



8165 E Kaiser Blvd. Anaheim, CA 92808
www.lightlaboratory.com

Report No: L112111504



Report No: L112111504

Issue Date: 12/14/2021

Report Prepared For: LEADSUN, INC.
1920 SOUTH ARCHIBALD AVE. UNIT I ONTARIO, CA. 91761

Model Number: RS20-TSH/20W/3000K

Test: Photometric/Colorimetric/Electrical Test

Standards Used: Appropriate part or all test guidelines were used for test performed:

IESNA LM79: 2019 Approved Methods for Electrical and Photometric Measurements of Solid-State Lighting Products

ANSI NEMA ANSLG C78.377: 2017 Specification of the Chromaticity of Solid State Lighting Products

ANSI C82.77-10:2014: Harmonic Emission Limits-Related Quality Requirements for Lighting Equipment

Description of Sample: Client submitted the sample. Received in working and undamaged condition. No modifications were necessary.

Special Test Condition: Fixture is tested with no special conditions.

Date of Tests: 12/10/21

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-S4	4/7/23
HP Power Supply	6032A	PS-DC05-S2	--
Fluke Digital Thermometer	52K/J	MT-TP05	3/17/23
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

General Information

Manufacturer:	LEADSUN, INC.
Model Number:	RS20-TSH/20W/3000K
Driver Model Number:	N/A

Test Summary

Total Lumens:	3610.30
Efficacy:	183.26
Color Redering Index:	72.8
Correlated Color Temperature:	3032
Input Voltage (VAC/60Hz):	21.71
Input Current (Amp):	0.9076
Input Power (W):	19.70
Input Power Factor:	1.0000
Current ATHD (%):	N/A

Test Condition

Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:35
Total Operating Time (Hours):	1:05

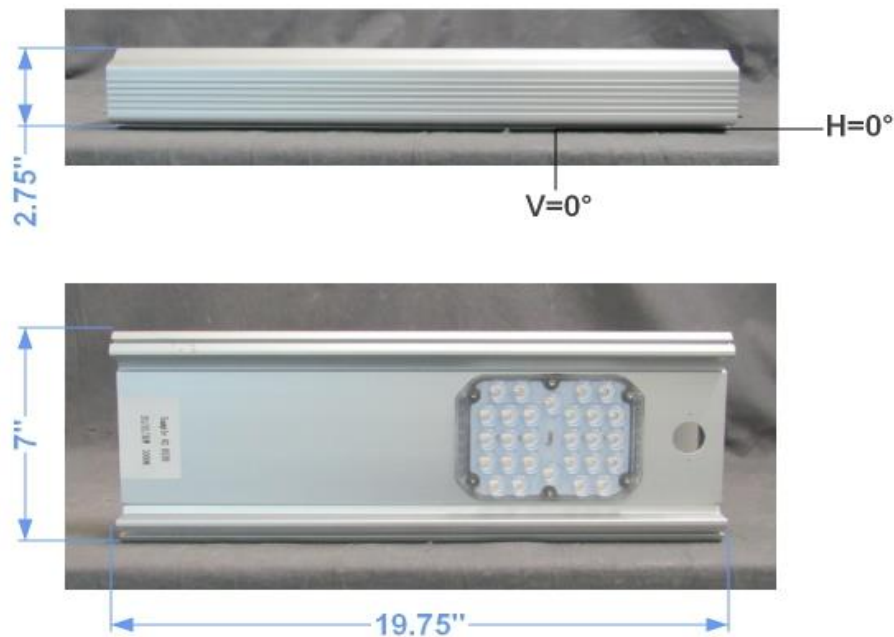
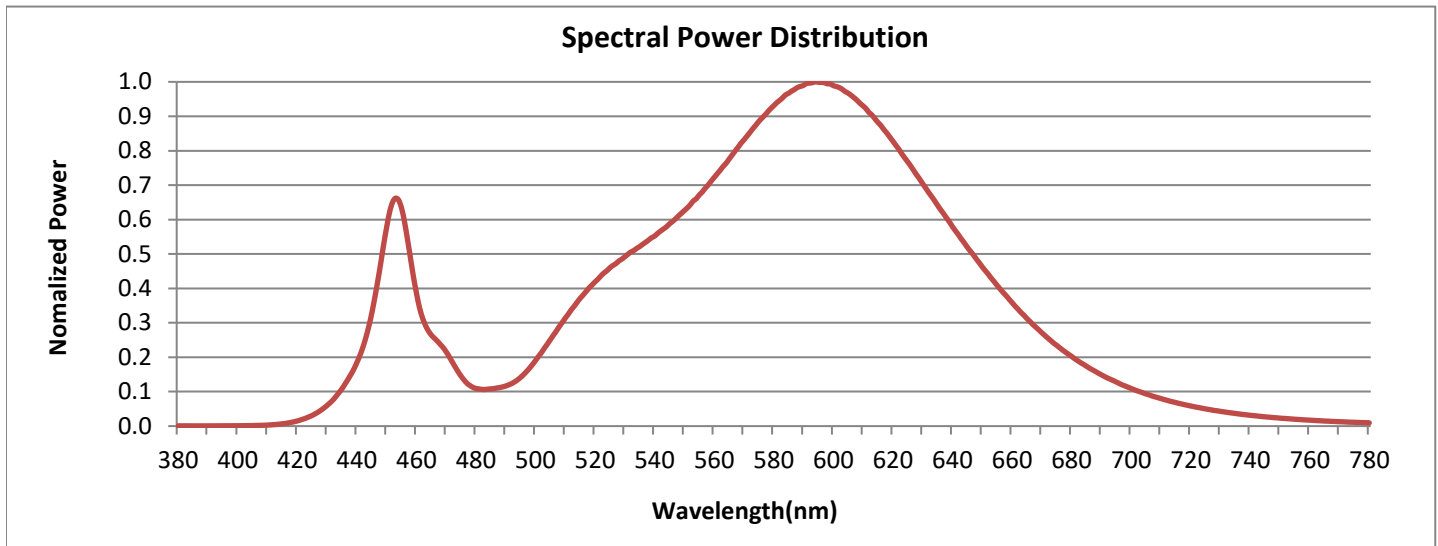


FIG. 1 LUMINAIRE

Colorimetry Test Results

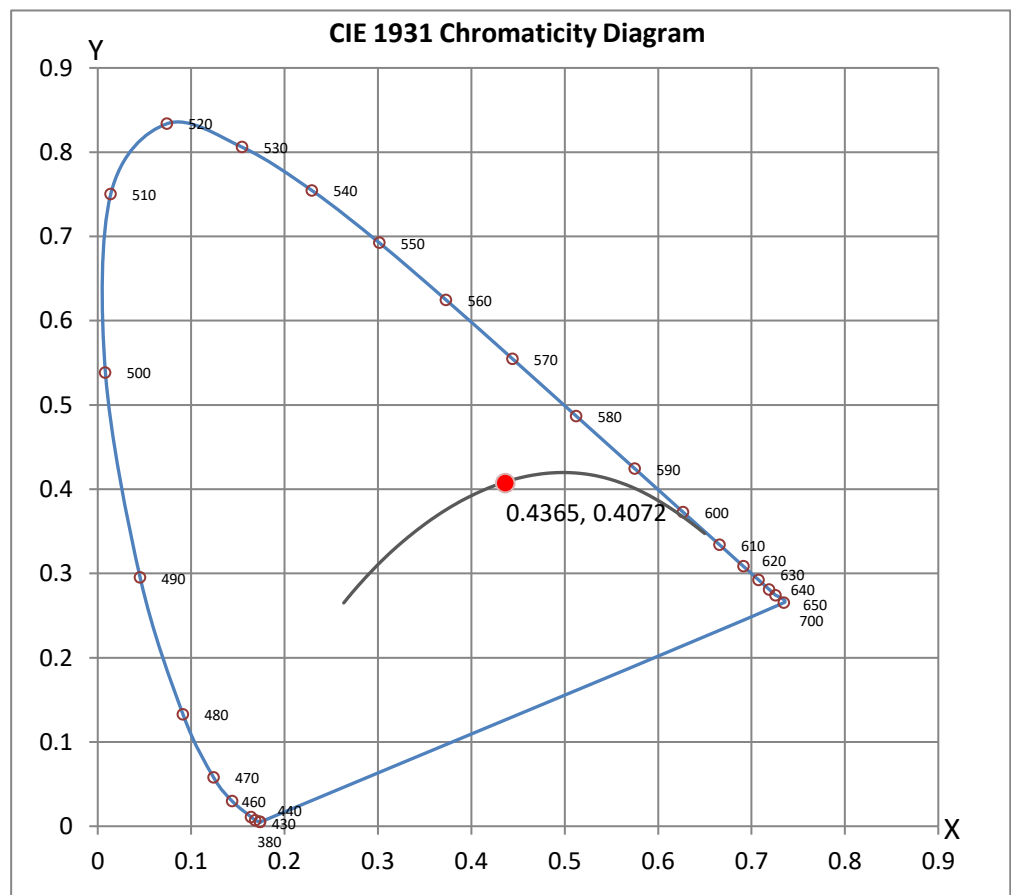


CRI & CCT

x	0.4365
y	0.4072
u'	0.2490
v'	0.5225
CRI	72.80
CCT	3032
Duv	0.00130

R Values

R1	69.04
R2	82.92
R3	94.34
R4	68.53
R5	68.13
R6	76.60
R7	78.21
R8	44.42
R9	-30.15
R10	60.72
R11	63.47
R12	47.58
R13	71.69
R14	96.84
R15	61.25



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:

The results related only to the samples as received and tested. This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the Federal Government.

Report Prepared by : Kunjan Modi

Test Report Reviewed by:



Steve Kang
Quality Assurance

**Attached are photometric data reports.*



8165 E. Kaiser Blvd. Anaheim, CA 92808

www.lightlaboratory.com

Photometric Test Report

IES ROAD REPORT

PHOTOMETRIC FILENAME : L112111504.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L112111504
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 12/14/2021
[MANUFAC] LEADSUN, INC.
[LUMCAT] RS20-TSH/20W/3000K
[LUMINAIRE] 20W 3000K luminaire with 28chips and TSH lens-set at 20W
[BALLASTCAT] N/A
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] DC 0.91A Constant Current
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

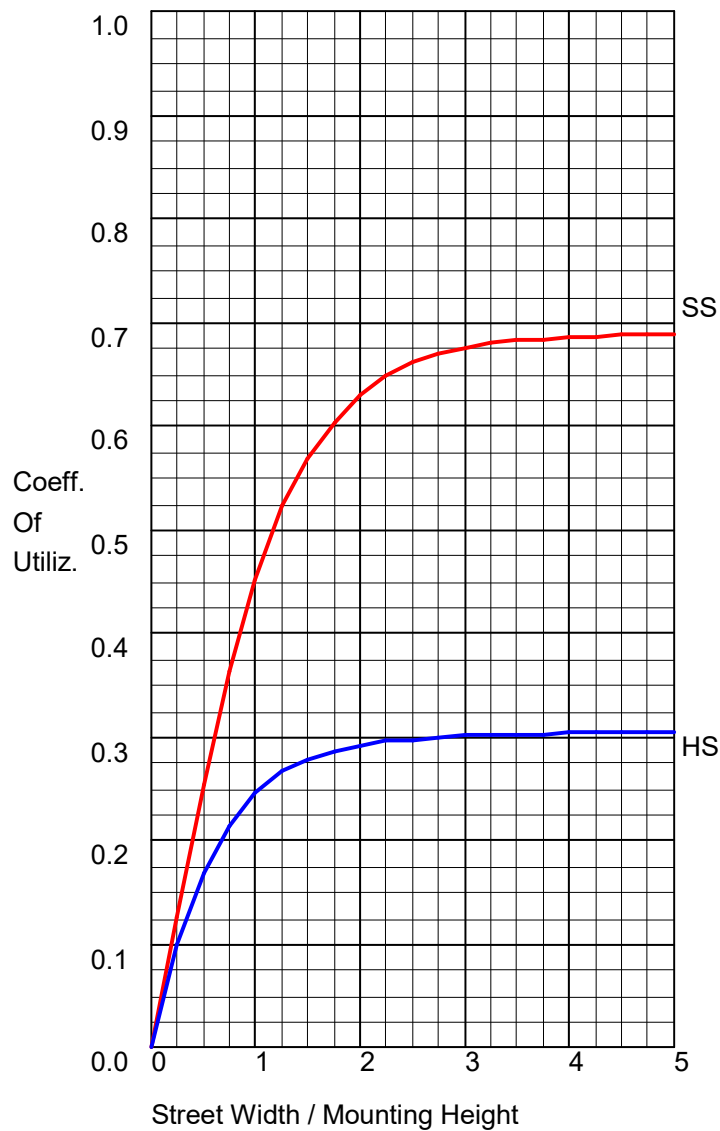
IES Classification	Type III
Longitudinal Classification	Short
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	3610
Downward Total Efficiency	N.A. (absolute)
Total Luminaire Efficiency	N.A. (absolute)
Luminaire Efficacy Rating (LER)	183
Total Luminaire Watts	19.7
Ballast Factor	1.00
Upward Waste Light Ratio	0.00
Maximum Candela	1275
Maximum Candela Angle	55H 57.5V
Maximum Candela (<90 Degrees Vertical)	1275
Maximum Candela Angle (<90 Degrees Vertical)	55H 57.5V
Maximum Candela At 90 Degrees Vertical	0 (0.0% Luminaire Lumens)
Maximum Candela from 80 to <90 Degrees Vertical	302 (8.4% Luminaire Lumens)
Cutoff Classification (deprecated)	N.A. (absolute)

IES ROAD REPORT
PHOTOMETRIC FILENAME : L112111504.IES

LUMINAIRE CLASSIFICATION SYSTEM (LCS)

	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	417.5	N.A.	11.6
FM - Front-Medium (30-60)	1300.1	N.A.	36.0
FH - Front-High (60-80)	756.8	N.A.	21.0
FVH - Front-Very High (80-90)	26.8	N.A.	0.7
BL - Back-Low (0-30)	273.5	N.A.	7.6
BM - Back-Medium (30-60)	561.6	N.A.	15.6
BH - Back-High (60-80)	257.9	N.A.	7.1
BVH - Back-Very High (80-90)	16.2	N.A.	0.4
UL - Uplight-Low (90-100)	0.0	N.A.	0.0
UH - Uplight-High (100-180)	0.0	N.A.	0.0
Total	3610.4	N.A.	100.0
BUG Rating	B1-U0-G1		

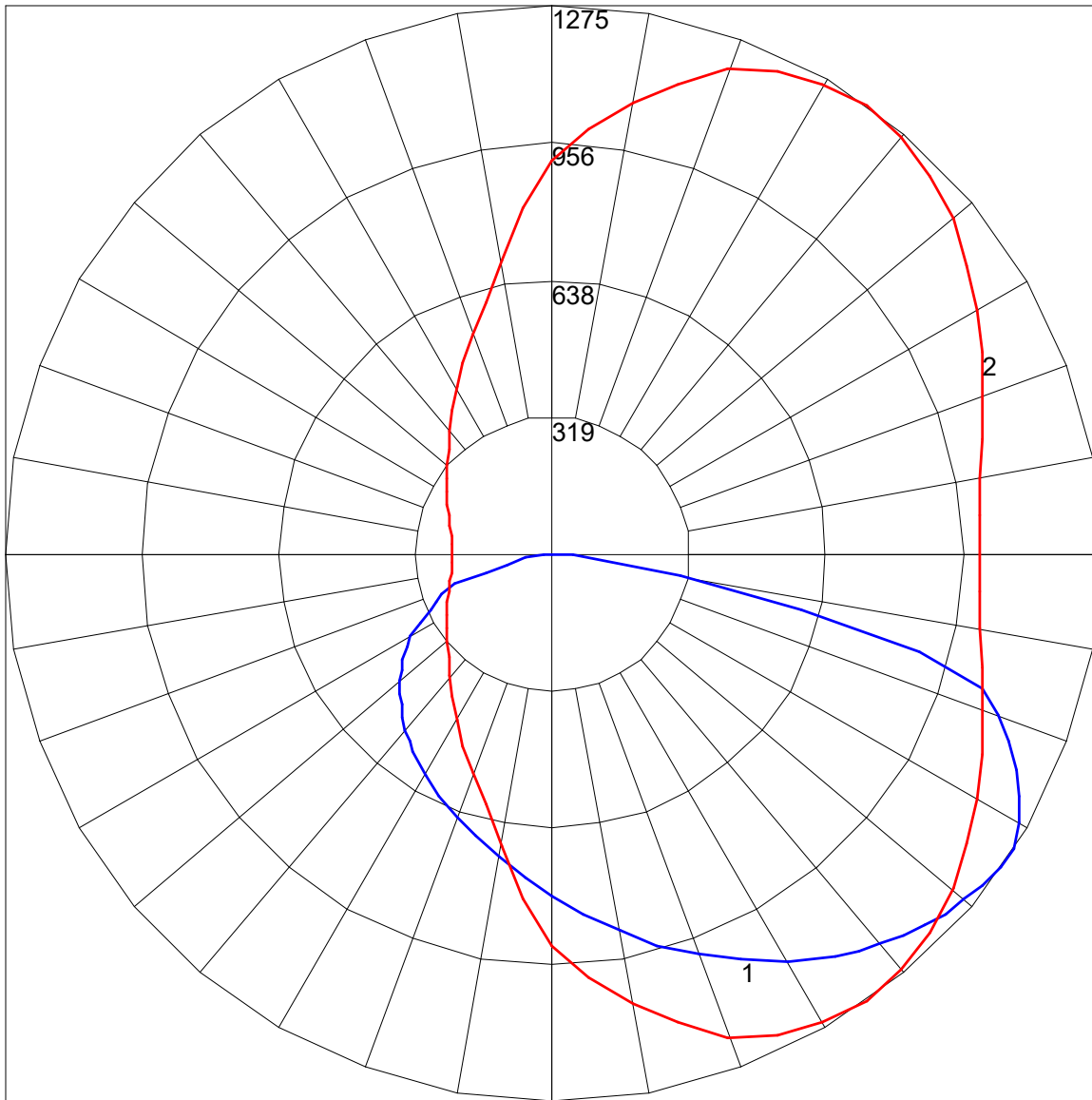
COEFFICIENTS OF UTILIZATION



FLUX DISTRIBUTION

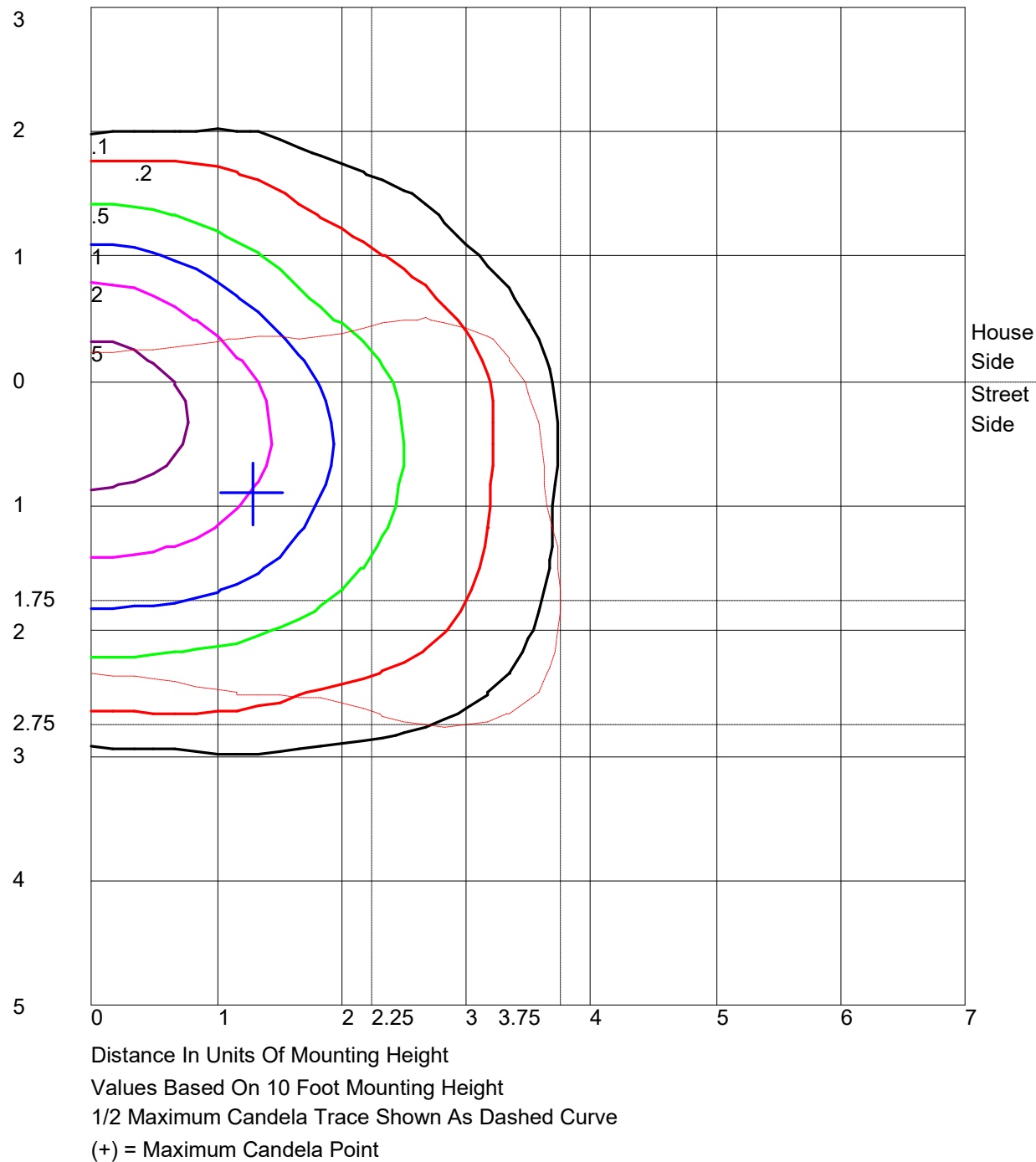
	Lumens	Percent Of Luminaire
Downward Street Side	2501.2	69.3
Downward House Side	1109.1	30.7
Downward Total	3610.3	100.0
Upward Street Side	0.0	0.0
Upward House Side	0.0	0.0
Upward Total	0.0	0.0
Total Flux	3610.3	100.0

POLAR GRAPH

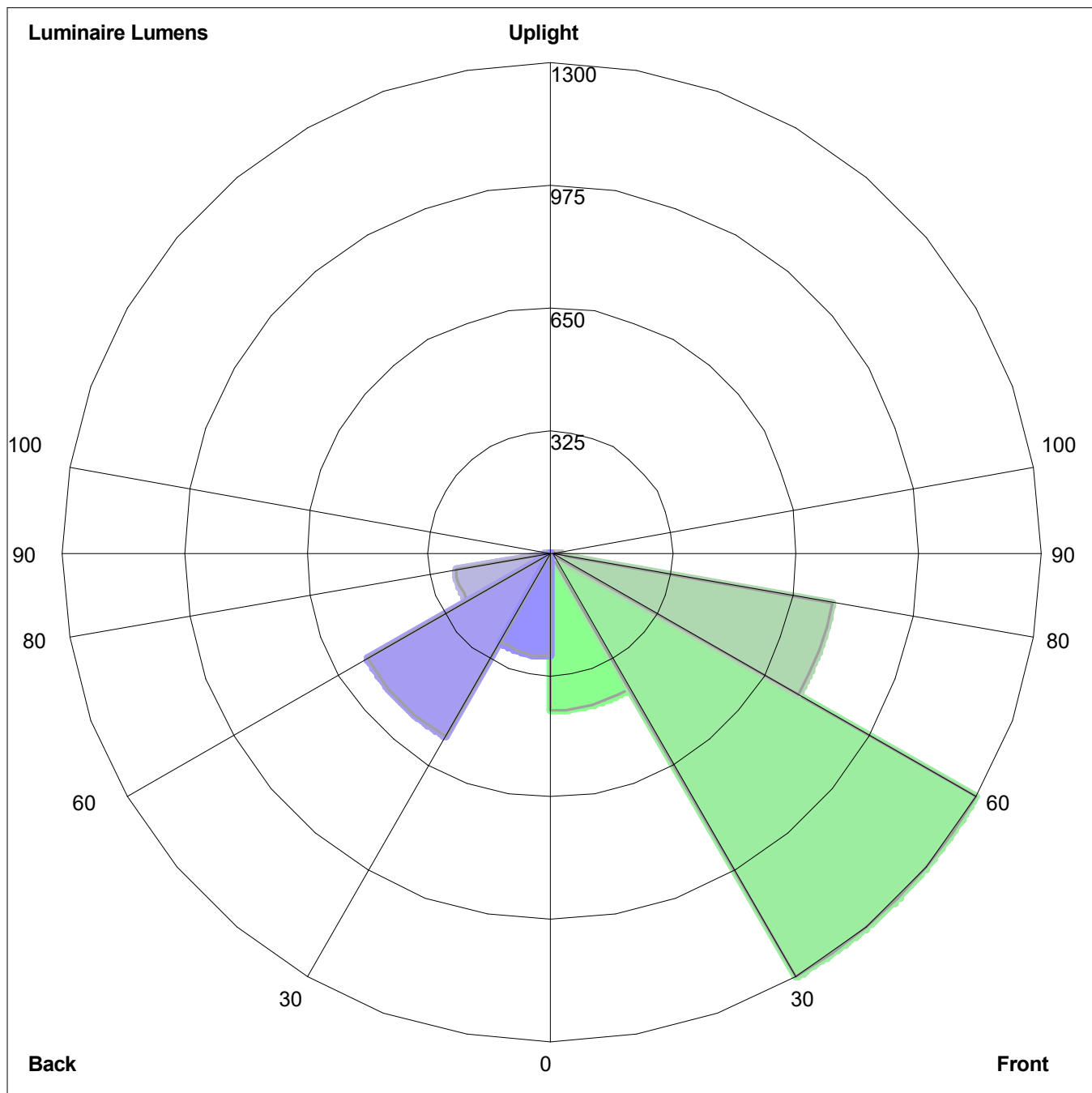


Maximum Candela = 1275 Located At Horizontal Angle = 55, Vertical Angle = 57.5
1 - Vertical Plane Through Horizontal Angles (55 - 235) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (57.5) (Through Max. Cd.)

ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINANCE



LUMINAIRE CLASSIFICATION SYSTEM (LCS) GRAPH



Luminaire Lumens:
Front: Low=417.5, Medium=1300.1, High=756.8, Very High=26.8
Back: Low=273.5, Medium=561.6, High=257.9, Very High=16.2
Uplight: Low=0.0, High=0.0

BUG Rating : B1-U0-G1