



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

Test #: L04124202
 Date: 4/26/2012

Test Report: L04124202

Model Number: 1503

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 1503. 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.

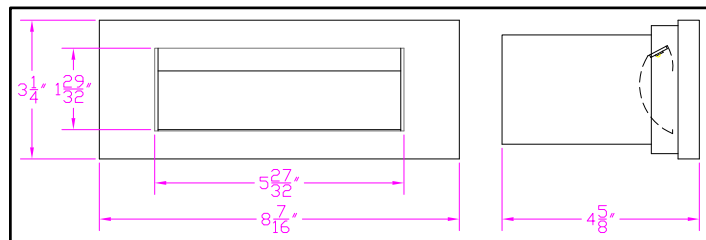
Equipment List

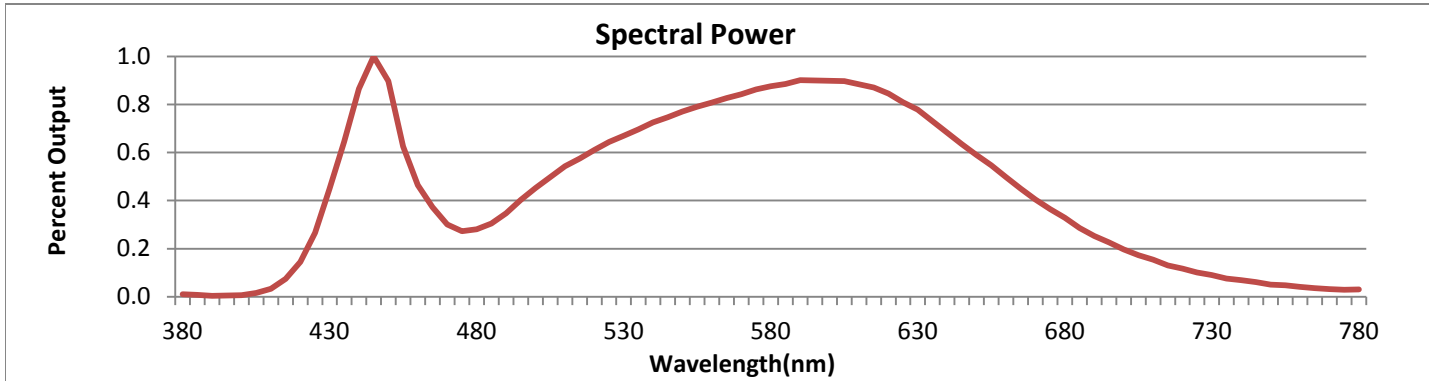
Equipment Used	Model No	Stock No	Calibration Due Date
Chroma Programmable AC Source	61604	PS-AC02	--
Yokogawa Digital Power Meter	WT210	MT-EL06-S1	01/04/13
Xitron Power Analysis System	2503AH	MT-EL01	01/09/13
Fluke Digital Thermometer	52k/J	MT-TP02-GC	01/04/13
LLI Type C Goniophotometer System	RMG-C-MKII	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:	1503
Total Lumens:	321.90
Input Voltage (VAC):	120.00
Input Current (Amp):	0.10
Input Power (W):	10.35
Input Power Factor:	0.89
Efficacy:	31.11
Color Rendering Index (CRI):	85.84
Correlated Color Temperature (CCT):	4020
Chromaticity Coordinate x:	0.3762
Chromaticity Coordinate y:	0.3636
Ambient Temperature (°F):	77
Stabilization Time (Hours):	0:57
Total Operating Time (Hours):	2:52





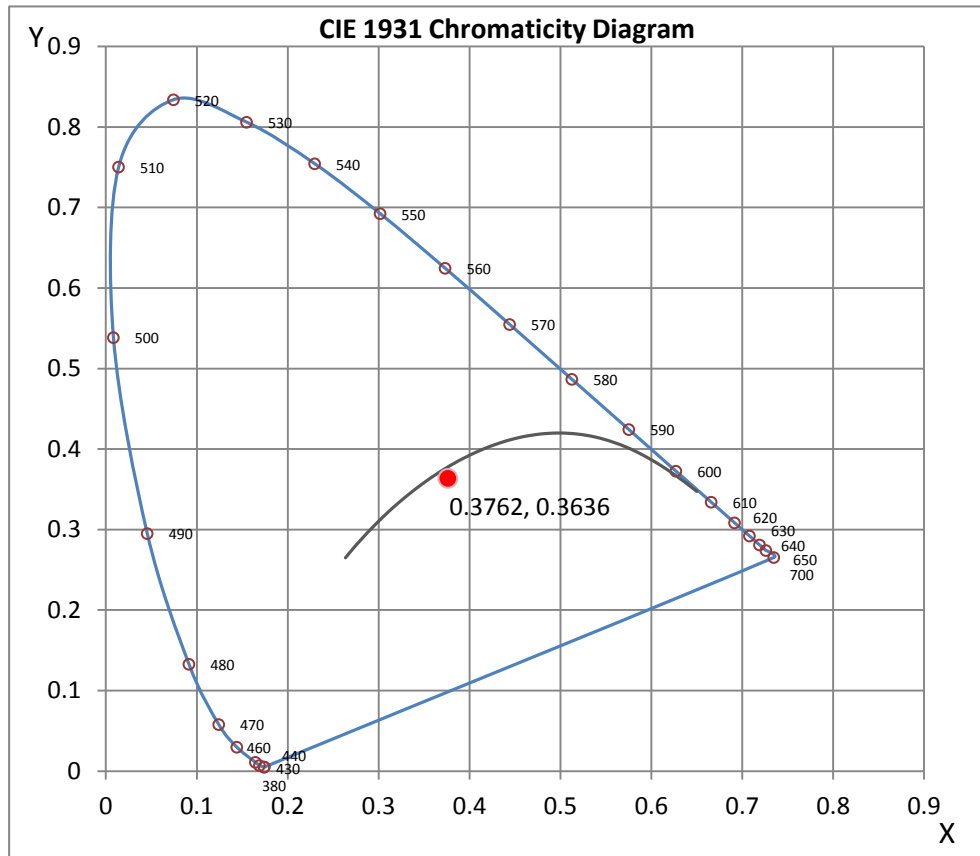
Wavelength	W/m ² nm	440	0.1401	510	0.0879	580	0.1419	650	0.0955	720	0.0188
380	0.0016	450	0.1452	520	0.0989	590	0.1460	660	0.0805	730	0.0146
390	0.0007	460	0.0752	530	0.1083	600	0.1455	670	0.0655	740	0.0111
400	0.0009	470	0.0487	540	0.1175	610	0.1431	680	0.0533	750	0.0081
410	0.0054	480	0.0454	550	0.1247	620	0.1368	690	0.0409	760	0.0066
420	0.0234	490	0.0562	560	0.1307	630	0.1261	700	0.0319	770	0.0050
430	0.0726	500	0.0732	570	0.1365	640	0.1106	710	0.0249	780	0.0049

CRI & CCT

x	0.3762
y	0.3636
u'	0.2276
v'	0.4950
CRI	85.84
CCT	4020
Duv	-0.00502

R Values

R1	86.09
R2	89.43
R3	90.75
R4	86.20
R5	86.11
R6	85.06
R7	87.78
R8	75.30
R9	35.88
R10	74.09
R11	85.91
R12	73.04
R13	86.43
R14	94.47





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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

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 : L04124202.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TEST] L04124202
 [TESTLAB] LIGHT LABORATORY INC
 [ISSUEDATE] 4/26/2012
 [MANUFAC] VISTA PROFESSIONAL OUTDOOR LIGHTING
 [LUMCAT] 1503
 [LUMINAIRE] 4-5/8"L. X 8-7/16"W. X 3-1/4"H. LED STEP LIGHT
 [MORE] 6 COOL WHITE LEDS WITH 3/4" 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, 10.35W
 [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	322
Total Luminaire Efficiency	N.A.
Downward Total Efficiency	N.A.
Luminaire Efficacy Rating (LER)	31
Upward Waste Light Ratio	0.13
Maximum Candela	274.3
Maximum Candela Angle	0H 60V
Maximum Candela (<90 Degrees Vertical)	274.3
Maximum Candela Angle (<90 Degrees Vertical)	0H 60V
Maximum Candela At 90 Degrees Vertical	77.9 (24.2% Luminaire Lumens)
Maximum Candela from 80 to <90 Degrees Vertical	101.3 (31.5% Luminaire Lumens)
Total Luminaire Watts	10.35
Ballast Factor	1.00

IES ROAD REPORT
PHOTOMETRIC FILENAME : L04124202.IES

LUMINAIRE CLASSIFICATION SYSTEM (LCS)

	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	4.9	N.A.	1.5
FM - Front-Medium (30-60)	152.4	N.A.	47.3
FH - Front-High (60-80)	100.7	N.A.	31.3
FVH - Front-Very High (80-90)	23.4	N.A.	7.3
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)	16.1	N.A.	5.0
UH - Uplight-High (100-180)	24.5	N.A.	7.6
Total	322.0	N.A.	100.0
BUG Rating	B0-U2-G1		

IES ROAD REPORT
PHOTOMETRIC FILENAME : L04124202.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	0.8	0.8	0.7	0.7	0.6	0.6	0.5	0.5	0.4	0.4
10	1.1	1.1	0.9	0.8	0.7	0.6	0.6	0.5	0.5	0.4
15	1.4	1.4	1.4	1.3	1.0	0.8	0.6	0.6	0.5	0.4
20	2.4	2.4	2.3	2.1	1.5	1.2	0.8	0.6	0.5	0.4
25	8.2	7.0	4.9	3.6	2.6	2.0	1.1	0.7	0.5	0.4
30	202.9	203.5	197.9	187.1	21.8	3.0	1.9	0.9	0.5	0.4
35	209.8	209.9	206.5	198.5	188.2	99.9	2.7	1.2	0.6	0.4
40	225.9	224.1	217.8	206.3	191.6	174.8	43.5	1.7	0.7	0.4
45	247.8	247.1	238.9	222.4	199.6	174.7	125.8	2.6	0.8	0.4
50	267.9	267.1	258.5	240.2	213.8	179.5	122.9	71.3	1.0	0.4
55	274.1	273.7	266.1	249.8	222.3	186.8	124.1	80.7	1.3	0.5
60	274.3	272.8	267.1	250.6	222.5	188.8	125.4	74.7	2.7	0.5
65	204.0	204.7	209.3	214.5	211.3	182.7	122.6	70.8	26.9	0.5
70	116.8	116.5	116.1	121.2	131.8	145.5	114.7	67.0	23.6	0.6
75	107.9	107.0	100.3	86.8	68.3	60.4	68.7	58.5	21.0	0.6
80	101.3	100.4	93.4	80.3	62.4	44.8	28.4	21.7	17.8	0.8
85	91.8	90.8	83.7	71.5	55.7	39.9	25.2	12.8	4.6	0.8
90	77.9	77.0	70.7	60.1	46.9	33.7	21.3	10.9	3.6	0.7
95	63.3	62.5	57.4	48.8	38.3	27.5	17.5	8.9	3.0	0.7
100	49.2	48.8	45.1	38.6	30.5	22.0	14.0	7.3	2.7	0.7
105	37.4	37.1	34.8	30.1	24.1	17.6	11.5	6.3	2.5	0.7
110	28.3	28.2	26.8	23.7	19.3	14.4	9.7	5.6	2.3	0.7
115	21.9	21.8	21.1	19.0	15.8	12.1	8.5	4.9	2.1	0.7
120	17.7	17.6	17.2	15.7	13.3	10.5	7.4	4.4	2.0	0.7
125	15.0	14.9	14.5	13.4	11.5	9.1	6.5	4.0	1.8	0.7
130	13.3	13.2	12.7	11.7	10.0	8.0	5.8	3.8	1.6	0.6
135	9.8	9.7	10.2	10.1	8.8	7.1	5.3	3.5	1.2	0.6
140	8.0	8.0	8.4	8.7	7.8	6.5	5.0	2.8	1.1	0.6
145	7.1	7.1	7.2	7.5	7.0	5.9	4.5	2.2	1.0	0.6
150	6.3	6.3	6.2	6.4	6.2	5.3	3.0	1.3	0.9	0.5
155	5.5	5.5	5.4	5.3	4.9	3.1	1.5	1.2	0.8	0.5
160	4.3	4.2	3.9	2.7	1.9	1.4	1.1	0.9	0.7	0.5
165	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.6	0.5	0.4
170	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.4	0.4
175	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4
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 : L04124202.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

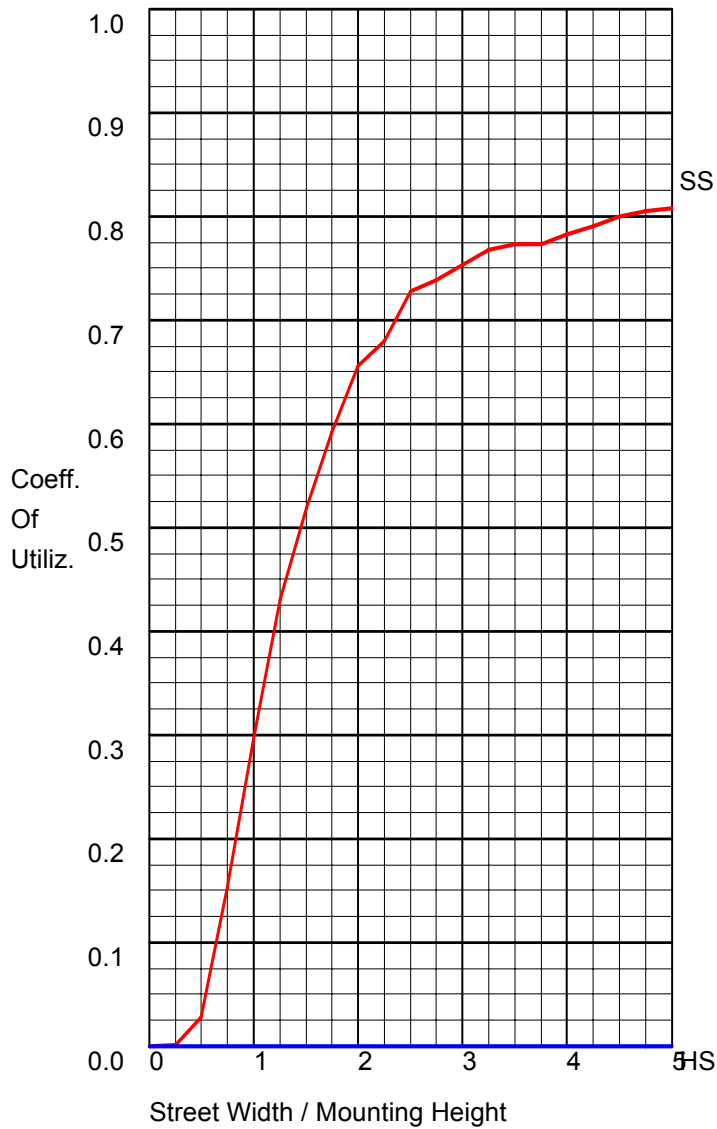
	<u>180</u>
0	0.0
5	0.0
10	0.0
15	0.0
20	0.0
25	0.0
30	0.0
35	0.0
40	0.0
45	0.0
50	0.0
55	0.0
60	0.0
65	0.0
70	0.0
75	0.0
80	0.0
85	0.0
90	0.0
95	0.0
100	0.0
105	0.0
110	0.0
115	0.0
120	0.0
125	0.0
130	0.0

IES ROAD REPORT
PHOTOMETRIC FILENAME : L04124202.IES

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

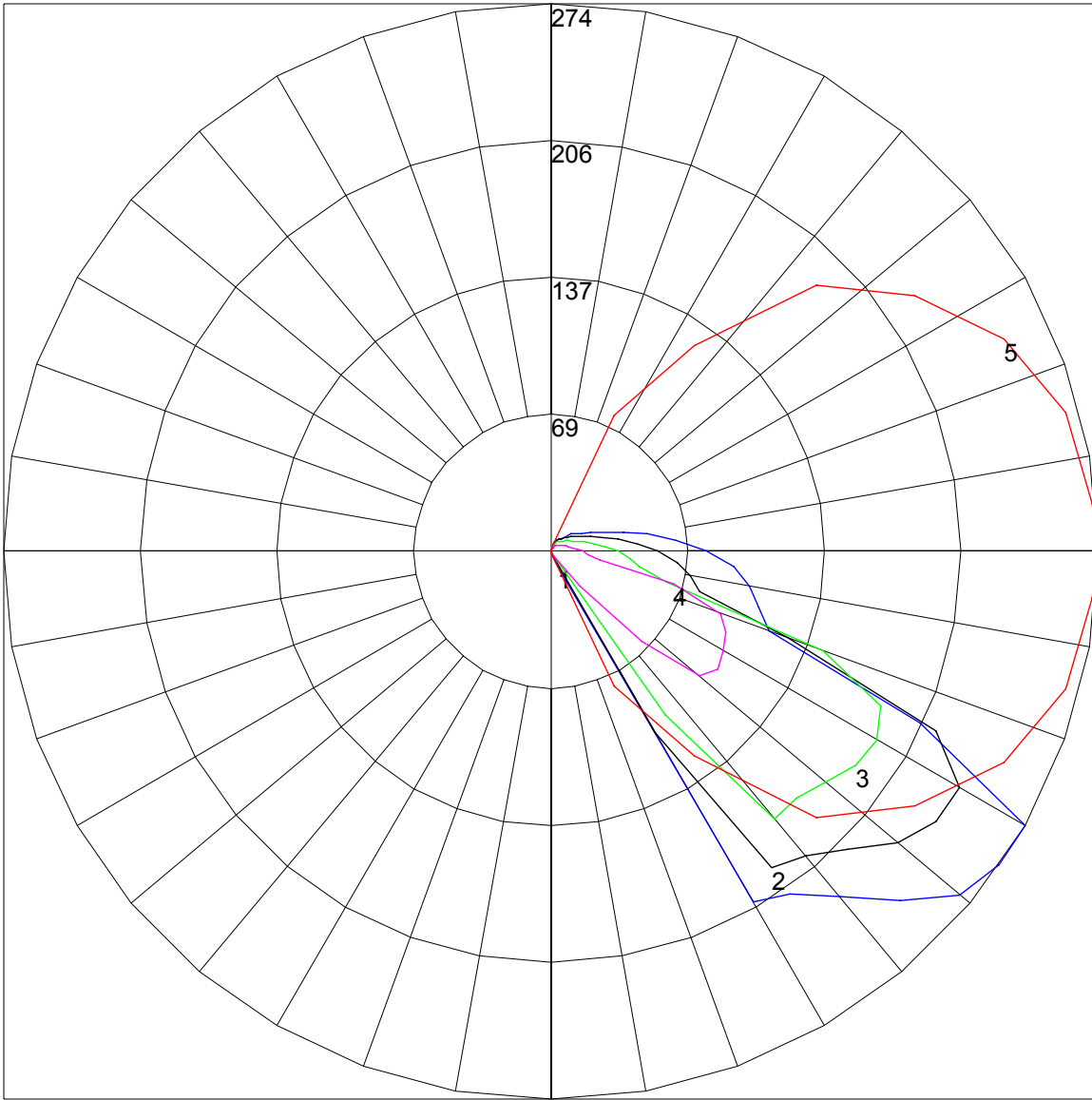
COEFFICIENTS OF UTILIZATION



FLUX DISTRIBUTION

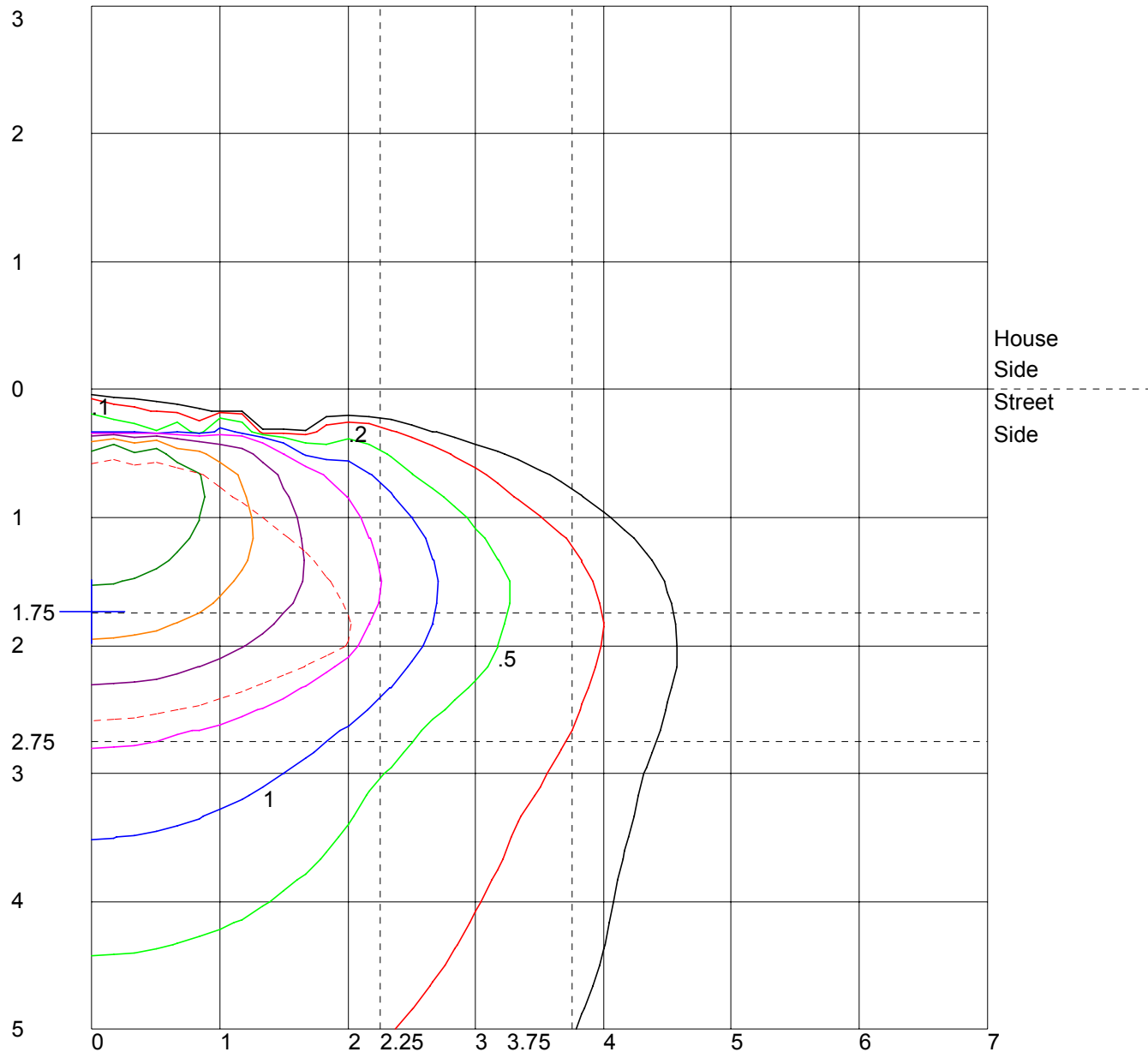
	Lumens	Percent Of Luminaire
Downward Street Side	281.3	87.4
Downward House Side	0.0	0.0
Downward Total	281.3	87.4
Upward Street Side	40.6	12.6
Upward House Side	0.0	0.0
Upward Total	40.6	12.6
Total Flux	321.9	100.0

POLAR GRAPH



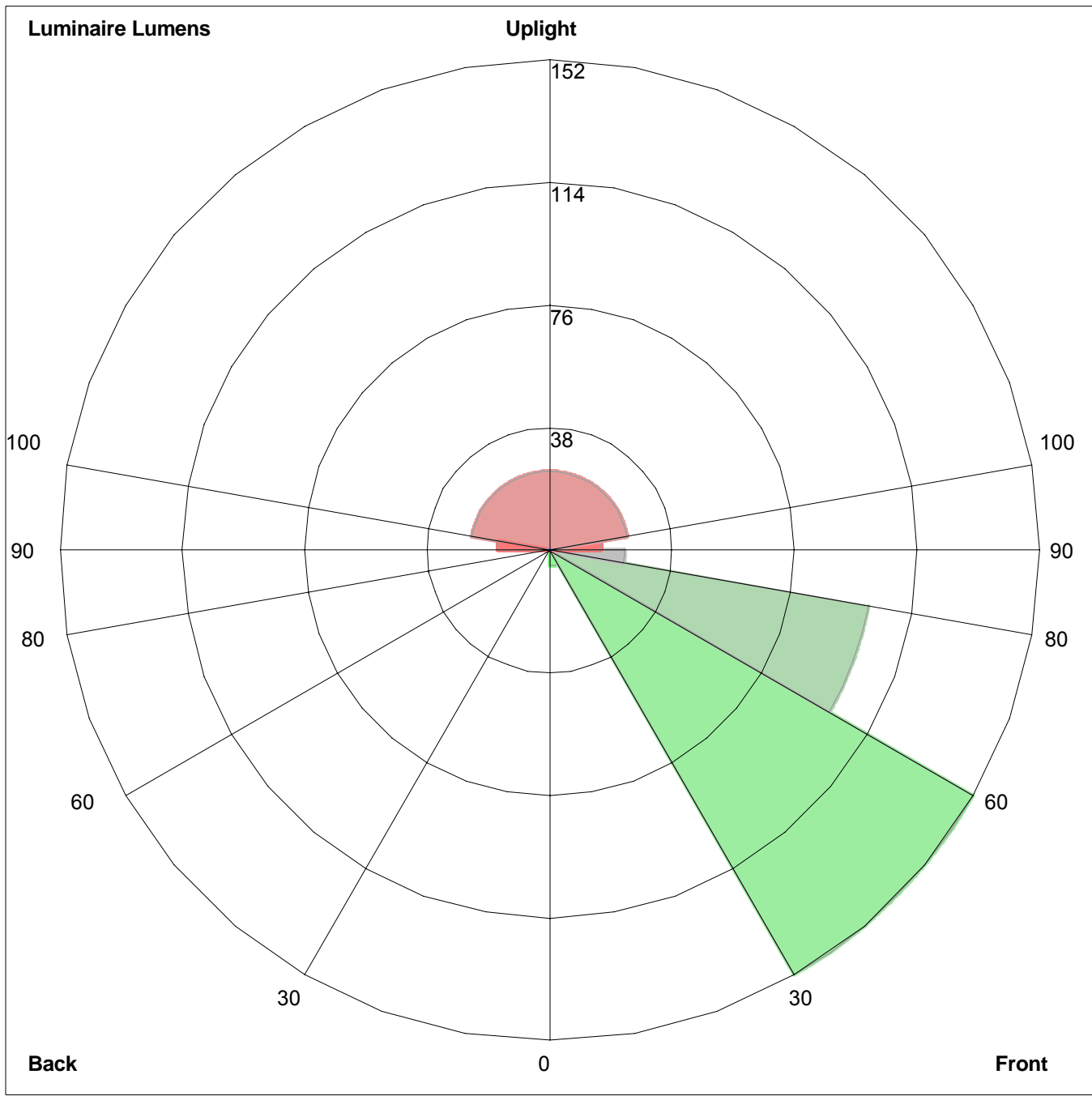
Maximum Candela = 274.3 Located At Horizontal Angle = 0, Vertical Angle = 60
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.) : BLUE
2 - Vertical Plane Through Horizontal Angles (30 - 210) : BLACK
3 - Vertical Plane Through Horizontal Angles (45 - 225) : GREEN
4 - Vertical Plane 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=4.9, Medium=152.4, High=100.7, Very High=23.4
Back: Low=0.0, Medium=0.0, High=0.0, Very High=0.0
Uplight: Low=16.1, High=24.5

BUG Rating : B0-U2-G1