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Report No: L081507401

Date: 8/26/2015



NVLAP LAB CODE 200927-0

Report No: L081507401

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

Model Number: ZX30i-IP-X47 BK

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 ZX30i-IP-X47 BK. 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: 8/26/15 - 8/26/15

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.

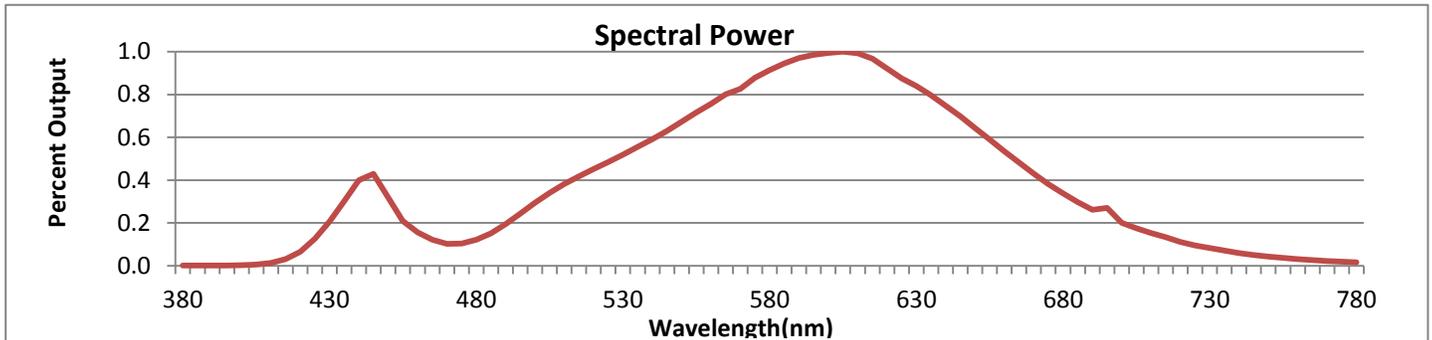
Test Summary

Manufacturer:	HK Lighting Group
Model Number:	ZX30i-IP-X47 BK
Driver Model Number:	GE GELD60DMV1400PU
Total Lumens:	1306.68
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.44
Input Power (W):	52.45
Input Power Factor:	0.99.9
Current ATHD @ 120V(%):	8%
Current ATHD @ 277V(%):	N/A
Efficacy:	25
Color Rendering Index (CRI):	80
Correlated Color Temperature (K):	2984
Chromaticity Coordinate x:	0.4436
Chromaticity Coordinate y:	0.4158
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	1:30
Total Operating Time (Hours):	2:40
Off State Power(W):	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.



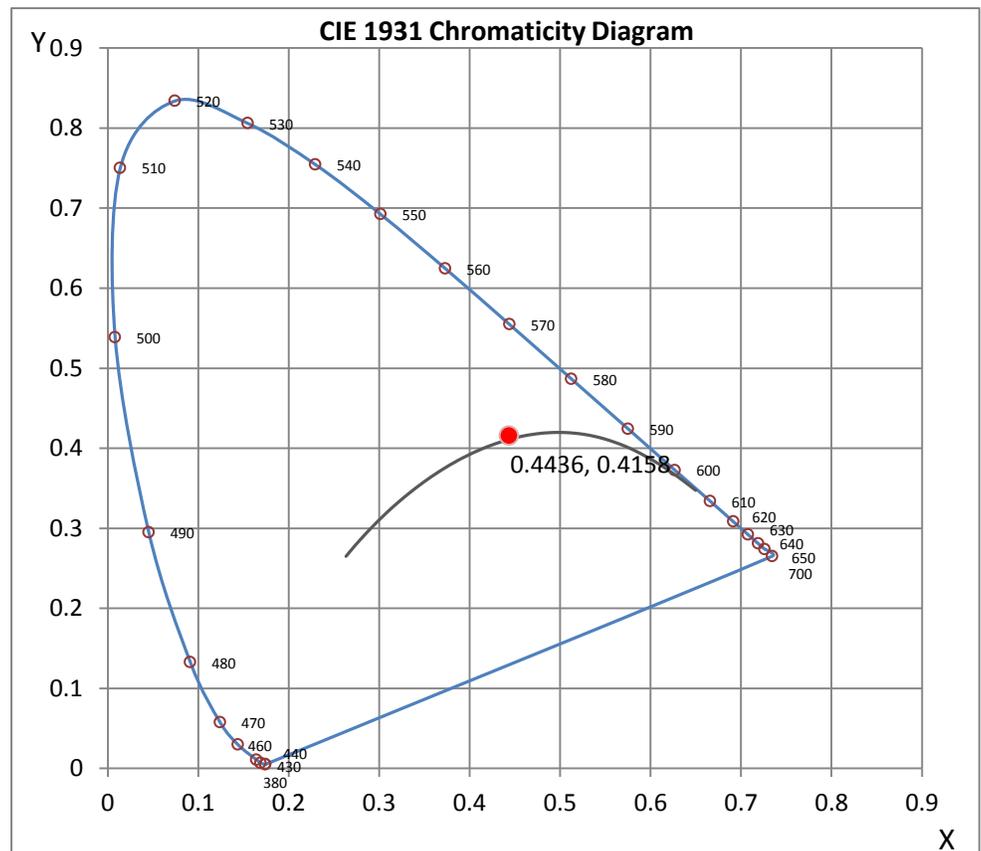
Wavelength	W/m ² nm	440	0.4001	510	0.3818	580	0.9143	650	0.6438	720	0.1118
380	0.0010	450	0.3198	520	0.4522	590	0.9701	660	0.5350	730	0.0823
390	0.0012	460	0.1563	530	0.5182	600	0.9947	670	0.4303	740	0.0597
400	0.0026	470	0.1020	540	0.5920	610	0.9933	680	0.3381	750	0.0430
410	0.0134	480	0.1213	550	0.6726	620	0.9219	690	0.2613	760	0.0307
420	0.0658	490	0.1938	560	0.7570	630	0.8390	700	0.2003	770	0.0226
430	0.2061	500	0.2935	570	0.8260	640	0.7479	710	0.1531	780	0.0165

CRI & CCT

x	0.4436
y	0.4158
u'	0.2498
v'	0.5269
CRI	79.60
CCT	2984
Duv	0.00369

R Values

R1	77.09
R2	85.20
R3	93.39
R4	79.38
R5	76.28
R6	80.08
R7	85.15
R8	60.47
R9	5.66
R10	66.29
R11	77.08
R12	62.55
R13	78.10
R14	95.86



*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 : L081507401.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L081507401
[TESTLAB] LIGHT LABORATORY, INC.
[ISSUEDATE] 8/26/2015
[MANUFAC] HK LIGHTING GROUP
[LUMCAT] ZX30i-IP-X47 BK
[LUMINAIRE] ZXL30I Image projector
[MORE] SIZE: 4.25"DIA X 17.5"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, 54.45W
[TEST PROCEDURE] IESNA:LM-79-08

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

CHARACTERISTICS

NEMA Type	4 H x 3 V
Maximum Candela	3872
Maximum Candela Angle	-11H -5V
Horizontal Beam Angle (50%)	35.0
Vertical Beam Angle (50%)	29.1
Horizontal Field Angle (10%)	47.6
Vertical Field Angle (10%)	42.8
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Beam Lumens	910
Beam Efficiency	N.A.
Field Lumens	1175
Field Efficiency	N.A.
Spill Lumens	132
Luminaire Lumens	1307
Total Efficiency	N.A.
Total Luminaire Watts	54.45
Ballast Factor	1.00

IES FLOOD REPORT
PHOTOMETRIC FILENAME : L081507401.IES

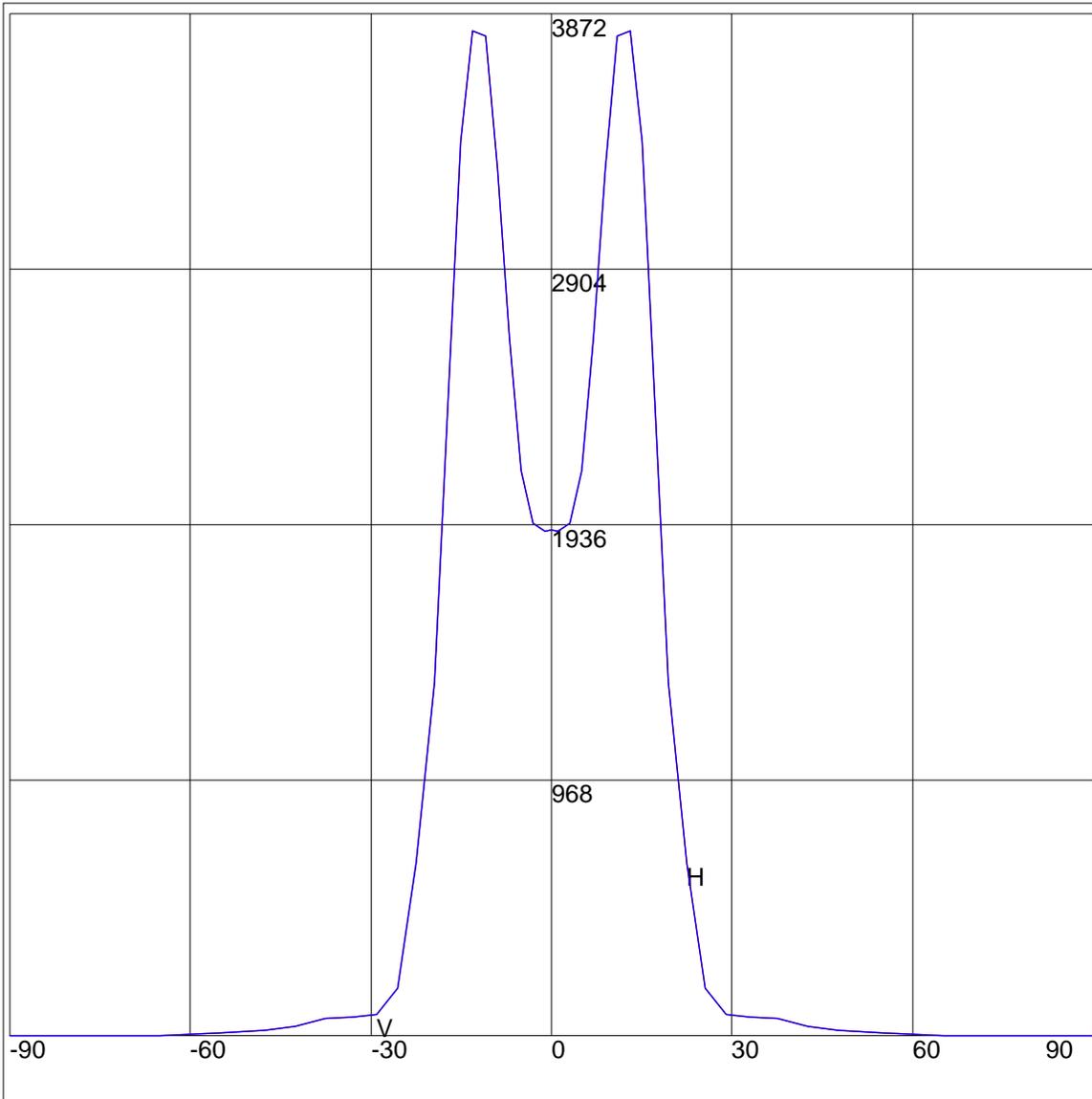
AXIAL CANDELA

DEG.	HOR.	DEG.	VERT.
90	0	90	0
85	0	85	0
75	1	75	1
65	4	65	4
55	11	55	11
47.5	22	47.5	22
42.5	38	42.5	38
37.5	65	37.5	65
33	70	33	70
29	82	29	82
25.5	183	25.5	183
22.5	655	22.5	655
19.5	1340	19.5	1340
17	2477	17	2477
15	3387	15	3387
13	3807	13	3807
11	3787	11	3787
9	3283	9	3283
7	2645	7	2645
5	2141	5	2141
3	1942	3	1942
1	1913	1	1913
0	1915	0	1915
-1	1913	-1	1913
-3	1942	-3	1942
-5	2141	-5	2141
-7	2645	-7	2645
-9	3283	-9	3283
-11	3787	-11	3787
-13	3807	-13	3807
-15	3387	-15	3387
-17	2477	-17	2477
-19.5	1340	-19.5	1340
-22.5	655	-22.5	655
-25.5	183	-25.5	183
-29	82	-29	82
-33	70	-33	70
-37.5	65	-37.5	65
-42.5	38	-42.5	38
-47.5	22	-47.5	22
-55	11	-55	11
-65	4	-65	4
-75	1	-75	1
-85	0	-85	0
-90	0	-90	0

ZONAL LUMEN SUMMARY

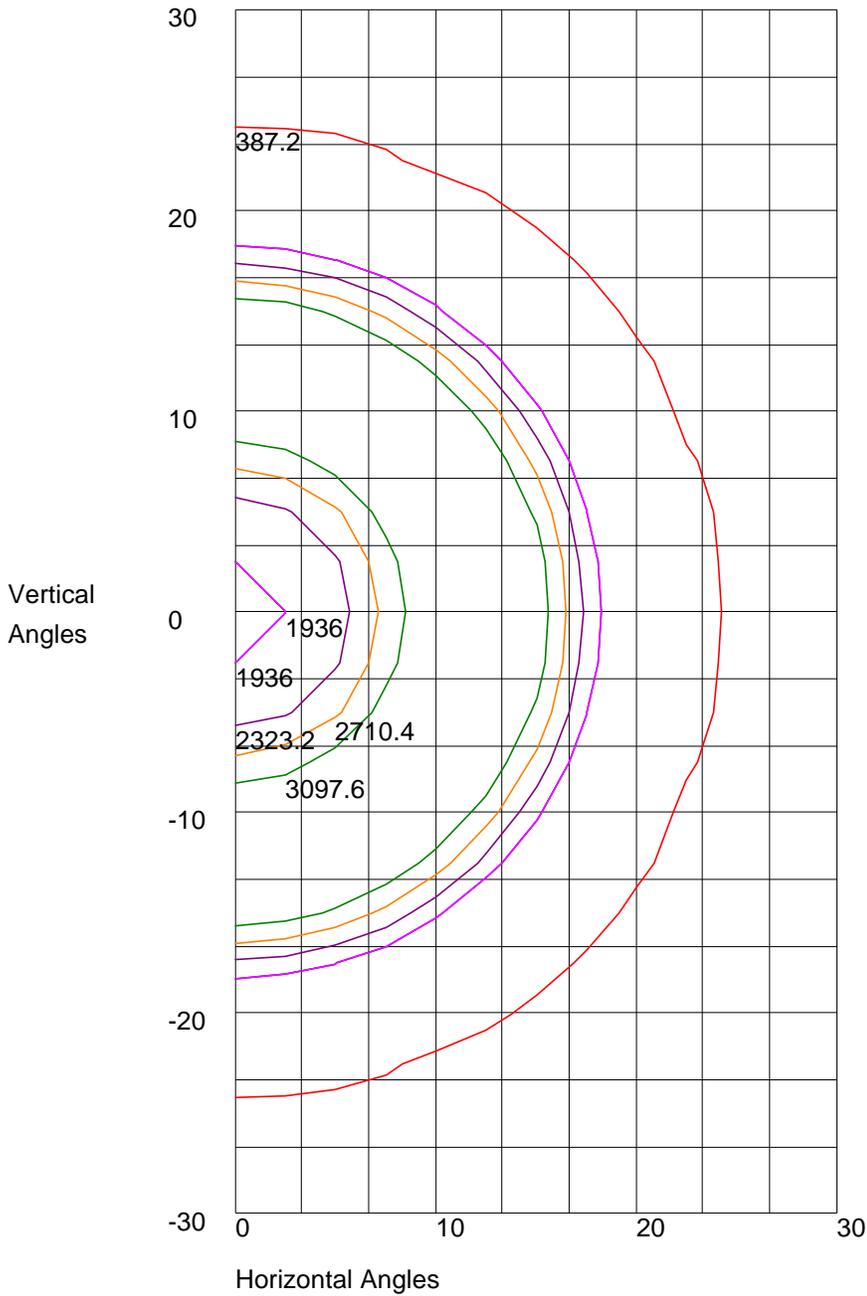
Zone	%
0-20	81.1
0-30	93.9
0-40	97.1
0-60	99.6
0-80	100
0-90	100
10-90	80.6
20-40	16
20-50	17.7
40-70	2.8
60-80	0.4
70-80	0.1
80-90	0
90-110	0
90-120	0
90-130	0
90-150	0
90-180	0
110-180	0
0-180	100

AXIAL CANDELA DISPLAY



Maximum Candela = 3872 Located At Horizontal Angle =-11, Vertical Angle =-5
H - Horizontal Axial Candela
V - Vertical Axial Candela

ISOCANDELA CURVES



Maximum Candela = 3872 Located At Horizontal Angle =-11, Vertical Angle =-5
50% Maximum Candela = 1936
10% Maximum Candela = 387.2