



Test Report

Report No. : UNIB190071713LR-01

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Applicant : Guangzhou Linong Lighting Technology Co., Ltd

Address : BT03070-BT03071 Keying Rd, Guangzhou Sci-Tech Industry Park, Taihe Town Baiyun District, Guangzhou City, China

Name of sample : LED STRIP

Receiving Date : 2018-10-10

Test Date : 2018-10-15 to 2019-07-12

Test Location : No.47-3,Zhushan Industrial Road,Dalong Street,Panyu District,Guangzhou,China

Test Method : Refer to section 2 of the report

Testing Item : TEST REPORT COMMISSION REGULATION (EU) No 1194/2012 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for directional lamps, light emitting diode lamps and related equipment AND COMMISSION DELEGATED REGULATION (EU) No 874/2012

Decision Rule : Refer to section 8 of the report

Conclusion : PASS

Signed for and on behalf of
Shenzhen United Testing Technology Co.,Ltd

Liu ze
Approved Signatory



2019-07-24

Signatory Date



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1、 Sample information

For samples, the information provided by the customer is as follows:

Type of test object : LED STRIP

Trademark : LNLED

Model/type reference : LNTS3XX120G0-M1-D12 (4000-4500K)

Rated CCT : 4000K

Rating : 12V~,9W

Sample Quantity : 20pcs

Manufacturer : Guangzhou Linong Lighting Technology Co., Ltd

Manufacturer Address. : BT03070-BT03071 Keying Rd, Guangzhou Sci-Tech Industry Park, Taihe Town Baiyun District, Guangzhou City, China

2、 Conclusion

For the purpose of assessing the conformity of the product with ecodesign requirements as set in regulation EU 1194/2012, the following standard has been used:

Measured parameter	Decision Rule	Conclusion
Luminous efficacy	EN 50285:1999 - Energy efficiency of electric lamps for household use – Measurements methods	P
Lamp lifetime	EN 60357:2003/A11:2016-Tungsten halogen lamps (non-vehicle) - Performance specifications	P
Lumen maintenance		P
Lamp starting time	EN 60969:1993 + A1: 1993 + A2: 2000 - Starting time test for Self-ballasted lamps for general lighting services — Performance requirement	P
Lamp warm-up time to 60% ϕ		P
UV radiation	systems - UV radiation measurement	P
Lamp power factor	EN 61000-3-2:2014 -Electromagnetic compatibility (EMC) Part 3-2:Limits - Limits for harmonic current emissions (equipment)	P
Lamp caps	EN60061:1993 + All amendments up to A56:2017 - Lamp caps and holders together with gauges for the control of interchangeability and safety Part 1: Lamp caps	P
Chromaticity Correlated Colour Temperature(Tc[K])	CIE 15:2004 - Colorimetry	P
Luminance	CIE 18.2:1983 - The Basis of Physical Photometry	P
Luminous flux	CIE 84:1989 - The Measurement of Luminous Flux	P
Lamp Lumen Maintenance Factor (LLMF)	CIE 97:2005 - Maintenance of indoor electric lighting systems	P
Lamp Survival Factor		P

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3、 Test item particulars:

Test item particulars:	
Stage	<input type="checkbox"/> Stage 1 <input type="checkbox"/> Stage 2 <input checked="" type="checkbox"/> Stage 3
EUT type	<input checked="" type="checkbox"/> Lamp <input type="checkbox"/> LED Module <input type="checkbox"/> Equipment
Light source type	<input type="checkbox"/> CFL <input checked="" type="checkbox"/> LED <input type="checkbox"/> Halogen <input type="checkbox"/> Others
Directionality	<input type="checkbox"/> Directional <input checked="" type="checkbox"/> Non-directional
Rated power(W)	9W
Rated luminous flux(lm)	720lm
Rated color temperature(CCT)	4000K
Rated color rendering(CRI)	>80
Rated Lamp life time(h)	30000h
Rated Luminous efficiency(lm/W)	80 lm/W
Rated beam angle	/
Rated power factor	/
Declared energy label	A+
Declared number of switching cycles	10000
Declared start up time(ms)	<500ms
Declared warm up times(s)	<2s
Lamp dimming(yes/no)	No
Ambient temperature	25.2°C
Test voltage(s) (V)	DC12V
Test Frequency (Hz)	--



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4、General remarks:

General remarks:	
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)
Throughout this report a point is used as the decimal separator. The test results presented in this report relate only to the object tested.	
Summary of testing:	
1. All submitted models were tested according to Implementation measure EC 1194/2012 and (EU) No 874/2012.	
2. The product meets the stage 3 requirement of the implementation measure.	



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Clause	Requirement-Test	Result-Remark	Verdict
0.	General		
0.1	Power source meets requirement of: Where no requirement stated in the relevant standards EN60969 requirement are to be applied accordingly.		P
0.2	Ambient condition met requirement of: Where no requirement stated in the relevant standards EN60969 requirement are to be applied accordingly.		P
0.3	Test are done under rated value unless otherwise stated or required.		P
0.4	Sample		
	Number of sample used for tested	20 pcs for each model	P
1.	ENERGY EFFICIENCY REQUIREMENTS		
	$EEl_{rated}=P_{cor}/ P_{ref}$	$EEl_{rated}=\underline{0.15}$ (The average results can not vary from the declared values by more than 10%)	P
	Corrected power P_{cor} corrected from P_{rated} based on following table:	$P_{cor}=\underline{9.3W}$	P
	Average measured Input Power (W)	9.3W	P
	Correction factors		
	Scope of the correction	Corrected power (P_{cor})	N
	Lamps operating on external halogen lamp control gear	$P_{rated}*1.06$	N
	Lamps operating on external LED lamp control gear	$P_{rated}*1.10$	N
	Fluorescent lamps of 16mm diameter (T5 lamps) and 4-pin single capped fluorescent lamps operating on external fluorescent lamp control gear	$P_{rated}*1.10$	N
	Other lamps operating on external fluorescent lamp control gear	$P_{rated} \times \frac{0,24\sqrt{\Phi_{size}} + 0,0103\Phi_{size}}{0,15\sqrt{\Phi_{size}} + 0,0097\Phi_{size}}$	N
	Lamps operating on external high-intensity discharge lamp control gear	$P_{rated}*1.10$	N
	Compact fluorescent lamps with colour rendering index ≥ 90	$P_{rated}*0.85$	N
	Lamps with anti-glare shield	$P_{rated}*0.80$	N

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Clause	Requirement-Test	Result-Remark	Verdict			
		$\Phi_{use} = 785.82 \text{ lm}$	P			
	Rated useful luminous flux Φ_{use}	Direction lamps with a beam angle $\geq 90^\circ$ other than filament lamps and carrying a warning on their packaging rated luminous flux in a 120° cone (Φ_{120°)	N			
		Other directional lamps: rated luminous flux in a 90° cone (Φ_{90°)	N			
	P_{ref}					
	For modules with $\Phi_{use} < 1300$ lumen: $P_{ref} = 0.88 \sqrt{\Phi_{use}} + 0.049\Phi_{use}$	$P_{ref} = 63.13W$	P			
	For modules with $\Phi_{use} \geq 1300$ lumen: $P_{ref} = 0.07341\Phi_{use}$		N			
	Maximum energy efficiency index					
		<input type="checkbox"/> Stage 1 <input type="checkbox"/> Stage 2 <input checked="" type="checkbox"/> Stage 3 Measured				
	Mains-voltage filament lamps	If $\Phi_{use} > 450 \text{ lm}$: 1.75 1.75 0.95 -	N			
	Other filament lamps	If $\Phi_{use} \leq 450 \text{ lm}$: 1.20 If $\Phi_{use} > 450 \text{ lm}$: 0.95 0.95 0.95 -	N			
	HID lamps	0.50 0.50 0.36 -	N			
	Other lamps	0.50 0.50 0.20 0.24	P			
	Because $P_{ref} = 0.88 \sqrt{\Phi_{use}} + 0.049\Phi_{use} = 94.87$ $EEL = P_{cor} / P_{ref} = 0.24$ So, lamps shall be classified in class A					
	$\Phi(\text{lm})$	$\Phi_{use}(\text{lm})$	$P_{cor}(\text{w})$	P_{ref}	EEL	Class
	785.82	785.82	9.3	63.13	0.15	A+



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Clause	Requirement-Test	Result-Remark	Verdict
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REQUIREMENTS OF DIRECTIVE

The energy efficiency class of light shall be determined on the basis of their energy efficiency index (EEI) as set out in Table.

Energy efficiency class	Energy efficiency index (EEI) for non-directional light	Energy efficiency index (EEI) for directional light
A++ (most efficient)	$EEI \leq 0,11$	$EEI \leq 0,13$
A+	$0,11 < EEI \leq 0,17$	$0,13 < EEI \leq 0,18$
A	$0,17 < EEI \leq 0,24$	$0,18 < EEI \leq 0,40$
B	$0,24 < EEI \leq 0,60$	$0,40 < EEI \leq 0,95$
C	$0,60 < EEI \leq 0,80$	$0,95 < EEI \leq 1,20$
D	$0,80 < EEI \leq 0,95$	$1,20 < EEI \leq 1,75$
E (least efficient)	$EEI > 0,95$	$EEI > 1,75$

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Clause	Requirement-Test	Result-Remark	Verdict
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2.	FUNCTIONALITY REQUIREMENTS	
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Rated voltage:	DC12V	Rated wattage:	9W	Rated luminance flux	720lm	Rated luminous efficiency	80 lm/W
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Test item	Test parameter	Test requirement	Result(P/F)	Record
1	Power factor	> 0.5	P	Table A
2	Starting time	< 0.5 s	P	Table B
3	Lamp warm-up time to 95%Φ	< 2 s	P	Table B
4	Colour rendering	≥ 80	P	Table C
5	Premature failure rate	≤ 5.0% at 1000h	P	Table D
6	Number of switching cycles before failure	≥ 5000 (base on rated life 25000)	P	Table E
7	Lamp survival factor at 6000h	≥ 0.90	P	Table F
8	Lamp maintenance at 6000h	≥ 0.80	P	Table G
9	Colour consistency	< 6	P	Table G

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Clause	Requirement-Test	Result-Remark	Verdict
3.	PRODUCT INFORMATION REQUIREMENTS		
3.1.	Product information requirements for Non-directional lamps		P
3.1.1	Information to be displayed on the lamp itself		P
3.1.2	Information to be visibly displayed to end-users, prior to their purchase, on the packaging and on free access		P
3.1.2.1	Nominal useful luminous flux displayed in a font at least twice as large as any display of the nominal lamp power;		P
3.1.2.2	Nominal life time of the lamp in hours (no longer than the rated life time);		P
3.1.2.3	Colour temperature, as a value in Kelvins and also expressed graphically or in words;		P
3.1.2.4	Number of switching cycles before premature failure;		P
3.1.2.5	Warm-up time up to 60 % of the full light output (may be indicated as 'instant full light' if less than 1		P
3.1.2.6	A warning if the lamp cannot be dimmed or can be dimmed only on specific dimmers; in the latter case a list of compatible dimmers shall be also provided on the		N
3.1.2.7	If designed for optimum use in non-standard conditions (such as ambient temperature $T_a \neq 25 \text{ }^\circ\text{C}$ or specific thermal management is necessary), information on those conditions;		P
3.1.2.8	Lamp dimensions in millimeters (length and largest diameter);		P
3.1.2.9	Nominal beam angle in degrees;		N
3.1.2.10	If the lamp's beam angle is $\geq 90^\circ$ and its useful luminous flux as defined in point 1.1 of this Annex is to be measured in a 120° cone, a warning that the lamp is not suitable for accent lighting;		P
3.1.2.11	If the lamp cap is a standardized type also used with filament lamps, but the lamp's dimensions are different from the dimensions of the filament lamp(s) that the lamp is meant to replace, a drawing comparing the lamp's dimensions to the dimensions of the filament lamp(s) it replaces;		N
3.1.2.12	An indication that the lamp is of a type listed in the first column of Table 6 may be displayed only if the luminous flux of the lamp in a 90° cone ($\Phi 90^\circ$) is not lower than the reference luminous flux indicated in Table 6 for the smallest wattage among the lamps of the type concerned. The reference luminous flux shall be multiplied by the correction factor in Table 7. For LED lamps, it shall be in addition multiplied by the		N

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Clause	Requirement-Test	Result-Remark	Verdict
3.1.2.13	An equivalence claim involving the power of a replaced lamp type may be displayed only if the lamp type is listed in Table 6 and if the luminous flux of the lamp in a 90° cone (Φ_{90°) is not lower than the corresponding reference luminous flux in Table 6. The reference luminous flux shall be multiplied by the correction factor in Table 7. For LED lamps, it shall be in addition multiplied by the correction factor in Table 8. The intermediate values of both the luminous flux and the claimed equivalent lamp power (rounded to the nearest 1 W) shall be calculated by linear interpolation between the two adjacent values.		N
	If the lamp contains mercury:		N
3.1.2.14	Lamp mercury content as X,X mg;		N
3.1.2.15	Indication of which website to consult in case of accidental lamp breakage to find instructions on how to clean up the lamp debris.		N
3.1.3	Information to be made publicly available on free-access websites and in any other form the manufacturer deems appropriate. As a minimum, the following information shall be expressed at least as values.		P
3.1.3.1	The information specified in point 3.1.2;		P
3.1.3.2	Rated power (0,1 W precision);		P
3.1.3.3	Rated useful luminous flux;		P
3.1.3.4	Rated lamp life time;		P
3.1.3.5	Lamp power factor;		P
3.1.3.6	Lumen maintenance factor at the end of the nominal life (except for filament lamps);		P
3.1.3.7	Starting time (as X,X seconds);		P
3.1.3.8	Colour rendering;		P
3.1.3.9	Colour consistency (only for LEDs);		P
3.1.3.10	Rated peak intensity in candela (cd);		N
3.1.3.11	Rated beam angle;		P
3.1.3.12	If intended for use in outdoor or industrial applications, an indication to this effect;		P
3.1.3.14	Spectral power distribution in the range 180-800 nm;		P

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Clause	Requirement-Test	Result-Remark	Verdict
	If the lamp contains mercury:		N
3.1.3.15	Instructions on how to clean up the lamp debris in case of accidental lamp breakage;		N
3.1.3.16	Recommendations on how to dispose of the lamp at the end of its life for recycling in line with Directive 2012/19/EU of the European Parliament and of the Council (1).		N
3.2	Additional product information requirements for LED lamps replacing fluorescent lamps without integrated ballast		N
	Claims that an LED lamp replaces a fluorescent lamp without integrated ballast of a particular wattage may be made only if:		N
3.2.1	the luminous intensity in any direction around the tube axis does not deviate by more than 25 % from the average luminous intensity around the tube,		N
3.2.2	the luminous flux of the LED lamp is not lower than the luminous flux of the fluorescent lamp of the claimed wattage. The luminous flux of the fluorescent lamp shall be obtained by multiplying the claimed wattage with the minimum luminous efficacy value corresponding to the fluorescent lamp in Commission Regulation (EC) No 245/2009 (1)		N
3.2.3	the wattage of the LED lamp is not higher than the wattage of the fluorescent lamp it is claimed to replace.		N
3.3.	Product information requirements for equipment other than luminaires, designed for installation between the mains and the lamps		N
3.4	Product information requirements for lamp control gears As from stage 2, the following information shall be published on publicly available free access websites and in other forms the manufacturer deems		N
3.4.1	Indication that the product is intended to be used as a lamp control gear,		N
3.4.2	If applicable, the information that the product may be operated in no-load mode.		N

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Table A							
Luminous flux, power, luminous efficiency test, power factor							
Rated voltage:		DC12V	Rated wattage:		9W	Test voltage:	DC12V
The stabilization time: 20 min (stated by manufacturer)							
Sample No.	Lamp cup type	Rated power (W)	Luminous flux(lm)	Test power (W)	Power Factor	Luminous efficiency(l m/W)	
1	-	9	782.30	9.3	1.000	85.39	
2	-	9	788.92	9.3	1.000	85.68	
3	-	9	780.04	9.3	1.000	85.65	
4	-	9	773.26	9.2	1.000	84.05	
5	-	9	772.03	9.3	1.000	86.07	
6	-	9	791.52	9.2	1.000	84.11	
7	-	9	781.29	9.2	1.000	85.00	
8	-	9	791.33	9.3	1.000	83.25	
9	-	9	774.21	9.3	1.000	85.03	
10	-	9	771.44	9.2	1.000	83.37	
11	-	9	788.17	9.2	1.000	83.42	
12	-	9	787.92	9.3	1.000	82.68	
13	-	9	788.41	9.3	1.000	83.84	
14	-	9	788.54	9.3	1.000	85.32	
15	-	9	790.42	9.2	1.000	83.22	
16	-	9	769.30	9.2	1.000	85.74	
17	-	9	791.12	9.2	1.000	83.09	
18	-	9	784.81	9.3	1.000	85.04	
19	-	9	773.35	9.2	1.000	84.43	
20	-	9	767.97	9.2	1.000	84.80	
Average		9	785.82	9.3	1.000	84.46	

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Table B								
Starting time and Run-up time test								
Rated voltage:		DC12V	Rated wattage:		9W	Test voltage:		DC12V
Sample No.	Lamp cup Type	Starting time(s)			Run-up time(s)			
1	-	0.027			0.086			
2	-	0.027			0.086			
3	-	0.027			0.085			
4	-	0.027			0.085			
5	-	0.027			0.085			
6	-	0.026			0.085			
7	-	0.027			0.085			
8	-	0.026			0.085			
9	-	0.026			0.087			
10	-	0.027			0.084			
11	-	0.024			0.084			
12	-	0.025			0.087			
13	-	0.025			0.083			
14	-	0.027			0.083			
15	-	0.026			0.086			
16	-	0.025			0.086			
17	-	0.027			0.085			
18	-	0.026			0.084			
19	-	0.025			0.086			
20	-	0.025			0.084			
Average		0.026			0.085			

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Table C							
colour temperature, SDCM & colour rendering							
Rated voltage:		DC12V	Rated wattage:		9W	Test voltage:	DC12V
Sample No.	Lamp cup type	Colour temperature		SDCM	Colour rendering (Ra)		
1	-	4083		3.4	83.3		
2	-	4033		3.5	83.4		
3	-	4036		3.5	83.6		
4	-	4059		3.5	83.4		
5	-	4008		3.4	83.4		
6	-	4006		3.4	83.7		
7	-	4021		3.6	83.5		
8	-	4090		3.4	83.5		
9	-	4048		3.7	83.5		
10	-	4025		3.6	83.6		
11	-	4029		3.4	83.4		
12	-	4064		3.3	83.4		
13	-	4080		3.2	83.4		
14	-	4061		3.4	83.6		
15	-	4038		3.4	83.4		
16	-	4083		3.2	83.4		
17	-	4062		3.6	83.4		
18	-	4007		3.6	83.4		
19	-	4067		3.6	83.4		
20	-	4061		3.2	83.5		
Average		4048		3.4	83.5		

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Table D					
Premature Failure Rate (After aging 1000h)					
Rated voltage:	DC12V	Rated wattage:	9W	Test voltage:	DC12V
Sample No.	Lamp cup Type			Failure? (Yes or No)	
1	-			No	
2	-			No	
3	-			No	
4	-			No	
5	-			No	
6	-			No	
7	-			No	
8	-			No	
9	-			No	
10	-			No	
11	-			No	
12	-			No	
13	-			No	
14	-			No	
15	-			No	
16	-			No	
17	-			No	
18	-			No	
19	-			No	
20	-			No	
Conclusion			Pass		



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Table E				
Number of switching cycles before failure				
Rated voltage:	DC12V	Rated wattage:	9W	Test voltage: DC12V
Sample No.	Lamp cup Type	Test Times	Limit	
1	-	≥15000	≥15000 Min.	
2	-	≥15000	≥15000 Min.	
3	-	≥15000	≥15000 Min.	
4	-	≥15000	≥15000 Min.	
5	-	≥15000	≥15000 Min.	
6	-	≥15000	≥15000 Min.	
7	-	≥15000	≥15000 Min.	
8	-	≥15000	≥15000 Min.	
9	-	≥15000	≥15000 Min.	
10	-	≥15000	≥15000 Min.	
11	-	≥15000	≥15000 Min.	
12	-	≥15000	≥15000 Min.	
13	-	≥15000	≥15000 Min.	
14	-	≥15000	≥15000 Min.	
15	-	≥15000	≥15000 Min.	
16	-	≥15000	≥15000 Min.	
17	-	≥15000	≥15000 Min.	
18	-	≥15000	≥15000 Min.	
19	-	≥15000	≥15000 Min.	
20	-	≥15000	≥15000 Min.	
Conclusion		Pass		

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Table F						
Lamp Survival factor at 6000h						
Rated voltage:		DC12V	Rated wattage:		9W	Test voltage: DC12V
Sample No.	Lamp cup Type			Failure? (Yes or No)		
1	-			No		
2	-			No		
3	-			No		
4	-			No		
5	-			No		
6	-			No		
7	-			No		
8	-			No		
9	-			No		
10	-			No		
11	-			No		
12	-			No		
13	-			No		
14	-			No		
15	-			No		
16	-			No		
17	-			No		
18	-			No		
19	-			No		
20	-			No		
Conclusion		Pass				



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Table G					
Lumen maintenance after 6000h; Color consistency					
Rated voltage: DC12V		Rated wattage: 9W		Test voltage: DC12V	
Test condition: humidity 55% Ambient temperature (15°C - 40°C): 25.5°C					
Sample No.	Lamp cup type	Luminous flux (lm) after 100h	Luminous flux (lm) after 6000h	Luminous maintenance	Color consistency
1	-	782.30	649.93	0.826	4.7
2	-	788.92	646.17	0.820	4.7
3	-	780.04	654.47	0.835	4.9
4	-	773.26	645.96	0.841	4.6
5	-	772.03	642.53	0.839	4.9
6	-	791.52	649.74	0.825	4.8
7	-	781.29	644.27	0.838	4.9
8	-	791.33	651.79	0.813	4.6
9	-	774.21	650.46	0.833	4.9
10	-	771.44	651.41	0.841	4.9
11	-	788.17	648.86	0.825	4.6
12	-	787.92	647.93	0.831	5.0
13	-	788.41	651.92	0.815	4.6
14	-	788.54	644.55	0.819	4.9
15	-	790.42	648.72	0.827	4.9
16	-	769.30	651.98	0.851	4.5
17	-	791.12	643.27	0.818	4.6
18	-	784.81	646.39	0.822	4.5
19	-	773.35	649.67	0.839	4.8
20	-	767.97	652.26	0.840	4.9
Average		785.82	648.61	0.830	4.8

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ATTACHMENT A
TEST EQUIPMENT LIST

ATTACHMENT B
TEST LAB CONDITION

ATTACHMENT C
SAMPLE
PICTURE

ATTACHMENT A

深圳市优耐检测技术有限公司
Shenzhen United Testing Technology Co.,Ltd.

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<http://www.uni-lab.hk>

TEST EQUIPMENT LIST

Manufacturer	Description	Parameter	Model
LINGCAI	High accuracy array spectrometer	Wavelength:380nm-780nm Wavelength resolution:2.0nm Wavelength accuracy: ±0.3nm Straylight:1.00E-04 0.3%Photometry linearity Up to 0.01mcd sensitivity 0.0015x,y Accuracy of chromaticity 1/10000 Stray light level Luminousflux range: 0.01lm-6.00×10 ⁵ lm	SPEC1000A
LINGCAI	Digital power meter	Voltage/current accuracy: ±(0.04%reading+0.01%range+1digit) Harmonic analysis function	UI2012
LINGCAI	Aging-life tester User's manual	Output:5V~300V, 0.005A~20A Time:00:00:00~99:59:59	DJ4000

ATTACHMENT B

TEST LAB CONDITION

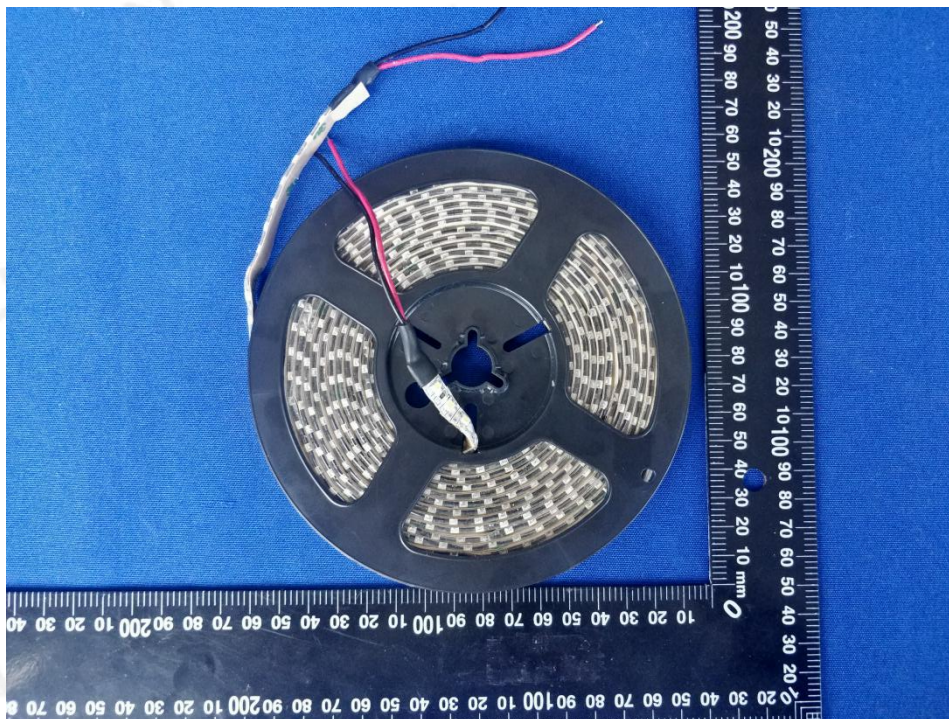
Item	Requirement
Ambient condition	1- Room :draught-proof 2- Ambient temperature : (25 ± 1) °C 3- Relative humidity ≤65 %
Test voltage	AC230V,50Hz,
Harmonic	The total harmonic content ≤ 3 %. (The harmonic content is defined as the r.m.s. summation of the individual harmonic components using the fundamental as 100 %.)
Frequency	/
Stabilization time	Lamps shall be measured at the test voltage immediately after the stabilization period as stated by the manufacturer or responsible vendor.
Base position	Vertical position, base-up
Aging	6000 h
Sample	20 lamps
Average value	The average value shall be derived from a test quantity of 20 lamps.

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ATTACHMENT C

PHOTO

General Appearance of the EUT



The sample picture is only used to inform the customer that the sample received by the laboratory is shown in the picture, which does not prove the appearance and quality of the customer's products.

*****End of Report*****



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