



TEST REPORT

Job No. 170400516SHA

Date: Apr 12, 2017

REPORT NO. 170400516SHA-002

TEST OF ONE LED Luminaire
MODEL NO. L23FM16ALDIM/40K

RENDERED TO
Overdrive Electronics Pvt. Ltd
C-121, Hosiery Complex, Phase2 Extn.

TEST: Electrical and Photometric as required to the IESNA LM-79 test standard.

LABORATORY NOTE: The laboratory that conducted the testing detailed in this report has been Qualified, Verified, and Recognized for LM-79 Testing for ENERGY STAR for Luminaires by NVLAP program.

AUTHORIZATION: The testing performed was authorized by signed quote number QSH170408009.

STANDARDS USED: The following American National Standards or Illuminating Engineering Society of North America Test Guides were used in part or totally to test each specimen:
NEMA ANSLG C78.377: 2008 Specifications of the Chromaticity of Solid State Lighting Products
IESNA LM-79: 2008 Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products

DESCRIPTION OF SAMPLE: The client submitted one samples of model L23FM16ALDIM/40K. The sample was received by Intertek on Apr 01, 2017, in undamaged condition, and one sample was tested as received. The sample designations was 0170401-44-002.

DATES OF TESTS: Apr 01, 2017 through Apr 11, 2017

ISSUED BY: Intertek Testing Services Shanghai

TEST LOCATION: 7 floor, No.51, 1089 Qinzhou Road (North), Shanghai, China 200233

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SUMMARY

Model Number :	L23FM16ALDIM/40K
Description :	LED Luminaire

Test Condition: 120V 60Hz for L23FM16ALDIM/40K

Criteria	Result
Total Lumen Output	1975.3lm
Total Power	22.17W
Luminaire Efficacy	89.09lm/W
Power Factor	0.9790
Correlated Color Temperature (CCT)	4156K
Color Rendering Index (CRI)	84.1
Chromaticity Coordinate (x)	0.3738
Chromaticity Coordinate (y)	0.3727
Chromaticity Coordinate (u')	0.2223
Chromaticity Coordinate (v')	0.4988

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EQUIPMENT LIST

Equipment Used	Model Number	Control Number
Fluke Temperature Meter	52	EC2357
Everfine- DC Power Supply	WY12010	EC4753-7
Everfine- AC power source for Integrating Sphere System	VPS1010 PWM	EC4760-12
Everfine - AC power source for Goniophotometer System	VPS1060 PWM	EC4753-8
Two meter integrating sphere unit	Everfine – 2M	EC4760
Everfine - Digital Power Meter	PF2010A	EC4760-10
YOKOGAWA - Digital Power Meter	WT210	EC4553
Everfine – Goniophotometer	Go-R5000	EC4753

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TEST METHOD

Seasoning in Sample Orientation – LED Products

No seasoning was performed in accordance with IESNA LM-79

Light Distribution and Output Measurements

Light Distribution and total light output (luminous flux) were measured using a Go-R5000 Type-C Rotating Mirror Goniophotometer. Temperature 25°C and relative humidity of 60% was measured at a position in the testing laboratory.

The lamp rotates only around the fixed vertical axle in the prescribed burning position. The lamp and mirror permit the measurement of luminous intensity at the direction of any horizontal or vertical angle without tilting the lamp. The lamp was allowed to stabilize before measurements were made.

Chromaticity Measurements

Chromaticity was measured using a 2 meters integrating sphere spectral lamp measurement system. Temperature was measured at a position inside the sphere shielded from direct light. Relative humidity of 65% was measured at a position in the testing laboratory.

Spectral radiant flux measurements were made using spectroradiometer attached to the detector port of the integrating sphere. Each lamp was allowed to stabilise before measurements were made. The calibration of the integrating sphere spectroradiometer system is by the reference/standard lamps which are traceable to National Institute of Metrology P.R. CHINA. Lamp efficacy (lumens per watt) for each lamp model was then computed based on the luminous flux result. Electrical measurements including voltage, power and power factor were measured using YOKOGAWA - Digital Power Meter., model WT210.

Standard lamp used:
Model: Labsphere SCL-1400
Current: 2.679A

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RESULTS OF TESTS

Test Condition: 120V 60Hz for L23FM16ALDIM/40K

Total operation burning time: 71 min

Stabilization time: 61 min

Photometric Measurements at 25°C

Intertek Sample No.	Base Orientation	Correlated Color Temperature (K)	CRI	CIE 31' Chromaticity Coordinate (x)	CIE 31' Chromaticity Coordinate (y)	CIE 76' Chromaticity Coordinate (u')	CIE 76' Chromaticity Coordinate (v')
L23FM16ALDIM/40K							
0170401- 44-002	N/A	4156	84.1	0.3738	0.3727	0.2223	0.4988

Photometric and Electrical Measurements at 25°C

Intertek Sample No.	Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (Watts)	Input Power Factor	Absolute Luminous Flux (Lumens)	Lumen Efficacy (Lumens Per Watt)
L23FM16ALDIM/40K							
0170401- 44-002	N/A	120	188.6	22.17	0.9790	1975.31	89.09

Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens (lm)	% Luminaire (%)
L23FM16ALDIM/40K		
0-30	434.82	22.01
0-40	716.92	36.29
0-60	1293.99	65.51
0-135	1957.67	99.11
0-180	1975.30	100

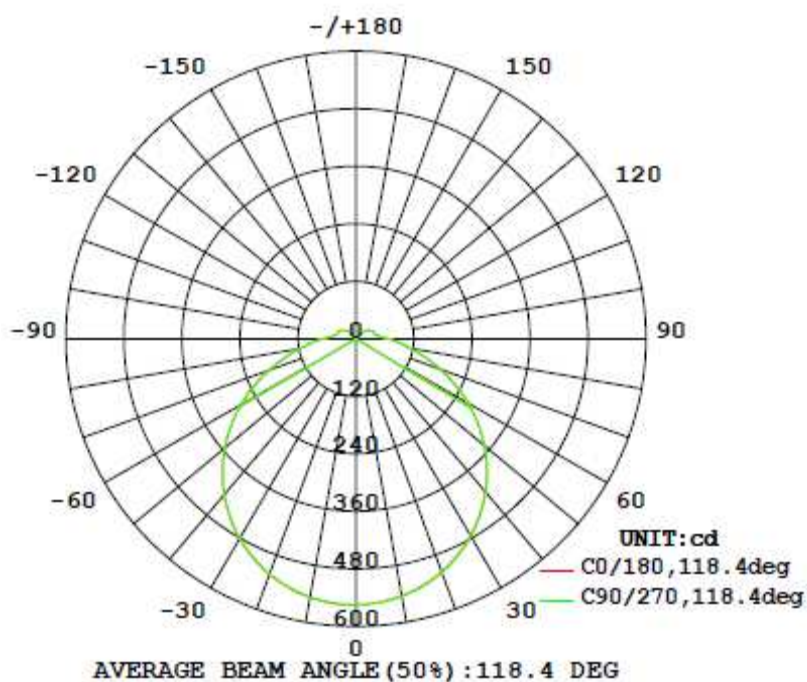
Beam Angle

	Horizontal Spread (°)	Vertical Spread (°)
L23FM16ALDIM/40K		
Beam (50%)	118.4	118.4

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**RESULTS OF TESTS** (cont'd)**Intensity (Candlepower) Summary at 25°C – Candelas****Test Condition: 120V 60Hz for L23FM16ALDIM/40K**

V\ H(°)	0	22.5	45	67.5	90
0	554.7	554.9	555.2	554.9	554.8
5	552.7	552.8	552.9	552.3	551.8
10	546.4	546.1	546.0	545.3	544.3
15	536.1	535.5	535.2	534.3	533.0
20	521.5	520.9	520.4	519.3	517.5
25	502.8	502.0	501.4	500.1	497.8
30	480.0	479.2	478.4	476.9	474.1
35	453.2	452.2	451.3	449.9	446.7
40	423.1	422.2	421.2	419.6	416.2
45	390.0	389.0	387.8	386.2	382.8
50	353.9	352.9	351.6	349.9	346.4
55	315.3	314.3	312.9	311.1	307.6
60	274.7	273.7	272.1	270.5	267.1
65	233.0	231.9	230.5	228.8	225.8
70	191.8	190.8	189.3	187.9	185.1
75	153.3	152.3	151.0	149.6	147.6
80	119.7	118.8	117.6	116.6	115.2
85	92.2	91.4	90.4	89.6	88.7
90	69.7	69.2	68.2	67.6	67.0

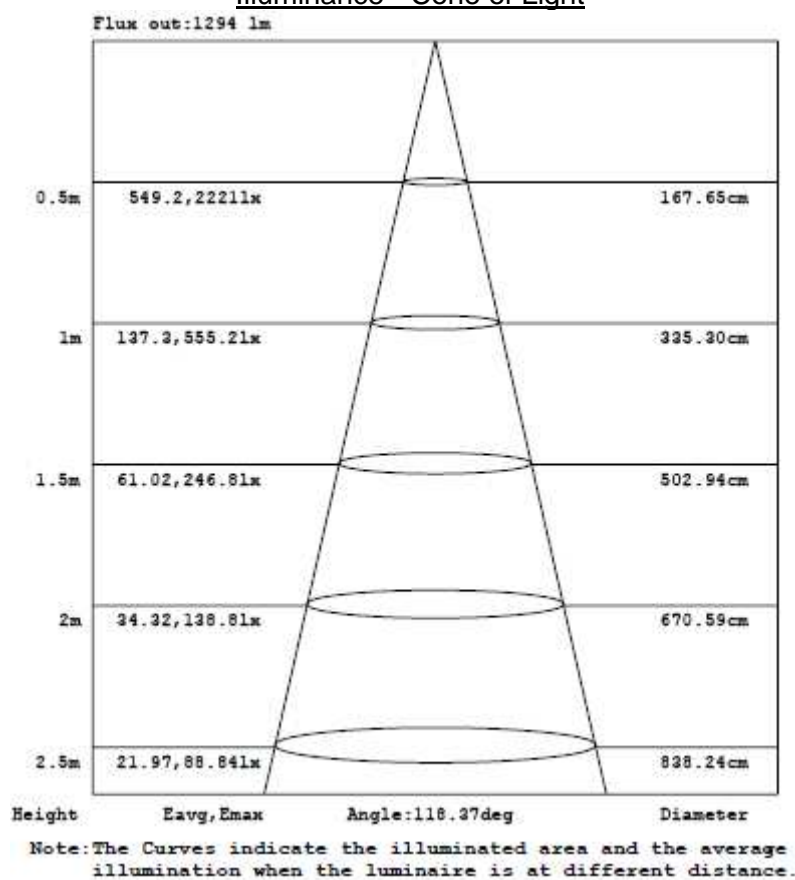


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**RESULTS OF TESTS** (cont'd)**Test Condition: 120V 60Hz for L23FM16ALDIM/40K**Illumination Plots

Model No.: L23FM16ALDIM/40K

Mount Height: 2.5 m

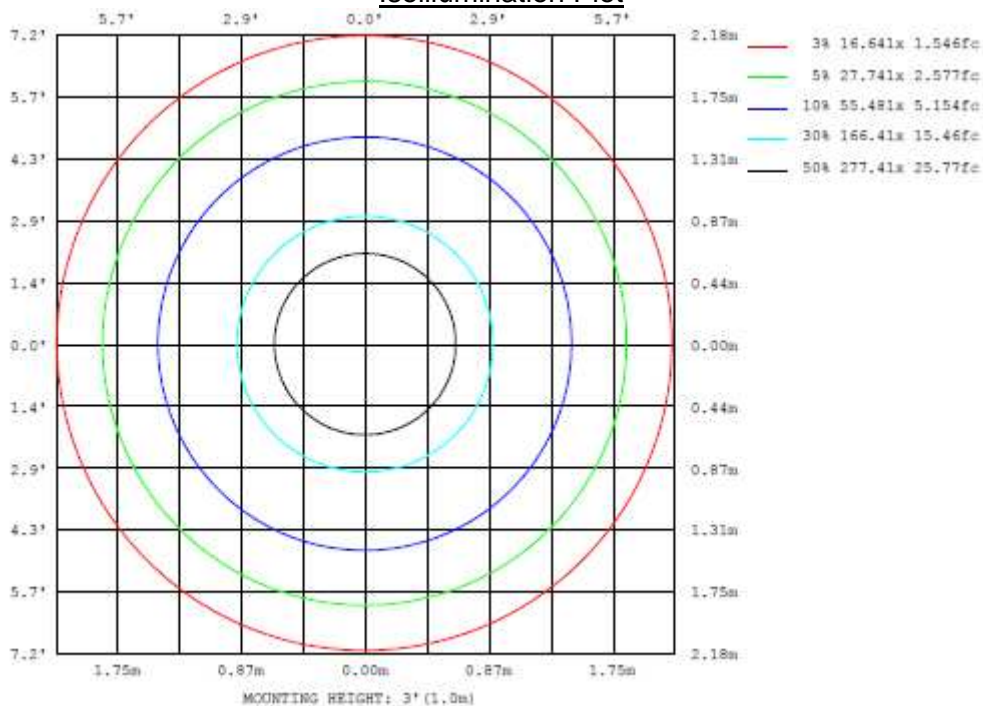
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**RESULTS OF TESTS** (cont'd)**Test Condition: 120V 60Hz for L23FM16ALDIM/40K**

Model No.: L23FM16ALDIM/40K

Mount Height: 3 m

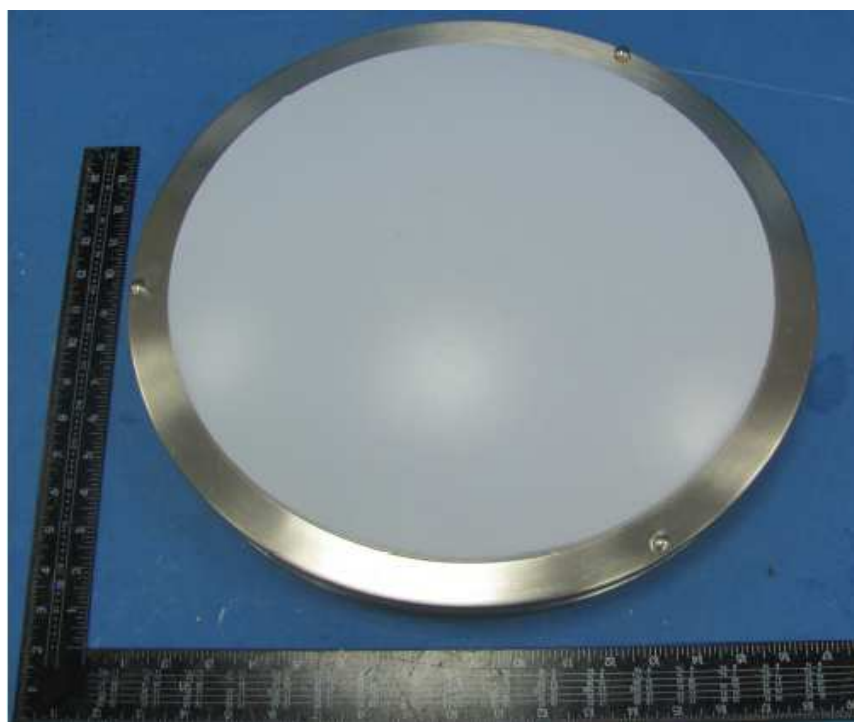
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RESULTS OF TESTS (cont'd)

Product Picture (not to scale)



External view

In Charge Of Tests:

Jordan

Jordan Rao
Project Engineer

Report Reviewed By:

Jim

Jimmy Wang
Reviewer

Attachment: None

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