



# REPORT

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

Project No. G101518786

Date: August 13, 2014

REPORT NO. 101518786CHI-048D

TEST OF ONE LED RECESSED LUMINAIRE

MODEL NO. EMO11L-LH8304ANB  
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-LH8304ANB. 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 8, 2014



## SUMMARY

Model No.:	EMO11L-LH8304ANB
Description:	LED Recessed Luminaire

Criteria	Result
Total Lumen Output (Lumens)	1371
Total Power (W)	18.72
Luminaire Efficacy (LPW)	73.24
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.

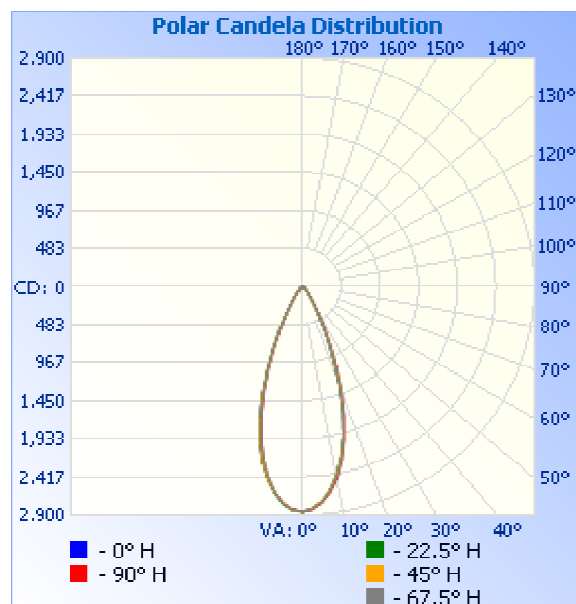
## RESULTS OF TEST

### 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	159.1	18.72	0.980	1371	73.24

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

Angle	0	22.5	45	67.5	90
0	2854	2854	2854	2854	2854
5	2743	2736	2741	2751	2757
10	2445	2432	2440	2459	2478
15	1962	1961	1970	1991	2006
20	1344	1349	1360	1394	1414
25	750	755	781	810	828
30	368	374	385	404	414
35	176	178	182	194	196
40	88	88	90	95	94
45	45	46	47	49	48
50	25	25	25	27	27
55	14	14	14	15	15
60	8	8	8	9	9
65	4	4	4	5	6
70	1	1	1	2	2
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):	0.64
Spacing Criterion (90-270):	0.66
Spacing Criterion (Diagonal):	0.64

### Coefficients Of Utilization - Zonal Cavity Method

Effective Floor Cavity Reflectance 0.20

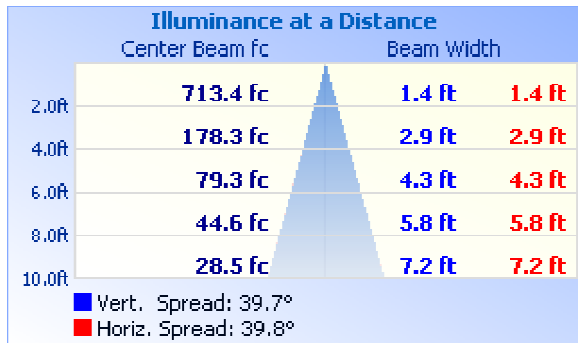
RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	114	112	110	108	112	110	108	106	106	104	103	102	101	100	98	98	97	95
2	109	105	102	99	107	103	100	98	100	98	95	97	95	93	95	93	91	90
3	105	99	95	92	103	98	94	91	95	92	89	93	90	88	91	89	87	85
4	101	94	89	86	99	93	89	85	91	87	84	89	86	83	87	84	82	81
5	96	89	84	81	95	88	84	80	87	83	79	85	82	79	84	81	78	77
6	93	85	80	76	91	84	79	76	83	79	75	81	78	75	80	77	74	73
7	89	81	76	72	88	80	76	72	79	75	72	78	74	71	77	74	71	70
8	86	77	72	69	84	77	72	69	76	71	68	75	71	68	74	70	68	67
9	82	74	69	66	81	74	69	65	73	68	65	72	68	65	71	68	65	64
10	79	71	66	63	78	71	66	63	70	65	62	69	65	62	68	65	62	61

## RESULTS OF TEST (cont'd)

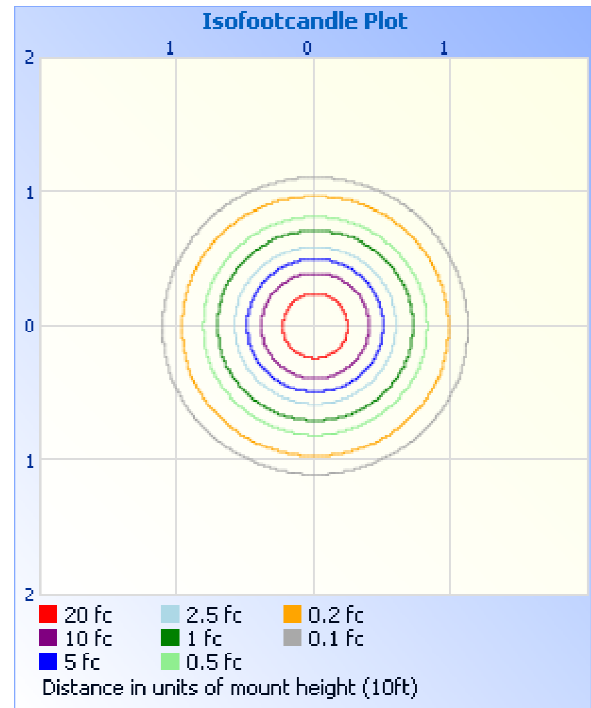
### Illumination Plots

Mounting Height: 10 ft.

Illuminance - Cone of Light



Isoillumination Plot



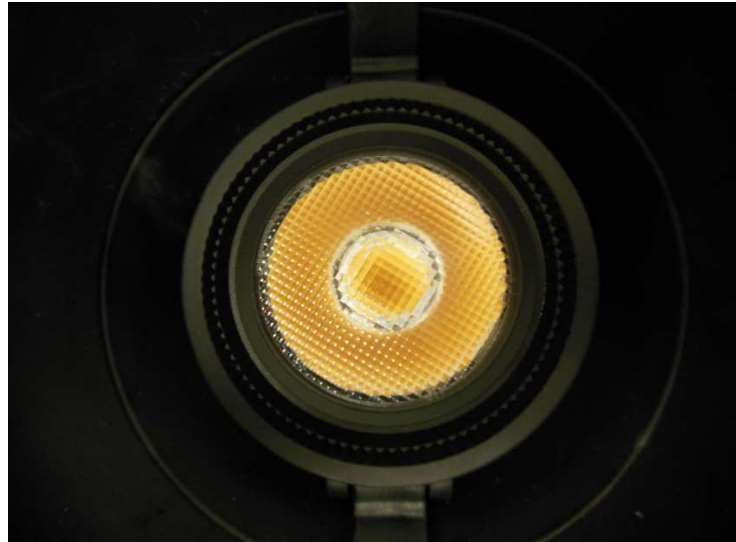
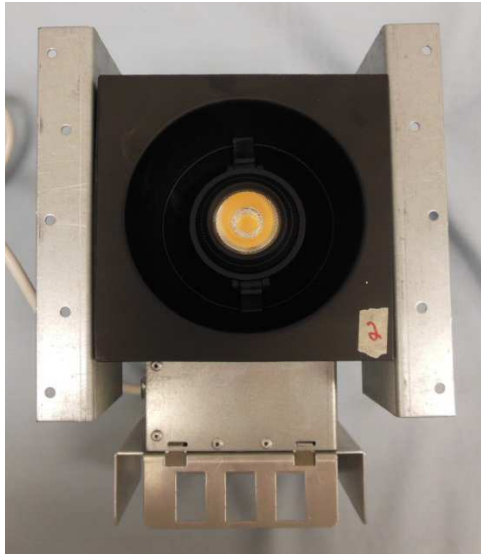
Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	1180	86.1
0-40	1312	95.7
0-60	1365	99.6
60-90	5.8	0.4
0-90	1371	100.0
90-180	0.0	0.0
0-180	1371	100.0

Zonal Lumens and Percentages at 25°C

Zone	Lumens	% Luminaire
0-10	253.3	18.5
10-20	545.1	39.8
20-30	381.7	27.8
30-40	131.3	9.6
40-50	39.9	2.9
50-60	13.9	1.0
60-70	5.1	0.4
70-80	0.7	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