



# REPORT

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

Project No. G101518786

Date: August 13, 2014

REPORT NO. 101518786CHI-046D

TEST OF ONE LED RECESSED LUMINAIRE

MODEL NO. EMO11L-LH8302ANB  
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-LH8302ANB. 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-LH8302ANB
Description:	LED Recessed Luminaire

Criteria	Result
Total Lumen Output (Lumens)	1271
Total Power (W)	18.71
Luminaire Efficacy (LPW)	67.93
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	VBV	VBV
Newport Hygrometer	iServer	146956	01/02/14	01/02/15
Elgar, AC Power Supply	CW1251P	146918	VBV	VBV
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.

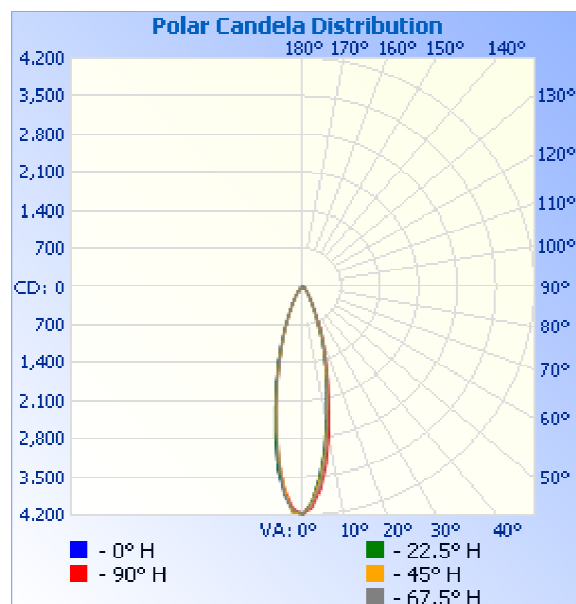
## RESULTS OF TEST

### 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	18.71	0.980	1271	67.93

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

Angle	0	22.5	45	67.5	90
0	4179	4179	4179	4179	4179
5	3539	3537	3591	3673	3744
10	2488	2493	2547	2644	2772
15	1614	1615	1651	1726	1773
20	994	991	1017	1074	1091
25	550	551	570	612	619
30	296	297	307	333	336
35	163	164	171	185	184
40	91	91	95	103	103
45	51	52	52	58	58
50	29	29	30	33	33
55	17	17	18	20	19
60	11	11	11	12	12
65	5	5	6	7	7
70	1	1	1	2	3
75	0	0	0	0	0
80	0	0	0	0	0
85	0	0	0	0	0
90	0	0	0	0	0



### Spacing Criterion:

Spacing Criterion (0-180):	0.42
Spacing Criterion (90-270):	0.46
Spacing Criterion (Diagonal):	0.48

### Coefficients Of Utilization - Zonal Cavity Method

Effective Floor Cavity Reflectance 0.20

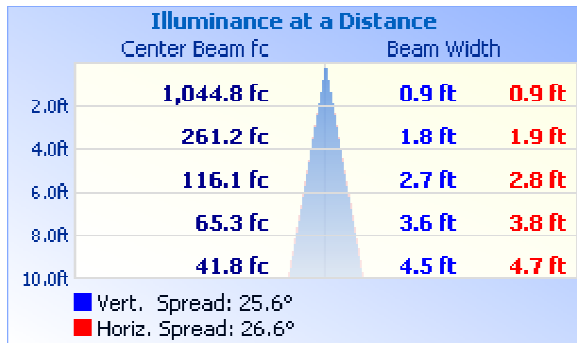
RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	114	112	110	108	112	110	108	106	106	104	103	102	101	100	99	98	97	95
2	110	106	102	99	108	104	101	98	101	98	96	98	96	94	95	93	92	90
3	105	100	96	92	103	99	95	92	96	93	90	94	91	89	91	89	87	86
4	101	95	90	87	100	94	89	86	92	88	85	90	87	84	88	85	83	82
5	97	90	85	82	96	89	85	82	88	84	81	86	83	80	85	82	79	78
6	94	86	81	78	92	86	81	78	84	80	77	83	79	77	82	78	76	75
7	90	83	78	74	89	82	77	74	81	77	74	80	76	73	79	75	73	72
8	87	79	74	71	86	79	74	71	78	74	71	77	73	70	76	72	70	69
9	84	76	71	68	83	76	71	68	75	71	68	74	70	67	73	70	67	66
10	81	73	69	65	80	73	68	65	72	68	65	72	68	65	71	67	65	64

## RESULTS OF TEST (cont'd)

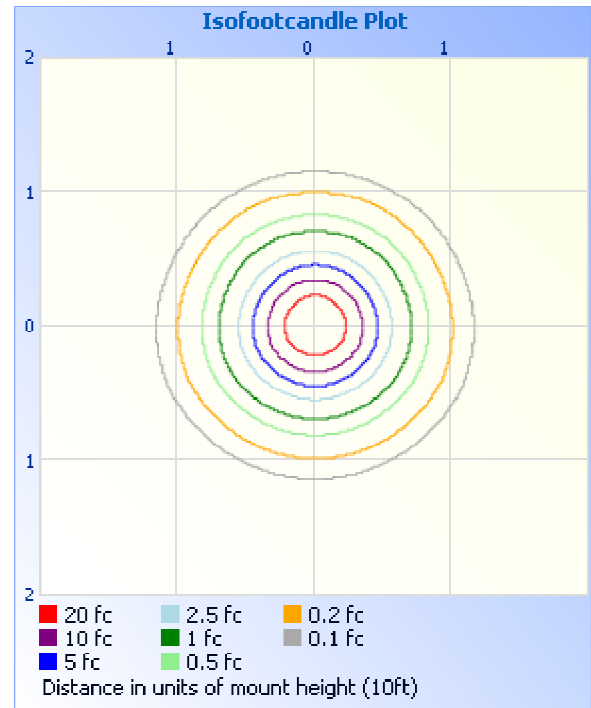
### Illumination Plots

Mounting Height: 10 ft.

#### Illuminance - Cone of Light



#### Isoillumination Plot



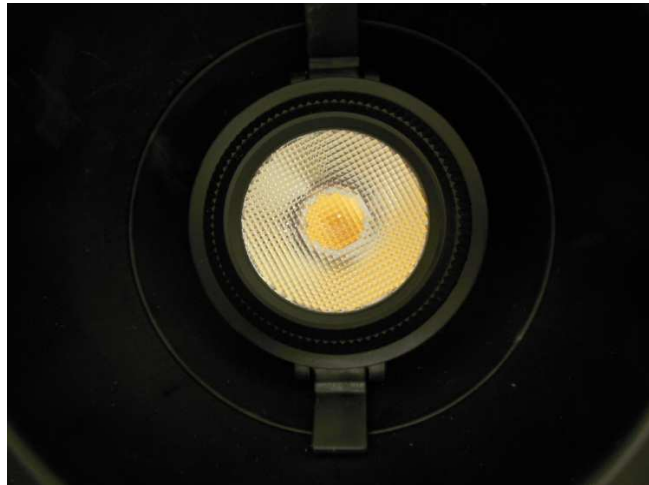
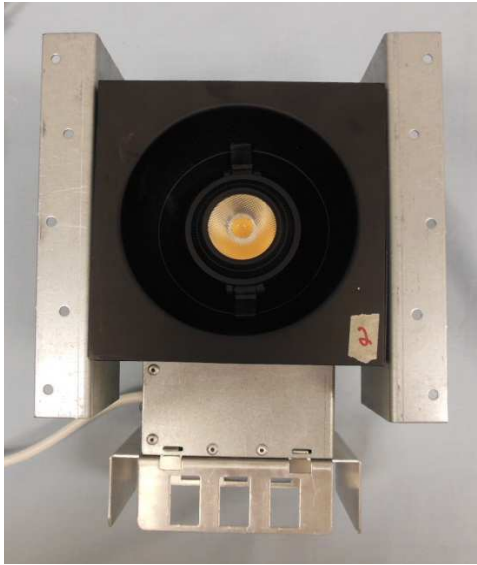
#### Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	1081	85.1
0-40	1200	94.5
0-60	1263	99.4
60-90	7.5	0.6
0-90	1271	100.0
90-180	0.0	0.0
0-180	1271	100.0

#### Zonal Lumens and Percentages at 25°C

Zone	Lumens	% Luminaire
0-10	317.9	25.0
10-20	478.3	37.6
20-30	285.1	22.4
30-40	118.7	9.3
40-50	45.5	3.6
50-60	17.5	1.4
60-70	6.8	0.5
70-80	0.8	0.1
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