



# REPORT

545 E. Algonquin Rd., Arlington Heights, IL 60005

Project No. G101518786

Date: August 13, 2014

REPORT NO. 101518786CHI-047D

TEST OF ONE LED RECESSED LUMINAIRE

MODEL NO. EMO11L-LH8303ANB  
LED MODEL NO. CITIZEN CLU024-1203B8-303M1A2  
DRIVER MODEL NO. LTF DA18W440C

RENDERED TO

GENERATION BRANDS  
7400 LINDER AVE  
SKOKIE, IL 60077

TEST: Electrical and Photometric tests as required to the IESNA test standard.

STATEMENT OF LIMITATION: This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

AUTHORIZATION: The testing performed was authorized by signed quote number 500506211.

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:

IESNA LM-79 - 2008: Electrical and Photometric Measurements of Solid State Lighting

DESCRIPTION OF SAMPLE: The client submitted one production sample of model number EMO11L-LH8303ANB. The sample was received by Intertek on July 29, 2014, in undamaged condition and one sample was tested as received. The sample designation was 07292014113320.

DATE OF TEST: August 7, 2014



## SUMMARY

Model No.:	EMO11L-LH8303ANB
Description:	LED Recessed Luminaire

Criteria	Result
Total Lumen Output (Lumens)	1114
Total Power (W)	18.70
Luminaire Efficacy (LPW)	59.57
Power Factor	0.980

## EQUIPMENT LIST

Equipment Used	Model Number	Control Number	Last Date Calibrated	Calibration Due Date
Yokogawa Power Meter	WT210	146919	07/16/14	07/16/15
Omega Newport Thermometer	DPI8-C24	146920	12/04/13	12/04/14
LSI High Speed Mirror Goniometer	6440T	146928	VBU	VBU
Newport Hygrometer	iServer	146956	01/02/14	01/02/15
Elgar, AC Power Supply	CW1251P	146918	VBU	VBU
Cole-Parmer Triple Timer	94440-00	CHI0041	04/01/14	04/01/15

## TEST METHODS

### Seasoning in Sample Orientation – LED Products

No seasoning was performed in accordance with IESNA LM-79.

### Photometric and Electrical Measurements – Distribution Method

A LSI Type C High Speed Model 6440 Mirror Goniometer was used to measure the intensity (candelas) at each angle of distribution for each sample.

Ambient temperature was measured equal to the height of the sample mounted on the Goniometer equipment. Each sample was operated at input rated voltage in its designated orientation. Each sample was allowed to stabilize for at least thirty minutes before measurements were made. Electrical measurements including voltage, current, and power were measured using the Xitron or Yokogawa Power Analyzer.

Some graphics were created with Photometrics Plus software.

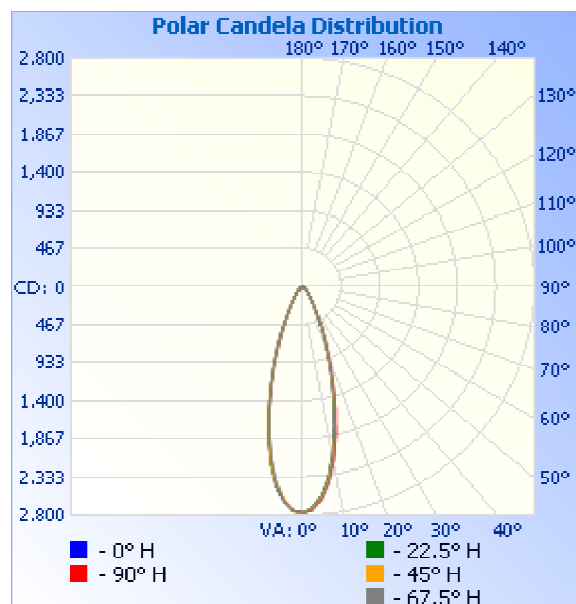
## RESULTS OF TEST

### Photometric and Electrical Measurements at Ambient Temperature (25°C +/- 1°C) – Distribution Method

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)
07292014113320	UP	120.0	159.0	18.70	0.980	1114	59.57

### Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	22.5	45	67.5	90
0	2770	2770	2770	2770	2770
5	2582	2578	2594	2617	2624
10	2101	2096	2117	2152	2177
15	1458	1462	1483	1516	1539
20	898	901	917	945	962
25	509	510	519	539	549
30	273	275	280	293	299
35	148	149	153	161	165
40	85	86	88	94	96
45	53	54	56	59	61
50	36	36	38	40	42
55	25	25	26	28	30
60	16	16	17	19	20
65	9	9	10	11	11
70	4	4	5	6	6
75	0	0	0	1	1
80	0	0	0	0	0
85	0	0	0	0	0
90	0	0	0	0	0



### Spacing Criterion:

Spacing Criterion (0-180):	0.52
Spacing Criterion (90-270):	0.54
Spacing Criterion (Diagonal):	0.56

### Coefficients Of Utilization - Zonal Cavity Method

Effective Floor Cavity Reflectance 0.20

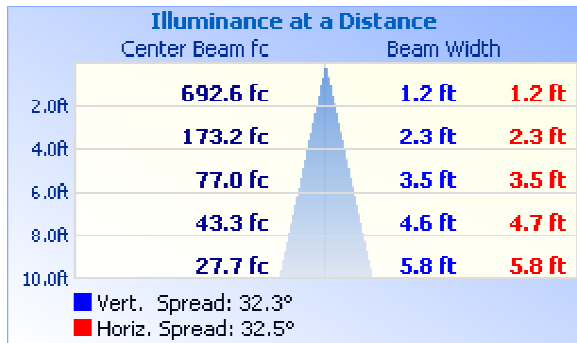
RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	114	112	109	107	112	109	107	106	105	104	102	102	100	99	98	97	96	95
2	109	105	101	98	107	103	100	97	100	97	95	97	95	93	94	92	91	89
3	104	99	94	91	103	97	93	90	95	91	88	92	90	87	90	88	86	84
4	100	93	88	85	98	92	88	84	90	86	83	88	85	82	86	84	81	80
5	96	88	83	79	94	88	83	79	86	82	78	84	81	78	83	80	77	76
6	92	84	79	75	91	83	78	75	82	78	74	81	77	74	79	76	73	72
7	88	80	75	71	87	80	75	71	78	74	71	77	73	70	76	73	70	69
8	85	77	71	68	84	76	71	68	75	71	68	74	70	67	73	70	67	66
9	82	73	68	65	81	73	68	65	72	68	65	71	67	64	71	67	64	63
10	79	71	65	62	78	70	65	62	69	65	62	69	65	62	68	64	62	60

## RESULTS OF TEST (cont'd)

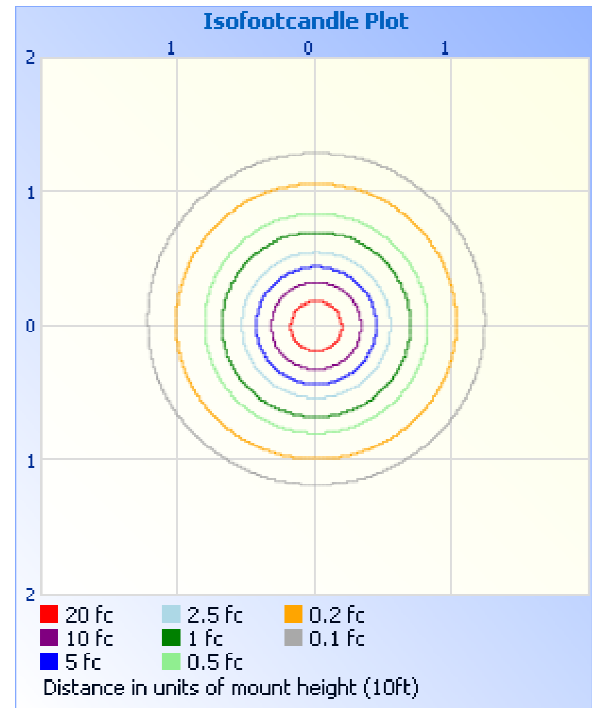
### Illumination Plots

Mounting Height: 10 ft.

Illuminance - Cone of Light



Isoillumination Plot



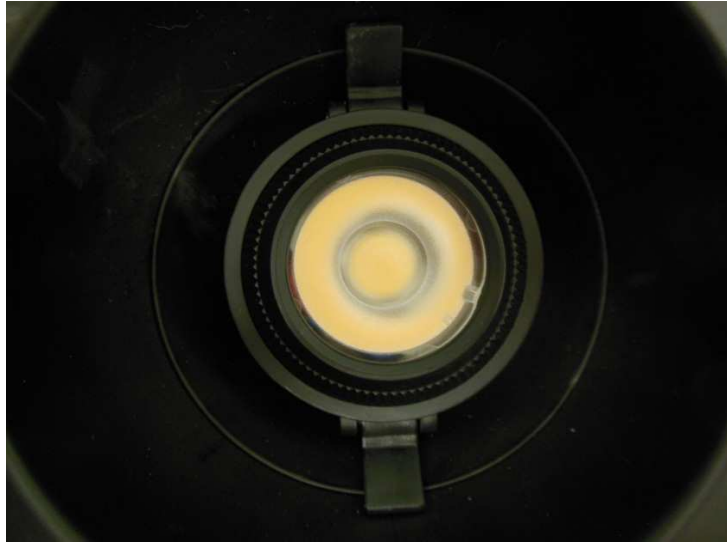
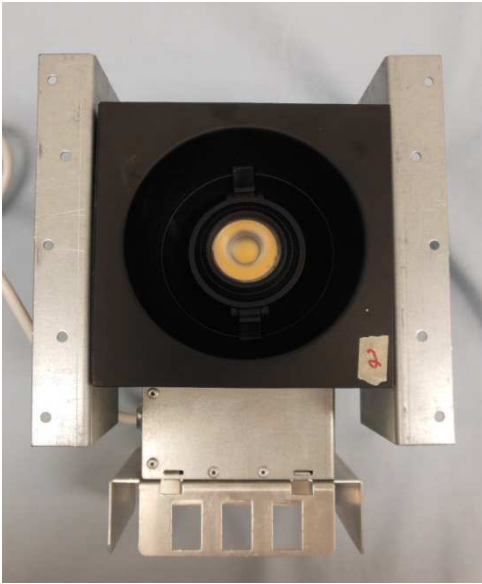
Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	912.1	81.9
0-40	1022	91.8
0-60	1100	98.8
60-90	13.8	1.2
0-90	1114	100.0
90-180	0.0	0.0
0-180	1114	100.0

Zonal Lumens and Percentages at 25°C

Zone	Lumens	% Luminaire
0-10	234.2	21.0
10-20	418.5	37.6
20-30	259.5	23.3
30-40	110.2	9.9
40-50	49.9	4.5
50-60	27.4	2.5
60-70	11.6	1.0
70-80	2.2	0.2
80-90	0.0	0.0

PICTURE (not to scale)



#### CONCLUSION

The results tabulated in this report are representative of the actual test samples submitted for this report only. The data is provided to the client for further evaluation. Compliance to the referenced specification requirements was not determined in this report.

In Charge Of Tests:



Tim Quigley  
Engineer  
Lighting Division

Attachment: None

Report Reviewed By:



Joe Schledorn  
Engineering Team Lead  
Lighting Division