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THE LIGHT CENTER OF THE INDUSTRY SINCE 1955

INDEPENDENT TESTING LABORATORIES, INC.
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REPORT NUMBER: ITL62710 Page 1 of 1
DATE: 7/26/09
PREPARED FOR: LEDENGIN, INC.

CATALOG NUMBER: LS17-002W14 UJ3 2468 12DEG

LUMINAIRE: CAST BLACK PAINTED METAL UPPER HOUSING, CAST BLACK PAINTED FINNED METAL LOWER HOUSING, BLACK CIRCUIT BOARD WITH ONE LED CHIP, UNFINISHED GENERAL INTERIOR, CLEAR CONICAL PLASTIC LENS WITH CYLINDRICAL CENTER APERTURE AND HONEYCOMB PATTERN ON LOWER SURFACE.

LAMP: ONE CHIP WITH AN ARRAY OF FOUR WHITE LIGHT EMITTING DIODES (LEDS) AND ONE CLEAR HEMISPHERICAL INTEGRAL LENS, VERTICAL BASE-UP POSITION.

LED DRIVER: INTEGRATED

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT CUSTOMER SPECIFIED INPUT VOLTAGE (24VDC) TO THE LED DRIVER.

INSTRUMENTATION: Topward 3306D DC Power Supply
Yokogawa WT210 Digital Power Meter
Optronics OL770 Spectroradiometer
ITL 1.5 Meter Diameter Integrating Sphere

OBJECT OF TEST: Measure the Correlated Color Temperature (CCT), Color Rendering Index (CRI), Chromaticity Coordinates (x,y), ANSI C78.377 Duv, and input electrical parameters.

PROCEDURE: The luminaire was provided by customer and the LEDs had an unknown number of burn hours. The luminaire was mounted inside the integrating sphere with the luminaire in a base up position (LEDs aimed down). The luminaire was allowed to stabilize at 24 VDC input. After stabilization occurred, CCT, CRI, x/y chromaticity coordinates, ANSI C78.377 Duv, and input electrical data were measured with the luminaire operating in the integrating sphere. In order to measure the mean performance, twenty data sets were recorded and averaged within the OL770. Readings were taken with the luminaire operating at 24 VDC input in a 25 +/-1 degree Celsius free air ambient and in accordance with IESNA LM-79-08. All data are traceable to the National Institute of Standards and Technology.

RESULTS:

SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Correlated Color Temp CCT (K)	3126
Chromaticity Ordinate x	0.4279
Chromaticity Ordinate y	0.4001
Color Rendering Index (CRI)	80
ANSI C78.377-2008 Duv	0.000
ELECTRICAL	
Input Voltage (Volts DC)	24.0
Input Current (mA DC)	648
Input Power (Watts)	15.6

Checked:	<i>N Gully</i>
Approved:	<i>R Bergin</i>

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REPORT NUMBER: ITL62707

DATE: 07/23/09

PREPARED FOR: LEDENGIN, INC.

CATALOG NUMBER: LS17-002W14 UJ3 2468 12DEG

LUMINAIRE: CAST BLACK PAINTED METAL UPPER HOUSING, CAST BLACK PAINTED FINNED METAL LOWER HOUSING, BLACK CIRCUIT BOARD WITH ONE LED CHIP, UNFINISHED GENERAL INTERIOR, CLEAR CONICAL PLASTIC LENS WITH CYLINDRICAL CENTER APERTURE AND HONEYCOMB PATTERN ON LOWER SURFACE.

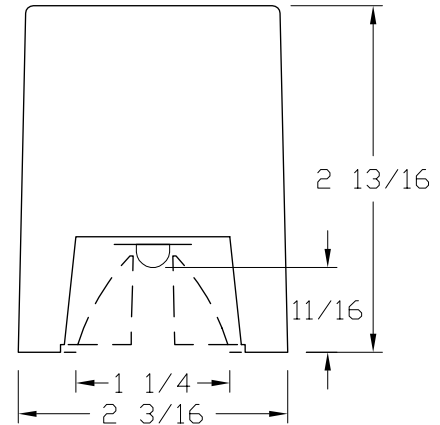
LAMP: ONE CHIP WITH AN ARRAY OF FOUR WHITE LIGHT EMITTING DIODES (LEDS) AND ONE CLEAR HEMISPHERICAL INTEGRAL LENS, VERTICAL BASE-UP POSITION.

TOTAL INPUT WATTS = 15.6 AT 24.0 VOLTS DC

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT CUSTOMER SPECIFIED INPUT VOLTAGE (24VDC) TO THE LED UNIT.

TEST PROCEDURE: IESNA LM-79-08

TEST DISTANCE = 25.25 FEET



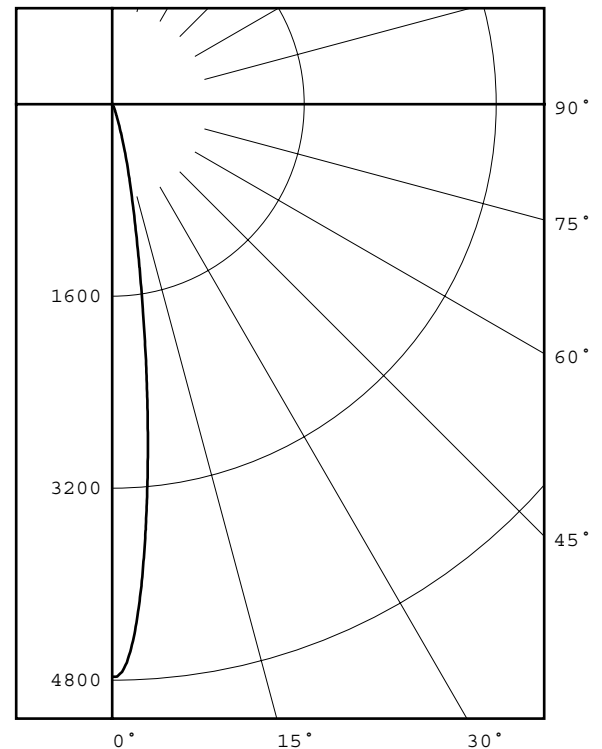
DEG	CANDELA	LUMENS
0	4771	
5	3318	244
15	404	122
25	46	23
35	7	5
45	4	2
55	2	2
65	2	1
75	2	1
85	0	0
90	0	0

ZONAL LUMEN SUMMARY		
ZONE	LUMENS	%FIXT
0- 30	390	96.4
0- 40	396	97.8
0- 60	401	99.0
0- 90	405	100.0
90-180	0	0.0
0-180	405	100.0

EFFICACY = 26.0 Lm/W
CIE TYPE - DIRECT
LUMINAIRE SPACING CRITERION = 0.2
LUMINOUS DIAMETER: 1.250

LUMINANCE DATA IN CANDELA/SQ M
ANGLE AVERAGE
IN DEG

45	7145.
55	4404.
65	5977.
75	9760.
85	0.



Checked *N. WHITE*

Approved *R. BEATTIE*



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CANDELA DISTRIBUTION

0.0	4771	82.5	1
0.5	4770	85.0	0
1.0	4731	87.5	0
1.5	4655	90.0	0
2.0	4538		
2.5	4390		
3.0	4209		
3.5	4011		
4.0	3786		
4.5	3558		
5.0	3318		
5.5	3085		
6.0	2848		
6.5	2612		
7.0	2377		
7.5	2154		
8.0	1931		
8.5	1731		
9.0	1543		
9.5	1377		
10.0	1227		
10.5	1098		
11.0	980		
11.5	881		
12.0	790		
12.5	711		
13.0	638		
13.5	571		
14.0	511		
14.5	455		
15.0	404		
15.5	359		
16.0	317		
16.5	280		
17.0	247		
17.5	217		
18.0	191		
18.5	169		
19.0	150		
19.5	134		
20.0	119		
22.5	70		
25.0	46		
27.5	29		
30.0	19		
32.5	12		
35.0	7		
37.5	6		
40.0	5		
42.5	4		
45.0	4		
47.5	3		
50.0	3		
52.5	3		
55.0	2		
57.5	2		
60.0	2		
62.5	2		
65.0	2		
67.5	2		
70.0	2		
72.5	2		
75.0	2		
77.5	1		
80.0	1		

ZONAL LUMEN SUMMARY

0- 5	96.
5- 10	148.
10- 15	85.
15- 20	37.
20- 25	16.
25- 30	8.
30- 35	4.
35- 40	2.
40- 45	2.
45- 50	1.
50- 55	1.
55- 60	1.
60- 65	1.
65- 70	1.
70- 75	1.
75- 80	1.
80- 85	0.
85- 90	0.
90- 95	0.
95-100	0.
100-105	0.
105-110	0.
110-115	0.
115-120	0.
120-125	0.
125-130	0.
130-135	0.
135-140	0.
140-145	0.
145-150	0.
150-155	0.
155-160	0.
160-165	0.
165-170	0.
170-175	0.
175-180	0.



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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	115	113	112	110	113	111	110	108	107	106	105	104	103	102	100	100	99	97
2	112	109	106	104	110	107	105	103	104	102	101	101	100	99	99	98	97	95
3	109	105	102	100	108	104	101	99	102	99	97	99	98	96	97	96	95	93
4	107	102	99	96	105	101	98	96	99	97	95	98	95	94	96	94	93	92
5	105	100	96	94	103	99	96	93	97	95	93	96	94	92	95	93	91	90
6	102	97	94	91	101	97	93	91	95	93	91	94	92	90	93	91	90	89
7	100	95	92	90	100	95	92	89	94	91	89	93	90	89	92	90	88	87
8	99	93	90	88	98	93	90	88	92	89	87	91	89	87	91	88	87	86
9	97	92	89	86	96	91	88	86	91	88	86	90	88	86	89	87	86	85
10	96	90	87	85	95	90	87	85	89	87	85	89	86	85	88	86	84	84

ALL CANDELA, LUMENS, LUMINANCE, AND VCP VALUES IN THIS REPORT ARE BASED ON ABSOLUTE PHOTOMETRY. THE COEFFICIENT OF UTILIZATION VALUES ARE BASED ON THE TOTAL ABSOLUTE LUMEN OUTPUT OF THIS LUMINAIRE SAMPLE.