



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

Report No: L061606206

Date: 8/17/2016



NVLAP LAB CODE 200927-0

Report No: L061606206

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

Model Number: Z1-12-4W

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 Z1-12-4W . Received in working and undamaged condition. No modifications were necessary.

Testing Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 8/9/16

Date of Tests: 8/12/16 - 8/17/16

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.

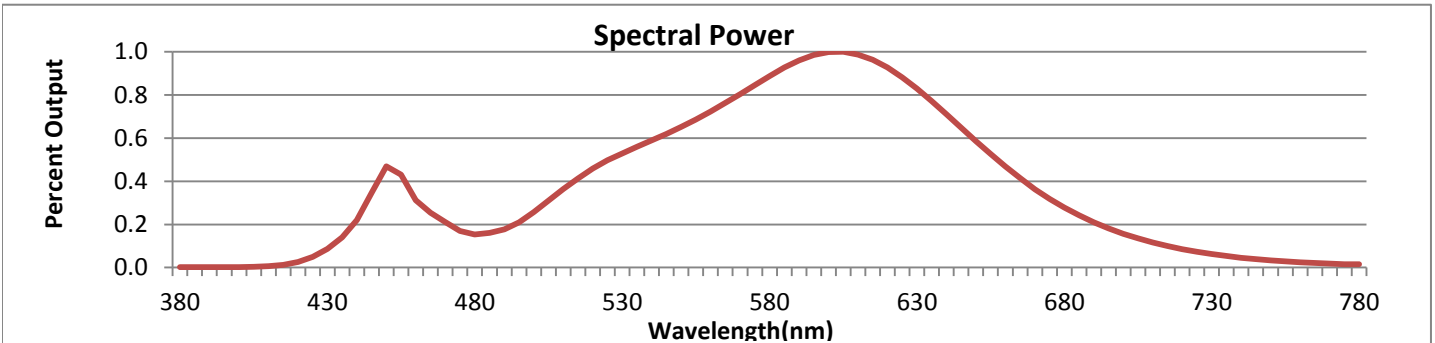
Test Summary

Manufacturer:	Beachside Lighting
Model Number:	Z1-12-4W
Driver Model Number:	N/A
Total Lumens:	86.00
Input Voltage (VAC/60Hz):	12.00
Input Current (Amp):	0.44
Input Power (W):	3.88
Input Power Factor:	0.74
Current ATHD @ 120V(%):	85%
Current ATHD @ 277V(%):	N/A
Efficacy:	22
Color Rendering Index (CRI):	80
Correlated Color Temperature (K):	2980
Chromaticity Coordinate x:	0.4423
Chromaticity Coordinate y:	0.4126
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:50
Total Operating Time (Hours):	1:40
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.



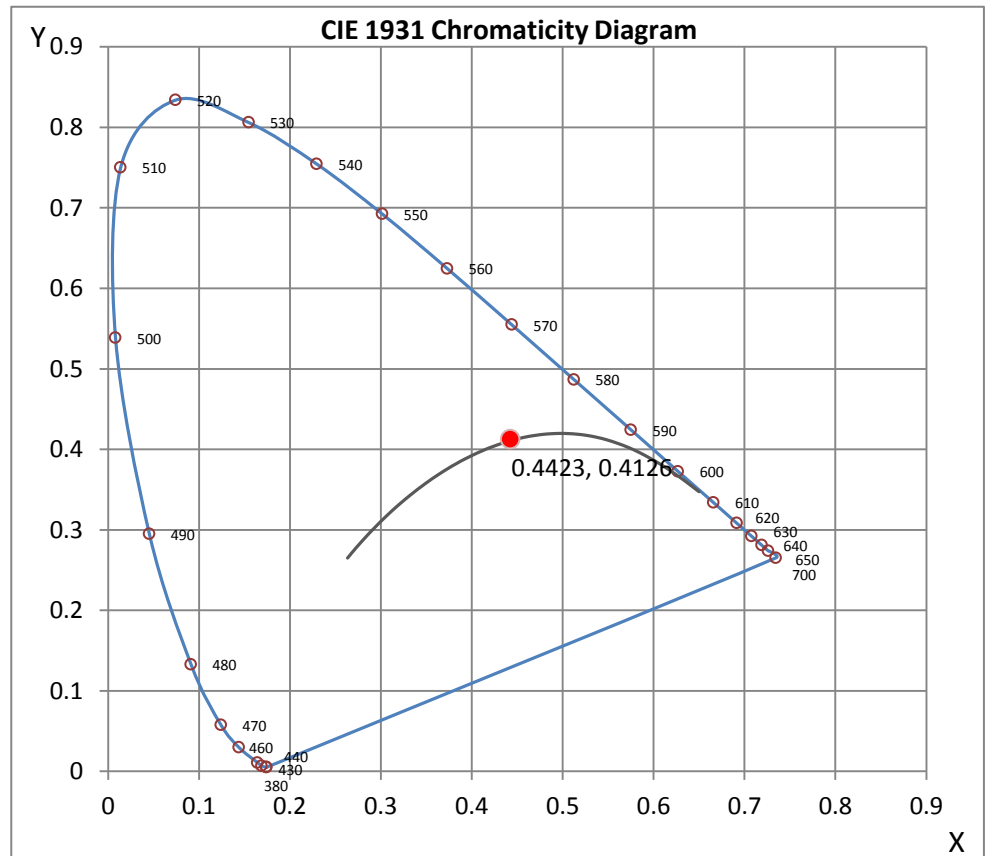
Wavelength	W/m ² nm	440	0.2197	510	0.3637	580	0.8884	650	0.5872	720	0.0853
380	0.0018	450	0.4699	520	0.4587	590	0.9609	660	0.4688	730	0.0621
390	0.0019	460	0.3118	530	0.5294	600	0.9992	670	0.3632	740	0.0454
400	0.0022	470	0.2110	540	0.5899	610	0.9876	680	0.2776	750	0.0338
410	0.0060	480	0.1540	550	0.6516	620	0.9279	690	0.2102	760	0.0249
420	0.0259	490	0.1767	560	0.7230	630	0.8295	700	0.1569	770	0.0188
430	0.0865	500	0.2575	570	0.8040	640	0.7118	710	0.1164	780	0.0160

CRI & CCT

x	0.4423
y	0.4126
u'	0.2504
v'	0.5255
CRI	79.70
CCT	2980
Duv	0.00263

R Values

R1	77.47
R2	87.06
R3	95.48
R4	77.82
R5	76.30
R6	82.55
R7	83.84
R8	57.43
R9	0.34
R10	69.51
R11	75.02
R12	59.90
R13	79.31
R14	97.08



*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 : 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: 11*



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

Photometric Test Report

IES ROAD REPORT
PHOTOMETRIC FILENAME : L061606206.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TEST] L061606206
 [TESTLAB] LIGHT LABORATORY, INC.
 [ISSUEDATE] 8/17/2016
 [MANUFAC] Beachside Lighting
 [LUMCAT] Z1-12-4W
 [LUMINAIRE] Pathlight
 [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, 3.88W
 [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	86
Downward Total Efficiency	N.A. (absolute)
Total Luminaire Efficiency	N.A. (absolute)
Luminaire Efficacy Rating (LER)	22
Total Luminaire Watts	3.88
Ballast Factor	1.00
Upward Waste Light Ratio	0.02
Maximum Candela	18.22
Maximum Candela Angle	0H 40V
Maximum Candela (<90 Degrees Vertical)	18.22
Maximum Candela Angle (<90 Degrees Vertical)	0H 40V
Maximum Candela At 90 Degrees Vertical	.79 (0.9% Luminaire Lumens)
Maximum Candela from 80 to <90 Degrees Vertical	8.69 (10.1% Luminaire Lumens)
Cutoff Classification (deprecated)	N.A. (absolute)

IES ROAD REPORT
PHOTOMETRIC FILENAME : L061606206.IES

LUMINAIRE CLASSIFICATION SYSTEM (LCS)

	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	6.6	N.A.	7.7
FM - Front-Medium (30-60)	19.7	N.A.	22.9
FH - Front-High (60-80)	14.0	N.A.	16.3
FVH - Front-Very High (80-90)	1.8	N.A.	2.1
BL - Back-Low (0-30)	6.6	N.A.	7.7
BM - Back-Medium (30-60)	19.7	N.A.	22.9
BH - Back-High (60-80)	14.0	N.A.	16.3
BVH - Back-Very High (80-90)	1.8	N.A.	2.1
UL - Uplight-Low (90-100)	0.7	N.A.	0.9
UH - Uplight-High (100-180)	1.0	N.A.	1.2
Total	85.9	N.A.	100.0
BUG Rating	B0-U1-G0		

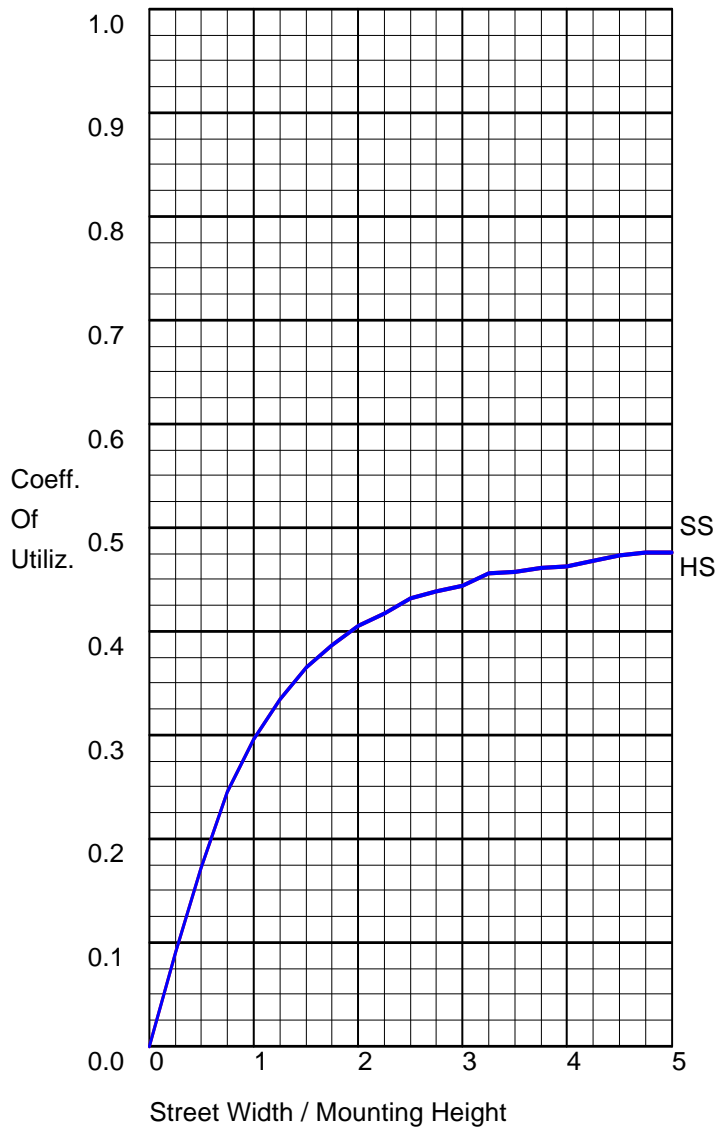
ZONAL LUMEN SUMMARY

Zone	%
0-20	6.6
0-30	15.3
0-40	28.4
0-60	61.1
0-80	93.7
0-90	98
10-90	96.3
20-40	21.8
20-50	37.6
40-70	49.8
60-80	32.6
70-80	15.5
80-90	4.2
90-110	1.5
90-120	1.9
90-130	2
90-150	2
90-180	2
110-180	0.5
0-180	100

CANDELA TABULATION

Vert. Angles	Horizontal Angles
	<u>0</u>
0	17.11
5	15.26
10	14.98
15	14.56
20	15.26
25	16.08
30	17.06
35	18.02
40	18.22
45	17.66
50	16.73
55	16.22
60	15.61
65	14.86
70	13.85
75	14.00
80	8.69
85	1.97
90	0.79
95	0.70
100	0.51
105	0.50
110	0.51
115	0.40
120	0.31
125	0.00
130	0.00
135	0.00
140	0.00
145	0.00
150	0.00
155	0.00
160	0.00
165	0.00
170	0.00
175	0.00
180	0.00

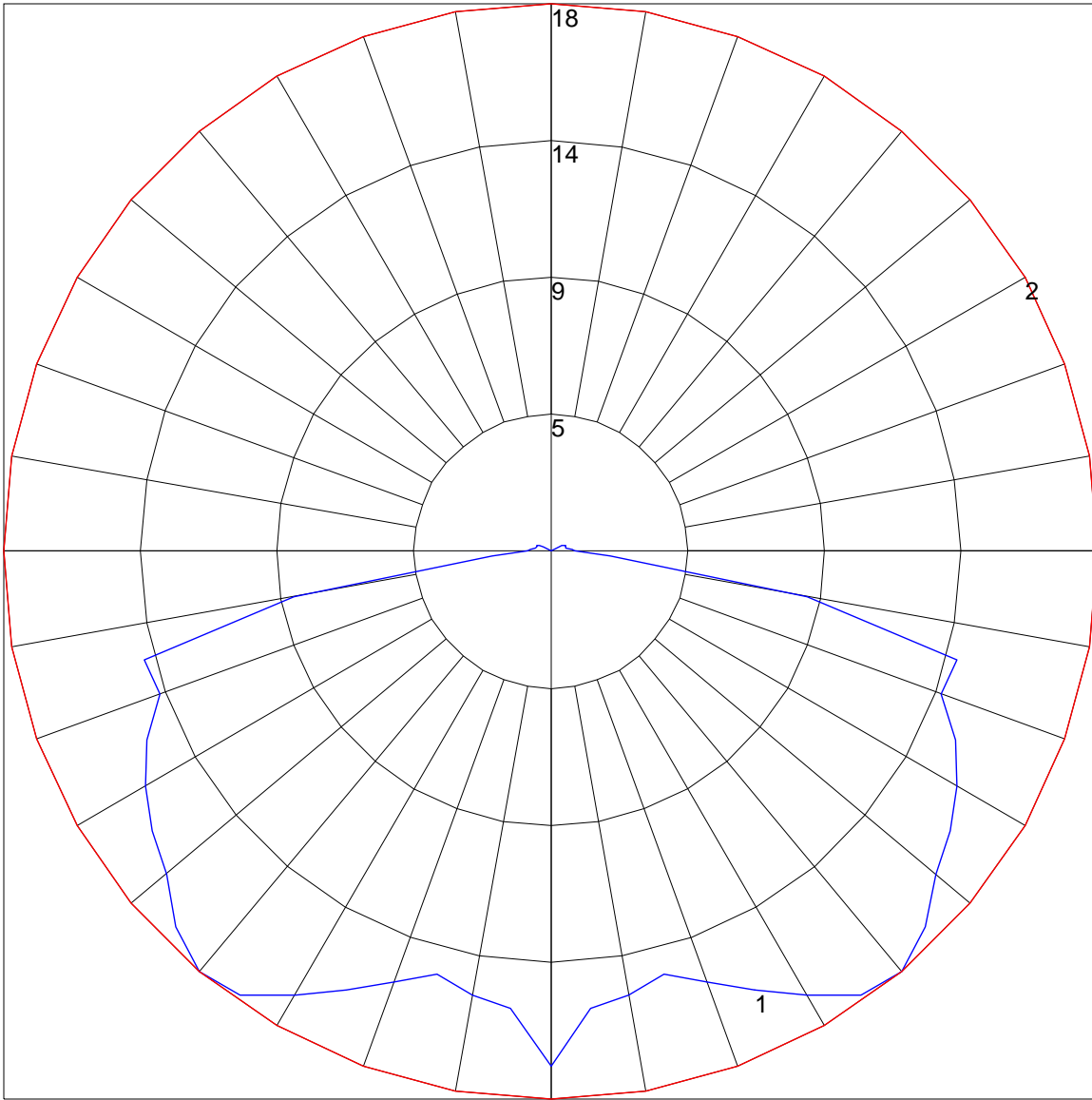
COEFFICIENTS OF UTILIZATION



FLUX DISTRIBUTION

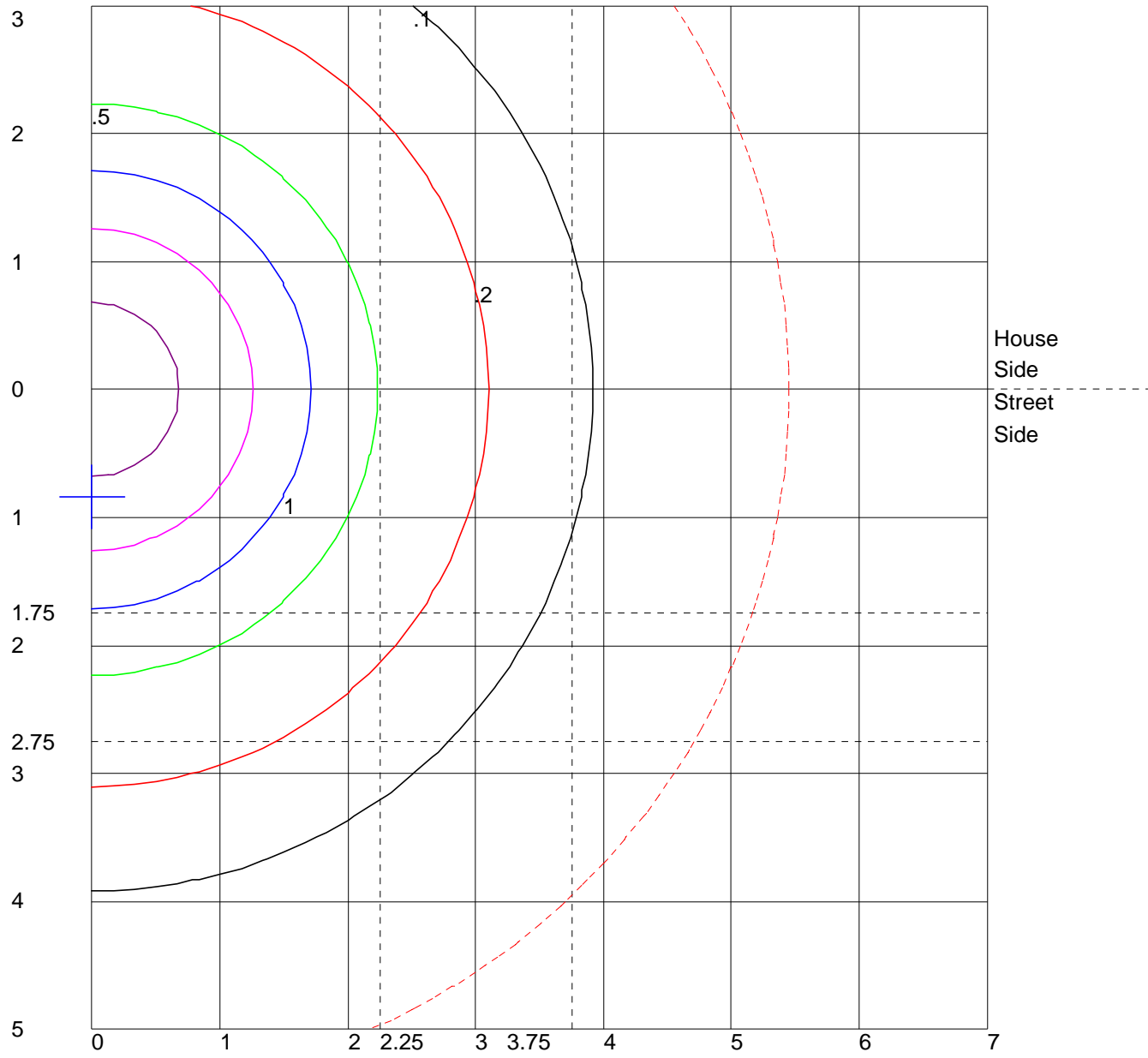
	Lumens	Percent Of Luminaire
Downward Street Side	42.1	49.0
Downward House Side	42.1	49.0
Downward Total	84.2	98.0
Upward Street Side	0.9	1.0
Upward House Side	0.9	1.0
Upward Total	1.8	2.1
Total Flux	86.0	100.1

POLAR GRAPH



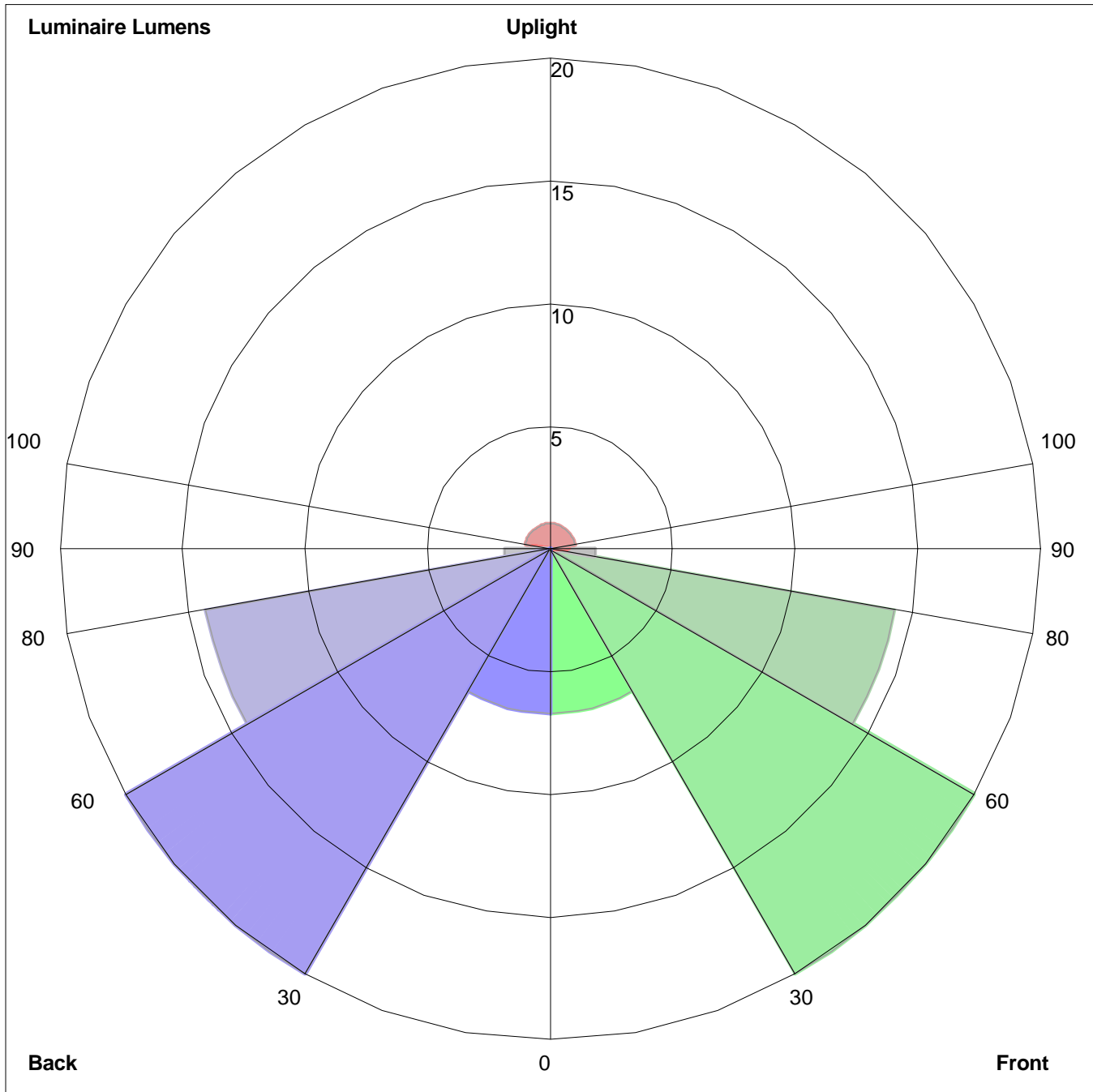
Maximum Candela = 18.22 Located At Horizontal Angle = 0, Vertical Angle = 40
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (40) (Through Max. Cd.)

ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINANCE



Distance In Units Of Mounting Height
 Values Based On 1.42 Foot Mounting Height
 1/2 Maximum Candela Trace Shown As Dashed Curve
 (+) = Maximum Candela Point

LUMINAIRE CLASSIFICATION SYSTEM (LCS) GRAPH



Luminaire Lumens:
Front: Low=6.6, Medium=19.7, High=14.0, Very High=1.8
Back: Low=6.6, Medium=19.7, High=14.0, Very High=1.8
Uplight: Low=0.7, High=1.0

BUG Rating : B0-U1-G0