



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

Report No: L111407201

Date: 12/11/2014



NVLAP LAB CODE 200927-0

Report No: L111407201

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

Model Number: CCH5LED1

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 CCH5LED1. Received in working and undamaged condition. No modifications were necessary.

Testing Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 12/11/14

Date of Tests: 12/11/14 - 12/11/14

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.

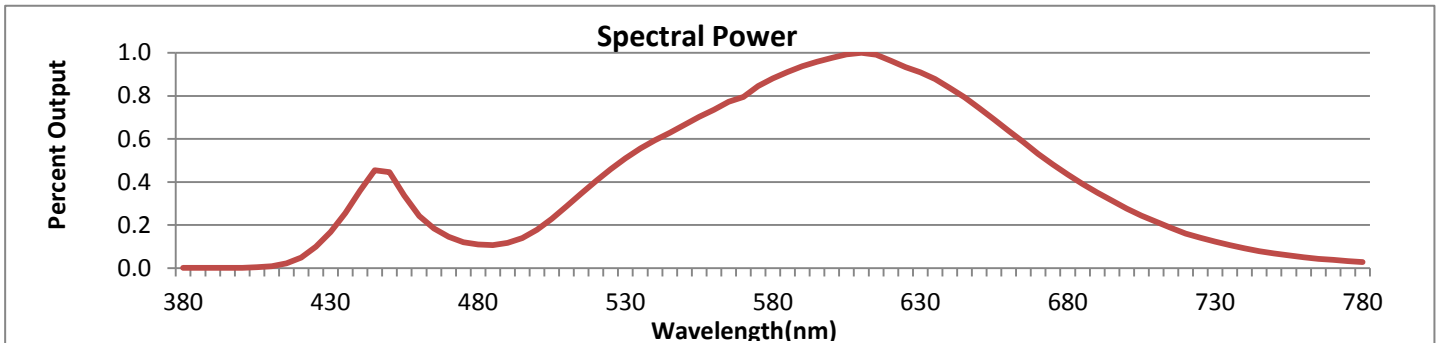
Test Summary

Manufacturer:	Cast Lighting
Model Number:	CCH5LED1
Driver Model Number:	N/A
Total Lumens:	58.20
Input Voltage (VAC/60Hz):	12.00
Input Current (Amp):	0.27
Input Power (W):	2.71
Input Power Factor:	0.84
Current ATHD @ 12V(%):	63%
Current ATHD @ 24V(%):	N/A
Efficacy:	21
Color Rendering Index (CRI):	81
Correlated Color Temperature (K):	2829
Chromaticity Coordinate x:	0.4471
Chromaticity Coordinate y:	0.4031
Ambient Temperature (°F):	77.0
Stabilization Time (Hours):	0:35
Total Operating Time (Hours):	1:25
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.



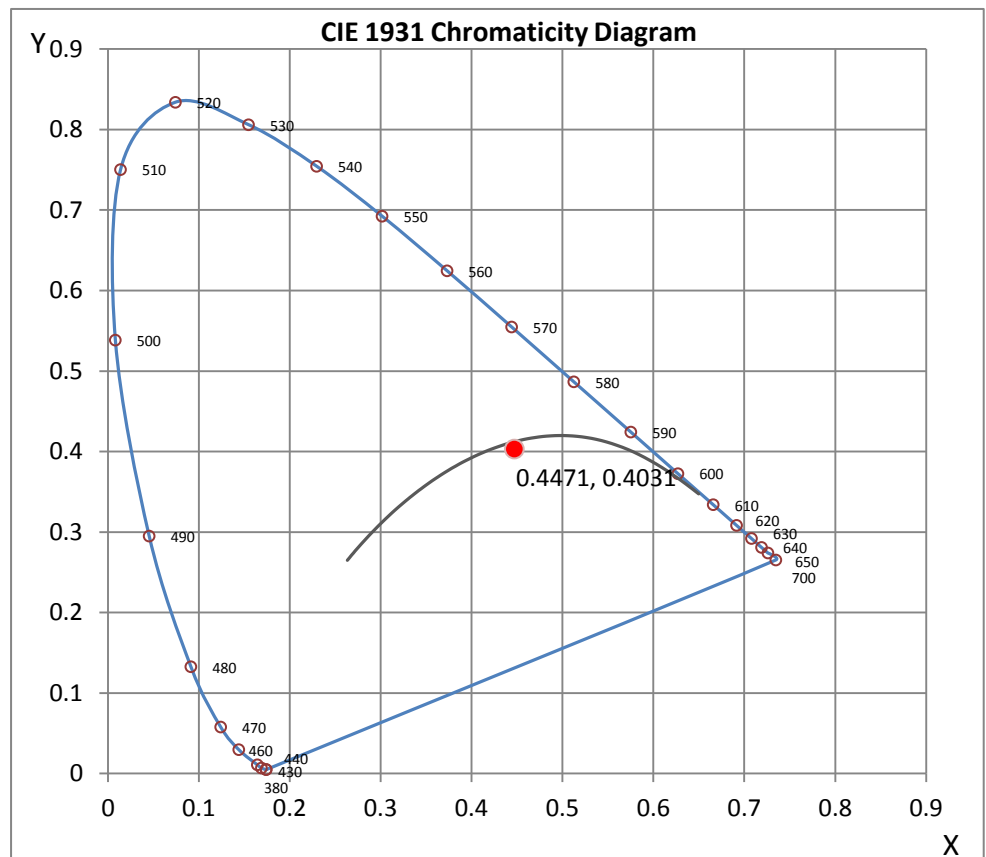
Wavelength	W/m ² nm	440	0.3588	510	0.2868	580	0.8807	650	0.7431	720	0.1610
380	0.0008	450	0.4457	520	0.4048	590	0.9384	660	0.6371	730	0.1224
390	0.0010	460	0.2413	530	0.5102	600	0.9765	670	0.5306	740	0.0920
400	0.0019	470	0.1447	540	0.5942	610	1.0000	680	0.4360	750	0.0681
410	0.0082	480	0.1091	550	0.6664	620	0.9632	690	0.3509	760	0.0502
420	0.0491	490	0.1165	560	0.7357	630	0.9099	700	0.2767	770	0.0377
430	0.1681	500	0.1785	570	0.7953	640	0.8366	710	0.2158	780	0.0280

CRI & CCT

x	0.4471
y	0.4031
u'	0.2576
v'	0.5225
CRI	80.50
CCT	2829
Duv	-0.00162

R Values

R1	79.82
R2	86.35
R3	90.04
R4	79.05
R5	77.25
R6	79.52
R7	85.79
R8	66.11
R9	21.88
R10	66.13
R11	74.83
R12	58.82
R13	80.64
R14	93.42



*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*



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

Photometric Test Report

IES ROAD REPORT
PHOTOMETRIC FILENAME : L111407201.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TEST] L111407201
 [TESTLAB] LIGHT LABORATORY, INC.
 [ISSUEDATE] 12/11/2014
 [MANUFAC] CAST LIGHTING
 [LUMCAT] CCH5LED1
 [LUMINAIRE] 4"DIA X 20-1/2"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, 2.71W
 [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	58
Downward Total Efficiency	N.A. (absolute)
Total Luminaire Efficiency	N.A. (absolute)
Luminaire Efficacy Rating (LER)	22
Total Luminaire Watts	2.71
Ballast Factor	1.00
Upward Waste Light Ratio	0.02
Maximum Candela	18.2
Maximum Candela Angle	0H 10V
Maximum Candela (<90 Degrees Vertical)	18.2
Maximum Candela Angle (<90 Degrees Vertical)	0H 10V
Maximum Candela At 90 Degrees Vertical	1.29 (2.2% Luminaire Lumens)
Maximum Candela from 80 to <90 Degrees Vertical	2.87 (4.9% Luminaire Lumens)
Cutoff Classification (deprecated)	N.A. (absolute)

IES ROAD REPORT
PHOTOMETRIC FILENAME : L111407201.IES

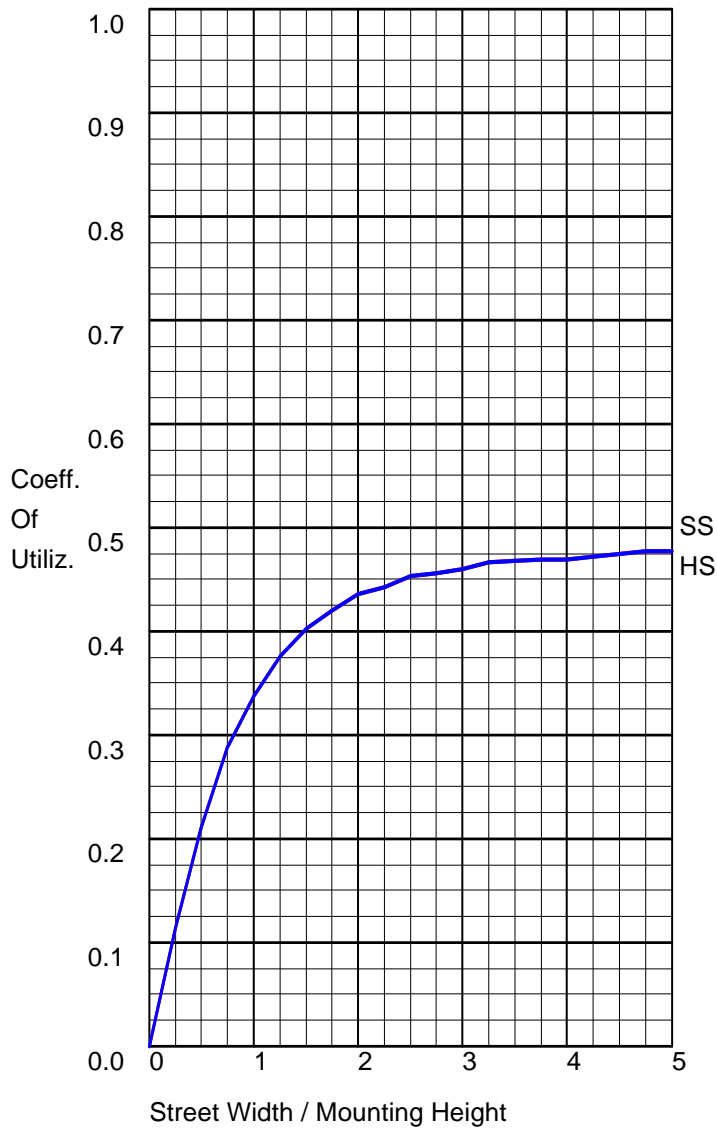
LUMINAIRE CLASSIFICATION SYSTEM (LCS)

	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	6.6	N.A.	11.3
FM - Front-Medium (30-60)	14.3	N.A.	24.6
FH - Front-High (60-80)	6.4	N.A.	10.9
FVH - Front-Very High (80-90)	1.1	N.A.	2.0
BL - Back-Low (0-30)	6.6	N.A.	11.3
BM - Back-Medium (30-60)	14.3	N.A.	24.6
BH - Back-High (60-80)	6.4	N.A.	10.9
BVH - Back-Very High (80-90)	1.1	N.A.	2.0
UL - Uplight-Low (90-100)	0.8	N.A.	1.4
UH - Uplight-High (100-180)	0.6	N.A.	1.0
Total	58.2	N.A.	100.0
BUG Rating	B0-U1-G0		

CANDELA TABULATION

Vert. Angles	Horizontal Angles
	<u>0</u>
0	0.00
5	17.82
10	18.20
15	16.81
20	15.69
25	14.98
30	14.50
35	14.05
40	13.50
45	12.87
50	12.19
55	11.12
60	9.73
65	8.14
70	6.29
75	4.41
80	2.87
85	2.09
90	1.29
95	0.63
100	0.42
105	0.35
110	0.22
115	0.21
120	0.20
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

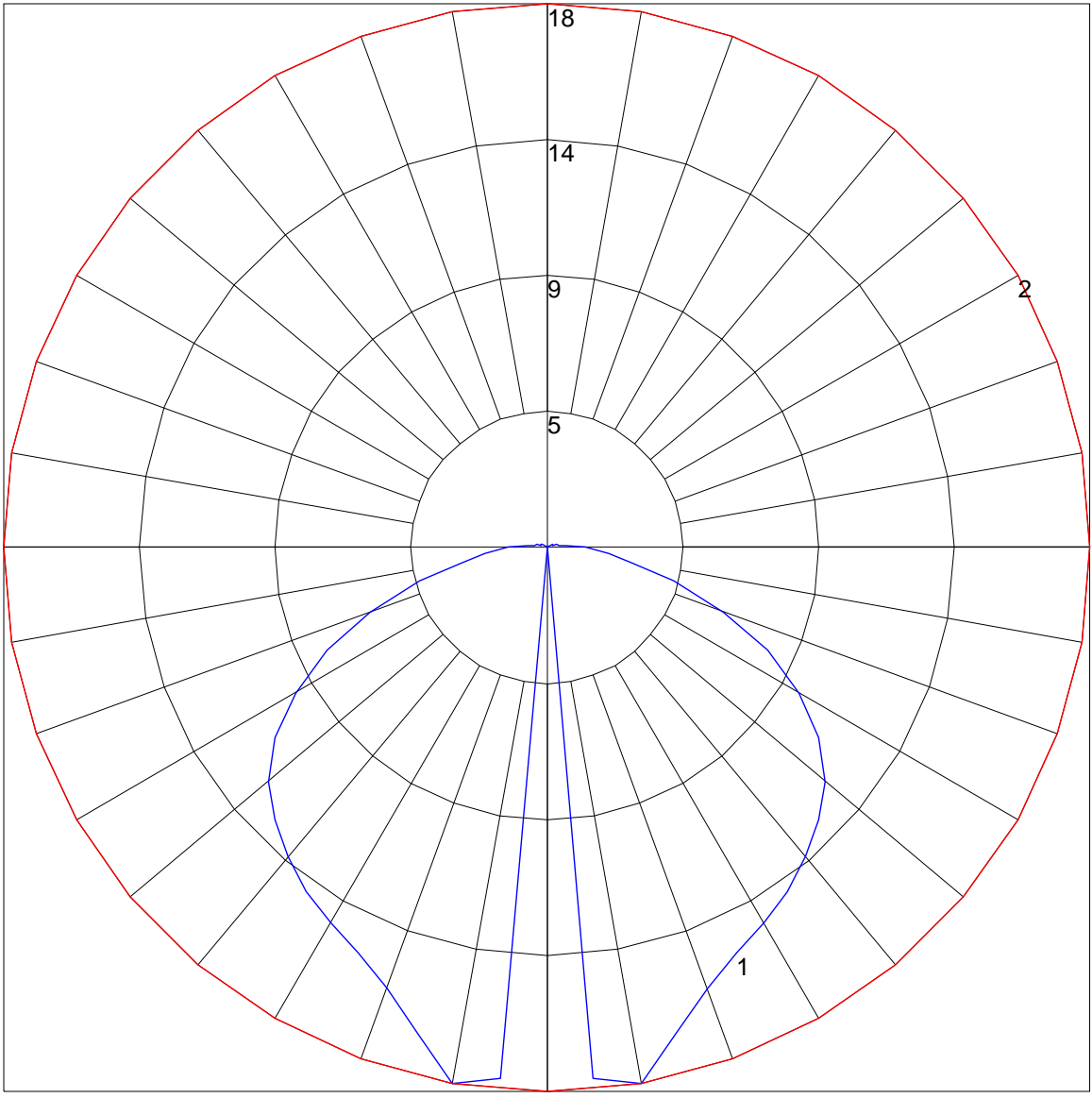
COEFFICIENTS OF UTILIZATION



FLUX DISTRIBUTION

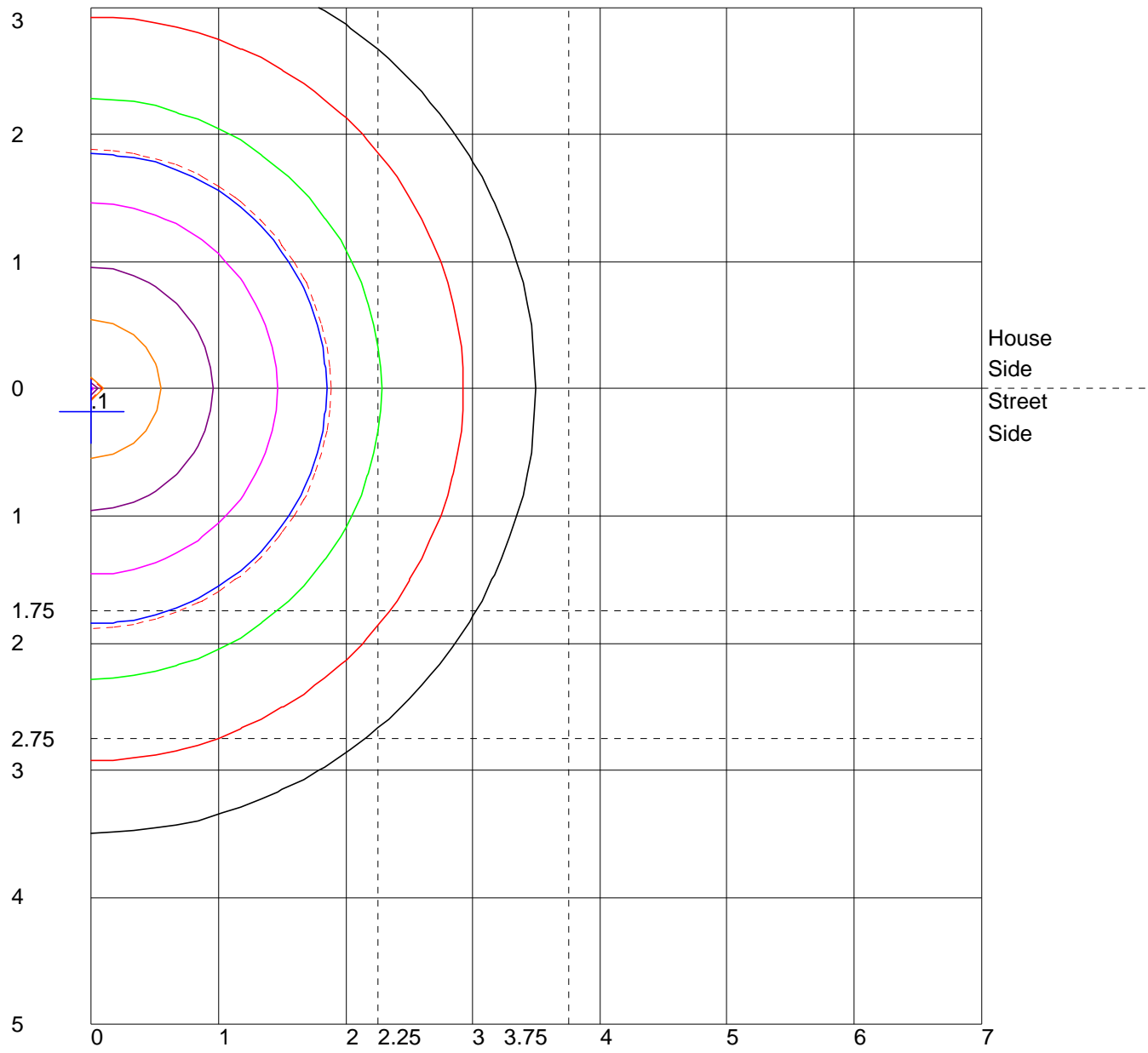
	Lumens	Percent Of Luminaire
Downward Street Side	28.4	48.8
Downward House Side	28.4	48.8
Downward Total	56.8	97.5
Upward Street Side	0.7	1.2
Upward House Side	0.7	1.2
Upward Total	1.4	2.4
Total Flux	58.2	99.9

POLAR GRAPH



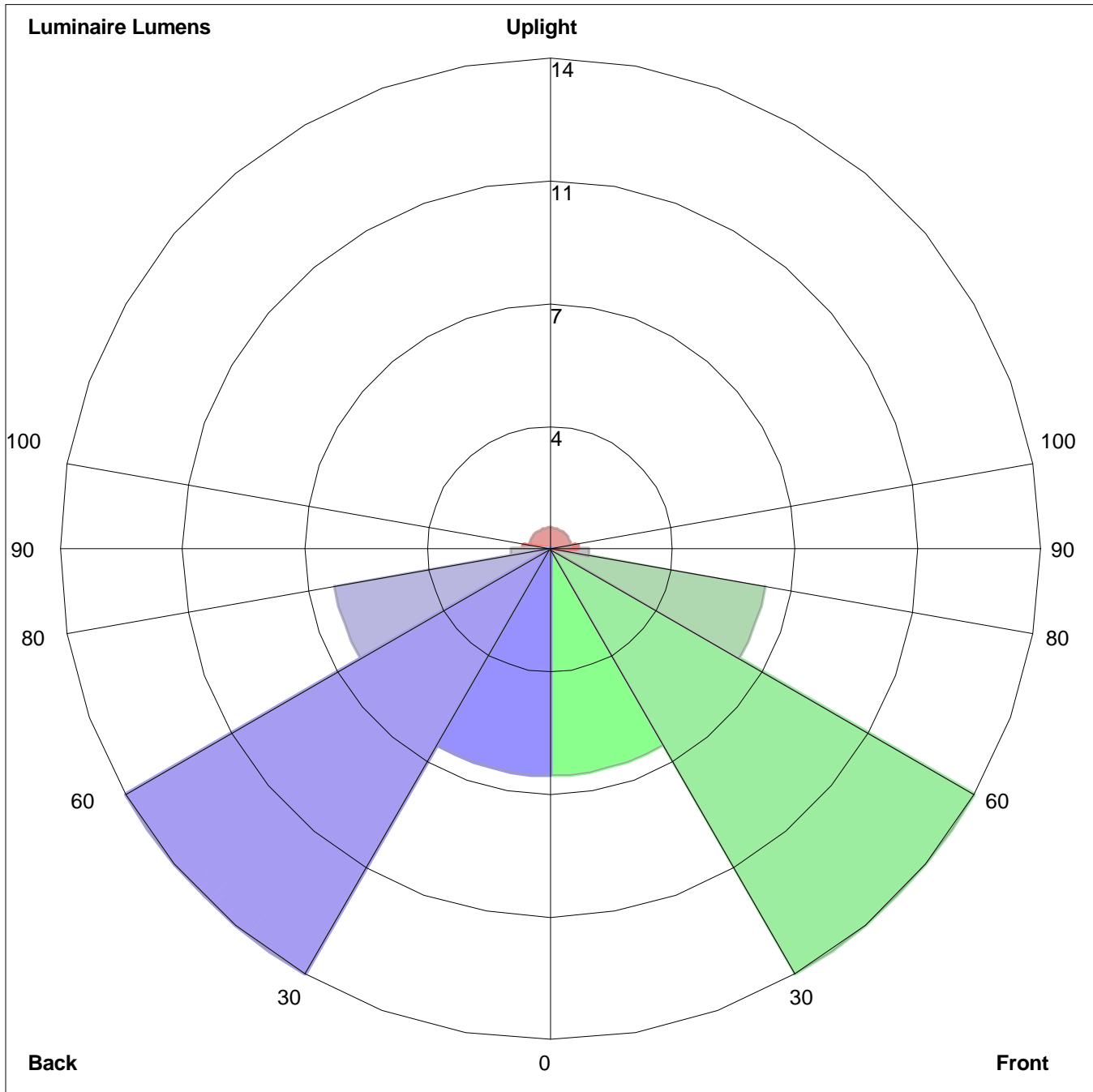
Maximum Candela = 18.2 Located At Horizontal Angle = 0, Vertical Angle = 10
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (10) (Through Max. Cd.)

ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINANCE



Distance In Units Of Mounting Height
 Values Based On 1 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=14.3, High=6.4, Very High=1.1
Back: Low=6.6, Medium=14.3, High=6.4, Very High=1.1
Uplight: Low=0.8, High=0.6

BUG Rating : B0-U1-G0