TCT 通测检测 TESTING CENTRE TECHNOLOGY

On Behalf of

SPOTLIGHT

CS206

Prepared for :

Prepared By : Shenzhen TCT Testing Technology Co., Ltd.
1F, No.1 Building, Yibaolai Industrial Park, No.1 Chongqing Road, Qiaotou Village, Fuyong Town, Baoan District, Shenzhen

Date of Test: Jan.15, 2014 to Oct.15, 2014
Date of Report: Oct.15, 2014
Report Number: TCT140912S001

Note: This report shall not be reproduced except in full, without the written approval of Shenzhen TCT Testing Technology Co., Ltd. This document may be altered or revised by Shenzhen TCT Testing Technology Co., Ltd. personnel only, and shall be noted in the revision section of the document. The test results in the report only apply to the tested sample.

Test Report

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

Report reference No	TCT140912S001
Tested by (+ signature).....	Nicole Liang
Approved by (+ signature).....	Jack Zhang
Date of issue	Oct.15, 2014

Testing Laboratory Name	Shenzhen TCT Testing Technology Co., Ltd.
Address	1F, No.1 Building, Yibaolai Industrial Park, No.1 Chongqing Road, Qiaotou Village, Fuyong Town, Baoan District, Shenzhen
Testing location	CBTL ☐ CCATL ☐ SMT ☐ TMP ☐
Address	Same as above

Test specification	COMMISSION REGULATION (EU) No 1194/2012
Implementing measure of energy related Product	of 12 December 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 REGULATION: COMMISSION DELEGATED REGULATION (EU) No 874/2012 of 12 July 2012: supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to energy labeling of electrical lamps and luminaires
	1194/2012/EC-V2.0 EN50285:1999,EN62471:2008,CIE13.3:1995,CIE 15:2004,EN 60969:1993+A2:2000,CIE 84:1989 EN 13032-1:2004+A1:2012 874/2012/EC
Standard reference :	CIE 84:1989: The Measurement of Luminous Flux
Test procedure.....:	Type test
Test result..... :	Pass

Hotline: 400-6611-140 Tel: 86-755- 27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Test item description	SPOTLIGHT
Manufacturer	
Trademark	N/A
Model and/or type reference	CS206
Rating(s)	220V~ 50Hz 5W

Test item particulars :

Lamp type: ☐ CFL ☐LED ☐Halogen ☑other

Rated power :5W

Rated luminous flux (Im) :550lm

Rated color temperature: 3000K

Rated chromaticity:0.3210, 0.3416

Rated color rendering:82.9

Rated lamp life time :30000

Rated power factor:>0.40

Declared energy label: class A++

Declared number of switching cycles: 15000

Declared start up time:<0.5s

Declared warm up time: <2s

Declared luminance: N/A

Lamp dimming: N/A

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	Jan.14, 2014
Date(s) of performance of test	Jan.15, 2014 to Oct.15, 2014

General remarks:

Throughout this report a comma (point) is used as the decimal
Separator .the test result presented in this report related only to the object tested
This report shall not be reproduced except in full, without the written approval of Shenzhen TCT Testing Technology Co., Ltd.
Appendix: test results

General product information:

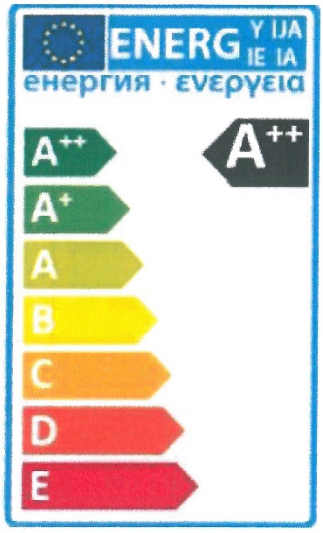
Packing sample of : CS206

Hotline: 400-6611-140 Tel: 86-755- 27673339 Fax: 86-755-27673332 http://www.tct-lab.com

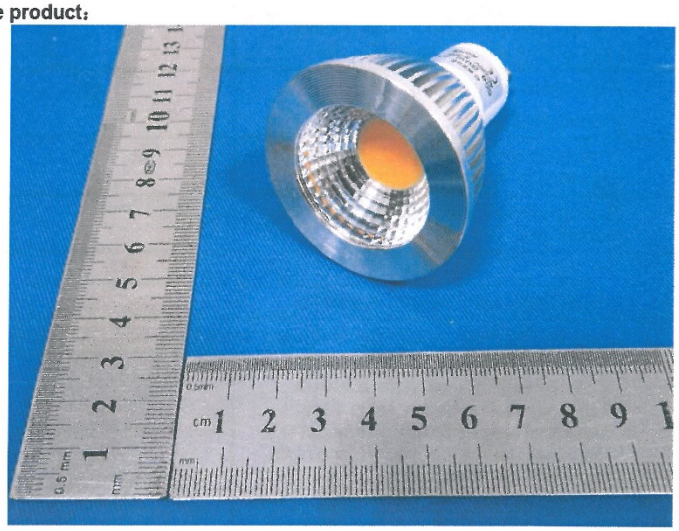
1194/2012/EC				
Test	Partial test	Type test	Verification test	Verdict
Start time		20	20	P
Lamp warm-up time 60% Φ		20	20	P
Luminous flux		20	20	P
Premature failure rate		20	20	P
Lamp power factor		20	20	P
Color rendering		20	20	P
Color consistency		20	20	P
Lumen Maintenance at 6000 h		20	20	P
Lamp survival factor at 6000 h		20	20	P
Number of switching cycles		20	20	P
Product information Requirements on lamp		1	1	P
Standard/ regulation	Appliance request	1194/2012/EC	1194/2012/EC	

Hotline: 400-6611-140 Tel: 86-755- 27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Copy of marking plate:



Picture of the product:



Hotline: 400-6611-140 Tel: 86-755- 27673339 Fax: 86-755-27673332 http://www.tct-lab.com

COMMISSION REGULATION (EU) No 1194/2012 of 12 December 2012			
Clause	Requirement + Test	Result	Verdict
1	**ENERGY EFFICIENCY REQUIREMENTS**		
1.1	Energy efficiency requirement for directional lamps		P
	The energy efficiency index(EEI) of the lamp is calculated as follows: EEI = Pcor / Pref	EEI=0.10	P
	Lamps operating on external halogen lamp control gear: Pcor=Prated x 1,06		N/A
	Lamps operating on lamp control gear: Pcor=Prated	4.78W	P
	Lamps operating on external lamp control gear: Pcor=Prated x 1,10		N/A
	Fluorescent lamps of 16 mm diameter(T5 lamps) and 4-pin single capped fluorescent lamps operating on external fluorescent lamp control gear: Pcor=Prated x 1,10		N/A
	Other lamps operating on external fluorescent lamp control gear: $P_{rated} \times \frac{0,24\sqrt{\Phi_{use}} + 0,0103\Phi_{use}}{0,15\sqrt{\Phi_{use}} + 0,0097\Phi_{use}}$		N/A
	For models with Φuse < 1 300 lumen: $P_{ref} = 0,88\sqrt{\Phi_{use}} + 0,049\Phi_{use}$		P
	For models with Φuse ⩾1 300 lumen: Pref=0,07341Φuse		N/A
	The maximum EEI of directional lamps is indicated in Table 2		P
1.2	Energy efficiency requirements for lamp control gear		N/A

2	**FUNCTIONALITY REQUIREMENTS**		
2.1	Functionality requirements for directional lamps other than lamps		N/A
	The lamp functionality requirements are set out in Table 3 for directional compact fluorescent lamps and in Table 4 for directional lamps excluding compact fluorescent lamps, lamps and high-intensity discharge lamps		N/A
2.2	Functionality requirements for non-directional and directional lamps		P
	The lamp functionality requirements are set out in Table 5 for both non-directional and directional lamps.		P

Hotline: 400-6611-140 Tel: 86-755- 27673339 Fax: 86-755-27673332 http://www.tct-lab.com

2.3	Functionality requirement for equipment designed for installation between the mains and the lamps.		N/A
3	**PRODUCT INFORMATION REQUIREMENTS**		
3.1	Product information requirements for directional lamps		N/A
3.1.1	Information to be displayed on the lamp itself		P
	For lamps other than high-intensity discharge lamps, the value and unit ('lm', 'K' and '°') of the nominal useful luminous flux, of the colour temperature and of the nominal beam angle shall be displayed in a legible font on the surface of the lamp if, after the inclusion of safety-related information such as power and voltage, there is sufficient space available for it on the lamp without unduly obstructing the light coming from the lamp.		P
3.1.2	Information to be visibly displayed to end-users, prior to their purchase, on the packaging and on free access websites		P
	Nominal useful luminous flux displayed in a font at least twice as large as any display of the nominal lamp power;		P
	Nominal life time of the lamp in hours		P
	Color temperature (also expressed as a value in kelvins)		P
	Number of switching cycles before premature failure;		P
	Warm-up time up to 60 % of the full light output (may be indicated as 'instant full light' if less than 1 second;		P
	A warning if the lamp cannot be dimmed or can be dimmed only on specific dimmed)		N/A
	If designed for optimum use in non-standard conditions (such as ambient temperature Ta ≠ 25 °C or specific thermal management is necessary), information on those conditions;		N/A
	Lamp dimensions in millimetres (length and largest diameter;		P
3.1.3	Information to be made publicly available on free-access websites and in any other form the manufacturer deems appropriate		N/A
	The information specified in point 3.1.2		N/A
	Rated power (0,1 W precision)		N/A
	Rated useful luminous flux		N/A
	Rated lamp life time		N/A
	Lamp power factor		N/A

Hotline: 400-6611-140 Tel: 86-755- 27673339 Fax: 86-755-27673332 http://www.tct-lab.com

	Lumen maintenance factor at the end of the nominal life (except for filament lamps)		N/A
	Starting time (as X,X seconds)		N/A
	Colour rendering		N/A
	Colour consistency		N/A
	Rated peak intensity in candela (cd)		N/A
	Rated beam angle		N/A
	If intended for use in outdoor or industrial applications, an indication to this effect		N/A
	Spectral power distribution in the range 180-800 nm		N/A
3.2	Additional product information requirements for lamps replacing fluorescent lamps without integrated ballast		N/A

Table 2	Maximum energy efficiency index (EEI)				P
Application date	Mains-voltage filament lamps	Other filament lamps	High-intensity discharge lamps	Other lamps	Measured Value
Stage 1	If Φ use > 450lm: 1,75	If Φ use ≤ 450 lm: 1,20 If Φ use > 450 lm: 0,95	0,50	0,50	N/A
Stage 2	1.75	0.95	0.50	0.50	N/A
Stage 3	0.95	0.95	0.36	0.20	0.10

Table 3	Functionality requirements for directional compact fluorescent lamps		N/A
Functionality parameter	Stage 1 except where indicated otherwise	Stage 3	Measured Stage
Lamp survival factor at 6 000 h	From 1 March 2014: ≥ 0,50	≥ 0,70	N/A
Lumen maintenance	At 2 000 h: ≥ 80 %	At 2 000 h: ≥ 83 % At 6 000 h: ≥ 70 %	N/A
Number of switching cycles before failure	≥ half the lamp lifetime expressed in hours ≥ 10 000 if lamp starting time > 0,3 s	≥ lamp lifetime expressed in hours;≥ 30 000 if lamp starting time > 0,3 s	N/A
Starting time	< 2,0 s	< 1,5 s if P < 10 W < 1,0 s if P ≥10 W	N/A
Lamp warm-up time to 60% Φ	< 40 s or < 100 s for lamps containing mercury in amalgam form	< 40 s or < 100 s for lamps containing mercury in amalgam form	N/A
Premature failure rate	≤ 5,0 % at 500h	≤ 5,0 % at 1 000 h	N/A
Lamp power factor for lamps with integrated control gear	≥ 0,50 if P < 25 W ≥ 0,90 if P ≥ 25 W	≥ 0,55 if P < 25 W ≥ 0,90 if P ≥ 25 W	N/A

Hotline: 400-6611-140 Tel: 86-755- 27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Color rendering (Ra)	≥ 80 ≥ 65 if the lamp is intended for outdoor or industrial applications according to point 3.1.3(l) of this Annex	≥ 80 ≥ 65 if the lamp is intended for outdoor or industrial applications according to point 3.1.3(l) of this Annex	N/A

Table 4	Functionality requirements for other directional lamps (excluding lamps, compact fluorescent lamps and high-intensity discharge lamps)		N/A
Functionality parameter	Stage 1 and 2	Stage 3	Measured Stage
Rated lamp lifetime at 50% lamp survival	≥ 1 000 h (≥ 2 000 h in stage 2) ≥ 2 000 h for extra low voltage lamps not complying with the stage 3 filament lamp efficiency requirement in point 1.1 of this Annex	≥ 2 000 h ≥ 4 000 h for extra low voltage lamps	N/A
Lumen maintenance	≥ 80 % at 75 % of rated average lifetime	≥ 80 % at 75 % of rated average lifetime	N/A
Number of switching cycles	≥ four times the rated lamp life expressed in hours	≥ four times the rated lamp life expressed in hours	N/A
Starting time	< 0,2 s	< 0,2 s	N/A
Lamp warm-up time to 60% Φ	≤ 1,0 s	≤ 1,0 s	N/A
Premature failure rate	≤ 5,0 % at 100 h	≤ 5,0 % at 200 h	N/A
Lamp power factor for lamps with integrated control gear	Power > 25 W: ≥ 0,9 Power ≤ 25 W: ≥ 0,5	Power > 25 W: ≥ 0,9 Power ≤ 25 W: ≥ 0,5	N/A

Table 5	Functionality requirements for non-directional and directional LED lamps		P
Functionality parameter	Requirements	Result	Measured Stage
Lamp survival factor at 6000 h	From 1 March 2014: ≥ 0,90		P
Lumen Maintenance at 6000 h	From 1 March 2014: ≥ 0,80		P
Number of switching cycles before failure	≥ 15 000 if rated lamp life ≥ 30000 h otherwise: ≥ half the rated lamp life expressed in hours		P
Starting time	< 0.5 s	0.29	P
Lamp warm-up time to 95%Φ	< 2 s	0.45	P
Premature failure rate	≤ 5,0% at 1 000 h		P
Color rendering (Ra)	≥ 80; ≥ 65 if the lamp is intended for outdoor or industrial applications in accordance with point 3.1.3(l) of this Annex	82.9	P
Color consistency	Variation of chromaticity coordinates within a six-step MacAdam ellipse or less.	4.3	P
Lamp power factor (PF) for lamps with integrated control gear	P ≤ 2 W: no requirement; 2 W <P ≤ 5 W: PF > 0,4; 5 W < P ≤25 W: PF > 0,5; P > 25 W: PF >0,9	0.63	P

Hotline: 400-6611-140 Tel: 86-755- 27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Table

Table 1A. Start time for LED lamps

Standard:	Clause:5	Model No.	Verdict
EN 60969:1993+A1993+A2:2000 (EU) NO 1194/2012	Starting time	CS206	P

LOADING/Test Condition
Starting time: time in second to reach the lamp remain alight without interruption
Test condition:
Starting time :both before aging
-Ambient 25 ℃/ 65 % R.H.
-Test voltage:
Starting time : 92% of rated voltage or 92% of the minimum voltage range :211.6V

Technical Requirements		Test Result(Unit: s)										
Starting time	Commission Regulation (EU)NO 1194/2012 <0.5s	Lamp NO.	1	2	3	4	5	6	7	8	9	10
		Time	0.32	0.25	0.33	0.28	0.27	0.31	0.35	0.34	0.30	0.27
		Lamp NO.	11	12	13	14	15	16	17	18	19	20
		Time	0.35	0.24	0.22	0.31	0.36	0.29	0.24	0.26	0.31	0.20
Average starting time		0.29										

Table 1B. Start time for lamps excluding lamps

Standard:	Clause:5	Model No.	Verdict
EN 60969:1993+A1993+A2:2000 (EU) NO 1194/2012	Starting time	CS206	N/A

LOADING/Test Condition
Starting time: time in second to reach the lamp remain alight without interruption
Test condition:
Starting time :both before aging
-Ambient ___℃/___% R.H.
-Test voltage:
Starting time : 92% of rated voltage or 92% of the minimum voltage range :__V

Technical Requirements		Test Result(Unit: s)										
Starting time	Commission Regulation (EU)NO 1194/2012 <0.2s	Lamp NO.	1	2	3	4	5	6	7	8	9	10
		Time										
		Lamp NO.	11	12	13	14	15	16	17	18	19	20
		Time										
Average starting time												

Hotline: 400-6611-140 Tel: 86-755- 27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Table 2A. Warm-up time for lamps			
Standard:	Clause:5	Model No.	Verdict
EN 60969:1993+A1993+A2:2000 (EU) NO 1194/2012	Warm-up time	CS206	P

LOADING/Test Condition
Warm-up time: time in second to reach 60% of final luminous flux
Test condition:
Warm-up time :before aging or after initial ageing
-Ambient_25_℃/_65_% R.H.
-Test voltage:
Warm-up time : rated voltage or the minimum voltage range :230V

Technical Requirements		Test Result(Unit: s)										
Warm-up time	Lamp warm-up time to 95%Φ <2s	Lamp NO.	1	2	3	4	5	6	7	8	9	10
		Time	0.45	0.42	0.40	0.45	0.41	0.43	0.51	0.47	0.41	0.47
		Lamp NO.	11	12	13	14	15	16	17	18	19	20
		Time	0.40	0.53	0.41	0.46	0.47	0.42	0.43	0.45	0.48	0.50
Average Warm up time		0.45										

Table 2B. Warm-up time for lamps excluding LED lamps			
Standard:	Clause:5	Model No.	Verdict
EN 60969:1993+A1993+A2:2000 (EU) NO 1194/2012	Warm-up time	CS206	N/A

LOADING/Test Condition
Warm-up time: time in second to reach 60% of final luminous flux
Test condition:
Warm-up time :before aging or after initial ageing
-Ambient__℃/__% R.H.
-Test voltage:
Warm-up time : rated voltage or the minimum voltage range :__V

Technical Requirements		Test Result(Unit: s)										
Warm-up time	Lamp warm-up time to 60%Φ <1s	Lamp NO.	1	2	3	4	5	6	7	8	9	10
		Time										
		Lamp NO.	11	12	13	14	15	16	17	18	19	20
		Time										
Average Warm up time												

Hotline: 400-6611-140 Tel: 86-755- 27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Table 3. Lamp wattage			
Standard:	Clause:5	Model No.	Verdict
EN 50285 (EU) NO 1194/2012	Lamp wattage	CS206	P

LOADING/Test Condition

Test procedure:
Tungsten filament lamp:EN60064 Tungsten halogen lamp:EN60357 Compact fluorescent lamp EN60969
Led lamp IEC/PAS 62612
-Ambient 25 ℃/ 65 % R.H.
-Test voltage: 230V

Technical Requirements	Test Result(Unit: W)										
EN 50285 for means value individual for performance standard requirement for each sample.	Lamp NO.	1	2	3	4	5	6	7	8	9	10
	Lamp wattage	4.73	4.78	4.69	4.80	4.77	4.72	4.81	4.78	4.78	4.81
	Lamp NO.	11	12	13	14	15	16	17	18	19	20
	Lamp wattage	4.83	4.86	4.71	4.75	4.74	4.78	4.80	4.82	4.75	4.80
Average wattage (W)	4.78										

Table 4. Initial luminous flux			
Standard:	Clause	Model No.	Verdict
EN 50285:1999 (EU) NO 1194/2012	Initial luminous flux	CS206	P

LOADING/Test Condition

Test procedure:
Tungsten filament lamp:EN60064 Tungsten halogen lamp:EN60357 Compact fluorescent lamp EN60969
Led lamp IEC/PAS 62612
-Ambient 25 ℃/ 65 % R.H.
-Test voltage: 230V

Technical Requirements	Test Result(Unit:lm)										
EN 50285:1999 for means value individual performance standard requirement for each sample	Lamp NO.	1	2	3	4	5	6	7	8	9	10
	luminous flux	550	561	553	554	543	547	556	551	540	549
	Lamp NO.	11	12	13	14	15	16	17	18	19	20
	luminous flux	558	544	551	541	548	550	550	543	560	554
Average luminous flux (Φt)	550										

Hotline: 400-6611-140 Tel: 86-755- 27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Table 5. Energy class-according to the rated value					
Standard:		Clause	Model No.		Verdict
98/11/EC EU874/2012 EU1194/2012		Energy class	CS206		P
LOADING/Test Condition Test procedure: Tungsten filament lamp:EN60064 Tungsten halogen lamp:EN60357 Compact fluorescent lamp EN60969 Led lamp IEC/PAS 62612					
Luminous Flux of the lamp		550lm			
Technical requirements		Test result			
EEI=Pcor/Pref		For non-direction lamp		For direction lamp	
Pcor which is Prated x Correction factors; Pref: for model withΦuse＜1300 lumen:0.88√Φuse+0.049Φuse, for model withΦuse＞1300 lumen: 0,07341Φuse		A++	EEI ⩽ 0.11	A++	EEI ⩽ 0.13
		A+	0.11 <EEI⩽ 0.17	A+	0.13 <EEI⩽ 0.18
		A	0.17 <EEI⩽ 0.24	A	0.18 <EEI⩽ 0.40
		B	0.24 <EEI⩽ 0.60	B	0.40 <EEI⩽ 0.95
		C	0.60 <EEI⩽ 0.80	C	0.95 <EEI⩽ 1.20
		D	0.80 <EEI⩽ 0.95	D	1.20 <EEI⩽ 1.75
		E	EEI > 0.95	E	EEI > 1.75
Energy class	EEI=0.10	--		A++	

Table 6.Premature failure rate												
Standard:		Clause:8		Model No.			Verdict					
(EU) NO 1194/2012		premature failure rate		CS206			P					
LOADING/Test Condition Test procedure :the rate of lamp fail before certain hours of operation -Ambient 25 ℃/ 65 % R.H. -Test voltage : rated voltage or the maximum voltage range: 230 V												
Technical Requirements		Test Result										
Premature Failure Rate	For 1000 hrs the premature failure rate<5.0%	Lamp NO.	1	2	3	4	5	6	7	8	9	10
		1000h	√	√	√	√	√	√	√	√	√	√
		Lamp NO.	11	12	13	14	15	16	17	18	19	20
		1000h	√	√	√	√	√	√	√	√	√	√
X means the lamp has failed before 1000 hrs; √ means the lamp passed the testing.												

Hotline: 400-6611-140 Tel: 86-755- 27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Table 7A.Lamp power factor for lamps			
Standard:	Clause:6.11	Model No.	Verdict
EN 61000-3-2:2006 EN60969:1993+A1993+A2:2000 (EU) NO 1194/2012	Lamp power factor	CS206	P

LOADING/Test Condition

Pre-conditions :lamp aged for 100hrs
-Ambient 25℃/ 65 % R.H.
-Test voltage: 230V.

Technical Requirements		Test Result										
Lamp power Factor	P ≤ 2 W: no requirement; 2 W <P ≤ 5 W: PF > 0,4;5 W < P ≤25 W: PF > 0,5; P > 25 W: PF >0,9	Lamp NO.	1	2	3	4	5	6	7	8	9	10
		PF	0.64	0.63	0.64	0.64	0.63	0.63	0.62	0.64	0.64	0.63
		Lamp NO.	11	12	13	14	15	16	17	18	19	20
		PF	0.63	0.64	0.63	0.62	0.62	0.63	0.64	0.64	0.64	0.63
Average power factor		0.63										

Table 7B. Lamp power factor for lamps excluding LED lamps			
Standard:	Clause:6.11	Model No.	Verdict
EN 61000-3-2:2006 EN60969:1993+A1993+A2:2000 (EU) NO 1194/2012	Lamp power factor	CS206	N/A

LOADING/Test Condition

-Test procedure:
Tungsten filament lamp – EN 60064 Tungsten halogen lamps – EN60357 Lamp – IEC/PAS 62612

-Ambient___℃/___% R.H.
-Test voltage: ___V.

Technical Requirements		Test Result										
Lamp power Factor	Power>25W:≥0,9 Power≤25W:≥0,5	Lamp NO.	1	2	3	4	5	6	7	8	9	10
		PF										
		Lamp NO.	11	12	13	14	15	16	17	18	19	20
		PF										
Average power factor												

Hotline: 400-6611-140 Tel: 86-755- 27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Table 8. Color Rendering (Ra)for lamps

Standard:	Clause:8	Model No.	Verdict
EN 60969:1993+ A1993+A2:2000 CIE 13.3:1995	Color Rendering(Ra)	CS206	P

LOADING/Test Condition

-Pre-conditions : lamps aged for 100 hrs
-Test procedure : measured by spectroradiometer
-Ambient 25 ℃/ 65 % R.H.

-Test voltage : rated voltage or the maximum voltage range: 230 V

Technical Requirements			Test Result										
Color Rendering	Outdoor	Indoor	Lamp NO.	1	2	3	4	5	6	7	8	9	10
	≥65	≥80	Ra	82.9	83.3	83.0	82.7	82.9	82.9	83.0	82.9	82.8	83.0
			Lamp NO.	11	12	13	14	15	16	17	18	19	20
			Ra	83.1	82.2	82.9	82.4	83.0	83.1	82.9	82.7	82.8	83.0
Average Ra			82.9										

Table 9. Color consistency for LED lamps

Standard:	Clause:	Model No.	Verdict
IEC/PAS 62612 EU 1194/2012 EN 60969 EU 244/2009 CIE 13.3:1995	Color consistency	CS206	P

LOADING/Test Condition

-Ambient 25 ℃/ 65 % R.H.

-Test voltage : rated voltage or the maximum voltage range: 230 V

Technical Requirements		Test Result										
SDCM	Color consistency	Lamp NO.	1	2	3	4	5	6	7	8	9	10
		Ra	4.5	4.3	4.7	3.6	3.7	3.8	4.7	4.2	4.4	4.7
		Lamp NO.	11	12	13	14	15	16	17	18	19	20
		Ra	4.7	4.5	4.4	3.9	4.6	3.7	4.5	4.1	4.6	4.4
Average SDCM		4.3										

Hotline: 400-6611-140 Tel: 86-755- 27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Table 10A-1. Lumen maintenance for Lamps

Standard:	Clause:5	Model No.	Verdict
EN 60969:1993+ A1993+A2:2000 CIE 97:2005	Lumen maintenance	CS206	P

LOADING/Test Condition

-The lamp operation at
-Ambient 15~40 ℃/ ≤ 60 % R.H.
-Cycle operation at 2 hours 45 minutes on 15 minutes off.
-Test voltage: rated voltage or mean value of voltage range: 230 V
-The lumen test condition according to initial lumen test

Technical Requirements		Test Result										
Lumen Maintenance	Lumen maintenance at 6000h≥0.8	Lamp NO.	1	2	3	4	5	6	7	8	9	10
		after 100h(lm)	550	561	553	554	543	547	556	551	540	549
		after 2000h(lm)	513	519	517	516	502	508	523	511	507	507
		Lumen Maintenance (%)	93.28	92.57	93.54	93.08	92.41	92.88	94.09	92.71	93.84	92.39
		after 6000h(lm)	465	474	463	471	458	462	469	469	457	461
		Lumen Maintenance (%)	84.56	84.46	83.75	85.0	84.41	84.52	84.31	85.12	84.56	84.06

Table 10A-2. Lumen maintenance for LED lamps-continued.

Standard:	Clause:9	Model No.	Verdict
EN 60969:1993+ A1993+A2:2000 CIE 97:2005	Lumen maintenance	CS206	P

LOADING/Test Condition

-The lamp operation at
-Ambient 15~40 ℃/ ≤ 60 % R.H.
-Cycle operation at 2 hours 45 minutes on 15 minutes off.
-Test voltage: rated voltage or mean value of voltage range: 230 V
-The lumen test condition according to initial lumen test

Technical Requirements		Test Result										
Lumen maintenance	Lumen maintenance at 6000h≥0.8	Lamp NO.	11	12	13	14	15	16	17	18	19	20
		after 100h(lm)	558	544	551	541	548	550	550	543	560	554
		after 2000h(lm)	515	513	515	499	506	512	516	504	524	515
		Lumen Maintenance (%)	92.26	94.22	93.42	92.25	92.28	93.15	93.89	92.82	93.54	92.98
		after 6000h(lm)	465	458	463	460	463	463	457	462	472	468
		Lumen Maintenance (%)	83.25	84.2	84.10	85.10	84.52	84.25	83.11	85.26	84.30	84.52

Hotline: 400-6611-140 Tel: 86-755- 27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Table 10B-1. Lumen maintenance for lamps excluding Lamps			
Standard:	Clause:8	Model No.	Verdict
CIE 97:2005	Lumen maintenance	CS206	N/A

LOADING/Test Condition

-Test procedure:
Tungsten filament lamp – EN 60064 Tungsten halogen lamps – EN60357 Lamp – IEC/PAS 62612

-The lumen test condition according to initial lumen test

Technical Requirements		Test Result										
		Lamp NO.	1	2	3	4	5	6	7	8	9	10
Lumen maintenance	>=85% at 75% of rated average lifetime	Initial lumen flux(lm)										
		The lumen flux after 75% rated lifetime running (lm)										
		Lumen Maintenance (%)										

Table10B-2. Lumen maintenance for lamps excluding LED lamps-continued			
Standard:	Clause:8	Model No.	Verdict
CIE 97:2005	Lumen maintenance	CS206	N/A

LOADING/Test Condition

-Test procedure:
Tungsten filament lamp – EN 60064 Tungsten halogen lamps – EN60357 Lamp – IEC/PAS 62612

-The lumen test condition according to initial lumen test

Technical Requirements		Test Result										
		Lamp NO.	11	12	13	14	15	16	17	18	19	20
Lumen maintenance	>=85% at 75% of rated average lifetime	Initial lumen flux(lm)										
		The lumen flux after 75% rated lifetime running (lm)										
		Lumen Maintenance (%)										

Hotline: 400-6611-140 Tel: 86-755- 27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Table 11. Lamp survival factor at 6000 h for Lamps

Standard:	Clause:	Model No.	Verdict
EN 60969:1993+ A1993+A2:2000 (EU) NO 1194/2012	Lamp survival factor at 6000 h	CS206	P

LOADING/Test Condition

-Test produce: the rate of lamps continued to operate at 6000 h to total tested lamps

-Ambient 15~40 ℃/ < 60 % R.H.

-Test voltage: rated voltage or mean value of voltage range: 230 V

Technical Requirements		Test Result																			
Lamp survival factor at 6000 h	Lamp survival factor at 6000 h≥0.9	Lamp NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
		2000h	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
		4000h	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
		6000h	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
		Survival lamps (n)	20																			
		Survival factor(n/20)	100%																			

Note *:" √" means the lamp still lights on when the time reach, "F" means the lamp failed when time reach.

Table 12. Number of switching cycles before failure(for LED lamps)

Standard:	Clause:	Model No.	Verdict
EU 1194/2012 EU 244/2009	Number of switching cycles before failure	CS206	P

LOADING/Test Condition

-Test produce: Tungsten filament lamp-EN 60064
CFL-EN60969
LED lamp-IEC/PAS 62612
Tungsten halogen lamp-EN 60357

-Ambient 15~40 ℃/ < 60 % R.H.

-Test voltage: rated voltage or mean value of voltage range: 230 V

Technical Requirements		Test Result																			
Number of switching cycles before failure	≥15000 if rated lamp life ≥3000h Otherwise: ≥half the rated lamp life expressed in hours	Lamp NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
		Rated life	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√

Note *:" √" means the lamp still lights on when the time reach, "F" means the lamp failed when time reach.

Hotline: 400-6611-140 Tel: 86-755- 27673339 Fax: 86-755-27673332 http://www.tct-lab.com

(EU) No 874/2012
Product was tested with no seasoning. All products were tested after the stabilization period as stated by the manufacturer or responsible vendor. The product was operated at rated voltage or at voltage required by manufacturer. The ambient temperature of the sample was maintained at 25°C±1°C during measurement. And relative humidity is less than 65%. The goniophotometer system was used during test and was calibrated by standard light source before measurement.The standard light source has been calibrated regularly and traceable to the National Primary Standards. Type C goniophotometer was used for measuring total luminous flux, zonal lumen density and beam angle. The product was operated in its intended orientation in application and was recorded in this report. According to REGULATION (EU) No 874/2012, EEI = P_{cor} /P_{ref}. For lamp having no more than 80% light output within a solid angle of π sr: Φuse=Total luminous flux For lamp having equal or more than 80% light output within a solid angle of π sr: if lamps with a beam angle ⩾ 90° , other than filament lamps and carrying a textual or graphical warning on their packaging that they are not suitable for accent lighting: Φuse= luminous flux in a 120° cone Other directional lamps: Φuse= luminous flux in a 90° cone For models with Φuse <1300 lumen: P_{ref}= 0.88 √ Φ_{use}+ 0.049 √ Φ_{use} For models with Φuse⩾1300 lumen: P_{ref}= 0.07341Φuse The weighted energy consumption (Ec) is calculated in kWh/1 000 h as follows and is rounded to two decimal places: E_c=Pcor×1000h/1000 Test Voltage: 100-240V~ 50-60Hz

Hotline: 400-6611-140 Tel: 86-755- 27673339 Fax: 86-755-27673332 http://www.tct-lab.com

TEST RESULT

Item	Result	Requirement
Test Orientation	Downward	None.
Lamp Wattage(W)	4.78	None.
Total Luminous Flux (lm)	550	None.
Φuse(lm)	550	None. (calculated as note 1)
P_{ref} (W)	47.59	For models with Φuse <1300 lumen:P_{ref}= 0.88 √ Φ_{use}+ 0.049Φ_{use} For models with Φuse≥1300 lumen: P_{ref}= 0.07341Φuse
P_{cor} (W)	4.78	P_{cor}=P_{rated}× Correction Factor
EEI	0.10	EEI = P_{cor} /P_{ref}
Energy Efficiency Classes	A++	See Note 2
Weighted Energy Consumption E_c (kWh/1000h)	4.78	Ec= Pcor× 1000h/1000

Note:

1. Non-directional lamps: Total rated luminous flux (Φ); Directional lamps with a beam angle ≥ 90° other than filament lamps and carrying a textual or graphical warning on their packaging that they are not suitable for accent lighting: Rated luminous flux in a 120° cone (Φ120°); other directional lamps: Rated luminous flux in a 90° cone (Φ90°).

2. Energy efficiency class shall be determined in accordance with the following table:

Energy efficiency class	EEI for non-directional lamps	EEI for directional lamps
A++	EEI ≤ 0.11	EEI ≤ 0.13
A+	0.11 <EEI≤ 0.17	0.13 <EEI≤ 0.18
A	0.17 <EEI≤ 0.24	0.18 <EEI≤ 0.40
B	0.24 <EEI≤ 0.60	0.40 <EEI≤ 0.95
C	0.60 <EEI≤ 0.80	0.95 <EEI≤ 1.20
D	0.80 <EEI≤ 0.95	1.20 <EEI≤ 1.75
E	EEI > 0.95	EEI > 1.75

End of the report

Hotline: 400-6611-140 Tel: 86-755- 27673339 Fax: 86-755-27673332 http://www.tct-lab.com