared radiation when required		N
A	**ANNEX A - TESTS**		**P**
	All tests performed in accordance with the advice given in Annex H of EN 61347-1, if applicable	Considered.	P

13.2	**TABLE: Module withstands overpower condition**			**P**
Test condition	U	I	P	Tc(LED module)
1.5 times rated input power	26.5	0.029A	0.7685	The temperature not change by more than 5K in 1 hour. LED PCB: 27.8℃, Ambient: 25.0℃, No harzrds

14	**TABLE: tests of fault conditions**	**P**
Part	**Simulated fault**	**Hazard**
LED	S-C, No Hazard; O-C, No Hazard;	No
--	--	No
--	--	No
--	--	No
--	--	No
--	--	No
--	--	No

16 (16)	**TABLES: Creepage distances and clearances**	N
Table 3	**Minimum distances (mm) for a.c. (50/60 Hz) sinusoidal voltages**	N

EN 62031			
Clause	Requirement + Test	Result - Remark	Verdict

RMS working voltage (V) not exceeding	50	150	250	500	750	1000
Creepage distances						
Required basic insulation, PTI ≥ 600	0,6	0,8	1,5	3	4	5,5
Measured : Current-carrying parts of different polarity		0.84				
Required basic insulation, PTI < 600	1,2	1,6	2,5	5	8	10
Measured						
Required supplementary insulation PTI ≥ 600	-	0,8	1,5	3	4	5,5
Measured						
Required supplementary insulation PTI < 600	-	1,6	2,5	5	8	10
Measured						
Required reinforced insulation	-	3,2	5	6	8	11
Measured						
Clearances						
Required basic insulation	0,2	0,8	1,5	3	4	5,5
Measured: Current-carrying parts of different polarity		0.84				
Required supplementary insulation	-	0,8	1,5	3	4	5,5
Measured						
Required reinforced insulation	-	1,6	3	6	8	11
Measured						

Table 4	**Minimum distances (mm) for non-sinusoidal pulse voltages**						N
Rated pulse voltage (peak kV)	2,0	2,5	3,0	4,0	5,0	6,0	8,0
Required clearances	1,0	1,5	2	3	4	5,5	8
Measured							
Rated pulse voltage (peak kV)	10	12	15	20	25	30	40
Required clearances	11	14	18	25	33	40	60
Measured							
Rated pulse voltage (peak kV)	50	60	80	100	-	-	-
Required clearances	75	90	130	170	-	-	-
Measured							

18 (18.1)	**TABLE: Ball Pressure Test of Thermoplastics**	P
Allowed impression diameter (mm)	2.0	—

EN 62031			
Clause	Requirement + Test	Result - Remark	Verdict

Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)
LED PCB	GUANGDONG YONGCHUANGXIN ELECTRONICS CO LTD	125	0.8
Supplementary information:			

18 (18.3)	**TABLE: Glow-wire test**				P
Glow wire temperature	650°C				—
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
LED PCB	GUANGDONG YONGCHUANGXIN ELECTRONICS CO LTD	30	0	0	P
Any flame or glowing of the sample extinguished within 30 s of withdrawing the glow-wire, and any burning or molten drop did not ignite the underlying parts (Yes/No)					Yes
Supplementary information:					

18 (18.4)	**TABLE: Needle-flame test**				N
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
--	--	--	--	--	--
Supplementary information:					

18 (18.5)	**TABLE: Proof tracking test**				N
Test voltage PTI					—
Object/ Part No./ Material	Manufacturer/ trademark	Withstand 50 drops without failure on three places or on three specimens			Verdict
--	--	--	--	--	--
Supplementary information:					

ANNEX 1	**SELV-operated LED modules**	**N**
	Cl. 5.5 refer to ANNEX I of IEC 61347-2-13 which refer to ANNEX L of EN 61347-1 (clause numbers between parentheses refer to ANNEX L of EN 61347-1)	—
(L.3)	**Classification**	N

EN 62031			
Clause	Requirement + Test	Result - Remark	Verdict
	Class I	Yes ☐ No ☐	—
	Class II	Yes ☐ No ☐	—
	Class III	Yes ☐ No ☐	—
	non-inherently short circuit proof controlgear	Yes ☐ No ☐	—
	inherently short circuit proof controlgear	Yes ☐ No ☐	—
	fail safe controlgear	Yes ☐ No ☐	—
	non-short-circuit proof controlgear	Yes ☐ No ☐	—
(L.4)	**Marking**		N
	Adequate symbols are used		N
(L.5)	**Protection against electric shock**		N
	Comply with 9.2 of IEC 61558-1		N
(L.6)	**Heating**		N
	No excessive temperatures in normal use		N
	Value if capacitor tc marked ..... :		—
	Winding insulation classified as Class ..... :		—
	Comply with tests of clause 14 of IEC 61558-1 with adjustments		N
(L.7)	**Short-circuit and overload protection**		N
	Comply with tests of clause 15 of IEC 61558-1 with adjustments		N
(L.8)	**Insulation resistance and electric strength**		N
(L.8.1)	Conditioned 48 h between 91 % and 95 %		N
(L.8.2)	Insulation resistance		N
	Between input- and output circuits not less than 5 MΩ ..... :		N
	Between metal parts of class II convertors which are separated from live parts by basic insulation only and the body not less than 5 MΩ ..... :		N
	Between metal foil in contact with the inner and outer surfaces of enclosures of insulating material not less than 2 MΩ ..... :		N
(L.8.3)	Electric strength		N
	1) Between live parts of input circuits and live parts of output circuits ..... :		N
	2) Over basic or supplementary insulation between:		N
	a) live parts having different polarity ..... :		N

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Clause	Requirement + Test	Result - Remark	Verdict
	b) live parts and body if intended to be connected to protective earth ..... :		N
	c) accessible metal parts and a metal rod of the same diameter as the flexible cable or cord ..... :		N
	d) live parts and an intermediate metal part ..... :		N
	e) intermediate metal parts and the body ..... :		N
	f) each input circuit and all other input circuits ..... :		N
	3) Over reinforced insulation between the body and live parts ..... :		N
(L.9)	**Construction**		N
(L.9.1)	Transformer comply with 19.12 of IEC 61558-1 and 19 of IEC 61558-2-6		N
	HF transformer comply with 19 of IEC 61558-2-16		N
(L.10)	**Components**		N
	Protective devices comply with 20.6 – 20.11 of IEC 61558-1		N
(L.11)	**Creepage distances and clearances**		N
	1. Insulation between input and output circuits, basic insulation:		N
	a) measured values ≥ specified values (mm) ..... :		N
	b) measured values ≥ specified values (mm) ..... :		N
	c) measured values ≥ specified values (mm) ..... :		N
	2. Insulation between input and output circuits, double or reinforced insulation:		N
	a) measured values ≥ specified values (mm) ..... :		N
	b) measured values ≥ specified values (mm) ..... :		N
	c) measured values ≥ specified values (mm) ..... :		N
	3. Insulation between adjacent output circuits		N
	- measured values ≥ specified values (mm) ..... :		N
	4. Insulation between terminals for external connection:		N
	- measured values ≥ specified values (mm) ..... :		N
	5. Basic or supplementary insulation:		N
	a) measured values ≥ specified values (mm) ..... :		N
	b) measured values ≥ specified values (mm) ..... :		N
	c) measured values ≥ specified values (mm) ..... :		N
	d) measured values ≥ specified values (mm) ..... :		N
	e) measured values ≥ specified values (mm) ..... :		N
	6. Reinforced insulation or insulation:		N

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Clause	Requirement + Test	Result - Remark	Verdict

	Between body and output circuit: measured values ≥ specified values (mm) ..... :		N
	Between body and output circuit if provision against transient voltages: measured values ≥ specified values (mm) ..... :		N
	7. Distance through insulation:		N
	a) measured values ≥ specified values (mm) ..... :		N
	b) measured values ≥ specified values (mm) ..... :		N
	c) measured values ≥ specified values (mm) ..... :		N

ANNEX 2	**TABLE: Critical components information**					
Object / part No.	**Code**	**Manufacturer/ trademark**	**Type / model**	**Technical data**	**Standard**	**Mark(s) of conformity[1)]**
LED PCB	B	GUANGDONG YONGCHUANGXIN ELECTRONICS CO LTD	ycx-2	V-0, 105°C	UL 796, UL 94	UL E480435
LEDs	B	Shine On	SMD 2835	Vf = 2.6-2.9 VDC, If= 30 mA	EN 62471	Tested with appliance
GLUE	B	3M COMPANY	#467,#467MS, #468,#468MS, #9180	-40--150°C	--	UL MH26206

The codes above have the following meaning:

A - The component is replaceable with another one, also certified, with equivalent characteristics

B - The component is replaceable if authorised by the test house

C - Integrated component tested together with the appliance

D - Alternative component

ANNEX 3	**Screw terminals (part of the luminaire)**		N
(14)	**SCREW TERMINALS**		N
(14.2)	Type of terminal ..... :		—
	Rated current (A)..... :		—
(14.3.2.1)	One or more conductors		N
(14.3.2.2)	Special preparation		N
(14.3.2.3)	Terminal size		N

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Clause	Requirement + Test	Result - Remark	Verdict
	Cross-sectional area (mm²) ..... :		—
(14.3.3)	Conductor space (mm) ..... :		N
(14.4)	Mechanical tests		N
(14.4.1)	Minimum distance		N
(14.4.2)	Cannot slip out		N
(14.4.3)	Special preparation		N
(14.4.4)	Nominal diameter of thread (metric ISO thread)..... :		N
	External wiring		N
	No soft metal		N
(14.4.5)	Corrosion		N
(14.4.6)	Nominal diameter of thread (mm) ..... :		N
	Torque (Nm)..... :		N
(14.4.7)	Between metal surfaces		N
	Lug terminal		N
	Mantle terminal		N
	Pull test; pull (N)..... :		N
(14.4.8)	Without undue damage		N
ANNEX 4	**Screwless terminals (part of the luminaire)**		N
(15)	**SCREWLESS TERMINALS**		N
(15.2)	Type of terminal..... :		—
	Rated current (A)..... :		—
(15.3.1)	Material		N
(15.3.2)	Clamping		N
(15.3.3)	Stop		N
(15.3.4)	Unprepared conductors		N
(15.3.5)	Pressure on insulating material		N
(15.3.6)	Clear connection method		N
(15.3.7)	Clamping independently		N
(15.3.8)	Fixed in position		N
(15.3.10)	Conductor size		N
	Type of conductor		N
(15.5.1)	Terminals internal wiring		N
(15.5.1.1)	Pull test spring-type terminals (4 N, 4 samples) ..... :		N

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Clause	Requirement + Test	Result - Remark	Verdict
(15.5.1.2)	Pull test pin or tab terminals (4 N, 4 samples) .....:		N
	Insertion force not exceeding 50 N		N
(15.5.1.2)	Permanent connections: pull-off test (20 N)		N
(15.5.2)	Electrical tests		N
	Voltage drop (mV) after 1 h (4 samples).....:		N
	Voltage drop of two inseparable joints		N
	Number of cycles:		—
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples).....:		N
	Voltage drop (mV) after 50th alt. 100th cycle (4 samples).....:		N
	After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples) .....:		N
	After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples) .....:		N
(15.6)	Terminals external wiring		N
	Terminal size and rating		N
(15.6.2.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N) .....:		N
	Pull test pin or tab terminals (4 samples); pull (N) .....:		N

(15.6.3.1)	**TABLE: Contact resistance test**										N
	Voltage drop (mV) after 1 h										—
terminal		1	2	3	4	5	6	7	8	9	10
voltage drop (mV)											
	Voltage drop of two inseparable joints										N
	Voltage drop after 10th alt. 25th cycle										N
	Max. allowed voltage drop (mV).....:										—
terminal		1	2	3	4	5	6	7	8	9	10
voltage drop (mV)											
	Voltage drop after 50th alt. 100th cycle										N
	Max. allowed voltage drop (mV).....:										—
terminal		1	2	3	4	5	6	7	8	9	10
voltage drop (mV)											

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	Continued ageing: voltage drop after 10th alt. 25th cycle									N
	Max. allowed voltage drop (mV).....:									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Continued ageing: voltage drop after 50th alt. 100th cycle									N
	Max. allowed voltage drop (mV).....:									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
Supplementary information:										

FINAL

IEC TR 62778			
Clause	Requirement + Test	Result - Remark	Verdict

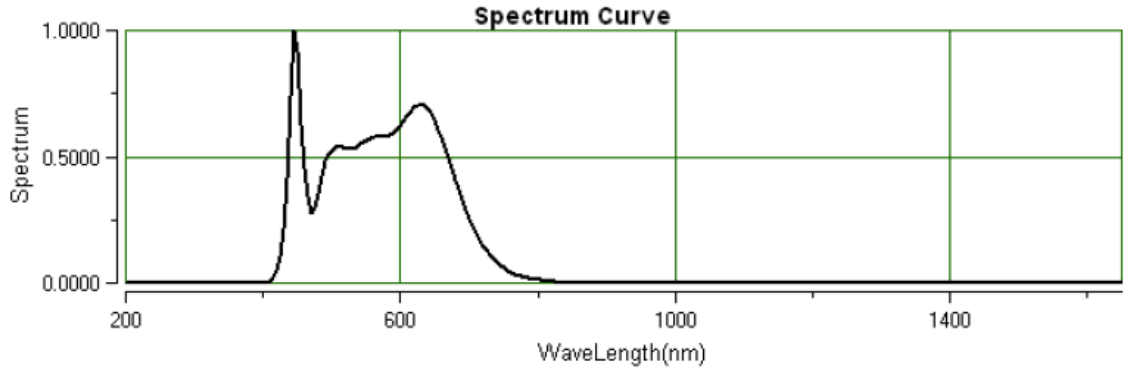
Attachment 1: Attachment according to IEC TR 62778

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

	TABLE: Spectroradiometric measurement		P
	Measurement performed on:	☐ **LED package** ☒ **LED module** ☐ **Lamp** ☐ **Luminaire**	
	Model number ..... :	XLT5095273624A/01	
	Test voltage (V) ..... :	24Vdc(C.V)	—
	Test current (mA) ..... :	--	—
	Test frequency (Hz) ..... :	-	—
	Ambient, t (°C) ..... :	25.3℃	—
	Measurement distance ..... :	☒ 20 cm ☐ ... cm	—
	Source size ..... :	☒ Non-small ☐ Small : .... mm	—
	Field of view ..... :	☐ 100 mrad ☒ 11 mrad ☐ 1,7 mrad (for small sources)	—

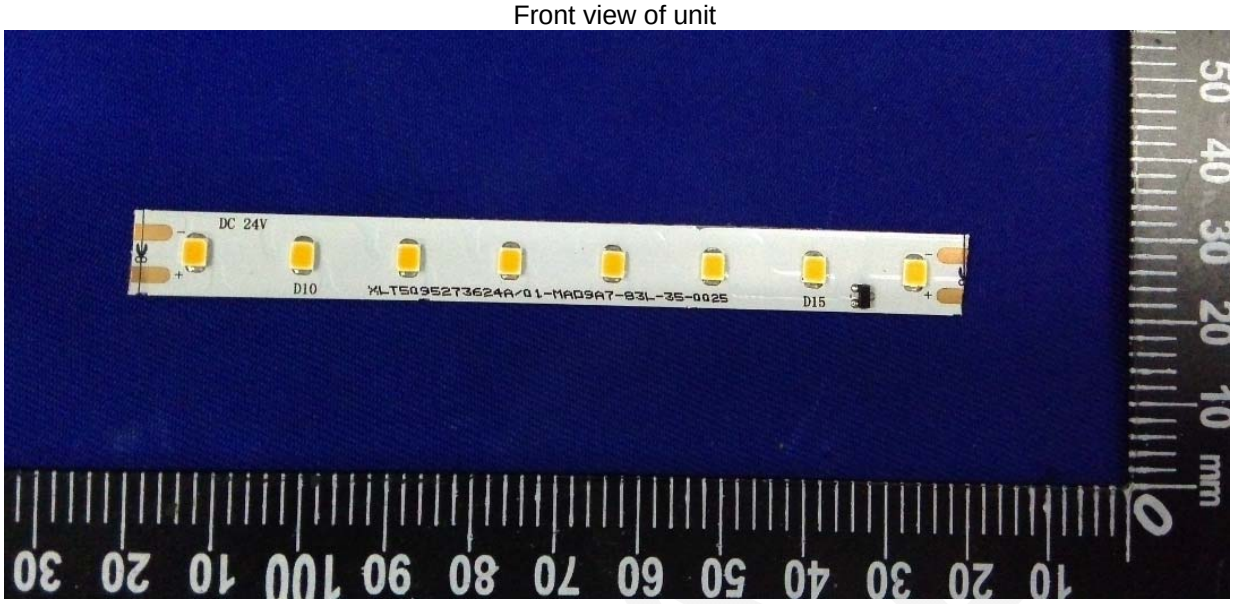
Item	Symbol	Units	Result	Remark
Correlated colour temperature	CCT	K	4427	
x/y colour coordinates			0.3599/0.3471	
Blue light hazard radiance	L_B	$W/(m^2 \cdot sr^1)$	477	
Blue light hazard irradiance	E_B	W/m^2	N/A	
Luminance	L	cd/m^2	7.082e+005	
Illuminance	E	lx	637	

Supplementary information:

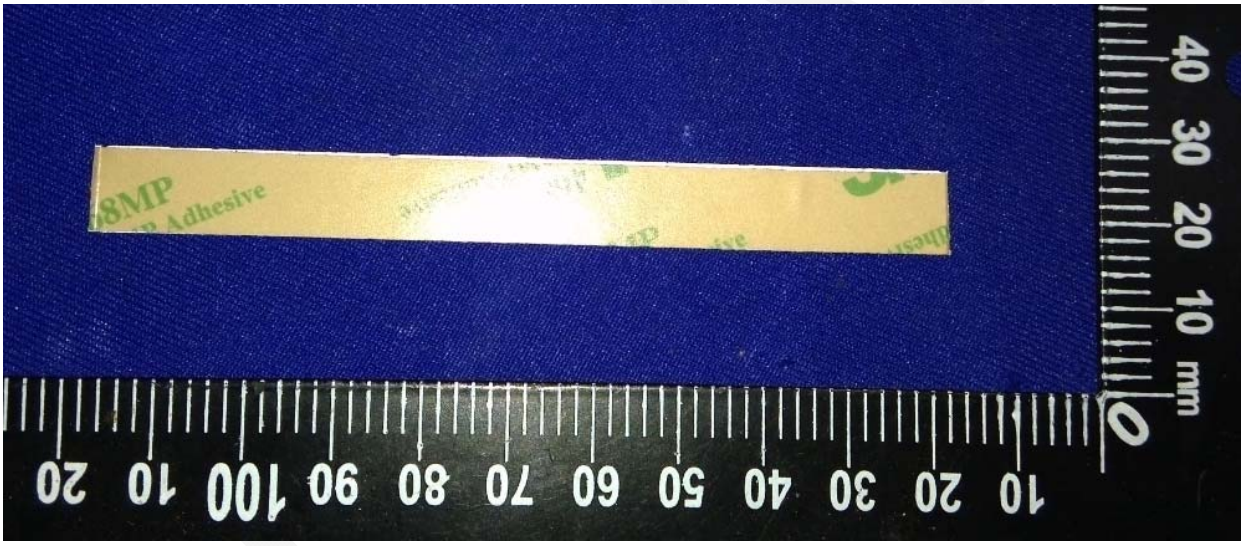


Attachment 2: Attachment according to EUT Photos

Front view of unit

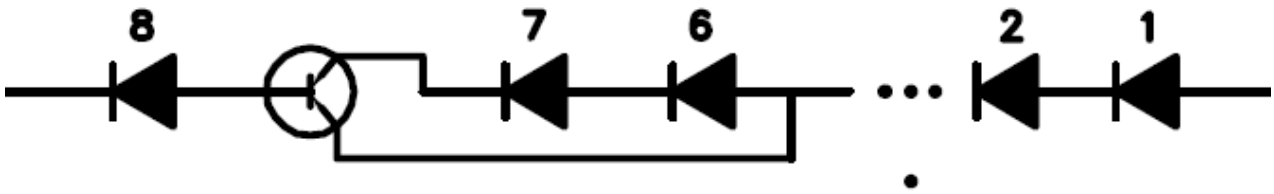


Back view of unit

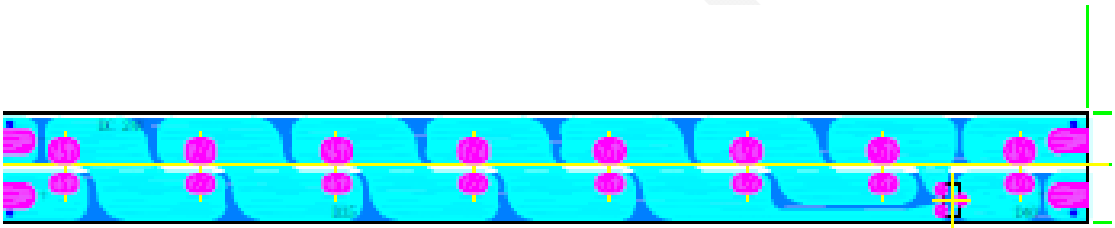


Attachment 3: Attachment according to EUT circuit schematics diagram & PCB layout diagram

PCB CIRCUIT SCHEMATICS DIAGRAM



PCB LAYOUT DIAGRAM



Attachment 4 Test Equipment List

BACL#	Equipment Description	Serial No	Model No	Last Cal	Cal Due
T-08-SF001	High temperature test chamber	201105083-3	DP1000	2017-08-28	2018-08-28
T-08-SF008	Hybrid Recorder	4#	DR240	2018-03-26	2019-03-26
T-08-SF033	Joint test finger	1108039	FZ-1101A	2017-05-08	2018-05-08
T-08-SF034	Ball pressure fixture	1108049	FZ-1104	2018-03-17	2019-03-17
T-08-SF035	Electron Balance	11003875	HZ-ALC-20C	2018-03-26	2019-03-26
T-08-SF036	Power meter	118706019	AN8721P	2018-01-05	2019-01-05
T-08-SF039	Glow wire tester	N/A	5101A	2018-01-05	2019-01-05
T-08-SF040	Humidity tester	018 463	ESX-4CA	2018-03-26	2019-03-26
T-08-SF041	INSULATION TESTER	NH001899	T0S7200	2017-10-24	2018-10-24
T-08-SF070	Spring hammer	1109023	FZ-1103A	2017-12-20	2018-12-20
T-08-SF071	Wind cap	FTR0371209	FTR-3301	2015-01-22	2020-01-21
T-08-SF072	Digital Multi meter	17961914	15B	2018-03-17	2019-03-17
T-08-SF081	Hi-pot Tester	1110006-022	CS2672C	2018-03-26	2019-03-26
T-08-SF086	Stop watch	N/A	PC396	2018-03-17	2019-03-17

***** End of report *****