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Report No: L051602709

Date: 5/23/2016



NVLAP LAB CODE 200927-0

**Report No:** L051602709

**Prepared For:** HK Lighting Group  
 3529 Old Conejo Road #118, Newbury Park, CA, 91320

**Model Number:** ZXL-11-H BZ

**Test:** Photometric/Electrical Test

**Standards Used:** Appropriate part or all test guidelines were used for test performed:  
*IESNA LM79: 2008* Approved Methods for Electrical and Photometric Measurements of Solid-State Lighting Products  
*ANSI NEMA ANSLG C78.377: 2008* Specification of the Chromaticity of Solid State Lighting Products  
*ANSI C82.77:2002:* Harmonic Emission Limits-Related Quality Requirements for Lighting Equipment

**Description of Sample:** Client submitted the sample. Catalog number is ZXL-11-H BZ. Received in working and undamaged condition. No modifications were necessary.

**Testing Condition:** Fixture is tested with no special conditions.

**Sample Arrival Date:** 5/11/16

**Date of Tests:** 5/20/16 - 5/23/16

**Seasoning of Sample:** No seasoning was performed in accordance with IESNA LM-79.

**Equipment List**

Equipment Used	Model No	Stock No	Calibration Due Date
Chroma Programmable AC Source	61604	PS-AC02	--
Yokogawa Digital Power Meter	WT210	MT-EL06-S1	11/18/16
Xitron Power Analyzer	2503AH	MT-EL01	11/30/16
ITECH DC Power Supply	IT6122	PSDC-03-S1	11/17/16
Fluke Digital Thermometer	52k/J	MT-TP02-GC	11/24/16
LLI Type C Goniophotometer System	RMG-C-MKII	CD-LL04-GC	--
LLI 2M Sphere	2MR97	CD-SN03-S2	--
LLI Spectroradiometer	SPR-3000	MT-SC01-S2	Before Use

\*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

**Test Summary**

<b>Manufacturer:</b>	HK Lighting Group
<b>Model Number:</b>	ZXL-11-H BZ
<b>Driver Model Number:</b>	HATCH RS12-60M-LED
<b>Total Lumens:</b>	237.98
<b>Input Voltage (VAC/60Hz):</b>	120.00
<b>Input Current (Amp):</b>	0.08
<b>Input Power (W):</b>	6.32
<b>Input Power Factor:</b>	0.69
<b>Current ATHD @ 120V(%):</b>	88%
<b>Current ATHD @ 277V(%):</b>	N/A
<b>Efficacy:</b>	38
<b>Ambient Temperature (°C):</b>	25.0
<b>Stabilization Time (Hours):</b>	0:30
<b>Total Operating Time (Hours):</b>	1:00
<b>Off State Power(W):</b>	0.00

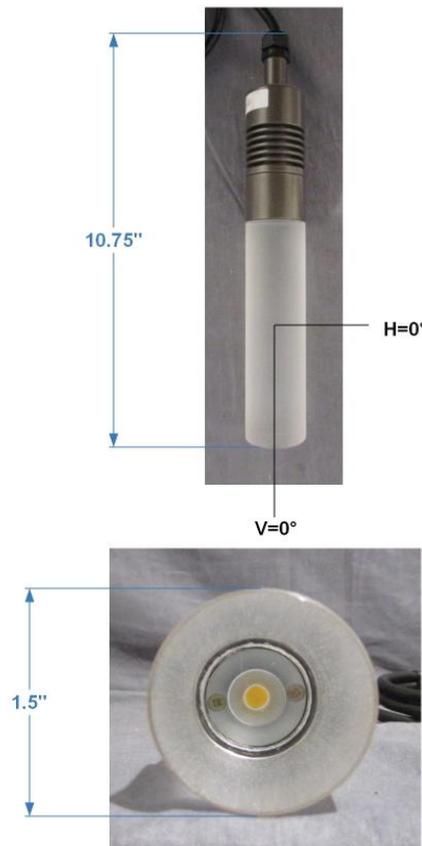


FIG.1 LUMINAIRE

\*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

## Test Methods

### Photometric Measurements - Goniophotometer

A Custom Light Laboratory Type C Rotating Mirror Goniophotometer was used to measure candelas(intensity) at each angle of distribution as defined by IESNA for the appropriate fixture type.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

### Spectral Measurements - Integrating Sphere

A Sensing Spectroradiometer SPR-3000, in conjunction with Light Laboratory 2 meter integrating sphere was used to measure chromaticity coordinates, correlated color temperature(CCT) and the color rendering index(CRI) for each sample.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

### Disclaimers:

This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST or any agency of Federal Government.

Report Prepared by : Keyur Patel

Test Report Released by:



Jeff Ahn  
Engineering Manager

Test Report Reviewed by:



Steve Kang  
Quality Assurance

*\*Attached are photometric data reports. Total number of pages: 8*



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# Photometric Test Report

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L051602709.IES**

## DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002  
 [TEST] L051602709  
 [TESTLAB] LIGHT LABORATORY, INC.  
 [ISSUEDATE] 5/23/2016  
 [MANUFAC] HK LIGHTING GROUP  
 [LUMCAT] ZXL-11-H BZ  
 [LUMINAIRE] LED Ring Mount 6W 3K Bronze with 6" Acrylic shade  
 [BALLASTCAT] HATCH RS12-60M-LED  
 [LAMPPOSITION] 0,0  
 [LAMPCAT] N/A  
 [OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND  
 [MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.  
 [INPUT] 120VAC, 6.32W  
 [TEST PROCEDURE] IESNA:LM-79-08

## CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	238
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	38
Total Luminaire Watts	6.32
Ballast Factor	1.00
CIE Type	Semi-Direct
Spacing Criterion (0-180)	0.72
Spacing Criterion (90-270)	0.72
Spacing Criterion (Diagonal)	0.84
Basic Luminous Shape	Circular w/ Sides
Luminous Length (0-180)	0.13 ft (Diameter)
Luminous Width (90-270)	0.13 ft (Diameter)
Luminous Height	0.50 ft

## LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	6995	6995	6995
55	4418	4418	4418
65	3000	3000	3000
75	1949	1949	1949
85	1305	1305	1305

IES INDOOR REPORT  
PHOTOMETRIC FILENAME : L051602709.IES

CANDELA TABULATION

	<u>0</u>
0.0	154
1.0	152
3.0	152
5.0	163
7.0	168
9.0	153
11.0	104
13.0	90
15.0	94
17.0	95
19.5	92
22.5	86
25.5	79
29.0	65
33.0	51
37.5	45
42.5	39
47.5	33
55.0	25
65.0	18
75.0	12
85.0	8
90.0	7
95.0	7
105.0	6
115.0	6
125.0	6
135.0	7
145.0	7
155.0	6
165.0	3
175.0	0
180.0	0

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L051602709.IES**

**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	40.35	N.A.	17.00
0-30	74.53	N.A.	31.30
0-40	101.30	N.A.	42.60
0-60	148.64	N.A.	62.50
0-80	184.47	N.A.	77.50
0-90	199.36	N.A.	83.80
10-90	186.95	N.A.	78.60
20-40	60.95	N.A.	25.60
20-50	89.70	N.A.	37.70
40-70	67.73	N.A.	28.50
60-80	35.83	N.A.	15.10
70-80	15.44	N.A.	6.50
80-90	14.89	N.A.	6.30
90-110	10.84	N.A.	4.60
90-120	17.02	N.A.	7.20
90-130	22.71	N.A.	9.50
90-150	33.09	N.A.	13.90
90-180	38.62	N.A.	16.20
110-180	27.78	N.A.	11.70
0-180	237.98	N.A.	100.00

Total Luminaire Efficiency = N.A.%

**ZONAL LUMEN SUMMARY**

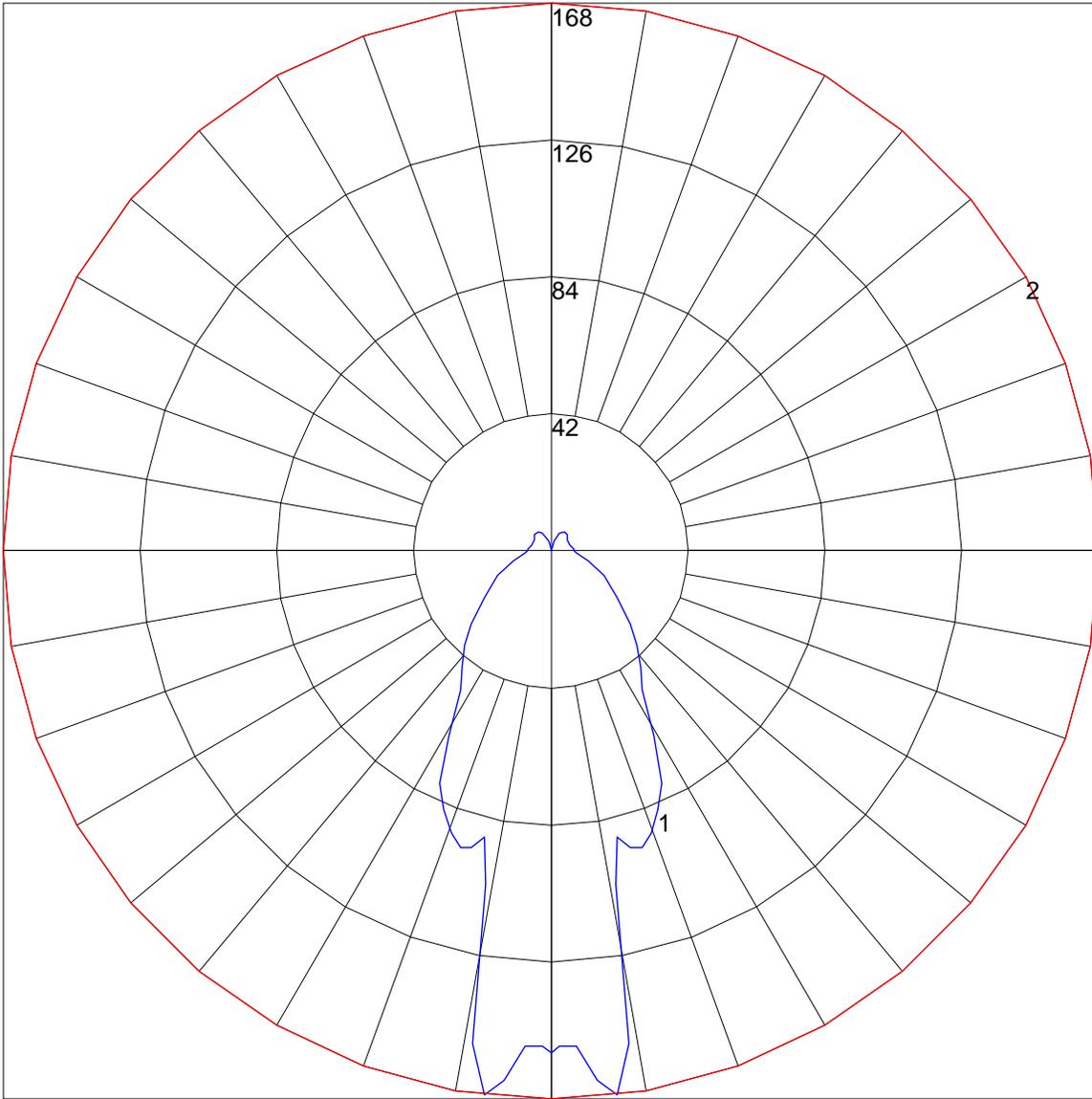
Zone	Lumens
0-10	12.41
10-20	27.94
20-30	34.18
30-40	26.77
40-50	28.75
50-60	18.59
60-70	20.39
70-80	15.44
80-90	14.89
90-100	3.83
100-110	7.01
110-120	6.18
120-130	5.69
130-140	5.45
140-150	4.93
150-160	3.56
160-170	1.69
170-180	0.29

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	115	115	115	115	111	111	111	111	102	102	102	94	94	94	87	87	87	84
1	104	99	94	90	99	95	91	87	88	84	81	81	78	76	75	73	71	67
2	95	87	80	74	91	83	77	72	77	72	68	71	67	64	66	63	60	57
3	87	77	69	63	83	74	67	61	69	63	58	64	59	55	60	56	52	49
4	80	69	61	54	77	67	59	53	62	56	51	58	53	48	54	50	46	43
5	75	63	54	48	71	60	53	47	57	50	45	53	47	43	50	45	41	39
6	69	57	49	43	67	55	47	42	52	45	40	49	43	39	46	41	37	35
7	65	52	44	38	62	51	43	38	48	41	36	45	39	35	42	37	34	32
8	61	48	40	35	58	47	39	34	44	38	33	42	36	32	40	35	31	29
9	57	45	37	32	55	44	36	31	41	35	30	39	33	29	37	32	29	27
10	54	42	34	29	52	41	34	29	39	32	28	37	31	27	35	30	26	25

POLAR GRAPH



Maximum Candela = 168 Located At Horizontal Angle = 0, Vertical Angle = 7  
# 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)  
# 2 - Horizontal Cone Through Vertical Angle (7) (Through Max. Cd.)