

Report No: L031709004

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: 3/27/17 - 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

Manufacturer:	HK Lighting Group
Model Number:	ZXL-16-A
Driver Model Number:	N/A
Total Lumens:	863.96
Input Voltage (VAC/60Hz):	12.00
Input Current (Amp):	1.23
Input Power (W):	9.38
Input Power Factor:	0.63
Current ATHD @ 12V(%):	68%
Current ATHD @ 277V(%):	N/A
Efficacy:	92
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:35
Total Operating Time (Hours):	1:35

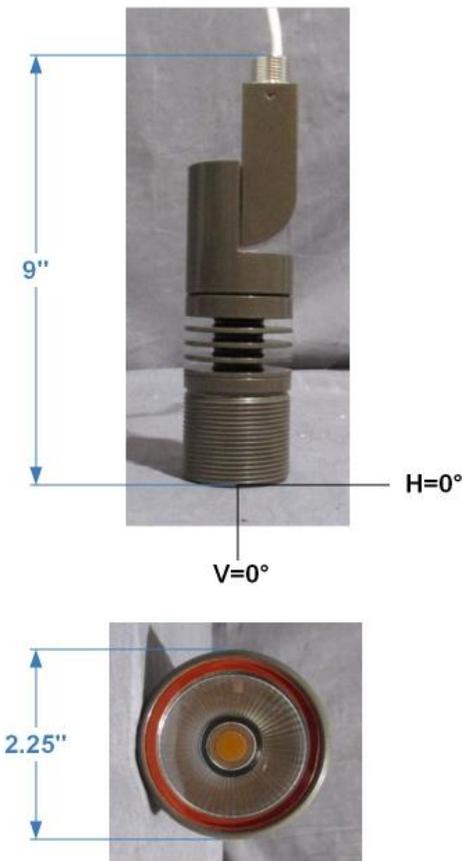


FIG.1 LUMINAIRE

*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: 7*



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Photometric Test Report

IES FLOOD REPORT
PHOTOMETRIC FILENAME : L031709004.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TEST] L031709004
 [TESTLAB] LIGHT LABORATORY, INC.
 [ISSUEDATE] 3/30/2017
 [MANUFAC] HK LIGHTING GROUP
 [LUMCAT] ZXL-16-A
 [LUMINAIRE] LED LUMINAIRE, NATA 1449 15
 [BALLASTCAT] N/A
 [OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
 [MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
 [INPUT] 12VAC, 9.38W
 [TEST PROCEDURE] IESNA:LM-79-08

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

CHARACTERISTICS

NEMA Type	4 H x 4 V
Maximum Candela	3507
Maximum Candela Angle	-1H 0V
Horizontal Beam Angle (50%)	20.5
Vertical Beam Angle (50%)	20.5
Horizontal Field Angle (10%)	56.3
Vertical Field Angle (10%)	56.3
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Beam Lumens	273
Beam Efficiency	N.A.
Field Lumens	638
Field Efficiency	N.A.
Spill Lumens	226
Luminaire Lumens	864
Total Efficiency	N.A.
Total Luminaire Watts	9.38
Ballast Factor	1.00

IES FLOOD REPORT
PHOTOMETRIC FILENAME : L031709004.IES

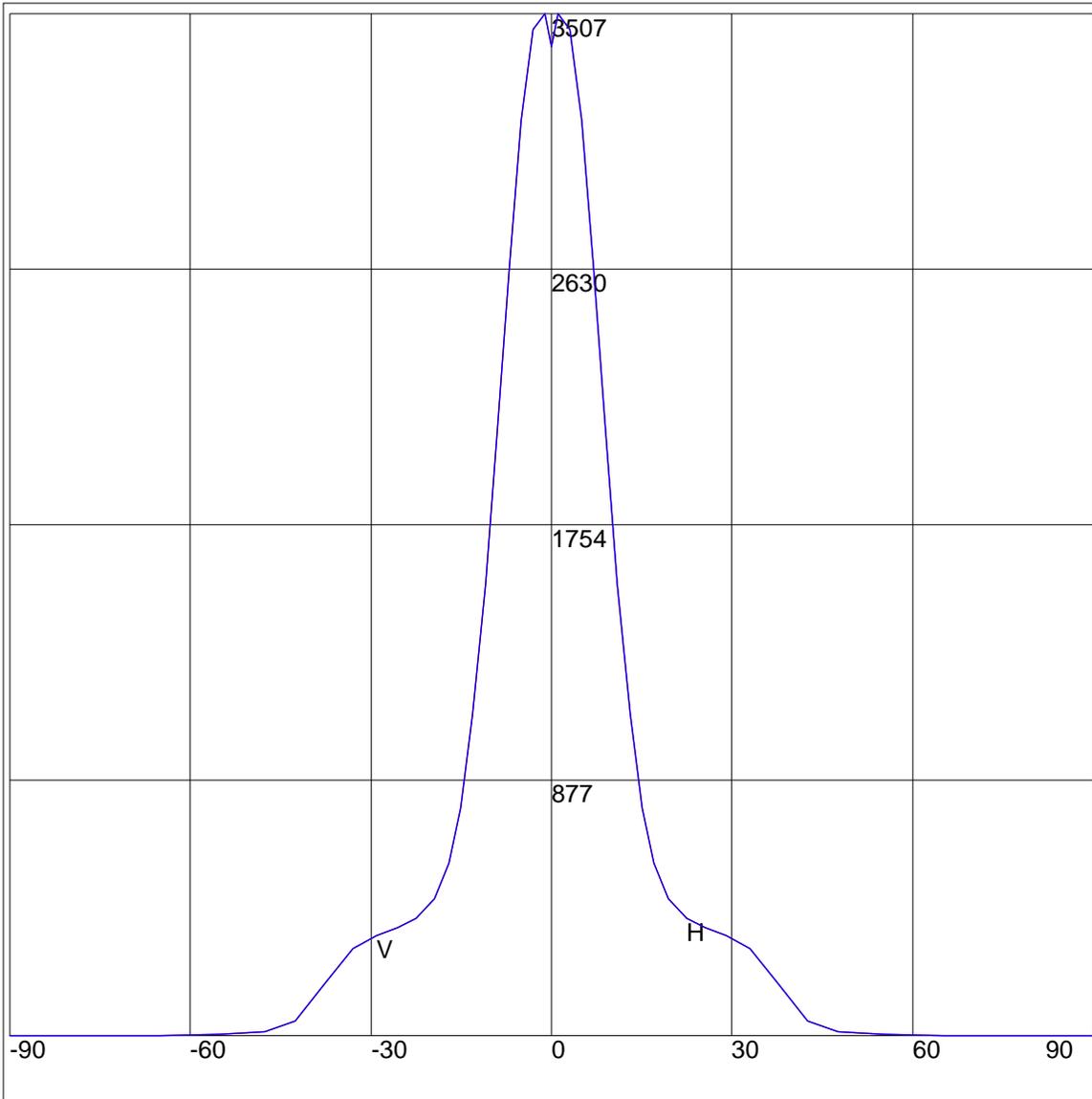
AXIAL CANDELA

DEG.	HOR.	DEG.	VERT.
90	0	90	0
85	0	85	0
75	1	75	1
65	3	65	3
55	8	55	8
47.5	17	47.5	17
42.5	52	42.5	52
37.5	184	37.5	184
33	300	33	300
29	344	29	344
25.5	371	25.5	371
22.5	405	22.5	405
19.5	472	19.5	472
17	594	17	594
15	782	15	782
13	1102	13	1102
11	1550	11	1550
9	2089	9	2089
7	2642	7	2642
5	3139	5	3139
3	3454	3	3454
1	3507	1	3507
0	3394	0	3394
-1	3507	-1	3507
-3	3454	-3	3454
-5	3139	-5	3139
-7	2642	-7	2642
-9	2089	-9	2089
-11	1550	-11	1550
-13	1102	-13	1102
-15	782	-15	782
-17	594	-17	594
-19.5	472	-19.5	472
-22.5	405	-22.5	405
-25.5	371	-25.5	371
-29	344	-29	344
-33	300	-33	300
-37.5	184	-37.5	184
-42.5	52	-42.5	52
-47.5	17	-47.5	17
-55	8	-55	8
-65	3	-65	3
-75	1	-75	1
-85	0	-85	0
-90	0	-90	0

ZONAL LUMEN SUMMARY

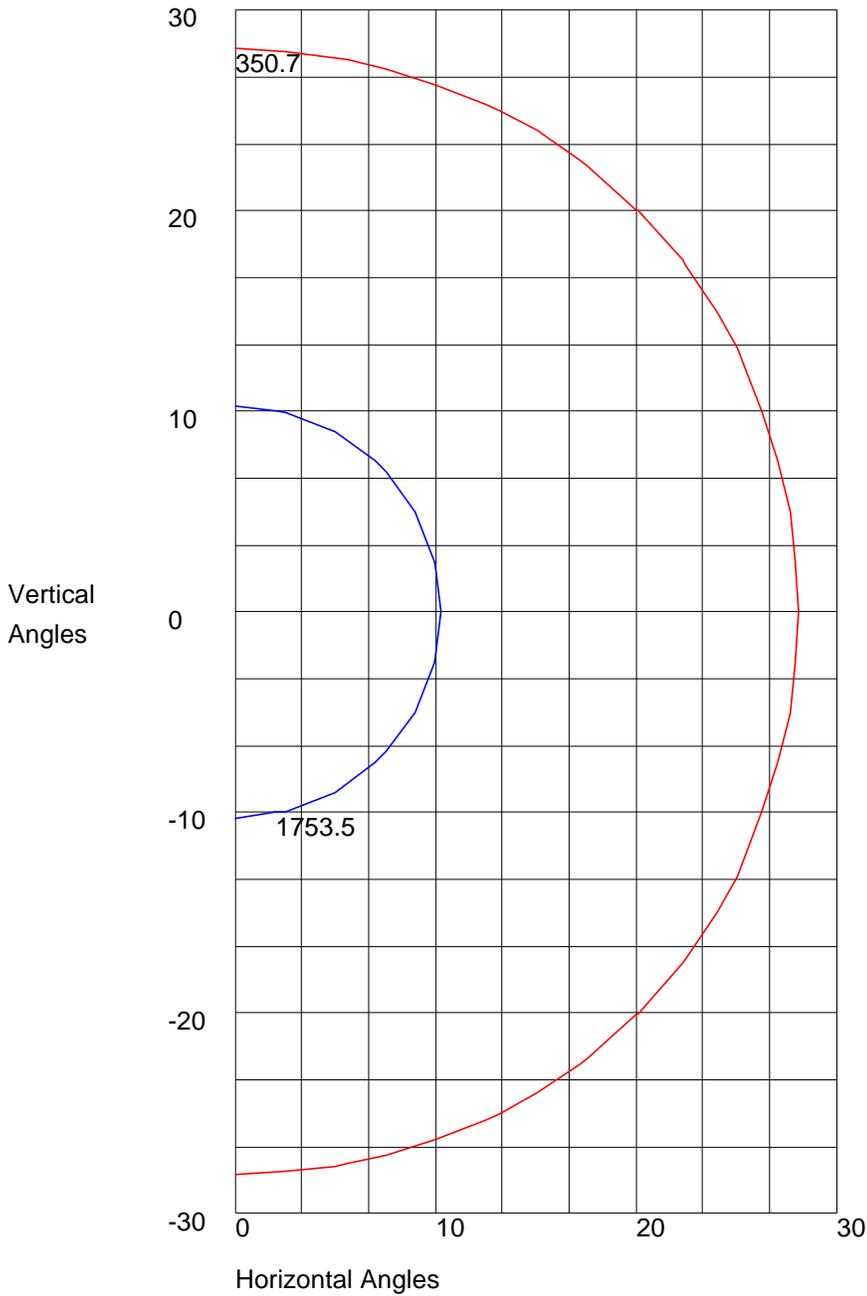
Zone	%
0-20	56.2
0-30	75.4
0-40	91.8
0-60	99.1
0-80	99.9
0-90	100
10-90	74.7
20-40	35.6
20-50	42
40-70	7.9
60-80	0.8
70-80	0.2
80-90	0.1
90-110	0
90-120	0
90-130	0
90-150	0
90-180	0
110-180	0
0-180	100

AXIAL CANDELA DISPLAY



Maximum Candela = 3507 Located At Horizontal Angle = -1, Vertical Angle = 0
H - Horizontal Axial Candela
V - Vertical Axial Candela

ISOCANDELA CURVES



Maximum Candela = 3507 Located At Horizontal Angle = -1, Vertical Angle = 0
50% Maximum Candela = 1753.5
10% Maximum Candela = 350.7