



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

Report No: L111708106



Report No: L111708106 **Issue Date:** 12/13/2017

Report Prepared For: CAST Lighting LLC.
1120 Goffle Road Hawthorne NJ 07506-2024

Model Number: CPL1

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.

Testing Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 12/7/17

Date of Tests: 12/11/17 - 12/13/17

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	1/9/19
BK PRECISION	1747	PS-DC04	1/10/19
Fluke Digital Thermometer	52K/J	MT-TP05	1/10/19
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:	CAST Lighting LLC.
Model Number:	CPL1
Driver Model Number:	CUSTOM LED DRIVER
Total Lumens:	252.40
Input Voltage (VAC/60Hz):	24.00
Input Current (Amp):	0.34
Input Power (W):	6.67
Input Power Factor:	0.81
Current ATHD @ 24V(%):	58%
Efficacy:	38
Color Rendering Index (CRI):	76
Correlated Color Temperature (K):	4344
Chromaticity Coordinate x:	0.3681
Chromaticity Coordinate y:	0.3757
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:30
Total Operating Time (Hours):	1:15

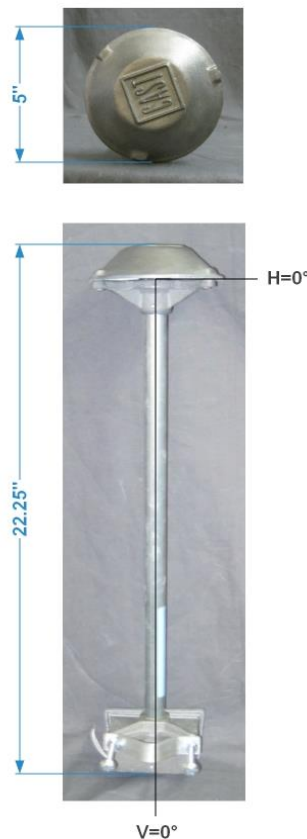
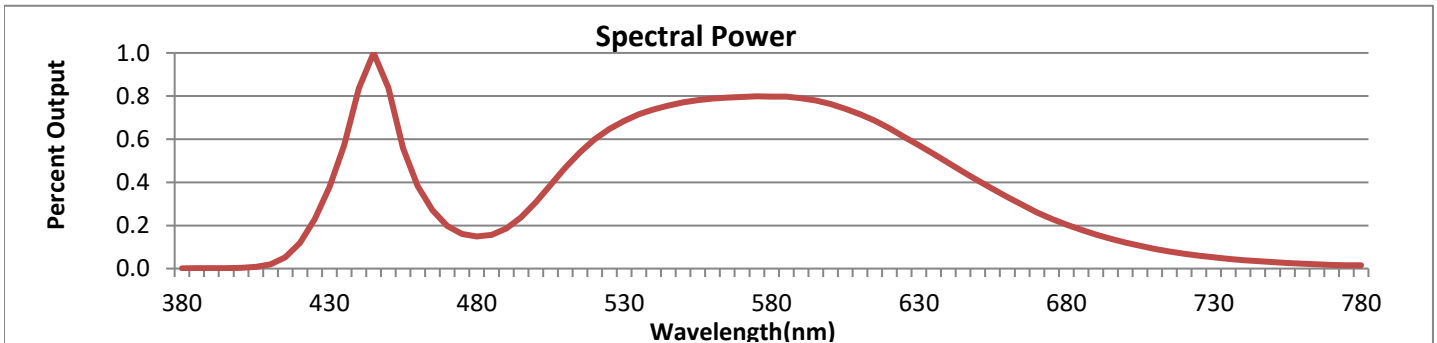


FIG. 1 LUMINAIRE

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



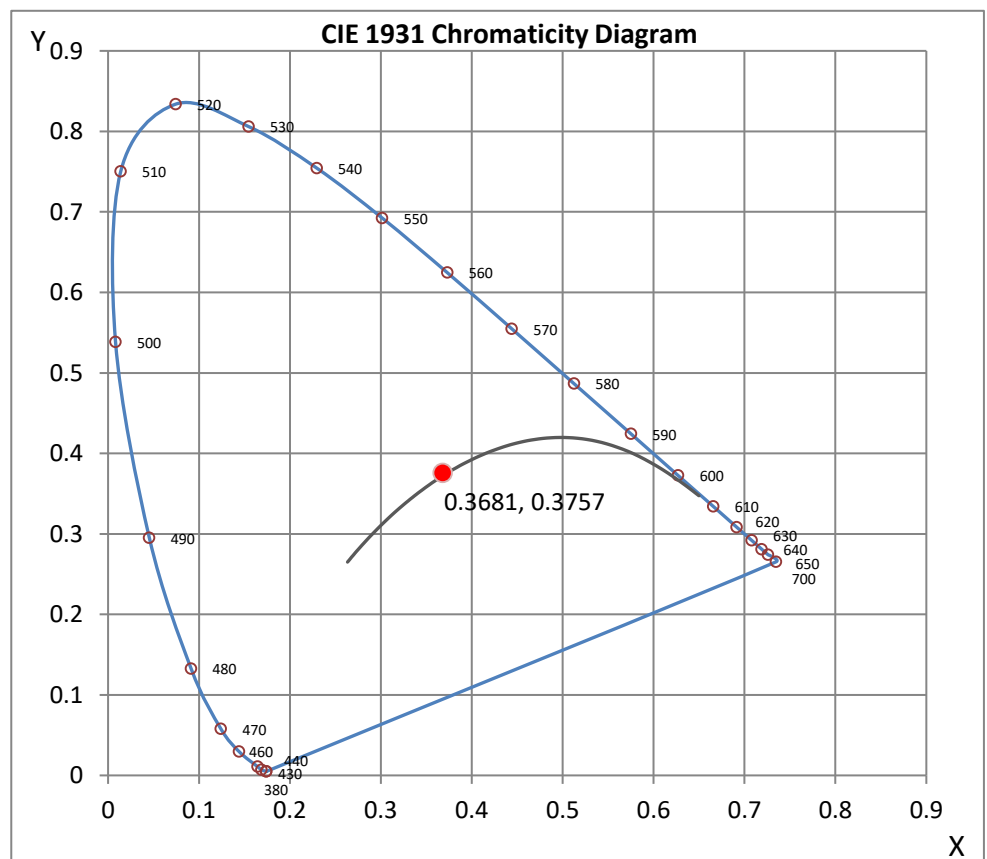
Wavelength	W/m ² nm	440	0.8354	510	0.4682	580	0.7981	650	0.4091	720	0.0688
380	0.0010	450	0.8393	520	0.5993	590	0.7904	660	0.3313	730	0.0520
390	0.0016	460	0.3812	530	0.6849	600	0.7632	670	0.2606	740	0.0392
400	0.0036	470	0.1975	540	0.7378	610	0.7151	680	0.2040	750	0.0296
410	0.0196	480	0.1484	550	0.7707	620	0.6497	690	0.1573	760	0.0224
420	0.1195	490	0.1858	560	0.7878	630	0.5713	700	0.1208	770	0.0170
430	0.3772	500	0.3081	570	0.7966	640	0.4900	710	0.0915	780	0.0148

CRI & CCT

x	0.3681
y	0.3757
u'	0.2174
v'	0.4993
CRI	75.60
CCT	4344
Duv	0.00335

R Values

R1	74.15
R2	79.14
R3	82.75
R4	77.04
R5	73.49
R6	70.88
R7	83.52
R8	63.61
R9	-4.35
R10	50.22
R11	74.48
R12	48.38
R13	74.26
R14	89.77



*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 : Joseph Shin

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*



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Photometric Test Report

IES ROAD REPORT
PHOTOMETRIC FILENAME : L111708106.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L111708106
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 12/13/2017
[MANUFAC] CAST Lighting LLC.
[LUMCAT] CPL1
[LUMINAIRE] Gen 1 Perimeter 7 Watt Fixture
[BALLASTCAT] CUSTOM LED DRIVER
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] 24VAC, 6.67W
[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	252
Downward Total Efficiency	N.A. (absolute)
Total Luminaire Efficiency	N.A. (absolute)
Luminaire Efficacy Rating (LER)	38
Total Luminaire Watts	6.67
Ballast Factor	1.00
Upward Waste Light Ratio	0.00
Maximum Candela	83.65
Maximum Candela Angle	0H 15V
Maximum Candela (<90 Degrees Vertical)	83.65
Maximum Candela Angle (<90 Degrees Vertical)	0H 15V
Maximum Candela At 90 Degrees Vertical	0 (0.0% Luminaire Lumens)
Maximum Candela from 80 to <90 Degrees Vertical	6.87 (2.7% Luminaire Lumens)
Cutoff Classification (deprecated)	N.A. (absolute)

IES ROAD REPORT
PHOTOMETRIC FILENAME : L111708106.IES

LUMINAIRE CLASSIFICATION SYSTEM (LCS)

	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	32.5	N.A.	12.9
FM - Front-Medium (30-60)	69.4	N.A.	27.5
FH - Front-High (60-80)	22.1	N.A.	8.8
FVH - Front-Very High (80-90)	2.2	N.A.	0.9
BL - Back-Low (0-30)	32.5	N.A.	12.9
BM - Back-Medium (30-60)	69.4	N.A.	27.5
BH - Back-High (60-80)	22.1	N.A.	8.8
BVH - Back-Very High (80-90)	2.2	N.A.	0.9
UL - Uplight-Low (90-100)	0.0	N.A.	0.0
UH - Uplight-High (100-180)	0.0	N.A.	0.0
Total	252.4	N.A.	100.0
BUG Rating	B0-U0-G0		

ZONAL LUMEN SUMMARY

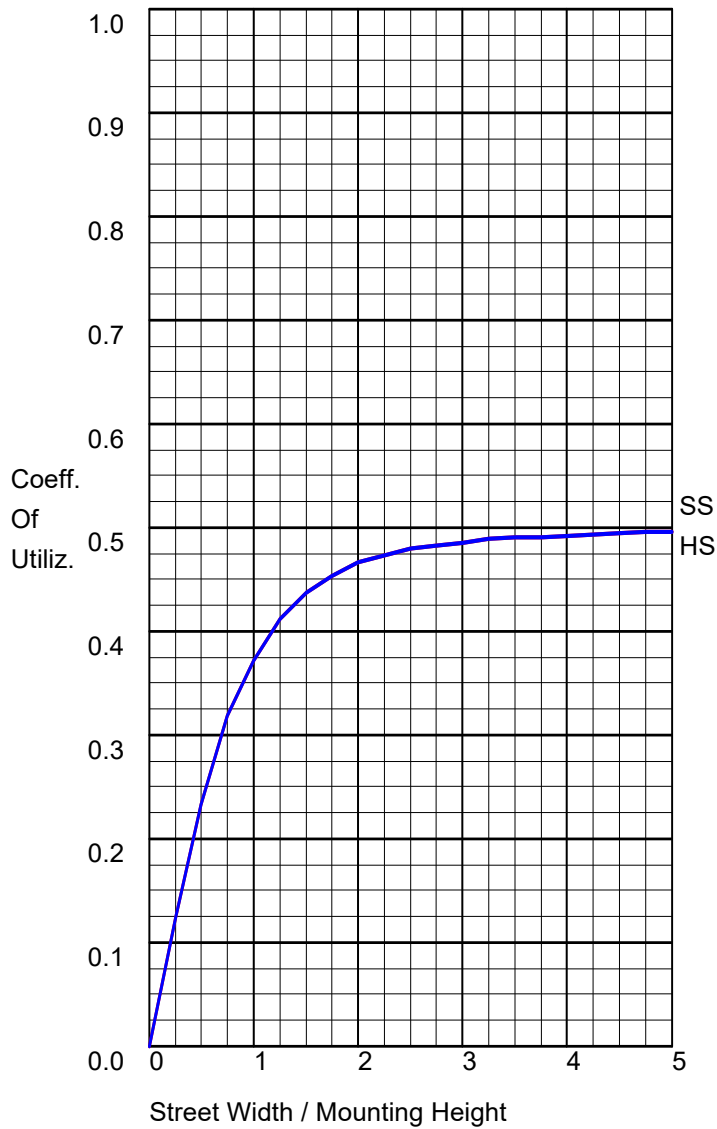
Zone	%
0-20	11.5
0-30	25.8
0-40	43.4
0-60	80.8
0-80	98.3
0-90	100
10-90	97.8
20-40	31.9
20-50	51.4
40-70	49.5
60-80	17.5
70-80	5.4
80-90	1.7
90-110	0
90-120	0
90-130	0
90-150	0
90-180	0
110-180	0
0-180	100

IES ROAD REPORT
PHOTOMETRIC FILENAME : L111708106.IES

CANDELA TABULATION

Vert. Angles	Horizontal Angles
	<u>0</u>
0.0	27.38
5.0	51.61
10.0	79.46
15.0	83.65
20.0	81.70
25.0	78.38
30.0	74.47
35.0	70.84
37.5	69.15
40.0	67.48
42.5	65.70
45.0	63.71
47.5	61.45
50.0	58.63
52.5	55.07
55.0	50.94
57.5	46.48
60.0	41.61
62.5	36.41
65.0	30.98
67.5	25.64
70.0	20.26
72.5	16.20
75.0	12.58
77.5	9.28
80.0	6.87
85.0	4.56
90.0	0.00

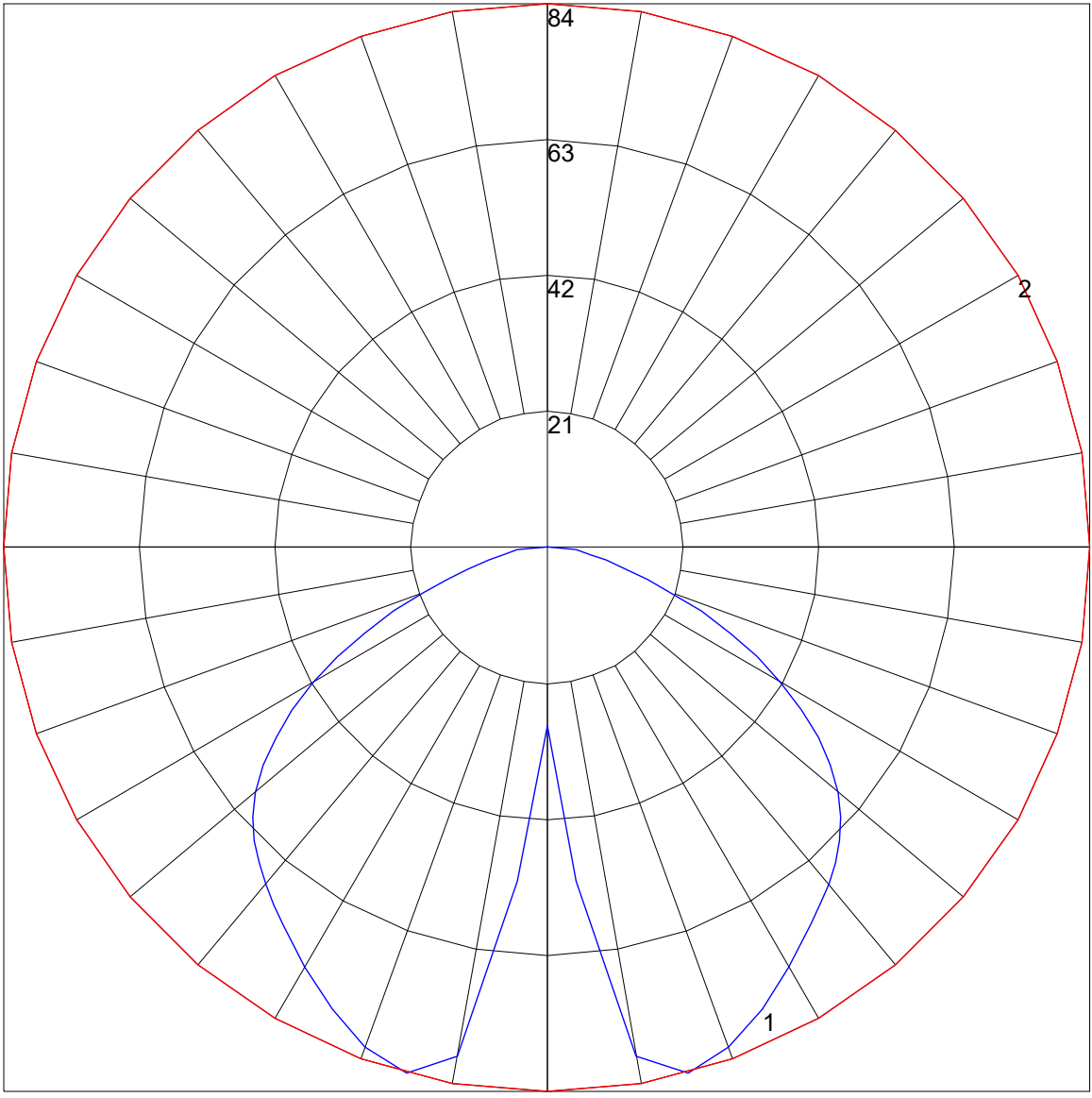
COEFFICIENTS OF UTILIZATION



FLUX DISTRIBUTION

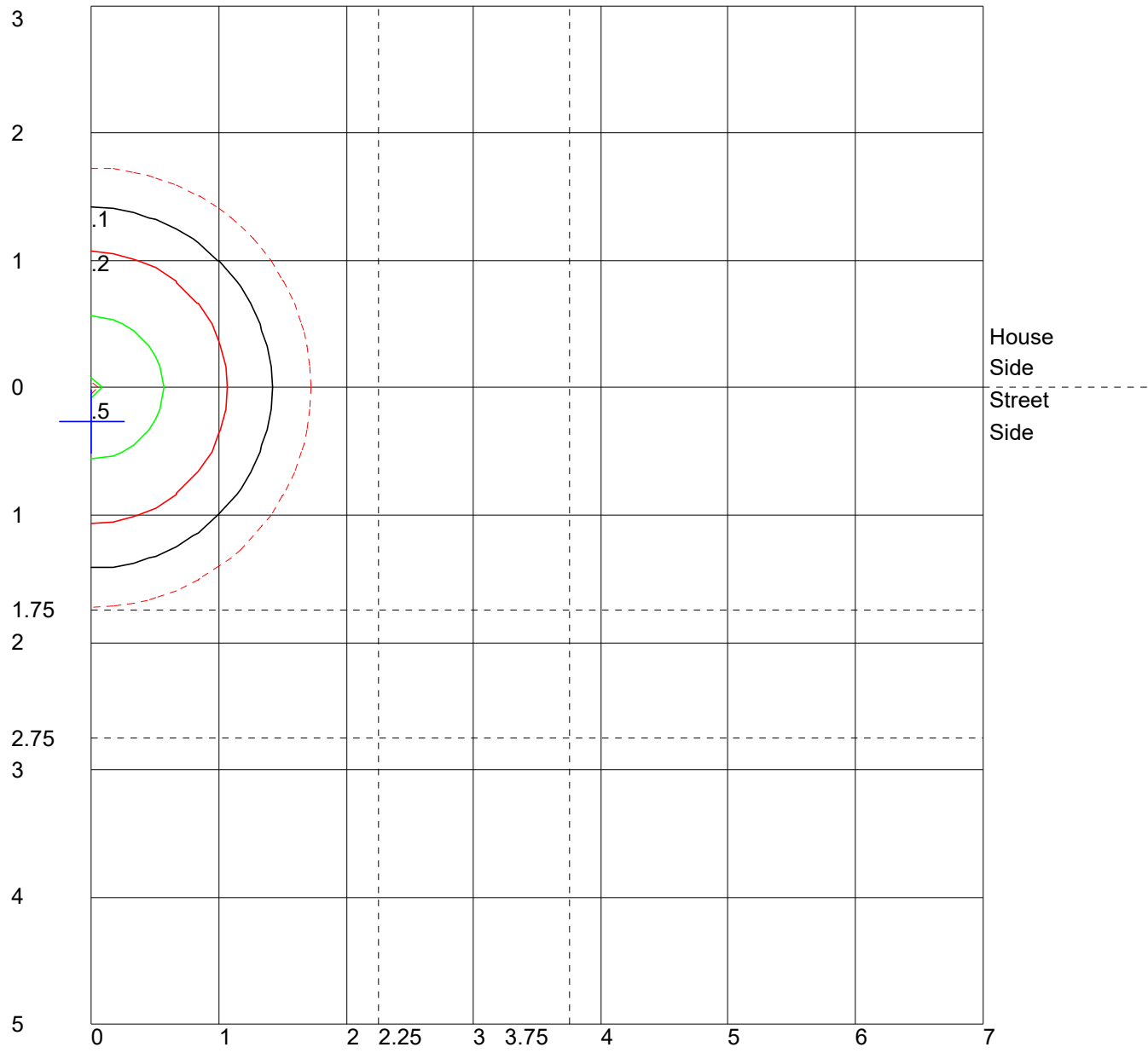
	Lumens	Percent Of Luminaire
Downward Street Side	126.2	50.0
Downward House Side	126.2	50.0
Downward Total	252.4	100.0
Upward Street Side	0.0	0.0
Upward House Side	0.0	0.0
Upward Total	0.0	0.0
Total Flux	252.4	100.0

POLAR GRAPH



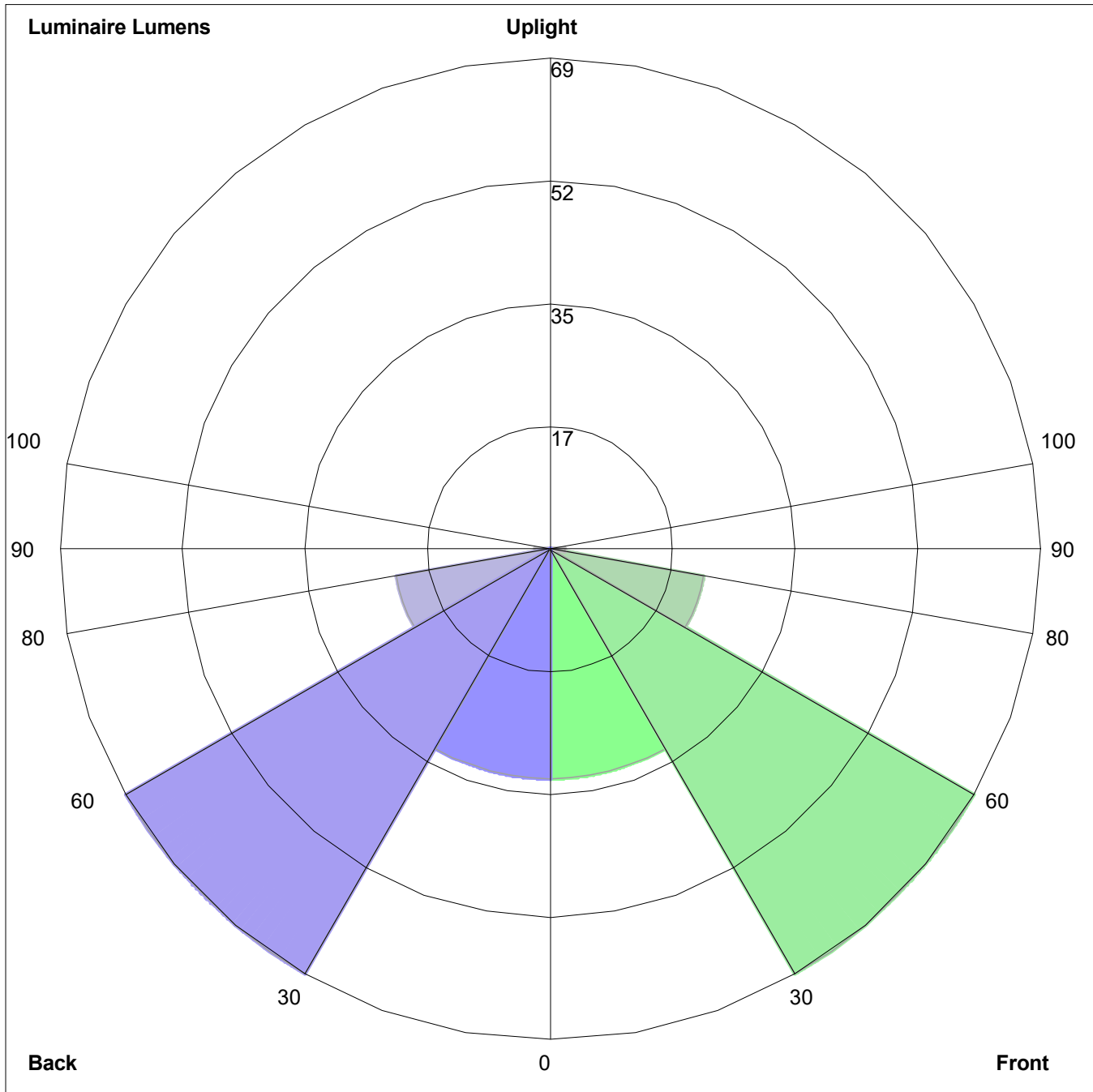
Maximum Candela = 83.65 Located At Horizontal Angle = 0, Vertical Angle = 15
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (15) (Through Max. Cd.)

ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINANCE



Distance In Units Of Mounting Height
 Values Based On 10 Foot Mounting Height
 1/2 Maximum Candela Trace Shown As Dashed Curve
 (+) = Maximum Candela Point

LUMINAIRE CLASSIFICATION SYSTEM (LCS) GRAPH



Luminaire Lumens:
 Front: Low=32.5, Medium=69.4, High=22.1, Very High=2.2
 Back: Low=32.5, Medium=69.4, High=22.1, Very High=2.2
 Uplight: Low=0.0, High=0.0

BUG Rating : B0-U0-G0