



8165 E Kaiser Blvd. Anaheim, CA 92808
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Report No: L061606203

Date: 8/17/2016



NVLAP LAB CODE 200927-0

Report No: L061606203

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

Model Number: MB2-120V-8W

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 MB2-120V-8W. 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: 8/15/16 - 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:	MB2-120V-8W
Driver Model Number:	N/A
Total Lumens:	132.40
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.06
Input Power (W):	7.08
Input Power Factor:	0.94
Current ATHD @ 120V(%):	25%
Current ATHD @ 277V(%):	N/A
Efficacy:	19
Color Rendering Index (CRI):	85
Correlated Color Temperature (K):	2917
Chromaticity Coordinate x:	0.4434
Chromaticity Coordinate y:	0.4068
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	2:05
Total Operating Time (Hours):	3:10
Off State Power(W):	0.00

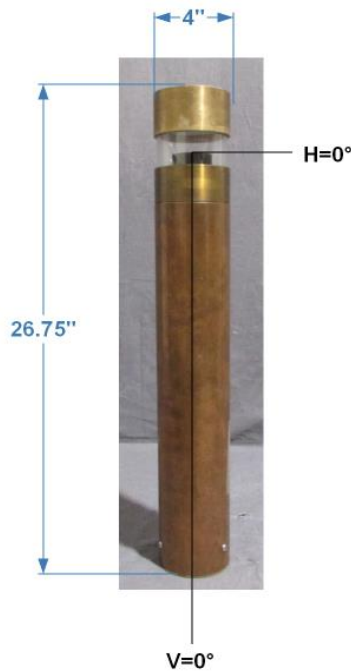
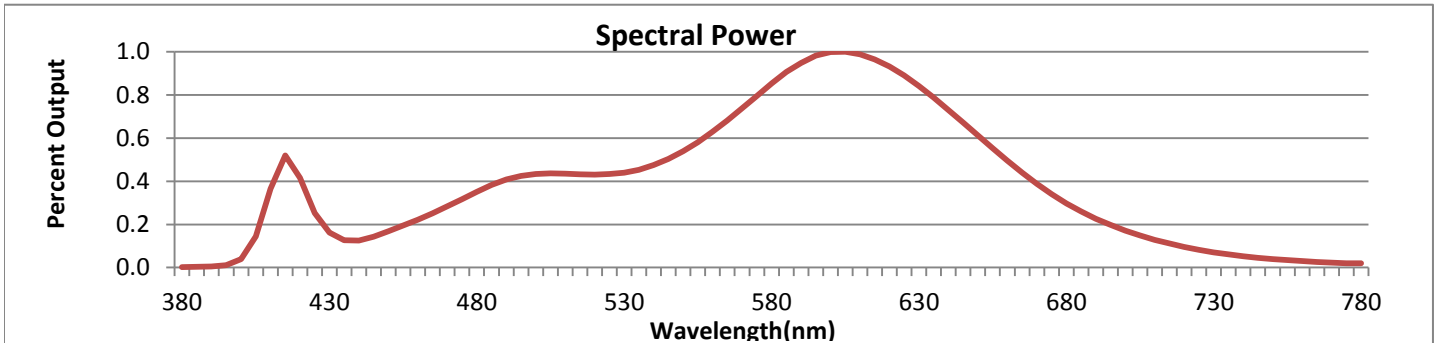


FIG. 1 LUMINAIRE

*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.



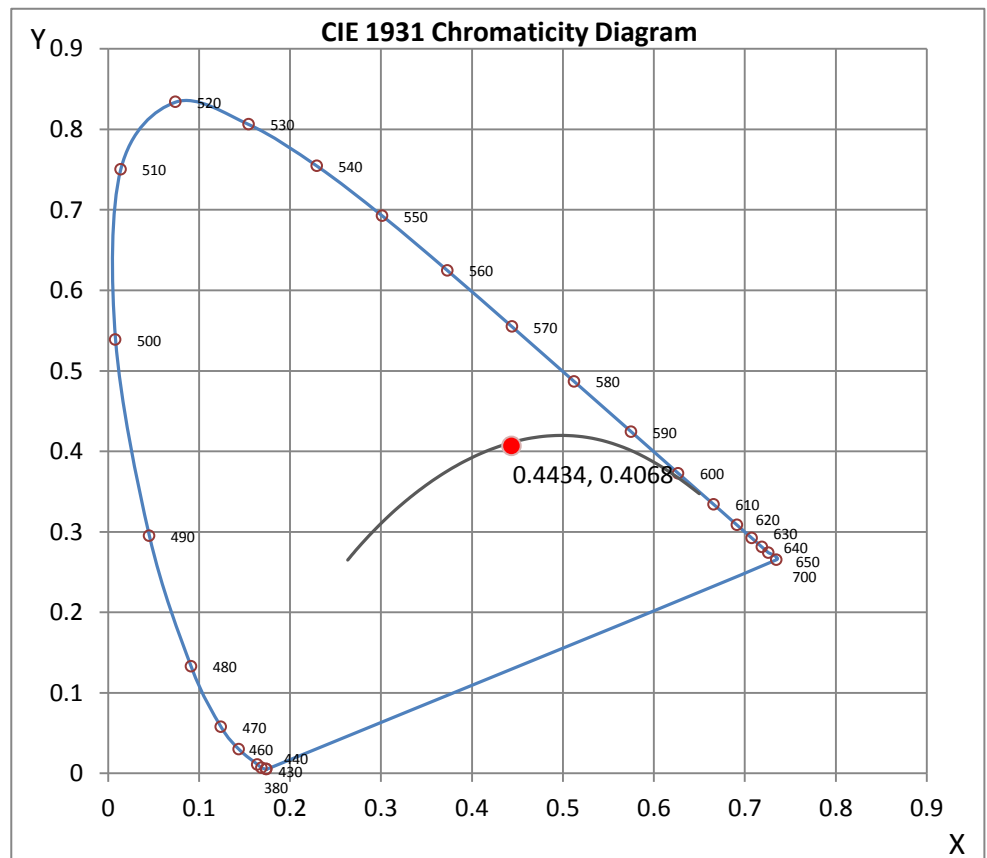
Wavelength	W/m ² nm	440	0.1255	510	0.4348	580	0.8532	650	0.6128	720	0.0958
380	0.0020	450	0.1676	520	0.4310	590	0.9491	660	0.4959	730	0.0708
390	0.0053	460	0.2220	530	0.4401	600	0.9986	670	0.3878	740	0.0526
400	0.0393	470	0.2832	540	0.4757	610	0.9895	680	0.2975	750	0.0395
410	0.3648	480	0.3500	550	0.5393	620	0.9329	690	0.2265	760	0.0300
420	0.4160	490	0.4091	560	0.6294	630	0.8413	700	0.1716	770	0.0228
430	0.1625	500	0.4344	570	0.7381	640	0.7313	710	0.1285	780	0.0198

CRI & CCT

x	0.4434
y	0.4068
u'	0.2536
v'	0.5234
CRI	85.10
CCT	2917
Duv	0.00024

R Values

R1	84.80
R2	96.66
R3	88.45
R4	83.93
R5	87.75
R6	97.87
R7	81.13
R8	59.82
R9	14.78
R10	95.06
R11	85.06
R12	91.94
R13	87.88
R14	93.63



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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:

Test Report Reviewed by:

Jeff Ahn
 Engineering Manager

Steve Kang
 Quality Assurance

*Attached are photometric data reports. Total number of pages: 11

*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 ROAD REPORT
PHOTOMETRIC FILENAME : L061606203.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TEST] L061606203
 [TESTLAB] LIGHT LABORATORY, INC.
 [ISSUEDATE] 8/17/2016
 [MANUFAC] Beachside Lighting
 [LUMCAT] MB2-120V-8W
 [LUMINAIRE] Bollard
 [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] 120VAC, 7.08W
 [TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

IES Classification	Type V
Longitudinal Classification	Short
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	132
Downward Total Efficiency	N.A. (absolute)
Total Luminaire Efficiency	N.A. (absolute)
Luminaire Efficacy Rating (LER)	19
Total Luminaire Watts	7.08
Ballast Factor	1.00
Upward Waste Light Ratio	0.03
Maximum Candela	41.59
Maximum Candela Angle	0H 50V
Maximum Candela (<90 Degrees Vertical)	41.59
Maximum Candela Angle (<90 Degrees Vertical)	0H 50V
Maximum Candela At 90 Degrees Vertical	.68 (0.5% Luminaire Lumens)
Maximum Candela from 80 to <90 Degrees Vertical	4.79 (3.6% Luminaire Lumens)
Cutoff Classification (deprecated)	N.A. (absolute)

IES ROAD REPORT
PHOTOMETRIC FILENAME : L061606203.IES

LUMINAIRE CLASSIFICATION SYSTEM (LCS)

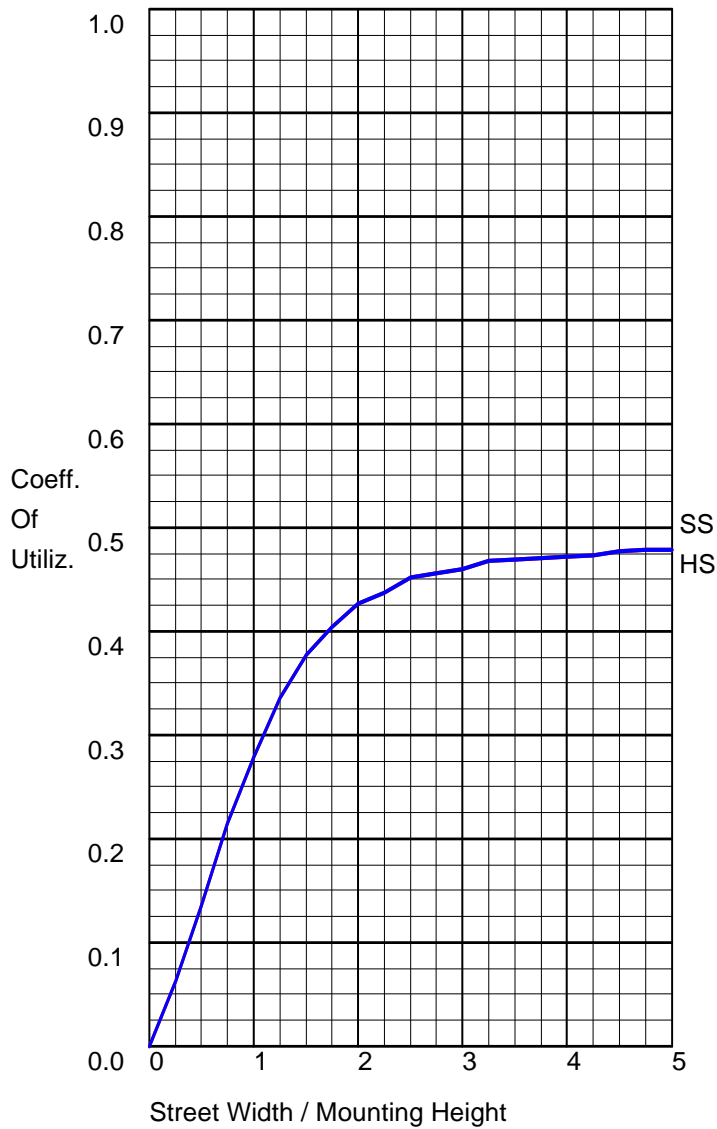
ZONAL LUMEN SUMMARY

	Lumens	% Lamp	% Luminaire	Zone	%
FL - Front-Low (0-30)	2.6	N.A.	1.9		
FM - Front-Medium (30-60)	39.5	N.A.	29.8	0-20	0.5
FH - Front-High (60-80)	20.6	N.A.	15.5	0-30	3.9
FVH - Front-Very High (80-90)	1.3	N.A.	1.0	0-40	15.1
BL - Back-Low (0-30)	2.6	N.A.	1.9	0-60	63.5
BM - Back-Medium (30-60)	39.5	N.A.	29.8	0-80	94.6
BH - Back-High (60-80)	20.6	N.A.	15.5	0-90	96.5
BVH - Back-Very High (80-90)	1.3	N.A.	1.0	10-90	96.5
UL - Uplight-Low (90-100)	0.6	N.A.	0.5	20-40	14.6
UH - Uplight-High (100-180)	4.0	N.A.	3.0	20-50	36.2
				40-70	69.6
Total	132.6	N.A.	100.0	60-80	31.1
				70-80	9.9
BUG Rating	B0-U1-G0			80-90	1.9
				90-110	1
				90-120	1.6
				90-130	2.2
				90-150	3.1
				90-180	3.5
				110-180	2.5
				0-180	100

CANDELA TABULATION

Vert. Angles	Horizontal Angles
	<u>0</u>
0	0.00
5	0.31
10	0.58
15	1.53
20	4.19
25	9.05
30	15.67
35	23.57
40	30.72
45	37.29
50	41.59
55	40.68
60	35.95
65	28.43
70	20.32
75	12.41
80	4.79
85	1.91
90	0.68
95	0.54
100	0.56
105	0.63
110	0.71
115	0.78
120	0.84
125	0.89
130	0.90
135	0.88
140	0.85
145	0.81
150	0.77
155	0.74
160	0.72
165	0.68
170	0.61
175	0.46
180	0.00

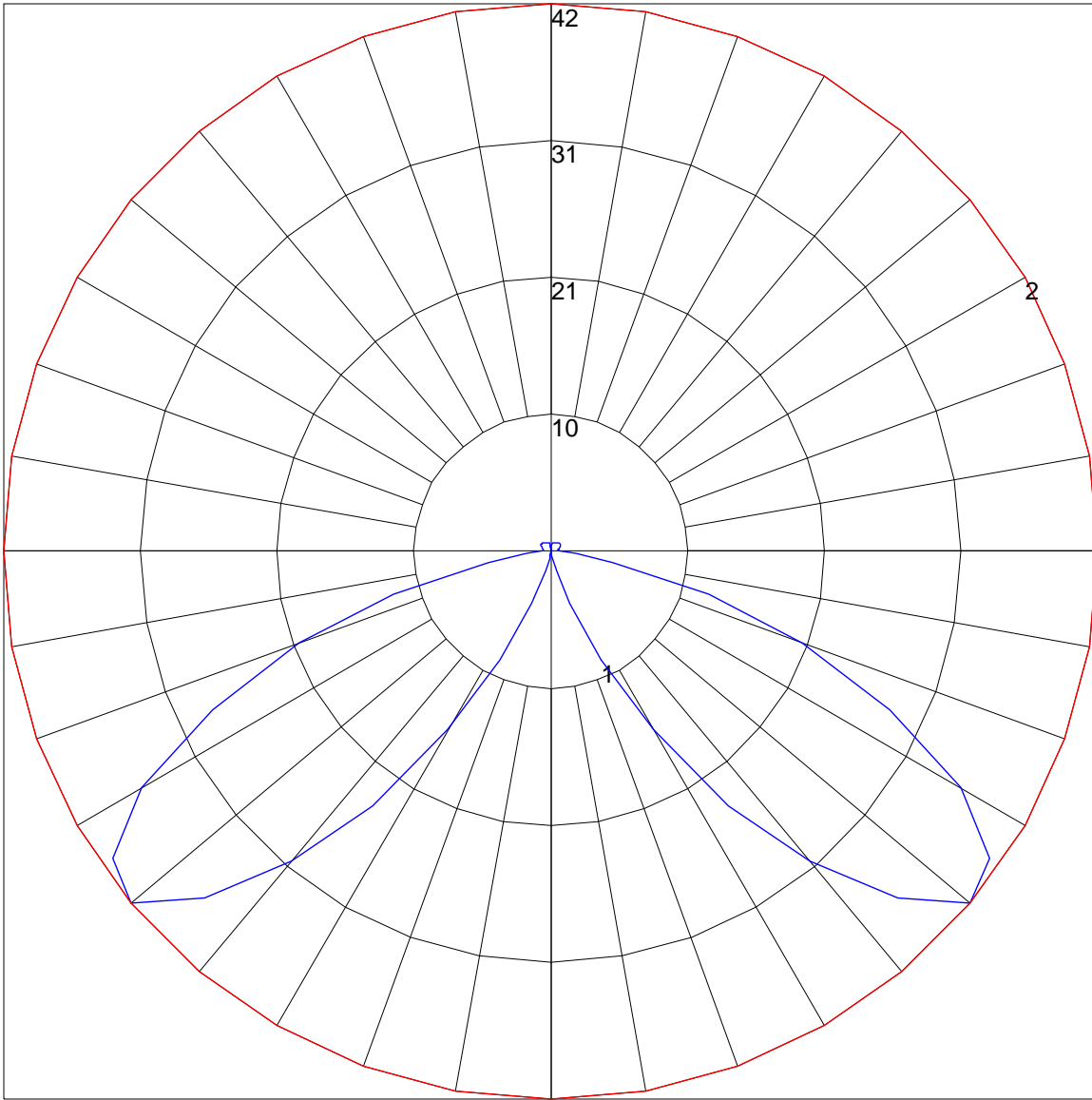
COEFFICIENTS OF UTILIZATION



FLUX DISTRIBUTION

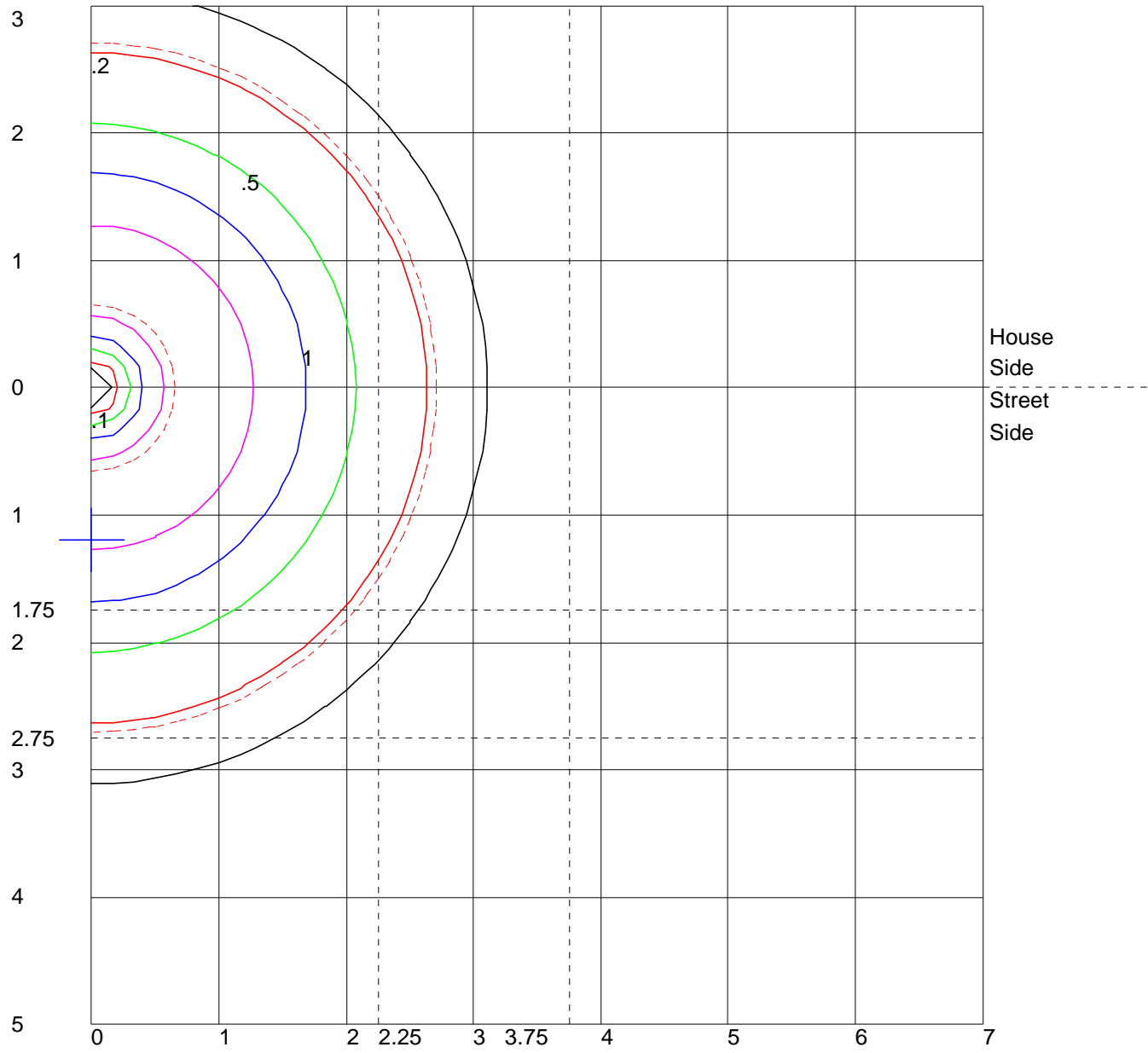
	Lumens	Percent Of Luminaire
Downward Street Side	63.9	48.3
Downward House Side	63.9	48.3
Downward Total	127.8	96.5
Upward Street Side	2.3	1.7
Upward House Side	2.3	1.7
Upward Total	4.6	3.5
Total Flux	132.4	100.0

POLAR GRAPH



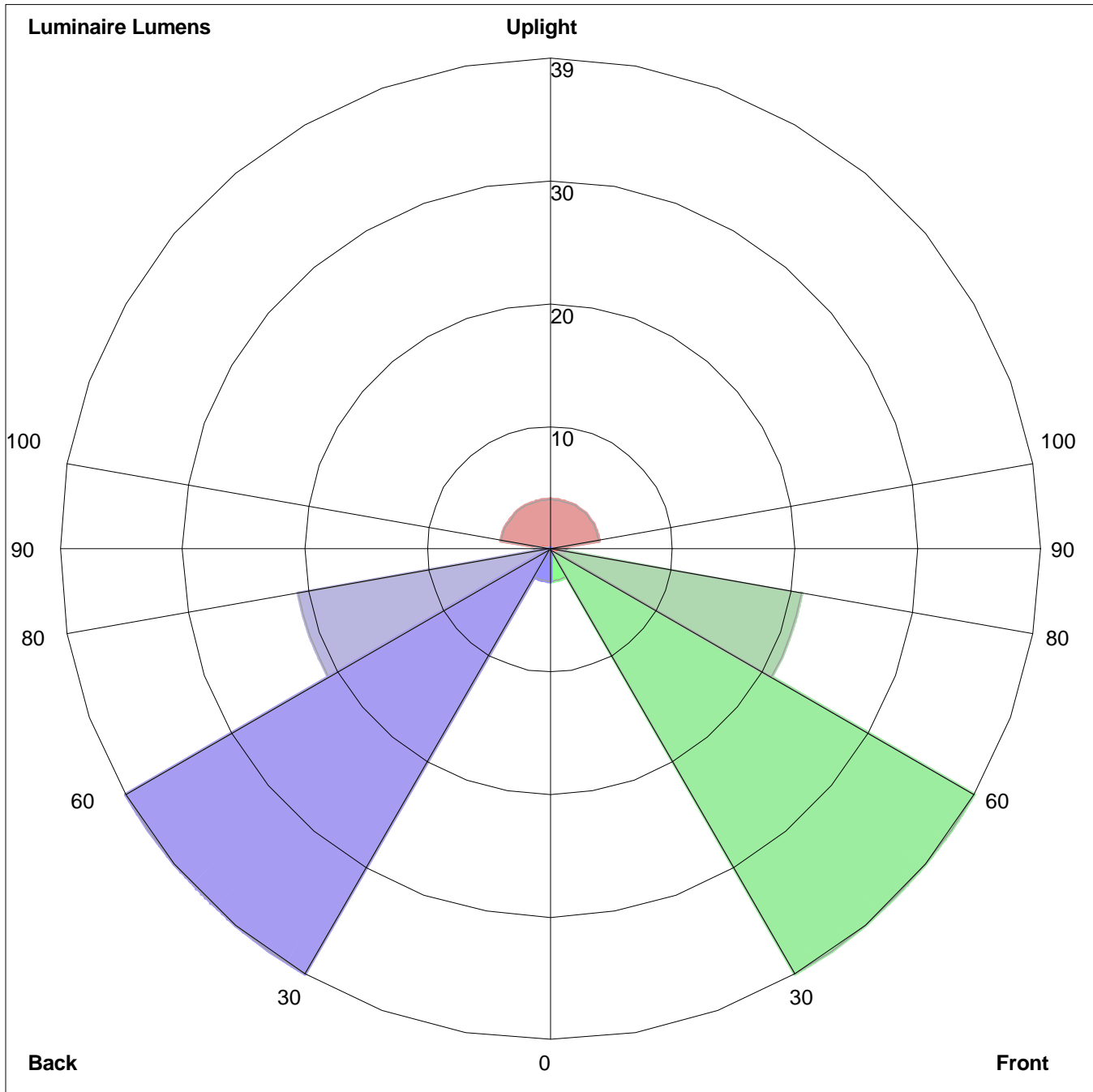
Maximum Candela = 41.59 Located At Horizontal Angle = 0, Vertical Angle = 50
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (50) (Through Max. Cd.)

ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINANCE



Distance In Units Of Mounting Height
 Values Based On 2.21 Foot Mounting Height
 1/2 Maximum Candela Trace Shown As Dashed Curve
 (+) = Maximum Candela Point

LUMINAIRE CLASSIFICATION SYSTEM (LCS) GRAPH



Luminaire Lumens:
Front: Low=2.6, Medium=39.5, High=20.6, Very High=1.3
Back: Low=2.6, Medium=39.5, High=20.6, Very High=1.3
Uplight: Low=0.6, High=4.0

BUG Rating : B0-U1-G0