



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.	AOC250916013ER
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.....	DLL200, DLL201, DLL202, DLL203, DLL204 (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 dimmable
Model: DLL200
220-240V,50/60Hz,6W,660lm



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

A60 6W 2700K dimmable
Model: DLL201
220-240V,50/60Hz,6W,660lm



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

A60 6W 3000K dimmable
Model: DLL202
220-240V,50/60Hz,6W,660lm



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

A60 6W 4000K dimmable
Model: DLL203
220-240V,50/60Hz,6W,660lm



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

A60 6W 6500K dimmable
Model: DLL204
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. DLL170, DLL171, DLL180, DLL181, DLL190, DLL191, DLL215, DLL220, DLL225, DLL230, DLL235, DLL240, DLL245, DLL250, DLL255, DLL200, DLL205 and DLL210 are different only the model name and lamp cap type, the rest are the same. 2. DLL172, DLL173, DLL182, DLL183, DLL192, DLL193, DLL216, DLL221, DLL226, DLL231, DLL236, DLL241, DLL246, DLL251, DLL256, DLL201, DLL206 and DLL211 are different only the model name and lamp cap type, the rest are the same. 3. DLL174, DLL175, DLL184, DLL185, DLL194, DLL195, DLL217, DLL222, DLL227, DLL232, DLL237, DLL242, DLL247, DLL252, DLL257, DLL202, DLL207 and DLL212 are different only the model name and lamp cap type, the rest are the same. 4. DLL176, DLL177, DLL186, DLL187, DLL196, DLL197, DLL218, DLL223, DLL228, DLL233, DLL238, DLL243, DLL248, DLL253, DLL258, DLL203, DLL208 and DLL213 are different only the model name and lamp cap type, the rest are the same. 5. DLL178, DLL179, DLL188, DLL189, DLL198, DLL199, DLL219, DLL224, DLL229, DLL234, DLL239, DLL244, DLL249, DLL254, DLL259, DLL204, DLL209 and DLL214 are different only the model name and lamp cap type, the rest are the same.	

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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																						

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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

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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																															
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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.: DLL200

Sample No.	Pon(W)	No-load power $P_{no}(W)$	Standby power $P_{sb}(W)$	Networked standby power $P_{net}(W)$	Displacement factor
S01	5.91	N/A	N/A	N/A	0.84
S02	5.95	N/A	N/A	N/A	0.85
S03	5.85	N/A	N/A	N/A	0.86
S04	5.96	N/A	N/A	N/A	0.82
S05	5.97	N/A	N/A	N/A	0.83
S06	5.85	N/A	N/A	N/A	0.85
S07	5.98	N/A	N/A	N/A	0.86
S08	5.89	N/A	N/A	N/A	0.84
S09	5.87	N/A	N/A	N/A	0.85
S10	5.89	N/A	N/A	N/A	0.82
Average value	5.91	N/A	N/A	N/A	0.84

Table 1

Model No.: DLL201

Sample No.	Pon(W)	No-load power $P_{no}(W)$	Standby power $P_{sb}(W)$	Networked standby power $P_{net}(W)$	Displacement factor
S01	5.86	N/A	N/A	N/A	0.83
S02	5.97	N/A	N/A	N/A	0.85
S03	5.87	N/A	N/A	N/A	0.83
S04	5.94	N/A	N/A	N/A	0.83
S05	5.99	N/A	N/A	N/A	0.85
S06	5.87	N/A	N/A	N/A	0.83
S07	6.03	N/A	N/A	N/A	0.85
S08	5.87	N/A	N/A	N/A	0.83
S09	5.90	N/A	N/A	N/A	0.84
S10	5.90	N/A	N/A	N/A	0.85
Average value	5.92	N/A	N/A	N/A	0.84

Table 1

Model No.: DLL202

Sample No.	Pon(W)	No-load power $P_{no}(W)$	Standby power $P_{sb}(W)$	Networked standby power $P_{net}(W)$	Displacement factor
S01	6.01	N/A	N/A	N/A	0.85
S02	6.04	N/A	N/A	N/A	0.84

Test data sheet

S03	5.99	N/A	N/A	N/A	0.84
S04	6.03	N/A	N/A	N/A	0.84
S05	6.00	N/A	N/A	N/A	0.84
S06	6.01	N/A	N/A	N/A	0.83
S07	6.03	N/A	N/A	N/A	0.83
S08	5.99	N/A	N/A	N/A	0.84
S09	6.02	N/A	N/A	N/A	0.83
S10	6.04	N/A	N/A	N/A	0.83
Average value	6.02	N/A	N/A	N/A	0.84

Table 1

Model No.: DLL203

Sample No.	Pon(W)	No-load power $P_{no}(W)$	Standby power $P_{sb}(W)$	Networked standby power $P_{net}(W)$	Displacement factor
S01	5.93	N/A	N/A	N/A	0.83
S02	5.97	N/A	N/A	N/A	0.84
S03	5.87	N/A	N/A	N/A	0.85
S04	5.98	N/A	N/A	N/A	0.81
S05	5.99	N/A	N/A	N/A	0.82
S06	5.87	N/A	N/A	N/A	0.84
S07	6.00	N/A	N/A	N/A	0.85
S08	5.91	N/A	N/A	N/A	0.83
S09	5.89	N/A	N/A	N/A	0.84
S10	5.91	N/A	N/A	N/A	0.81
Average value	5.93	N/A	N/A	N/A	0.83

Table 1

Model No.: DLL204

Sample No.	Pon(W)	No-load power $P_{no}(W)$	Standby power $P_{sb}(W)$	Networked standby power $P_{net}(W)$	Displacement factor
S01	5.88	N/A	N/A	N/A	0.82
S02	5.99	N/A	N/A	N/A	0.84
S03	5.89	N/A	N/A	N/A	0.82
S04	5.96	N/A	N/A	N/A	0.82
S05	6.01	N/A	N/A	N/A	0.84
S06	5.89	N/A	N/A	N/A	0.82
S07	6.05	N/A	N/A	N/A	0.84
S08	5.89	N/A	N/A	N/A	0.82

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Website: [Http://www.aoc-cert.com](http://www.aoc-cert.com)

Test data sheet

S09	5.92	N/A	N/A	N/A	0.83
S10	5.92	N/A	N/A	N/A	0.84
Average value	5.94	N/A	N/A	N/A	0.83

Table 2

Model No.: DLL200

Sample No.	Chromaticity Coordinates		CCT(K)	CRI	SDCM	R9
	x	y				
S01	0.4978	0.4122	2240	80.4	2.5	0
S02	0.5013	0.4149	2259	80.7	1.7	-1
S03	0.5003	0.4132	2255	80.3	1.4	0
S04	0.5018	0.4147	2245	80.2	1.4	-1
S05	0.4988	0.4127	2248	80.6	2.1	-1
S06	0.4987	0.4124	2252	80.3	2.0	0
S07	0.4999	0.4124	2239	80.5	1.3	-1
S08	0.5011	0.4136	2252	80.1	1.2	-1
S09	0.5008	0.4132	2257	80.5	1.2	0
S10	0.4998	0.4148	2244	80.4	2.4	-1
Average value	0.5000	0.4134	2249	80.4	1.7	-1

Table 2

Model No.: DLL201

Sample No.	Chromaticity Coordinates		CCT(K)	CRI	SDCM	R9
	x	y				
S01	0.4524	0.4109	2752	82.2	4.1	2
S02	0.4556	0.4129	2790	82.5	2.5	2
S03	0.4538	0.4113	2778	82.3	3.3	1
S04	0.4561	0.4129	2781	82.1	2.3	1
S05	0.4533	0.4121	2792	82.3	3.8	1
S06	0.4542	0.4104	2777	82.4	2.8	1
S07	0.4529	0.4100	2710	82.2	3.6	2
S08	0.4547	0.4117	2712	82.0	2.8	2
S09	0.4552	0.4113	2684	82.3	2.4	1
S10	0.4542	0.4129	2656	82.3	3.4	2
Average value	0.4542	0.4116	2743	82.3	3.1	2

Table 2

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Test data sheet

Model No.: DLL202

Sample No.	Chromaticity Coordinates		CCT(K)	CRI	SDCM	R9
	x	y				
S01	0.4334	0.3996	3059	82.1	3.4	5
S02	0.4365	0.4016	3074	82.2	1.9	4
S03	0.4347	0.4000	3081	82.1	2.7	5
S04	0.4356	0.4016	3037	81.9	2.4	5
S05	0.4343	0.4008	3074	82.0	3.0	4
S06	0.4336	0.3992	3092	82.2	3.2	5
S07	0.4339	0.3988	3024	82.1	3.1	5
S08	0.4356	0.4004	3057	81.9	2.2	5
S09	0.4360	0.4000	3085	82.2	2.0	4
S10	0.4352	0.4016	3030	82.2	2.6	4
Average value	0.4349	0.4004	3061	82.1	2.6	5

Table 2

Model No.: DLL203

Sample No.	Chromaticity Coordinates		CCT(K)	CRI	SDCM	R9
	x	y				
S01	0.3722	0.3739	4171	83.8	3.6	13
S02	0.3748	0.3763	4207	84.1	2.4	12
S03	0.3741	0.3748	4199	83.7	2.8	13
S04	0.3752	0.3762	4181	83.6	2.2	13
S05	0.3730	0.3743	4186	84.0	3.3	13
S06	0.3729	0.3740	4194	83.7	3.3	12
S07	0.3738	0.3741	4169	83.9	2.9	13
S08	0.3747	0.3752	4195	83.5	2.5	13
S09	0.3745	0.3748	4203	83.9	2.6	13
S10	0.3737	0.3762	4178	83.8	3.0	12
Average value	0.3739	0.3750	4188	83.8	2.9	13

Table 2

Model No.: DLL204

Sample No.	Chromaticity Coordinates		CCT(K)	CRI	SDCM	R9
	x	y				
S01	0.3135	0.3391	6375	83.3	1.2	4
S02	0.3157	0.3408	6463	83.6	2.2	5

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S03	0.3145	0.3395	6436	83.4	1.3	4
S04	0.3160	0.3408	6443	83.2	2.3	4
S05	0.3142	0.3402	6470	83.4	1.6	4
S06	0.3148	0.3388	6434	83.5	1.3	5
S07	0.3138	0.3385	6278	83.3	0.8	4
S08	0.3151	0.3398	6284	83.1	1.6	4
S09	0.3154	0.3395	6219	83.4	1.7	5
S10	0.3148	0.3408	6154	83.4	2.0	4
Average value	0.3148	0.3398	6356	83.4	1.6	4

Table 3

Model No.: DLL200

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	650.9	626.6	96.27%	100%	N/A	N/A
S02	664.5	641.8	96.57%	100%	N/A	N/A
S03	671.0	646.4	96.34%	100%	N/A	N/A
S04	660.5	637.0	96.44%	100%	N/A	N/A
S05	652.2	625.4	95.88%	100%	N/A	N/A
S06	657.5	631.7	96.07%	100%	N/A	N/A
S07	655.2	630.9	96.29%	100%	N/A	N/A
S08	658.6	632.1	95.98%	100%	N/A	N/A
S09	660.0	636.7	96.47%	100%	N/A	N/A
S10	677.6	652.3	96.27%	100%	N/A	N/A
Average value	660.8	636.1	96.26%	100%	N/A	N/A

Table 3

Model No.: DLL201

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	741.4	718.2	96.86%	100%	N/A	N/A
S02	754.0	728.6	96.63%	100%	N/A	N/A

Test data sheet

S03	759.9	732.9	96.45%	100%	N/A	N/A
S04	749.7	718.7	95.87%	100%	N/A	N/A
S05	744.6	714.9	96.01%	100%	N/A	N/A
S06	746.6	720.1	96.45%	100%	N/A	N/A
S07	747.2	717.2	95.98%	100%	N/A	N/A
S08	751.9	722.7	96.12%	100%	N/A	N/A
S09	743.1	712.8	95.91%	100%	N/A	N/A
S10	757.1	728.5	96.22%	100%	N/A	N/A
Average value	749.6	721.5	96.25%	100%	N/A	N/A

Table 3

Model No.: DLL202

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	756.9	728.7	96.27%	100%	N/A	N/A
S02	763.2	734.3	96.21%	100%	N/A	N/A
S03	767.0	736.9	96.07%	100%	N/A	N/A
S04	761.1	734.9	96.56%	100%	N/A	N/A
S05	757.4	728.1	96.14%	100%	N/A	N/A
S06	752.7	725.1	96.34%	100%	N/A	N/A
S07	759.6	729.1	95.99%	100%	N/A	N/A
S08	736.1	708.8	96.28%	100%	N/A	N/A
S09	750.4	721.8	96.19%	100%	N/A	N/A
S10	765.0	735.2	96.11%	100%	N/A	N/A
Average value	756.9	728.3	96.22%	100%	N/A	N/A

Table 3

Model No.: DLL203

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	778.4	749.8	96.32%	100%	N/A	N/A
S02	794.8	767.9	96.62%	100%	N/A	N/A
S03	802.5	773.5	96.39%	100%	N/A	N/A

Test data sheet

S04	790.0	762.3	96.49%	100%	N/A	N/A
S05	780.0	748.3	95.93%	100%	N/A	N/A
S06	786.3	755.8	96.12%	100%	N/A	N/A
S07	783.6	754.9	96.34%	100%	N/A	N/A
S08	787.6	756.4	96.03%	100%	N/A	N/A
S09	789.3	761.9	96.52%	100%	N/A	N/A
S10	810.4	780.6	96.32%	100%	N/A	N/A
Average value	790.3	761.1	96.31%	100%	N/A	N/A

Table 3

Model No.: DLL204

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	768.9	744.9	96.87%	100%	N/A	N/A
S02	781.9	755.7	96.64%	100%	N/A	N/A
S03	788.1	760.2	96.46%	100%	N/A	N/A
S04	777.5	745.5	95.88%	100%	N/A	N/A
S05	772.2	741.5	96.02%	100%	N/A	N/A
S06	774.3	746.9	96.46%	100%	N/A	N/A
S07	775.0	743.9	95.99%	100%	N/A	N/A
S08	779.8	749.6	96.13%	100%	N/A	N/A
S09	770.7	739.3	95.92%	100%	N/A	N/A
S10	785.2	755.6	96.23%	100%	N/A	N/A
Average value	777.4	748.3	96.26%	100%	N/A	N/A

Table 4

Model No.: DLL200

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	0.176	0.121
S02	0.200	0.097
S03	0.180	0.106
S04	0.224	0.112
S05	0.205	0.111

Test data sheet

S06	0.238	0.104
S07	0.227	0.112
S08	0.192	0.103
S09	0.186	0.110
S10	0.193	0.107
Average value	0.202	0.108

Table 4

Model No.: DLL201

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	0.118
S02	0.199	0.113
S03	0.193	0.101
S04	0.244	0.099
S05	0.210	0.105
S06	0.255	0.116
S07	0.241	0.087
S08	0.244	0.124
S09	0.204	0.101
S10	0.230	0.107
Average value	0.221	0.107

Table 4

Model No.: DLL202

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	0.208	0.129
S02	0.237	0.119
S03	0.173	0.123
S04	0.195	0.118
S05	0.170	0.111
S06	0.179	0.125
S07	0.166	0.120
S08	0.227	0.119
S09	0.218	0.134
S10	0.182	0.122
Average value	0.196	0.122

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	0.212	0.122
S02	0.240	0.097
S03	0.215	0.107
S04	0.269	0.113
S05	0.246	0.112
S06	0.285	0.105
S07	0.272	0.113
S08	0.230	0.104
S09	0.223	0.111
S10	0.231	0.108
Average value	0.242	0.109

Table 4

Model No.: DLL204

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	0.238	0.137
S02	0.249	0.131
S03	0.242	0.117
S04	0.305	0.114
S05	0.263	0.122
S06	0.319	0.134
S07	0.301	0.101
S08	0.305	0.143
S09	0.256	0.117
S10	0.287	0.123
Average value	0.276	0.124

Test data sheet

Table 5

Model No.: DLL200

Spectral Distribution

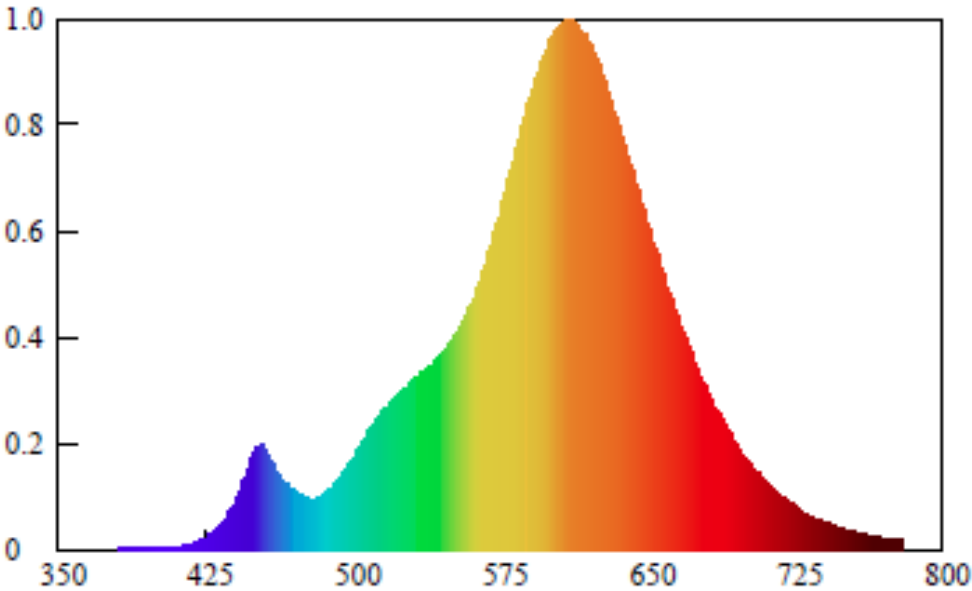
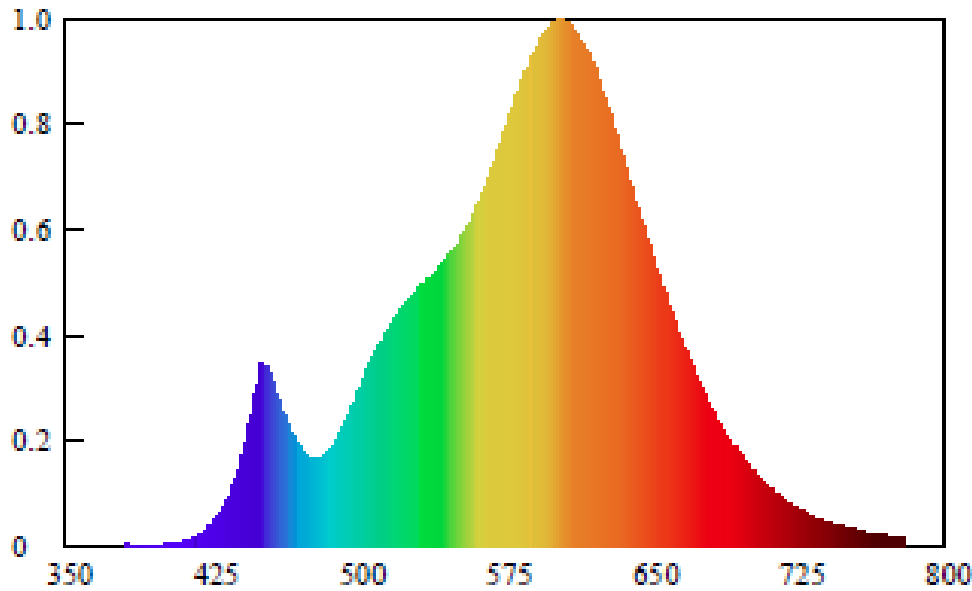


Table 5

Model No.: DLL201

Spectral Distribution



Test data sheet

Table 5

Model No.: DLL202

Spectral Distribution

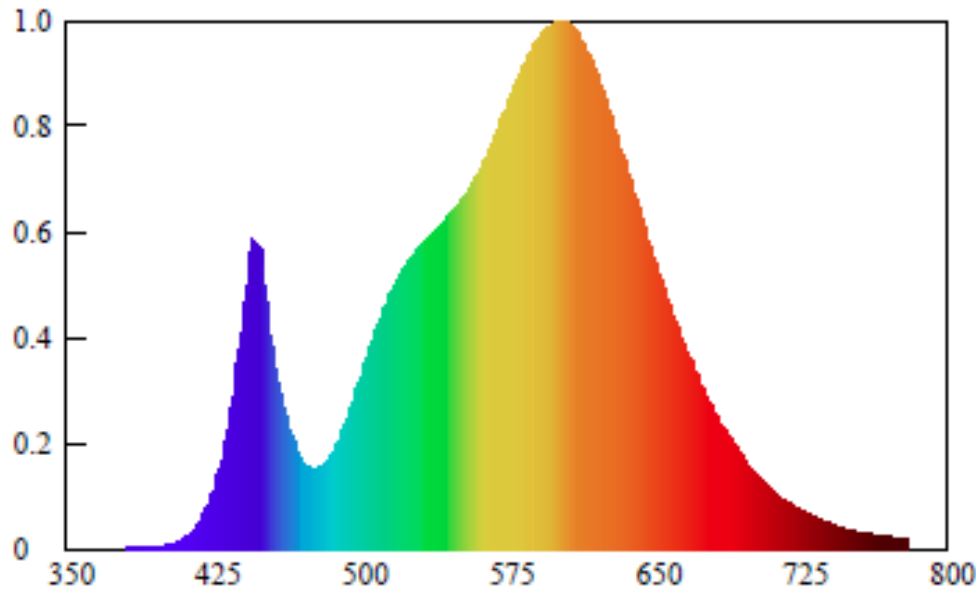
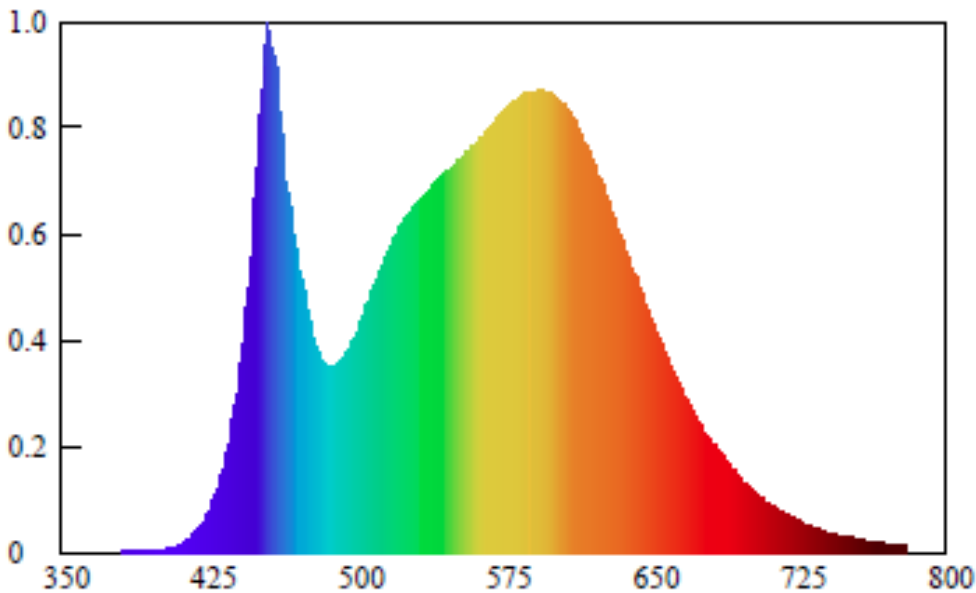


Table 5

Model No.: DLL203

Spectral Distribution

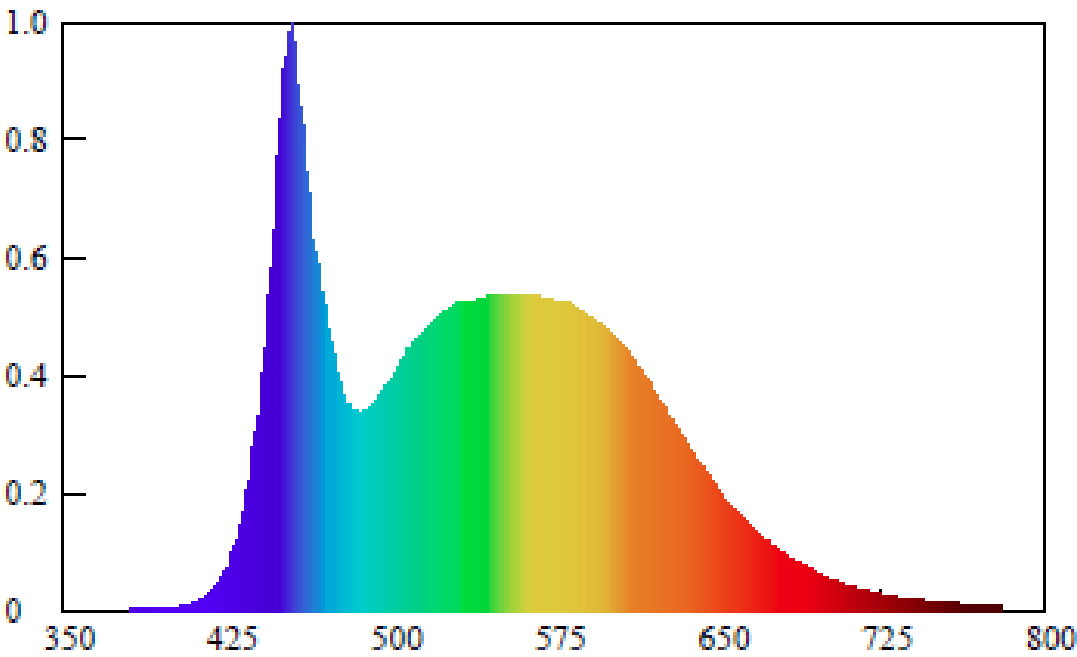


Test data sheet

Table 5

Model No.: DLL204

Spectral Distribution



Test data sheet

Table 7

Model No.: DLL200

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
111.8	660.8	5.91	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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Test data sheet

Table 7

Model No.: DLL201

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
126.6	749.6	5.92	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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Table 7

Model No.: DLL202

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
125.7	756.9	6.02	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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Table 7

Model No.: DLL203

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
133.3	790.3	5.93	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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Table 7

Model No.: DLL204

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
130.9	777.4	5.94	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

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

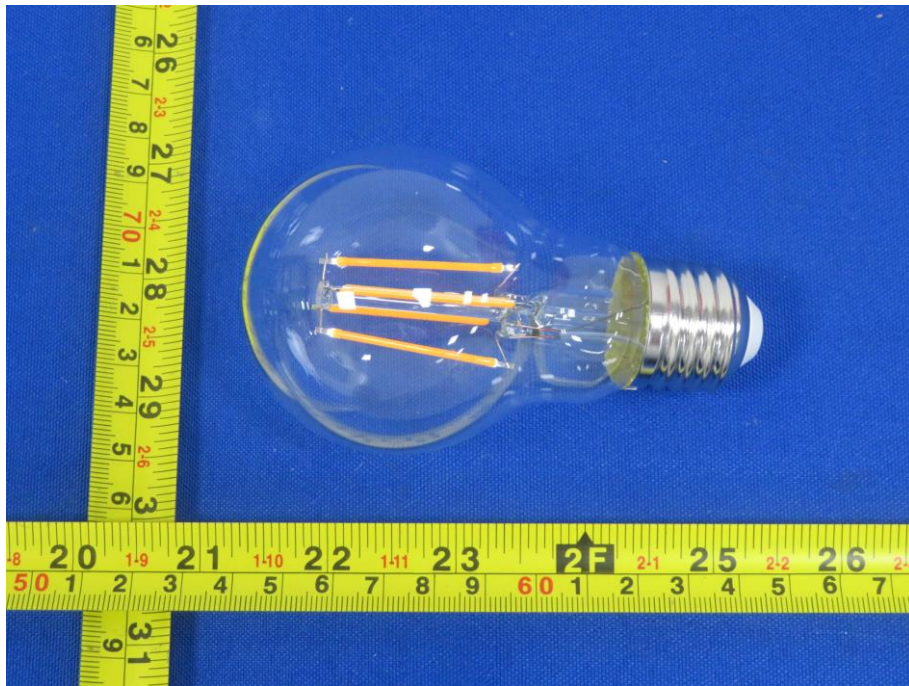


Fig. 1



Fig. 2



Fig. 3

-- End of Report --