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

Test #: L051408501
Date: 5/29/2014

NVLAP LAB CODE 200927-0

Test Report: **L051408501**

Model Number: **FB-MP3200 LED**

Report Prepared For: SPJ LIGHTING INC.
2107 CHICO AVE SOUTH EL MONTE CA 91733

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 C82.77:2002: Harmonic Emission Limits-Related Quality Requirements for Lighting Equipment

Description of Sample: Client submitted the sample. Catalog number is FB-MP3200 LED. Received in working and undamaged condition. No modifications were necessary.

Testing Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 5/22/14

Date of Tests: 5/28/14 - 5/29/14

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	01/04/15
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:	SPJ LIGHTING INC.
Model Number:	FB-MP3200 LED
LAMPCAT:	N/A
Driver Model Number:	BRILLIA PS14-350C-DIM (2 DRIVERS)
Total Lumens:	562.00
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.29
Input Power (W):	32.47
Input Power Factor:	0.93
Total Harmonic Distortion @ 120V(%):	37%
Total Harmonic Distortion @ 277V(%):	N/A
Efficacy:	17
Ambient Temperature (°F):	77.0
Stabilization Time (Hours):	1:05
Total Operating Time (Hours):	2:05
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.

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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

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 : Keyur Patel

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: 10*

*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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Photometric Test Report

IES ROAD REPORT
PHOTOMETRIC FILENAME : L051408501.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L051408501
[TESTLAB] LIGHT LABORATORY, INC.
[ISSUEDATE] 5/29/2014
[MANUFAC] SPJ LIGHTING INC
[LUMCAT] FB-MP3200 LED
[LUMINAIRE] 7"DIA. X 41-1/2"H. LED BOLLARD
[MORE] CLEAR LENS
[BALLASTCAT] BRILLIA PS14-350C-DIM(2 DRIVERS)
[BALLAST] INPUT: 120VAC, 200mA, 50/60Hz. OUTPUT: 17-40VDC, 350mA
[LAMPPOSITION] 0,0
[LAMPCAT] N/A
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[_INPUT] 120VAC, 32.47W
[_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	562
Downward Total Efficiency	N.A. (absolute)
Total Luminaire Efficiency	N.A. (absolute)
Luminaire Efficacy Rating (LER)	17
Total Luminaire Watts	32.47
Ballast Factor	1.00
Upward Waste Light Ratio	0.16
Maximum Candela	113.25
Maximum Candela Angle	0H 60V
Maximum Candela (<90 Degrees Vertical)	113.25
Maximum Candela Angle (<90 Degrees Vertical)	0H 60V
Maximum Candela At 90 Degrees Vertical	45.16 (8.0% Luminaire Lumens)
Maximum Candela from 80 to <90 Degrees Vertical	75.44 (13.4% Luminaire Lumens)
Cutoff Classification (deprecated)	N.A. (absolute)

IES ROAD REPORT
PHOTOMETRIC FILENAME : L051408501.IES

LUMINAIRE CLASSIFICATION SYSTEM (LCS)

	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	8.4	N.A.	1.5
FM - Front-Medium (30-60)	95.1	N.A.	16.9
FH - Front-High (60-80)	99.5	N.A.	17.7
FVH - Front-Very High (80-90)	33.1	N.A.	5.9
BL - Back-Low (0-30)	8.4	N.A.	1.5
BM - Back-Medium (30-60)	95.1	N.A.	16.9
BH - Back-High (60-80)	99.5	N.A.	17.7
BVH - Back-Very High (80-90)	33.1	N.A.	5.9
UL - Uplight-Low (90-100)	35.9	N.A.	6.4
UH - Uplight-High (100-180)	54.0	N.A.	9.6
Total	562.1	N.A.	100.0
BUG Rating	B0-U3-G1		

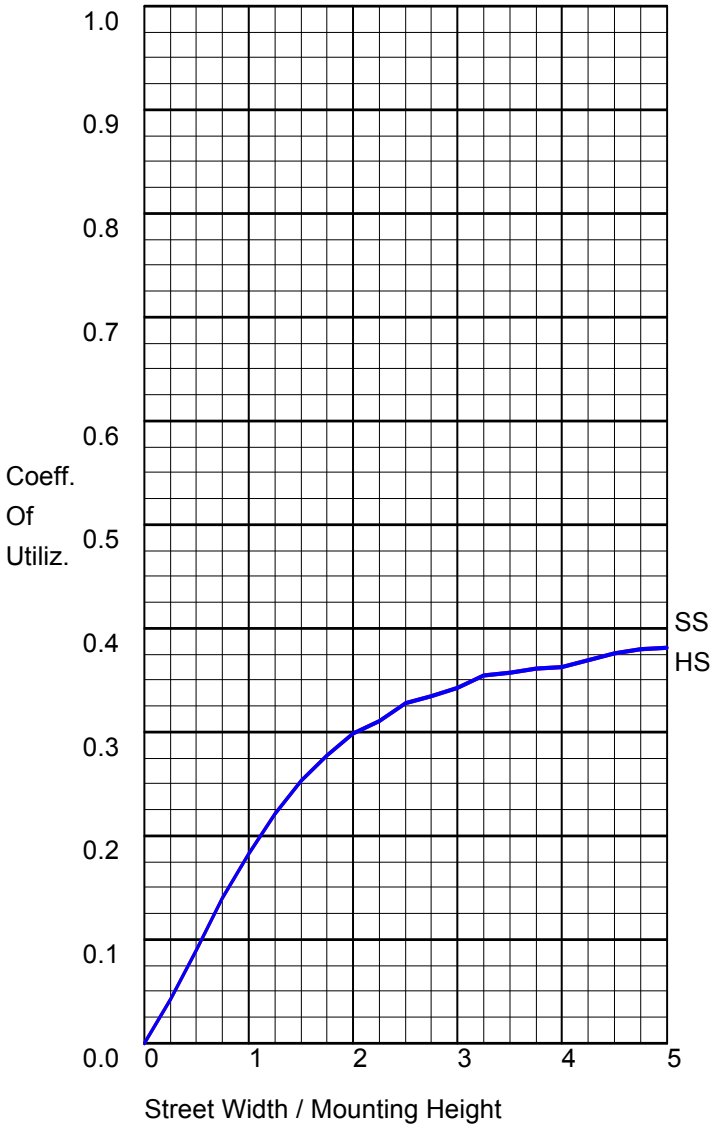
IES ROAD REPORT
PHOTOMETRIC FILENAME : L051408501.IES

CANDELA TABULATION

Vert. Angles	Horizontal Angles
	0
0.0	0.00
5.0	2.24
15.0	10.02
25.0	28.70
35.0	46.35
45.0	81.48
55.0	111.39
60.0	113.25
62.5	111.63
65.0	108.50
67.5	103.93
70.0	98.59
72.5	93.14
75.0	87.80
77.5	82.04
80.0	75.44
82.5	68.32
85.0	60.97
87.5	53.32
90.0	45.16
95.0	30.40
105.0	21.02
115.0	13.90
125.0	9.00
135.0	5.83
145.0	4.02
155.0	2.72
165.0	1.66
175.0	1.20
180.0	0.00

IES ROAD REPORT
PHOTOMETRIC FILENAME : L051408501.IES

COEFFICIENTS OF UTILIZATION

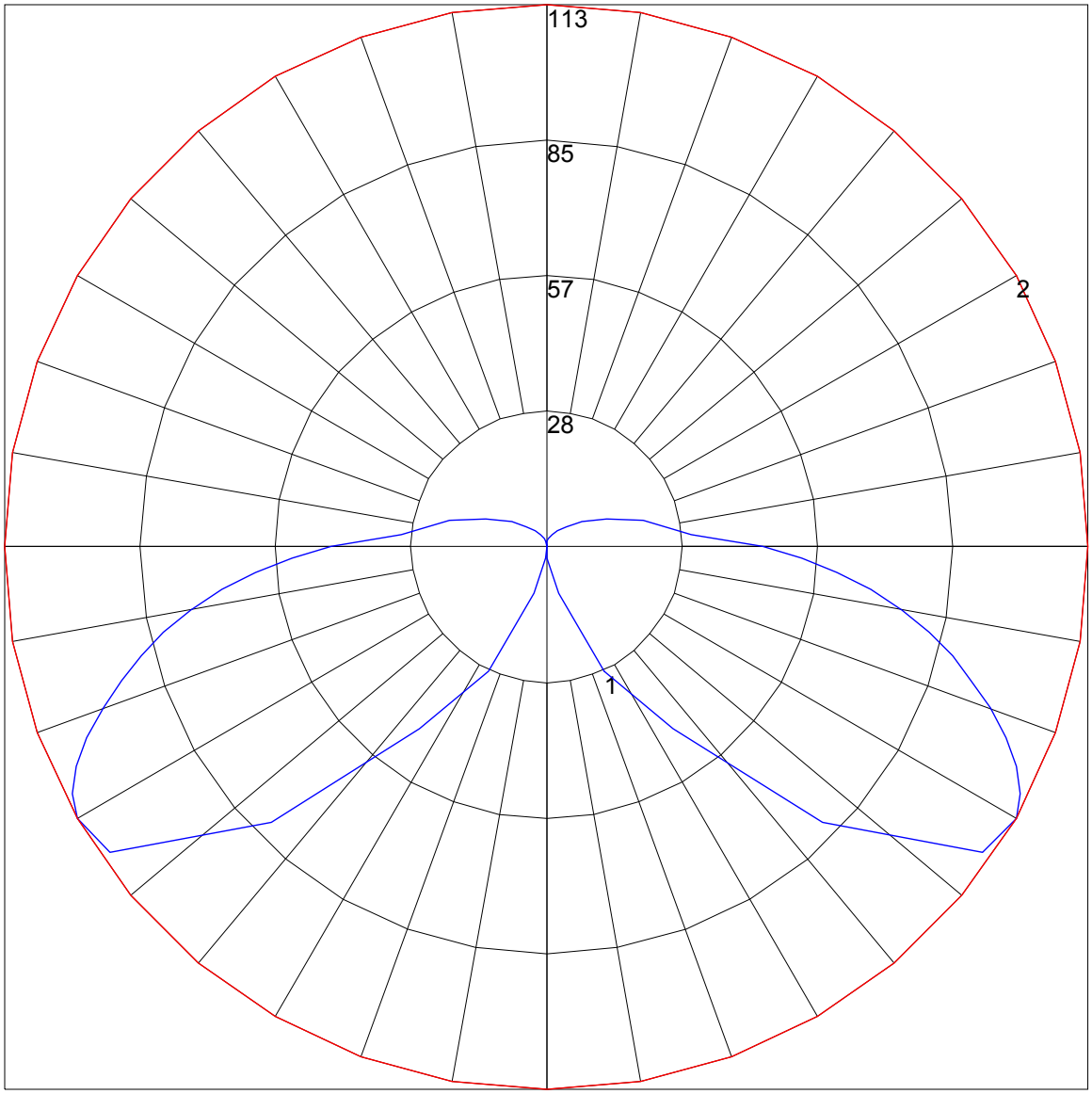


FLUX DISTRIBUTION

	Lumens	Percent Of Luminaire
Downward Street Side	236.1	42.0
Downward House Side	236.1	42.0
Downward Total	472.2	84.0
Upward Street Side	44.9	8.0
Upward House Side	44.9	8.0
Upward Total	89.8	16.0
Total Flux	562.0	100.0

IES ROAD REPORT
PHOTOMETRIC FILENAME : L051408501.IES

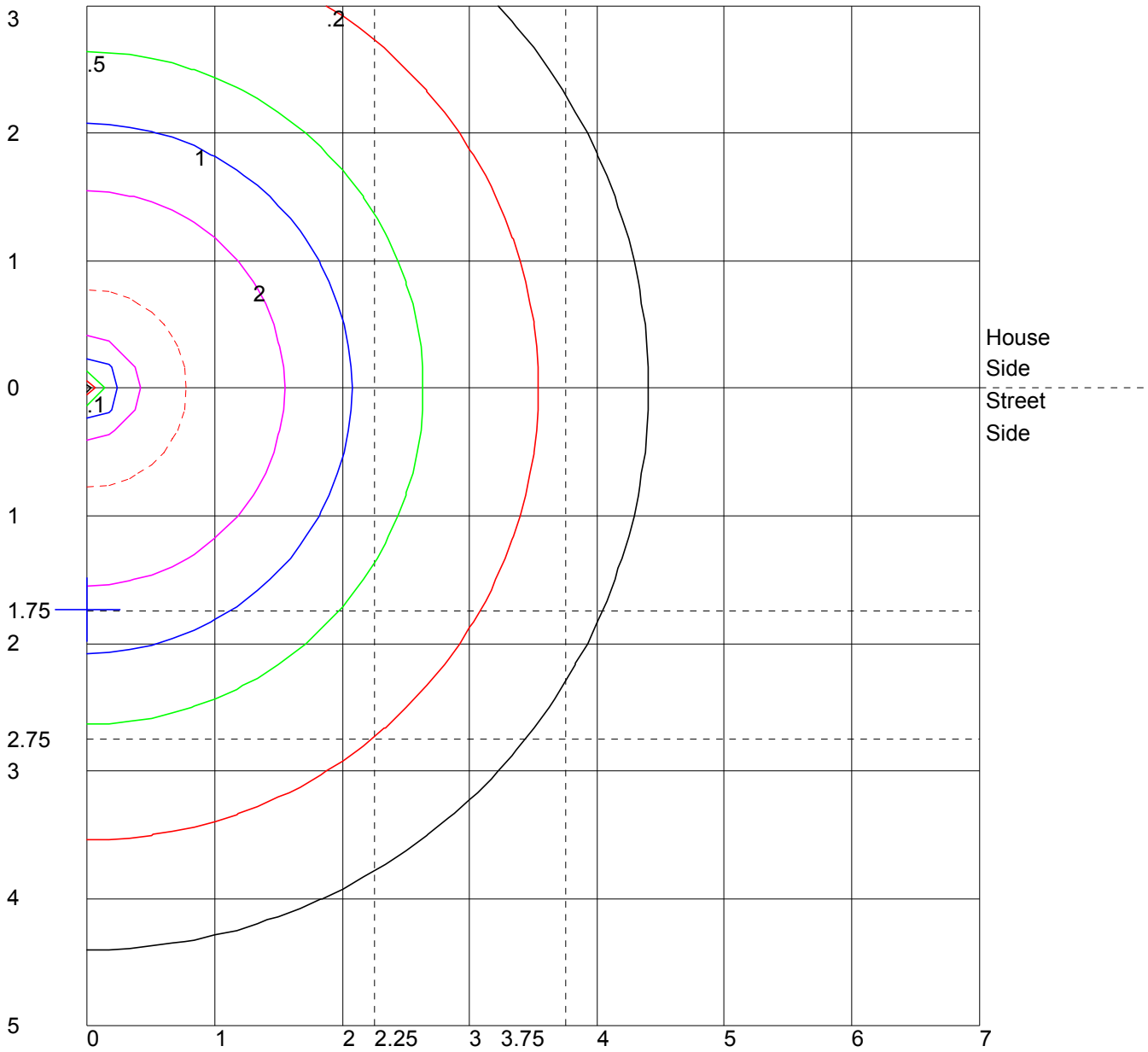
POLAR GRAPH



Maximum Candela = 113.25 Located At Horizontal Angle = 0, Vertical Angle = 60
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (60) (Through Max. Cd.)

IES ROAD REPORT
PHOTOMETRIC FILENAME : L051408501.IES

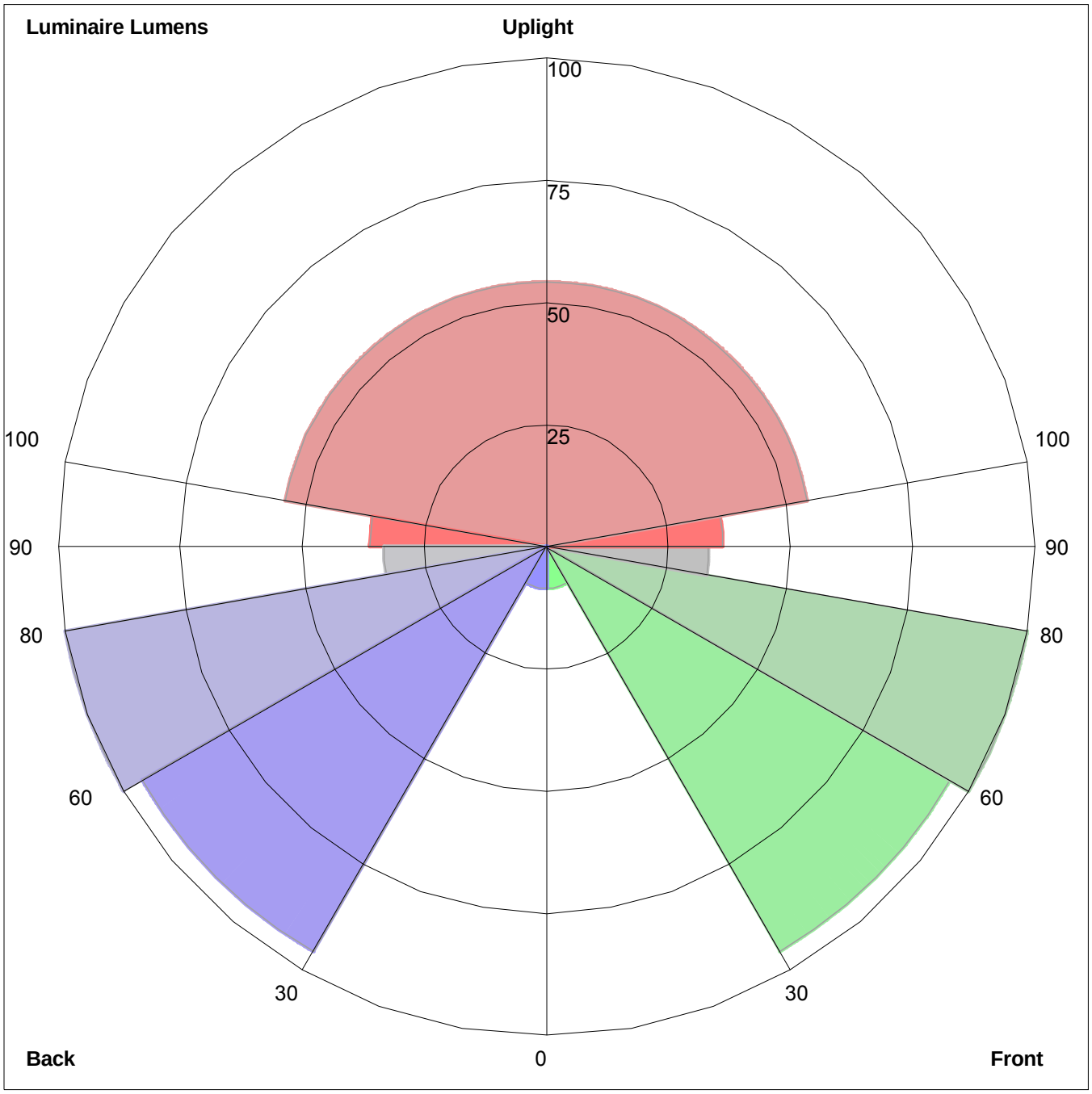
ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINANCE



Distance In Units Of Mounting Height
Values Based On 3 Foot Mounting Height
1/2 Maximum Candela Trace Shown As Dashed Curve
(+) = Maximum Candela Point

IES ROAD REPORT
PHOTOMETRIC FILENAME : L051408501.IES

LUMINAIRE CLASSIFICATION SYSTEM (LCS) GRAPH



Luminaire Lumens:
Front: Low=8.4, Medium=95.1, High=99.5, Very High=33.1
Back: Low=8.4, Medium=95.1, High=99.5, Very High=33.1
Uplight: Low=35.9, High=54.0

BUG Rating : B0-U3-G1