



8165 E Kaiser Blvd. Anaheim, CA 92808  
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Report No: L031709006



**Report No:** L031709006

**Issue Date:** 3/30/2017

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

**Model Number:** ZXL-16-A

**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. Received in working and undamaged condition. No modifications were necessary.

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

**Sample Arrival Date:** 3/22/17

**Date of Tests:** 3/28/17 - 3/30/17

**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	11/28/17
ITECH	IT6122	PS-DC03-S1	11/28/17
Fluke Digital Thermometer	52k/J	MT-TP02-GC	11/28/17
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-16-A
<b>Driver Model Number:</b>	N/A
<b>Total Lumens:</b>	850.08
<b>Input Voltage (VAC/60Hz):</b>	12.00
<b>Input Current (Amp):</b>	1.27
<b>Input Power (W):</b>	9.61
<b>Input Power Factor:</b>	0.63
<b>Current ATHD @ 12V(%):</b>	67%
<b>Current ATHD @ 277V(%):</b>	N/A
<b>Efficacy:</b>	88
<b>Ambient Temperature (°C):</b>	25.0
<b>Stabilization Time (Hours):</b>	0:35
<b>Total Operating Time (Hours):</b>	1:35

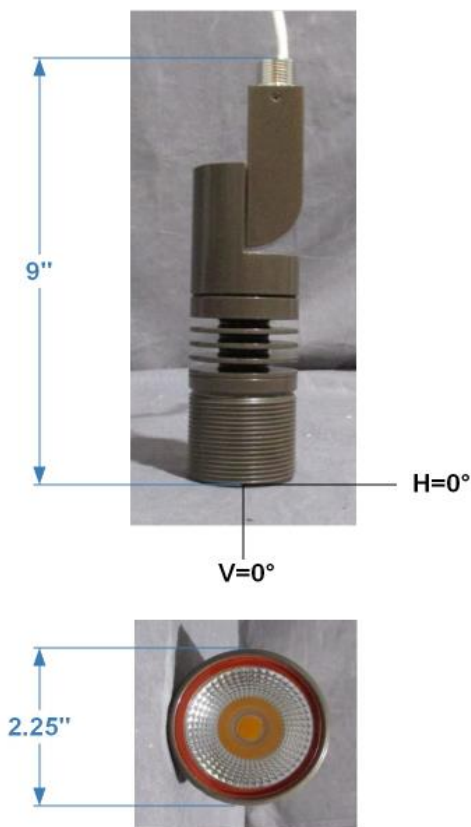


FIG.1 LUMINAIRE



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## 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: 7*

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



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## Photometric Test Report

### IES FLOOD REPORT

PHOTOMETRIC FILENAME : L031709006.IES

### DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002  
[TEST] L031709006  
[TESTLAB] LIGHT LABORATORY, INC.  
[ISSUEDATE] 3/30/2017  
[MANUFAC] HK LIGHTING GROUP  
[LUMCAT] ZXL-16-A  
[LUMINAIRE] LED LUMINAIRE, NATA 1451 40  
[BALLASTCAT] N/A  
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND  
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.  
[INPUT] 12VAC, 9.61W  
[TEST PROCEDURE] IESNA:LM-79-08

Note: Candela values converted from Type-C to Type-B

### CHARACTERISTICS

NEMA Type	5 H x 5 V
Maximum Candela	1332
Maximum Candela Angle	-1H 0V
Horizontal Beam Angle (50%)	44.1
Vertical Beam Angle (50%)	44.1
Horizontal Field Angle (10%)	79.1
Vertical Field Angle (10%)	79.1
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Beam Lumens	452
Beam Efficiency	N.A.
Field Lumens	790
Field Efficiency	N.A.
Spill Lumens	60
Luminaire Lumens	850
Total Efficiency	N.A.
Total Luminaire Watts	9.61
Ballast Factor	1.00

**IES FLOOD REPORT**  
**PHOTOMETRIC FILENAME : L031709006.IES**

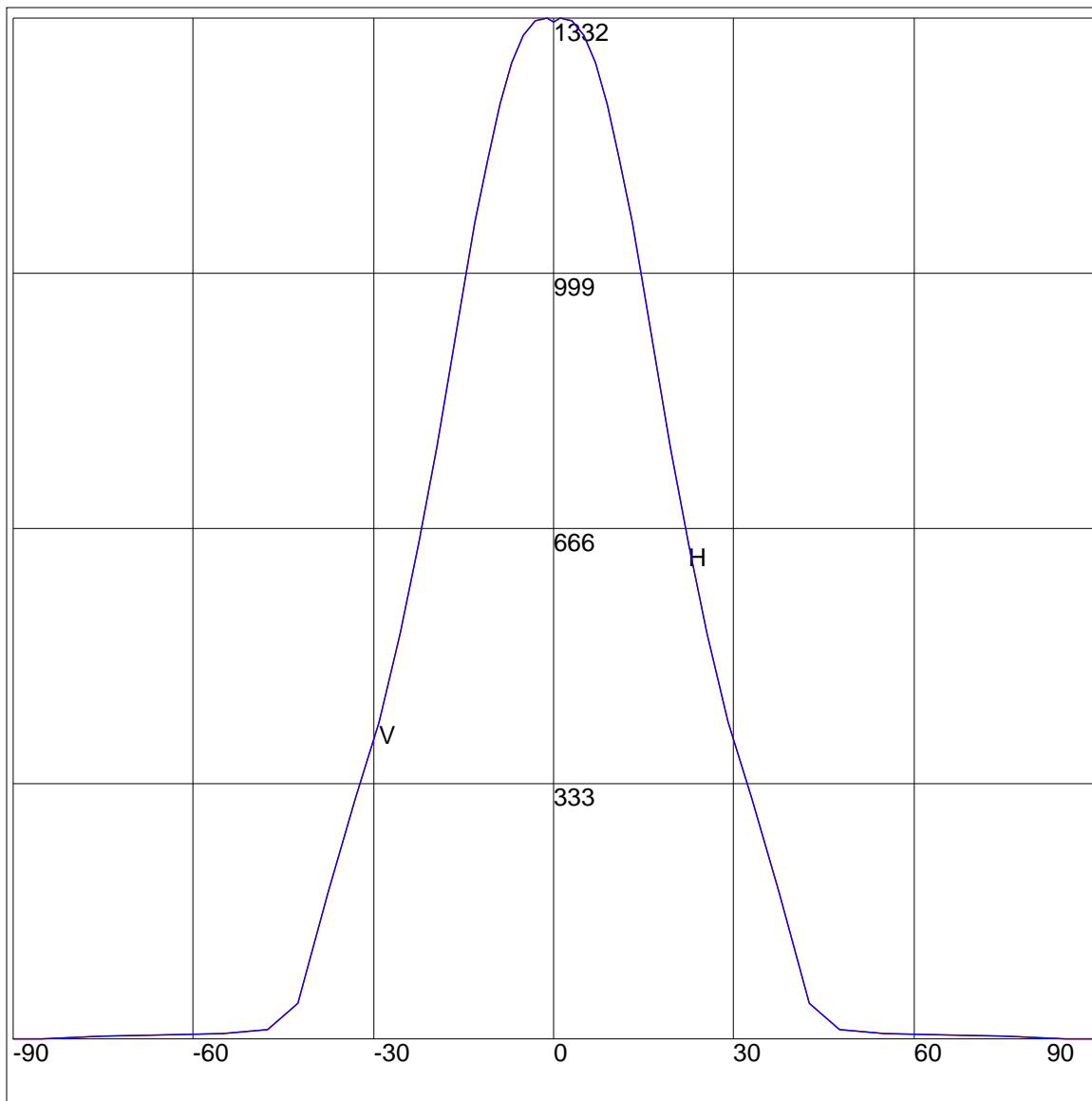
**AXIAL CANDELA**

DEG.	HOR.	DEG.	VERT.
90	0	90	0
85	0	85	0
75	4	75	4
65	6	65	6
55	8	55	8
47.5	12	47.5	12
42.5	47	42.5	47
37.5	192	37.5	192
33	314	33	314
29	415	29	415
25.5	530	25.5	530
22.5	646	22.5	646
19.5	773	19.5	773
17	885	17	885
15	976	15	976
13	1066	13	1066
11	1148	11	1148
9	1219	9	1219
7	1273	7	1273
5	1309	5	1309
3	1328	3	1328
1	1332	1	1332
0	1327	0	1327
-1	1332	-1	1332
-3	1328	-3	1328
-5	1309	-5	1309
-7	1273	-7	1273
-9	1219	-9	1219
-11	1148	-11	1148
-13	1066	-13	1066
-15	976	-15	976
-17	885	-17	885
-19.5	773	-19.5	773
-22.5	646	-22.5	646
-25.5	530	-25.5	530
-29	415	-29	415
-33	314	-33	314
-37.5	192	-37.5	192
-42.5	47	-42.5	47
-47.5	12	-47.5	12
-55	8	-55	8
-65	6	-65	6
-75	4	-75	4
-85	0	-85	0
-90	0	-90	0

**ZONAL LUMEN SUMMARY**

Zone	%
0-20	44.3
0-30	73.1
0-40	91.3
0-60	98.4
0-80	99.7
0-90	100
10-90	88.3
20-40	47
20-50	53.3
40-70	7.8
60-80	1.4
70-80	0.6
80-90	0.3
90-110	0
90-120	0
90-130	0
90-150	0
90-180	0
110-180	0
0-180	100

AXIAL CANDELA DISPLAY

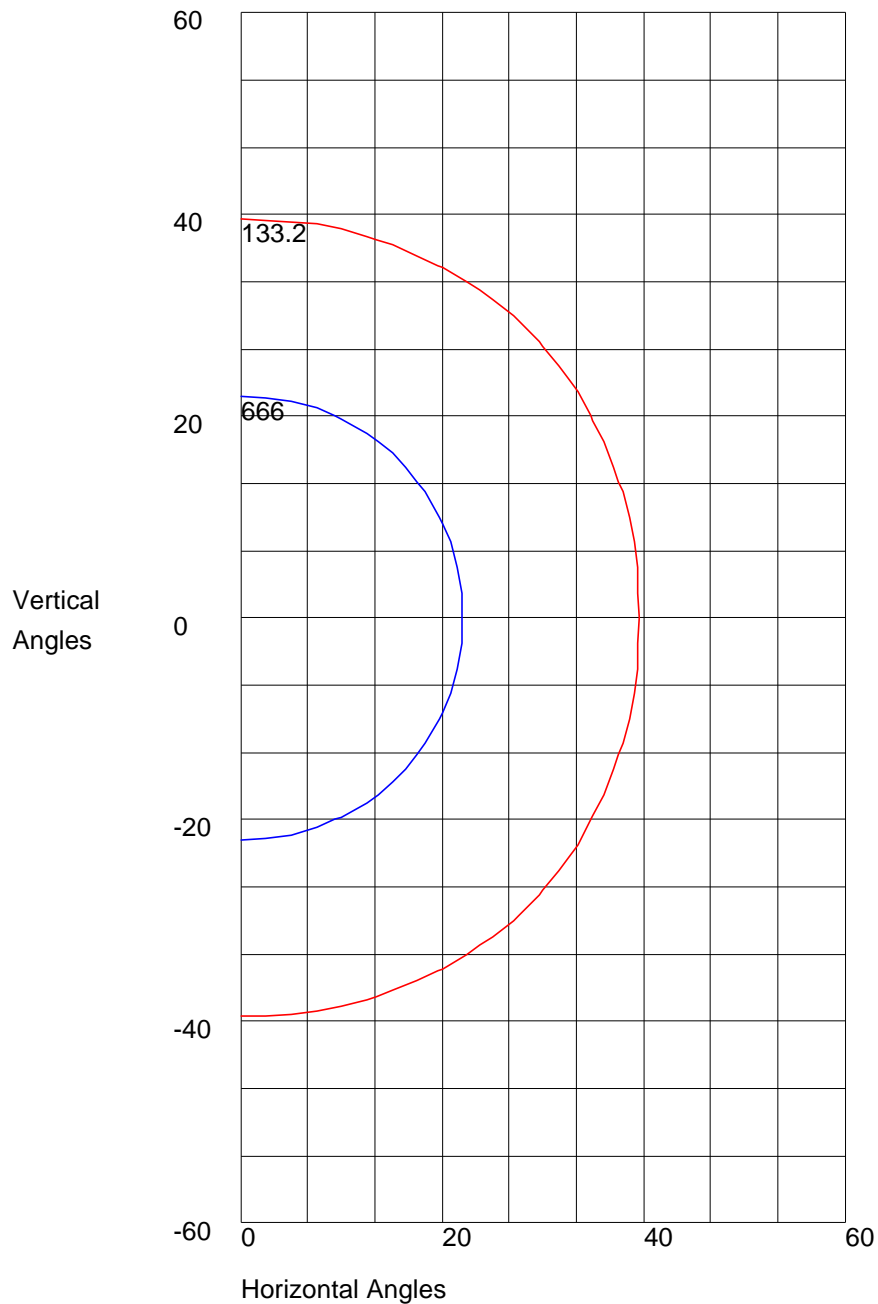


Maximum Candela = 1332 Located At Horizontal Angle = -1, Vertical Angle = 0

H - Horizontal Axial Candela

V - Vertical Axial Candela

ISOCANDELA CURVES



Maximum Candela = 1332 Located At Horizontal Angle = -1, Vertical Angle = 0  
50% Maximum Candela = 666  
10% Maximum Candela = 133.2