



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

Report No: L111407204

Date: 12/11/2014



NVLAP LAB CODE 200927-0

Report No: L111407204

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

Model Number: CCH1CB LED

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 CCH1CB LED . Received in working and undamaged condition. No modifications were necessary.

Testing Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 12/8/14

Date of Tests: 12/9/14 - 12/9/14

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.

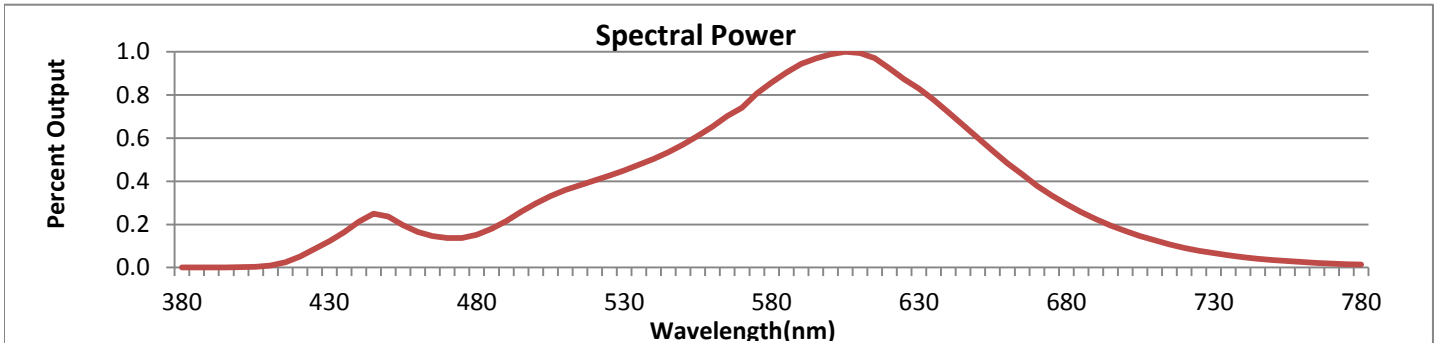
Test Summary

Manufacturer:	Cast Lighting
Model Number:	CCH1CB LED
Driver Model Number:	N/A
Total Lumens:	81.60
Input Voltage (VAC/60Hz):	12.00
Input Current (Amp):	0.41
Input Power (W):	4.42
Input Power Factor:	0.89
Current ATHD @ 12V(%):	50%
Current ATHD @ 24V(%):	N/A
Efficacy:	18
Color Rendering Index (CRI):	82
Correlated Color Temperature (K):	2797
Chromaticity Coordinate x:	0.4587
Chromaticity Coordinate y:	0.4211
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:45
Total Operating Time (Hours):	1:20
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.



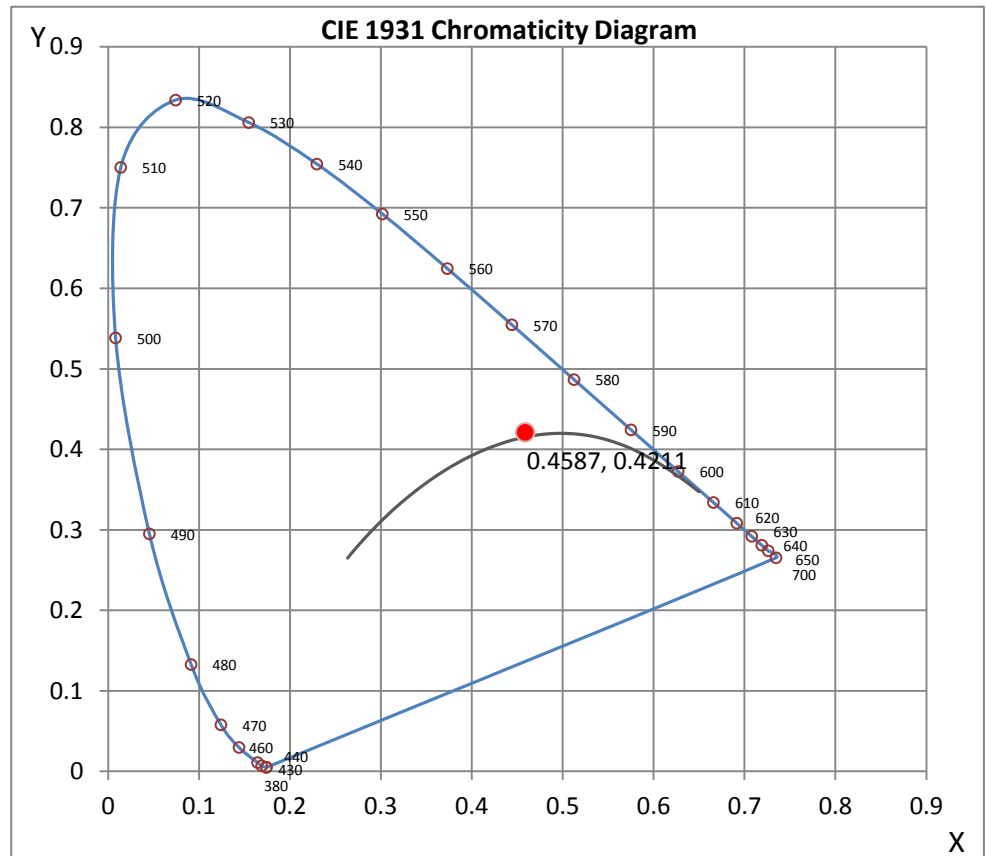
Wavelength	W/m ² nm	440	0.2123	510	0.3597	580	0.8581	650	0.6011	720	0.0910
380	0.0007	450	0.2371	520	0.4043	590	0.9436	660	0.4844	730	0.0667
390	0.0009	460	0.1652	530	0.4504	600	0.9892	670	0.3792	740	0.0486
400	0.0017	470	0.1364	540	0.5041	610	0.9949	680	0.2943	750	0.0354
410	0.0093	480	0.1526	550	0.5702	620	0.9236	690	0.2249	760	0.0254
420	0.0512	490	0.2160	560	0.6528	630	0.8296	700	0.1695	770	0.0185
430	0.1226	500	0.2977	570	0.7408	640	0.7202	710	0.1264	780	0.0135

CRI & CCT

x	0.4587
y	0.4211
u'	0.2571
v'	0.5311
CRI	81.80
CCT	2797
Duv	0.00396

R Values

R1	79.09
R2	89.15
R3	97.88
R4	80.45
R5	79.28
R6	87.57
R7	83.59
R8	57.34
R9	3.53
R10	76.30
R11	79.65
R12	73.94
R13	81.05
R14	99.08



*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 : 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 : L111407204.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TEST] L111407204
 [TESTLAB] LIGHT LABORATORY, INC.
 [ISSUEDATE] 12/11/2014
 [MANUFAC] CAST LIGHTING
 [LUMCAT] CCH1CB LED
 [LUMINAIRE] 7"DIA X 29-3/4"H. LED LUMINAIRE
 [MORE] CLEAR LENS
 [BALLASTCAT] N.A.
 [BALLAST] 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, 4.42W
 [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	82
Downward Total Efficiency	N.A. (absolute)
Total Luminaire Efficiency	N.A. (absolute)
Luminaire Efficacy Rating (LER)	18
Total Luminaire Watts	4.42
Ballast Factor	1.00
Upward Waste Light Ratio	0.00
Maximum Candela	21.24
Maximum Candela Angle	0H 55V
Maximum Candela (<90 Degrees Vertical)	21.24
Maximum Candela Angle (<90 Degrees Vertical)	0H 55V
Maximum Candela At 90 Degrees Vertical	0 (0.0% Luminaire Lumens)
Maximum Candela from 80 to <90 Degrees Vertical	1.24 (1.5% Luminaire Lumens)
Cutoff Classification (deprecated)	N.A. (absolute)

IES ROAD REPORT
PHOTOMETRIC FILENAME : L111407204.IES

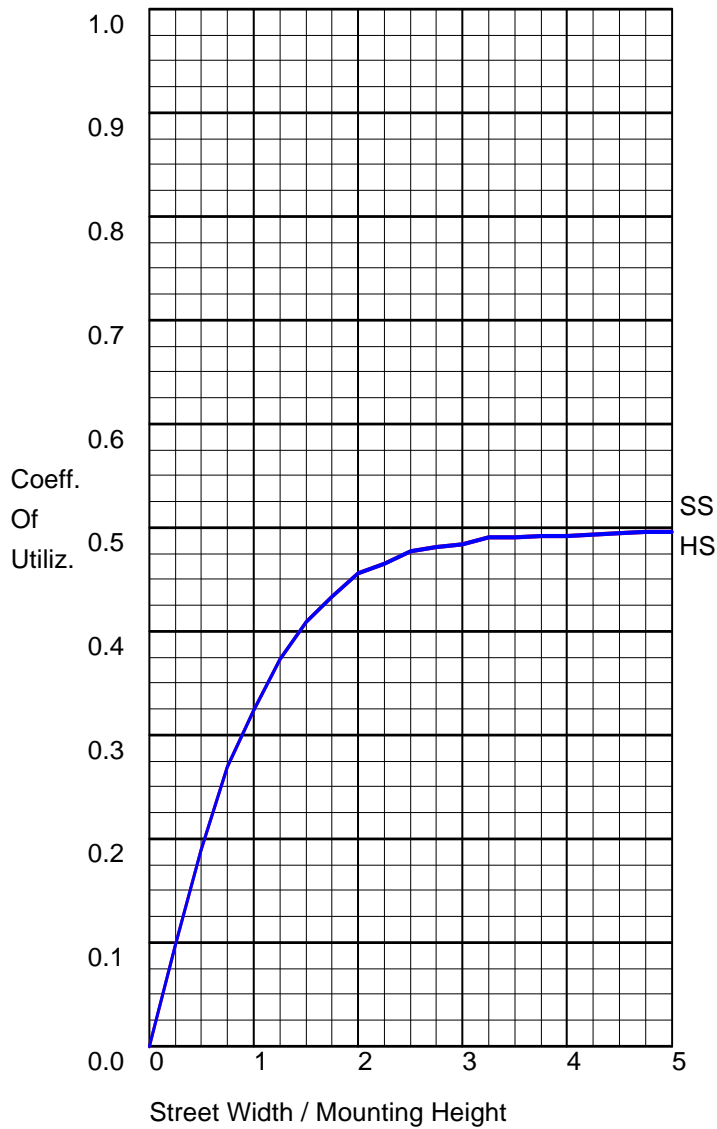
LUMINAIRE CLASSIFICATION SYSTEM (LCS)

	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	6.9	N.A.	8.5
FM - Front-Medium (30-60)	22.2	N.A.	27.3
FH - Front-High (60-80)	11.4	N.A.	13.9
FVH - Front-Very High (80-90)	0.3	N.A.	0.3
BL - Back-Low (0-30)	6.9	N.A.	8.5
BM - Back-Medium (30-60)	22.2	N.A.	27.3
BH - Back-High (60-80)	11.4	N.A.	13.9
BVH - Back-Very High (80-90)	0.3	N.A.	0.3
UL - Uplight-Low (90-100)	0.0	N.A.	0.0
UH - Uplight-High (100-180)	0.0	N.A.	0.0
Total	81.6	N.A.	100.0
BUG Rating	B0-U0-G0		

CANDELA TABULATION

Vert. Angles	Horizontal Angles
	<u>0</u>
0	0.00
5	13.88
10	15.79
15	16.75
20	17.36
25	17.02
30	16.81
35	17.18
40	18.00
45	19.20
50	20.45
55	21.24
60	20.49
65	17.92
70	11.85
75	4.58
80	1.24
85	0.39
90	0.00

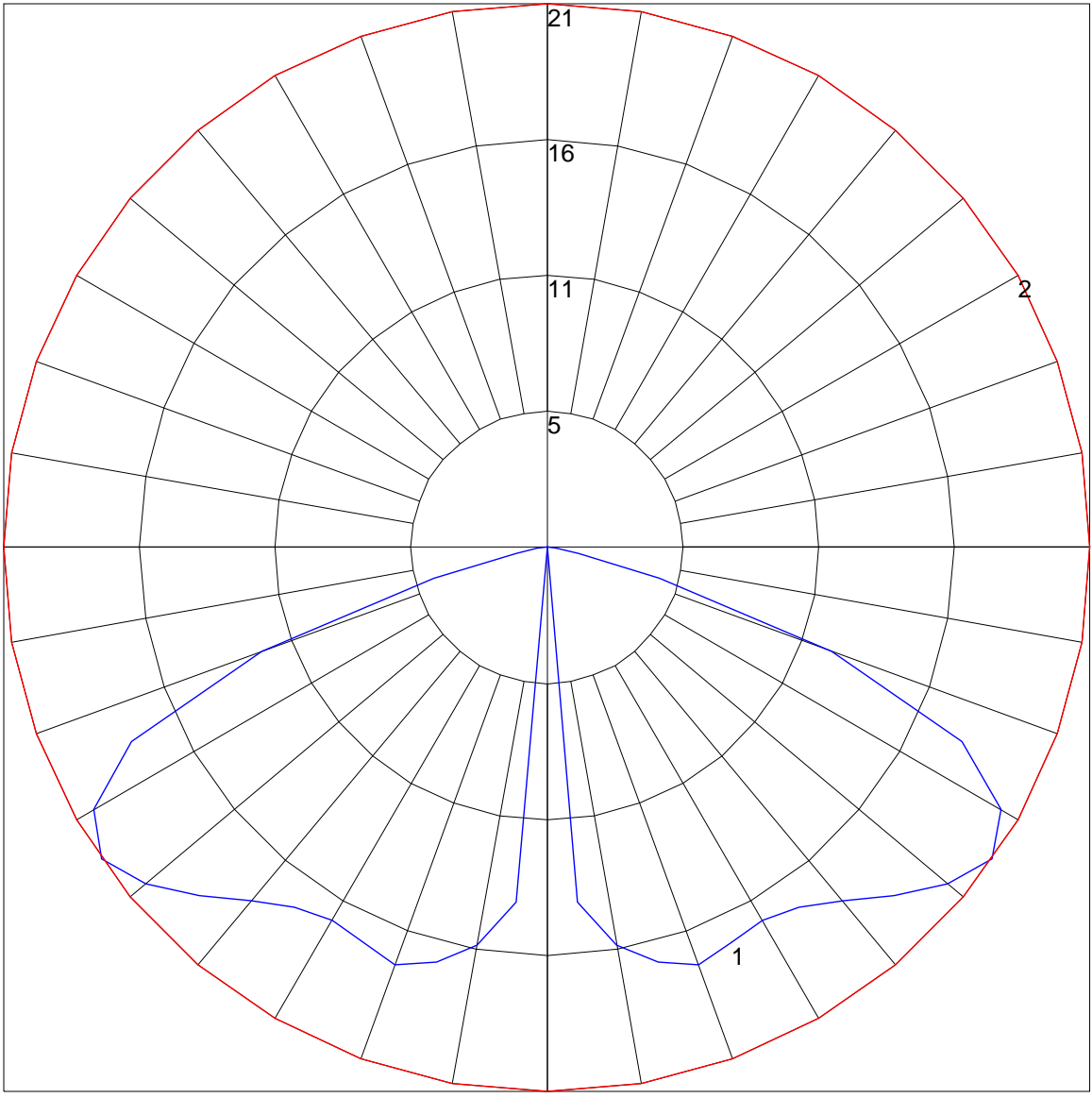
COEFFICIENTS OF UTILIZATION



FLUX DISTRIBUTION

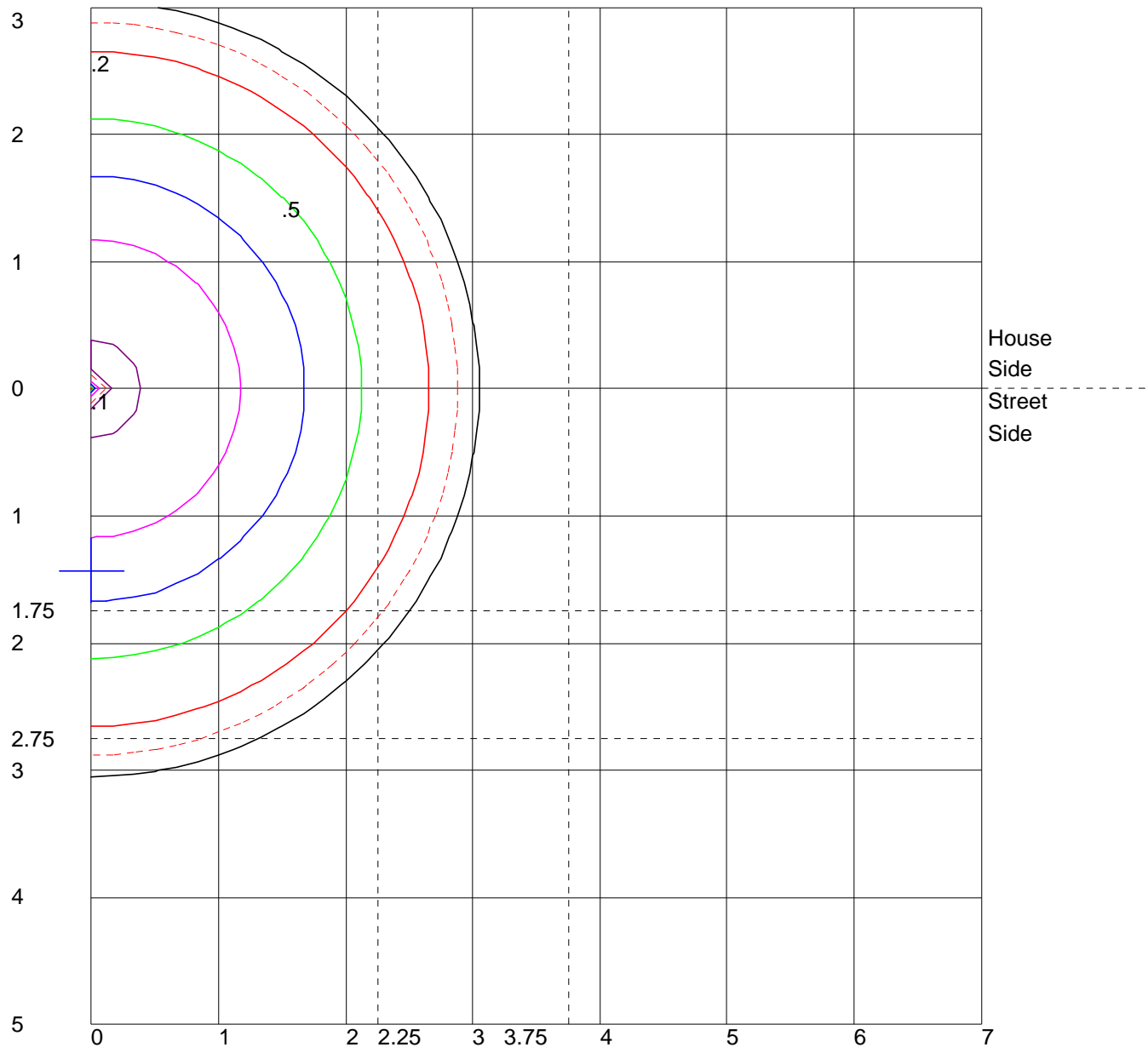
	Lumens	Percent Of Luminaire
Downward Street Side	40.8	50.0
Downward House Side	40.8	50.0
Downward Total	81.6	100.0
Upward Street Side	0.0	0.0
Upward House Side	0.0	0.0
Upward Total	0.0	0.0
Total Flux	81.6	100.0

POLAR GRAPH



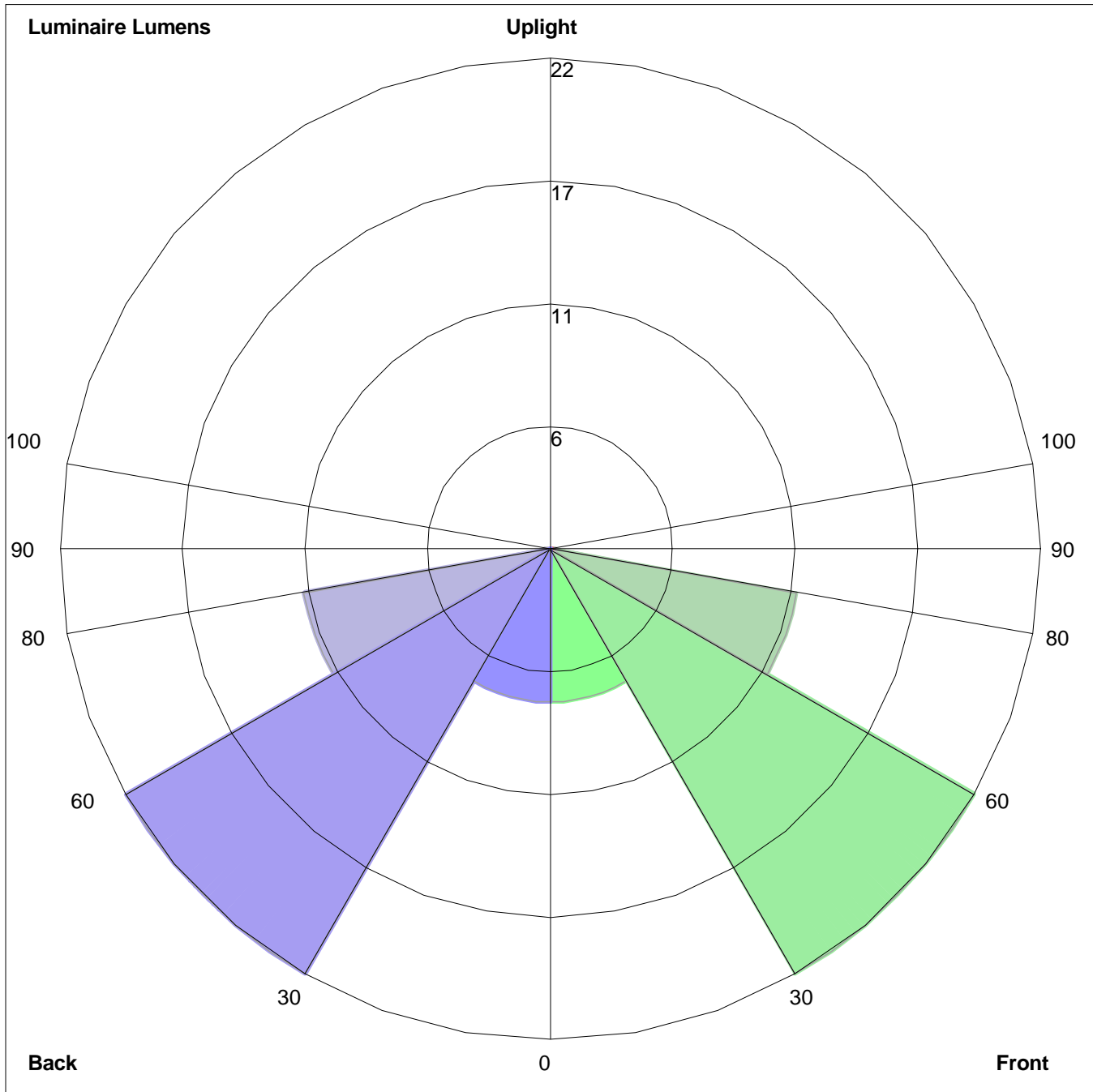
Maximum Candela = 21.24 Located At Horizontal Angle = 0, Vertical Angle = 55
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (55) (Through Max. Cd.)

ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINANCE



Distance In Units Of Mounting Height
 Values Based On 1.67 Foot Mounting Height
 1/2 Maximum Candela Trace Shown As Dashed Curve
 (+) = Maximum Candela Point

LUMINAIRE CLASSIFICATION SYSTEM (LCS) GRAPH



Luminaire Lumens:
 Front: Low=6.9, Medium=22.2, High=11.4, Very High=0.3
 Back: Low=6.9, Medium=22.2, High=11.4, Very High=0.3
 Uplight: Low=0.0, High=0.0

BUG Rating : B0-U0-G0