



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

Report No: L062014304



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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/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-T2/10W/5000K
Driver Model Number:	N/A

Test Summary

Total Lumens:	1791.50
Efficacy:	177.64
Color Redering Index:	70.8
Correlated Color Temperature:	4854
Input Voltage (VDC):	21.92
Input Current (Amp):	0.4600
Input Power (W):	10.09
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

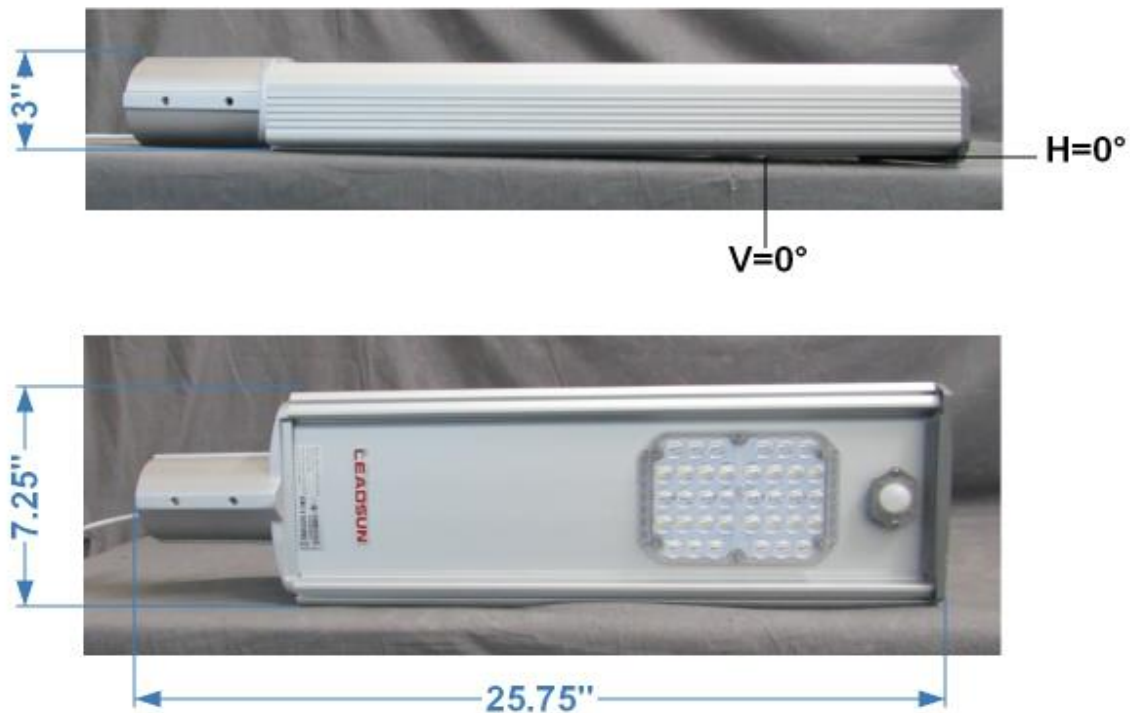
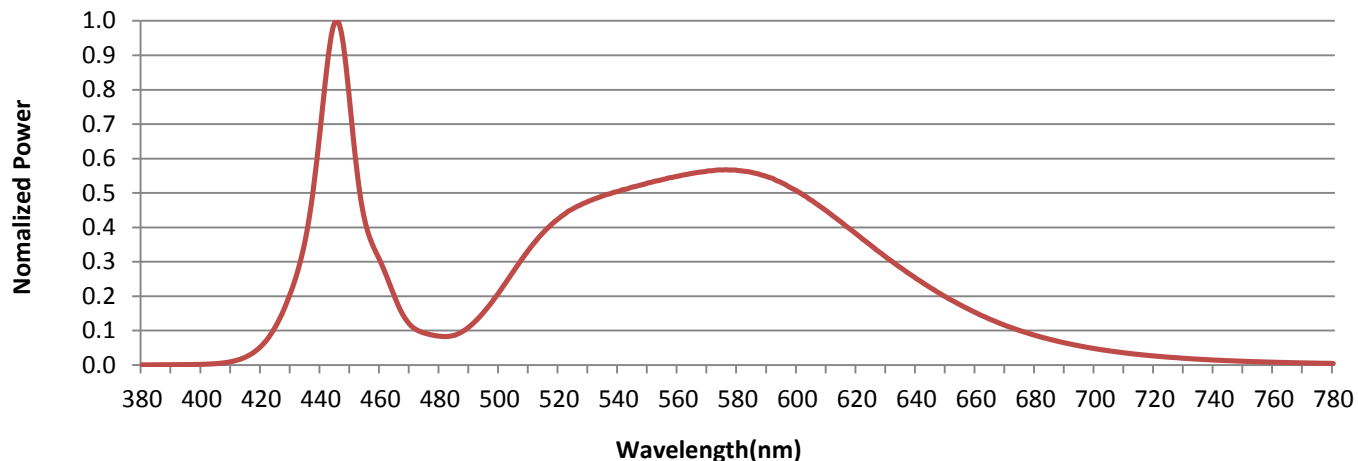


FIG. 1 LUMINAIRE

Colorimetry Test Results

Spectral Power Distribution



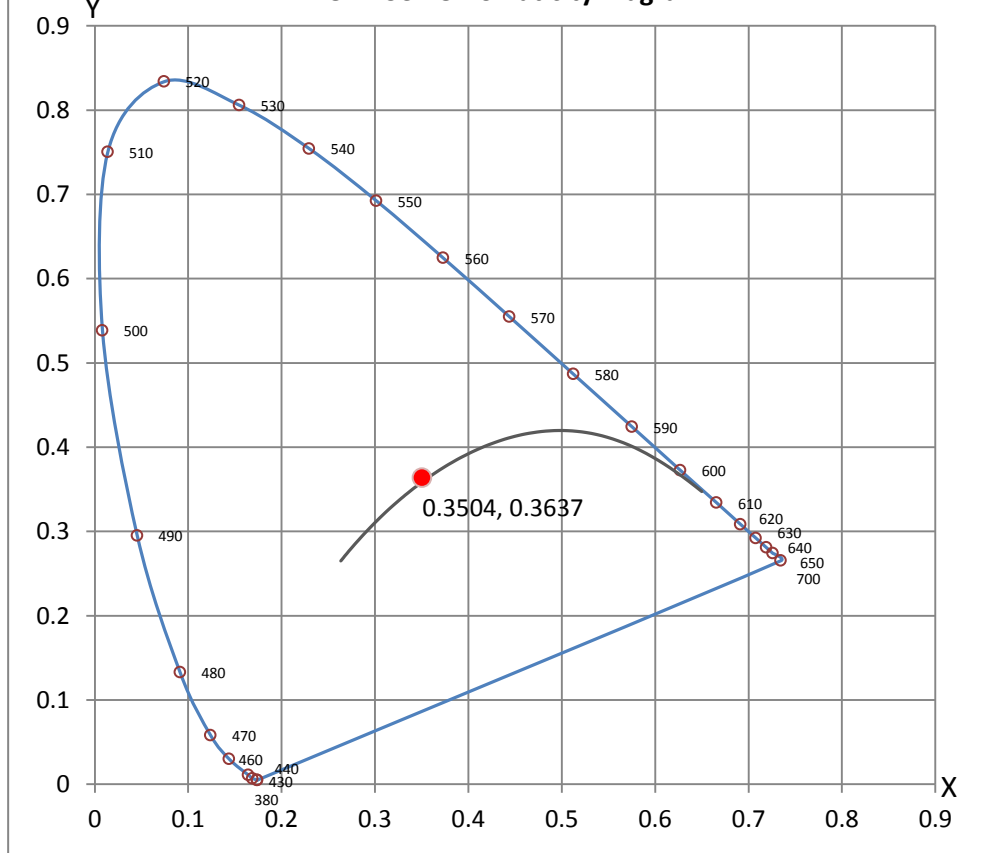
CRI & CCT

x	0.3504
y	0.3637
u'	0.2103
v'	0.4912
CRI	70.80
CCT	4854
Duv	0.00391

R Values

R1	67.71
R2	75.28
R3	81.78
R4	71.88
R5	68.49
R6	66.65
R7	80.47
R8	54.43
R9	-36.90
R10	42.28
R11	69.27
R12	40.81
R13	68.44
R14	89.42
R15	61.07

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 : L062014304.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L062014304
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 7/24/2020
[MANUFAC] Leadsun Inc
[LUMCAT] RS10-T2/10W/5000K
[LUMINAIRE] 10W 5000K 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] 21.92VDC, 10.09W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

IES Classification	Type I
Longitudinal Classification	Short
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	1792
Downward Total Efficiency	N.A. (absolute)
Total Luminaire Efficiency	N.A. (absolute)
Luminaire Efficacy Rating (LER)	178
Total Luminaire Watts	10.09
Ballast Factor	1.00
Upward Waste Light Ratio	0.00
Maximum Candela	1451
Maximum Candela Angle	75H 55V
Maximum Candela (<90 Degrees Vertical)	1451
Maximum Candela Angle (<90 Degrees Vertical)	75H 55V
Maximum Candela At 90 Degrees Vertical	0 (0.0% Luminaire Lumens)
Maximum Candela from 80 to <90 Degrees Vertical	54 (3.0% 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)	258.1	N.A.	14.4
FM - Front-Medium (30-60)	716.6	N.A.	40.0
FH - Front-High (60-80)	166.0	N.A.	9.3
FVH - Front-Very High (80-90)	4.6	N.A.	0.3
BL - Back-Low (0-30)	162.4	N.A.	9.1
BM - Back-Medium (30-60)	357.9	N.A.	20.0
BH - Back-High (60-80)	121.1	N.A.	6.8
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	1791.6	N.A.	100.0
BUG Rating	B1-U0-G1		

ZONAL LUMEN SUMMARY

Zone	%
0-20	10.4
0-30	23.5
0-40	41.2
0-60	83.4
0-80	99.5
0-90	100
10-90	97.3
20-40	30.8
20-50	51.7
40-70	55.3
60-80	16
70-80	2.9
80-90	0.5
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 : L062014304.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	505	505	505	505	505	505	505	505	505	505
5.0	548	548	546	544	543	543	541	540	536	532
10.0	576	575	573	570	567	566	564	561	556	551
15.0	601	600	599	596	592	590	588	584	581	576
20.0	651	650	647	643	636	631	624	617	613	608
25.0	690	690	691	693	695	696	694	690	683	668
30.0	630	633	640	653	668	687	708	728	747	756
35.0	529	532	540	553	571	597	631	676	727	783
37.5	474	476	486	504	529	560	591	630	684	755
40.0	386	390	405	427	462	505	550	597	651	721
42.5	287	291	304	325	360	414	479	554	621	687
45.0	214	216	222	235	259	303	371	475	583	674
47.5	169	170	174	180	191	211	250	346	490	640
50.0	136	137	140	145	151	162	182	226	333	534
52.5	108	110	113	116	120	127	139	164	224	403
55.0	65	68	75	86	94	99	108	125	152	238
57.5	48	48	49	53	68	76	83	94	111	148
60.0	43	43	43	43	46	55	63	71	83	104
62.5	40	40	40	40	40	43	50	54	61	70
65.0	36	36	36	36	37	38	41	44	48	52
67.5	32	33	33	33	34	34	36	37	38	41
70.0	29	29	29	30	30	31	32	33	32	33
72.5	28	27	25	26	26	26	28	29	28	27
75.0	32	27	22	21	22	22	23	25	24	23
77.5	27	21	18	17	16	18	19	20	19	20
80.0	18	15	13	12	12	13	14	15	15	15
85.0	2	2	2	2	3	3	3	4	4	4
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	505	505	505	505	505	505	505	505	505	505
5.0	531	526	524	522	517	512	509	506	504	499
10.0	547	543	540	536	529	524	518	512	507	498
15.0	570	566	562	557	549	541	532	522	511	499
20.0	601	598	594	586	576	564	552	538	520	506
25.0	652	645	638	631	619	608	596	579	557	532
30.0	755	740	716	703	691	681	658	630	594	560
35.0	829	857	854	808	760	732	702	670	630	582
37.5	838	896	914	891	827	779	739	701	659	607
40.0	810	913	973	977	925	838	792	750	695	636
42.5	776	891	1012	1061	1037	937	859	802	742	675
45.0	751	867	1016	1133	1155	1082	940	869	793	715
47.5	753	846	995	1175	1262	1207	1036	929	852	764
50.0	729	856	979	1176	1341	1339	1179	1003	895	796
52.5	663	871	977	1139	1362	1428	1318	1086	946	839
55.0	499	818	995	1087	1321	1451	1372	1135	969	860
57.5	334	724	975	1047	1188	1383	1370	1163	951	852
60.0	223	550	881	998	1046	1248	1283	1127	908	810
62.5	110	344	682	886	904	1003	1101	995	800	717
65.0	64	166	380	633	716	742	837	784	657	595
67.5	43	67	169	359	489	520	564	547	486	450

IES ROAD REPORT
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CANDELA TABULATION - (Cont.)

70.0	33	39	67	158	259	312	338	358	321	304
72.5	27	30	36	57	106	172	206	207	182	168
75.0	22	24	28	35	48	74	81	74	78	81
77.5	18	19	23	30	46	64	61	58	62	57
80.0	14	15	19	28	44	54	49	42	40	36
85.0	4	5	8	10	10	9	9	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	505	505	505	505	505	505	505	505	505	505
5.0	494	490	486	481	477	475	471	467	462	458
10.0	490	482	474	465	457	449	442	433	425	419
15.0	488	475	463	447	434	418	406	393	382	374
20.0	491	474	456	434	413	392	375	355	341	331
25.0	506	476	446	417	387	359	338	318	302	292
30.0	523	487	444	400	362	326	302	285	272	263
35.0	536	483	428	376	331	297	274	257	248	240
37.5	556	500	433	370	321	285	262	246	237	230
40.0	574	508	437	369	315	275	250	235	227	219
42.5	603	525	437	362	303	265	239	227	218	209
45.0	635	543	449	358	294	252	230	217	206	196
47.5	670	556	449	353	285	245	222	205	192	185
50.0	704	588	456	349	275	235	209	192	181	174
52.5	732	607	472	352	270	222	195	180	169	165
55.0	753	615	472	344	257	209	184	169	161	159
57.5	761	639	491	348	246	195	171	160	152	146
60.0	724	611	475	342	236	183	160	151	140	121
62.5	644	551	431	320	219	168	147	137	122	98
65.0	541	454	345	267	196	148	127	116	98	71
67.5	408	331	248	198	159	123	103	92	76	50
70.0	260	212	164	125	93	78	71	68	56	38
72.5	153	134	94	58	50	49	44	45	37	29
75.0	89	77	42	26	31	33	24	24	24	24
77.5	54	43	21	18	19	20	19	19	19	20
80.0	26	17	16	14	15	15	15	15	16	16
85.0	7	7	7	7	7	7	6	6	7	7
90.0	0	0	0	0	0	0	0	0	0	0

Vert. Angles **Horizontal Angles**

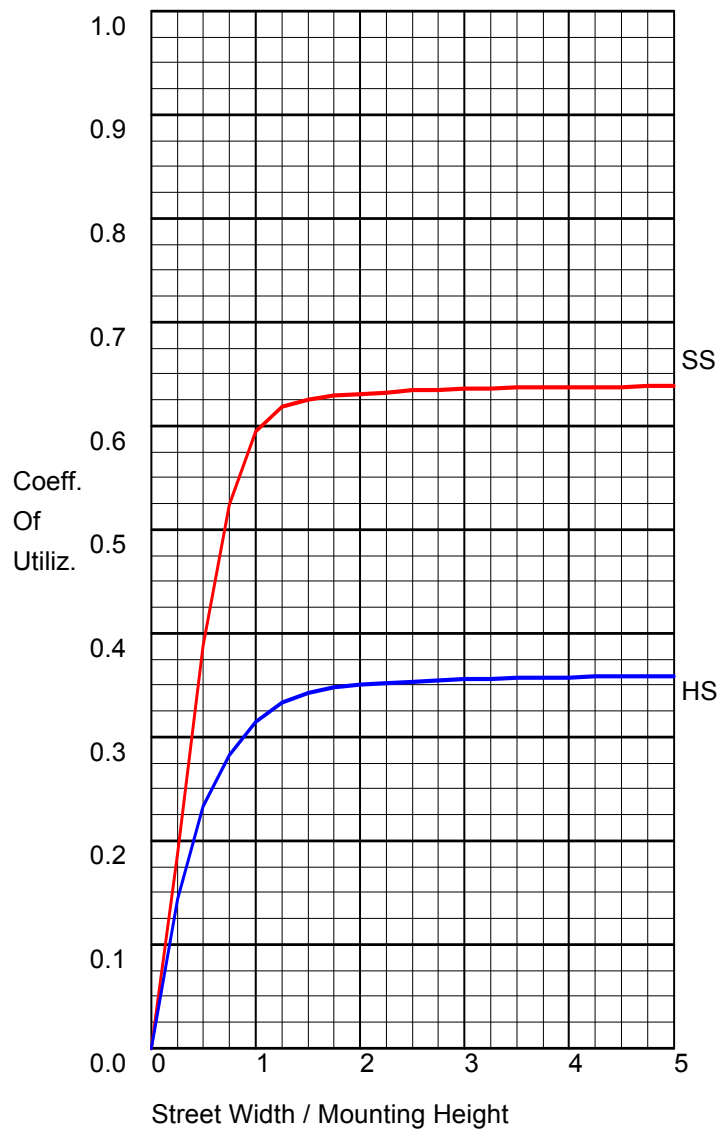
	<u>150</u>	<u>155</u>	<u>160</u>	<u>165</u>	<u>170</u>	<u>175</u>	<u>180</u>
0.0	505	505	505	505	505	505	505
5.0	457	456	454	452	448	446	445
10.0	413	409	404	400	397	394	393
15.0	364	357	351	346	343	341	340
20.0	322	314	307	303	300	300	300
25.0	284	279	275	272	271	271	271
30.0	257	254	250	248	246	246	245
35.0	234	230	228	227	225	224	224
37.5	223	220	218	217	215	214	213
40.0	213	209	206	204	203	202	201
42.5	201	195	193	193	193	193	193
45.0	189	186	184	183	183	183	183
47.5	180	176	175	174	175	175	176

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CANDELA TABULATION - (Cont.)

50.0	170	168	168	163	156	149	147
52.5	164	159	144	129	119	115	114
55.0	152	133	113	100	90	82	80
57.5	125	100	80	65	60	58	57
60.0	97	72	55	53	52	51	51
62.5	67	48	47	47	45	45	45
65.0	44	40	42	42	41	41	40
67.5	35	36	39	40	40	40	40
70.0	32	33	35	38	39	40	39
72.5	29	30	32	35	39	41	38
75.0	26	28	29	31	38	41	37
77.5	22	24	25	26	33	35	35
80.0	17	19	21	21	24	25	25
85.0	8	8	10	11	10	11	11
90.0	0	0	0	0	0	0	0

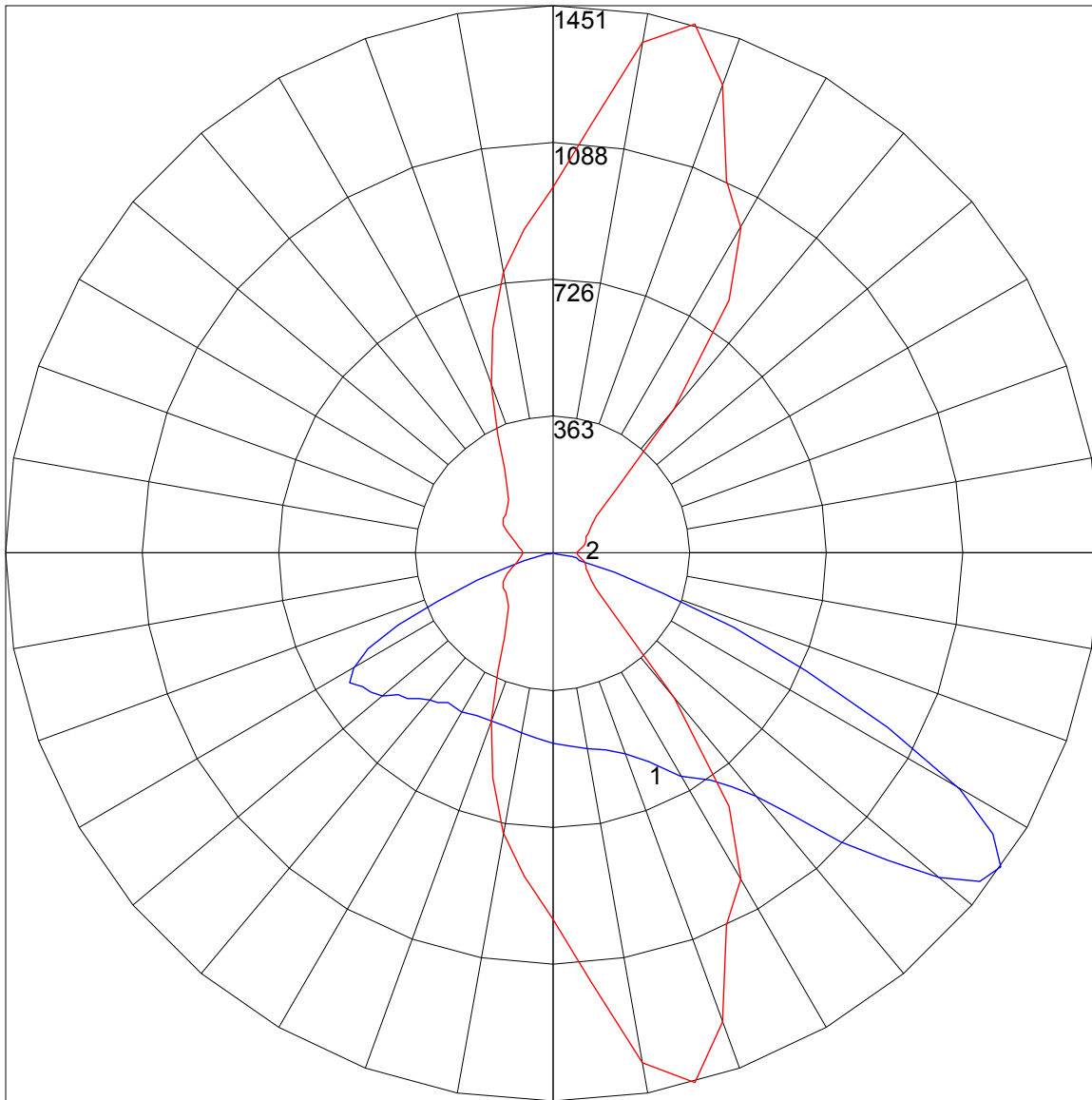
COEFFICIENTS OF UTILIZATION



FLUX DISTRIBUTION

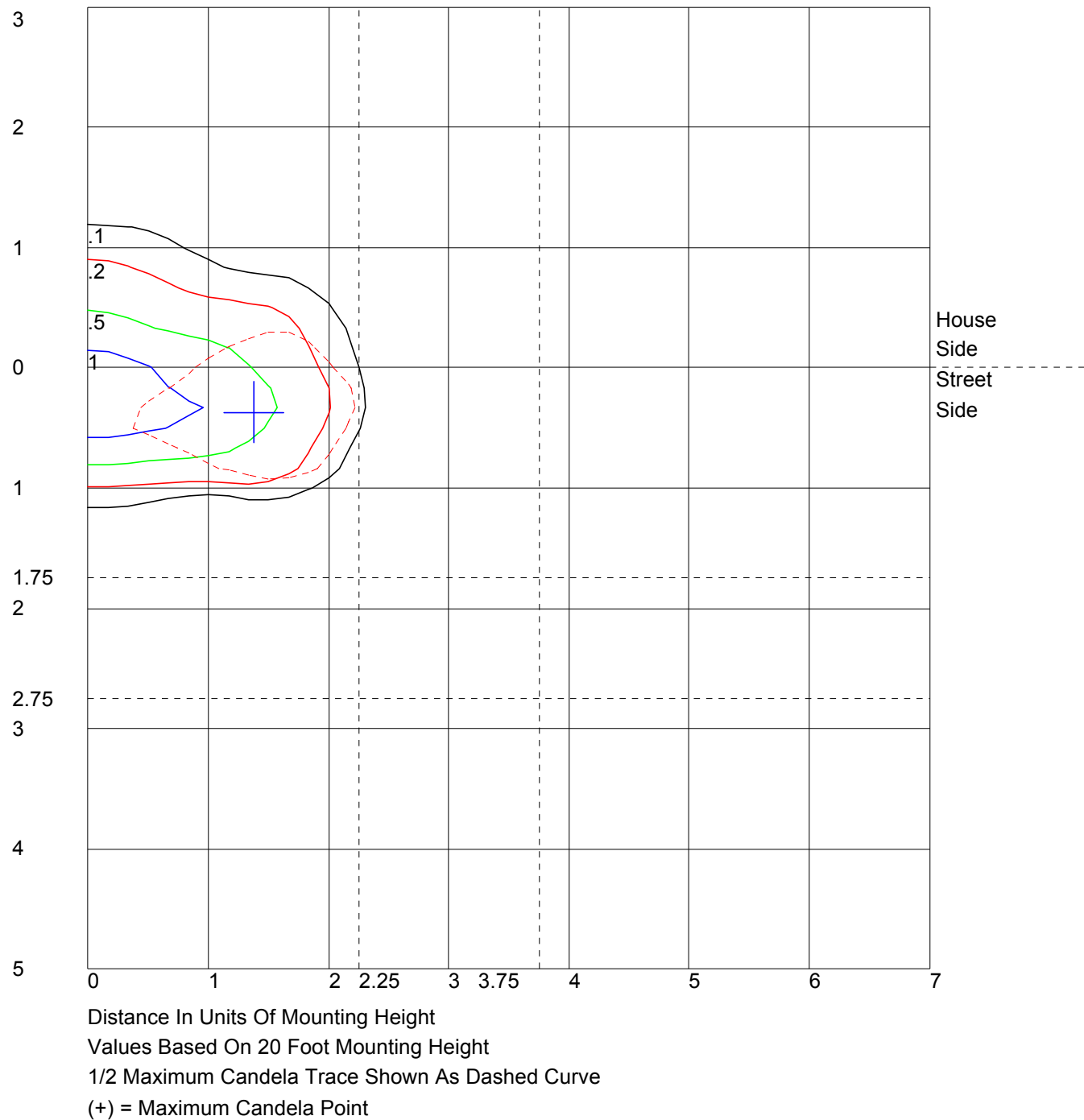
	Lumens	Percent Of Luminaire
Downward Street Side	1145.3	63.9
Downward House Side	646.2	36.1
Downward Total	1791.5	100.0
Upward Street Side	0.0	0.0
Upward House Side	0.0	0.0
Upward Total	0.0	0.0
Total Flux	1791.5	100.0

POLAR GRAPH

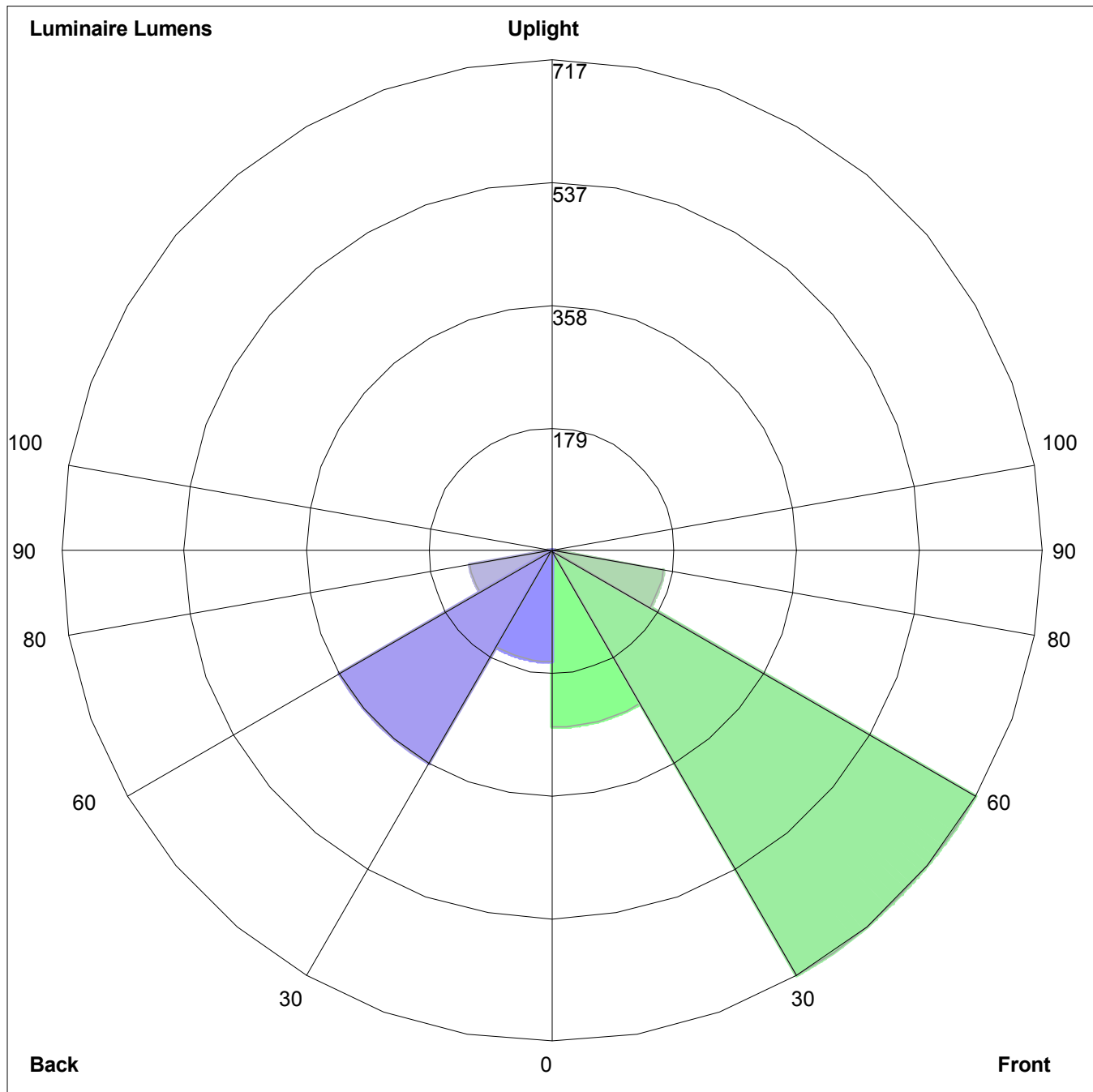


Maximum Candela = 1451 Located At Horizontal Angle = 75, Vertical Angle = 55
1 - Vertical Plane Through Horizontal Angles (75 - 255) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (55) (Through Max. Cd.)

ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINANCE



LUMINAIRE CLASSIFICATION SYSTEM (LCS) GRAPH



Luminaire Lumens:
Front: Low=258.1, Medium=716.6, High=166.0, Very High=4.6
Back: Low=162.4, Medium=357.9, High=121.1, Very High=4.9
Uplight: Low=0.0, High=0.0

BUG Rating : B1-U0-G1