



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

Report No: L062014310



Report No: L062014310

Issue Date: 7/24/2020

Report Prepared For: Leadsun Inc
1920 South Archibald Ave Unit I Ontario CA 91761

Model Number: RS10-T3/10W/5000K

Test: Photometric/Colorimetric/Electrical Test

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

Special Test Condition: Fixture is tested with 0.46A constant current source.

Sample Arrival Date: 7/6/20

Date of Tests: 7/20/20 - 7/24/20

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	1/9/21
BK PRECISION	1747	PS-DC04	1/10/21
Fluke Digital Thermometer	52K/J	MT-TP05	1/10/21
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:	RS10-T3/10W/5000K
Driver Model Number:	N/A

Test Summary

Total Lumens:	1760.30
Efficacy:	174.60
Color Redering Index:	70.8
Correlated Color Temperature:	4825
Input Voltage (VDC):	21.92
Input Current (Amp):	0.4600
Input Power (W):	10.08
Input Power Factor:	1.0000
Current ATHD (%):	N/A

Test Condition

Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:30
Total Operating Time (Hours):	1:00

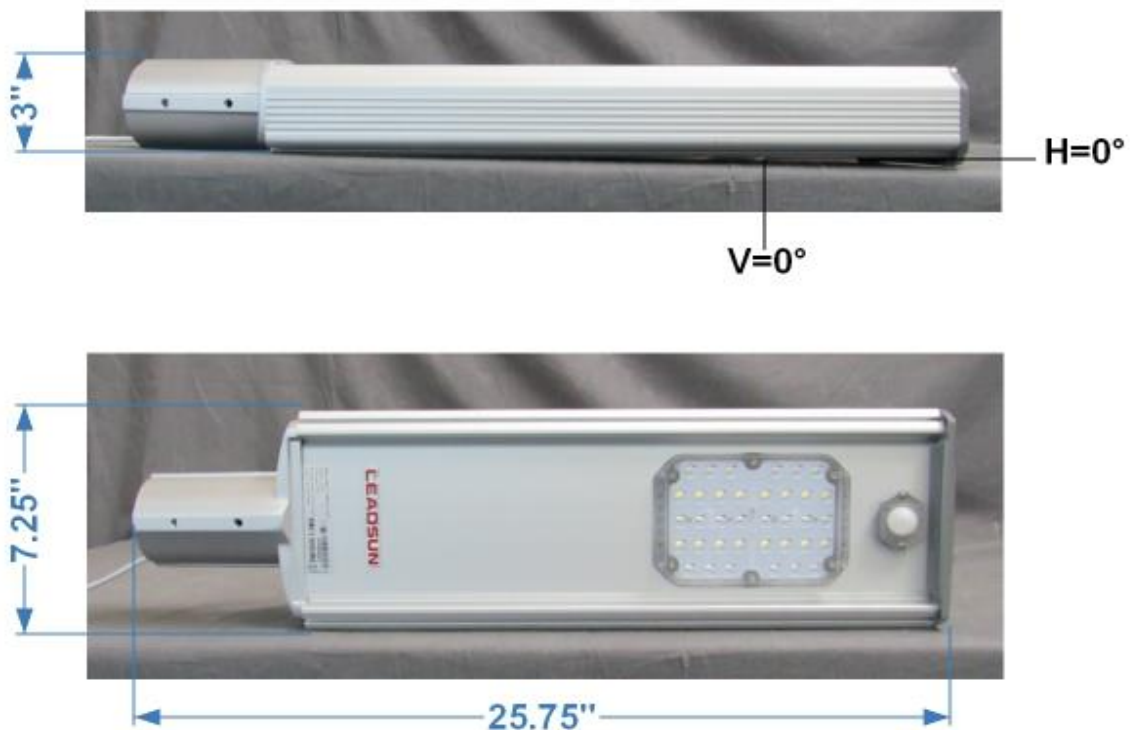
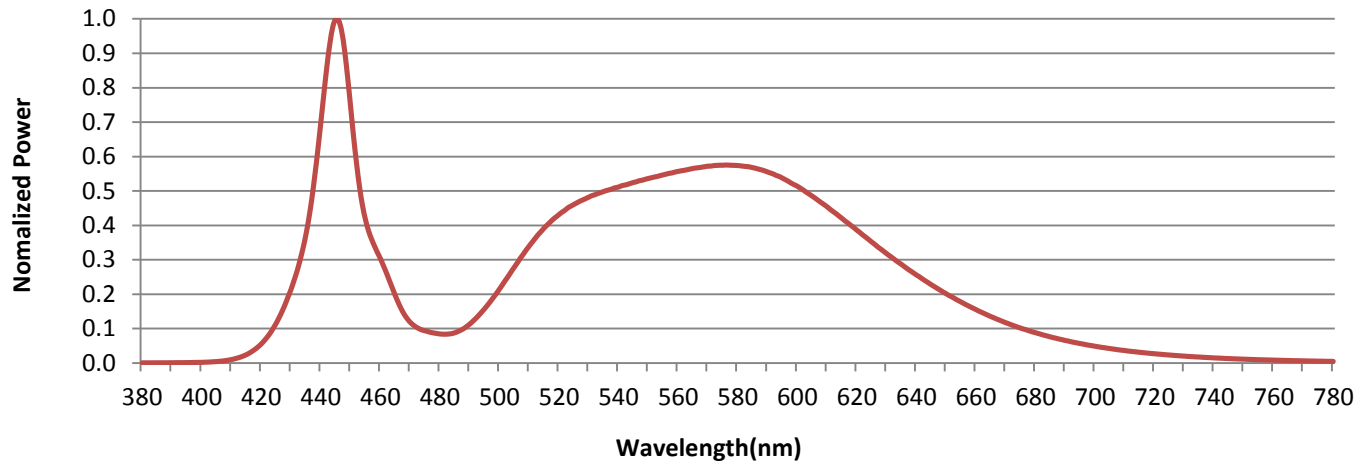


FIG. 1 LUMINAIRE

Colorimetry Test Results

Spectral Power Distribution



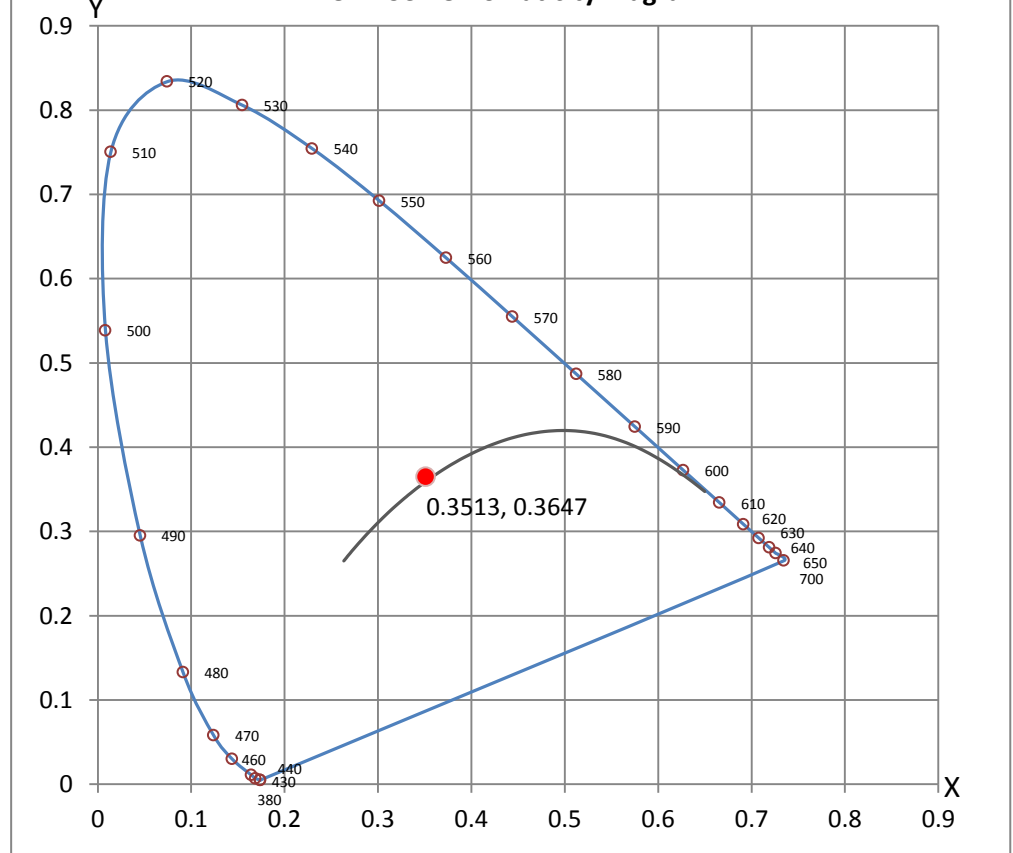
CRI & CCT

x	0.3513
y	0.3647
u'	0.2106
v'	0.4918
CRI	70.80
CCT	4825
Duv	0.00405

R Values

R1	67.67
R2	75.32
R3	81.90
R4	71.85
R5	68.42
R6	66.67
R7	80.52
R8	54.33
R9	-36.88
R10	42.38
R11	69.18
R12	40.76
R13	68.43
R14	89.48
R15	61.01

CIE 1931 Chromaticity Diagram





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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 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 : Keyur Patel

Test Report Reviewed by:

Steve Kang
Quality Assurance

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



8165 E. Kaiser Blvd. Anaheim, CA 92808
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Photometric Test Report

IES ROAD REPORT

PHOTOMETRIC FILENAME : L062014310.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L062014310
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 7/24/2020
[MANUFAC] Leadsun Inc
[LUMCAT] RS10-T3/10W/5000K
[LUMINAIRE] 10W 5000K luminaire with 16 chips and T3 lens
[BALLASTCAT] N/A
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[POWER SUPPLY] 0.46A CONSTANT CURRENT SOURCE
[INPUT] 21.92VDC, 10.08W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

IES Classification	Type II
Longitudinal Classification	Short
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	1760
Downward Total Efficiency	N.A. (absolute)
Total Luminaire Efficiency	N.A. (absolute)
Luminaire Efficacy Rating (LER)	175
Total Luminaire Watts	10.08
Ballast Factor	1.00
Upward Waste Light Ratio	0.00
Maximum Candela	860.43
Maximum Candela Angle	70H 52.5V
Maximum Candela (<90 Degrees Vertical)	860.43
Maximum Candela Angle (<90 Degrees Vertical)	70H 52.5V
Maximum Candela At 90 Degrees Vertical	0 (0.0% Luminaire Lumens)
Maximum Candela from 80 to <90 Degrees Vertical	39.89 (2.3% Luminaire Lumens)
Cutoff Classification (deprecated)	N.A. (absolute)

IES ROAD REPORT
PHOTOMETRIC FILENAME : L062014310.IES

LUMINAIRE CLASSIFICATION SYSTEM (LCS)

	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	235.9	N.A.	13.4
FM - Front-Medium (30-60)	659.9	N.A.	37.5
FH - Front-High (60-80)	195.9	N.A.	11.1
FVH - Front-Very High (80-90)	5.2	N.A.	0.3
BL - Back-Low (0-30)	180.1	N.A.	10.2
BM - Back-Medium (30-60)	362.5	N.A.	20.6
BH - Back-High (60-80)	114.9	N.A.	6.5
BVH - Back-Very High (80-90)	5.7	N.A.	0.3
UL - Uplight-Low (90-100)	0.0	N.A.	0.0
UH - Uplight-High (100-180)	0.0	N.A.	0.0
Total	1760.1	N.A.	100.0
BUG Rating	B1-U0-G1		

ZONAL LUMEN SUMMARY

Zone	%
0-20	10.6
0-30	23.6
0-40	41.3
0-60	81.7
0-80	99.4
0-90	100
10-90	97.3
20-40	30.8
20-50	51.3
40-70	54.1
60-80	17.7
70-80	4
80-90	0.6
90-110	0
90-120	0
90-130	0
90-150	0
90-180	0
110-180	0
0-180	100

IES ROAD REPORT
PHOTOMETRIC FILENAME : L062014310.IES

CANDELA TABULATION

Vert. Angles	Horizontal Angles									
	0	5	10	15	20	25	30	35	40	45
0.0	495.63	495.63	495.63	495.63	495.63	495.63	495.63	495.63	495.63	495.63
5.0	527.80	526.87	525.73	523.98	523.31	524.65	524.72	524.45	521.70	518.82
10.0	540.68	540.48	539.07	537.59	535.38	536.65	536.39	535.45	532.30	529.35
15.0	553.15	552.61	552.61	551.54	549.59	548.92	549.26	547.52	545.84	542.82
20.0	565.22	565.55	566.09	566.56	565.82	565.95	565.15	562.13	561.93	560.66
25.0	590.29	589.89	590.43	591.97	593.38	592.44	589.15	586.47	586.47	586.20
30.0	591.10	592.57	595.59	601.56	608.13	614.77	619.12	622.34	626.23	629.72
35.0	556.10	557.37	562.80	571.72	585.26	604.37	621.07	637.23	652.18	667.47
37.5	529.55	530.69	536.19	546.04	561.73	582.11	605.92	629.25	652.71	679.40
40.0	496.02	497.83	503.00	514.60	531.69	554.22	578.29	609.33	645.14	680.88
42.5	457.94	460.49	467.53	479.13	495.62	517.41	543.56	581.31	625.83	674.44
45.0	415.83	418.98	428.37	441.71	459.21	482.01	511.58	550.20	599.81	654.53
47.5	371.45	374.53	383.99	398.20	416.17	439.03	470.75	513.79	563.47	623.48
50.0	328.67	331.35	341.21	355.56	373.32	398.80	435.55	479.93	531.63	593.24
52.5	283.35	286.03	294.54	310.50	328.47	357.90	396.05	445.00	501.86	559.45
55.0	233.86	235.88	243.92	256.06	274.09	303.73	350.26	404.44	465.25	522.98
57.5	190.55	191.22	194.24	203.09	219.25	245.93	293.07	354.35	417.04	481.54
60.0	155.69	156.09	157.43	161.52	170.44	190.42	228.17	288.71	362.93	428.84
62.5	126.45	126.92	128.26	130.41	135.17	146.17	169.43	212.41	277.51	357.64
65.0	100.98	101.38	102.79	104.80	108.48	115.73	130.48	155.95	197.79	259.95
67.5	76.97	77.58	79.12	81.87	85.35	90.85	100.84	118.27	143.28	182.71
70.0	55.92	57.73	61.22	63.76	66.11	69.80	76.70	90.85	109.76	133.36
72.5	42.24	42.51	44.25	48.01	51.43	54.18	59.54	68.99	82.60	101.51
75.0	33.39	33.79	34.33	36.88	39.56	42.64	45.12	51.56	61.35	71.14
77.5	26.15	26.15	26.22	26.89	29.77	32.92	34.66	37.01	38.49	39.09
80.0	18.37	18.51	18.04	18.24	20.25	22.80	23.67	23.74	23.87	23.67
85.0	2.28	2.35	2.41	2.35	2.55	2.88	3.22	3.62	3.82	4.63
90.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Vert. Angles	Horizontal Angles									
	50	55	60	65	70	75	80	85	90	95
0.0	495.63	495.63	495.63	495.63	495.63	495.63	495.63	495.63	495.63	495.63
5.0	518.62	516.27	515.13	512.05	507.56	503.26	500.58	497.97	495.96	491.46
10.0	527.80	526.40	525.19	522.51	516.20	511.04	506.28	500.98	496.49	490.86
15.0	539.74	538.33	537.86	534.44	528.74	521.84	514.19	506.88	497.63	489.92
20.0	558.04	557.71	555.83	553.01	547.52	539.81	531.22	522.57	507.69	496.96
25.0	584.66	587.48	586.67	585.60	578.16	569.71	559.45	547.38	530.28	515.94
30.0	627.30	627.17	622.61	615.10	601.83	588.88	571.99	553.89	531.96	512.92
35.0	676.99	678.19	671.22	659.22	642.79	622.48	598.61	574.47	546.71	515.33
37.5	700.79	709.77	705.82	693.01	674.44	649.90	620.67	591.43	558.58	527.27
40.0	720.63	739.54	744.30	732.23	709.17	679.20	642.66	605.78	567.83	535.11
42.5	727.14	761.47	776.96	772.87	744.30	709.37	664.18	622.41	580.37	544.03
45.0	725.46	777.09	801.29	809.34	785.81	743.36	691.67	636.76	589.89	546.85
47.5	702.53	776.96	814.17	832.40	819.13	769.85	712.72	647.82	599.34	552.34
50.0	669.48	759.19	813.30	843.60	847.83	801.56	726.87	654.12	595.86	553.75
52.5	627.44	719.96	796.06	843.87	860.43	825.30	736.46	661.70	599.68	549.59
55.0	581.44	661.03	754.16	832.94	857.48	831.87	738.67	655.40	592.51	543.43
57.5	543.69	614.83	707.63	799.15	841.46	826.97	731.16	633.81	573.26	526.93
60.0	495.02	559.99	645.21	753.69	809.27	792.91	710.71	611.82	552.48	510.37
62.5	429.51	496.02	571.12	676.79	752.82	741.69	655.66	563.07	508.49	472.62
65.0	344.43	414.69	475.17	561.46	648.22	655.33	599.95	498.57	449.63	421.47
67.5	242.58	314.99	362.87	428.30	508.49	522.78	482.08	419.05	376.81	353.21

IES ROAD REPORT
PHOTOMETRIC FILENAME : L062014310.IES

CANDELA TABULATION - (Cont.)

70.0	172.38	218.58	253.04	294.74	351.94	372.19	344.43	293.94	261.56	248.68
72.5	123.37	148.24	154.68	158.44	171.91	172.85	155.35	129.87	115.32	121.69
75.0	74.42	82.13	88.30	93.47	97.82	87.50	75.30	67.59	70.33	77.71
77.5	43.98	50.42	56.39	59.47	62.09	55.52	48.68	48.48	53.17	56.99
80.0	25.34	30.57	36.27	39.89	39.83	37.08	33.19	31.78	35.60	38.02
85.0	5.70	6.71	7.58	8.31	8.85	8.98	8.85	8.58	8.45	8.38
90.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Vert. Angles **Horizontal Angles**

	<u>100</u>	<u>105</u>	<u>110</u>	<u>115</u>	<u>120</u>	<u>125</u>	<u>130</u>	<u>135</u>	<u>140</u>	<u>145</u>
0.0	495.63	495.63	495.63	495.63	495.63	495.63	495.63	495.63	495.63	495.63
5.0	487.78	483.89	482.35	479.66	476.38	476.38	474.70	472.02	469.34	466.59
10.0	485.09	479.66	475.57	470.01	465.32	461.83	458.88	453.25	449.36	446.14
15.0	483.62	476.58	469.27	459.28	452.91	444.40	438.97	432.73	427.37	424.28
20.0	486.17	476.11	464.18	451.77	440.71	428.84	420.12	412.08	405.37	401.82
25.0	499.38	483.89	467.66	451.03	432.86	416.24	404.90	391.83	382.24	376.14
30.0	492.13	474.10	454.05	431.99	412.88	393.51	380.16	368.63	359.18	351.53
35.0	489.92	465.99	441.18	416.91	393.10	372.12	354.62	343.22	334.44	326.93
37.5	495.82	470.14	443.59	414.63	388.68	362.19	343.82	329.27	320.49	312.98
40.0	503.06	473.03	443.99	409.46	379.29	353.08	331.96	316.27	306.41	295.68
42.5	507.22	473.70	441.71	407.05	371.31	341.21	317.67	300.04	286.70	272.35
45.0	512.72	477.99	442.99	401.49	359.04	325.25	299.84	279.66	262.90	250.09
47.5	513.66	474.97	436.55	392.97	349.05	311.37	280.60	254.92	239.03	225.01
50.0	512.05	471.95	429.58	380.70	331.96	289.92	255.52	230.38	212.74	201.68
52.5	508.70	467.33	420.26	363.20	310.17	262.02	229.17	205.64	191.22	182.84
55.0	494.55	452.31	400.68	341.41	283.61	235.21	201.55	183.11	172.65	165.74
57.5	482.95	436.08	382.44	321.09	250.56	203.83	178.15	164.74	154.55	148.04
60.0	459.95	405.51	347.98	282.21	222.40	180.36	159.31	146.43	136.71	131.48
62.5	428.64	369.64	309.83	244.99	190.22	158.97	140.67	130.14	122.03	116.46
65.0	379.96	327.53	266.92	205.17	161.79	137.25	121.96	113.45	107.41	102.65
67.5	318.21	264.44	208.86	165.54	138.92	119.01	105.67	98.16	92.59	87.97
70.0	230.71	197.59	162.53	132.62	114.25	98.83	88.24	82.34	76.77	72.28
72.5	125.51	109.36	94.94	86.29	82.13	75.83	69.13	62.89	56.72	53.17
75.0	82.67	70.07	60.08	51.49	47.47	45.79	43.51	44.25	43.78	42.44
77.5	58.53	52.10	43.05	36.34	32.59	26.69	26.62	28.36	30.37	31.58
80.0	38.29	35.33	30.17	24.67	20.79	19.58	18.71	19.98	21.39	21.79
85.0	8.31	8.31	8.05	7.98	7.71	7.78	7.78	7.78	7.78	7.98
90.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Vert. Angles **Horizontal Angles**

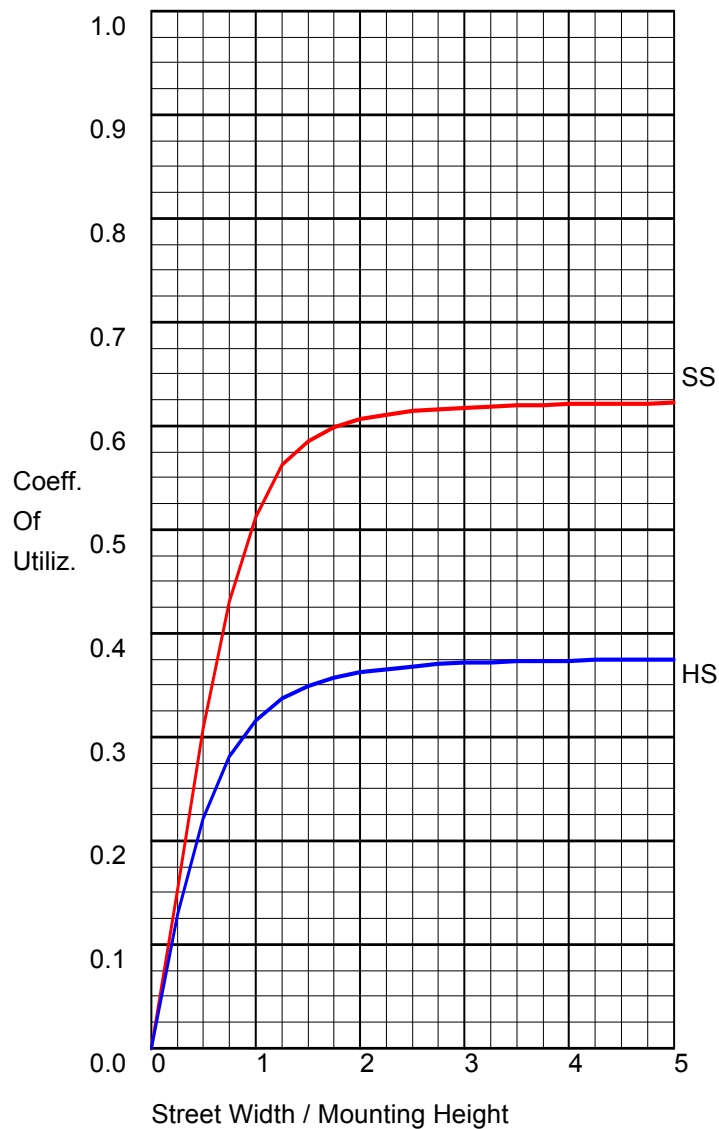
	<u>150</u>	<u>155</u>	<u>160</u>	<u>165</u>	<u>170</u>	<u>175</u>	<u>180</u>
0.0	495.63	495.63	495.63	495.63	495.63	495.63	495.63
5.0	466.99	467.26	466.86	464.98	462.43	459.88	459.01
10.0	443.26	442.72	440.04	437.62	435.88	433.20	432.46
15.0	420.12	418.25	414.96	412.55	411.21	410.34	409.40
20.0	397.06	392.77	390.29	387.61	386.60	386.80	386.87
25.0	371.11	366.75	362.80	361.39	361.32	362.06	362.87
30.0	345.97	342.75	339.67	338.73	339.00	340.00	339.93
35.0	320.96	317.47	315.33	313.45	311.10	310.10	309.76
37.5	305.47	298.90	293.94	290.65	287.50	285.83	285.63
40.0	283.68	274.43	269.80	267.59	266.11	264.84	264.30
42.5	260.95	252.84	247.34	244.19	242.72	241.58	241.37
45.0	237.42	228.50	223.94	221.46	221.80	222.13	222.33
47.5	214.29	207.78	205.03	203.49	203.36	203.69	203.96

IES ROAD REPORT
PHOTOMETRIC FILENAME : L062014310.IES

CANDELA TABULATION - (Cont.)

50.0	195.04	189.81	186.80	184.99	184.05	184.11	183.98
52.5	176.34	171.31	168.22	166.21	165.07	164.67	164.00
55.0	159.58	154.21	150.93	148.71	147.57	146.70	146.17
57.5	142.41	137.72	135.17	133.43	132.35	131.42	131.28
60.0	127.12	123.37	121.42	120.29	119.35	118.47	118.14
62.5	112.91	110.16	108.69	107.68	106.81	106.07	105.80
65.0	99.63	97.02	95.41	94.07	92.73	91.59	91.05
67.5	84.82	82.13	79.65	76.17	71.81	67.79	66.24
70.0	66.31	61.35	58.27	53.64	47.00	41.70	40.90
72.5	50.96	49.15	45.39	40.03	36.81	36.07	35.94
75.0	41.44	39.63	36.07	32.72	31.45	31.78	31.92
77.5	32.05	30.98	28.56	27.09	27.42	27.69	27.76
80.0	22.66	23.07	22.46	22.19	22.73	22.93	22.66
85.0	8.18	8.25	8.38	9.52	10.19	11.00	10.86
90.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00

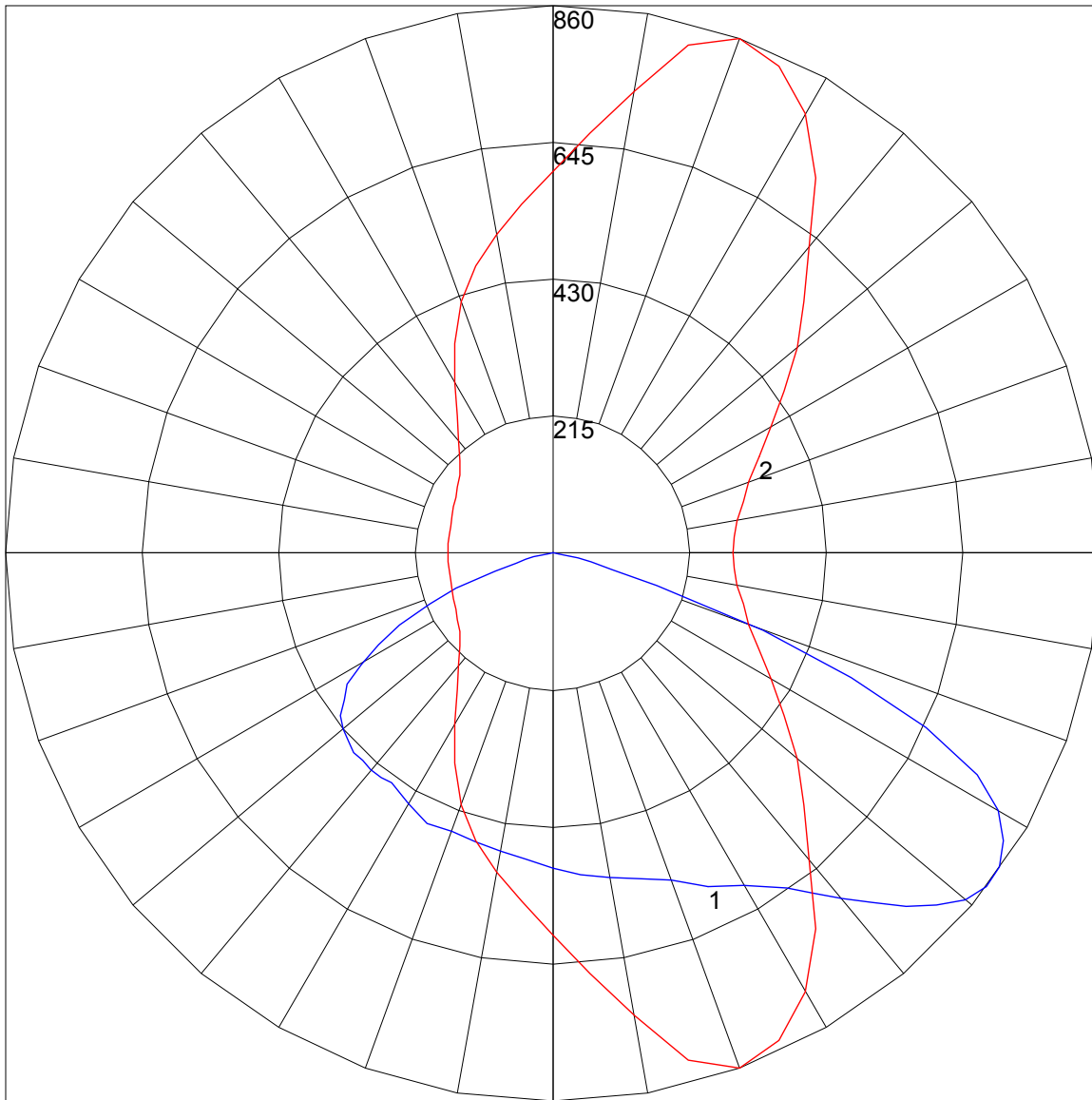
COEFFICIENTS OF UTILIZATION



FLUX DISTRIBUTION

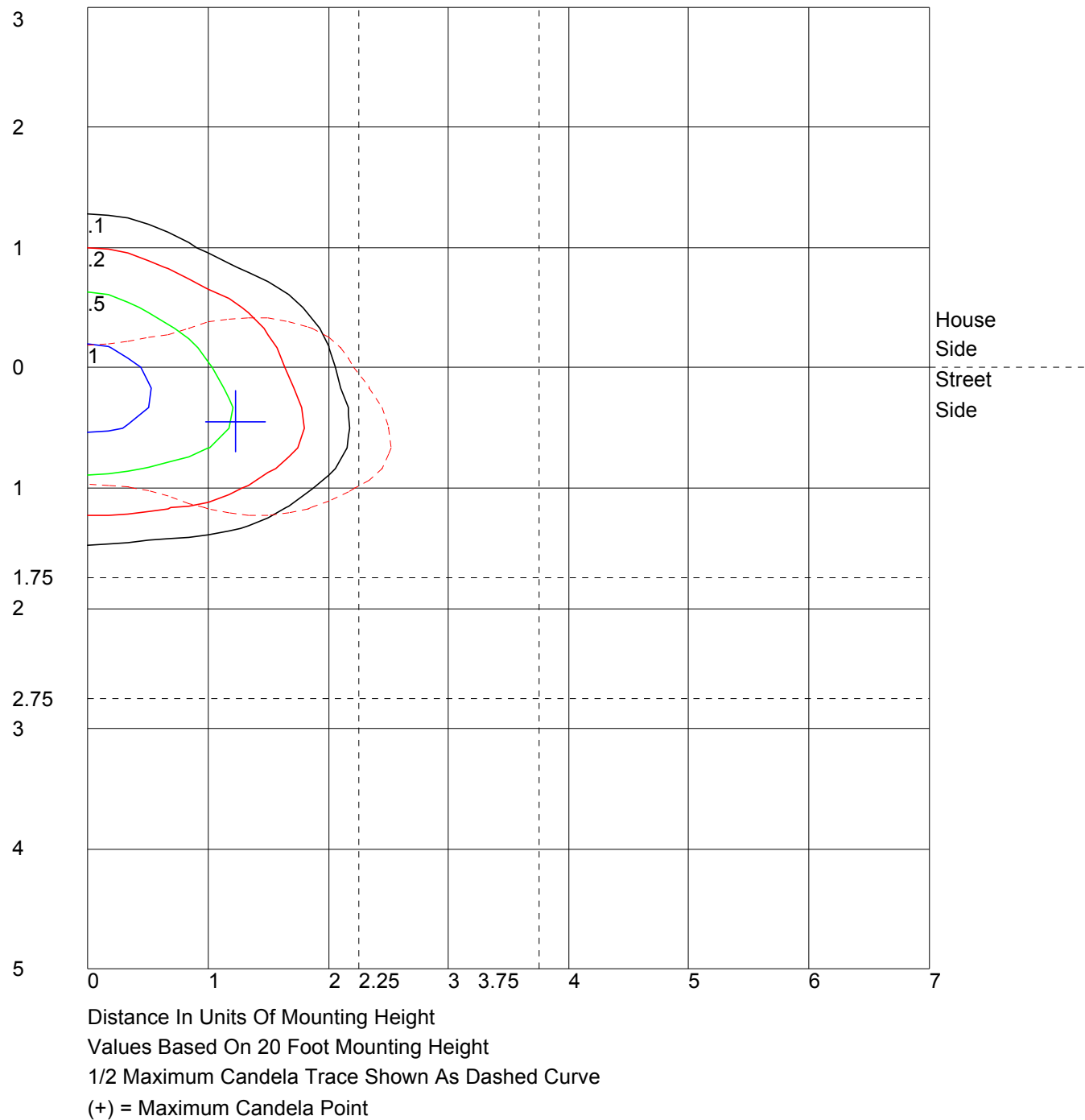
	Lumens	Percent Of Luminaire
Downward Street Side	1097.0	62.3
Downward House Side	663.3	37.7
Downward Total	1760.3	100.0
Upward Street Side	0.0	0.0
Upward House Side	0.0	0.0
Upward Total	0.0	0.0
Total Flux	1760.3	100.0

POLAR GRAPH

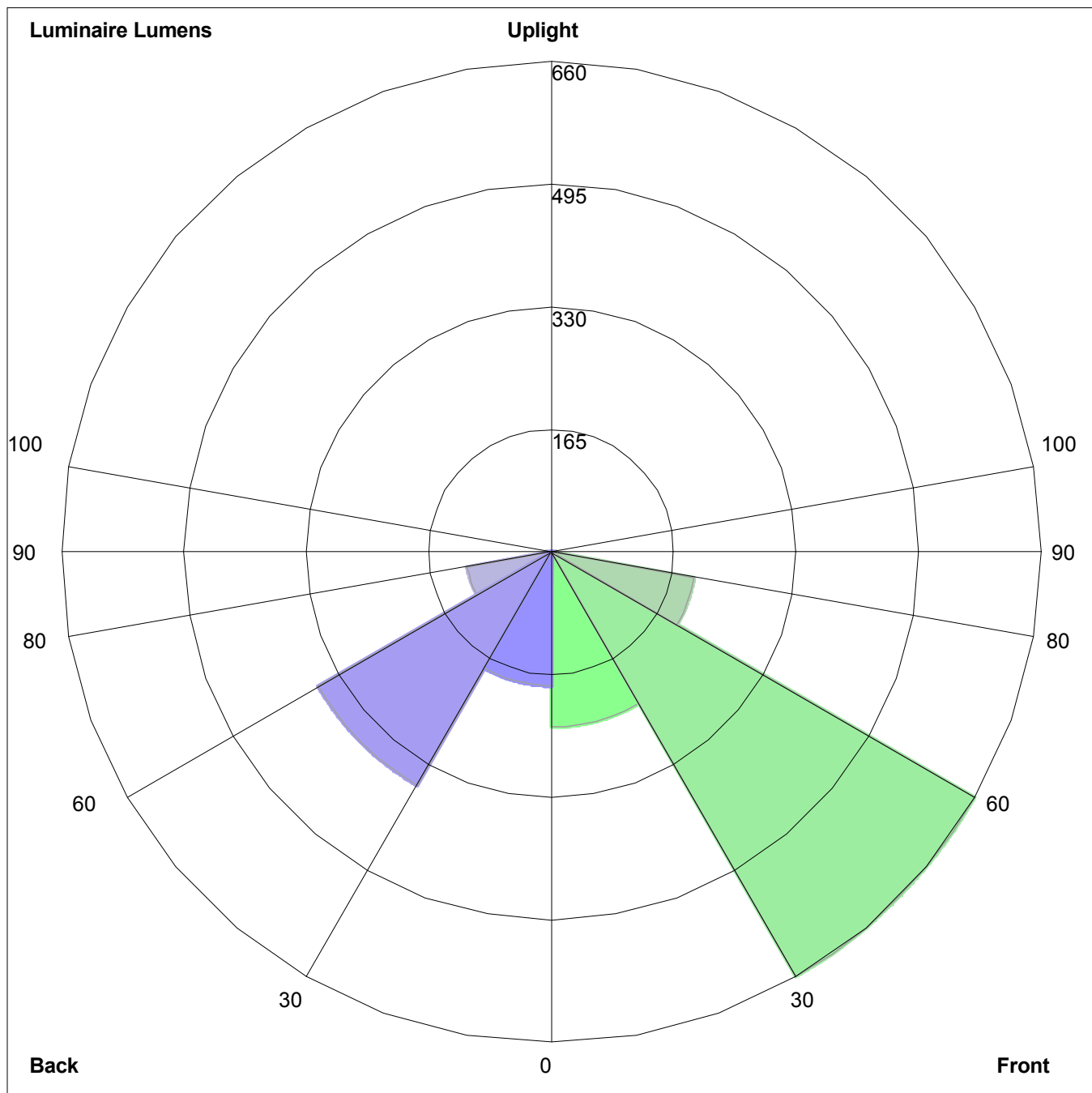


Maximum Candela = 860.43 Located At Horizontal Angle = 70, Vertical Angle = 52.5
1 - Vertical Plane Through Horizontal Angles (70 - 250) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (52.5) (Through Max. Cd.)

ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINANCE



LUMINAIRE CLASSIFICATION SYSTEM (LCS) GRAPH



Luminaire Lumens:
Front: Low=235.9, Medium=659.9, High=195.9, Very High=5.2
Back: Low=180.1, Medium=362.5, High=114.9, Very High=5.7
Uplight: Low=0.0, High=0.0

BUG Rating : B1-U0-G1