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

NVLAP LAB CODE 200927-0

Report No: **L071407701R01**

Report Prepared For: Cast Lighting
1120-A Goffle Rd., Hawthorne, NJ 07506

Model Number: **CPL12X**

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 CPL12X. Received in working and undamaged condition. No modifications were necessary.

Testing Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 7/30/14

Date of Tests: 8/5/14 - 8/5/14

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	01/04/15
Xitron Power Analysis System	2503AH	MT-EL01	01/09/15
BK Precision DC Power Supply	1747	PSDC-04	01/08/15
Fluke Digital Thermometer	52k/J	MT-TP02-GC	01/04/15
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:	Cast Lighting
Model Number:	CPL12X
Driver Model Number:	CUSTOM DRIVER
Total Lumens:	611.60
Input Voltage (VAC/60Hz):	14.00
Input Current (Amp):	0.85
Input Power (W):	11.15
Input Power Factor:	0.94
Total Harmonic Distortion @ 14V(%):	37%
Total Harmonic Distortion @ 277V(%):	N/A
Efficacy:	55
Color Rendering Index (CRI):	69
Correlated Color Temperature (K):	4669
Chromaticity Coordinate x:	0.3554
Chromaticity Coordinate y:	0.3614
Ambient Temperature (°F):	77.0
Stabilization Time (Hours):	1:05
Total Operating Time (Hours):	2:10
Off State Power(W):	0.00

FIG. 1 LUMINAIRE

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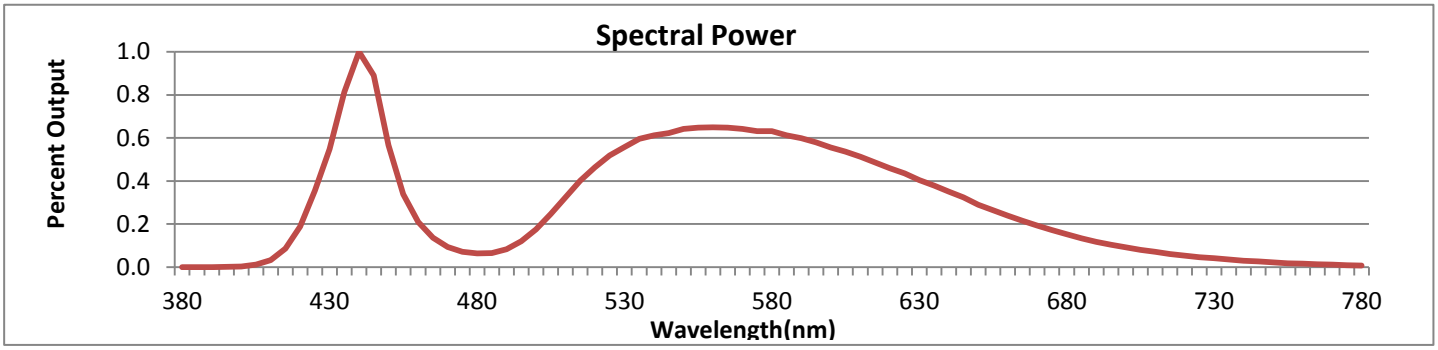


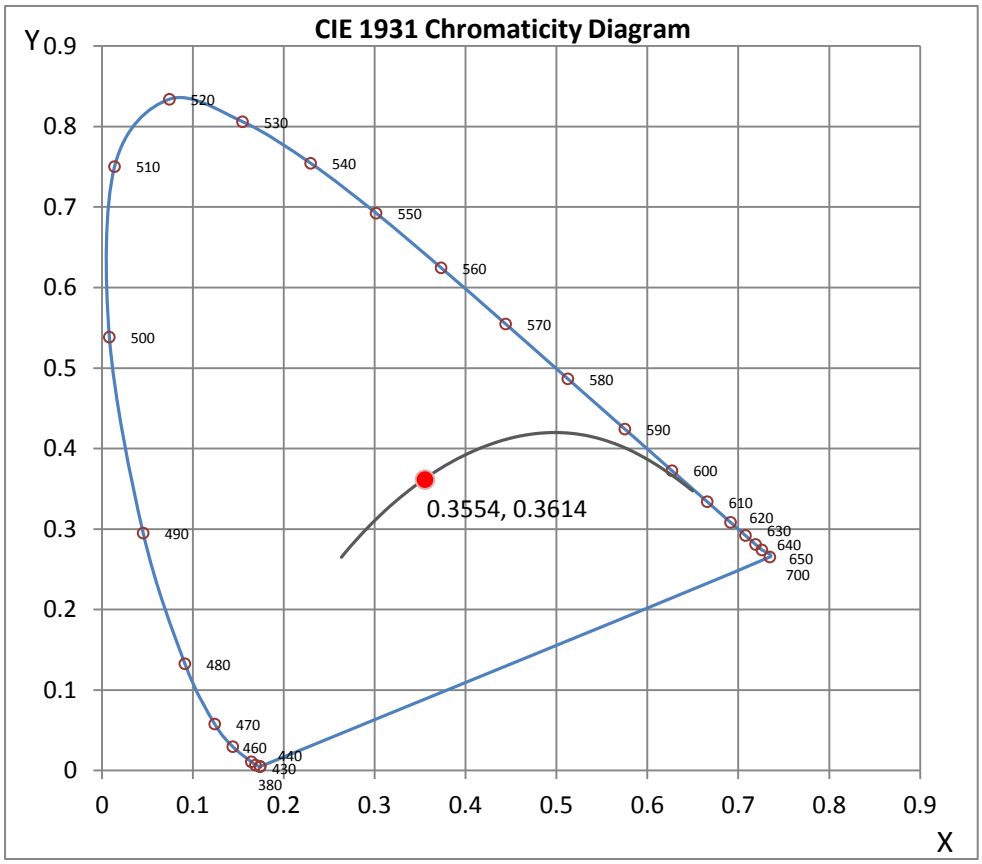
Wavelength	W/m²nm	440	0.0491	510	0.0159	580	0.0310	650	0.0142	720	0.0026
380	0.0000	450	0.0278	520	0.0228	590	0.0294	660	0.0117	730	0.0020
390	0.0000	460	0.0103	530	0.0273	600	0.0273	670	0.0095	740	0.0015
400	0.0002	470	0.0046	540	0.0300	610	0.0252	680	0.0075	750	0.0011
410	0.0016	480	0.0031	550	0.0315	620	0.0226	690	0.0058	760	0.0008
420	0.0093	490	0.0041	560	0.0319	630	0.0199	700	0.0045	770	0.0005
430	0.0269	500	0.0086	570	0.0315	640	0.0172	710	0.0035	780	0.0003

CRI & CCT

x	0.3554
y	0.3614
u'	0.2145
v'	0.4909
CRI	69.00
CCT	4669
Duv	0.00090

R Values

R1	68.94
R2	72.14
R3	73.32
R4	71.10
R5	68.15
R6	61.33
R7	76.72
R8	60.52
R9	-16.06
R10	33.13
R11	68.87
R12	38.47
R13	68.27
R14	84.18



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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 : Wilson Khounlavong

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 : L071407701.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L071407701
[TESTLAB] LIGHT LABORATORY, INC.
[ISSUEDATE] 8/5/2014
[MANUFAC] CAST LIGHTING
[LUMCAT] CPL12X
[LUMINAIRE] 6-3/4"DIA X 35-1/4"H. LED LUMINAIRE
[MORE] LED WITH OPTICS. TWO LEDS
[BALLASTCAT] CUSTOM DRIVER
[LAMPPOSITION] 0,0
[LAMPCAT] N/A
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] 14VAC, 11.15W
[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	612
Downward Total Efficiency	N.A. (absolute)
Total Luminaire Efficiency	N.A. (absolute)
Luminaire Efficacy Rating (LER)	55
Total Luminaire Watts	11.15
Ballast Factor	1.00
Upward Waste Light Ratio	0.00
Maximum Candela	240.85
Maximum Candela Angle	0H 10V
Maximum Candela (<90 Degrees Vertical)	240.85
Maximum Candela Angle (<90 Degrees Vertical)	0H 10V
Maximum Candela At 90 Degrees Vertical	0 (0.0% Luminaire Lumens)
Maximum Candela from 80 to <90 Degrees Vertical	10.59 (1.7% Luminaire Lumens)
Cutoff Classification (deprecated)	N.A. (absolute)

IES ROAD REPORT
PHOTOMETRIC FILENAME : L071407701.IES

LUMINAIRE CLASSIFICATION SYSTEM (LCS)

	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	90.2	N.A.	14.7
FM - Front-Medium (30-60)	174.5	N.A.	28.5
FH - Front-High (60-80)	37.8	N.A.	6.2
FVH - Front-Very High (80-90)	3.4	N.A.	0.5
BL - Back-Low (0-30)	90.2	N.A.	14.7
BM - Back-Medium (30-60)	174.5	N.A.	28.5
BH - Back-High (60-80)	37.8	N.A.	6.2
BVH - Back-Very High (80-90)	3.4	N.A.	0.5
UL - Uplight-Low (90-100)	0.0	N.A.	0.0
UH - Uplight-High (100-180)	0.0	N.A.	0.0
Total	611.8	N.A.	100.0
BUG Rating	B0-U0-G0		

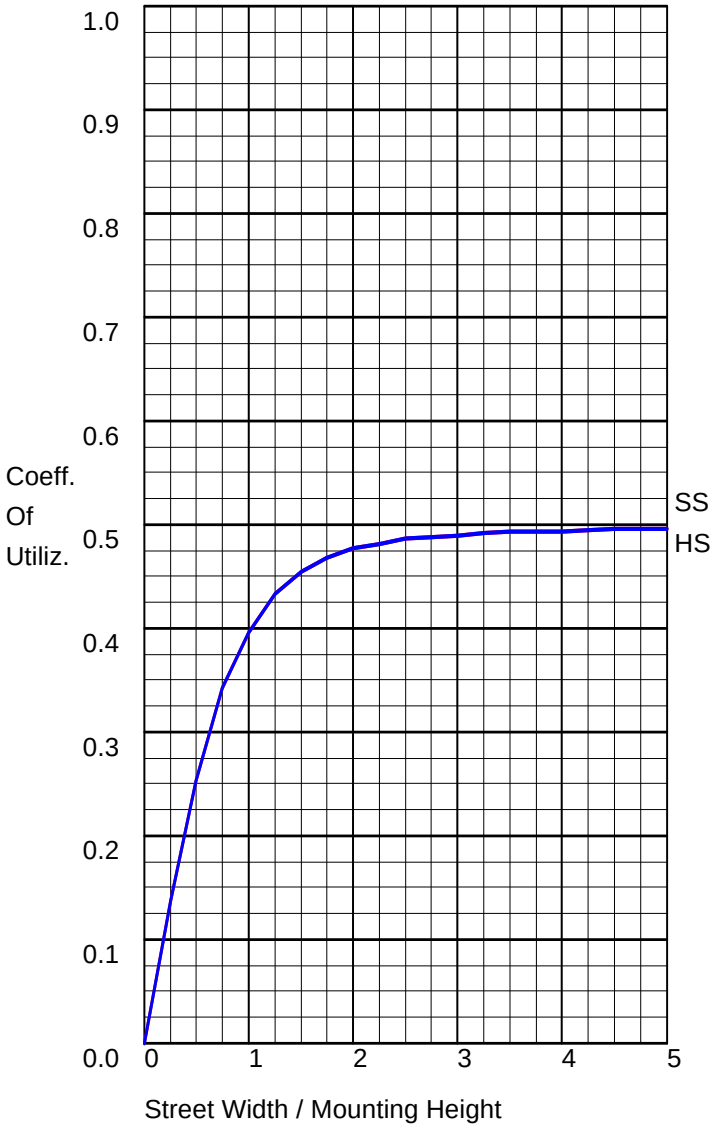
IES ROAD REPORT
PHOTOMETRIC FILENAME : L071407701.IES

CANDELA TABULATION

Vert. Angles	Horizontal Angles
	0
0	0.00
5	190.86
10	240.85
15	238.41
20	222.16
25	205.75
30	200.00
35	189.47
40	179.08
45	171.96
50	150.23
55	107.82
60	82.05
65	53.28
70	33.25
75	17.64
80	10.59
85	7.05
90	0.00

IES ROAD REPORT
PHOTOMETRIC FILENAME : L071407701.IES

COEFFICIENTS OF UTILIZATION

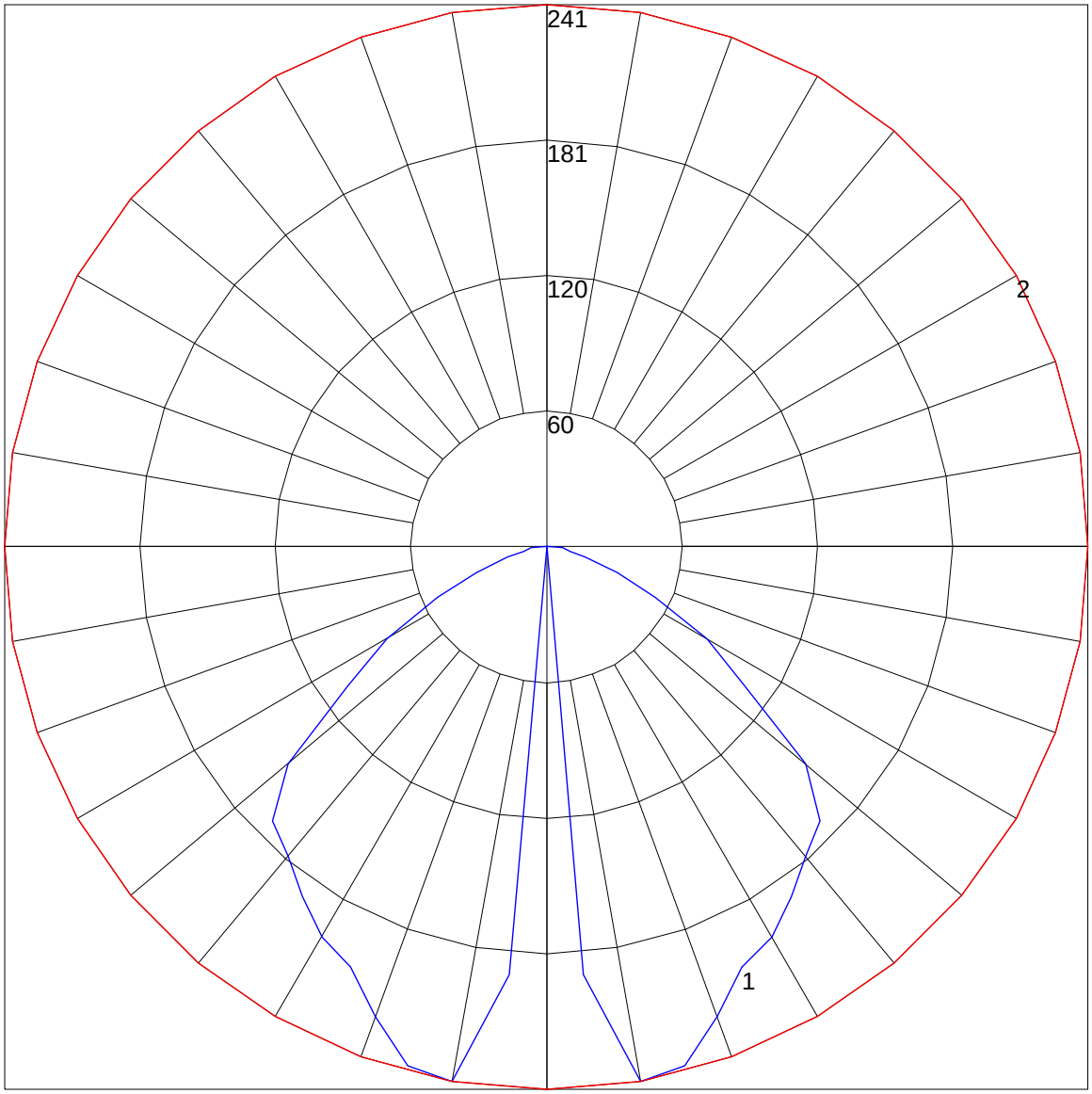


FLUX DISTRIBUTION

	Lumens	Percent Of Luminaire
Downward Street Side	305.8	50.0
Downward House Side	305.8	50.0
Downward Total	611.6	100.0
Upward Street Side	0.0	0.0
Upward House Side	0.0	0.0
Upward Total	0.0	0.0
Total Flux	611.6	100.0

IES ROAD REPORT
PHOTOMETRIC FILENAME : L071407701.IES

POLAR GRAPH



Maximum Candela = 240.85 Located At Horizontal Angle = 0, Vertical Angle = 10
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (10) (Through Max. Cd.)

IES ROAD REPORT
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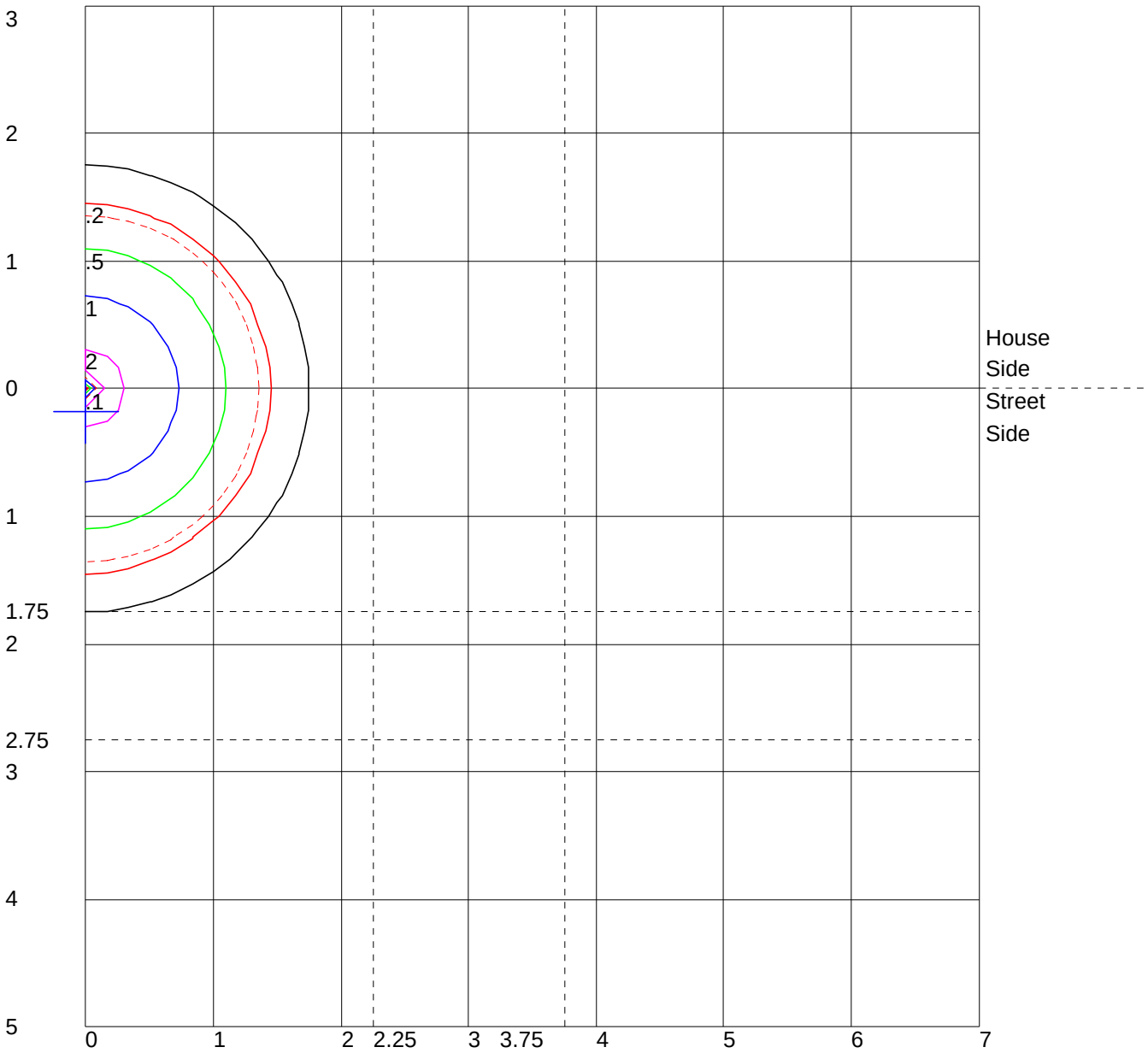
ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINANCE



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

IES ROAD REPORT
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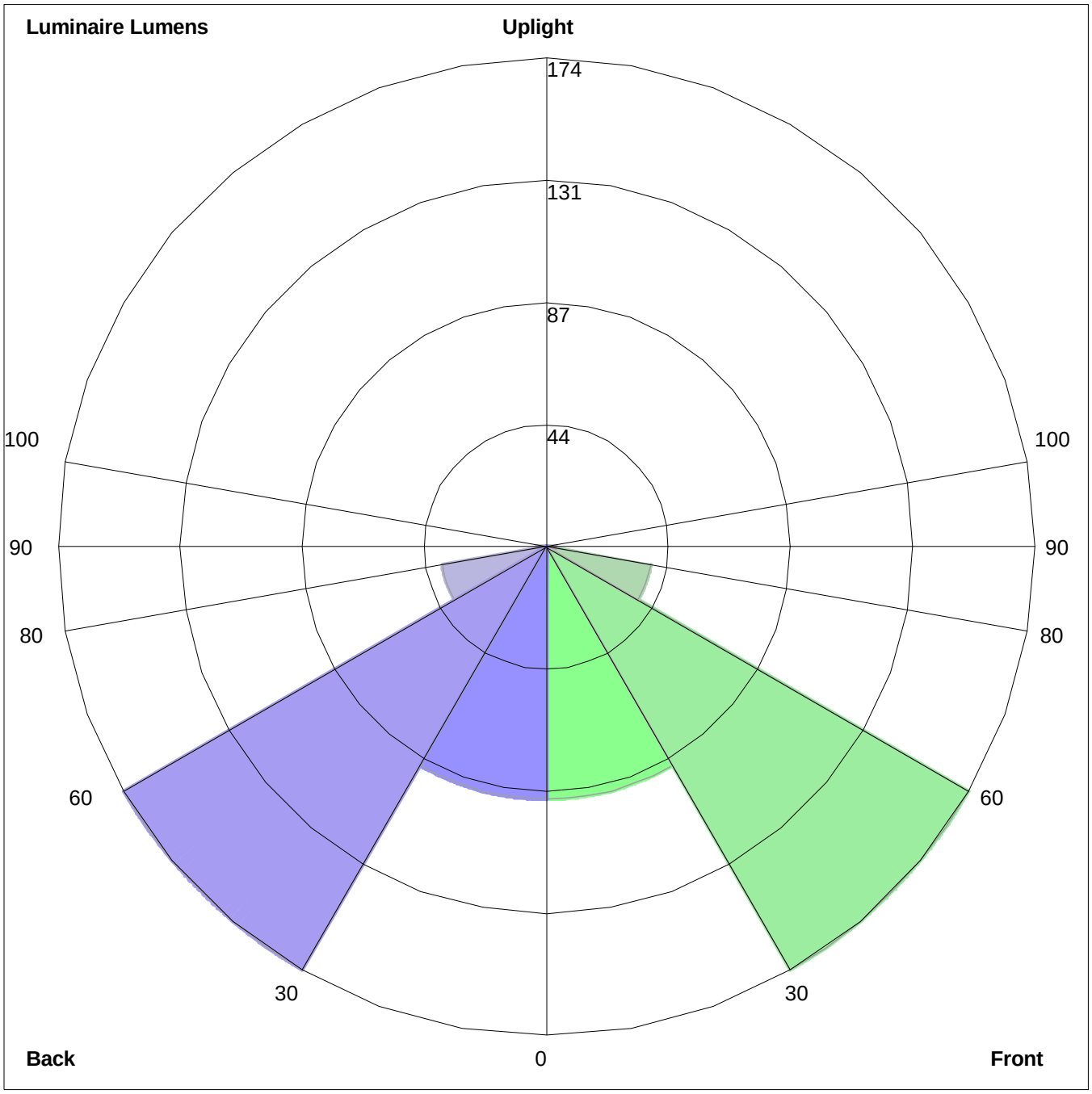
LUMINAIRE CLASSIFICATION SYSTEM (LCS) GRAPH



Luminaire Lumens:
Front: Low=90.2, Medium=174.5, High=37.8, Very High=3.4
Back: Low=90.2, Medium=174.5, High=37.8, Very High=3.4
Uplight: Low=0.0, High=0.0

BUG Rating : B0-U0-G0