



8165 E Kaiser Blvd. Anaheim, CA 92808
www.lightlaboratory.com

Report No: L021904312



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Issue Date: 3/4/2019

Report Prepared For: Beachside Lighting
905 Kalaniana'ole Hwy #2901 Kailua, HI 96734

Model Number: R-021-12-3W

Test: Photometric/Colorimetric/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.

Special Test Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 2/13/19

Date of Tests: 3/1/19 - 3/2/19

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-S4	1/9/21
BK PRECISION	1747	PS-DC04	1/10/21
Fluke Digital Thermometer	52K/J	MT-TP05	1/10/21
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

General Information

Manufacturer:	Beachside Lighting
Model Number:	R-021-12-3W
Driver Model Number:	N/A

Test Summary

Total Lumens:	118.00
Efficacy:	68.38
Color Redering Index:	82.0
Correlated Color Temperature:	2750
Input Voltage (VAC/60Hz):	12.07
Input Current (Amp):	0.2236
Input Power (W):	1.73
Input Power Factor:	0.6393
Current ATHD (%):	67.9%

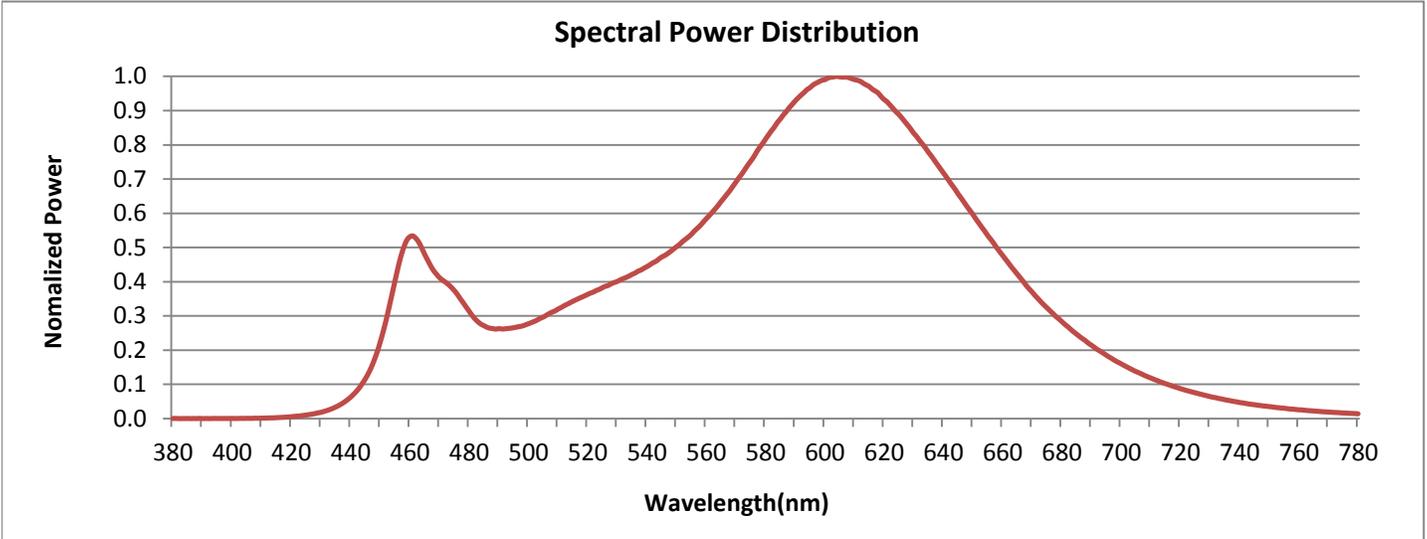
Test Condition

Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:55
Total Operating Time (Hours):	1:40



FIG. 1 LUMINAIRE

Colorimetry Test Results

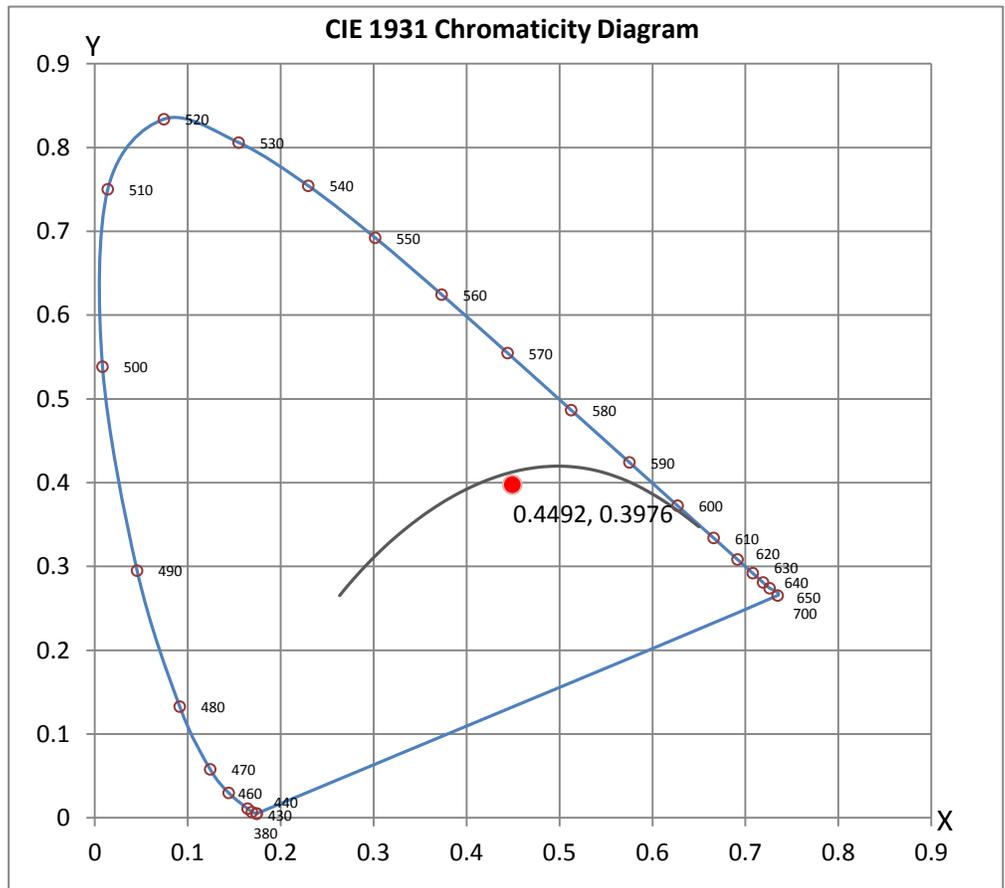


CRI & CCT

x	0.4492
y	0.3976
u'	0.2614
v'	0.5207
CRI	82.00
CCT	2750
Duv	-0.00397

R Values

R1	83.58
R2	97.67
R3	86.58
R4	77.74
R5	85.18
R6	94.33
R7	75.72
R8	54.81
R9	10.65
R10	95.27
R11	77.34
R12	78.97
R13	87.74
R14	93.41
R15	75.48



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 : Dennis Malonzo

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 : L021904312.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TEST] L021904312
 [TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
 [ISSUEDATE] 03/04/2019
 [MANUFAC] Beachside Lighting
 [LUMCAT] R-021-12-3W
 [LUMINAIRE] R-021 Landscape Fixture, 3 watt G4 bi-pin, 2800K.
 [BALLASTCAT] N/A
 [OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
 [MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
 [INPUT] 12.07VAC, 1.73W
 [TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

IES Classification	Type V
Longitudinal Classification	Very Long
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	118
Downward Total Efficiency	N.A. (absolute)
Total Luminaire Efficiency	N.A. (absolute)
Luminaire Efficacy Rating (LER)	68
Total Luminaire Watts	1.73
Ballast Factor	1.00
Upward Waste Light Ratio	0.54
Maximum Candela	13.991
Maximum Candela Angle	0H 85V
Maximum Candela (<90 Degrees Vertical)	13.991
Maximum Candela Angle (<90 Degrees Vertical)	0H 85V
Maximum Candela At 90 Degrees Vertical	13.952 (11.8% Luminaire Lumens)
Maximum Candela from 80 to <90 Degrees Vertical	13.991 (11.9% Luminaire Lumens)
Cutoff Classification (deprecated)	N.A. (absolute)

IES ROAD REPORT
PHOTOMETRIC FILENAME : L021904312.IES

LUMINAIRE CLASSIFICATION SYSTEM (LCS)

ZONAL LUMEN SUMMARY

	Lumens	% Lamp	% Luminaire	Zone	%
FL - Front-Low (0-30)	0.7	N.A.	0.6		
FM - Front-Medium (30-60)	6.6	N.A.	5.6	0-20	0.4
FH - Front-High (60-80)	12.5	N.A.	10.6	0-30	1.2
FVH - Front-Very High (80-90)	7.6	N.A.	6.4	0-40	2.9
BL - Back-Low (0-30)	0.7	N.A.	0.6	0-60	12.4
BM - Back-Medium (30-60)	6.6	N.A.	5.6	0-80	33.6
BH - Back-High (60-80)	12.5	N.A.	10.6	0-90	46.5
BVH - Back-Very High (80-90)	7.6	N.A.	6.4	10-90	46.4
UL - Uplight-Low (90-100)	15.0	N.A.	12.7	20-40	2.5
UH - Uplight-High (100-180)	48.1	N.A.	40.8	20-50	5.9
				40-70	18.9
Total	117.9	N.A.	100.0	60-80	21.2
				70-80	11.8
BUG Rating	B0-U2-G0			80-90	12.9
				90-110	24.1
				90-120	32.7
				90-130	38.7
				90-150	47.9
				90-180	53.5
				110-180	29.4
				0-180	100

IES ROAD REPORT
PHOTOMETRIC FILENAME : L021904312.IES

CANDELA TABULATION

Vert. Horizontal Angles

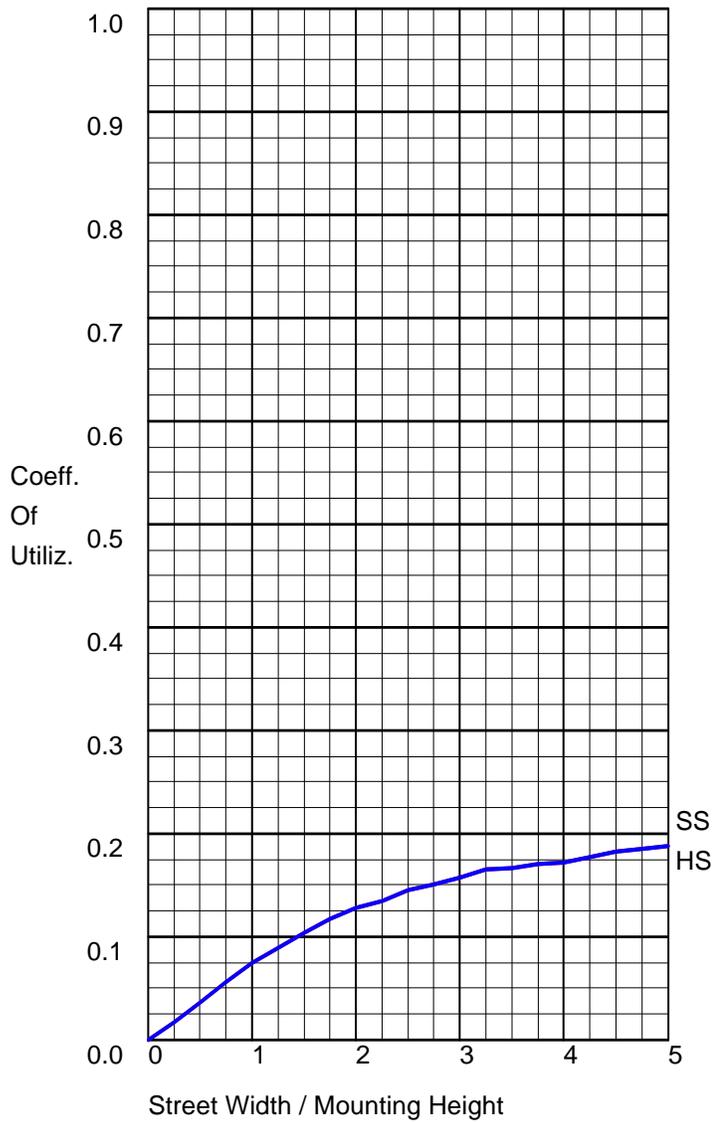
Vert. Angles	Horizontal Angles
	<u>0</u>
0.0	0.000
2.5	0.348
5.0	0.430
7.5	0.661
10.0	0.892
12.5	1.078
15.0	1.264
17.5	1.448
20.0	1.632
22.5	1.835
25.0	2.037
27.5	2.269
30.0	2.501
32.5	2.794
35.0	3.088
37.5	3.495
40.0	3.901
42.5	4.447
45.0	4.992
47.5	5.725
50.0	6.457
52.5	7.271
55.0	8.085
57.5	8.927
60.0	9.768
62.5	10.482
65.0	11.195
67.5	11.778
70.0	12.360
72.5	12.785
75.0	13.210
77.5	13.481
80.0	13.751
82.5	13.871
85.0	13.991
87.5	13.972
90.0	13.952
92.5	13.886
95.0	13.819
97.5	13.656
100.0	13.492
102.5	13.186
105.0	12.763
107.5	12.248
110.0	11.627
112.5	10.933
115.0	10.170
117.5	9.427
120.0	8.752
122.5	8.175
125.0	7.705
127.5	7.371
130.0	7.208

IES ROAD REPORT
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CANDELA TABULATION - (Cont.)

132.5	7.209
135.0	7.325
137.5	7.533
140.0	7.785
142.5	8.027
145.0	8.235
147.5	8.342
150.0	8.448
152.5	8.394
155.0	8.341
157.5	8.174
160.0	8.007
162.5	7.801
165.0	7.595
167.5	7.381
170.0	7.167
172.5	6.979
175.0	6.791
177.5	6.687
180.0	6.000

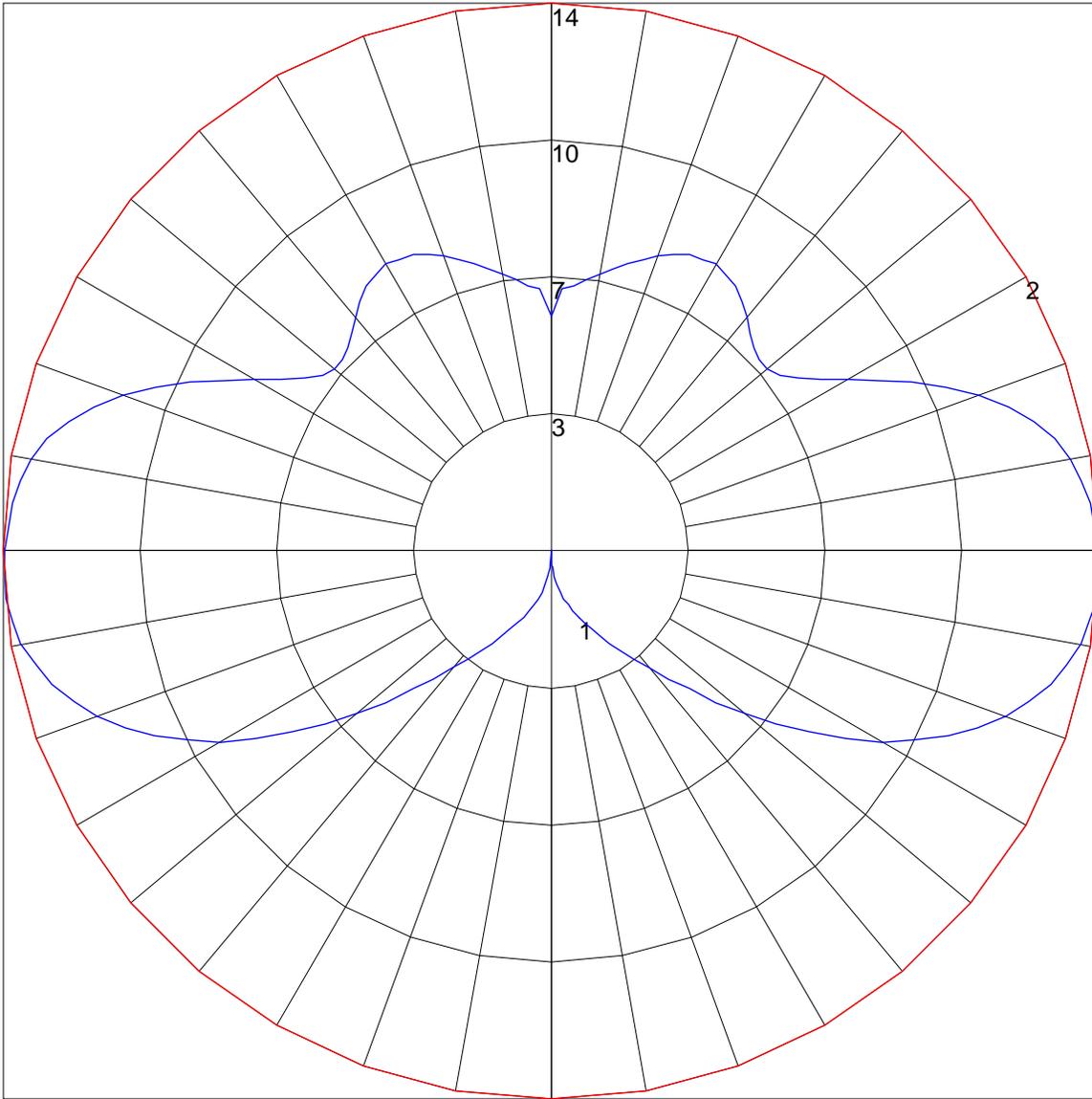
COEFFICIENTS OF UTILIZATION



FLUX DISTRIBUTION

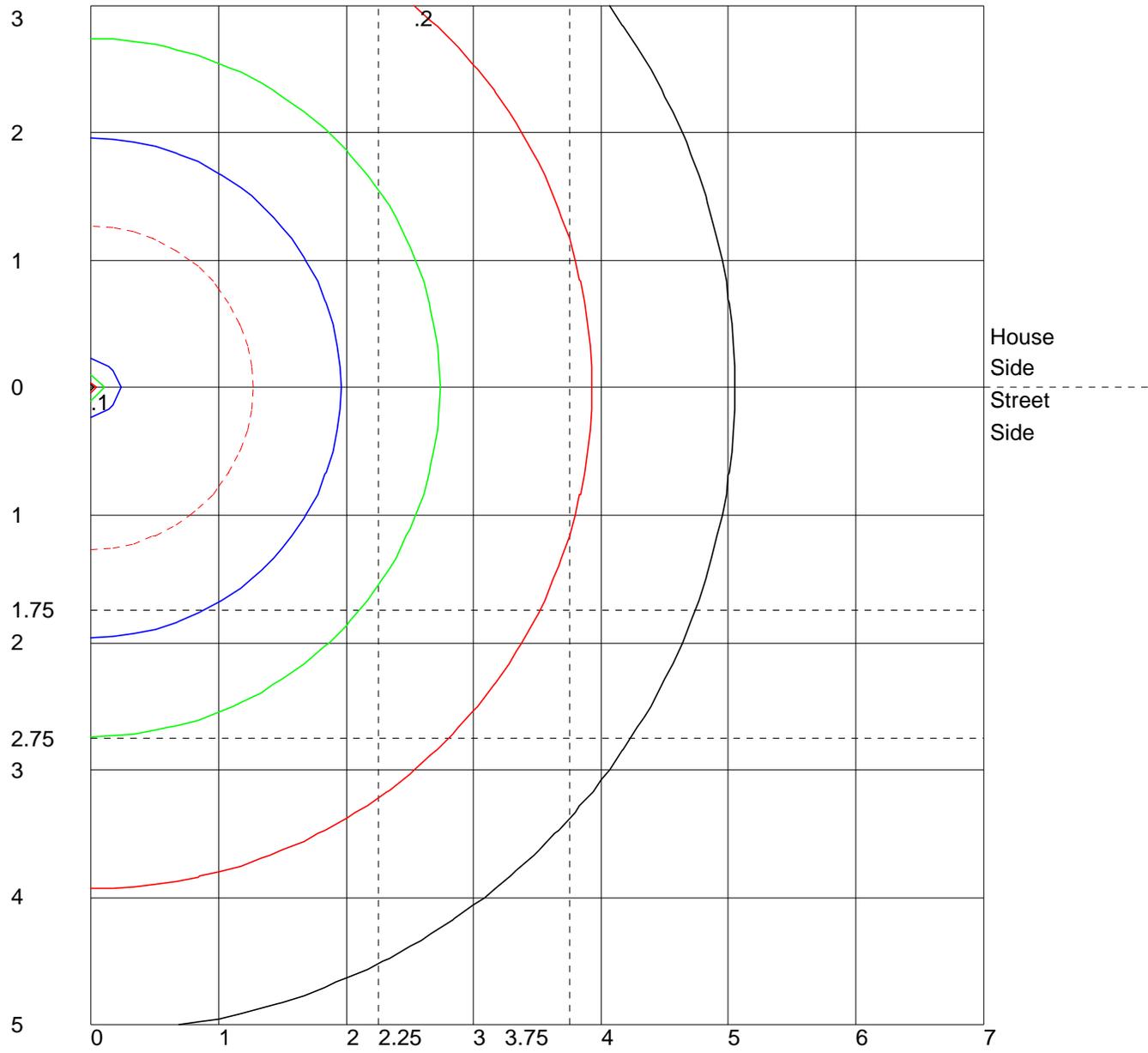
	Lumens	Percent Of Luminaire
Downward Street Side	27.4	23.2
Downward House Side	27.4	23.2
Downward Total	54.8	46.5
Upward Street Side	31.6	26.8
Upward House Side	31.6	26.8
Upward Total	63.2	53.6
Total Flux	118.0	100.1

POLAR GRAPH



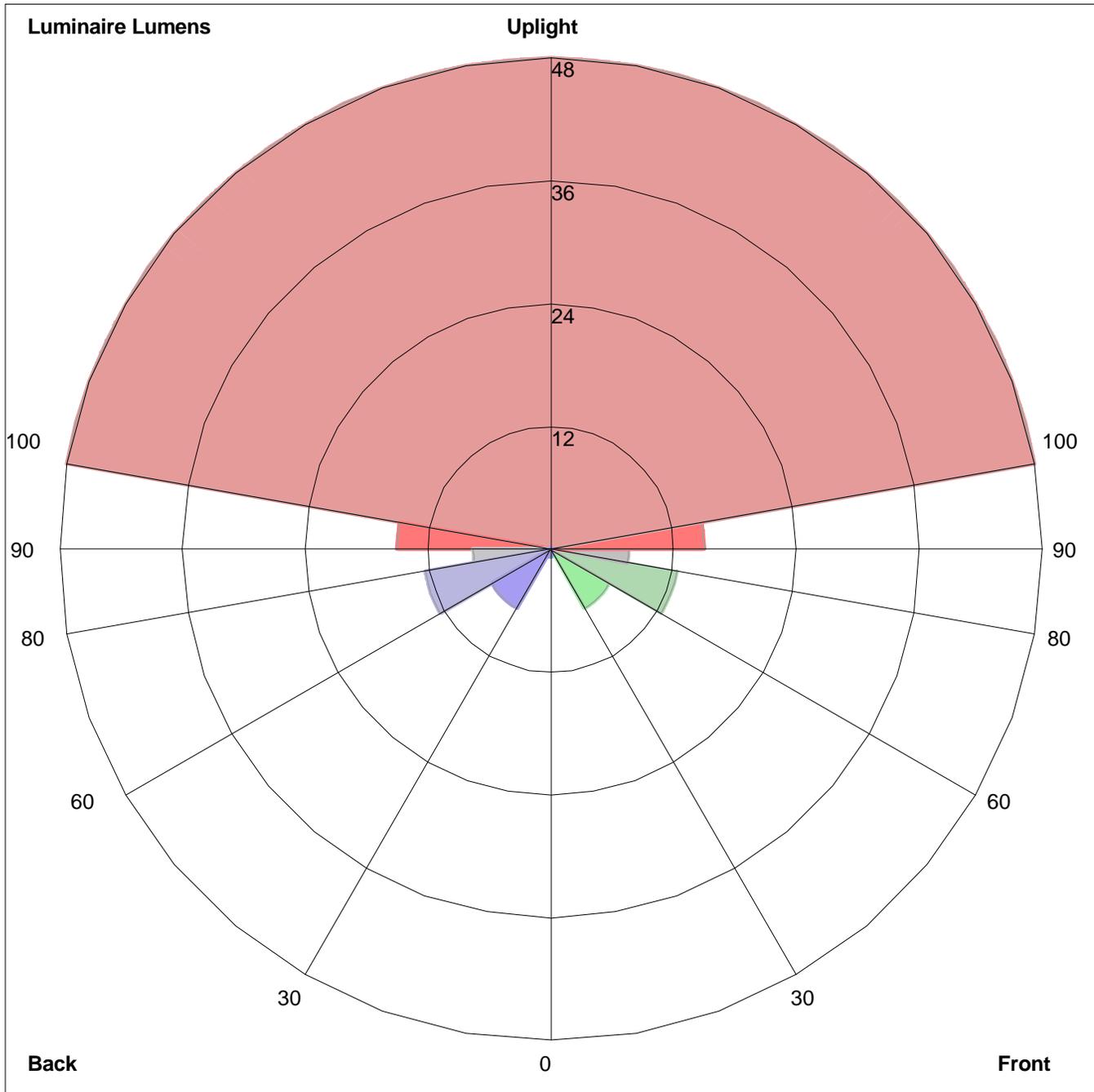
Maximum Candela = 13.991 Located At Horizontal Angle = 0, Vertical Angle = 85
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (85) (Through Max. Cd.)

ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINANCE



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

LUMINAIRE CLASSIFICATION SYSTEM (LCS) GRAPH



Luminaire Lumens:
Front: Low=0.7, Medium=6.6, High=12.5, Very High=7.6
Back: Low=0.7, Medium=6.6, High=12.5, Very High=7.6
Uplight: Low=15.0, High=48.1

BUG Rating : B0-U2-G0