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

Report No: L061603601
Date: 8/1/2016

NVLAP LAB CODE 200927-0

Report No: **L061606301**

Report Prepared For: Beachside Lighting
905 Kalanianaole Hwy # 29A Kailua, HI. 96734

Model Number: **E1-3W-FL**

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 E1-3W-FL. Received in working and undamaged condition. No modifications were necessary.

Testing Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 7/25/16

Date of Tests: 7/25/16 - 7/29/16

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	11/18/16
Xitron Power Analyzer	2503AH	MT-EL01	11/30/16
ITECH DC Power Supply	IT6122	PSDC-03-S1	11/17/16
Fluke Digital Thermometer	52k/J	MT-TP02-GC	11/24/16
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.

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Test Summary	
Manufacturer:	Beachside Lighting
Model Number:	E1-3W-FL
Driver Model Number:	N/A
Total Lumens:	142.60
Input Voltage (VAC/60Hz):	12.00
Input Current (Amp):	0.33
Input Power (W):	2.93
Input Power Factor:	0.73
Current ATHD @ 12V(%):	81%
Current ATHD @ 277V(%):	N/A
Efficacy:	49
Color Rendering Index (CRI):	81
Correlated Color Temperature (K):	3020
Chromaticity Coordinate x:	0.4379
Chromaticity Coordinate y:	0.4086
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:45
Total Operating Time (Hours):	1:25
Off State Power(W):	0.00

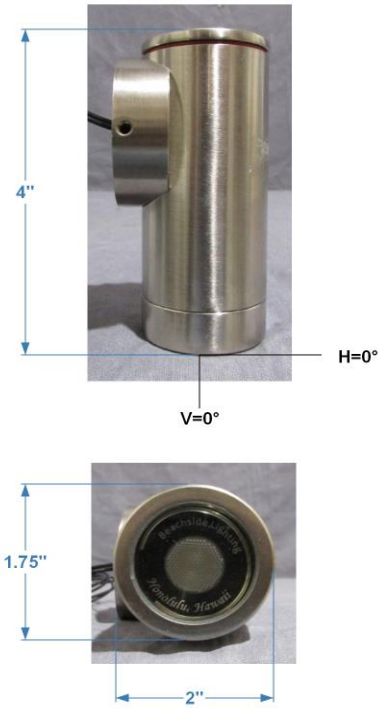

FIG. 1 LUMINAIRE

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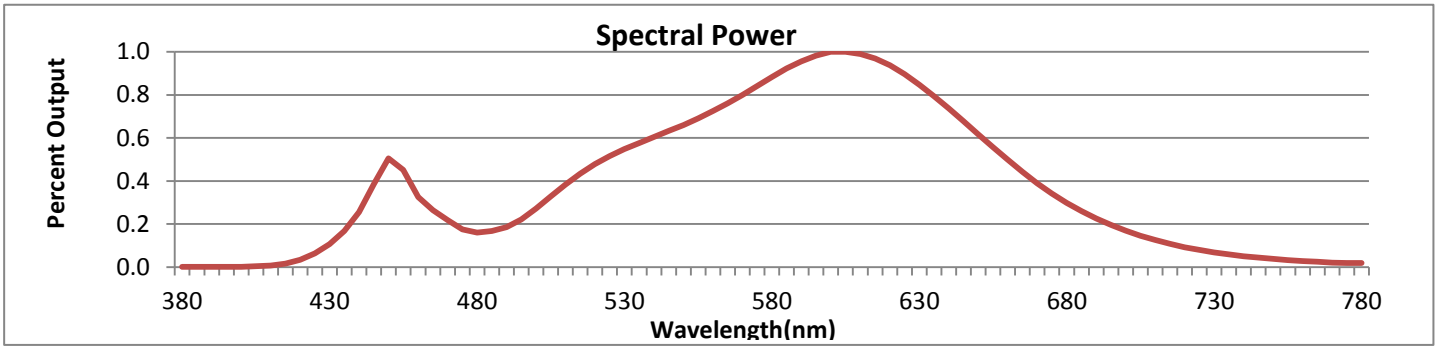


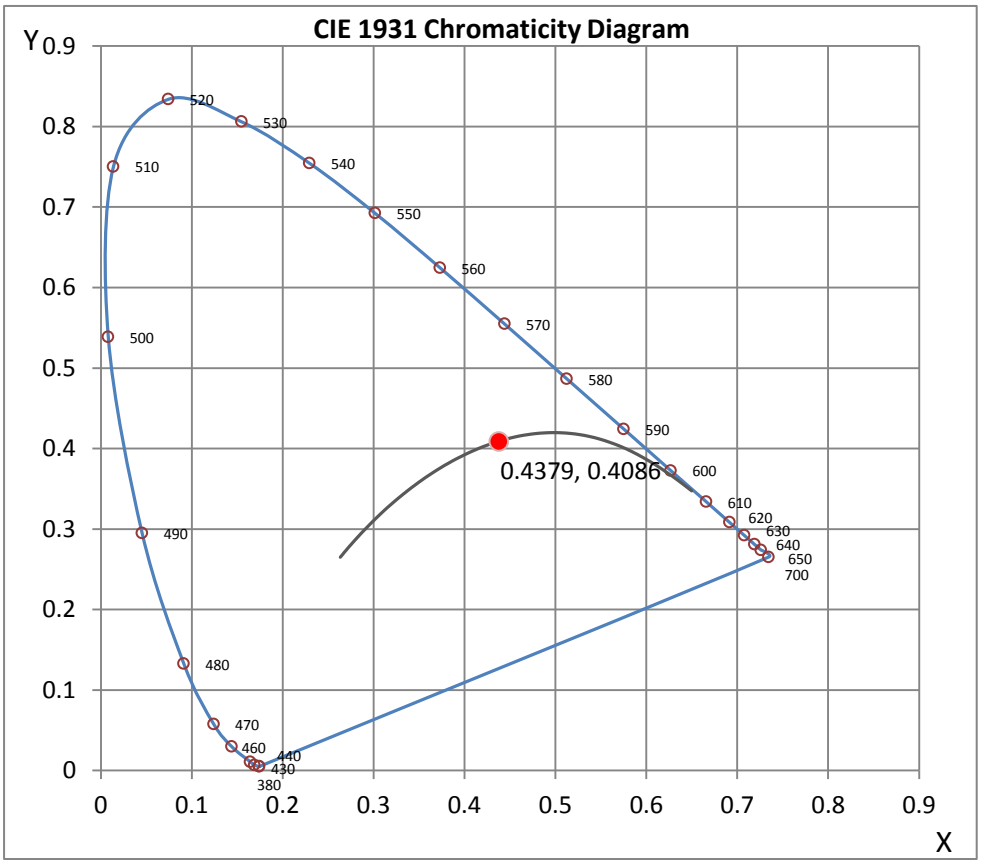
Wavelength	W/m²nm	440	0.2550	510	0.3831	580	0.8825	650	0.6166	720	0.0926
380	0.0006	450	0.5053	520	0.4791	590	0.9558	660	0.4994	730	0.0682
390	0.0008	460	0.3249	530	0.5490	600	0.9996	670	0.3896	740	0.0506
400	0.0018	470	0.2186	540	0.6044	610	0.9901	680	0.2992	750	0.0377
410	0.0076	480	0.1597	550	0.6604	620	0.9374	690	0.2261	760	0.0280
420	0.0341	490	0.1856	560	0.7253	630	0.8478	700	0.1693	770	0.0212
430	0.1072	500	0.2716	570	0.8003	640	0.7369	710	0.1254	780	0.0183

CRI & CCT

x	0.4379
y	0.4086
u'	0.2493
v'	0.5233
CRI	81.40
CCT	3020
Duv	0.00166

R Values

R1	79.58
R2	88.00
R3	95.15
R4	80.07
R5	78.52
R6	83.86
R7	84.89
R8	60.82
R9	8.01
R10	71.49
R11	77.93
R12	62.91
R13	81.23
R14	96.83



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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: 12*

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Photometric Test Report

IES ROAD REPORT
PHOTOMETRIC FILENAME : L061606301.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L061606301
[TESTLAB] LIGHT LABORATORY, INC.
[ISSUEDATE] 7/29/2016
[MANUFAC] BEACHSIDE LIGHTING
[LUMCAT] E1-3W-FL
[LUMINAIRE] POST MOUNTED FIXED DOWNLIGHT
[BALLASTCAT] N/A
[LAMPPOSITION] 0,0
[LAMPCAT] N/A
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] 12VAC, 2.93W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

IES Classification	Type V
Longitudinal Classification	Very Short
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	143
Downward Total Efficiency	N.A. (absolute)
Total Luminaire Efficiency	N.A. (absolute)
Luminaire Efficacy Rating (LER)	49
Total Luminaire Watts	2.93
Ballast Factor	1.00
Upward Waste Light Ratio	0.00
Maximum Candela	390.81
Maximum Candela Angle	0H 0V
Maximum Candela (<90 Degrees Vertical)	390.81
Maximum Candela Angle (<90 Degrees Vertical)	0H 0V
Maximum Candela At 90 Degrees Vertical	0 (0.0% Luminaire Lumens)
Maximum Candela from 80 to <90 Degrees Vertical	.52 (0.4% Luminaire Lumens)
Cutoff Classification (deprecated)	N.A. (absolute)

IES ROAD REPORT
PHOTOMETRIC FILENAME : L061606301.IES

LUMINAIRE CLASSIFICATION SYSTEM (LCS)

	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	60.3	N.A.	42.3
FM - Front-Medium (30-60)	9.8	N.A.	6.9
FH - Front-High (60-80)	1.0	N.A.	0.7
FVH - Front-Very High (80-90)	0.2	N.A.	0.1
BL - Back-Low (0-30)	60.3	N.A.	42.3
BM - Back-Medium (30-60)	9.8	N.A.	6.9
BH - Back-High (60-80)	1.0	N.A.	0.7
BVH - Back-Very High (80-90)	0.2	N.A.	0.1
UL - Uplight-Low (90-100)	0.0	N.A.	0.0
UH - Uplight-High (100-180)	0.0	N.A.	0.0
Total	142.6	N.A.	100.0
BUG Rating	B0-U0-G0		

ZONAL LUMEN SUMMARY

Zone	%
0-20	58.1
0-30	82.9
0-40	92.8
0-60	97.8
0-80	99.5
0-90	100
10-90	81.5
20-40	34.7
20-50	38.5
40-70	6
60-80	1.8
70-80	0.7
80-90	0.4
90-110	0
90-120	0
90-130	0
90-150	0
90-180	0
110-180	0
0-180	100

IES ROAD REPORT
PHOTOMETRIC FILENAME : L061606301.IES

CANDELA TABULATION

Vert. Angles	Horizontal Angles
	0
0.0	390.81
1.0	389.83
3.0	378.00
5.0	358.02
7.0	329.27
9.0	295.25
11.0	259.38
13.0	225.30
15.0	194.33
17.0	165.82
19.5	133.23
22.5	98.59
25.5	71.11
29.0	46.87
33.0	27.17
37.5	13.43
42.5	6.32
47.5	3.48
55.0	1.88
65.0	1.29
75.0	0.74
85.0	0.30
90.0	0.00

IES ROAD REPORT
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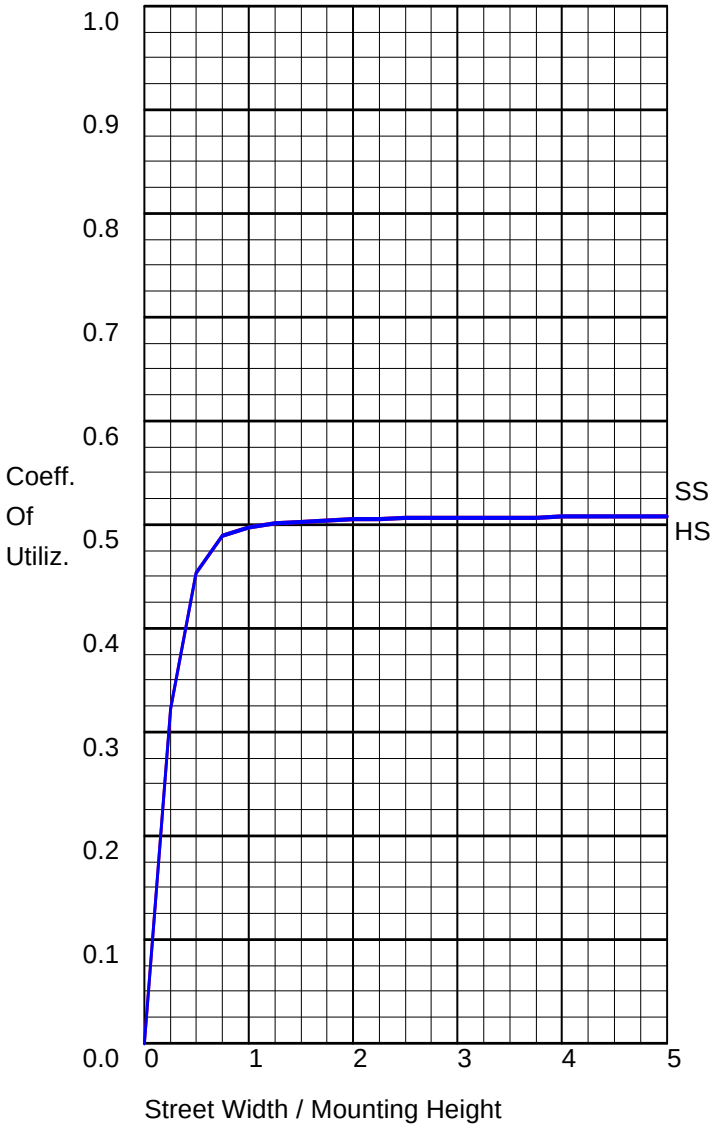
COEFFICIENTS OF UTILIZATION



FLUX DISTRIBUTION

	Lumens	Percent Of Luminaire
Downward Street Side	71.3	50.0
Downward House Side	71.3	50.0
Downward Total	142.6	100.0
Upward Street Side	0.0	0.0
Upward House Side	0.0	0.0
Upward Total	0.0	0.0
Total Flux	142.6	100.0

IES ROAD REPORT
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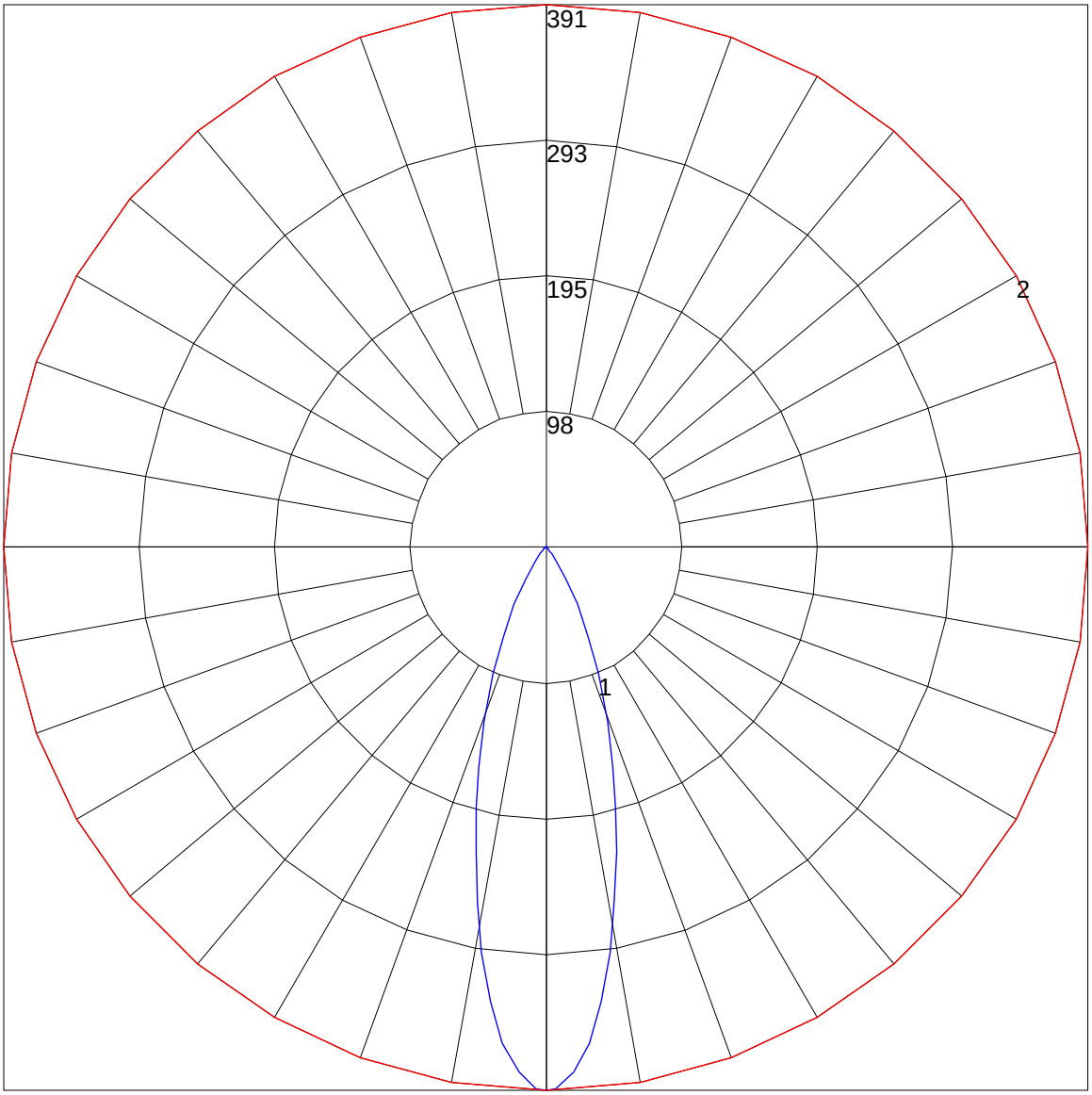
POLAR GRAPH



Maximum Candela = 390.81 Located At Horizontal Angle = 0, Vertical Angle = 0
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)

IES ROAD REPORT
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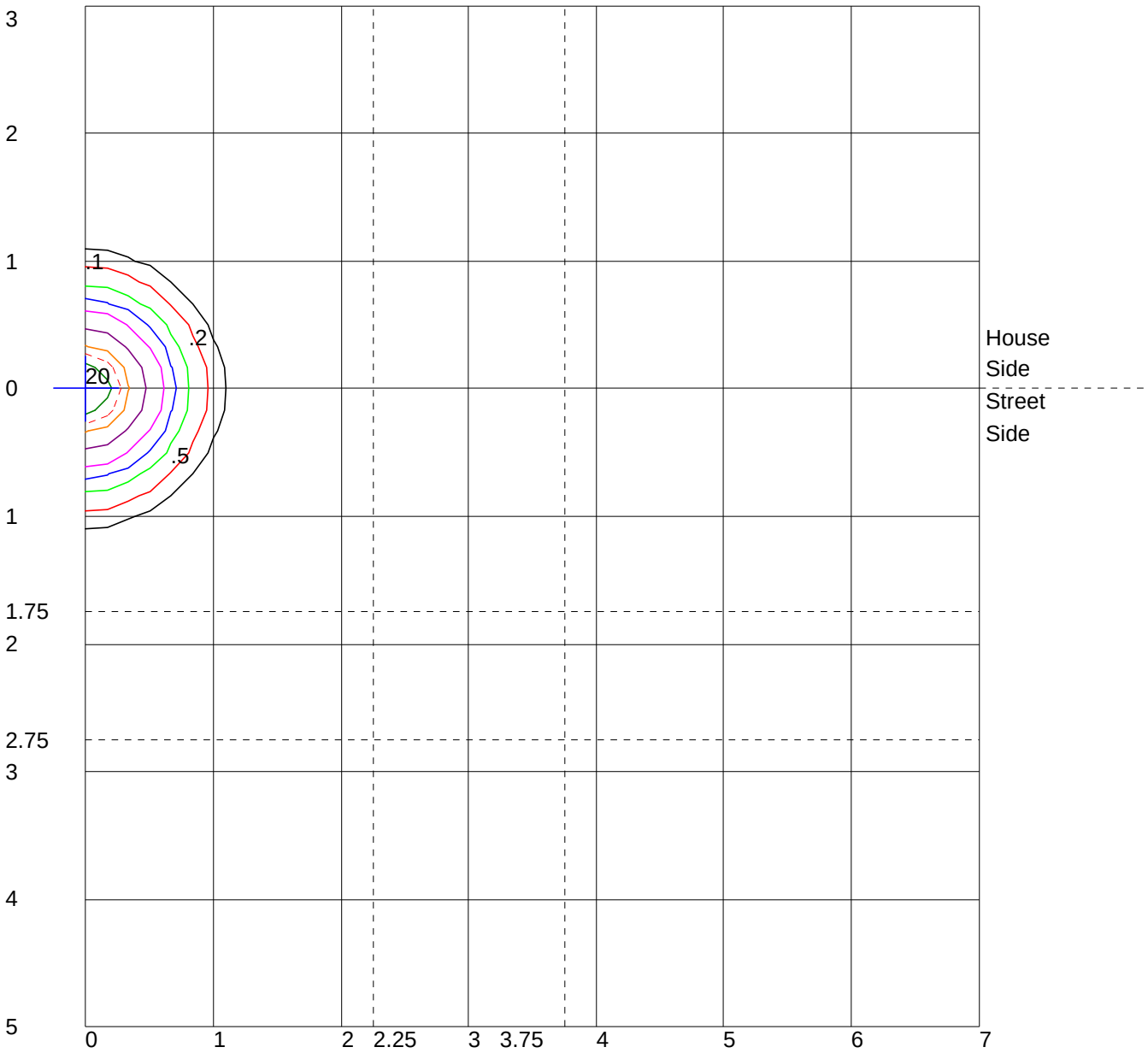
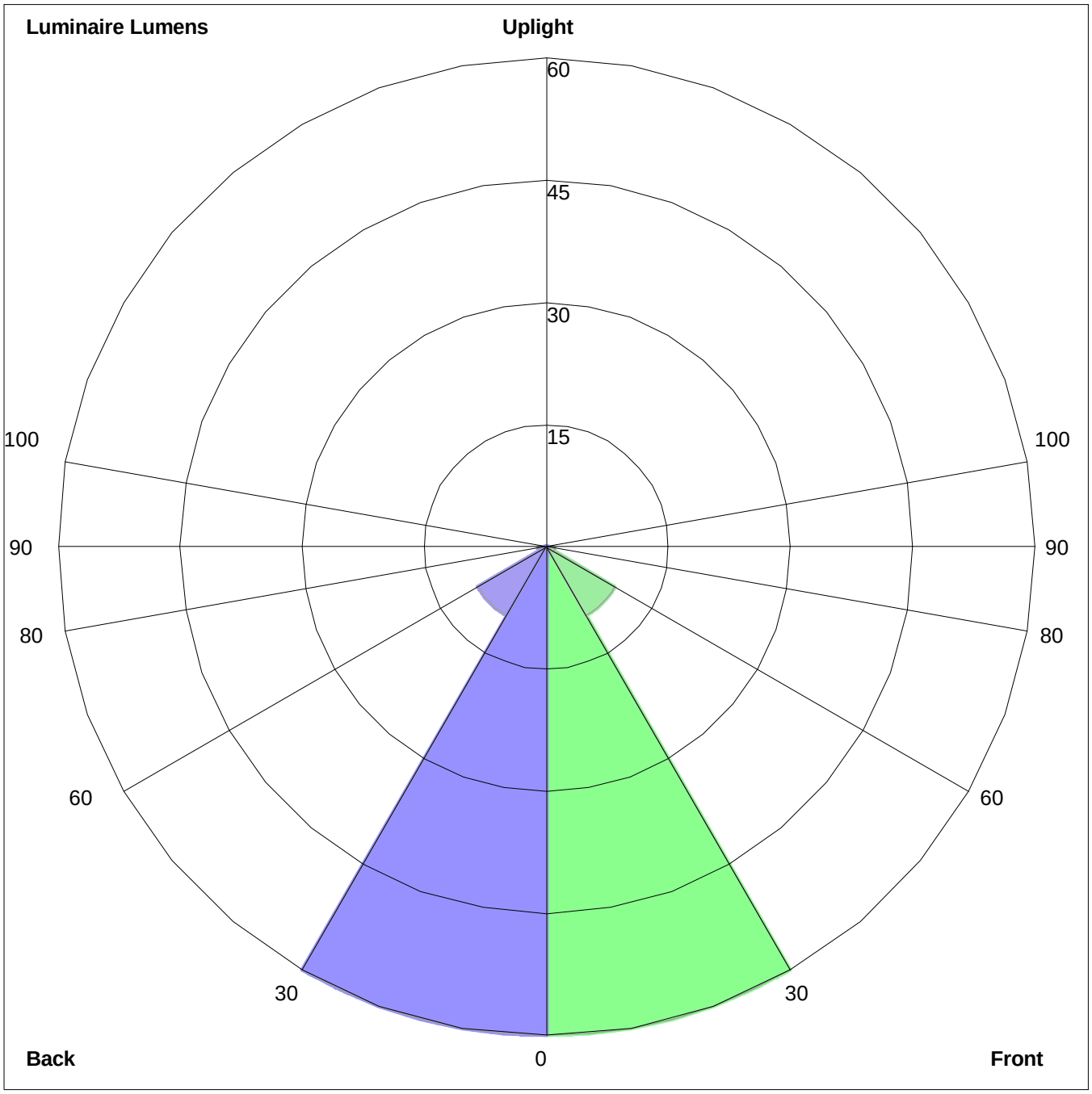
ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINANCE



Distance In Units Of Mounting Height
Values Based On 3.5 Foot Mounting Height
1/2 Maximum Candela Trace Shown As Dashed Curve
(+) = Maximum Candela Point

IES ROAD REPORT
PHOTOMETRIC FILENAME : L061606301.IES

LUMINAIRE CLASSIFICATION SYSTEM (LCS) GRAPH



Luminaire Lumens:
Front: Low=60.3, Medium=9.8, High=1.0, Very High=0.2
Back: Low=60.3, Medium=9.8, High=1.0, Very High=0.2
Uplight: Low=0.0, High=0.0

BUG Rating : B0-U0-G0

SAMPLE Illuminance cone diagram

Mounting Height = 4ft