



8165 E Kaiser Blvd. Anaheim, CA 92808
p. 714.282.2270
f. 714.676.5558

Report No: L081507404

Date: 8/26/2015



NVLAP LAB CODE 200927-0

Report No: L081507404

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

Model Number: ZXL-30i BZ Wide

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 Wide . 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: 8/25/15 - 8/25/15

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

Manufacturer:	HK Lighting Group
Model Number:	ZXL-30i BZ Wide
Driver Model Number:	GE GELD60DMV1400PU
Total Lumens:	3338.62
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.43
Input Power (W):	51.84
Input Power Factor:	0.99
Current ATHD @ 120V(%):	8%
Current ATHD @ 277V(%):	N/A
Efficacy:	64
Color Rendering Index (CRI):	80
Correlated Color Temperature (K):	2943
Chromaticity Coordinate x:	0.4450
Chromaticity Coordinate y:	0.4133
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:30
Total Operating Time (Hours):	1:35
Off State Power(W):	0.00

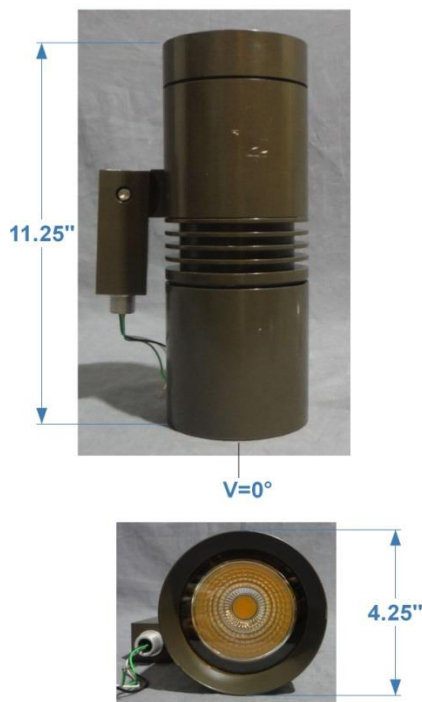
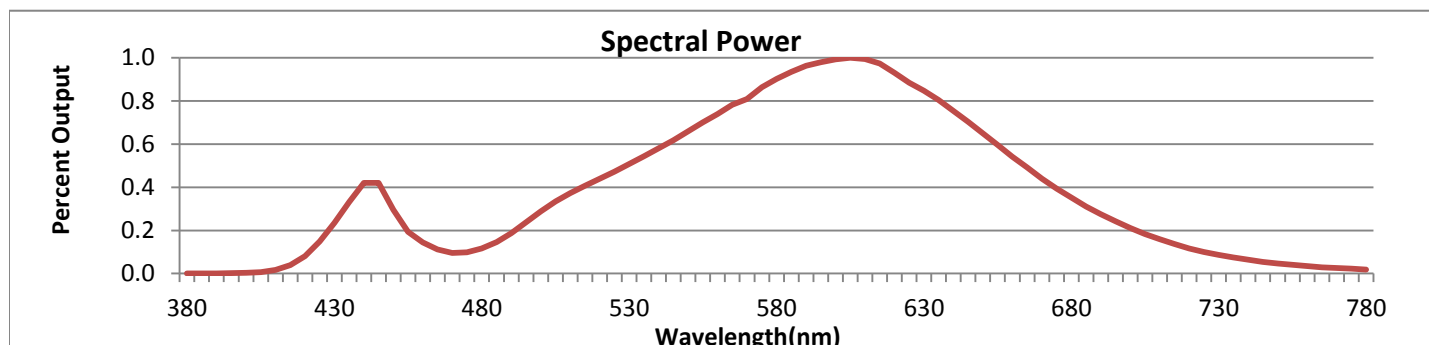


FIG. 1 LUMINAIRE



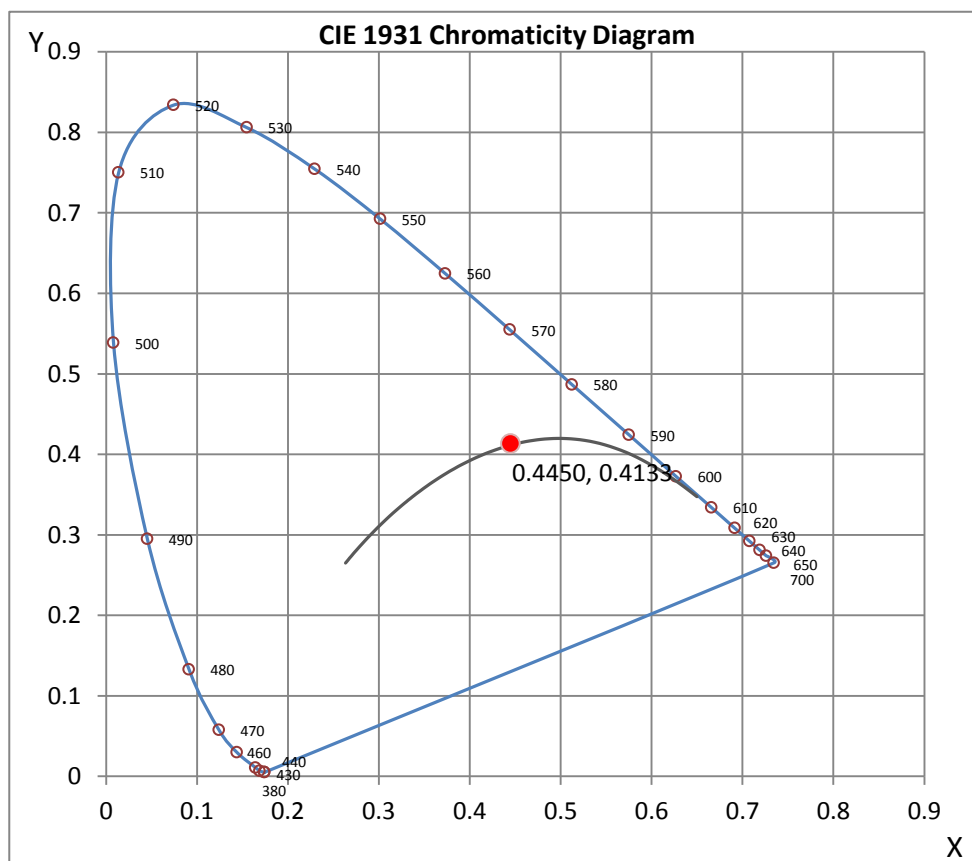
Wavelength	W/m ² nm	440	0.4210	510	0.3737	580	0.9028	650	0.6503	720	0.1159
380	0.0009	450	0.2958	520	0.4404	590	0.9632	660	0.5428	730	0.0864
390	0.0012	460	0.1449	530	0.5073	600	0.9929	670	0.4399	740	0.0637
400	0.0032	470	0.0950	540	0.5809	610	0.9951	680	0.3516	750	0.0472
410	0.0165	480	0.1156	550	0.6588	620	0.9304	690	0.2750	760	0.0342
420	0.0807	490	0.1879	560	0.7400	630	0.8481	700	0.2106	770	0.0256
430	0.2347	500	0.2879	570	0.8091	640	0.7548	710	0.1590	780	0.0190

CRI & CCT

x	0.4450
y	0.4133
u'	0.2518
v'	0.5262
CRI	80.00
CCT	2943
Duv	0.00256

R Values

R1	77.79
R2	85.64
R3	93.35
R4	79.85
R5	77.00
R6	80.78
R7	84.86
R8	60.98
R9	7.86
R10	67.24
R11	77.92
R12	64.15
R13	78.78
R14	95.80





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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 : 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*

**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 : L081507404.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L081507404
[TESTLAB] LIGHT LABORATORY, INC.
[ISSUEDATE] 8/26/2015
[MANUFAC] HK LIGHTING GROUP
[LUMCAT] ZXL-30i BZ Wide
[LUMINAIRE] LED SPOT LIGHT FIXTURE WIDE 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, 51.84W
[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	7038
Maximum Candela Angle	0H 0V
Horizontal Beam Angle (50%)	37.5
Vertical Beam Angle (50%)	37.5
Horizontal Field Angle (10%)	67.9
Vertical Field Angle (10%)	67.9
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Beam Lumens	1742
Beam Efficiency	N.A.
Field Lumens	3086
Field Efficiency	N.A.
Spill Lumens	253
Luminaire Lumens	3339
Total Efficiency	N.A.
Total Luminaire Watts	51.84
Ballast Factor	1.00

IES FLOOD REPORT
PHOTOMETRIC FILENAME : L081507404.IES

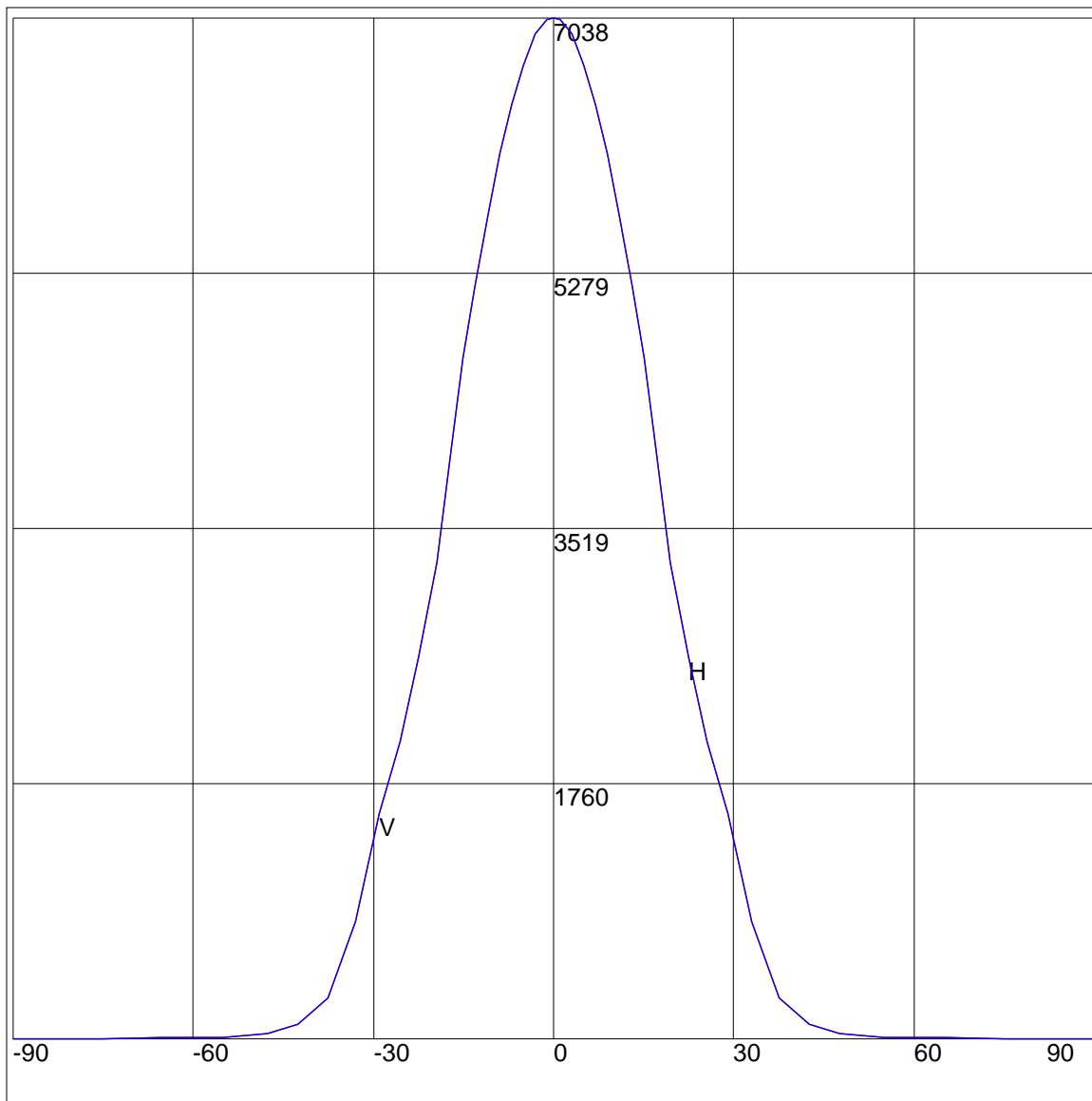
AXIAL CANDELA

DEG.	HOR.	DEG.	VERT.
90	0	90	0
85	5	85	5
75	7	75	7
65	9	65	9
55	15	55	15
47.5	40	47.5	40
42.5	108	42.5	108
37.5	289	37.5	289
33	812	33	812
29	1551	29	1551
25.5	2056	25.5	2056
22.5	2630	22.5	2630
19.5	3289	19.5	3289
17	4071	17	4071
15	4697	15	4697
13	5187	13	5187
11	5677	11	5677
9	6103	9	6103
7	6441	7	6441
5	6715	5	6715
3	6925	3	6925
1	7029	1	7029
0	7038	0	7038
-1	7029	-1	7029
-3	6925	-3	6925
-5	6715	-5	6715
-7	6441	-7	6441
-9	6103	-9	6103
-11	5677	-11	5677
-13	5187	-13	5187
-15	4697	-15	4697
-17	4071	-17	4071
-19.5	3289	-19.5	3289
-22.5	2630	-22.5	2630
-25.5	2056	-25.5	2056
-29	1551	-29	1551
-33	812	-33	812
-37.5	289	-37.5	289
-42.5	108	-42.5	108
-47.5	40	-47.5	40
-55	15	-55	15
-65	9	-65	9
-75	7	-75	7
-85	5	-85	5
-90	0	-90	0

ZONAL LUMEN SUMMARY

Zone	%
0-20	56.5
0-30	86.4
0-40	97.3
0-60	99.4
0-80	99.9
0-90	100
10-90	81.6
20-40	40.8
20-50	42.4
40-70	2.4
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

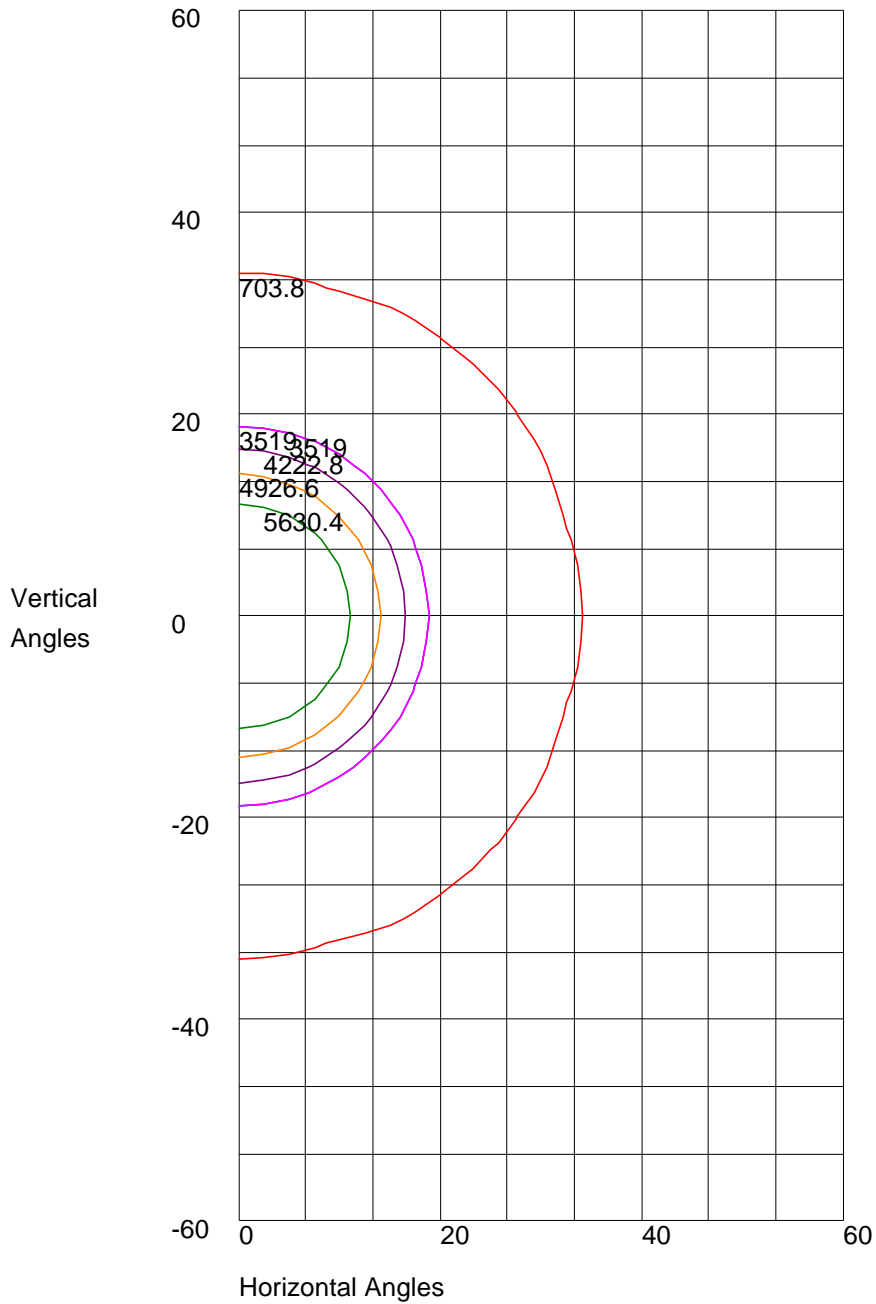


Maximum Candela = 7038 Located At Horizontal Angle = 0, Vertical Angle = 0

H - Horizontal Axial Candela

V - Vertical Axial Candela

ISOCANDELA CURVES



Maximum Candela = 7038 Located At Horizontal Angle = 0, Vertical Angle = 0
50% Maximum Candela = 3519
10% Maximum Candela = 703.8