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Report No: L061603704

Date: 6/14/2016



NVLAP LAB CODE 200927-0

Report No: L061603704

Report Prepared For: Revolution Lighting Technologies (RVLT)
 4139 Guardian Street, Simi Valley, CA 93063

Model Number: 282103-102

Test: Electrical and Photometric tests

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. Catalog number is 282103-102 . Received in working and undamaged condition. No modifications were necessary.

Testing Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 6/9/16

Date of Tests: 6/13/16 - 6/14/16

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-S1	11/18/16
Xitron Power Analyzer	2503AH	MT-EL01	11/30/16
ITECH DC Power Supply	IT6122	PSDC-03-S1	11/17/16
Fluke Digital Thermometer	52k/J	MT-TP02-GC	11/24/16
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

*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

Test Summary

Manufacturer:	Revolution Lighting Technologies (RVL)
Model Number:	282103-102
Driver Model Number:	EXCELLENT LED DRIVER LPS50W-36-C1400-RD
Total Lumens:	4984.30
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.44
Input Power (W):	52.26
Input Power Factor:	0.99
Current ATHD @ 120V(%):	6%
Current ATHD @ 277V(%):	N/A
Efficacy:	95
Color Rendering Index (CRI):	83
Correlated Color Temperature (K):	3946
Chromaticity Coordinate x:	0.3845
Chromaticity Coordinate y:	0.3839
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	1:10
Total Operating Time (Hours):	2:35
Off State Power(W):	0.00

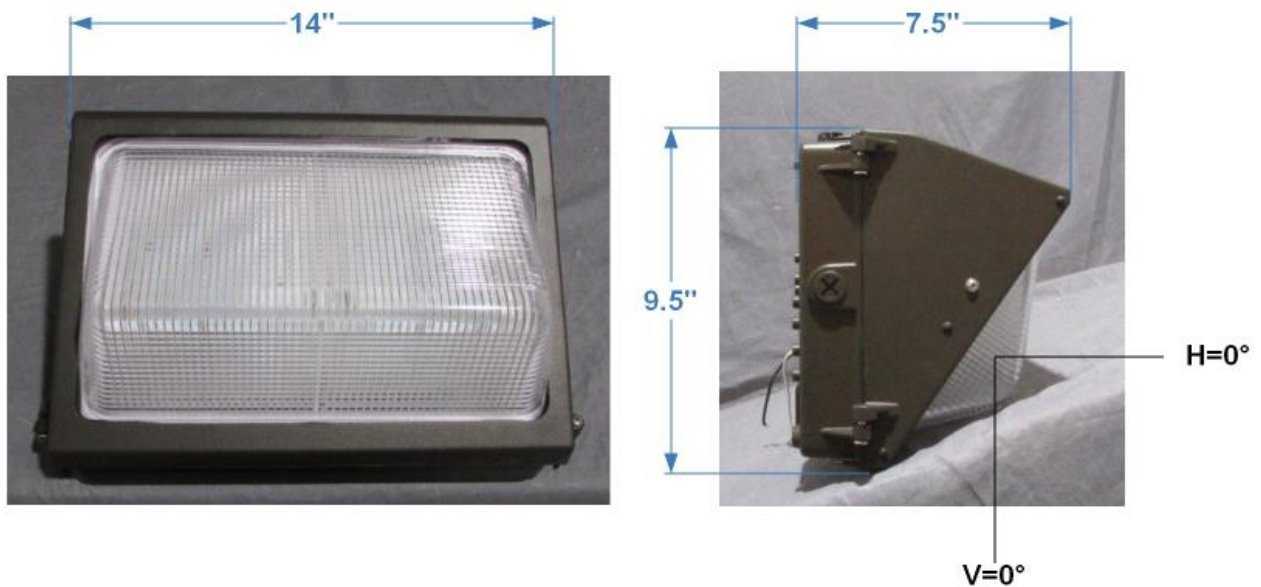
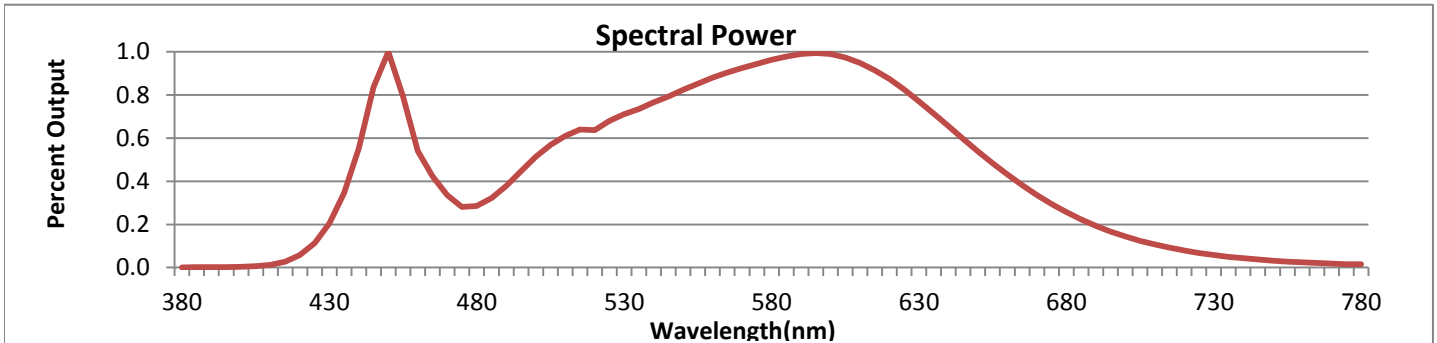


FIG. 1 LUMINAIRE

*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.



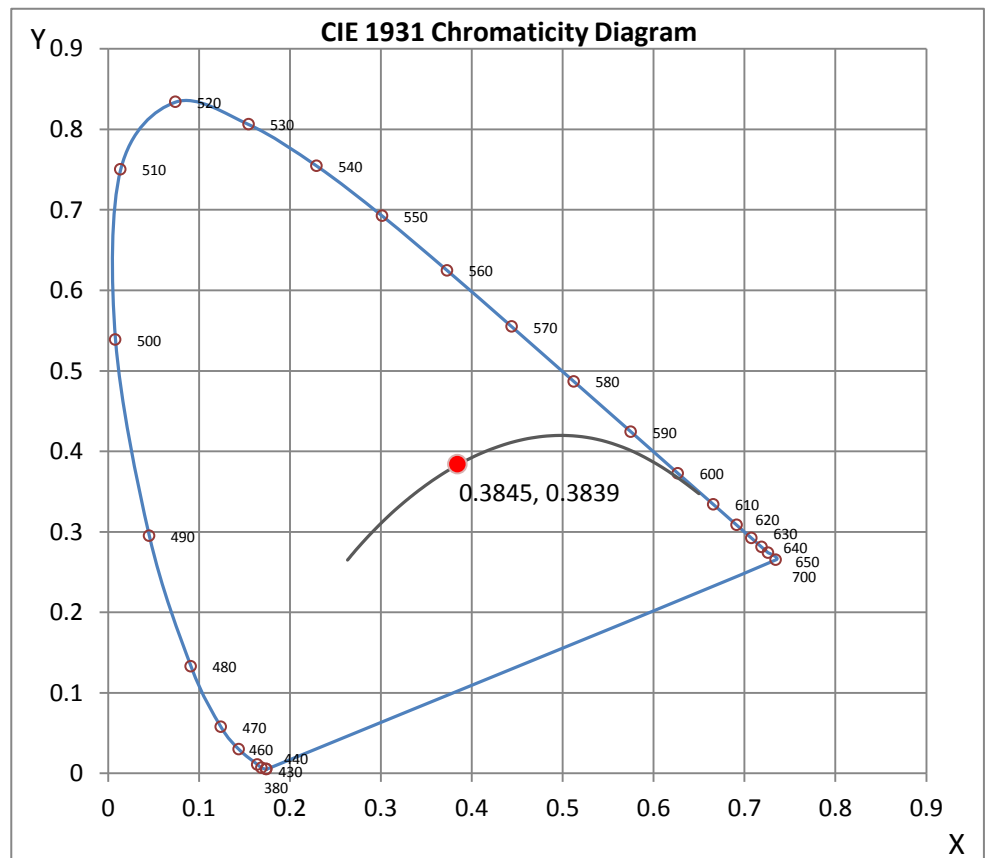
Wavelength	W/m ² nm	440	0.5539	510	0.6105	580	0.9641	650	0.5387	720	0.0786
380	0.0011	450	1.0000	520	0.6372	590	0.9898	660	0.4319	730	0.0580
390	0.0016	460	0.5402	530	0.7106	600	0.9910	670	0.3360	740	0.0428
400	0.0032	470	0.3353	540	0.7656	610	0.9483	680	0.2570	750	0.0318
410	0.0127	480	0.2849	550	0.8241	620	0.8743	690	0.1932	760	0.0238
420	0.0584	490	0.3782	560	0.8805	630	0.7713	700	0.1444	770	0.0177
430	0.2050	500	0.5134	570	0.9255	640	0.6567	710	0.1069	780	0.0154

CRI & CCT

x	0.3845
y	0.3839
u'	0.2249
v'	0.5053
CRI	82.90
CCT	3946
Duv	0.00215

R Values

R1	80.72
R2	88.26
R3	94.50
R4	82.32
R5	80.89
R6	83.90
R7	86.92
R8	65.50
R9	10.13
R10	72.58
R11	81.06
R12	64.00
R13	82.31
R14	96.75



*All Results in accordance to IESNA LM-79-2008: Approved Method for the Electrical and Photometric Testing of Solid-State Lighting.

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 Released by:



Jeff Ahn
Engineering Manager

Test Report Reviewed by:



Steve Kang
Quality Assurance

**Attached are photometric data reports. Total number of pages: 14*



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Photometric Test Report

IES ROAD REPORT
PHOTOMETRIC FILENAME : L061603704.IES

DESCRIPTIVE INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TEST] L061603704
 [TESTLAB] LIGHT LABORATORY, INC.
 [ISSUEDATE] 6/14/2016
 [MANUFAC] REVOLUTION LIGHTING TECHNOLOGIES (RVLT)
 [LUMCAT] 282103-102
 [LUMINAIRE] 7.5"L. X 14"W. X 9.5"H. 50W 4000K GLASS-FRONT WALL PACK
 [BALLASTCAT] EXCELLENT LED DRIVER LPS50W-36-C1400-RD
 [LAMPPOSITION] 0,0
 [LAMPCAT] N/A
 [OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
 [MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
 [INPUT] 120VAC, 52.26W
 [TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

IES Classification	Type IV
Longitudinal Classification	Very Short
Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	4984
Downward Total Efficiency	N.A. (absolute)
Total Luminaire Efficiency	N.A. (absolute)
Luminaire Efficacy Rating (LER)	95
Total Luminaire Watts	52.26
Ballast Factor	1.00
Upward Waste Light Ratio	0.21
Maximum Candela	1812
Maximum Candela Angle	0H 60V
Maximum Candela (<90 Degrees Vertical)	1812
Maximum Candela Angle (<90 Degrees Vertical)	0H 60V
Maximum Candela At 90 Degrees Vertical	1247 (25.0% Luminaire Lumens)
Maximum Candela from 80 to <90 Degrees Vertical	1457 (29.2% 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)	501.2	N.A.	10.1
FM - Front-Medium (30-60)	1291.9	N.A.	25.9
FH - Front-High (60-80)	1047.8	N.A.	21.0
FVH - Front-Very High (80-90)	444.6	N.A.	8.9
BL - Back-Low (0-30)	265.5	N.A.	5.3
BM - Back-Medium (30-60)	282.1	N.A.	5.7
BH - Back-High (60-80)	81.9	N.A.	1.6
BVH - Back-Very High (80-90)	22.2	N.A.	0.4
UL - Uplight-Low (90-100)	369.0	N.A.	7.4
UH - Uplight-High (100-180)	678.2	N.A.	13.6
Total	4984.4	N.A.	100.0
BUG Rating	B1-U4-G3		

ZONAL LUMEN SUMMARY

Zone	%
0-20	7.5
0-30	15.4
0-40	24.9
0-60	47
0-80	69.6
0-90	79
10-90	77
20-40	17.4
20-50	28.1
40-70	33.8
60-80	22.7
70-80	11
80-90	9.4
90-110	12.9
90-120	16.4
90-130	18.6
90-150	20.6
90-180	21
110-180	8.2
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	1061	1061	1061	1061	1061	1061	1061	1061	1061	1061
5.0	1241	1244	1248	1253	1258	1263	1267	1265	1255	1227
10.0	1280	1281	1284	1285	1285	1275	1230	1174	1136	1132
15.0	1349	1360	1381	1383	1364	1367	1419	1403	1313	1237
20.0	1235	1246	1256	1233	1206	1228	1242	1242	1246	1261
25.0	1514	1528	1489	1425	1375	1280	1181	1167	1149	1137
30.0	1340	1337	1328	1301	1312	1281	1295	1372	1254	1142
35.0	1343	1350	1337	1341	1310	1250	1234	1191	1130	1200
37.5	1475	1448	1379	1360	1331	1286	1223	1157	1156	1132
40.0	1465	1469	1479	1465	1388	1340	1294	1168	1141	1110
42.5	1486	1471	1449	1422	1428	1403	1318	1220	1151	1105
45.0	1651	1620	1585	1568	1491	1453	1445	1354	1177	1116
47.5	1507	1499	1483	1516	1461	1367	1339	1426	1326	1148
50.0	1606	1595	1511	1492	1489	1408	1271	1244	1314	1230
52.5	1600	1616	1547	1534	1434	1386	1315	1197	1175	1186
55.0	1532	1532	1471	1487	1452	1377	1307	1233	1160	1074
57.5	1597	1623	1537	1546	1479	1426	1299	1229	1146	1074
60.0	1812	1811	1764	1723	1629	1547	1444	1256	1140	1074
62.5	1675	1673	1605	1578	1555	1515	1487	1427	1208	1078
65.0	1558	1577	1527	1517	1496	1457	1388	1320	1229	1140
67.5	1495	1483	1448	1401	1384	1365	1357	1299	1159	1065
70.0	1534	1528	1476	1414	1359	1320	1267	1247	1138	1009
72.5	1534	1523	1502	1428	1383	1342	1259	1175	1084	985
75.0	1572	1558	1526	1486	1435	1401	1352	1221	1052	930
77.5	1624	1615	1572	1469	1361	1262	1225	1197	1090	951
80.0	1457	1440	1429	1399	1376	1312	1206	1065	942	868
85.0	1389	1379	1335	1276	1222	1147	1077	996	911	772
90.0	1247	1233	1206	1153	1119	1090	1027	934	818	692
95.0	1171	1163	1134	1061	1000	957	899	814	703	644
100.0	1043	1027	997	944	895	850	806	704	639	545
105.0	869	863	840	810	780	744	689	635	557	476
110.0	780	769	746	702	673	636	601	554	485	415
115.0	558	552	535	529	516	512	500	467	410	348
120.0	515	511	489	474	448	421	395	365	320	272
125.0	416	411	396	395	377	359	332	302	258	212
130.0	329	328	317	311	297	277	258	236	206	171
135.0	255	255	250	245	237	221	204	186	166	141
140.0	197	196	194	189	182	174	164	150	134	117
145.0	155	155	155	152	148	143	136	126	112	97
150.0	136	136	134	130	124	117	108	96	83	69
155.0	104	103	99	93	86	78	66	58	47	37
160.0	49	49	46	43	38	34	29	23	18	15
165.0	14	14	13	12	12	12	12	12	13	13
170.0	11	11	11	11	12	12	12	13	13	13
175.0	0	0	0	0	0	0	0	0	0	0
180.0	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	1061	1061	1061	1061	1061	1061	1061	1061	1061	1061
5.0	1187	1148	1113	1087	1068	1054	1046	1042	1042	1045
10.0	1162	1185	1204	1230	1200	1112	1043	1015	1007	1016

IES ROAD REPORT
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CANDELA TABULATION - (Cont.)

15.0	1210	1156	1104	1114	1126	1152	1054	971	943	940
20.0	1319	1241	1145	1092	1070	1069	1088	958	892	866
25.0	1140	1154	1202	1128	1020	1017	1016	965	867	829
30.0	1097	1074	1097	1125	1063	959	935	917	817	752
35.0	1159	1067	1035	1012	1011	921	859	840	734	673
37.5	1158	1096	1017	971	953	893	815	790	700	629
40.0	1107	1121	985	944	889	874	792	714	671	577
42.5	1068	1032	1008	914	870	849	761	697	618	536
45.0	1034	984	980	894	837	800	720	674	587	510
47.5	1038	960	926	883	798	772	702	645	562	481
50.0	1076	979	881	845	775	753	694	611	546	462
52.5	1100	991	888	830	776	728	686	574	530	430
55.0	1073	971	888	840	775	675	656	552	507	392
57.5	1011	957	852	835	776	649	623	539	477	364
60.0	974	913	835	808	710	633	587	524	434	331
62.5	972	904	841	760	681	643	546	507	398	304
65.0	991	929	853	736	664	638	514	469	369	269
67.5	981	928	871	719	615	608	498	426	329	239
70.0	916	864	826	739	616	559	489	391	301	210
72.5	890	824	753	699	650	530	460	360	273	179
75.0	895	809	689	659	642	514	423	338	237	169
77.5	891	814	682	607	566	503	387	306	199	124
80.0	853	796	706	603	523	448	364	269	176	104
85.0	699	639	569	549	469	374	289	188	102	75
90.0	648	551	493	429	362	281	197	115	71	64
95.0	564	494	427	350	287	201	145	78	62	62
100.0	489	435	359	292	219	168	101	71	61	64
105.0	422	357	293	230	177	117	78	64	60	62
110.0	357	295	232	180	132	96	72	60	60	59
115.0	287	231	177	135	105	76	63	57	57	54
120.0	228	179	138	108	78	66	54	51	50	46
125.0	176	141	110	79	69	54	45	43	41	37
130.0	141	114	89	71	56	42	37	36	33	31
135.0	115	93	73	59	44	33	31	29	28	26
140.0	97	74	63	46	32	27	26	25	24	23
145.0	73	61	46	31	24	23	22	22	21	20
150.0	53	39	27	21	20	20	19	19	19	18
155.0	27	20	17	17	17	17	17	17	17	17
160.0	13	14	14	15	15	15	16	16	16	17
165.0	14	14	14	15	15	15	16	16	16	16
170.0	14	14	15	15	15	16	16	16	16	17
175.0	0	0	0	0	0	0	0	0	0	0
180.0	0	0	0	0	0	0	0	0	0	0

Vert. Horizontal Angles

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	1061	1061	1061	1061	1061	1061	1061	1061	1061	1061
5.0	1052	1056	1057	1057	1059	1059	1053	1038	1015	993
10.0	1017	1018	991	934	882	848	826	806	785	773
15.0	949	904	827	783	750	722	686	658	639	611
20.0	855	786	730	675	638	595	561	533	514	501
25.0	766	697	633	580	530	495	471	456	441	428
30.0	677	595	534	494	459	430	414	395	380	365
35.0	570	502	454	418	386	366	351	331	309	291
37.5	520	460	417	380	354	337	317	297	278	261

IES ROAD REPORT
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CANDELA TABULATION - (Cont.)

40.0	483	418	377	344	322	304	283	265	247	229
42.5	449	381	342	311	291	273	254	235	220	202
45.0	412	346	310	283	263	244	225	210	194	175
47.5	380	320	282	254	236	220	201	186	170	150
50.0	355	295	255	231	213	196	179	168	143	133
52.5	330	269	231	210	192	175	156	142	128	118
55.0	302	242	208	189	174	153	138	126	115	102
57.5	270	216	188	174	155	136	123	113	102	86
60.0	244	191	174	155	139	123	112	101	88	73
62.5	217	175	155	142	126	110	101	89	74	65
65.0	195	160	141	128	112	100	89	76	62	56
67.5	174	139	128	116	101	90	76	63	53	45
70.0	165	127	117	104	91	79	65	52	43	35
72.5	130	116	106	94	81	69	56	43	35	27
75.0	115	105	96	82	74	60	47	36	27	21
77.5	102	95	88	77	66	52	40	31	25	20
80.0	90	87	79	71	59	49	38	29	23	19
85.0	74	75	72	66	56	44	34	26	21	18
90.0	69	72	69	62	53	41	31	24	20	18
95.0	68	68	63	56	47	37	28	22	19	17
100.0	66	63	56	49	40	32	25	21	19	18
105.0	61	57	50	42	34	27	23	20	18	18
110.0	55	50	44	36	29	24	21	19	18	18
115.0	49	43	37	31	26	22	20	19	18	18
120.0	41	36	31	26	23	21	19	19	18	18
125.0	33	30	26	23	21	20	19	19	18	18
130.0	28	26	23	21	20	19	19	18	18	18
135.0	24	22	21	20	19	19	18	18	18	18
140.0	21	20	19	19	18	18	18	18	18	18
145.0	19	19	18	18	18	17	18	18	18	18
150.0	18	18	17	17	17	17	17	17	17	17
155.0	17	17	17	17	17	17	17	17	17	17
160.0	17	17	17	17	17	17	17	17	16	16
165.0	17	17	17	16	16	16	16	16	16	15
170.0	17	17	16	16	16	16	16	16	15	15
175.0	0	0	0	0	0	0	0	0	0	0
180.0	0	0	0	0	0	0	0	0	0	0

Vert. Horizontal Angles
Angles

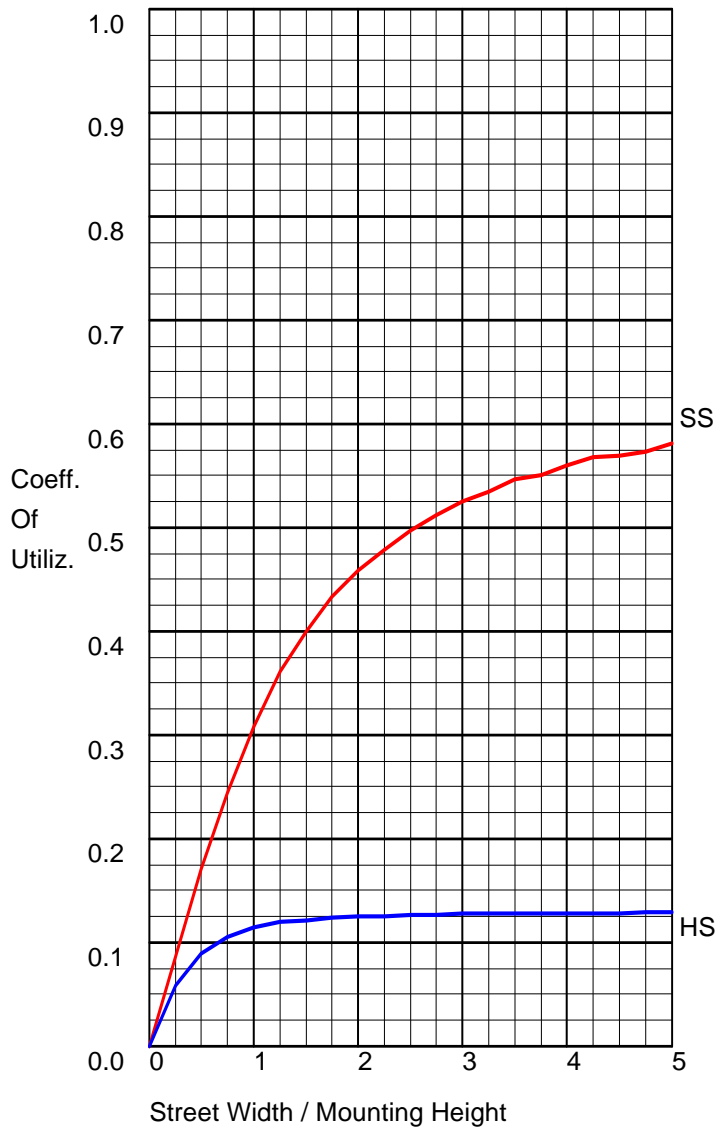
	<u>150</u>	<u>155</u>	<u>160</u>	<u>165</u>	<u>170</u>	<u>175</u>	<u>180</u>
0.0	1061	1061	1061	1061	1061	1061	1061
5.0	975	961	951	944	937	934	933
10.0	764	752	741	732	726	721	719
15.0	594	579	577	578	573	570	570
20.0	494	477	470	465	465	465	464
25.0	419	416	410	405	405	404	401
30.0	350	341	337	330	327	327	327
35.0	277	265	255	248	241	238	237
37.5	245	233	223	214	207	205	205
40.0	214	202	190	183	181	176	175
42.5	185	175	160	154	151	149	148
45.0	157	146	136	128	123	120	118
47.5	138	125	114	106	101	99	98
50.0	119	104	97	91	89	89	90
52.5	101	90	84	81	80	80	81

IES ROAD REPORT
PHOTOMETRIC FILENAME : L061603704.IES

CANDELA TABULATION - (Cont.)

55.0	87	78	74	71	70	70	71
57.5	76	69	65	64	63	63	63
60.0	68	60	58	57	56	56	56
62.5	59	53	50	49	48	48	48
65.0	49	44	41	40	40	39	39
67.5	39	34	32	31	31	30	30
70.0	29	25	22	21	19	19	19
72.5	21	16	15	14	14	14	14
75.0	17	15	15	14	14	14	14
77.5	16	15	15	15	15	15	15
80.0	16	15	15	15	15	15	15
85.0	16	16	16	16	16	16	16
90.0	16	16	16	17	17	17	16
95.0	17	17	17	17	17	17	17
100.0	17	17	17	17	17	18	18
105.0	18	18	18	18	18	18	19
110.0	18	18	18	18	18	18	19
115.0	18	18	18	18	18	18	19
120.0	18	18	18	18	19	19	19
125.0	18	19	19	19	19	19	19
130.0	18	19	19	18	18	18	19
135.0	18	18	18	18	18	18	19
140.0	18	18	18	18	18	18	17
145.0	18	17	17	17	17	17	17
150.0	17	17	17	16	16	16	16
155.0	17	17	16	16	16	16	16
160.0	16	16	16	16	15	15	15
165.0	15	15	15	15	15	15	15
170.0	15	15	15	15	15	15	15
175.0	0	0	0	0	0	0	0
180.0	0	0	0	0	0	0	0

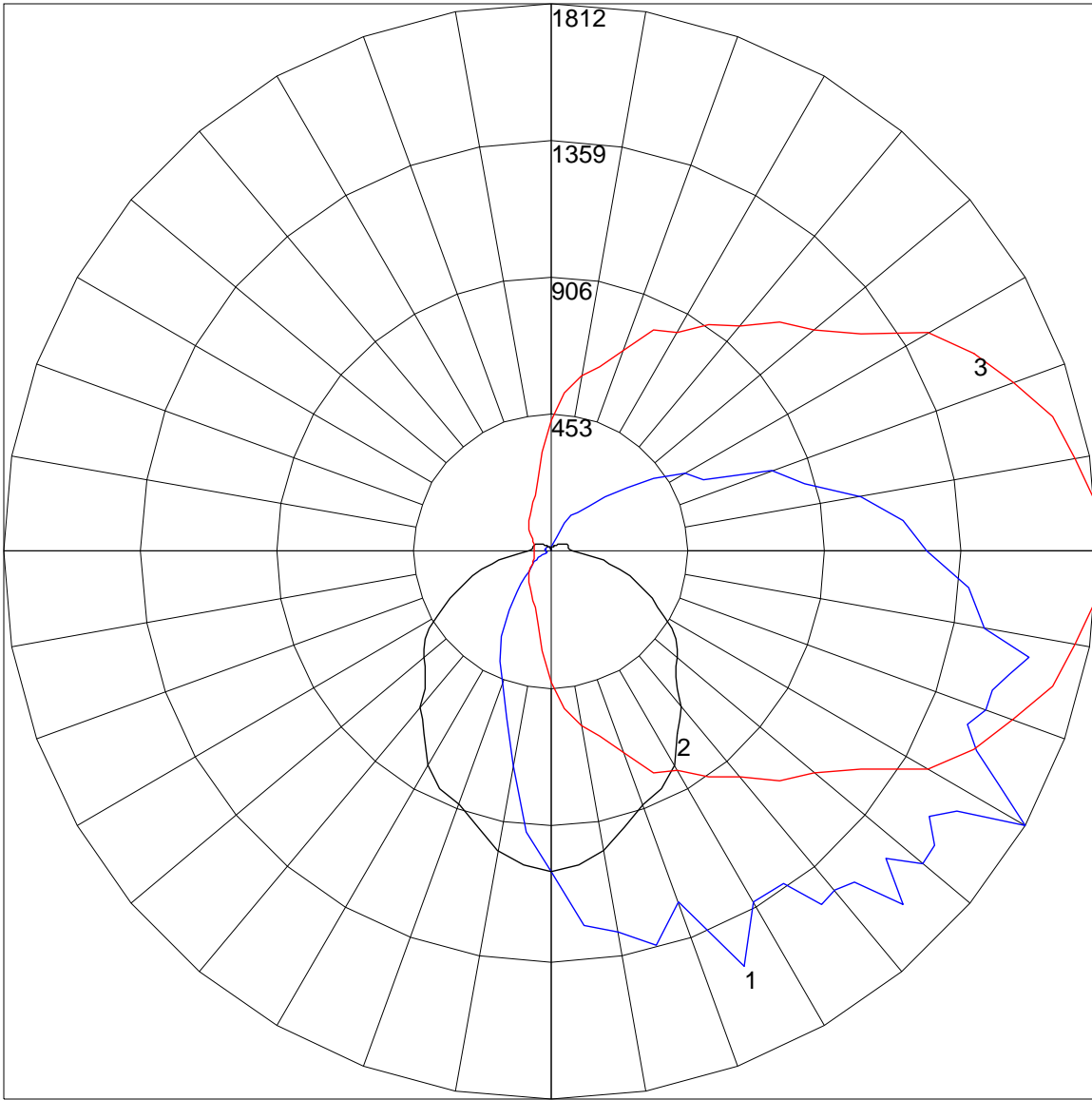
COEFFICIENTS OF UTILIZATION



FLUX DISTRIBUTION

	Lumens	Percent Of Luminaire
Downward Street Side	3285.4	65.9
Downward House Side	651.7	13.1
Downward Total	3937.1	79.0
Upward Street Side	968.5	19.4
Upward House Side	78.7	1.6
Upward Total	1047.2	21.0
Total Flux	4984.3	100.0

POLAR GRAPH



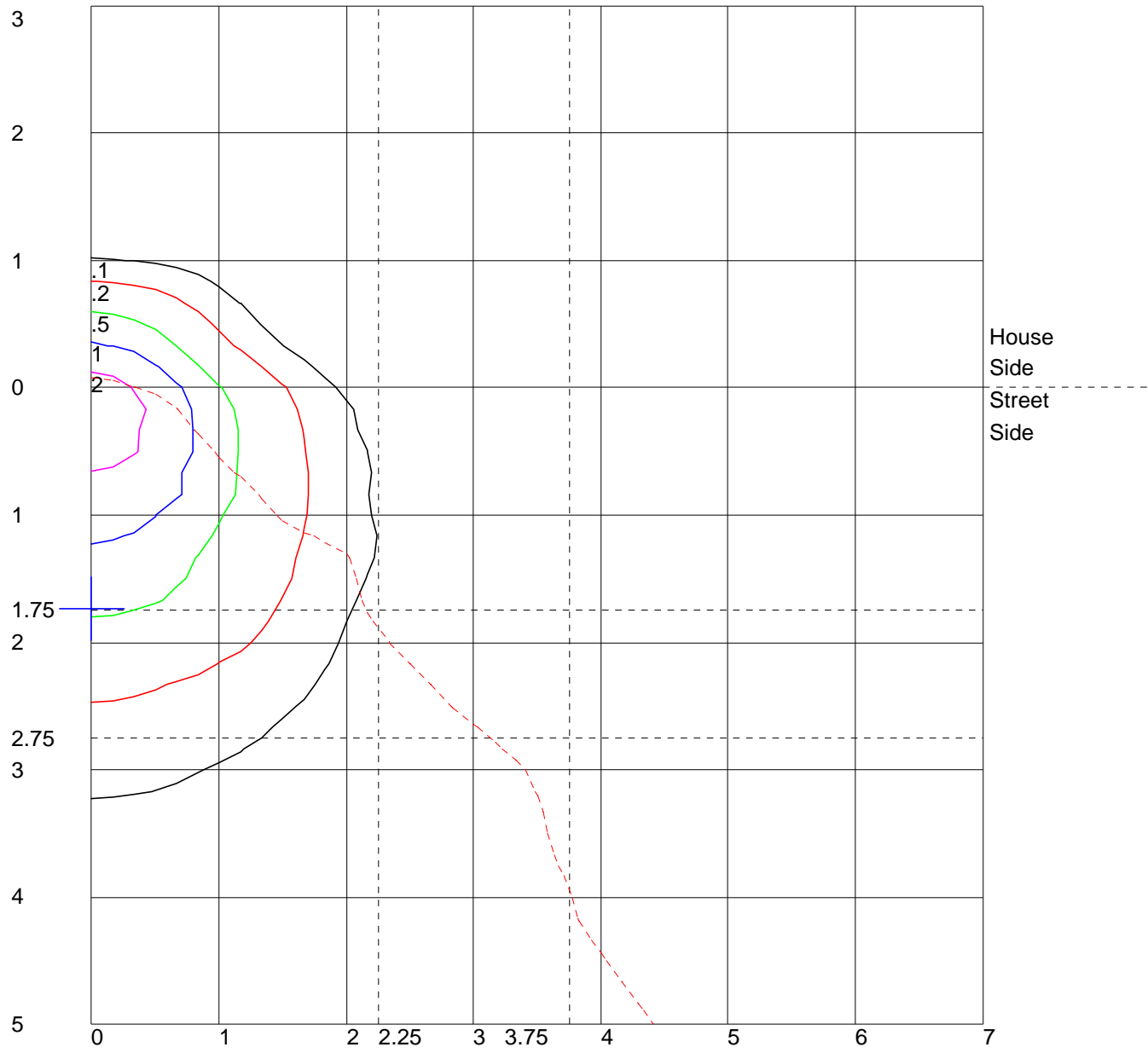
Maximum Candela = 1812 Located At Horizontal Angle = 0, Vertical Angle = 60

1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)

2 - Vertical Plane Through Horizontal Angles (90 - 270)

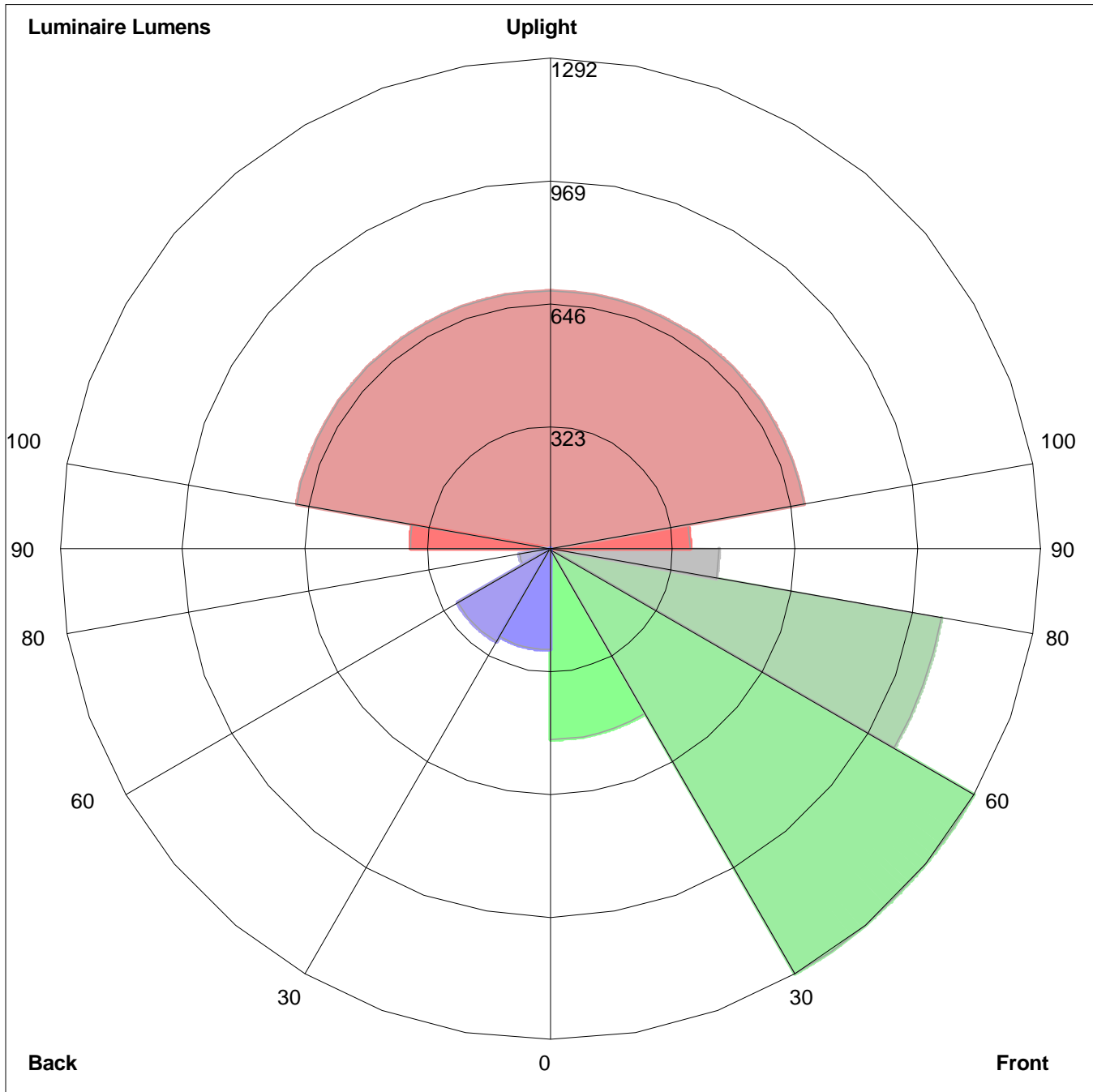
3 - Horizontal Cone Through Vertical Angle (60) (Through Max. Cd.)

ISOFOOTCANDLE LINES OF HORIZONTAL ILLUMINANCE



Distance In Units Of Mounting Height
 Values Based On 20 Foot Mounting Height
 1/2 Maximum Candela Trace Shown As Dashed Curve
 (+) = Maximum Candela Point

LUMINAIRE CLASSIFICATION SYSTEM (LCS) GRAPH



Luminaire Lumens:
 Front: Low=501.2, Medium=1291.9, High=1047.8, Very High=444.6
 Back: Low=265.5, Medium=282.1, High=81.9, Very High=22.2
 Uplight: Low=369.0, High=678.2

BUG Rating : B1-U4-G3