



TEST REPORT

COMPULSORY SPECIFICATION FOR ENERGY EFFICIENCY AND FUNCTIONAL PERFORMANCE REQUIREMENTS OF GENERAL SERVICE LAMPS (GSLs) -VC 9109

Self-ballasted LED lamps for general lighting services with supply
voltages > 50 V - Performance requirements- IEC 62612

Report Reference No.	AOC250916012ER
Compiled by (print+ signature).....	Bill Hu <i>Bill Hu</i>
Approved by (print+ signature).....	Robin Liu <i>Robin Liu</i>
	Lab Supervisor
Date of issue.....	2025-10-09
Testing Laboratory	Shenzhen AOCE Electronic Technology Service Co., Ltd
Address.....	Room 202, 2nd Floor, No.12th Building of Xinhe Tongfuyu Industrial Park, Fuhai Street, Baoan District, Shenzhen, Guangdong, China
Testing location/address.....	Same as above
Applicant's name	Daylight Agencies Pty Ltd
Address.....	1 Delson Street North End Port Elizabeth South Africa 6001
Manufacturer name	LIANYUNGANG HUAYAO LIGHTING EQUIPMENT CO., LTD.
Address.....	No. 293 Hailing Road, Donghai County, Lianyungang City, Jiangsu Province, China (Mainland)
Test Object.....	Led filament bulb
Trade Mark.....	DAYLIGHT
Model / Type reference.....	DLL115, DLL116, DLL117, DLL118, DLL119 (Only the model name and CCT are different.) (See page 4 of the report)
Rated voltage (V).....	220-240 V~
Rated frequency (Hz).....	50/60 Hz
Rated Power (W).....	6 W
Rated luminous (lm).....	660 lm
Rated color temperature (CCT).....	2200/2700/3000/4000/6500 K
Rated color tendering (CRI).....	80
Rated life (h).....	15000
Test specification:	
Standard	COMPULSORY SPECIFICATION FOR ENERGY EFFICIENCY AND FUNCTIONAL PERFORMANCE REQUIREMENTS OF GENERAL SERVICE LAMPS (GSLs) -VC 9109 Self-ballasted LED lamps for general lighting services with supply voltages > 50 V - Performance requirements- IEC 62612
Test procedure	Test report
Non-standard test method	N/A
Test Report Form No.	IECEE TRF No. VC 9109
Test Report Form(s) Originator	AOCE
Master TRF.....	2019-11-30

Summary of Testing:	
Tests performed (name of test and test clause):	Testing location:
The sample(s) tested complies with the requirements of VC 9109 When determining the test conclusion. The Measurement Uncertainty of test has be enconsidered.	Shenzhen AOCE Electronic Technology Service Co., Ltd Room 202, 2nd Floor, No.12th Building of Xinhe Tongfuyu Industrial Park, Fuhai Street, Baoan District, Shenzhen, Guangdong, China
Normative References:	
Standard reference	Describe
IEC / SANS 62612	Self-ballasted LED lamps for general lighting services with supply voltages > 50 V - Performance requirements
CIE S 025/E:2015	Test Method for LED Lamps, LED Luminaires and LED Modules
IEC 63103:2020	Lighting equipment - Non-active mode power measurement
CIE 13.3	Method of Measuring and Specifying Colour Rendering Properties of Light Sources
CIE 84:1989	Measurement of Luminous Flux (1st Edition).
IEC TR 61547-1:2020	Equipment for general lighting purposes - EMC immunity requirements -Part 1: Objective light flickermeter and voltage fluctuation immunity test method
IEC TR 63158:2018	Equipment for general lighting purposes - Objective test method for stroboscopic effects of lighting equipment
Copy of Marking Plate:	

A60 6W 2200K non dimmable
Model: DLL115
220-240V,50/60Hz,6W,660lm



DAYLIGHT LIGHTING PTY LTD
CNR Darling and Delson Street,North End,Gqeberha,South Africa

A60 6W 2700K non dimmable
Model: DLL116
220-240V,50/60Hz,6W,660lm



DAYLIGHT LIGHTING PTY LTD
CNR Darling and Delson Street,North End,Gqeberha,South Africa

A60 6W 3000K non dimmable
Model: DLL117
220-240V,50/60Hz,6W,660lm



DAYLIGHT LIGHTING PTY LTD
CNR Darling and Delson Street,North End,Gqeberha,South Africa

A60 6W 4000K non dimmable
Model: DLL118
220-240V,50/60Hz,6W,660lm



DAYLIGHT LIGHTING PTY LTD
CNR Darling and Delson Street,North End,Gqeberha,South Africa

A60 6W 6500K non dimmable
Model: DLL119
220-240V,50/60Hz,6W,660lm



DAYLIGHT LIGHTING PTY LTD
CNR Darling and Delson Street,North End,Gqeberha,South Africa

Type of light source:			
Product type.....	☒ Light source	☐ Separate control gears	
Lighting technology used.....	☒ LED	☐ OLED	☐ Other
Non-directional or directional.....	☐ DLS (Directional)	☒ NDLS (Non-directional)	
Use of lamp.....	☒ Indoor	☐ Outdoor	☐ Industry
Light source cap-type (or other electric interface).....	E27/ E14		
Mains or non-mains.....	☒ MLS (mains light source)	☐ NMLS (non-mains light source)	
Connected light source (CLS).....	☐ Yes	☒ No	
Colour-tuneable light source.....	☐ Yes	☒ No	
Envelope.....	☐ Yes	☒ No	
High luminance light source.....	☐ Yes	☒ No	
Anti-glare shield.....	☐ Yes	☒ No	
Dimmable.....	☐ Yes	☐ only with specific dimmers	☒ No
Product parameters			
Parameter.....	220-240 V~, 50/60 Hz, 6W		
Energy consumption in on-mode (KWh/1000h).....	6		
Energy efficiency class.....	See table 7		
Beam angle correspondence.....	See table 3		
Correlated colour temperature (K).....	See table 2		
On-mode power (W).....	See table 1		
Standby power (W).....	See table 1		
Networked standby power for CLS (W).....	See table 1		
Colour rendering index.....	See table 2		
Colour rendering index range (Minimum).....	See table 2		
Colour rendering index range (Maximum).....	See table 2		
Claim of equivalent power.....	☐ Yes	☒ No	
Equivalent power (W).....	/		
Chromaticity coordinate (x).....	See table 2		
Chromaticity coordinate (y).....	See table 2		
PARAMETERS FOR DIRECTIONAL LIGHT SOURCES			
Peak luminous intensity (cd).....	See table 3		
Beam angle (degrees).....	See table 3		
Beam angle range (Minimum) (degrees).....	See table 3		
Beam angle range (Maximum) (degrees).....	See table 3		
PARAMETERS FOR LED AND OLED LIGHT SOURCES			
R9 Colour rendering index.....	See table 2		
Survival factor.....	See table 3		
Lumen maintenance factor.....	See table 3		
PARAMETERS FOR LED AND OLED MAINS LIGHT SOURCES			

Displacement factor.....	See table 1
Colour consistency in McAdam ellipses.....	See table 2
Claims that an LED light source replaces a fluorescent light source without integrated ballast of a particular wattage.....	☐ Yes ☒ N.A
Replacement claim (W).....	/
Flicker metric (W).....	See table 4
Stroboscopic effect metric (W).....	See table 4
Outer dimensions (Millimetre).....	/
Spectral power distribution in the range 250 nm to 800 nm, at full-load.....	See table 5
Possible Test Case Verdicts:	
Test case does not apply to the test object.....	N/A (Not Applicable)
Test object does meet the requirement.....	P (Pass)
Test object does not meet the requirement.....	F (Fail)
Name and address of factory.....	LIANYUNGANG HUAYAO LIGHTING EQUIPMENT CO., LTD. No. 293 Hailing Road, Donghai County, Lianyungang City, Jiangsu Province, China (Mainland)
Testing:	
Ambient temperature of tested	25.0 °C
Test inputs.....	230 V~
Sample size for tested	50 pcs
Date of receipt of test item.....	2025-02-17
Date (s) of performance of tests.....	2025-02-17 to 2025-09-18
General Remarks:	
Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or use in part without prior written consent from Shenzhen AOCE Electronic Technology Service Co., Ltd	
Note:	
1. DLL085, DLL086, DLL095, DLL096, DLL0105, DLL0106, DLL130, DLL135, DLL140, DLL145, DLL150, DLL155, DLL160, DLL165, DLL115, DLL120 and DLL125 are different only the model name and lamp cap type, the rest are the same. 2. DLL087, DLL088, DLL097, DLL098, DLL0107, DLL0108, DLL131, DLL136, DLL141, DLL146, DLL151, DLL156, DLL161, DLL166, DLL116, DLL121 and DLL126 are different only the model name and lamp cap type, the rest are the same. 3. DLL089, DLL090, DLL099, DLL100, DLL0109, DLL0110, DLL132, DLL137, DLL142, DLL147, DLL152, DLL157, DLL162, DLL167, DLL117, DLL122 and DLL127 are different only the model name and lamp cap type, the rest are the same. 4. DLL091, DLL092, DLL0101, DLL102, DLL0111, DLL0112, DLL133, DLL138, DLL143, DLL148, DLL153, DLL158, DLL163, DLL168, DLL118, DLL123 and DLL128 are different only the model name and lamp cap type, the rest are the same. 5. DLL093, DLL094, DLL0103, DLL104, DLL0113, DLL0114, DLL134, DLL139, DLL144, DLL149, DLL154, DLL159, DLL164, DLL169, DLL119, DLL124 and DLL129 are different only the model name and lamp cap type, the rest are the same.	

VC 9109																									
Clause	Requirement + Test	Result – Remark	Verdict																						
4	EFFICIENCY REQUIREMENTS		-																						
a)	GSLs shall comply with the luminous efficacy requirements in Table 1 or Table 2, as relevant:		P																						
	<table><tr><td colspan="2">Table 1: Minimum luminous efficacy, phase 1</td></tr><tr><td>Product Type</td><td>Phase 1 Minimum luminous efficacy (lm/W)</td></tr><tr><td>General Service Lamp</td><td>90</td></tr></table>	Table 1: Minimum luminous efficacy, phase 1		Product Type	Phase 1 Minimum luminous efficacy (lm/W)	General Service Lamp	90		P																
Table 1: Minimum luminous efficacy, phase 1																									
Product Type	Phase 1 Minimum luminous efficacy (lm/W)																								
General Service Lamp	90																								
	<table><tr><td colspan="2">Table 2: Minimum luminous efficacy, phase 2</td></tr><tr><td>Product Type</td><td>Phase 2 Minimum luminous efficacy (lm/W)</td></tr><tr><td>General Service Lamp</td><td>105</td></tr></table>	Table 2: Minimum luminous efficacy, phase 2		Product Type	Phase 2 Minimum luminous efficacy (lm/W)	General Service Lamp	105		P																
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Product Type	Phase 2 Minimum luminous efficacy (lm/W)																								
General Service Lamp	105																								
b)	Depending on the lamp characteristics, the minimum luminous efficacy values may be decreased by the following correction factors (C):		P																						
	<table><tr><td colspan="2">Table 3: Correction factors</td></tr><tr><td>Lamp Characteristics</td><td>C</td></tr><tr><td>Luminous flux Φ (lm) below 400 lm</td><td>-10%</td></tr><tr><td>Directional lamps</td><td>-15%</td></tr><tr><td>Colour-tunable lamps (CTL)</td><td>-10%</td></tr><tr><td>Connected LED Lamps – rated luminous flux Φ (lm):</td><td></td></tr><tr><td>60 lm ≤ Φ ≤ 300 lm</td><td>-15%</td></tr><tr><td>300 lm < Φ ≤ 650 lm</td><td>-10%</td></tr><tr><td>650 lm < Φ ≤ 1200 lm</td><td>-7.5%</td></tr><tr><td>1200 lm < Φ ≤ 2000 lm</td><td>-5.0%</td></tr><tr><td>2000 lm < Φ ≤ 3300 lm</td><td>-2.5%</td></tr></table>	Table 3: Correction factors		Lamp Characteristics	C	Luminous flux Φ (lm) below 400 lm	-10%	Directional lamps	-15%	Colour-tunable lamps (CTL)	-10%	Connected LED Lamps – rated luminous flux Φ (lm):		60 lm ≤ Φ ≤ 300 lm	-15%	300 lm < Φ ≤ 650 lm	-10%	650 lm < Φ ≤ 1200 lm	-7.5%	1200 lm < Φ ≤ 2000 lm	-5.0%	2000 lm < Φ ≤ 3300 lm	-2.5%		N/A
Table 3: Correction factors																									
Lamp Characteristics	C																								
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2000 lm < Φ ≤ 3300 lm	-2.5%																								
4.2	Displacement Factor		P																						
	Lamp displacement factor (Df) with integrated control gear and integrated luminaires: ☐ P ≤ 2W: no requirement ☐ 2W < P ≤ 5W: Df > 0.4 ☒ 5W < P ≤ 10W: Df > 0.7 ☐ P > 10W: Df > 0.9	See test sheet	P																						
4.2.1	Standby Power for connected lamps		N/A																						
	Standby power for lamps shall not exceed 0.5 W.		N/A																						
	Networked standby power for Connected LED Lamps shall not exceed 0.5 W.		N/A																						
	The allowable values for Standby power and networked standby power shall not be added together.		N/A																						
4.3	Functional Performance Requirements		P																						
	Colour Rendering Index (CRI) CRI ≥80	See test sheet	P																						

VC 9109			
Clause	Requirement + Test	Result – Remark	Verdict
	Lumen Maintenance Factor (for LED and OLED): $X_{LMF,MIN}\% = 100 \times e^{\frac{(3000 \times \ln(0.7))}{L_{70}}}$	See test sheet	P
	Survival factor: No less than 90% of sample units should be operational following endurance testing according	See test sheet	P
	Short term flicker indicator (P_{stLM}): ≤1.0 at full load and a sinusoidal input voltage	See test sheet	P
	Short term flicker indicator (SVM): ≤0.4 at full load and a sinusoidal input voltage	See test sheet	P
	Colour consistency: Variation of x,y chromaticity coordinates within a five -step Standard Deviation of Colour Matching (SDCM) or less.	See test sheet	P
4.4	Product Information Requirements		P
4.4.1	Lamp information		P
	a) Rated power in Watts (mandatory).		P
	b) Rated operating voltage (mandatory).		P
	c) Trade name or brand name (mandatory).		P
	d) Rated initial luminous flux in lumens (mandatory).		P
	e) Rated correlated colour temperature (CCT) in Kelvin (K) (mandatory).		P
	f) Beam angle (mandatory for directional lamps).		N/A
4.4.2	Packaging information		P
	a) Rated power in Watts (mandatory).		P
	b) Rated operating voltage (mandatory).		P
	c) Rated initial luminous flux in lumens (mandatory).		P
	d) Rated efficacy in lumens per Watt (lm/W) (mandatory).		P
	e) Rated lifetime in hours and L70B50 if longer (mandatory)		P
	f) Rated correlated colour temperature (CCT) in Kelvin (K) combined with a sliding scale: (mandatory).		P
	g) Beam angle (mandatory for directional lamps).		N/A
	h) Statement on Dimmability. Clearly state whether dimmable or not dimmable. If yes, then information on dimmer compatibility, or web link to this information. (mandatory).		P

VC 9109																																	
Clause	Requirement + Test	Result – Remark	Verdict																														
	i) For general service lamps which are, according to paragraph 1.2, exempted from the requirements of paragraph 3, the intended purpose shall be stated on all forms of packaging, product information and advertisement, together with a clear indication in large font on the front of the package that the Lamp is NOT Intended for General Illumination Purposes. (mandatory).		P																														
	j) Base type (mandatory).		P																														
	k) Efficiency label compliant with the current version of the Department of Energy guideline for energy efficiency label compliance in South Africa: A Guide for Energy Efficiency Labelling (mandatory).		P																														
	l) Incandescent equivalency claim (optional).		N/A																														
	m) Manufacturers are not required to provide an incandescent equivalency claim (i.e. "This lamp is as bright as a 60W incandescent" or "10W = 60W "). However, if they do, then the equivalency shall be based on the table below which depicts the minimum initial luminous flux that is required to claim a specific incandescent lamp wattage equivalency: Table 6: Incandescent wattage equivalencies for LED lamps <table><tr><th>Incandescent Equivalency [W]</th><th>Wattage</th><th>Minimum Initial Luminous Flux [lm]</th></tr><tr><td></td><td></td><th>Non-directional Lamps</th></tr><tr><td>15</td><td></td><td>150</td></tr><tr><td>25</td><td></td><td>250</td></tr><tr><td>40</td><td></td><td>500</td></tr><tr><td>60</td><td></td><td>800</td></tr><tr><td>75</td><td></td><td>1000</td></tr><tr><td>100</td><td></td><td>1500</td></tr><tr><td>150</td><td></td><td>2500</td></tr><tr><td>200</td><td></td><td>3500</td></tr></table>	Incandescent Equivalency [W]	Wattage	Minimum Initial Luminous Flux [lm]			Non-directional Lamps	15		150	25		250	40		500	60		800	75		1000	100		1500	150		2500	200		3500		N/A
Incandescent Equivalency [W]	Wattage	Minimum Initial Luminous Flux [lm]																															
		Non-directional Lamps																															
15		150																															
25		250																															
40		500																															
60		800																															
75		1000																															
100		1500																															
150		2500																															
200		3500																															
	Voltage surge and dip immunity claim (optional). Manufacturers are not required to provide a voltage surge and dip immunity claim (e.g. "Withstands Power Surge ", "Power Surge Protected "). However, if they do, then the claim shall meet the EMC immunity requirements for equipment for general lighting purposes as set out in IEC 61547 for conditions in South Africa.		N/A																														
ANNEX B	NDURANCE TEST METHOD AND SEQUENCE		P																														
B1	Ambient conditions and test setup:		P																														
B1.1	The switching cycles are to be conducted in a room with an ambient temperature of 25 ± 10 °C and an average air velocity of less than 0,2 m/s.		P																														

VC 9109			
Clause	Requirement + Test	Result – Remark	Verdict
B1.2	The switching cycles on the sample shall be conducted in free air in a vertical base-up position. However, if a manufacturer or importer has declared the light source suitable for use in a specific orientation only, then the sample shall be mounted in that orientation.		P
B1.3	The applied voltage during the switching cycles shall have a tolerance within 2 %. The total harmonic content of the supply voltage shall not exceed 3 %. Standards provide guidance on the supply voltage source.		P
B2	Provisional Endurance Test Method		P
B2.1	Initial flux measurement: measure the luminous flux of the light source prior to starting the endurance test switching cycle.		P
B2.2	Switching cycles: operate the light source for 1 200 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. 3 000 hours) include only the periods of the switching cycle when the light source was switched ON, i.e. the total test time is 3 600 hours.		P
B2.3	Final flux measurement: at the end of the 1 200 switching cycles, note if any light sources have failed (see 'Survival factor' in Annex IV, Table 6 of this Regulation) and measure the luminous flux of the light sources that have not failed.		P
B2.4	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 XLMF %.		P

Test data sheet

Table 1

Model No.: DLL115

Sample No.	Pon(W)	No-load power $P_{no}(W)$	Standby power $P_{sb}(W)$	Networked standby power $P_{net}(W)$	Displacement factor
S01	5.62	N/A	N/A	N/A	0.81
S02	5.66	N/A	N/A	N/A	0.82
S03	5.57	N/A	N/A	N/A	0.83
S04	5.66	N/A	N/A	N/A	0.79
S05	5.68	N/A	N/A	N/A	0.80
S06	5.56	N/A	N/A	N/A	0.82
S07	5.69	N/A	N/A	N/A	0.83
S08	5.60	N/A	N/A	N/A	0.81
S09	5.58	N/A	N/A	N/A	0.82
S10	5.60	N/A	N/A	N/A	0.79
Average value	5.62	N/A	N/A	N/A	0.81

Table 1

Model No.: DLL116

Sample No.	Pon(W)	No-load power $P_{no}(W)$	Standby power $P_{sb}(W)$	Networked standby power $P_{net}(W)$	Displacement factor
S01	5.58	N/A	N/A	N/A	0.81
S02	5.69	N/A	N/A	N/A	0.83
S03	5.59	N/A	N/A	N/A	0.81
S04	5.66	N/A	N/A	N/A	0.81
S05	5.70	N/A	N/A	N/A	0.83
S06	5.60	N/A	N/A	N/A	0.81
S07	5.74	N/A	N/A	N/A	0.83
S08	5.60	N/A	N/A	N/A	0.81
S09	5.62	N/A	N/A	N/A	0.82
S10	5.62	N/A	N/A	N/A	0.83
Average value	5.64	N/A	N/A	N/A	0.82

Table 1

Model No.: DLL117

Sample No.	Pon(W)	No-load power $P_{no}(W)$	Standby power $P_{sb}(W)$	Networked standby power $P_{net}(W)$	Displacement factor
S01	5.63	N/A	N/A	N/A	0.82
S02	5.66	N/A	N/A	N/A	0.81

Test data sheet

S03	5.61	N/A	N/A	N/A	0.81
S04	5.65	N/A	N/A	N/A	0.81
S05	5.62	N/A	N/A	N/A	0.81
S06	5.63	N/A	N/A	N/A	0.80
S07	5.65	N/A	N/A	N/A	0.80
S08	5.61	N/A	N/A	N/A	0.81
S09	5.64	N/A	N/A	N/A	0.80
S10	5.66	N/A	N/A	N/A	0.80
Average value	5.64	N/A	N/A	N/A	0.81

Table 1

Model No.: DLL118

Sample No.	Pon(W)	No-load power $P_{no}(W)$	Standby power $P_{sb}(W)$	Networked standby power $P_{net}(W)$	Displacement factor
S01	5.47	N/A	N/A	N/A	0.80
S02	5.58	N/A	N/A	N/A	0.82
S03	5.48	N/A	N/A	N/A	0.80
S04	5.55	N/A	N/A	N/A	0.80
S05	5.59	N/A	N/A	N/A	0.82
S06	5.49	N/A	N/A	N/A	0.80
S07	5.63	N/A	N/A	N/A	0.82
S08	5.49	N/A	N/A	N/A	0.80
S09	5.51	N/A	N/A	N/A	0.81
S10	5.51	N/A	N/A	N/A	0.82
Average value	5.53	N/A	N/A	N/A	0.81

Table 1

Model No.: DLL119

Sample No.	Pon(W)	No-load power $P_{no}(W)$	Standby power $P_{sb}(W)$	Networked standby power $P_{net}(W)$	Displacement factor
S01	5.44	N/A	N/A	N/A	0.84
S02	5.47	N/A	N/A	N/A	0.83
S03	5.42	N/A	N/A	N/A	0.83
S04	5.46	N/A	N/A	N/A	0.83
S05	5.43	N/A	N/A	N/A	0.83
S06	5.44	N/A	N/A	N/A	0.82
S07	5.46	N/A	N/A	N/A	0.82
S08	5.42	N/A	N/A	N/A	0.83

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Test data sheet

S09	5.45	N/A	N/A	N/A	0.82
S10	5.47	N/A	N/A	N/A	0.82
Average value	5.44	N/A	N/A	N/A	0.83

Table 2

Model No.: DLL115

Sample No.	Chromaticity Coordinates		CCT(K)	CRI	SDCM	R9
	x	y				
S01	0.4956	0.4112	2244	80.7	3.4	-1
S02	0.4991	0.4139	2263	81.0	2.4	-1
S03	0.4981	0.4122	2259	80.6	2.3	-1
S04	0.4996	0.4137	2249	80.5	2.0	0
S05	0.4966	0.4117	2252	80.9	3.0	0
S06	0.4965	0.4114	2256	80.6	3.0	-1
S07	0.4977	0.4114	2243	80.8	2.3	-1
S08	0.4989	0.4126	2256	80.4	2.0	-1
S09	0.4986	0.4122	2261	80.8	2.0	0
S10	0.4976	0.4138	2247	80.7	3.2	-1
Average value	0.4978	0.4124	2253	80.7	2.6	-1

Table 2

Model No.: DLL116

Sample No.	Chromaticity Coordinates		CCT(K)	CRI	SDCM	R9
	x	y				
S01	0.4516	0.4109	2760	81.9	4.6	1
S02	0.4548	0.4129	2799	82.2	3.1	2
S03	0.4530	0.4113	2787	82.0	3.8	1
S04	0.4553	0.4129	2790	81.8	2.8	1
S05	0.4525	0.4121	2801	82.0	4.3	2
S06	0.4534	0.4104	2786	82.1	3.3	1
S07	0.4521	0.4100	2718	81.9	4.1	1
S08	0.4539	0.4117	2721	81.7	3.3	2
S09	0.4544	0.4113	2693	82.0	2.9	1
S10	0.4534	0.4129	2665	82.0	4.0	2
Average value	0.4534	0.4116	2752	82.0	3.6	2

Table 2

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IECEE TRF No. VC 9109

Test data sheet

Model No.: DLL117

Sample No.	Chromaticity Coordinates		CCT(K)	CRI	SDCM	R9
	x	y				
S01	0.4320	0.3983	3059	81.9	4.0	4
S02	0.4351	0.4003	3074	82.0	2.5	5
S03	0.4333	0.3987	3081	81.9	3.4	5
S04	0.4342	0.4003	3037	81.7	3.0	5
S05	0.4329	0.3995	3074	81.8	3.7	4
S06	0.4322	0.3979	3092	82.0	3.9	5
S07	0.4325	0.3975	3024	81.9	3.8	4
S08	0.4342	0.3991	3057	81.7	2.9	5
S09	0.4346	0.3987	3085	82.0	2.7	5
S10	0.4338	0.4003	3030	82.0	3.3	5
Average value	0.4335	0.3991	3061	81.9	3.3	5

Table 2

Model No.: DLL118

Sample No.	Chromaticity Coordinates		CCT(K)	CRI	SDCM	R9
	x	y				
S01	0.3703	0.3720	4177	83.9	4.5	14
S02	0.3729	0.3739	4235	84.2	3.3	15
S03	0.3715	0.3724	4218	84.1	4.0	14
S04	0.3733	0.3739	4222	83.8	3.1	14
S05	0.3711	0.3731	4240	84.0	4.2	15
S06	0.3718	0.3716	4216	84.1	3.9	14
S07	0.3707	0.3713	4114	83.9	4.4	14
S08	0.3722	0.3728	4118	83.7	3.7	14
S09	0.3726	0.3724	4075	84.0	3.5	14
S10	0.3718	0.3739	4033	84.0	3.8	13
Average value	0.3718	0.3727	4165	84.0	3.8	14

Table 2

Model No.: DLL119

Sample No.	Chromaticity Coordinates		CCT(K)	CRI	SDCM	R9
	x	y				
S01	0.3150	0.3410	6239	83.2	2.1	3
S02	0.3172	0.3427	6271	83.3	3.3	4

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IECEE TRF No. VC 9109

Test data sheet

S03	0.3160	0.3414	6283	83.2	2.4	4
S04	0.3166	0.3427	6195	83.0	3.1	3
S05	0.3157	0.3421	6271	83.1	2.6	4
S06	0.3151	0.3407	6306	83.3	1.9	4
S07	0.3153	0.3403	6168	83.2	1.9	3
S08	0.3166	0.3417	6236	83.0	2.8	3
S09	0.3169	0.3414	6293	83.3	2.8	3
S10	0.3163	0.3427	6180	83.3	3.0	3
Average value	0.3161	0.3417	6244	83.2	2.6	3

Table 3

Model No.: DLL115

Sample No.	Useful luminous flux Φ_{use} (lm) at 0h	Useful luminous flux Φ use (lm) at 3600h	Lumen maintenance factor	Survival factor	Beam angle(°)	Peak luminous intensity (cd)
S01	646.8	622.2	96.21%	100%	N/A	N/A
S02	660.3	637.2	96.51%	100%	N/A	N/A
S03	666.7	641.9	96.28%	100%	N/A	N/A
S04	656.3	632.5	96.38%	100%	N/A	N/A
S05	648.1	620.9	95.82%	100%	N/A	N/A
S06	653.3	627.2	96.01%	100%	N/A	N/A
S07	651.0	626.4	96.23%	100%	N/A	N/A
S08	654.4	627.7	95.92%	100%	N/A	N/A
S09	655.8	632.2	96.41%	100%	N/A	N/A
S10	673.3	647.7	96.21%	100%	N/A	N/A
Average value	656.6	631.6	96.19%	100%	N/A	N/A

Table 3

Model No.: DLL116

Sample No.	Useful luminous flux Φ_{use} (lm) at 0h	Useful luminous flux Φ use (lm) at 3600h	Lumen maintenance factor	Survival factor	Beam angle(°)	Peak luminous intensity (cd)
S01	678.8	657.0	96.80%	100%	N/A	N/A
S02	690.2	666.6	96.57%	100%	N/A	N/A

Test data sheet

S03	695.7	670.6	96.39%	100%	N/A	N/A
S04	686.3	657.6	95.81%	100%	N/A	N/A
S05	681.6	654.0	95.95%	100%	N/A	N/A
S06	683.5	658.8	96.39%	100%	N/A	N/A
S07	684.1	656.1	95.92%	100%	N/A	N/A
S08	688.3	661.2	96.06%	100%	N/A	N/A
S09	680.3	652.1	95.85%	100%	N/A	N/A
S10	693.1	666.5	96.16%	100%	N/A	N/A
Average value	686.2	660.1	96.19%	100%	N/A	N/A

Table 3

Model No.: DLL117

Sample No.	Useful luminous flux Φ_{use} (lm) at 0h	Useful luminous flux Φ use (lm) at 3600h	Lumen maintenance factor	Survival factor	Beam angle(°)	Peak luminous intensity (cd)
S01	737.0	709.2	96.22%	100%	N/A	N/A
S02	743.1	714.6	96.16%	100%	N/A	N/A
S03	746.9	717.2	96.02%	100%	N/A	N/A
S04	741.1	715.3	96.51%	100%	N/A	N/A
S05	737.5	708.7	96.09%	100%	N/A	N/A
S06	732.9	705.8	96.29%	100%	N/A	N/A
S07	739.6	709.6	95.94%	100%	N/A	N/A
S08	716.8	689.8	96.23%	100%	N/A	N/A
S09	730.7	702.5	96.14%	100%	N/A	N/A
S10	744.9	715.6	96.06%	100%	N/A	N/A
Average value	737.1	708.8	96.17%	100%	N/A	N/A

Table 3

Model No.: DLL118

Sample No.	Useful luminous flux Φ_{use} (lm) at 0h	Useful luminous flux Φ use (lm) at 3600h	Lumen maintenance factor	Survival factor	Beam angle(°)	Peak luminous intensity (cd)
S01	744.8	721.4	96.86%	100%	N/A	N/A
S02	757.4	731.9	96.63%	100%	N/A	N/A
S03	763.3	736.3	96.45%	100%	N/A	N/A

Test data sheet

S04	753.1	722.0	95.87%	100%	N/A	N/A
S05	747.9	718.1	96.01%	100%	N/A	N/A
S06	750.0	723.3	96.45%	100%	N/A	N/A
S07	750.6	720.4	95.98%	100%	N/A	N/A
S08	755.3	726.0	96.12%	100%	N/A	N/A
S09	746.5	716.0	95.91%	100%	N/A	N/A
S10	760.5	731.8	96.22%	100%	N/A	N/A
Average value	752.9	724.7	96.25%	100%	N/A	N/A

Table 3

Model No.: DLL119

Sample No.	Useful luminous flux Φ_{use} (lm) at 0h	Useful luminous flux Φ use (lm) at 3600h	Lumen maintenance factor	Survival factor	Beam angle(°)	Peak luminous intensity (cd)
S01	750.3	722.3	96.27%	100%	N/A	N/A
S02	756.5	727.9	96.21%	100%	N/A	N/A
S03	760.4	730.5	96.07%	100%	N/A	N/A
S04	754.5	728.6	96.56%	100%	N/A	N/A
S05	750.8	721.8	96.14%	100%	N/A	N/A
S06	746.2	718.9	96.34%	100%	N/A	N/A
S07	753.0	722.8	95.99%	100%	N/A	N/A
S08	729.8	702.6	96.28%	100%	N/A	N/A
S09	743.9	715.5	96.19%	100%	N/A	N/A
S10	758.4	728.9	96.11%	100%	N/A	N/A
Average value	750.4	722.0	96.22%	100%	N/A	N/A

Table 4

Model No.: DLL115

Sample No.	Flicker for LED and OLED MLS ($P_{\text{st}} \text{ LM} \leq 1.0$)	Stroboscopic effect for LED and OLED MLS ($\text{SVM} \leq 0.4$)
S01	0.196	0.098
S02	0.222	0.079
S03	0.200	0.087
S04	0.249	0.091
S05	0.228	0.090

Test data sheet

S06	0.264	0.085
S07	0.252	0.091
S08	0.213	0.084
S09	0.207	0.090
S10	0.214	0.087
Average value	0.224	0.088

Table 4

Model No.: DLL116

Sample No.	Flicker for LED and OLED MLS ($P_{st} LM \leq 1.0$)	Stroboscopic effect for LED and OLED MLS ($SVM \leq 0.4$)
S01	0.204	0.091
S02	0.213	0.087
S03	0.207	0.078
S04	0.261	0.076
S05	0.225	0.081
S06	0.273	0.089
S07	0.258	0.067
S08	0.261	0.095
S09	0.219	0.078
S10	0.246	0.082
Average value	0.237	0.082

Table 4

Model No.: DLL117

Sample No.	Flicker for LED and OLED MLS ($P_{st} LM \leq 1.0$)	Stroboscopic effect for LED and OLED MLS ($SVM \leq 0.4$)
S01	0.195	0.092
S02	0.222	0.085
S03	0.162	0.088
S04	0.183	0.084
S05	0.159	0.079
S06	0.168	0.089
S07	0.156	0.086
S08	0.213	0.085
S09	0.204	0.096
S10	0.171	0.087
Average value	0.183	0.087

Table 4

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Test data sheet

Sample No.	Flicker for LED and OLED MLS ($P_{st} LM \leq 1.0$)	Stroboscopic effect for LED and OLED MLS ($SVM \leq 0.4$)
S01	0.190	0.093
S02	0.199	0.089
S03	0.193	0.080
S04	0.244	0.078
S05	0.210	0.083
S06	0.255	0.091
S07	0.241	0.068
S08	0.244	0.097
S09	0.204	0.080
S10	0.230	0.084
Average value	0.221	0.084

Table 4

Model No.: DLL119

Sample No.	Flicker for LED and OLED MLS ($P_{st} LM \leq 1.0$)	Stroboscopic effect for LED and OLED MLS ($SVM \leq 0.4$)
S01	0.176	0.081
S02	0.200	0.075
S03	0.146	0.077
S04	0.165	0.074
S05	0.143	0.070
S06	0.151	0.078
S07	0.140	0.076
S08	0.192	0.075
S09	0.184	0.084
S10	0.154	0.077
Average value	0.165	0.077

Test data sheet

Table 5

Model No.: DLL115

Spectral Distribution

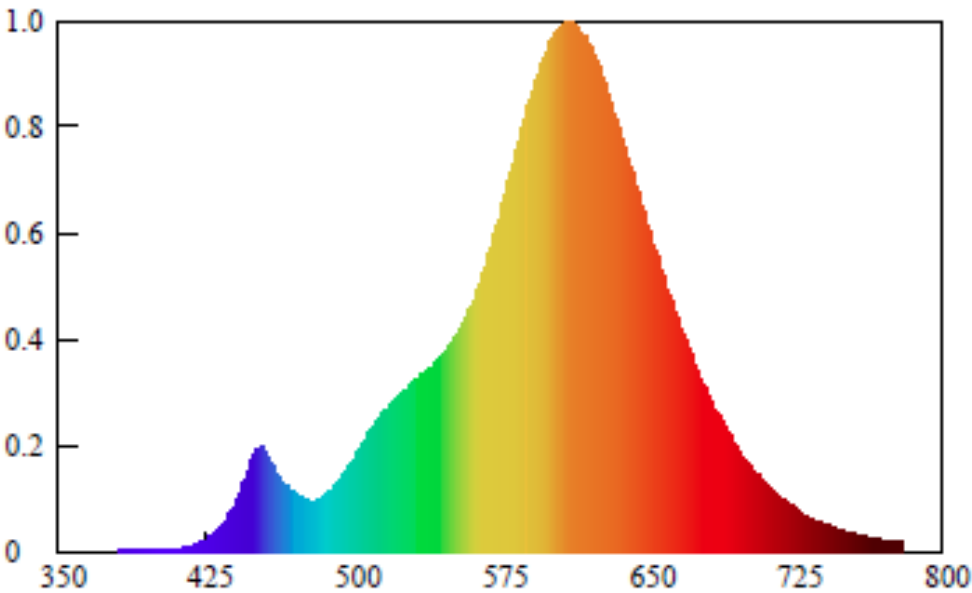
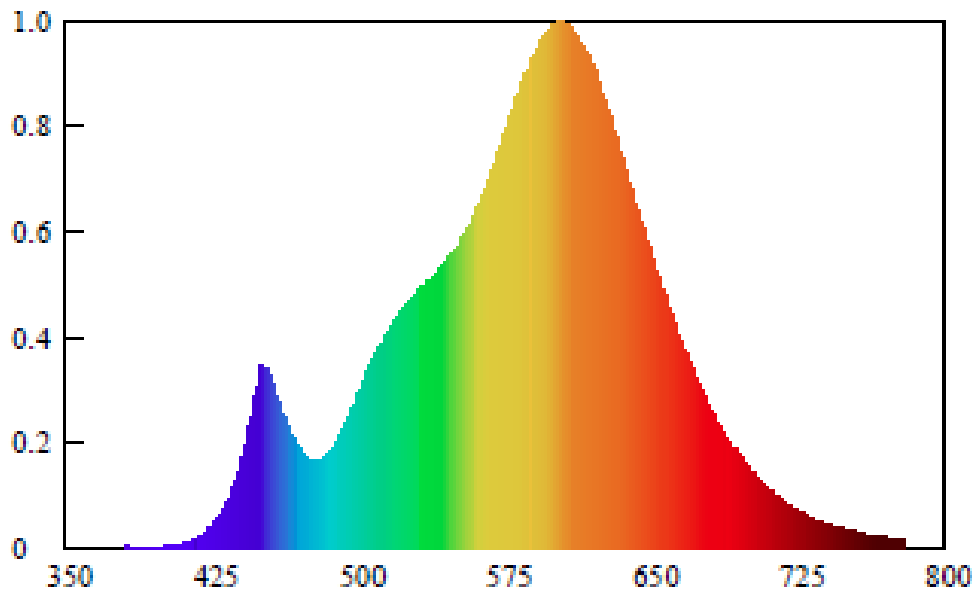


Table 5

Model No.: DLL116

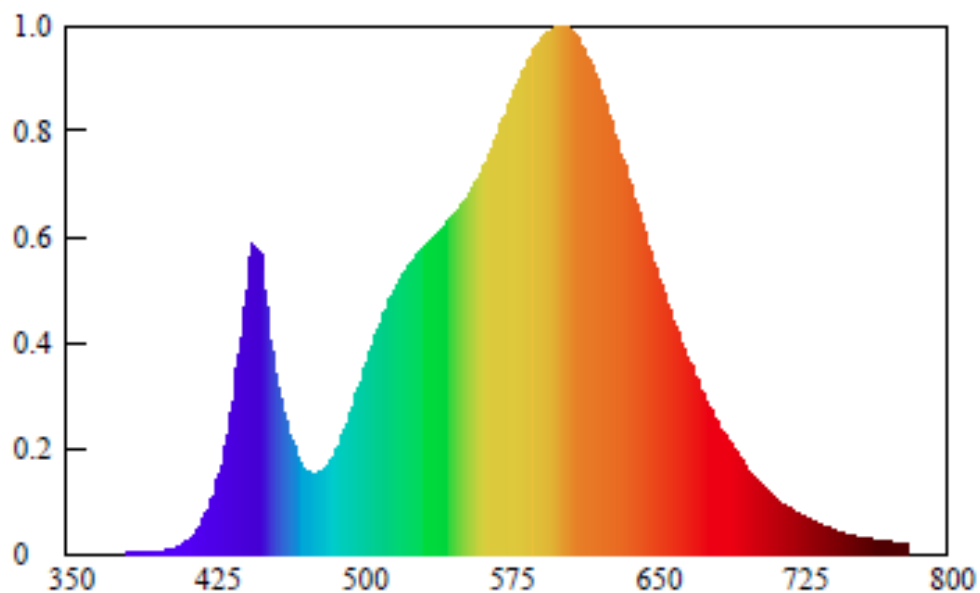
Spectral Distribution



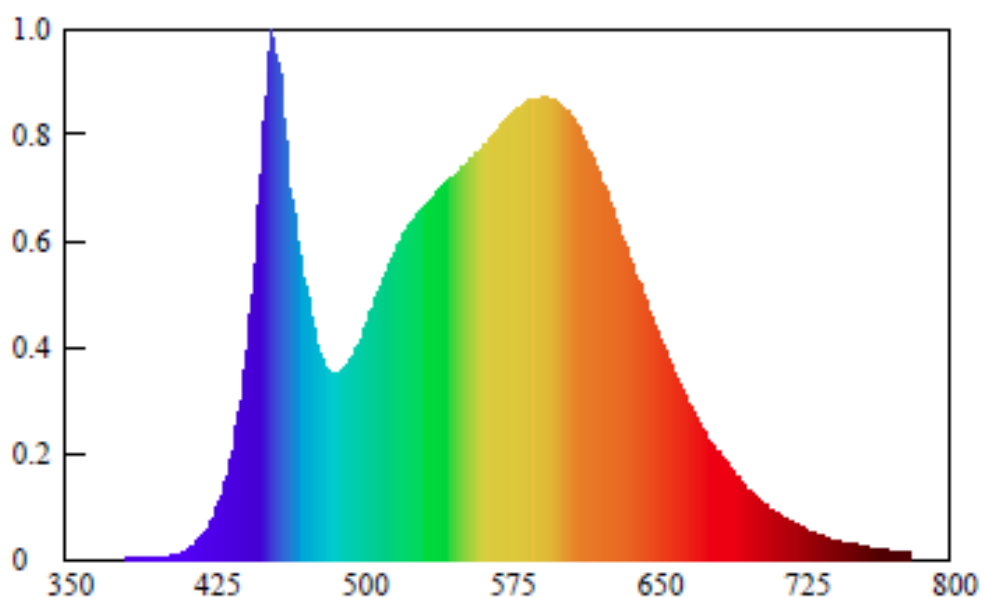
Test data sheet

Table 5

Model No.: DLL117

Spectral Distribution**Table 5**

Model No.: DLL118

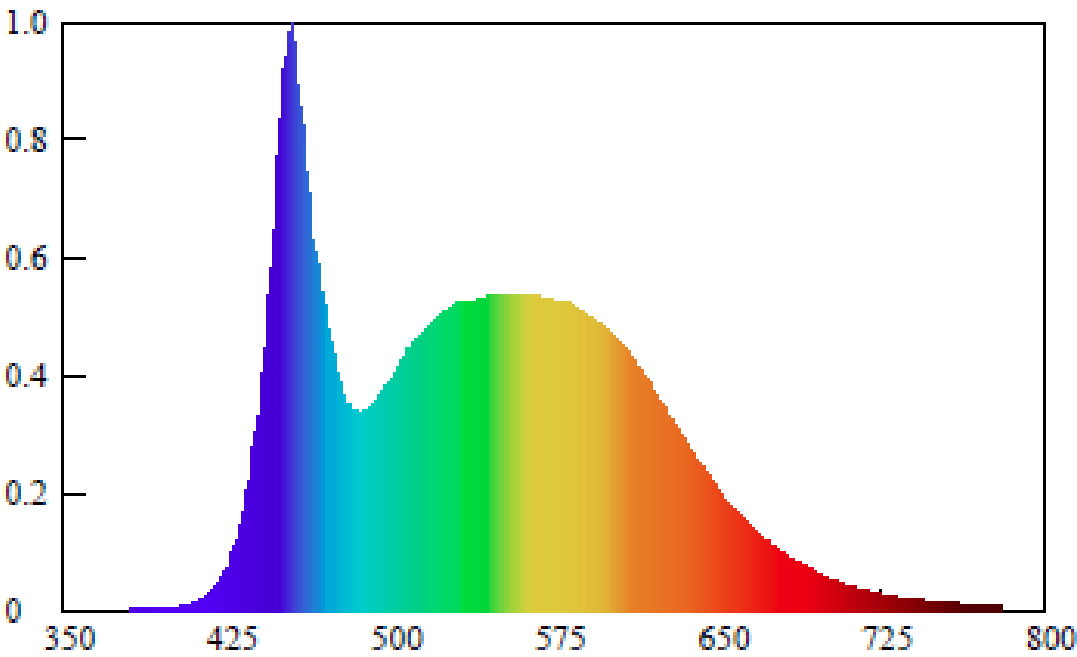
Spectral Distribution

Test data sheet

Table 5

Model No.: DLL119

Spectral Distribution



Test data sheet

Table 7

Model No.: DLL115

Energy efficiency classes				
According to rated value				
Total mains efficacy η_{TM} (lm/W)	Useful luminous flux Φ_{use} (lm) at 0h	$P_{on}(W)$	Factor F_{TM}	Energy Efficiency Class
111.0	660	6.0	1.000	E
Energy efficiency class	Total mains efficacy η_{TM} (lm/W)	Factors F_{TM} by light source type		
		Light source type	Factor F_{TM}	
A	$210 \leq \eta_{TM}$	Non-directional (NDLS) operating on mains (MLS)	1,000	
B	$185 \leq \eta_{TM} < 210$	Non-directional (NDLS) not operating on mains (NMLS)	0,926	
C	$160 \leq \eta_{TM} < 185$	Directional (DLS) operating on mains (MLS)	1,176	
D	$135 \leq \eta_{TM} < 160$	Directional (DLS) not operating on mains (NMLS)	1,089	
E	$110 \leq \eta_{TM} < 135$			
F	$85 \leq \eta_{TM} < 110$			
G	$\eta_{TM} < 85$			

According to measured value				
Total mains efficacy η_{TM} (lm/W)	Useful luminous flux Φ_{use} (lm) at 0h	$P_{on}(W)$	Factor F_{TM}	Energy Efficiency Class
116.8	656.6	5.62	1.000	E
Energy efficiency class	Total mains efficacy η_{TM} (lm/W)	Factors F_{TM} by light source type		
		Light source type	Factor F_{TM}	
A	$210 \leq \eta_{TM}$	Non-directional (NDLS) operating on mains (MLS)	1,000	
B	$185 \leq \eta_{TM} < 210$	Non-directional (NDLS) not operating on mains (NMLS)	0,926	
C	$160 \leq \eta_{TM} < 185$	Directional (DLS) operating on mains (MLS)	1,176	
D	$135 \leq \eta_{TM} < 160$	Directional (DLS) not operating on mains (NMLS)	1,089	
E	$110 \leq \eta_{TM} < 135$			
F	$85 \leq \eta_{TM} < 110$			
G	$\eta_{TM} < 85$			

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IECEE TRF No. VC 9109

Test data sheet

Table 7

Model No.: DLL116

Energy efficiency classes				
According to rated value				
Total mains efficacy η_{TM} (lm/W)	Useful luminous flux Φ_{use} (lm) at 0h	$P_{on}(W)$	Factor F_{TM}	Energy Efficiency Class
111.0	660	6.0	1.000	E
Energy efficiency class	Total mains efficacy η_{TM} (lm/W)	Factors F_{TM} by light source type		
		Light source type	Factor F_{TM}	
A	$210 \leq \eta_{TM}$	Non-directional (NDLS) operating on mains (MLS)	1,000	
B	$185 \leq \eta_{TM} < 210$	Non-directional (NDLS) not operating on mains (NMLS)	0,926	
C	$160 \leq \eta_{TM} < 185$	Directional (DLS) operating on mains (MLS)	1,176	
D	$135 \leq \eta_{TM} < 160$	Directional (DLS) not operating on mains (NMLS)	1,089	
E	$110 \leq \eta_{TM} < 135$			
F	$85 \leq \eta_{TM} < 110$			
G	$\eta_{TM} < 85$			

According to measured value				
Total mains efficacy η_{TM} (lm/W)	Useful luminous flux Φ_{use} (lm) at 0h	$P_{on}(W)$	Factor F_{TM}	Energy Efficiency Class
121.7	686.2	5.64	1.000	E
Energy efficiency class	Total mains efficacy η_{TM} (lm/W)	Factors F_{TM} by light source type		
		Light source type	Factor F_{TM}	
A	$210 \leq \eta_{TM}$	Non-directional (NDLS) operating on mains (MLS)	1,000	
B	$185 \leq \eta_{TM} < 210$	Non-directional (NDLS) not operating on mains (NMLS)	0,926	
C	$160 \leq \eta_{TM} < 185$	Directional (DLS) operating on mains (MLS)	1,176	
D	$135 \leq \eta_{TM} < 160$	Directional (DLS) not operating on mains (NMLS)	1,089	
E	$110 \leq \eta_{TM} < 135$			
F	$85 \leq \eta_{TM} < 110$			
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IECEE TRF No. VC 9109

Test data sheet

Table 7

Model No.: DLL117

Energy efficiency classes				
According to rated value				
Total mains efficacy η_{TM} (lm/W)	Useful luminous flux Φ_{use} (lm) at 0h	$P_{on}(W)$	Factor F_{TM}	Energy Efficiency Class
111.0	660	6.0	1.000	E
Energy efficiency class	Total mains efficacy η_{TM} (lm/W)	Factors F_{TM} by light source type		
		Light source type	Factor F_{TM}	
A	$210 \leq \eta_{TM}$	Non-directional (NDLS) operating on mains (MLS)	1,000	
B	$185 \leq \eta_{TM} < 210$	Non-directional (NDLS) not operating on mains (NMLS)	0,926	
C	$160 \leq \eta_{TM} < 185$	Directional (DLS) operating on mains (MLS)	1,176	
D	$135 \leq \eta_{TM} < 160$	Directional (DLS) not operating on mains (NMLS)	1,089	
E	$110 \leq \eta_{TM} < 135$			
F	$85 \leq \eta_{TM} < 110$			
G	$\eta_{TM} < 85$			

According to measured value				
Total mains efficacy η_{TM} (lm/W)	Useful luminous flux Φ_{use} (lm) at 0h	$P_{on}(W)$	Factor F_{TM}	Energy Efficiency Class
130.7	737.1	5.64	1.000	E
Energy efficiency class	Total mains efficacy η_{TM} (lm/W)	Factors F_{TM} by light source type		
		Light source type	Factor F_{TM}	
A	$210 \leq \eta_{TM}$	Non-directional (NDLS) operating on mains (MLS)	1,000	
B	$185 \leq \eta_{TM} < 210$	Non-directional (NDLS) not operating on mains (NMLS)	0,926	
C	$160 \leq \eta_{TM} < 185$	Directional (DLS) operating on mains (MLS)	1,176	
D	$135 \leq \eta_{TM} < 160$	Directional (DLS) not operating on mains (NMLS)	1,089	
E	$110 \leq \eta_{TM} < 135$			
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IECEE TRF No. VC 9109

Test data sheet

Table 7

Model No.: DLL118

Energy efficiency classes				
According to rated value				
Total mains efficacy η_{TM} (lm/W)	Useful luminous flux Φ_{use} (lm) at 0h	$P_{on}(W)$	Factor F_{TM}	Energy Efficiency Class
111.0	660	6.0	1.000	E
Energy efficiency class	Total mains efficacy η_{TM} (lm/W)	Factors F_{TM} by light source type		
		Light source type	Factor F_{TM}	
A	$210 \leq \eta_{TM}$	Non-directional (NDLS) operating on mains (MLS)	1,000	
B	$185 \leq \eta_{TM} < 210$	Non-directional (NDLS) not operating on mains (NMLS)	0,926	
C	$160 \leq \eta_{TM} < 185$	Directional (DLS) operating on mains (MLS)	1,176	
D	$135 \leq \eta_{TM} < 160$	Directional (DLS) not operating on mains (NMLS)	1,089	
E	$110 \leq \eta_{TM} < 135$			
F	$85 \leq \eta_{TM} < 110$			
G	$\eta_{TM} < 85$			

According to measured value				
Total mains efficacy η_{TM} (lm/W)	Useful luminous flux Φ_{use} (lm) at 0h	$P_{on}(W)$	Factor F_{TM}	Energy Efficiency Class
136.1	752.9	5.53	1.000	D
Energy efficiency class	Total mains efficacy η_{TM} (lm/W)	Factors F_{TM} by light source type		
		Light source type	Factor F_{TM}	
A	$210 \leq \eta_{TM}$	Non-directional (NDLS) operating on mains (MLS)	1,000	
B	$185 \leq \eta_{TM} < 210$	Non-directional (NDLS) not operating on mains (NMLS)	0,926	
C	$160 \leq \eta_{TM} < 185$	Directional (DLS) operating on mains (MLS)	1,176	
D	$135 \leq \eta_{TM} < 160$	Directional (DLS) not operating on mains (NMLS)	1,089	
E	$110 \leq \eta_{TM} < 135$			
F	$85 \leq \eta_{TM} < 110$			
G	$\eta_{TM} < 85$			

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Table 7

Model No.: DLL119

Energy efficiency classes				
According to rated value				
Total mains efficacy η_{TM} (lm/W)	Useful luminous flux Φ_{use} (lm) at 0h	$P_{on}(W)$	Factor F_{TM}	Energy Efficiency Class
111.0	660	6.0	1.000	E
Energy efficiency class	Total mains efficacy η_{TM} (lm/W)	Factors F_{TM} by light source type		
		Light source type	Factor F_{TM}	
A	$210 \leq \eta_{TM}$	Non-directional (NDLS) operating on mains (MLS)	1,000	
B	$185 \leq \eta_{TM} < 210$	Non-directional (NDLS) not operating on mains (NMLS)	0,926	
C	$160 \leq \eta_{TM} < 185$	Directional (DLS) operating on mains (MLS)	1,176	
D	$135 \leq \eta_{TM} < 160$	Directional (DLS) not operating on mains (NMLS)	1,089	
E	$110 \leq \eta_{TM} < 135$			
F	$85 \leq \eta_{TM} < 110$			
G	$\eta_{TM} < 85$			

According to measured value				
Total mains efficacy η_{TM} (lm/W)	Useful luminous flux Φ_{use} (lm) at 0h	$P_{on}(W)$	Factor F_{TM}	Energy Efficiency Class
137.9	750.4	5.44	1.000	D
Energy efficiency class	Total mains efficacy η_{TM} (lm/W)	Factors F_{TM} by light source type		
		Light source type	Factor F_{TM}	
A	$210 \leq \eta_{TM}$	Non-directional (NDLS) operating on mains (MLS)	1,000	
B	$185 \leq \eta_{TM} < 210$	Non-directional (NDLS) not operating on mains (NMLS)	0,926	
C	$160 \leq \eta_{TM} < 185$	Directional (DLS) operating on mains (MLS)	1,176	
D	$135 \leq \eta_{TM} < 160$	Directional (DLS) not operating on mains (NMLS)	1,089	
E	$110 \leq \eta_{TM} < 135$			
F	$85 \leq \eta_{TM} < 110$			
G	$\eta_{TM} < 85$			

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IECEE TRF No. VC 9109

Test data sheet

Energy efficiency label: N/A

Test Equipment List

Equipment Name	Manufacturer	Model No.	Reference No.	Calibration Due Date
2m Integrating Sphere	SENSING	SL-300	AOC-S-126	2026-04-13
Horizontal Distribution Photometer	SENSING	GMS1800D	AOC-S-124	2026-04-13
Standard Lamp	SENSING	220V/150W	AOC-S-156	2026-06-05
Digital power meter	HENGHE	WT310E	AOC-S-012	2026-04-13
Digital power meter	SENSING	UI2008	AOC-S-123	2026-04-13
Digital power meter	SENSING	UI2021	AOC-S-123	2026-04-13
DC source	OYHS	OYHS-Z120V-50A	AOC-S-062	2026-04-13
Variable frequency power supply	WOSEN	BP6005	AOC-S-129	2026-04-13
Variable frequency power supply	AIPUSI	KDF-500	AOC-S-130	2026-04-13
Oscilloscope	TEKTRONIX	MDO3012	AOC-S-028	2026-04-13

Product Photo



Fig. 1

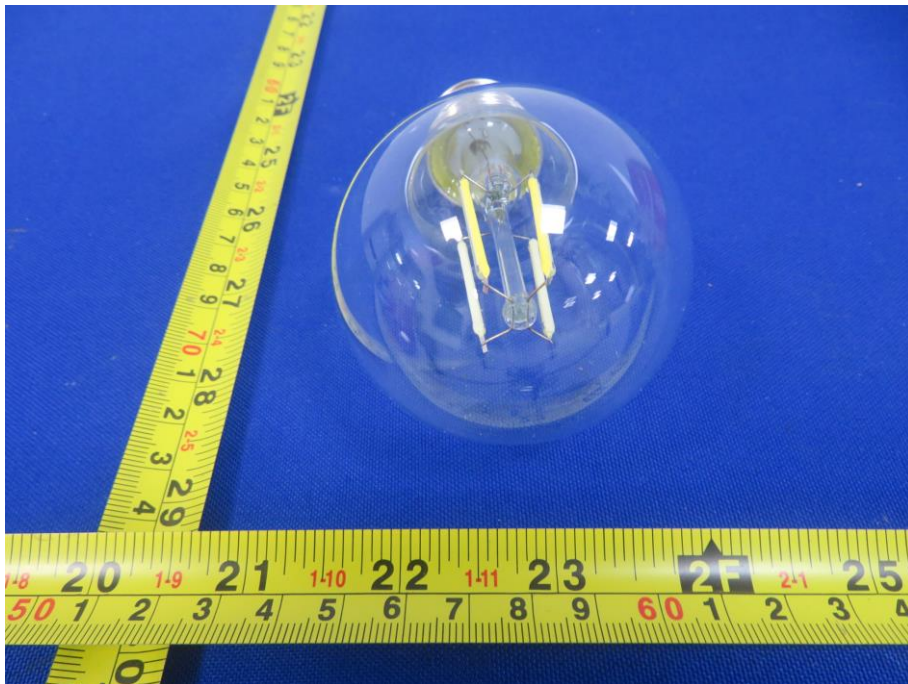


Fig. 2

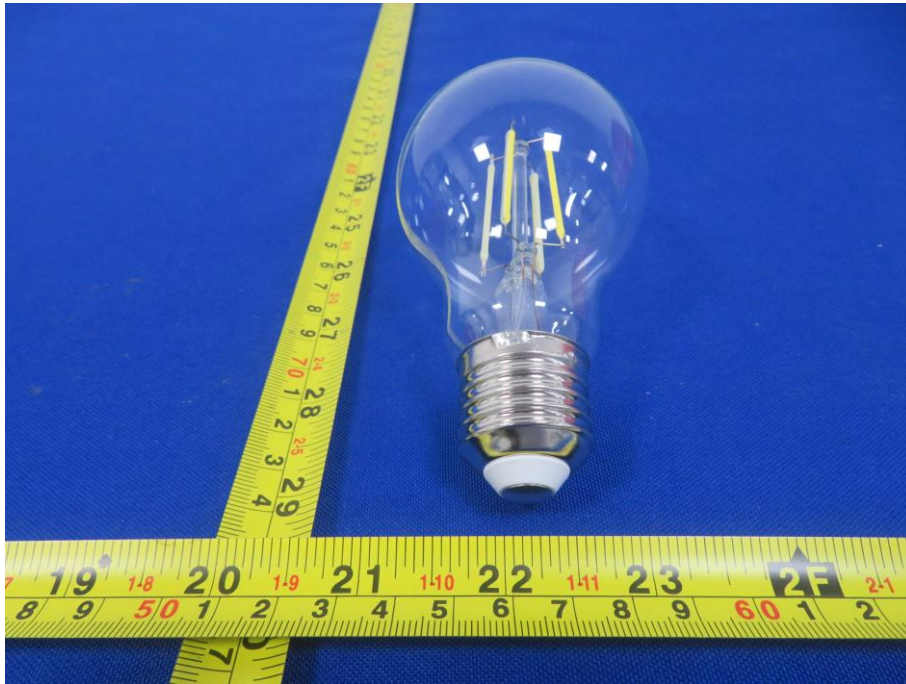


Fig. 3

-- End of Report --