



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

Report No: L062014307



Report No: L062014307

Issue Date: 7/24/2020

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

Model Number: RS10-T3/10W/4000K

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/4000K
Driver Model Number:	N/A

Test Summary

Total Lumens:	1742.60
Efficacy:	173.24
Color Redering Index:	71.9
Correlated Color Temperature:	3807
Input Voltage (VDC):	21.87
Input Current (Amp):	0.4600
Input Power (W):	10.06
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

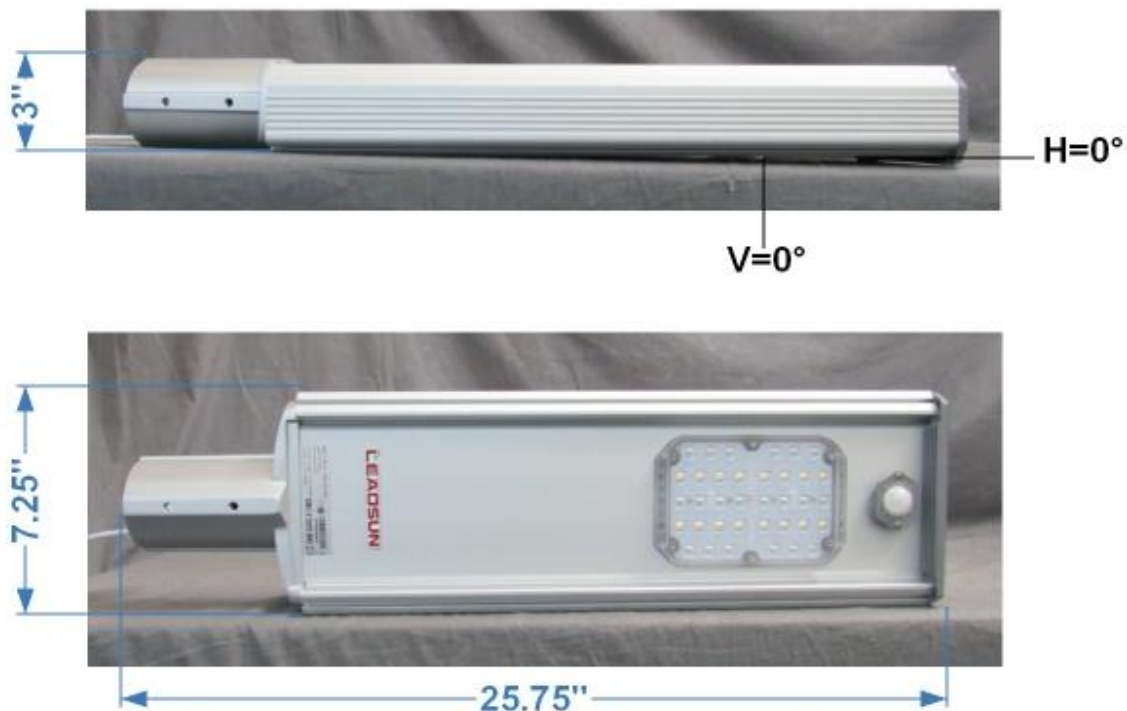
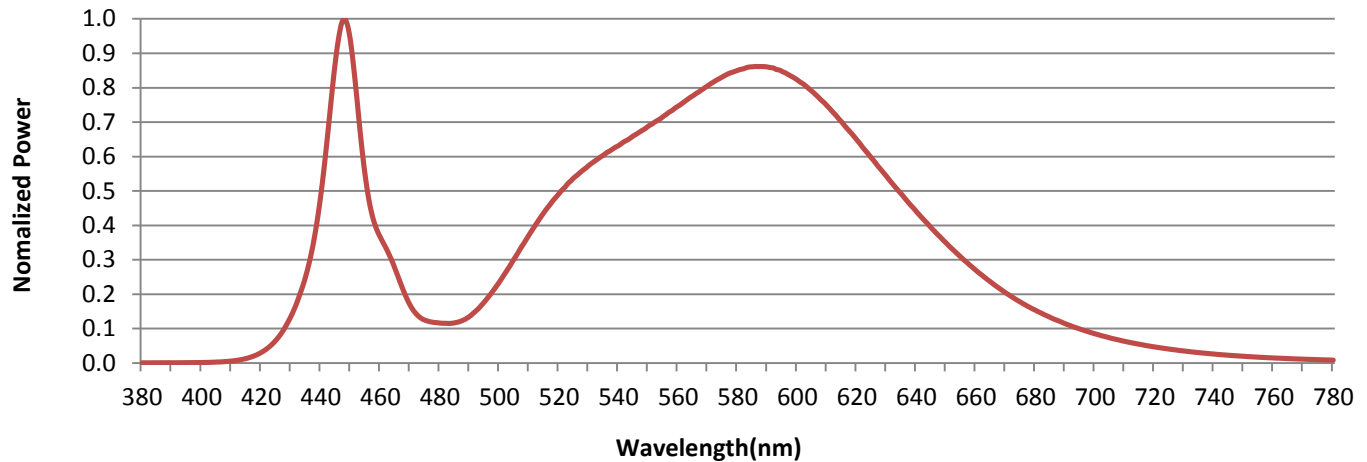


FIG. 1 LUMINAIRE

Colorimetry Test Results

Spectral Power Distribution



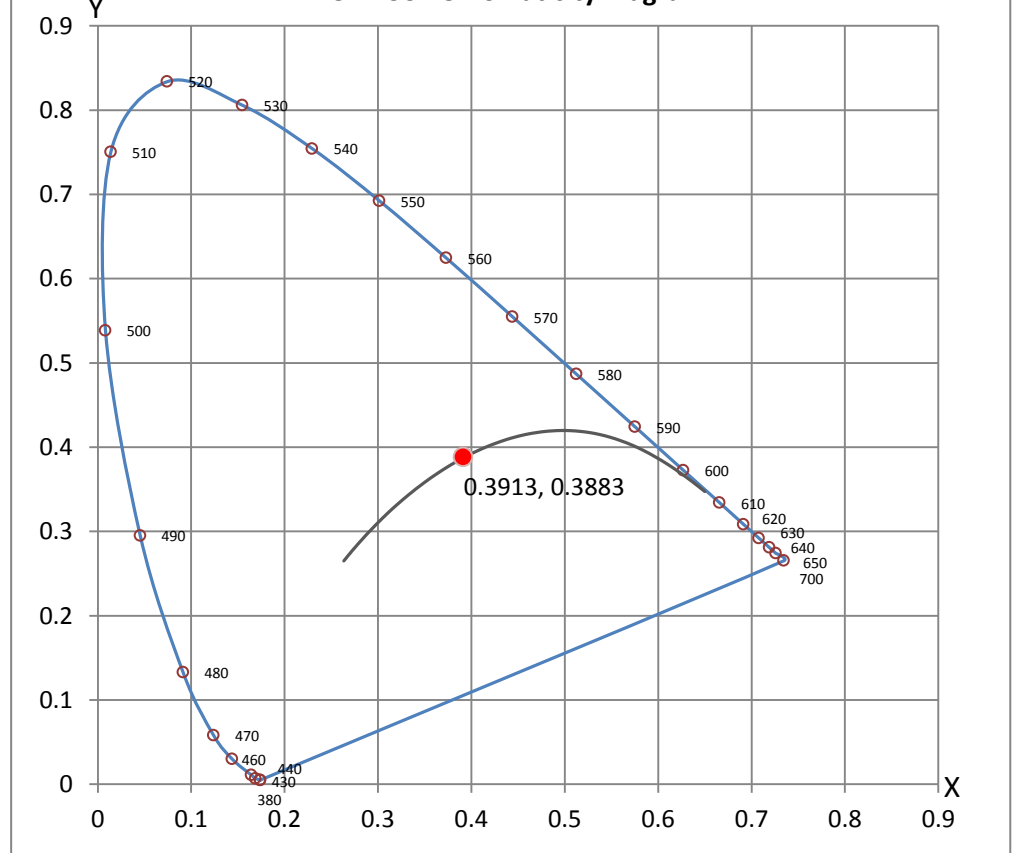
CRI & CCT

x	0.3913
y	0.3883
u'	0.2276
v'	0.5082
CRI	71.90
CCT	3807
Duv	0.00230

R Values

R1	68.38
R2	78.97
R3	87.81
R4	70.82
R5	67.99
R6	70.41
R7	80.75
R8	49.97
R9	-33.21
R10	50.67
R11	66.38
R12	41.83
R13	70.08
R14	92.84
R15	61.49

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*



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www.lightlaboratory.com

Photometric Test Report

IES ROAD REPORT

PHOTOMETRIC FILENAME : L062014307.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST] L062014307

[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)

[ISSUEDATE] 7/24/2020

[MANUFAC] Leadsun Inc

[LUMCAT] RS10-T3/10W/4000K

[LUMINAIRE] 10W 4000K 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] 21.87VDC, 10.06W

[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	1743
Downward Total Efficiency	N.A. (absolute)
Total Luminaire Efficiency	N.A. (absolute)
Luminaire Efficacy Rating (LER)	173
Total Luminaire Watts	10.06
Ballast Factor	1.00
Upward Waste Light Ratio	0.00
Maximum Candela	869.75
Maximum Candela Angle	70H 52.5V
Maximum Candela (<90 Degrees Vertical)	869.75
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	36.88 (2.1% Luminaire Lumens)
Cutoff Classification (deprecated)	N.A. (absolute)

IES ROAD REPORT
PHOTOMETRIC FILENAME : L062014307.IES

LUMINAIRE CLASSIFICATION SYSTEM (LCS)

	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	234.8	N.A.	13.5
FM - Front-Medium (30-60)	657.2	N.A.	37.7
FH - Front-High (60-80)	191.0	N.A.	11.0
FVH - Front-Very High (80-90)	5.1	N.A.	0.3
BL - Back-Low (0-30)	177.1	N.A.	10.2
BM - Back-Medium (30-60)	357.9	N.A.	20.5
BH - Back-High (60-80)	113.8	N.A.	6.5
BVH - Back-Very High (80-90)	5.5	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	1742.4	N.A.	100.0
BUG Rating	B1-U0-G1		

ZONAL LUMEN SUMMARY

Zone	%
0-20	10.6
0-30	23.6
0-40	41.4
0-60	81.9
0-80	99.4
0-90	100
10-90	97.3
20-40	30.9
20-50	51.5
40-70	54
60-80	17.5
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 : L062014307.IES

CANDELA TABULATION

Vert. Angles	Horizontal Angles									
	<u>0</u>	<u>5</u>	<u>10</u>	<u>15</u>	<u>20</u>	<u>25</u>	<u>30</u>	<u>35</u>	<u>40</u>	<u>45</u>
0.0	488.67	488.67	488.67	488.67	488.67	488.67	488.67	488.67	488.67	488.67
5.0	521.50	520.63	519.15	517.41	517.28	518.42	517.95	517.34	514.26	512.11
10.0	536.92	536.65	535.11	533.17	531.22	532.50	531.83	530.89	528.01	524.72
15.0	550.87	550.33	549.86	548.19	546.24	546.31	546.18	544.03	541.62	538.13
20.0	566.83	566.49	566.49	566.49	564.28	564.21	563.74	560.26	559.18	556.70
25.0	592.57	592.37	593.78	594.99	595.66	594.38	590.43	587.54	587.07	585.13
30.0	592.57	593.51	596.60	602.16	608.60	614.43	618.12	622.27	627.04	629.45
35.0	554.09	556.03	560.99	570.38	584.53	600.75	620.13	638.23	658.28	674.37
37.5	525.26	525.93	531.69	541.95	558.11	579.77	604.71	631.59	657.54	682.48
40.0	488.11	491.06	496.22	506.88	524.85	547.05	572.99	608.19	648.69	681.48
42.5	448.55	450.63	457.60	468.33	487.24	509.16	537.53	571.85	620.53	670.55
45.0	406.31	409.40	417.51	431.99	449.89	471.15	498.10	535.92	589.89	650.50
47.5	362.73	364.81	374.33	388.88	406.85	430.72	458.88	496.83	549.26	615.17
50.0	320.89	322.97	331.42	346.97	363.94	389.89	423.61	467.73	517.21	576.48
52.5	275.43	277.85	286.63	300.85	318.14	344.63	381.44	432.53	493.34	547.92
55.0	225.15	226.96	233.46	246.67	265.11	293.27	334.10	388.48	448.96	512.18
57.5	181.43	182.17	184.79	192.23	208.05	235.27	278.25	338.59	408.66	471.62
60.0	148.85	148.71	149.92	153.34	161.65	178.08	213.88	270.61	343.62	417.58
62.5	121.63	121.96	122.77	124.17	127.66	137.52	160.65	199.80	259.21	331.29
65.0	97.49	97.82	99.23	100.77	103.59	110.03	122.70	146.43	185.05	247.94
67.5	74.96	75.43	76.97	79.39	82.81	88.17	96.68	110.63	133.49	170.30
70.0	55.65	56.72	59.41	61.55	63.76	67.25	75.36	87.63	106.00	127.79
72.5	41.97	42.37	44.05	47.40	50.15	52.97	57.13	65.51	78.92	97.02
75.0	33.52	33.79	34.53	36.61	39.56	42.17	44.65	49.62	57.86	68.52
77.5	26.28	26.55	26.28	27.02	29.77	32.72	35.00	37.55	39.16	39.29
80.0	18.77	18.98	18.37	18.64	20.99	23.53	24.27	23.94	24.27	23.40
85.0	2.41	2.41	2.48	2.55	2.75	2.88	3.55	3.96	4.43	5.03
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>50</u>	<u>55</u>	<u>60</u>	<u>65</u>	<u>70</u>	<u>75</u>	<u>80</u>	<u>85</u>	<u>90</u>	<u>95</u>
0.0	488.67	488.67	488.67	488.67	488.67	488.67	488.67	488.67	488.67	488.67
5.0	511.71	509.10	507.76	505.14	500.31	496.09	494.01	491.53	489.99	485.63
10.0	522.10	519.76	518.22	515.67	510.10	505.21	500.52	494.82	491.40	484.62
15.0	534.17	531.76	530.28	526.73	519.96	513.99	506.82	499.91	492.60	483.89
20.0	553.08	552.68	550.80	546.04	540.07	531.63	521.50	511.85	497.70	488.31
25.0	581.84	583.12	581.31	579.30	573.06	566.96	556.70	542.62	523.24	508.36
30.0	628.78	631.39	628.85	623.35	610.14	597.47	581.84	562.40	540.14	516.41
35.0	684.83	687.04	678.53	665.79	649.56	627.64	602.56	576.95	545.24	515.20
37.5	705.62	715.61	713.33	701.66	681.55	654.93	624.22	594.52	559.12	524.92
40.0	719.29	741.82	749.93	743.10	717.01	686.78	649.43	613.49	572.59	531.49
42.5	721.91	763.41	782.52	783.32	761.27	722.71	679.00	632.67	582.58	537.12
45.0	710.18	770.12	802.90	815.57	800.36	757.98	706.96	651.04	597.94	549.06
47.5	687.71	767.90	812.89	836.70	835.89	792.11	727.21	662.17	600.95	549.53
50.0	644.74	736.32	807.60	845.21	860.03	822.75	749.26	675.18	607.93	551.81
52.5	607.86	687.51	779.03	841.52	869.75	847.62	760.66	685.84	606.92	551.40
55.0	568.70	640.78	738.74	822.41	861.44	855.67	765.69	667.47	596.06	542.55
57.5	528.14	587.01	681.08	781.98	842.53	835.69	758.32	656.54	584.93	530.42
60.0	483.82	539.14	612.49	730.69	808.53	802.37	727.00	627.77	554.49	510.17
62.5	412.48	480.40	544.83	646.41	740.75	741.69	683.15	571.32	509.10	474.90
65.0	322.37	392.77	448.96	537.26	631.73	651.17	603.77	509.10	450.90	421.80
67.5	234.20	297.69	343.76	403.23	481.67	519.76	490.46	415.03	368.70	345.70

IES ROAD REPORT
PHOTOMETRIC FILENAME : L062014307.IES

CANDELA TABULATION - (Cont.)

70.0	162.12	206.11	236.75	277.31	336.92	359.45	338.06	292.20	253.78	241.31
72.5	120.82	144.56	154.88	164.20	187.94	189.61	169.97	140.40	122.10	128.13
75.0	79.79	84.68	83.14	85.69	90.98	85.08	71.61	63.43	65.17	71.81
77.5	42.24	47.60	52.70	55.45	57.06	49.88	45.19	44.79	48.61	51.96
80.0	24.34	28.50	33.73	36.88	35.94	33.99	31.04	30.71	32.12	32.92
85.0	5.83	6.57	7.44	8.18	8.85	8.98	8.85	8.72	8.52	8.45
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	488.67	488.67	488.67	488.67	488.67	488.67	488.67	488.67	488.67	488.67
5.0	481.61	477.92	476.31	473.16	470.08	469.94	468.20	465.05	462.77	460.09
10.0	479.06	473.49	469.34	463.57	458.95	455.46	452.98	447.55	443.26	440.71
15.0	476.58	469.14	462.63	453.31	447.21	439.03	433.20	426.43	421.87	418.65
20.0	477.45	468.40	456.46	444.53	433.53	422.27	414.16	405.04	398.20	394.91
25.0	491.13	475.71	458.41	440.91	423.48	406.65	396.05	384.19	374.73	368.30
30.0	494.28	475.24	450.97	429.31	408.93	389.01	372.65	360.45	350.06	341.88
35.0	488.11	464.24	437.22	411.88	386.73	363.13	345.77	333.70	324.51	317.81
37.5	494.35	467.26	437.83	406.38	378.76	353.61	334.84	320.69	311.24	303.73
40.0	497.43	468.47	438.56	405.24	373.46	344.70	321.97	306.81	297.56	287.24
42.5	505.01	472.69	439.90	401.62	363.94	331.69	308.82	292.80	279.93	264.77
45.0	510.17	472.15	437.15	397.40	355.42	320.36	294.68	273.09	255.25	242.98
47.5	512.99	476.18	438.09	389.95	344.09	302.66	272.75	249.35	233.53	219.58
50.0	512.38	474.30	432.13	378.82	324.11	282.14	250.29	227.03	209.19	197.66
52.5	505.88	468.67	422.00	367.02	311.04	257.80	225.15	200.14	187.87	179.42
55.0	500.05	458.61	406.31	341.48	277.24	228.90	197.86	181.10	170.37	162.19
57.5	490.19	440.24	382.51	316.33	252.64	203.76	177.14	162.19	151.33	144.49
60.0	465.38	413.42	354.15	282.68	220.72	177.07	156.56	144.36	134.83	128.53
62.5	431.99	377.28	315.13	249.55	187.13	156.89	139.19	128.06	119.61	113.51
65.0	380.57	325.79	262.56	202.15	164.27	138.19	121.36	110.70	104.26	99.30
67.5	319.22	268.73	214.22	169.90	137.85	116.73	103.32	95.75	89.85	85.15
70.0	228.97	198.46	163.73	135.77	114.25	97.62	86.56	79.59	74.56	69.66
72.5	137.45	121.16	104.46	91.25	82.34	74.69	68.39	62.29	56.46	52.43
75.0	77.98	69.66	59.87	50.76	48.88	47.94	45.26	43.92	42.91	41.24
77.5	54.71	49.21	41.37	35.20	30.51	26.48	25.95	28.03	29.70	30.57
80.0	32.92	31.11	28.03	24.34	20.58	18.77	18.37	19.18	20.58	20.65
85.0	8.52	8.31	8.05	8.05	7.78	7.71	7.64	7.58	7.64	7.91
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**

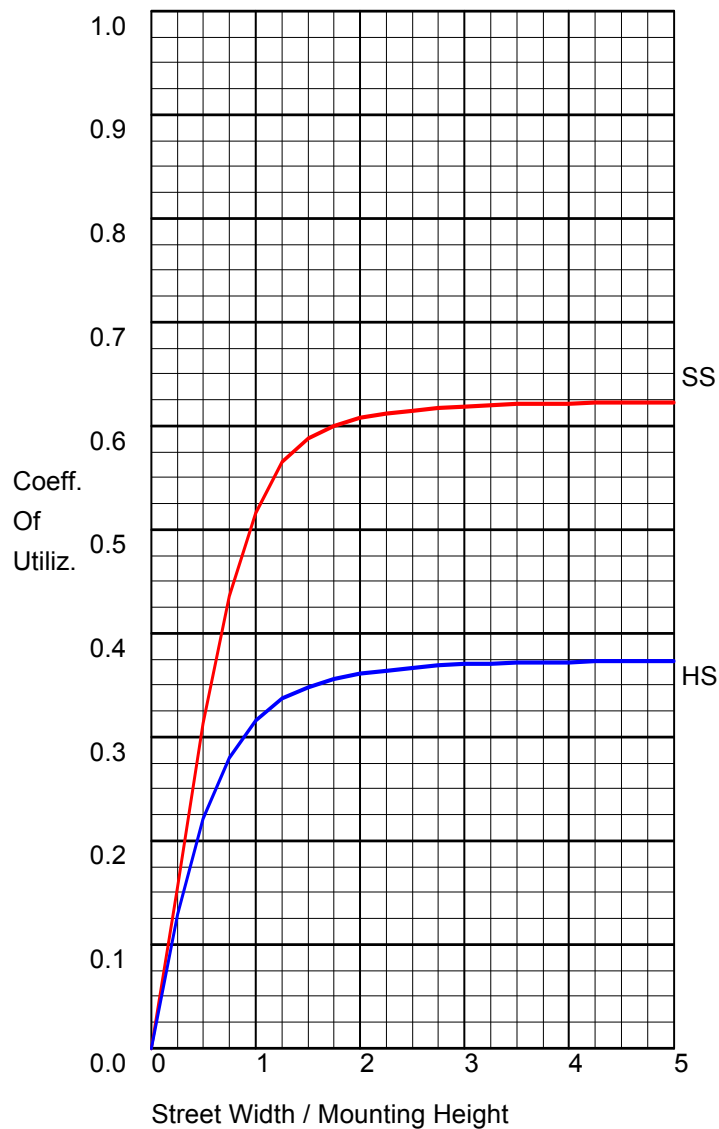
	<u>150</u>	<u>155</u>	<u>160</u>	<u>165</u>	<u>170</u>	<u>175</u>	<u>180</u>
0.0	488.67	488.67	488.67	488.67	488.67	488.67	488.67
5.0	460.29	460.89	460.09	458.01	455.53	453.05	452.58
10.0	437.83	437.02	433.94	431.39	429.78	427.57	426.83
15.0	414.22	411.61	408.86	405.71	404.37	403.90	403.36
20.0	390.42	385.80	382.91	379.76	378.96	378.89	378.82
25.0	362.53	358.17	354.42	352.54	352.20	352.61	353.21
30.0	336.31	333.30	330.68	329.34	329.07	329.68	329.74
35.0	311.71	307.89	306.01	304.13	301.32	300.51	299.84
37.5	295.75	289.78	285.22	282.14	279.32	277.24	276.51
40.0	275.64	267.32	262.49	260.75	259.34	257.67	257.20
42.5	253.51	246.27	241.11	238.16	236.81	235.88	236.01
45.0	231.65	223.47	219.05	216.70	216.90	217.37	217.64
47.5	209.39	203.89	201.08	199.33	198.80	199.00	199.27

IES ROAD REPORT
PHOTOMETRIC FILENAME : L062014307.IES

CANDELA TABULATION - (Cont.)

50.0	190.75	185.93	183.31	181.23	179.76	179.76	180.09
52.5	173.12	168.16	164.94	162.59	161.32	160.51	159.58
55.0	155.82	151.26	147.77	145.16	143.68	142.88	142.41
57.5	138.86	134.43	131.75	129.81	128.40	127.39	127.26
60.0	123.64	120.08	117.67	116.46	115.39	114.18	113.98
62.5	109.56	106.41	104.73	103.52	102.38	101.71	101.38
65.0	96.08	93.47	91.66	90.18	88.97	87.50	87.03
67.5	81.80	78.72	76.17	72.95	68.99	64.77	63.16
70.0	64.97	59.81	56.72	51.90	44.52	40.16	39.83
72.5	49.75	47.27	43.65	38.29	35.47	34.80	34.60
75.0	40.03	38.22	34.46	31.31	30.31	30.51	30.57
77.5	30.84	29.70	27.49	25.81	26.08	26.35	26.42
80.0	21.66	21.99	21.32	20.99	21.46	21.66	21.32
85.0	7.98	7.91	8.25	9.05	10.06	10.80	10.73
90.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00

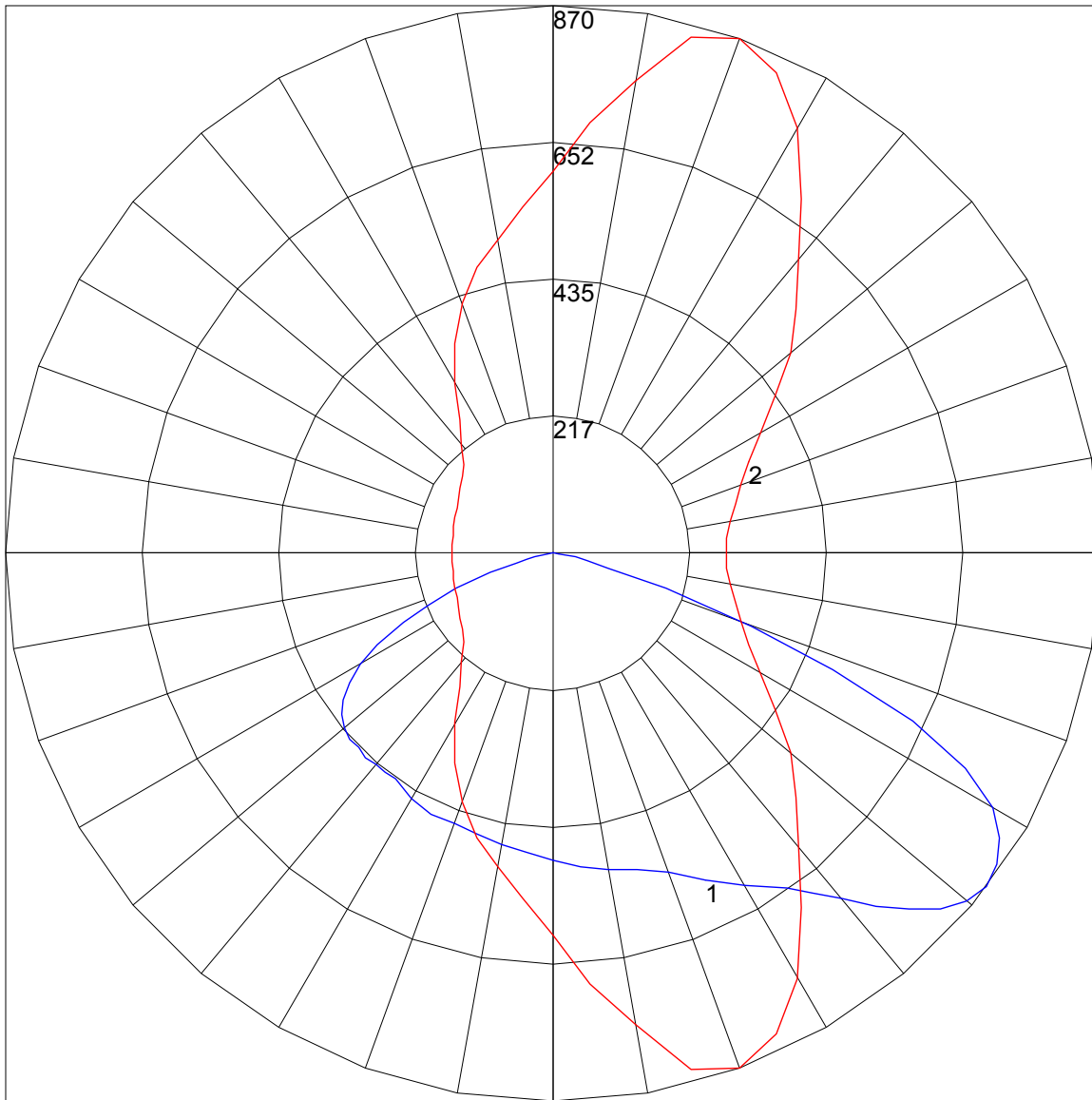
COEFFICIENTS OF UTILIZATION



FLUX DISTRIBUTION

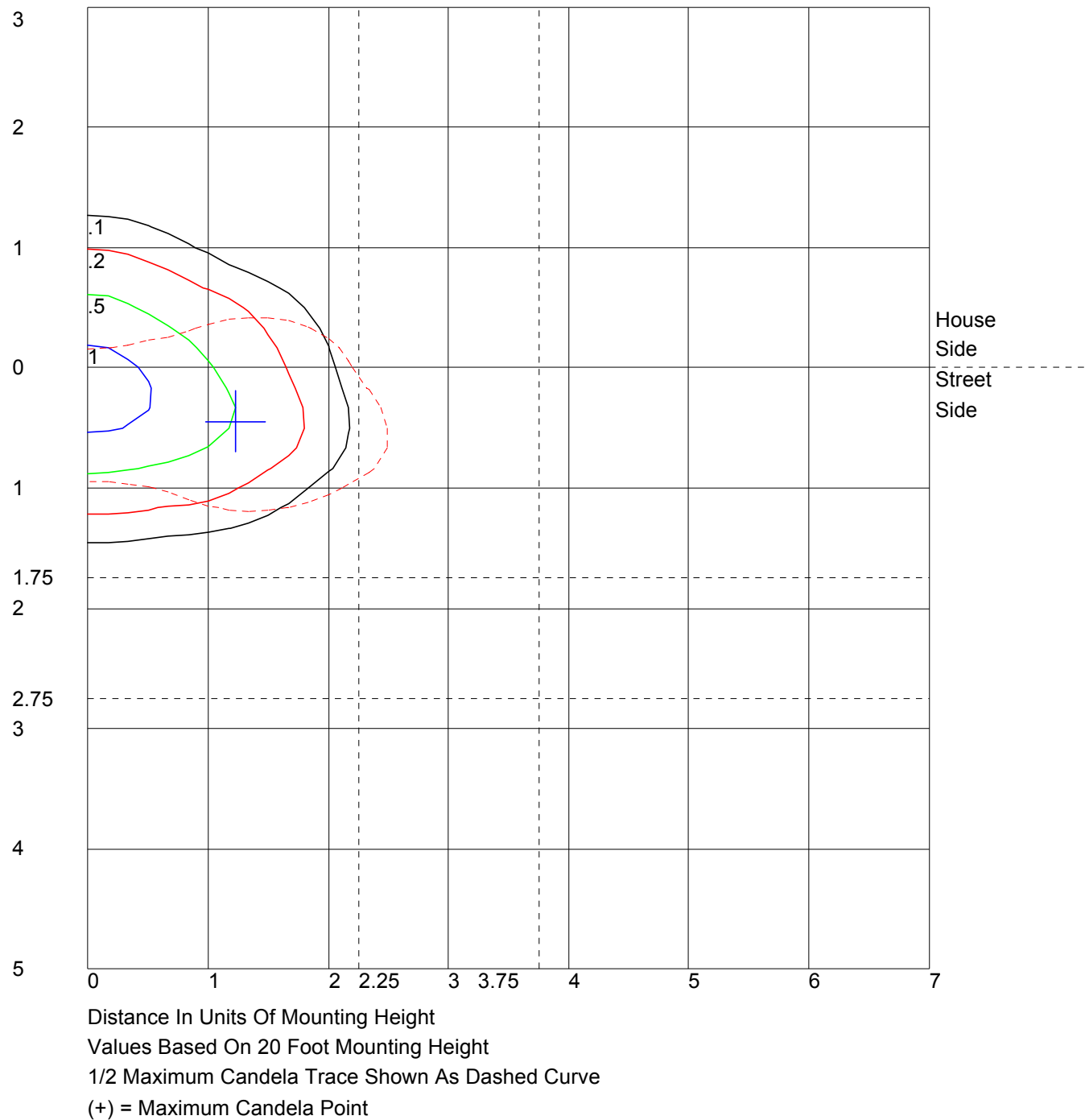
	Lumens	Percent Of Luminaire
Downward Street Side	1088.2	62.4
Downward House Side	654.4	37.6
Downward Total	1742.6	100.0
Upward Street Side	0.0	0.0
Upward House Side	0.0	0.0
Upward Total	0.0	0.0
Total Flux	1742.6	100.0

POLAR GRAPH

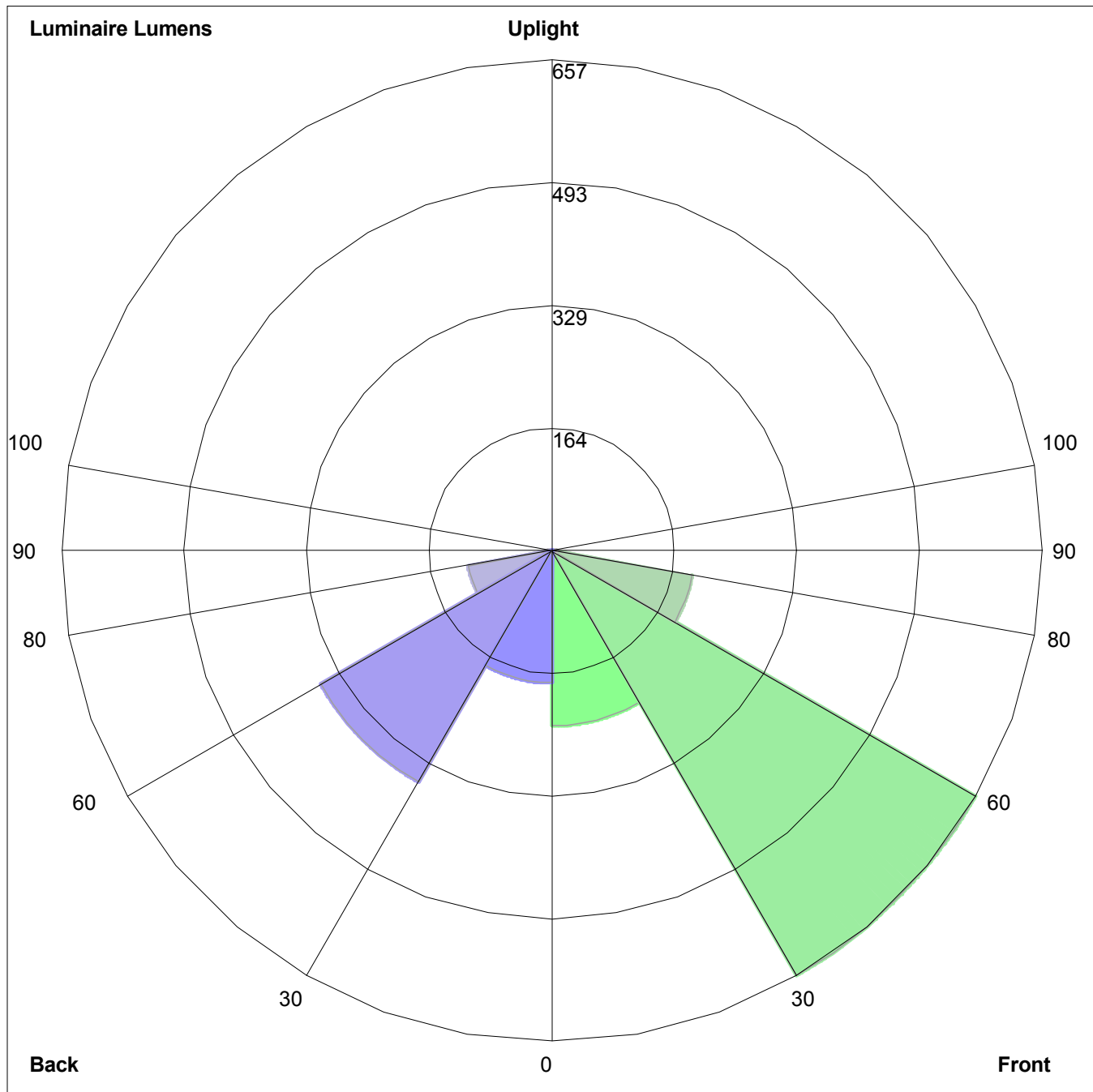


Maximum Candela = 869.75 Located At Horizontal Angle = 70, Vertical Angle = 52.5
1 - Vertical Plane Through Horizontal Angles (70 - 250) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (52.5) (Through Max. Cd.)

ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINANCE



LUMINAIRE CLASSIFICATION SYSTEM (LCS) GRAPH



Luminaire Lumens:
Front: Low=234.8, Medium=657.2, High=191.0, Very High=5.1
Back: Low=177.1, Medium=357.9, High=113.8, Very High=5.5
Uplight: Low=0.0, High=0.0

BUG Rating : B1-U0-G1