



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

Report No: L062014301



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Issue Date: 7/24/2020

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

Model Number: RS10-T2/10W/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-T2/10W/4000K
Driver Model Number:	N/A

Test Summary

Total Lumens:	1782.90
Efficacy:	177.23
Color Redering Index:	71.9
Correlated Color Temperature:	3823
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

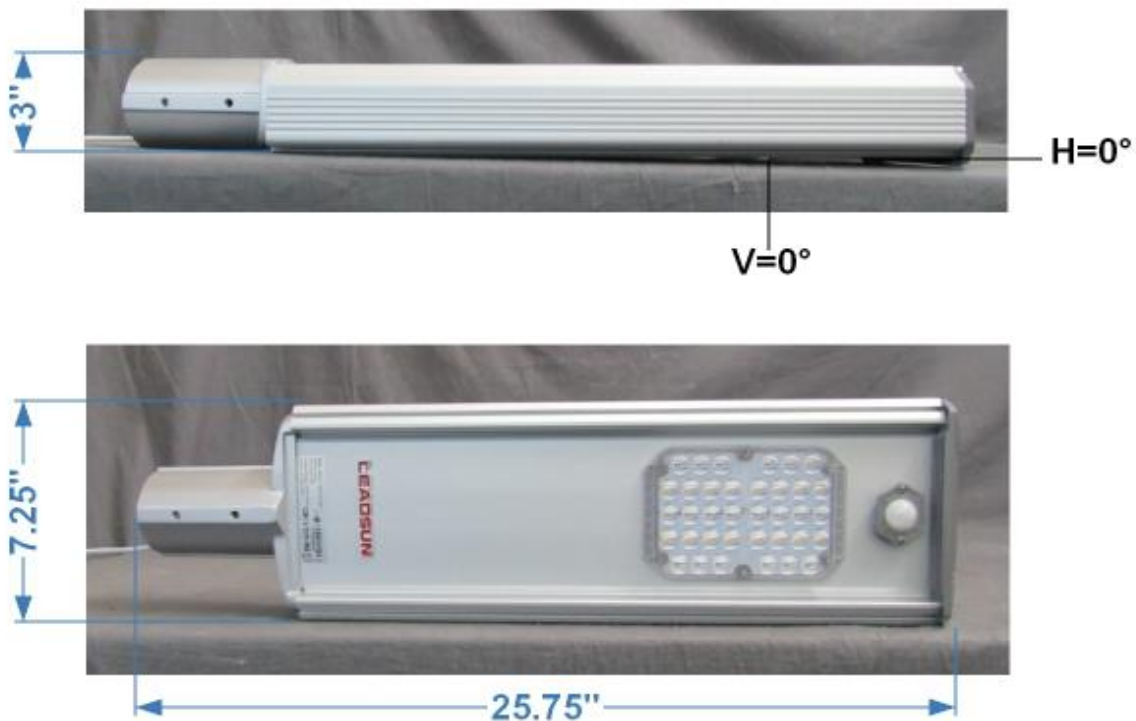
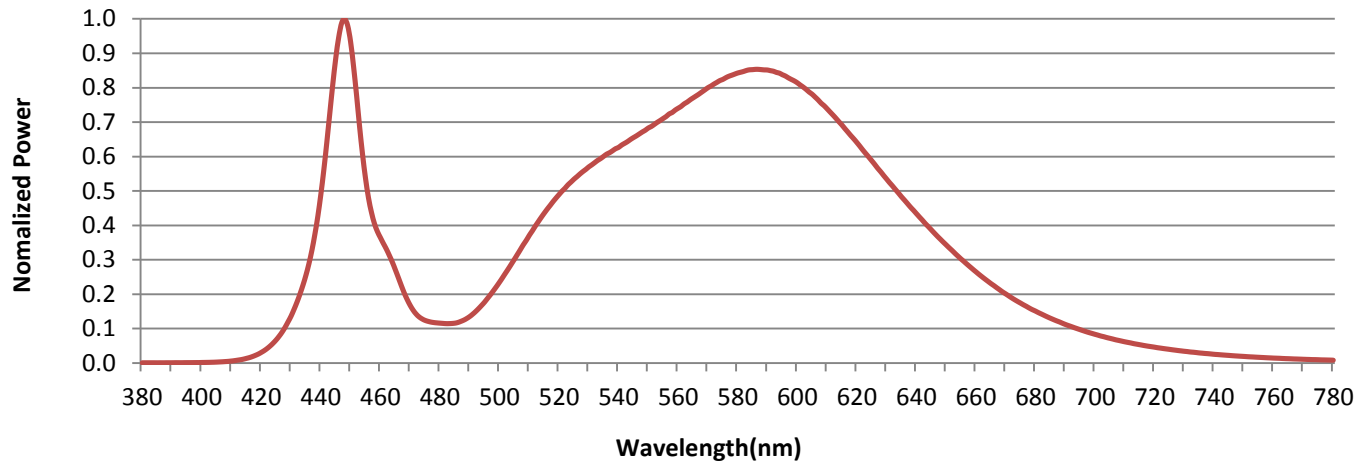


FIG. 1 LUMINAIRE

Colorimetry Test Results

Spectral Power Distribution



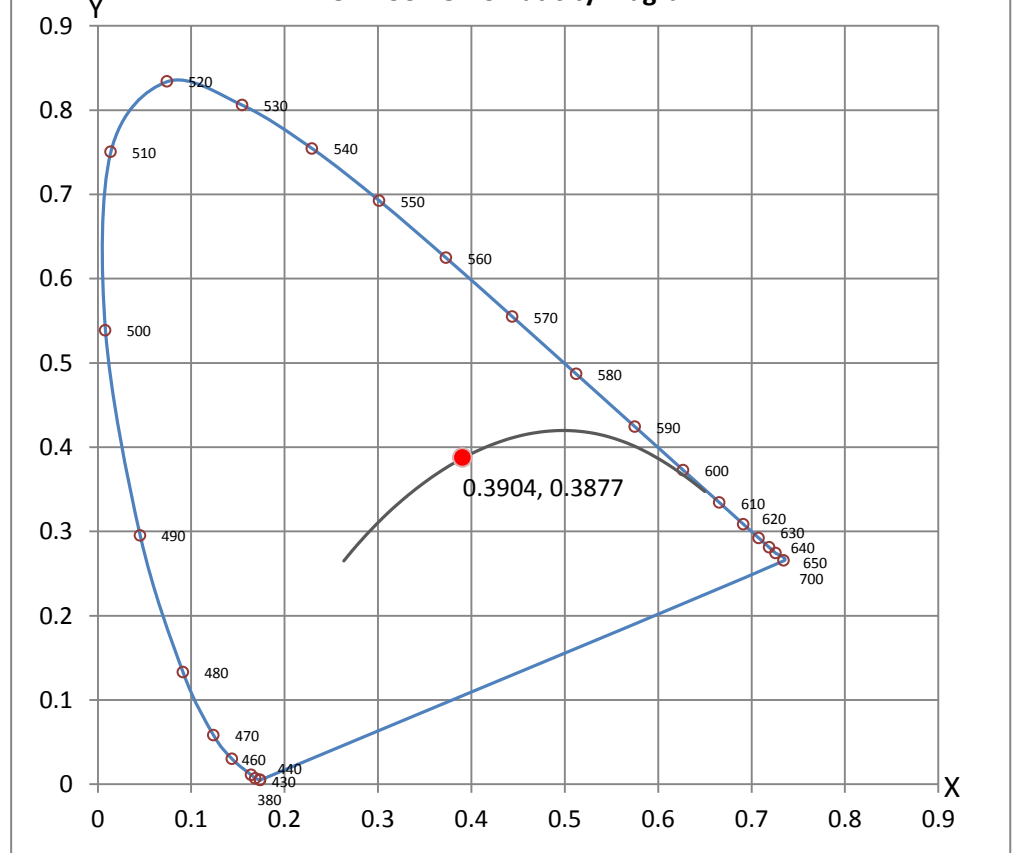
CRI & CCT

x	0.3904
y	0.3877
u'	0.2273
v'	0.5078
CRI	71.90
CCT	3823
Duv	0.00227

R Values

R1	68.37
R2	78.93
R3	87.73
R4	70.82
R5	68.00
R6	70.36
R7	80.73
R8	50.00
R9	-33.37
R10	50.57
R11	66.39
R12	41.79
R13	70.06
R14	92.79
R15	61.50

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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Photometric Test Report

IES ROAD REPORT

PHOTOMETRIC FILENAME : L062014301.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L062014301
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 7/24/2020
[MANUFAC] Leadsun Inc
[LUMCAT] RS10-T2/10W/4000K
[LUMINAIRE] 10W 4000K luminaire with 16 chips and T2 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	1783
Downward Total Efficiency	N.A. (absolute)
Total Luminaire Efficiency	N.A. (absolute)
Luminaire Efficacy Rating (LER)	177
Total Luminaire Watts	10.06
Ballast Factor	1.00
Upward Waste Light Ratio	0.00
Maximum Candela	1227
Maximum Candela Angle	75H 60V
Maximum Candela (<90 Degrees Vertical)	1227
Maximum Candela Angle (<90 Degrees Vertical)	75H 60V
Maximum Candela At 90 Degrees Vertical	0 (0.0% Luminaire Lumens)
Maximum Candela from 80 to <90 Degrees Vertical	71 (4.0% Luminaire Lumens)
Cutoff Classification (deprecated)	N.A. (absolute)

IES ROAD REPORT
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LUMINAIRE CLASSIFICATION SYSTEM (LCS)

	Lumens	% Lamp	% Luminaire
FL - Front-Low (0-30)	252.6	N.A.	14.2
FM - Front-Medium (30-60)	682.2	N.A.	38.3
FH - Front-High (60-80)	207.1	N.A.	11.6
FVH - Front-Very High (80-90)	5.0	N.A.	0.3
BL - Back-Low (0-30)	166.0	N.A.	9.3
BM - Back-Medium (30-60)	335.4	N.A.	18.8
BH - Back-High (60-80)	129.6	N.A.	7.3
BVH - Back-Very High (80-90)	4.9	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	1782.8	N.A.	100.0
BUG Rating	B1-U0-G1		

ZONAL LUMEN SUMMARY

Zone	%
0-20	10.6
0-30	23.5
0-40	40.8
0-60	80.6
0-80	99.4
0-90	100
10-90	97.3
20-40	30.2
20-50	50
40-70	54.7
60-80	18.9
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
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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	516	516	516	516	516	516	516	516	516	516
5.0	558	557	555	553	552	553	551	549	546	542
10.0	583	582	580	577	575	574	572	569	564	559
15.0	604	603	602	600	596	595	592	588	583	578
20.0	625	624	623	621	617	614	611	608	606	603
25.0	666	665	665	663	659	654	647	643	640	635
30.0	655	656	662	669	676	682	687	692	695	691
35.0	557	559	568	583	603	629	659	693	722	745
37.5	505	507	515	531	553	582	616	660	707	754
40.0	450	453	464	482	507	536	571	615	676	742
42.5	364	368	381	405	440	485	528	576	632	703
45.0	269	272	283	307	342	397	464	539	605	673
47.5	207	209	214	225	243	282	350	456	566	651
50.0	170	171	175	180	188	205	246	335	461	615
52.5	138	139	141	145	151	160	177	229	357	545
55.0	94	97	104	113	120	127	138	163	231	401
57.5	53	55	61	72	88	99	108	123	155	268
60.0	41	41	41	44	55	69	81	96	118	189
62.5	38	38	38	38	38	48	59	71	85	112
65.0	34	34	34	34	34	36	43	51	62	80
67.5	30	30	31	31	31	32	34	38	43	53
70.0	26	26	27	28	28	28	30	32	33	36
72.5	27	25	24	24	24	25	26	27	28	28
75.0	29	24	21	20	20	21	22	24	24	24
77.5	22	19	16	15	15	17	19	20	20	21
80.0	14	13	12	11	11	13	14	15	16	17
85.0	2	2	2	2	2	3	3	3	4	3
90.0	0	0	0	0	0	0	0	0	0	0

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	516	516	516	516	516	516	516	516	516	516
5.0	540	536	534	531	526	522	520	516	514	510
10.0	555	551	547	542	536	531	526	520	515	508
15.0	572	567	564	558	551	544	536	526	516	505
20.0	596	592	588	579	571	561	550	538	521	508
25.0	628	626	618	609	598	587	574	556	535	515
30.0	680	673	662	652	638	627	610	586	557	532
35.0	758	758	736	713	693	676	653	628	595	556
37.5	791	804	790	758	730	707	679	650	612	574
40.0	804	843	847	817	774	740	709	679	636	593
42.5	789	862	901	886	832	784	746	711	664	609
45.0	761	861	939	956	917	844	788	745	694	635
47.5	730	833	953	1020	996	908	831	778	727	663
50.0	719	809	939	1058	1082	1008	885	815	746	682
52.5	704	798	908	1064	1150	1093	962	852	774	699
55.0	631	790	887	1035	1185	1166	1027	873	790	712
57.5	510	768	885	997	1163	1219	1088	895	791	716
60.0	397	688	864	952	1098	1227	1124	935	795	716
62.5	252	537	804	901	1001	1152	1120	920	758	689
65.0	181	384	650	779	845	963	989	835	685	633
67.5	108	228	432	602	653	715	758	677	576	527

IES ROAD REPORT
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CANDELA TABULATION - (Cont.)

70.0	50	100	215	369	443	477	521	485	426	401
72.5	33	46	87	170	245	282	315	320	270	260
75.0	25	31	41	64	104	145	159	140	121	126
77.5	20	23	28	37	58	82	83	66	66	74
80.0	15	17	22	32	57	71	58	40	41	47
85.0	4	5	9	14	12	9	8	8	8	7
90.0	0	0	0	0	0	0	0	0	0	0

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	516	516	516	516	516	516	516	516	516	516
5.0	505	501	498	494	489	488	484	480	476	472
10.0	500	492	485	477	469	462	457	448	441	436
15.0	495	484	473	459	446	433	423	411	401	393
20.0	493	477	460	440	422	403	388	370	357	347
25.0	495	472	447	422	395	369	351	330	314	304
30.0	504	475	440	403	366	335	312	294	281	271
35.0	518	474	428	382	340	306	281	262	251	243
37.5	531	483	428	373	327	291	266	249	238	230
40.0	539	485	427	368	318	278	252	236	226	217
42.5	555	493	422	358	304	265	238	225	214	203
45.0	572	501	427	351	292	249	226	212	199	188
47.5	590	504	421	343	280	240	216	197	183	175
50.0	608	520	422	335	268	227	200	182	170	162
52.5	619	526	426	332	259	210	185	168	157	152
55.0	628	523	417	317	242	195	173	157	148	145
57.5	632	537	412	312	229	181	159	147	140	137
60.0	633	526	407	299	216	169	148	139	131	125
62.5	611	512	393	286	201	157	140	131	123	105
65.0	572	481	364	267	186	146	128	118	106	80
67.5	484	400	302	225	167	130	113	103	87	57
70.0	358	290	218	168	126	97	89	83	67	41
72.5	220	186	148	105	73	65	58	56	45	29
75.0	130	122	87	47	44	45	32	28	26	22
77.5	81	69	34	21	22	23	20	19	18	18
80.0	44	25	17	15	16	16	15	15	15	15
85.0	7	7	7	7	7	7	7	6	7	7
90.0	0	0	0	0	0	0	0	0	0	0

Vert. Angles **Horizontal Angles**

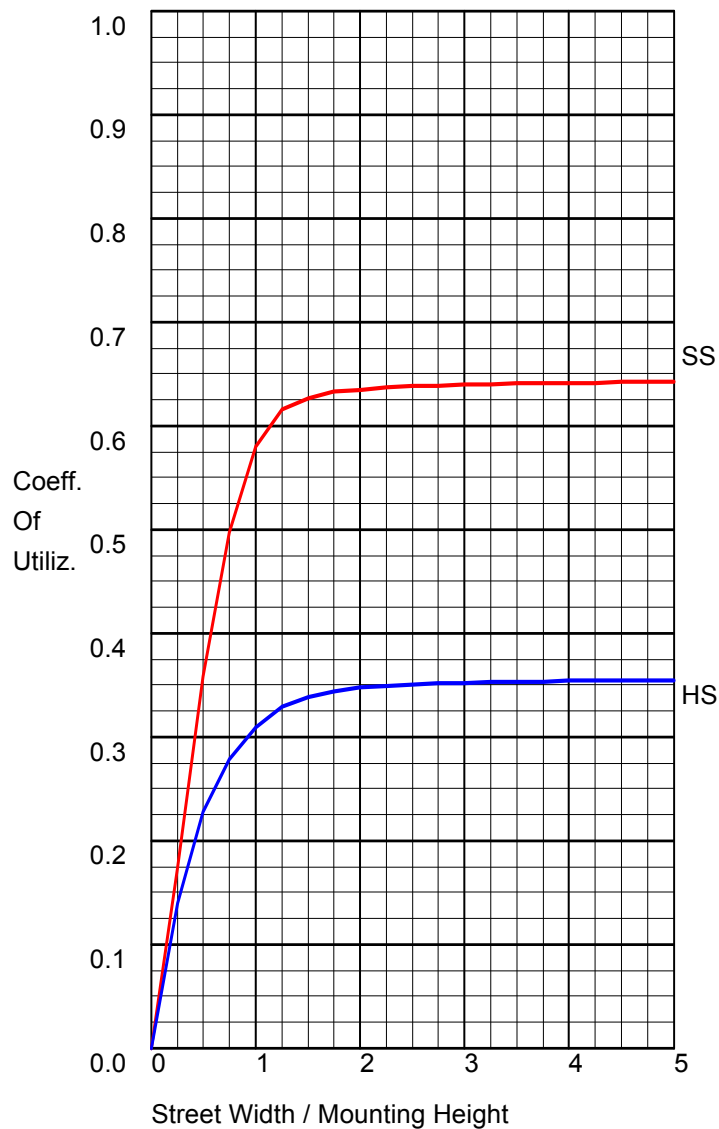
	<u>150</u>	<u>155</u>	<u>160</u>	<u>165</u>	<u>170</u>	<u>175</u>	<u>180</u>
0.0	516	516	516	516	516	516	516
5.0	472	471	469	466	463	460	460
10.0	431	427	422	418	415	412	411
15.0	384	377	370	365	361	360	360
20.0	337	329	322	317	314	313	313
25.0	296	289	284	281	280	279	279
30.0	263	258	254	251	248	247	246
35.0	235	230	226	224	221	220	219
37.5	221	216	213	211	209	207	206
40.0	208	202	198	196	195	194	193
42.5	193	187	185	184	184	184	184
45.0	180	177	175	173	173	173	173
47.5	169	166	164	164	165	165	166

IES ROAD REPORT
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CANDELA TABULATION - (Cont.)

50.0	158	157	158	159	159	158	157
52.5	151	151	149	142	133	125	122
55.0	144	139	124	107	99	95	93
57.5	129	110	91	78	66	60	58
60.0	106	82	62	50	49	48	48
62.5	75	51	43	43	42	42	42
65.0	50	38	38	38	36	35	35
67.5	34	32	33	33	33	33	33
70.0	28	28	29	31	31	32	32
72.5	25	25	26	28	30	32	31
75.0	23	23	24	25	28	31	29
77.5	20	21	21	21	25	25	25
80.0	16	18	18	18	20	20	19
85.0	7	8	9	10	9	9	9
90.0	0	0	0	0	0	0	0

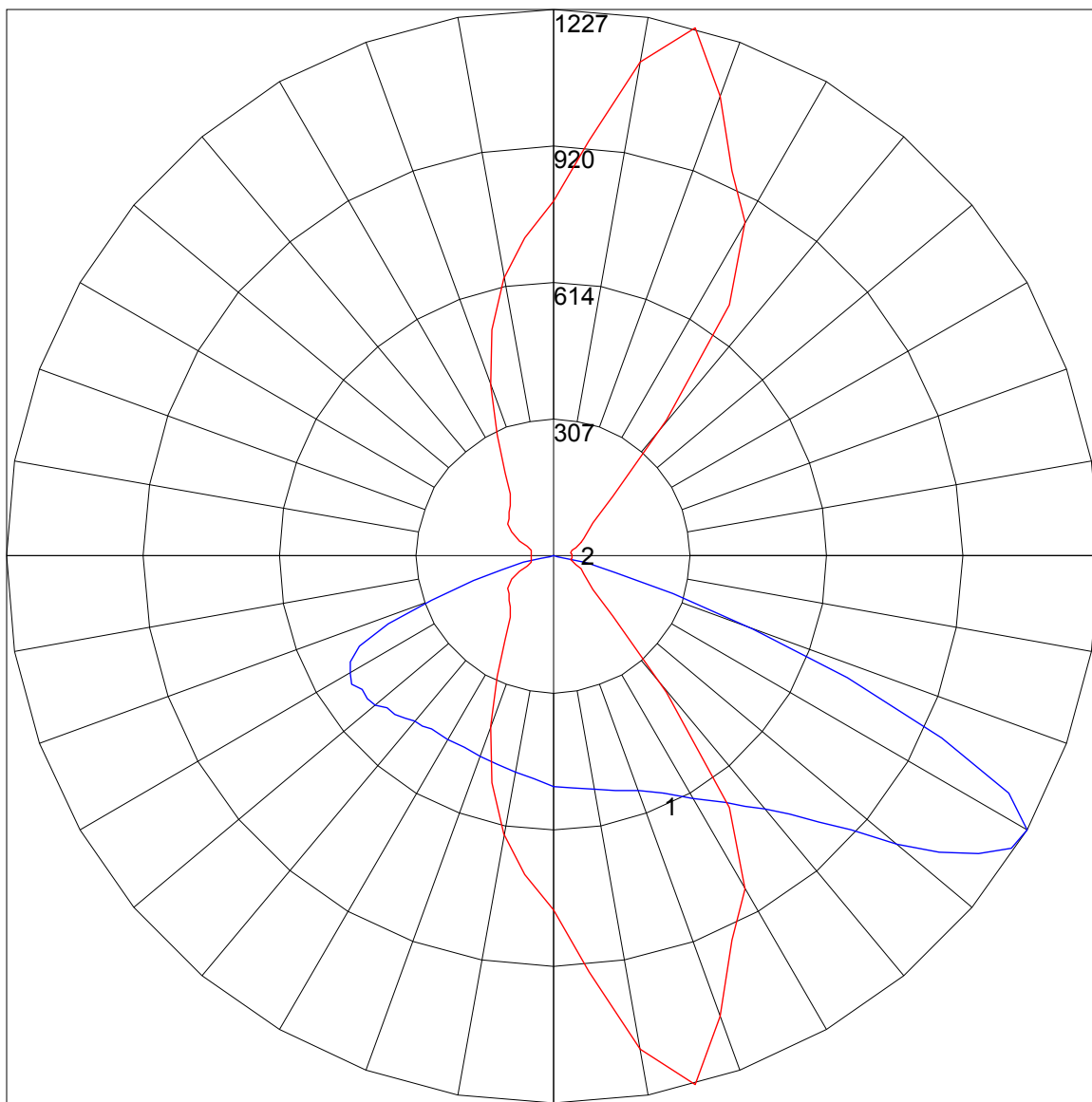
COEFFICIENTS OF UTILIZATION



FLUX DISTRIBUTION

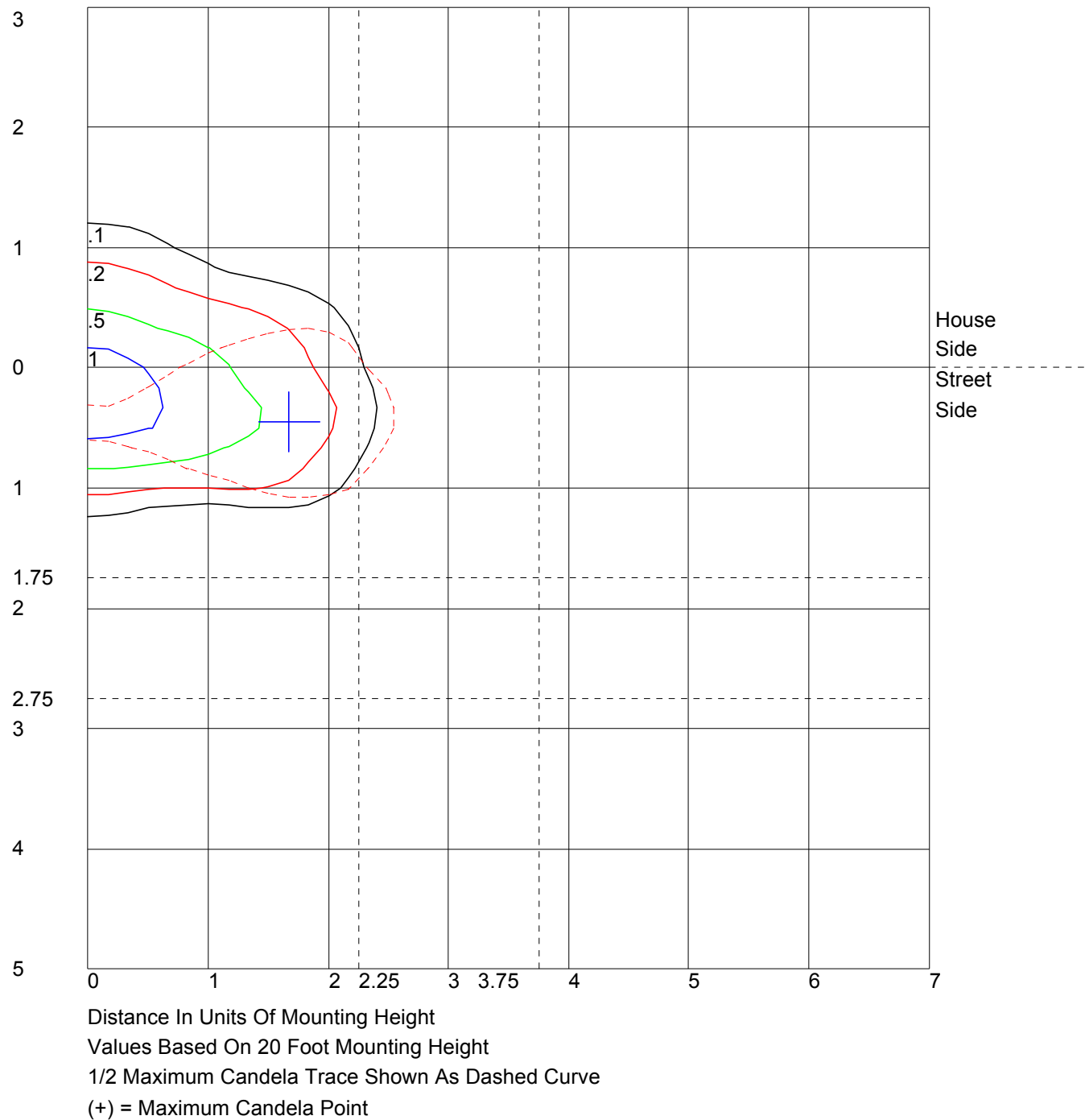
	Lumens	Percent Of Luminaire
Downward Street Side	1146.9	64.3
Downward House Side	636.0	35.7
Downward Total	1782.9	100.0
Upward Street Side	0.0	0.0
Upward House Side	0.0	0.0
Upward Total	0.0	0.0
Total Flux	1782.9	100.0

POLAR GRAPH

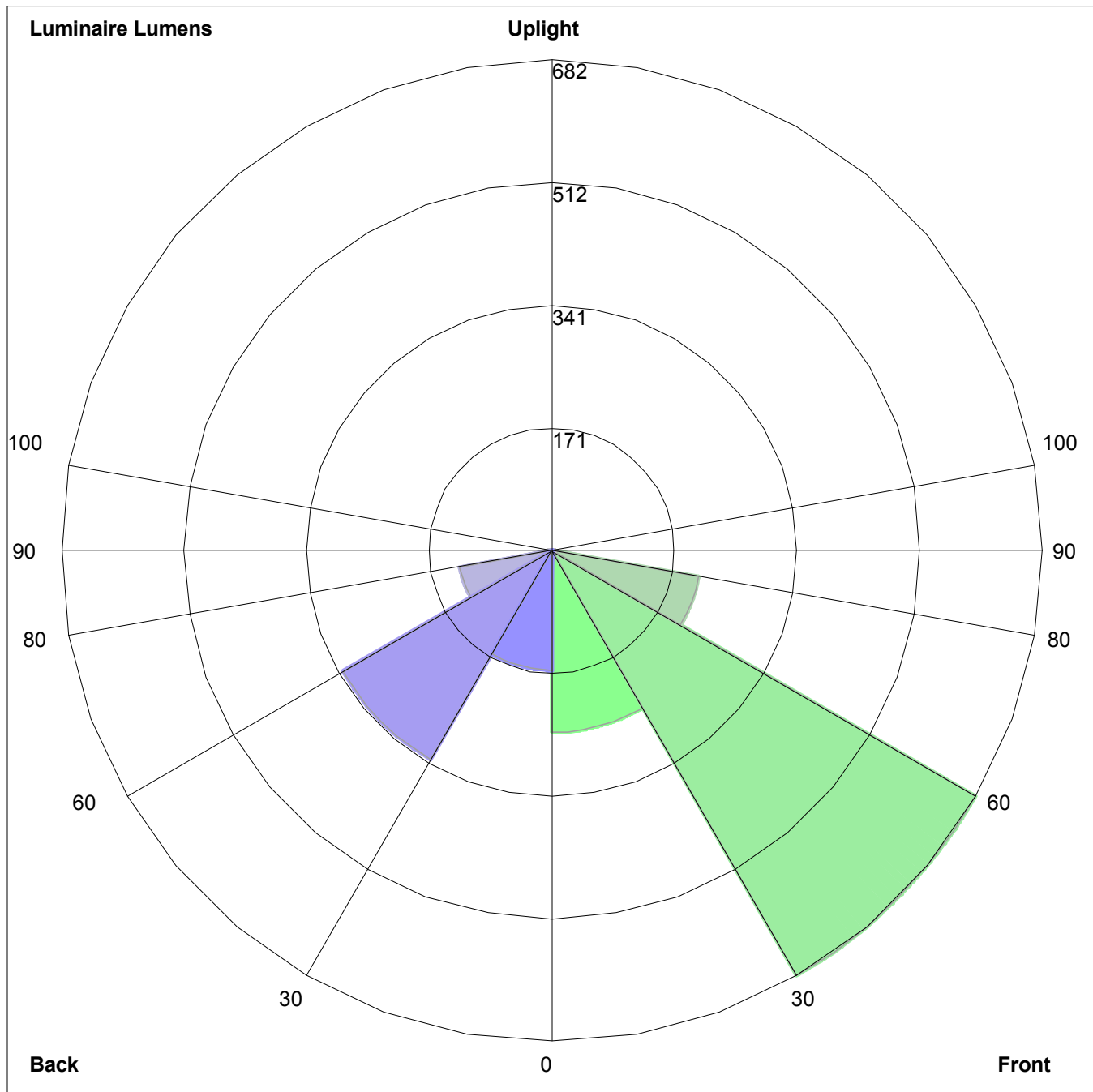


Maximum Candela = 1227 Located At Horizontal Angle = 75, Vertical Angle = 60
1 - Vertical Plane Through Horizontal Angles (75 - 255) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (60) (Through Max. Cd.)

ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINANCE



LUMINAIRE CLASSIFICATION SYSTEM (LCS) GRAPH



Luminaire Lumens:
Front: Low=252.6, Medium=682.2, High=207.1, Very High=5.0
Back: Low=166.0, Medium=335.4, High=129.6, Very High=4.9
Uplight: Low=0.0, High=0.0

BUG Rating : B1-U0-G1