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Report No: L081507403

Date: 8/26/2015



NVLAP LAB CODE 200927-0

**Report No:** L081507403

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

**Model Number:** ZXL-30i BZ Medium

**Test:** Electrical and Photometric tests

**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-30i BZ Medium. Received in working and undamaged condition. No modifications were necessary.

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

**Sample Arrival Date:** 8/18/19

**Date of Tests:** 8/24/15 - 8/24/15

**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	11/10/15
Xitron Power Analysis System	2503AH	MT-EL01	10/20/15
BK Precision DC Power Supply	1747	PSDC-04	01/08/16
Fluke Digital Thermometer	52k/J	MT-TP02-GC	01/05/16
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.

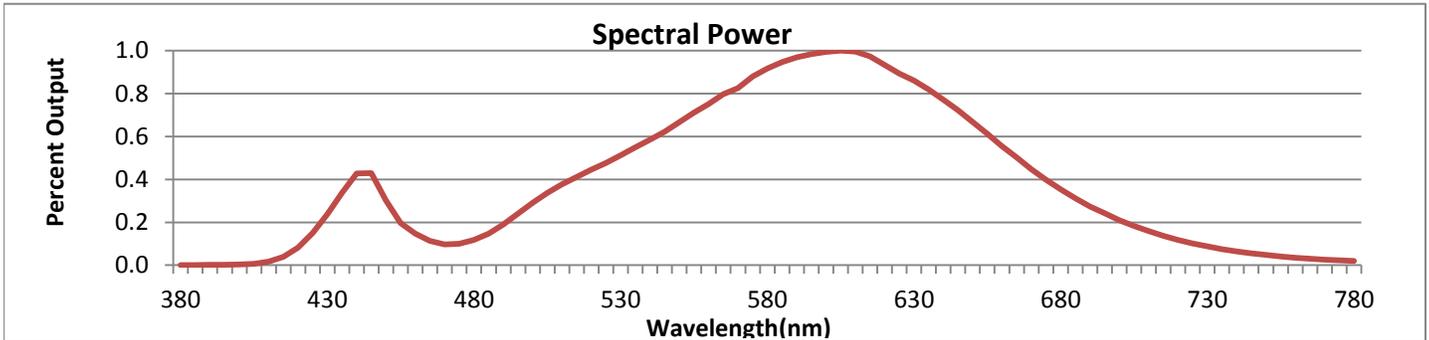
**Test Summary**

<b>Manufacturer:</b>	HK Lighting Group
<b>Model Number:</b>	ZXL-30i BZ Medium
<b>Driver Model Number:</b>	GE GELD60DMV1400PU
<b>Total Lumens:</b>	3217.10
<b>Input Voltage (VAC/60Hz):</b>	120.00
<b>Input Current (Amp):</b>	0.43
<b>Input Power (W):</b>	51.80
<b>Input Power Factor:</b>	0.99
<b>Current ATHD @ 120V(%):</b>	8%
<b>Current ATHD @ 277V(%):</b>	N/A
<b>Efficacy:</b>	62
<b>Color Rendering Index (CRI):</b>	80
<b>Correlated Color Temperature (K):</b>	2950
<b>Chromaticity Coordinate x:</b>	0.4444
<b>Chromaticity Coordinate y:</b>	0.4131
<b>Ambient Temperature (°C):</b>	25.0
<b>Stabilization Time (Hours):</b>	0:30
<b>Total Operating Time (Hours):</b>	1:40
<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.



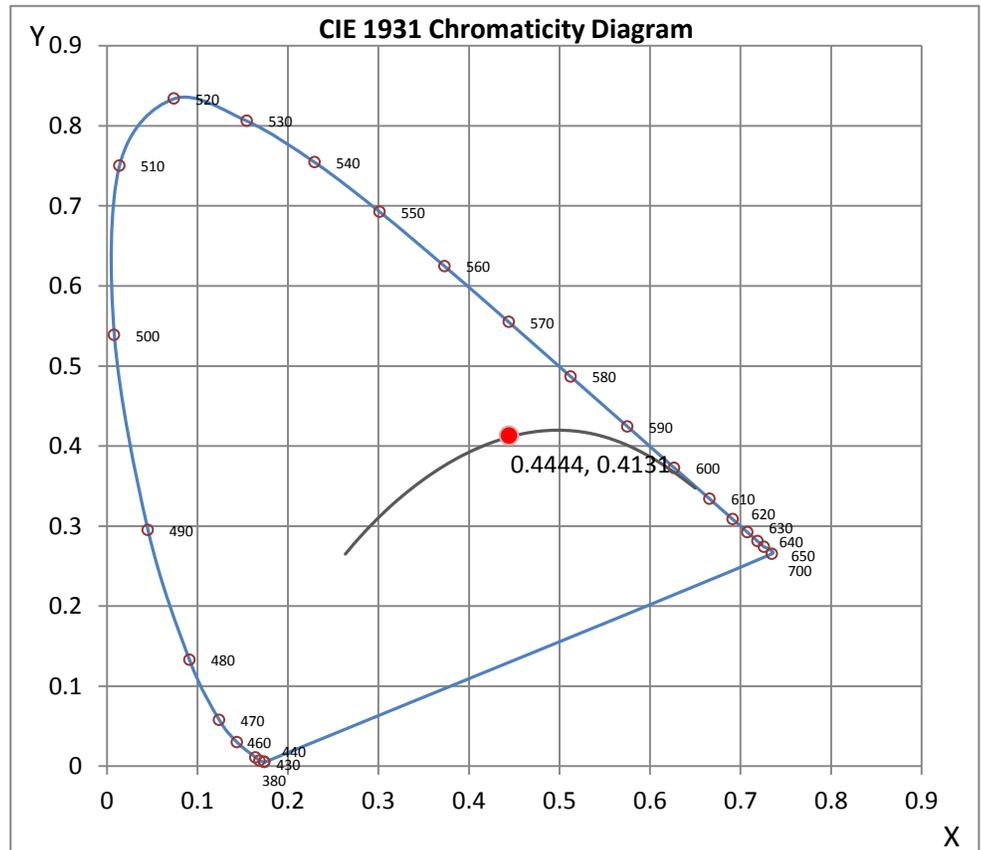
Wavelength	W/m <sup>2</sup> nm	440	0.4284	510	0.3780	580	0.9177	650	0.6683	720	0.1172
380	0.0009	450	0.3017	520	0.4454	590	0.9697	660	0.5560	730	0.0875
390	0.0013	460	0.1473	530	0.5117	600	0.9952	670	0.4473	740	0.0647
400	0.0033	470	0.0966	540	0.5854	610	0.9956	680	0.3534	750	0.0476
410	0.0166	480	0.1172	550	0.6661	620	0.9345	690	0.2742	760	0.0346
420	0.0815	490	0.1911	560	0.7521	630	0.8607	700	0.2102	770	0.0258
430	0.2386	500	0.2918	570	0.8252	640	0.7722	710	0.1598	780	0.0193

**CRI & CCT**

x	0.4444
y	0.4131
u'	0.2515
v'	0.5260
CRI	80.00
CCT	2950
Duv	0.00255

**R Values**

R1	77.65
R2	85.51
R3	93.27
R4	79.69
R5	76.87
R6	80.50
R7	85.01
R8	61.48
R9	9.02
R10	67.03
R11	77.63
R12	63.92
R13	78.59
R14	95.77



\*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 : JEFF AHN

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 FLOOD REPORT**  
**PHOTOMETRIC FILENAME : L081507403.IES**

### DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002  
[TEST] L081507403  
[TESTLAB] LIGHT LABORATORY, INC.  
[ISSUEDATE] 8/26/2015  
[MANUFAC] HK LIGHTING GROUP  
[LUMCAT] ZXL-30i BZ Medium  
[LUMINAIRE] LED SPOT LIGHT FIXTURE MEDIUM REFLECTOR  
[MORE] SIZE: 4.25"DIA X 11.25"H  
[BALLASTCAT] GE GELD60DMV1400PU  
[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, 51.80W  
[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	10060
Maximum Candela Angle	0H 0V
Horizontal Beam Angle (50%)	29.4
Vertical Beam Angle (50%)	29.4
Horizontal Field Angle (10%)	59.2
Vertical Field Angle (10%)	59.2
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Beam Lumens	1506
Beam Efficiency	N.A.
Field Lumens	2936
Field Efficiency	N.A.
Spill Lumens	281
Luminaire Lumens	3217
Total Efficiency	N.A.
Total Luminaire Watts	51.8
Ballast Factor	1.00

**IES FLOOD REPORT**  
**PHOTOMETRIC FILENAME : L081507403.IES**

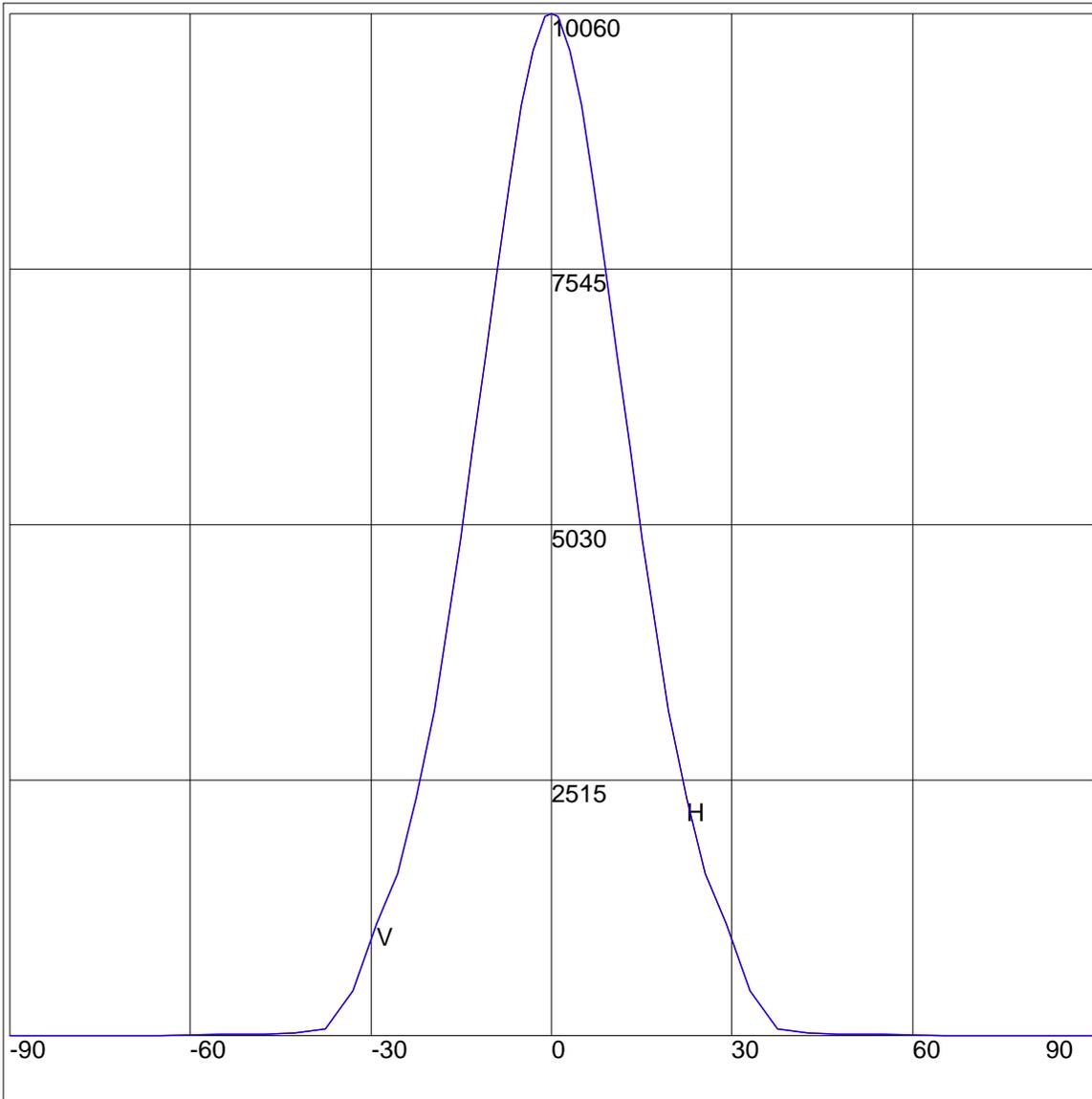
**AXIAL CANDELA**

DEG.	HOR.	DEG.	VERT.
90	0	90	0
85	5	85	5
75	7	75	7
65	9	65	9
55	13	55	13
47.5	20	47.5	20
42.5	31	42.5	31
37.5	72	37.5	72
33	450	33	450
29	1108	29	1108
25.5	1597	25.5	1597
22.5	2340	22.5	2340
19.5	3201	19.5	3201
17	4143	17	4143
15	4896	15	4896
13	5790	13	5790
11	6685	11	6685
9	7556	9	7556
7	8392	7	8392
5	9153	5	9153
3	9703	3	9703
1	10037	1	10037
0	10060	0	10060
-1	10037	-1	10037
-3	9703	-3	9703
-5	9153	-5	9153
-7	8392	-7	8392
-9	7556	-9	7556
-11	6685	-11	6685
-13	5790	-13	5790
-15	4896	-15	4896
-17	4143	-17	4143
-19.5	3201	-19.5	3201
-22.5	2340	-22.5	2340
-25.5	1597	-25.5	1597
-29	1108	-29	1108
-33	450	-33	450
-37.5	72	-37.5	72
-42.5	31	-42.5	31
-47.5	20	-47.5	20
-55	13	-55	13
-65	9	-65	9
-75	7	-75	7
-85	5	-85	5
-90	0	-90	0

**ZONAL LUMEN SUMMARY**

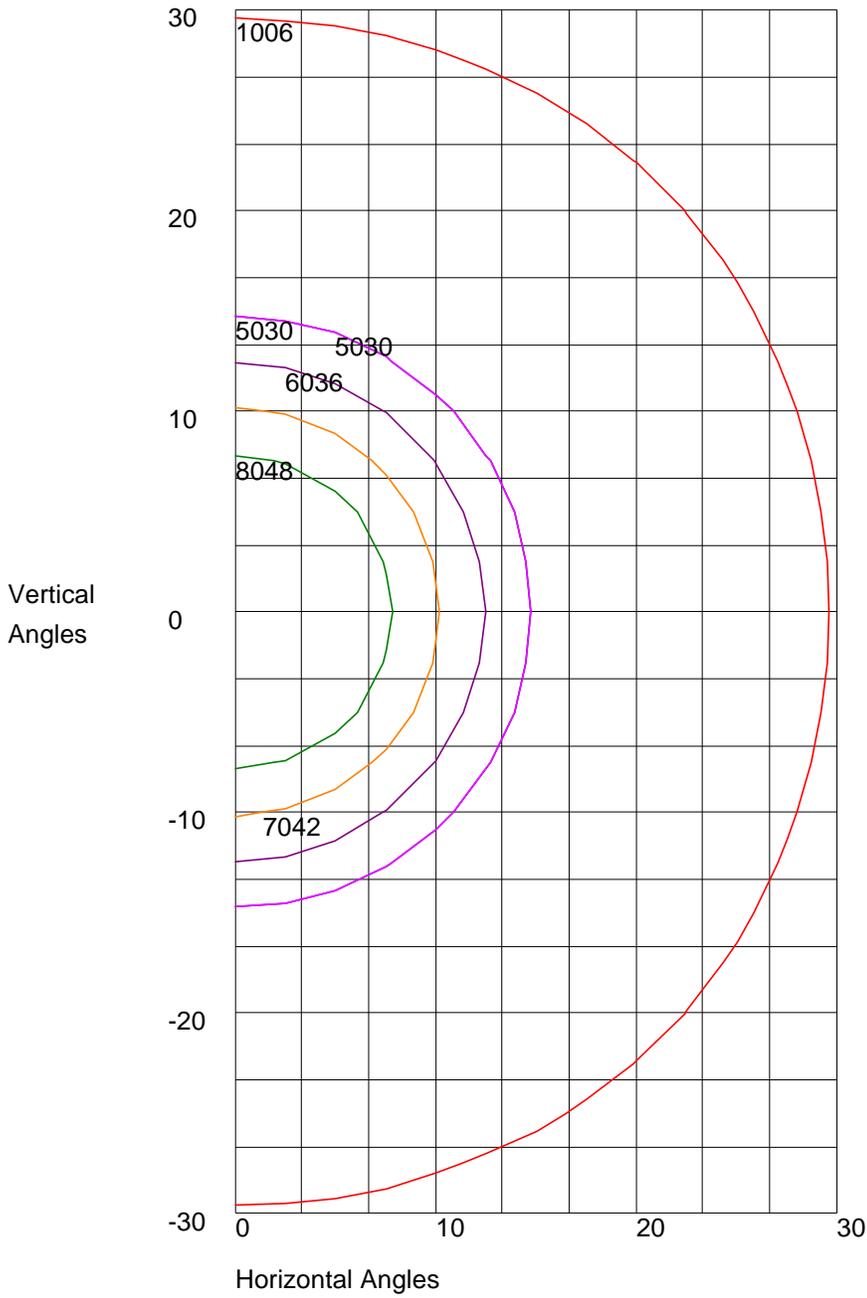
Zone	%
0-20	67.2
0-30	92.8
0-40	98.4
0-60	99.4
0-80	99.9
0-90	100
10-90	75
20-40	31.2
20-50	31.8
40-70	1.3
60-80	0.5
70-80	0.2
80-90	0.1
90-110	0
90-120	0
90-130	0
90-150	0
90-180	0
110-180	0
0-180	100

AXIAL CANDELA DISPLAY



Maximum Candela = 10060 Located At Horizontal Angle = 0, Vertical Angle = 0  
H - Horizontal Axial Candela  
V - Vertical Axial Candela

ISOCANDELA CURVES



Maximum Candela = 10060 Located At Horizontal Angle = 0, Vertical Angle = 0  
50% Maximum Candela = 5030  
10% Maximum Candela = 1006