



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

Test #: L04124203
 Date: 4/26/2012

Test Report: L04124203

Model Number: 1505

Report Prepared For: VISTA PROFESSIONAL OUTDOOR LIGHTING
 1625 Surveyor Ave. Simi Valley, CA 93063

Test: Electrical and Photometric tests as required by the IESNA test standards.

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

Description of Sample: Client submitted 1 sample of LED step lighting fixture. Fixture catalog number is 1505. Received in working and undamaged condition. No modifications were necessary.

Sample Arrival Date: 4/19/12

Date of Tests: 4/24/12 - 4/26/12

Seasoning of Sample SSL: No seasoning was performed in accordance with IESNA LM-79.

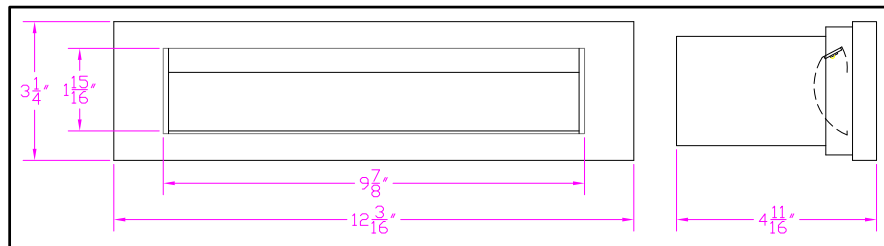
Equipment List

Equipment Used	Model No	Stock No	Calibration Due Date
Chroma Programmable AC Source	61604	PS-AC02	--
Yokogawa Digital Power Meter	WT210	MT-EL06-S1	01/04/13
Xitron Power Analysis System	2503AH	MT-EL01	01/09/13
Fluke Digital Thermometer	52k/J	MT-TP02-GC	01/04/13
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.

LM-79 Test Summary

Manufacturer:	VISTA PROFESSIONAL OUTDOOR LI
Model Number:	1505
Total Lumens:	541.40
Input Voltage (VAC):	120.00
Input Current (Amp):	0.14
Input Power (W):	15.96
Input Power Factor:	0.96
Efficacy:	33.92
Color Rendering Index (CRI):	85.77
Correlated Color Temperature (CCT):	4001
Chromaticity Coordinate x:	0.3770
Chromaticity Coordinate y:	0.3641
Ambient Temperature (°F):	77
Stabilization Time (Hours):	2:33
Total Operating Time (Hours):	4:35

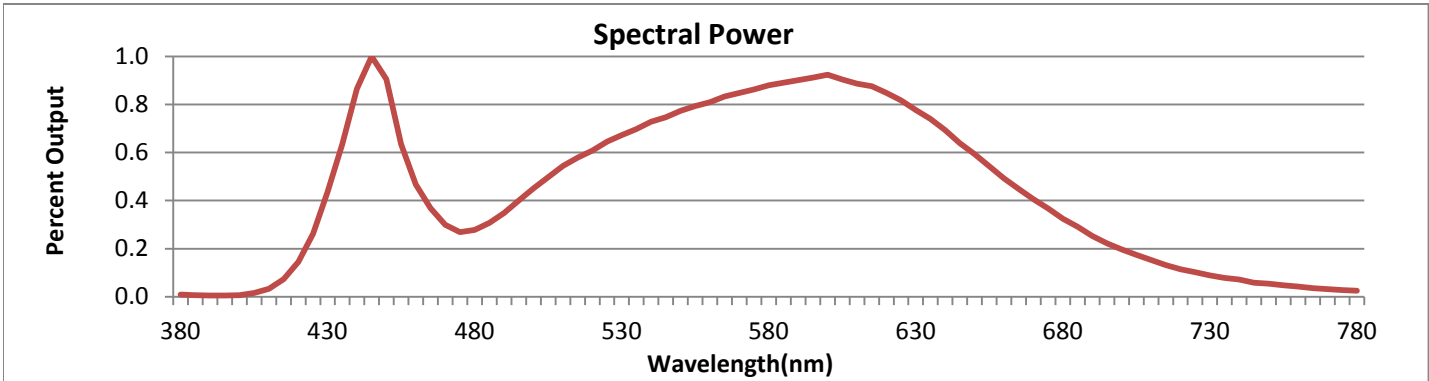


*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

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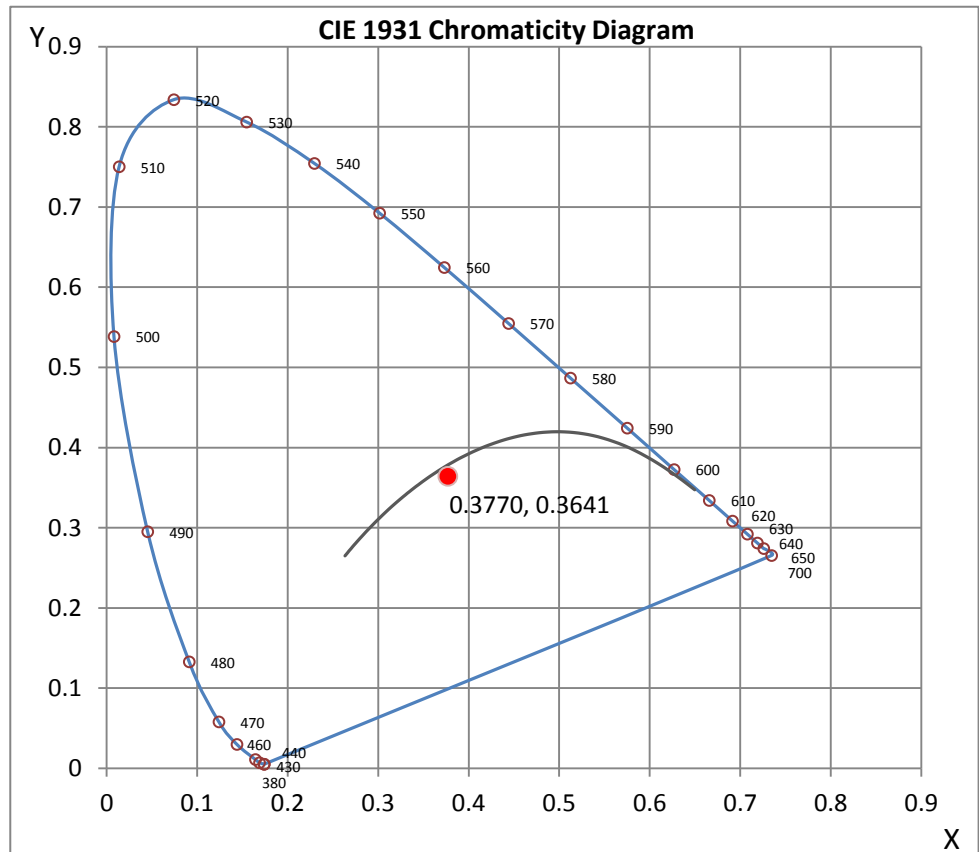
Wavelength	W/m ² nm	440	0.1705	510	0.1072	580	0.1732	650	0.1170	720	0.0224
380	0.0016	450	0.1783	520	0.1199	590	0.1776	660	0.0970	730	0.0174
390	0.0009	460	0.0920	530	0.1324	600	0.1819	670	0.0798	740	0.0141
400	0.0012	470	0.0590	540	0.1435	610	0.1745	680	0.0638	750	0.0106
410	0.0064	480	0.0547	550	0.1523	620	0.1670	690	0.0499	760	0.0084
420	0.0286	490	0.0687	560	0.1595	630	0.1531	700	0.0387	770	0.0061
430	0.0857	500	0.0887	570	0.1671	640	0.1365	710	0.0300	780	0.0050

CRI & CCT

x	0.3770
y	0.3641
u'	0.2279
v'	0.4954
CRI	85.77
CCT	4001
Duv	-0.00500

R Values

R1	86.00
R2	89.44
R3	90.84
R4	86.12
R5	86.01
R6	85.07
R7	87.70
R8	74.95
R9	35.11
R10	74.11
R11	85.80
R12	72.85
R13	86.38
R14	94.52



*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

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.

Test Report Released by:

Test Report Reviewed by:



Joseph Shin
Engineering Manager

Steve Kang
Quality Assurance

**Attached are photometric data reports. Total number of pages: 13*



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Photometric Test Report

IES ROAD REPORT
PHOTOMETRIC FILENAME : L04124203.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TEST] L04124203
 [TESTLAB] LIGHT LABORATORY INC
 [ISSUEDATE] 4/26/2012
 [MANUFAC] VISTA PROFESSIONAL OUTDOOR LIGHTING
 [LUMCAT] 1505
 [LUMINAIRE] 4-11/16"L. X 12-3/16"W. X 3-1/4"H. LED STEP LIGHT
 [MORE] 9 COOL WHITE LEDS WITH 1" SPACING, CONCAVED ALLUMINUM REFLECTOR
 [MORE] WITH CLEAR GLASS LENS
 [LAMPPOSITION] 0,30
 [LAMPCAT] COOL WHITE LED
 [OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
 [MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
 [INPUT] 120VAC, 15.96W
 [TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

IES Classification	Type III
Longitudinal Classification	Very Short
Cutoff Classification (deprecated)	Non-Cutoff
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	541
Total Luminaire Efficiency	N.A.
Downward Total Efficiency	N.A.
Luminaire Efficacy Rating (LER)	34
Upward Waste Light Ratio	0.14
Maximum Candela	456.4
Maximum Candela Angle	0H 60V
Maximum Candela (<90 Degrees Vertical)	456.4
Maximum Candela Angle (<90 Degrees Vertical)	0H 60V
Maximum Candela At 90 Degrees Vertical	136.9 (25.3% Luminaire Lumens)
Maximum Candela from 80 to <90 Degrees Vertical	175.1 (32.4% Luminaire Lumens)
Total Luminaire Watts	15.96
Ballast Factor	1.00

IES ROAD REPORT
PHOTOMETRIC FILENAME : L04124203.IES

LUMINAIRE CLASSIFICATION SYSTEM (LCS)

	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	5.9	N.A.	1.1
FM - Front-Medium (30-60)	239.7	N.A.	44.3
FH - Front-High (60-80)	175.8	N.A.	32.5
FVH - Front-Very High (80-90)	42.9	N.A.	7.9
BL - Back-Low (0-30)	0.0	N.A.	0.0
BM - Back-Medium (30-60)	0.0	N.A.	0.0
BH - Back-High (60-80)	0.0	N.A.	0.0
BVH - Back-Very High (80-90)	0.0	N.A.	0.0
UL - Uplight-Low (90-100)	30.3	N.A.	5.6
UH - Uplight-High (100-180)	46.9	N.A.	8.7
Total	541.5	N.A.	100.0
BUG Rating	B0-U2-G1		

IES ROAD REPORT
PHOTOMETRIC FILENAME : L04124203.IES

CANDELA TABULATION

Vert. Angles	Horizontal Angles									
	<u>0</u>	<u>5</u>	<u>15</u>	<u>25</u>	<u>35</u>	<u>45</u>	<u>55</u>	<u>65</u>	<u>75</u>	<u>85</u>
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	1.2	1.2	1.2	1.1	1.0	0.9	0.8	0.8	0.7	0.6
10	1.5	1.5	1.4	1.3	1.1	1.0	0.9	0.8	0.7	0.6
15	2.4	2.4	2.3	2.0	1.6	1.3	1.0	0.9	0.8	0.6
20	3.3	3.3	3.2	2.7	2.4	1.8	1.3	1.0	0.8	0.7
25	6.8	6.7	6.1	4.9	4.0	2.5	1.8	1.2	0.8	0.7
30	332.0	329.9	307.3	86.5	6.8	4.1	2.4	1.5	0.8	0.7
35	345.9	346.4	339.1	327.9	305.4	8.4	3.7	1.9	1.0	0.7
40	361.2	359.7	349.9	333.5	315.1	274.1	6.4	2.5	1.3	0.6
45	393.6	392.3	380.1	353.4	319.1	273.4	219.9	3.8	1.5	0.7
50	431.0	429.7	414.7	385.9	338.5	275.0	217.7	31.0	1.8	0.7
55	451.4	450.5	436.9	407.8	358.9	287.8	213.5	149.9	2.3	0.8
60	456.4	454.3	442.7	413.3	367.2	297.0	216.8	140.3	3.1	0.8
65	349.2	350.3	356.5	362.5	356.3	293.9	219.0	133.6	51.3	1.0
70	202.7	202.5	204.0	214.0	231.4	241.8	208.9	131.5	58.0	1.1
75	184.9	183.5	172.3	149.5	121.7	112.3	132.4	119.7	52.0	1.2
80	175.1	173.8	162.1	140.0	112.4	84.5	57.1	50.0	46.0	2.2
85	159.4	157.8	146.1	125.9	101.5	76.4	51.4	29.3	11.6	2.5
90	136.9	135.4	124.5	107.0	86.5	65.3	44.1	24.9	9.2	1.5
95	113.0	111.7	102.7	88.6	72.0	54.6	37.1	21.0	7.8	1.5
100	89.8	89.0	82.5	71.8	58.8	44.8	30.6	17.4	7.0	1.6
105	69.9	69.3	65.1	57.4	47.5	36.6	25.4	14.9	6.0	1.6
110	54.2	53.9	51.4	46.1	38.7	30.2	21.4	12.5	5.4	1.5
115	42.4	42.3	41.0	37.4	32.0	25.4	17.8	10.6	4.9	1.4
120	33.9	33.9	33.3	30.9	26.6	20.9	14.9	9.1	4.4	1.3
125	28.2	28.2	27.5	25.4	21.8	17.4	12.6	8.1	3.8	1.3
130	23.7	23.7	22.8	20.7	18.2	14.7	11.0	7.3	3.2	1.2
135	18.9	18.8	17.6	16.4	15.3	12.8	9.9	6.4	2.4	1.1
140	15.6	15.5	14.7	13.6	12.9	11.3	8.9	4.9	2.2	1.0
145	13.6	13.4	12.8	11.9	11.0	9.8	7.0	3.0	1.9	1.0
150	11.9	11.8	11.3	10.5	9.4	7.6	4.5	2.6	1.7	0.9
155	10.2	10.2	9.8	8.9	6.3	3.9	2.6	2.0	1.3	0.8
160	5.4	5.3	4.3	3.2	2.7	2.3	1.9	1.5	1.1	0.8
165	2.0	2.0	1.9	1.7	1.6	1.4	1.3	1.1	0.9	0.7
170	1.1	1.1	1.1	1.1	1.1	1.0	0.9	0.8	0.8	0.7
175	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.7	0.7	0.6
180	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Vert. Angles	Horizontal Angles									
	<u>90</u>	<u>95</u>	<u>105</u>	<u>115</u>	<u>125</u>	<u>135</u>	<u>145</u>	<u>155</u>	<u>165</u>	<u>175</u>
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

IES ROAD REPORT
 PHOTOMETRIC FILENAME : L04124203.IES

CANDELA TABULATION - (Cont.)

60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
105	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
115	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
125	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
135	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
145	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
155	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
165	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Vert. Horizontal Angles
 Angles

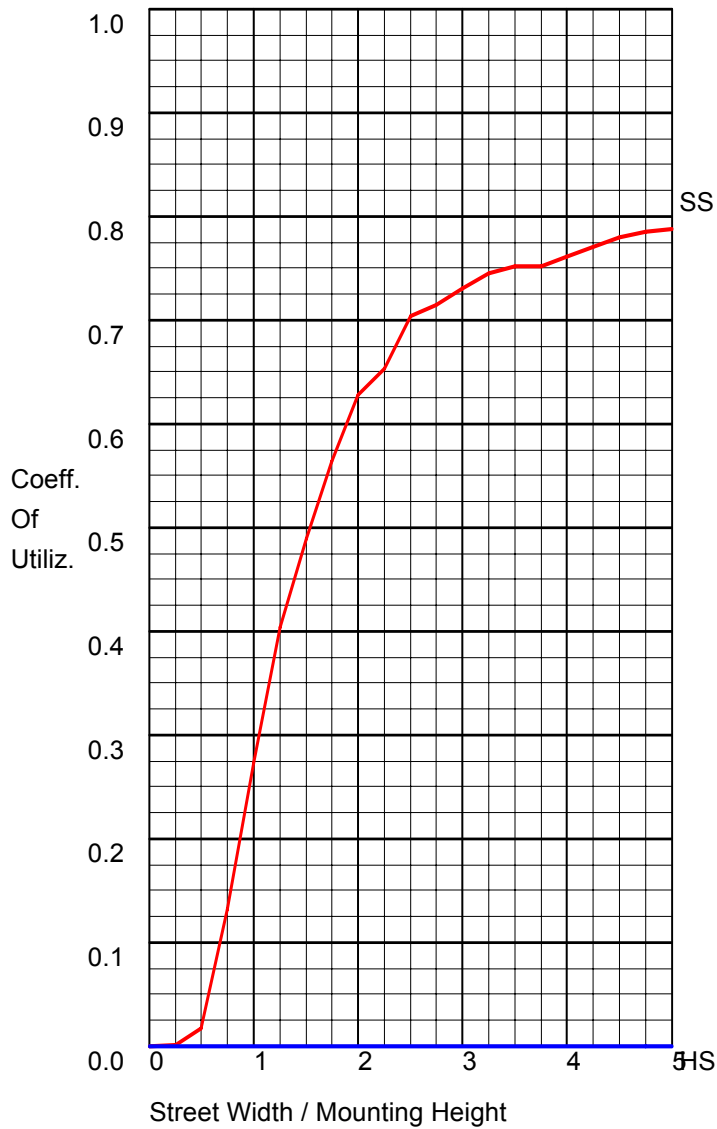
	<u>180</u>
0	0.0
5	0.0
10	0.0
15	0.0
20	0.0
25	0.0
30	0.0
35	0.0
40	0.0
45	0.0
50	0.0
55	0.0
60	0.0
65	0.0
70	0.0
75	0.0
80	0.0
85	0.0
90	0.0
95	0.0
100	0.0
105	0.0
110	0.0
115	0.0
120	0.0
125	0.0
130	0.0

IES ROAD REPORT
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CANDELA TABULATION - (Cont.)

135	0.0
140	0.0
145	0.0
150	0.0
155	0.0
160	0.0
165	0.0
170	0.0
175	0.0
180	0.0

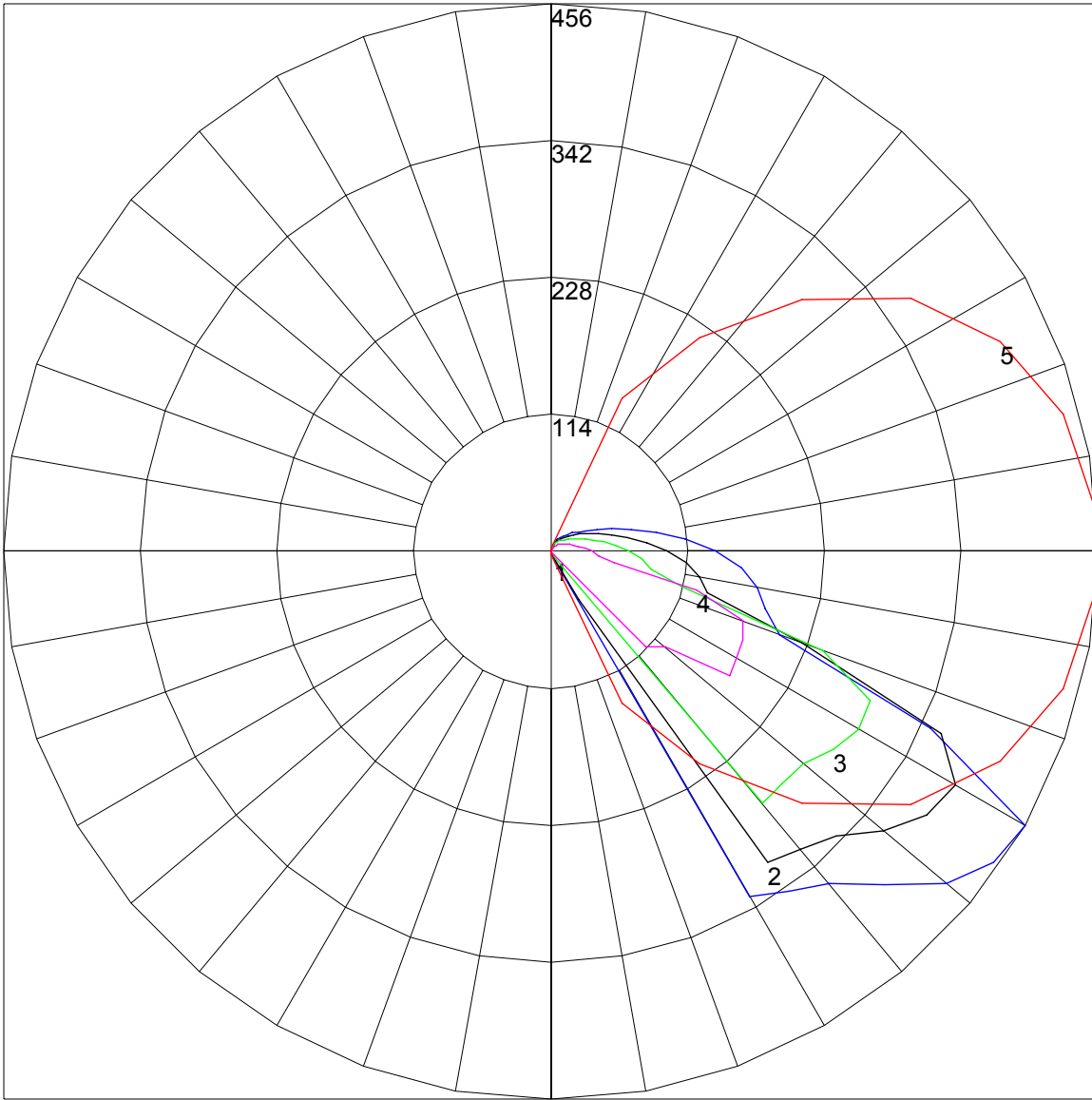
COEFFICIENTS OF UTILIZATION



FLUX DISTRIBUTION

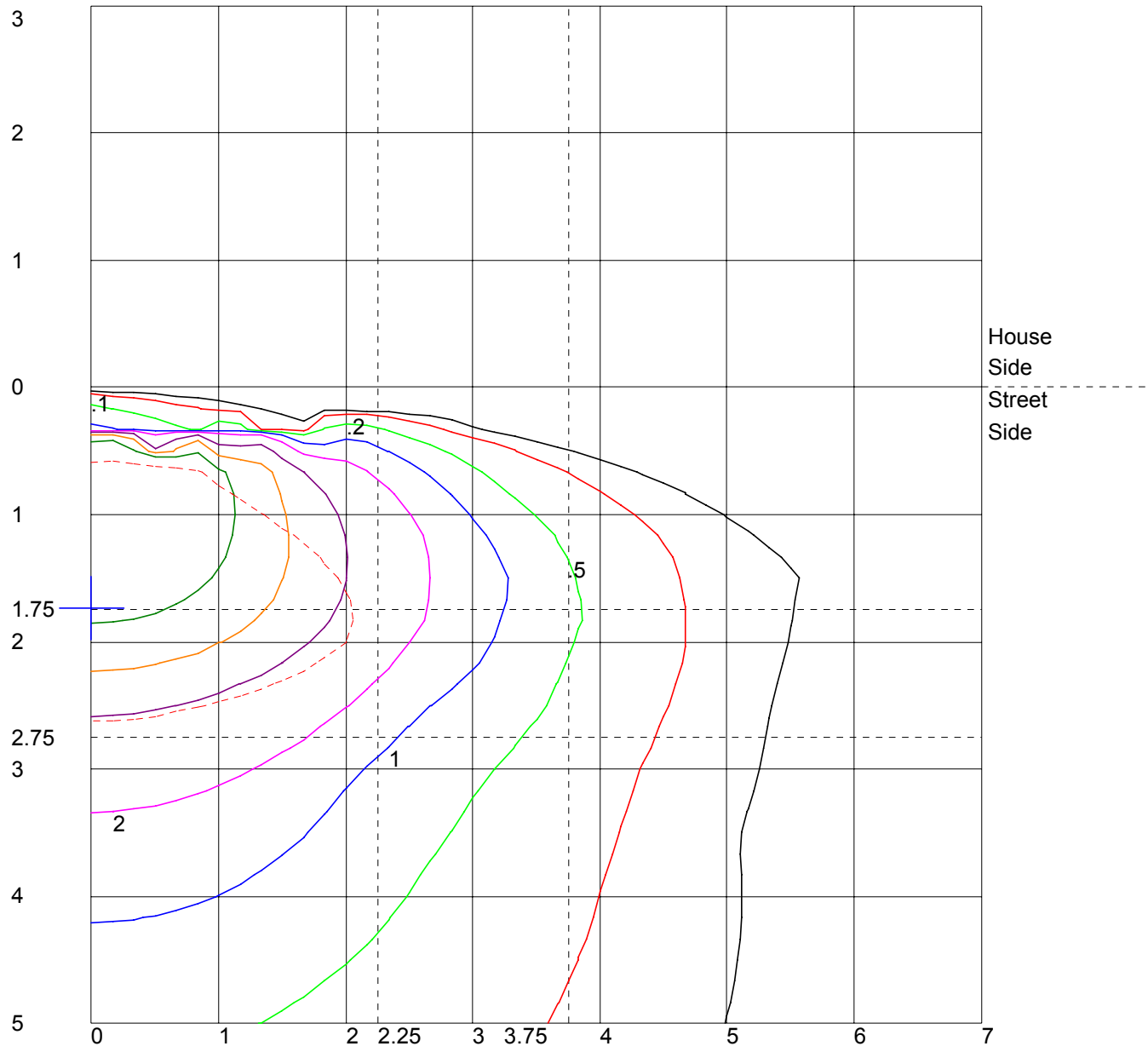
	Lumens	Percent Of Luminaire
Downward Street Side	464.3	85.8
Downward House Side	0.0	0.0
Downward Total	464.3	85.8
Upward Street Side	77.1	14.2
Upward House Side	0.0	0.0
Upward Total	77.1	14.2
Total Flux	541.4	100.0

POLAR GRAPH



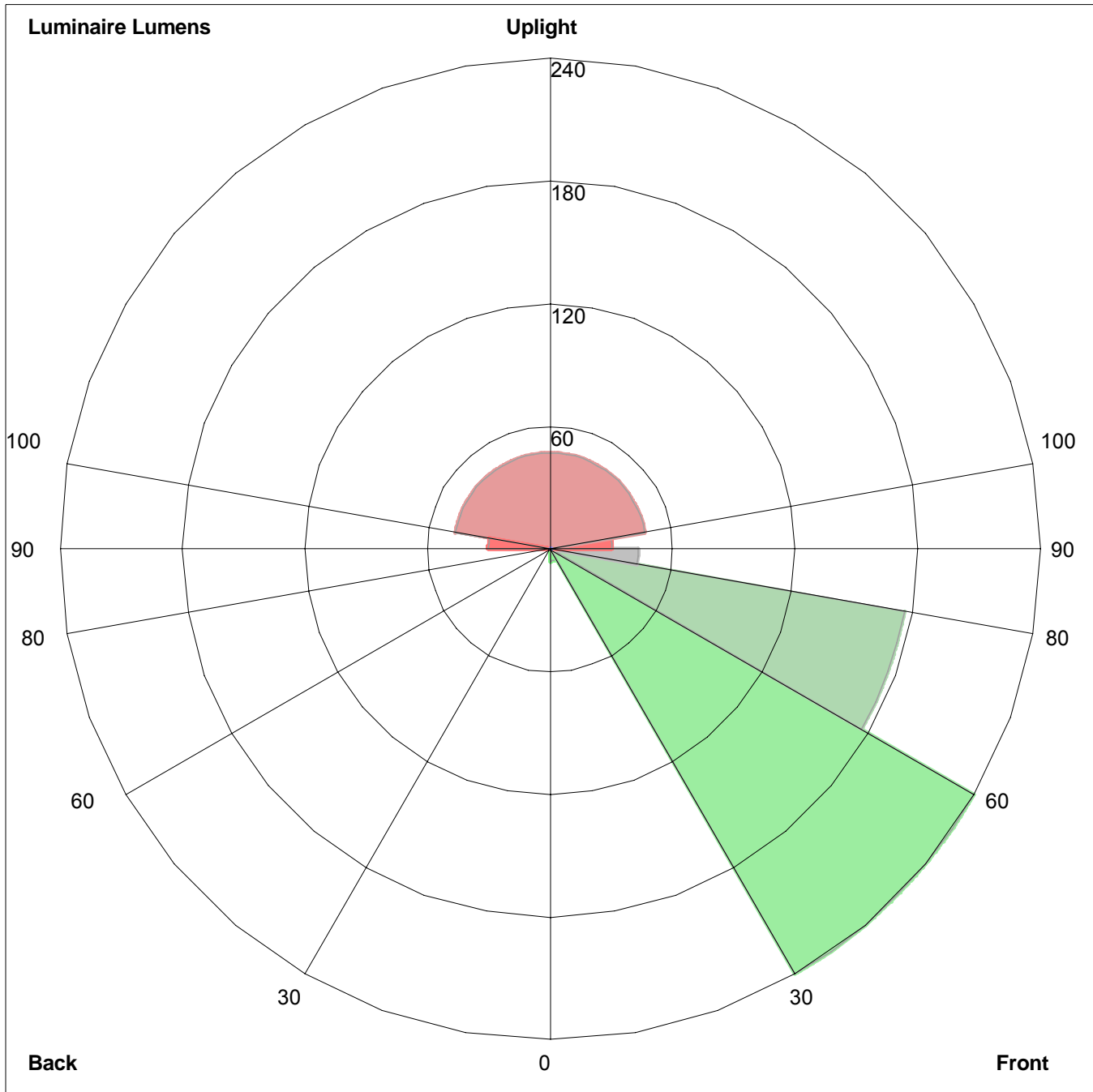
Maximum Candela = 456.4 Located At Horizontal Angle = 0, Vertical Angle = 60
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.) : BLUE
2 - Vertical Plane Through Horizontal Angles (30 - 210) : BLACK
3 - Vertical Plane Through Horizontal Angles (45 - 225) : GREEN
4 - Vertical Plane Through Horizontal Angles (60 - 240) : MAGENTA
5 - Horizontal Cone Through Vertical Angle (60) (Through Max. Cd.) : RED

ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINANCE



Distance In Units Of Mounting Height
 Values Based On 1.5 Foot Mounting Height
 1/2 Maximum Candela Trace Shown As Dashed Curve
 (+) = Maximum Candela Point

LUMINAIRE CLASSIFICATION SYSTEM (LCS) GRAPH



Luminaire Lumens:
 Front: Low=5.9, Medium=239.7, High=175.8, Very High=42.9
 Back: Low=0.0, Medium=0.0, High=0.0, Very High=0.0
 Uplight: Low=30.3, High=46.9

BUG Rating : B0-U2-G1