EUROPEAN ECODESIGN REQUIREMENT FOR LIGHT SOURCES AND SEPARATE CONTROL GEARS AND ENERGY LABELLING

TEST REPORT

For

ZHENGZHOU DI YUN WANG LUO KE JI YOU XIAN GONG SI

No.2602,26th Floor, Block B, Dongfang Building No. 198 - 19 Songshan SouthRoad, Erqi District, Zhengzhou, Henan, China

Model Number: DHLTL01A

Test Requirements:	Directive 2009/125/EC of the European Parliament and of the Council and, Commission Regulation (EU) 2019/2020 and, Regulation (EU) 2017/1369 of The European Parliament and of The Council and, Commission Delegated Regulation (EU) 2019/2015
Product Type:	Table lamp
Light Source Type:	☐CFL ☒LED ☐Halogen ☐Others
Directionality:	☐Directionality ☒Non-directionality
Reviewed By:	Ezer Pan Ezer Pan
Report Number:	2402A112930E-EE-M1
Test Date:	2024-12-03
Report Date:	2025-01-16
Approved by:	Blake Zhang / EE Engineer Blake zhang
Revised Note:	The previous report 2402A112930E-EE is replaced by this report on 2025-01-16
Prepared By:	Bay Area Compliance Laboratories Corp. (Dongguan). No.12, Pulong East 1st Road, Tangxia Town, Dongguan, Guangdong, China. Tel: +86-0769-86858888 Fax:+86-0769-86858588
Test Facility:	Test facility was located at Room 301, No.113, Pingkang Road, Dalang, Dongguan, Guangdong, China.

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

10 test samples were in good condition and received on 2024-12-03, and used for testing.

Model Tested:	DHLTL01A
Manufacturer:	ZHENGZHOU DI YUN WANG LUO KE JI YOU XIAN GONG SI
Product Designation:	Table lamp
Lamp Cap Type:	N/A
Brand Name:	edishine
Rated Voltage/Frequency:	AC 220-240V 50/60Hz
Tested Voltage/Frequency:	AC 230V 50Hz
Rated Power:	10W
Rated Useful Luminous Flux:	1000 lm
Nominal CCT(K):	2700K-6500K
Rated CRI:	80
Removable light source:	Y
Removable gear:	Y
Nominal Beam Angle:	N/A
Connected light source:	N
Rated Life:	25000 hrs
Dimmable(Y/N):	Y
Equivalence Claim:	N/A
Indoor or outdoor/industrial:	Indoor

Family Declaration

ZHENGZHOU DI YUN WANG LUO KE JI YOU XIAN GONG SI declares that there are some differences between multiple models and tested model. Details as below:

Tested Model	Multiple Models	Variations	Details
DHLTL01A	TSZ11TBL - HD	Model name and the different color of appearance	They are just model name and the different color of appearance （except for diffuser）, the rest are the same.
	UHLTL01A		
	TSZ11TBL - HD002		
	TSZ11TBL - HD001		
	TSZ11TBL - HD003		

1.2 Objective

This test report is prepared to determine the compliance of samples with the following European commission directives and regulations:

- **Directive:** Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009: establishing a framework for the setting of ecodesign requirements for energy-related product
- **REGULATION:** COMMISSION REGULATION (EU) 2019/2020 of 1 October 2019 laying down ecodesign requirements for light sources and separate control gears pursuant to Directive 2009/125/EC of the European Parliament and of the Council and repealing Commission Regulations (EC) No 244/2009, (EC) No 245/2009 and (EU) No 1194/2012
- **REGULATION:** REGULATION (EU) 2017/1369 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2017 setting a framework for energy labelling and repealing Directive 2010/30/EU
- **REGULATION:** COMMISSION DELEGATED REGULATION (EU) 2019/2015 of 11 March 2019 supplementing Regulation (EU) 2017/1369 of the European Parliament and of the Council with regard to energy labelling of light sources and repealing Commission Delegated Regulation (EU) No 874/2012

1.3 Standards Used

- CIE 84:1989: The Measurement of Luminous Flux
- CIE 13.3-1995: Method of Measuring and Specifying Color Rendering of Light Sources
- CIE 15:2004: Colorimetry, 3rd edition
- CIE 63:1984: The Spectroradiometric Measurement of Light Sources
- IEC 62612:2018: Self-ballasted LED-lamps for general lighting services – Performance requirements
- IEC 62717:2019: LED modules for general lighting - Performance requirements
- IEC/TR 61341-2010: Method of measurement of centre beam intensity and beam angle(s) of reflector lamps
- IEC 60081: Double-capped fluorescent lamps – Performance specifications
- EN13032-1:2004+A1:2012: Light and lighting - Measurement and presentation of photometric data of lamps and luminaires - Part 1: Measurement and file format;
- EN 13032-4:2015: Light and lighting. Measurement and presentation of photometric data of lamps and luminaires. LED lamps, modules and luminaires
- NEMA 77-2017: Temporal Light Artifacts: Test Methods and Guidance for Acceptance Criteria

1.4 Test Equipment List and Details

Device	Manufacture	Model No	Serial No	Calibration date	Calibration due date
2.0m integrating sphere	EVERFINE	R98	11010018	2024-07-25	2025-07-24
spectroradiometer	EVERFINE	HAAS-2000	G112048TS81331121	2024-07-25	2025-07-24
Digital Power Meter	EVERFINE	PF2010A	1011004	2024-07-25	2025-07-24
Digital CC&CV DC Power Supply	EVERFINE	WY305-V1	1101047	2024-07-25	2025-07-24
Standard Light Source	EVERFINE	D204	N/A	2023-05-12	2025-05-11
Special zero-voltage synchronous switching AC	EVERFINE	DPS1010-YF	1011001T	2024-07-25	2025-07-24
1.5m integrating sphere	SENSING	1.5m	N/A	2024-07-25	2025-07-24
Digital power meter	EVERFINE	PF9811	G135717CN1361159	2024-07-25	2025-07-24
Precision frequency power supply	ALL Power	APW-105N	970663	2024-07-25	2025-07-24
Standard Light Source	EVERFINE	D204	N/A	2023-05-12	2025-05-11

Device	Manufacture	Model No	Serial No	Calibration date	Calibration due date
thermometer	SENSING	N/A	N/A	2024-09-06	2025-09-05
Digital CC&CV DC Power Supply	EVERFINE	WY5015	11060010	2024-07-25	2025-07-24
light flickering analyzer	EVERFINE	LFA-3000	P185972CJ6371119	2024-07-25	2025-07-24

Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attested that all calibration has been performed using suitable standards traceable to National Primary Standards and International System of Units (SI).

1.5 Test Method

General

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 samples was maintained at 25°C±1°C during measurement. And relative humidity is less than 65%.

Photometric and Electrical Measurement

The photometric and electrical measurement tests at 0 hour and 3600 hours, were conducted at ambient temperature 25°C±1°C, including Total Light Output (luminous flux), Correlated Color Temperature (CCT), Color Rendering Index (CRI), Luminous Efficacy, Chromaticity Coordinate, Current, Power, Power Factor, and Luminous Intensity & Color Distribution (If any). Products were tested with no seasoning.

Total Light Output (luminous flux), Correlated Color Temperature (CCT), Color Rendering Index (CRI), Luminous Efficacy, Chromaticity Coordinate, Current, Power, and Power Factor was measured base up by integrating sphere system. This system including spectrophotometer, integrating sphere, digital power meter, DC power supply, AC power supply, was calibrated by standard light source before measurement. Spectral radiant flux measurement was taken at 1 nm intervals over the range 380 to 780 nm..

Flicker and Stroboscopic effect

All test lamps required stabilized before testing, The light output was measured by integrating sphere and light flicker analyzer (sampling speed is set no less than 20 kHz). The Sampling time was set 3 minutes. Flicker and Stroboscopic effect was calculated by flicker analyzer according to NEMA 77-2017.

Lumen Maintenance and Lamp Survival Factor

Lamps were operated in a room with ambient temperature of 25±10°C and an average air velocity of less than 0.2 m/s in a vertical base-up position or in its designated orientation. The voltage during the switching cycles have a tolerance with 2%, the total harmonic content of the supply voltage was not exceed 3%.

Initial flux measurement was taken prior to starting the endurance test switching cycle. operate the light source for 1200 cycles of repeated, continuous switching cycles without interruption, one complete switching cycle consists of 150 minutes of the light source switched ON at full power followed by 30 minutes of the light source switched OFF. The hours of operation recorded (i.e.3000 hours) include only the periods of the switching cycle when the light source was switched ON,(i.e. the total test time is 3600 hours).Final flux measurement was taken at the end of the 1200 switching cycles and the lamp survival factor was recorded if any lamps were failed. For each of the units in the sample which have not failed, divide the measured final flux by the measured initial flux. Average the resulting values over all the units that did not fail to compute the determined value for the lumen maintenance factor X_{LMF}%.

2. TEST RESULT

2.1 Energy Efficiency Requirements of Regulation (EU) 2019/2020 (ANNEX II) And Regulation (EU) 2019/2015 (ANNEX II)

Item	Result		Requirements of Regulation (EU) 2019/2020 (ANNEX II) And Regulation (EU) 2019/2015 (ANNEX II)	Verdict (P/F/NA)
	Rated	Measured (AVG)		
Φ_{use} (lm)	1000	1103.60	Rated Φ_{use} ≤Measured Φ_{use} (calculated as note 1)	P
CRI(Ra)	80	82.6	Rated CRI≤Measured CRI	P
Threshold efficacy/η (lm/w)	120		See note 2	NA
End loss factor/L	1.5		See note 2	NA
Correction factor	1.08		See note 2	NA
Efficacy factor/F	1.00		See note 2	NA
CRI factor/R	1.00	1.02	See note 2	NA
P_{on} (W)	10	9.83300	Rated wattage≥Measured wattage	P
P_{on} max (W)	10.62	11.78	Rated P_{on}≤Rated Ponmax; Measured P_{on}≤Measured Ponmax	P
Factor F_{TM}	1.000		See note 3	NA
η_{TM}	100.0	112.2	See note 3	NA
Energy Efficiency Classes	F	E	Rated Energy Efficiency Classes≤ Measured Energy Efficiency Classes	P

Note:

1. Φ_{use} :for non-directional light sources it is the total flux emitted in a solid angle of 4π sr (corresponding to a 360°sphere); for directional light sources with beam angle ≥ 90° it is the flux emitted in a solid angle of π sr (corresponding to a cone with angle of 120°); for directional light sources with beam angle < 90° it is the flux emitted in a solid angle of 0,586π sr (corresponding to a cone with angle of 90°)

2. From 1 September 2021, the declared power consumption of a light source P_{on} shall not exceed the maximum allowed power P_{onmax} (in W), defined as a function of the declared useful luminous flux Φ_{use} (in lm) and the declared colour rendering index CRI (-) as follows:

   $P_{onmax}=C\times(L+\Phi_{use}/(F\times\eta))\times R$

   Where:

   —The values for threshold efficacy (η in lm/W) and end loss factor (L in W) are specified in Table 1, depending on the light source type.

   —Basic values for correction factor (C) depending on light source type, and additions to C for special light source features are specified in Table 2.

   —Efficacy factor (F) is:

   1,00 for non-directional light sources (NDLS, using total flux); 0,85 for directional light sources (DLS, using flux in a cone)

—CRI factor (R) is:

0,65 for CRI ⩽ 25; (CRI+80)/160 for CRI > 25, rounded to two decimals.

Table 1

Threshold efficacy (η) and end loss factor (L)

Light source description	η	L
	[lm/W]	[W]
LFL T5-HE	98.8	1.9
LFLT5-HO,4000 ⩽Φ⩽5000 lm	83.0	1.9
LFL T5-HO,other lm output	79.0	1.9
FL T5 circular	79.0	1.9
FL T8 (including FL T8 U-shaped)	89.7	4.5
From 1 September 2023,for FL T8 of 2-,4-and 5-foot	120.0	1.5
Magnetic induction light source,any length/flux	70.2	2.3
CFL_{ni}	70.2	2.3
FL T9 circular	71.5	6.2
HPS single-ended	88.0	50
HPS double-ended	78.0	47.7
MH ⩽ 405 W single-ended	84.5	7.7
MH > 405 W single-ended	79.3	12.3
MH ceramic double-ended	84.5	7.7
MH quartz double-ended	79.3	12.3
Organic light-emitting diode (OLED	65.0	1.5
Until 1 September 2023: HL G9, G4 and GY6.35	19.5	7.7
HL R7s ⩽ 2 700 lm	26.0	13.0
Other light sources in scope not mentioned above	120	1.5(*)
(*) For connected light sources (CLS) a factor L = 2,0 shall be applied.		

Table 2

Correction factor C depending on light source characteristics

Light source type	Basic C value
Non-directional (NDLS) not operating on mains (NMLS)	1.00
Non-directional (NDLS) operating on mains (MLS)	1.08
Directional (DLS) not operating on mains (NMLS)	1.15
Directional (DLS) operating on mains (MLS)	1.23
Special light source feature	Bonus on C
FL or HID with CCT > 5 000 K	+0.10
FL with CRI > 90	0.10
HID with second envelope	+0.10
MH NDLS > 405 W with non-clear envelope	+0.10
DLS with anti-glare shield	+0.20
Colour-tuneable light source (CTLS)	+0.10
High luminance light sources (HLLS)	+0.0058•Luminance- HLLS- 0,0167

3. Energy efficiency classes and calculation method

The energy efficiency class of light sources shall be determined as set out in Table 3, on the basis of the total mains, efficacy η_{TM}, which is calculated by dividing the declared useful luminous flux Φ_{use} (expressed in lm) by the declared on-mode power consumption P_{on} (expressed in W) and multiplying by the applicable factor F_{TM} of Table 4, as follows:

Table 3

Energy efficiency classes of light sources

Energy efficiency class	Total mains efficacy η_{TM} (lm/W)
A	210 $\leqslant \eta_{TM}$
B	185$\leqslant \eta_{TM}$ <210
C	160$\leqslant \eta_{TM}$ <185
D	135$\leqslant \eta_{TM}$ <160
E	110$\leqslant \eta_{TM}$ <135
F	85$\leqslant \eta_{TM}$ <110
G	η_{TM} <85

Table 4

Factors F_{TM} by light source type

Light source type	Factor F_{TM}
Non-directional (NDLS) operating on mains (MLS)	1.000
Non-directional (NDLS) not operating on mains (NMLS)	0.926
Directional (DLS) operating on mains (MLS)	1.176
Directional (DLS) not operating on mains (NMLS)	1.089

2.2 Functional requirement of Regulation (EU) 2019/2020

Item	Result (Average)	Requirements	Verdict (P/F/NA)
Colour Rendering(Ra)	82.6	≥80	P
Displacement Factor	0.7271	P≤5 W: no requirement; 5W<P≤10W: DF>0.5 10W<P≤25W: DF>0.7; P>25W: DF>0.9	P
Colour Consistency(SDCM)	3.4	Variation of chromaticity coordinates within a six-step MacAdam ellipse or less	P
Pst LM(for LED and OLED MLS)	0.025	P_{st} LM≤1.0 at full-load	P
Stroboscopic Effect	0.000	SVM ≤0.4 at full-load	P
XLMF,MIN	95.81%	See note 1	NA
Lumen Maintenance Factor	TBD	≥ XLMF,MIN	TBD
Survival Factor	TBD	≥90% at 3600h	TBD

Note:

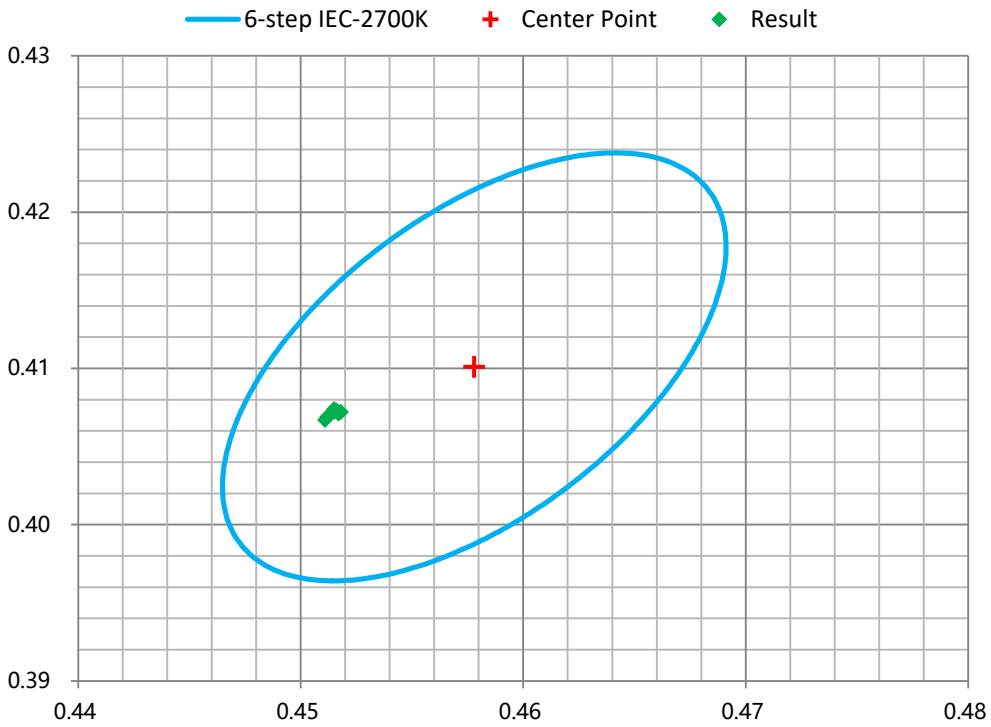
1. The $X_{LMF,MIN}$ % calculated as follows: $X_{LMF,MIN}$ %=100×$e^{(3000\times\ln(0.7))/L70}$, where L_{70} is the declared $L_{70}B_{50}$ lifetime (in hours), If the calculated value for $X_{LMF,MIN}$ exceeds 96,0 %, an $X_{LMF,MIN}$ value of 96,0 % shall be used

3. Test Data

3.1 Photometric and Electrical Measurements at 25°C after 0 Hours

Sample No.	Orientation	Current (A)	Power (W)	Displacement factor	Total Luminous Flux (lm)	Efficacy (lm/W)	CCT (K)	CRI	R9	x	y	SDCM
2402A112930E-S01	Downward	0.06588	9.81640	0.7280	1072.80	106.01	2796	82.6	8	0.4512	0.4069	3.6
2402A112930E-S02	Downward	0.06613	9.79700	0.7251	1111.10	110.01	2794	82.6	7	0.4516	0.4073	3.4
2402A112930E-S03	Downward	0.06619	9.74850	0.7205	1123.90	111.83	2794	82.6	7	0.4515	0.4072	3.4
2402A112930E-S04	Downward	0.06633	9.92310	0.7309	998.51	97.61	2789	82.6	7	0.4518	0.4072	3.2
2402A112930E-S05	Downward	0.06612	9.79700	0.7247	1128.20	111.70	2796	82.7	8	0.4511	0.4067	3.6
2402A112930E-S06	Downward	0.06616	9.83580	0.7274	1121.20	110.57	2791	82.6	7	0.4517	0.4072	3.3
2402A112930E-S07	Downward	0.06641	9.79700	0.7229	1085.80	107.50	2790	82.5	7	0.4518	0.4072	3.2
2402A112930E-S08	Downward	0.06586	9.73880	0.7240	1118.80	111.43	2791	82.5	7	0.4517	0.4071	3.3
2402A112930E-S09	Downward	0.06649	9.89400	0.7292	1121.60	109.96	2796	82.5	7	0.4515	0.4074	3.4
2402A112930E-S10	Downward	0.06707	9.98236	0.7387	1154.10	110.76	2793	82.6	7	0.4516	0.4073	3.4
Average		0.06626	9.83300	0.7271	1103.60	108.74	2793	82.6	7	0.4516	0.4072	3.4

6-step Ellipse



Note:

Declared center point: x: 0.4578, y: 0.4101, G11: 410000, 2G12: -380000, G22: 280000;

3.2 Lumen Maintenance and Lamp Survival at 3600 Hours

Sample No.	Orientation	Initial Luminous Flux	3600-hour Luminous Flux	% of Initial Luminous Flux	Test Time (hour)
2402A112930E-S01	Downward	TBD	TBD	TBD	TBD
2402A112930E-S02	Downward	TBD	TBD	TBD	TBD
2402A112930E-S03	Downward	TBD	TBD	TBD	TBD
2402A112930E-S04	Downward	TBD	TBD	TBD	TBD
2402A112930E-S05	Downward	TBD	TBD	TBD	TBD
2402A112930E-S06	Downward	TBD	TBD	TBD	TBD
2402A112930E-S07	Downward	TBD	TBD	TBD	TBD
2402A112930E-S08	Downward	TBD	TBD	TBD	TBD
2402A112930E-S09	Downward	TBD	TBD	TBD	TBD
2402A112930E-S10	Downward	TBD	TBD	TBD	TBD
Average		TBD	TBD	TBD	TBD

4. Product Photo

5. Report Revision

Report Number	Report Date	Contents
2402A112930E-EE	2025-01-10	Original report.
2402A112930E-EE-M1	2025-01-16	Add the Data for SVM.

Directions

1. The information marked "superscript #" is provided by the applicant, the laboratory is not responsible for its authenticity and this information can affect the validity of the result in the test report.
2. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.
3. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.
4. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K =2 with the 95% confidence interval.
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