



8165 E Kaiser Blvd. Anaheim, CA 92808  
 p. 714.282.2270  
 f. 714.676.5558

Test #: L12132802

Date: 12/18/2013



NVLAP LAB CODE 200927-0

**Test Report:** L12132802

**Model Number:** LW52-BRZ-110-00

**Report Prepared For:** LUMATEQ

**Test:** Electrical and Photometric tests as required by the IESNA test standards.

**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. Fixture catalog number is LW52-BRZ-110-00. Received in working and undamaged condition. No modifications were necessary.

**Testing Condition:** Fixture is tested with no special conditions.

**Sample Arrival Date:** 12/10/13

**Date of Tests:** 12/17/13 - 12/17/13

**Seasoning of Sample SSL:** 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	01/04/14
Xitron Power Analysis System	2503AH	MT-EL01	01/09/14
Fluke Digital Thermometer	52k/J	MT-TP02-GC	01/04/14
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.

**LM-79 Test Summary**

<b>Manufacturer:</b>	LUMATEQ
<b>Model Number:</b>	LW52-BRZ-110-00
<b>LAMPCAT:</b>	N/A
<b>Driver Model Number:</b>	YIGUANG TECH LP50W-36-C1400
<b>Total Lumens:</b>	4084.92
<b>Input Voltage (VAC/60Hz):</b>	120.00
<b>Input Current (Amp):</b>	0.38
<b>Input Power (W):</b>	45.04
<b>Input Power Factor:</b>	0.98
<b>Total Harmonic Distortion @ 120V(%):</b>	20%
<b>Total Harmonic Distortion @ 277V(%):</b>	N/A
<b>Efficacy:</b>	91
<b>Color Rendering Index (CRI):</b>	84
<b>Correlated Color Temperature (K):</b>	5334
<b>Chromaticity Coordinate x:</b>	0.3367
<b>Chromaticity Coordinate y:</b>	0.3523
<b>Ambient Temperature (°F):</b>	77.0
<b>Stabilization Time (Hours):</b>	0:45
<b>Total Operating Time (Hours):</b>	1:55
<b>Off State Power(W):</b>	0.00

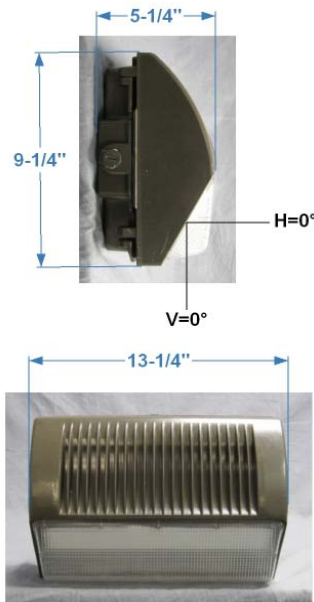
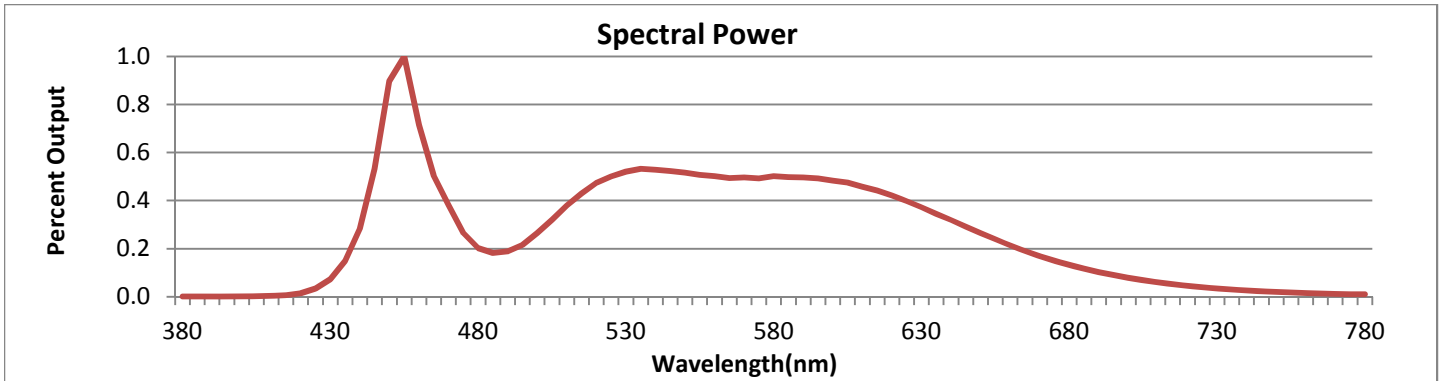


FIG.1 LUMINAIRE

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



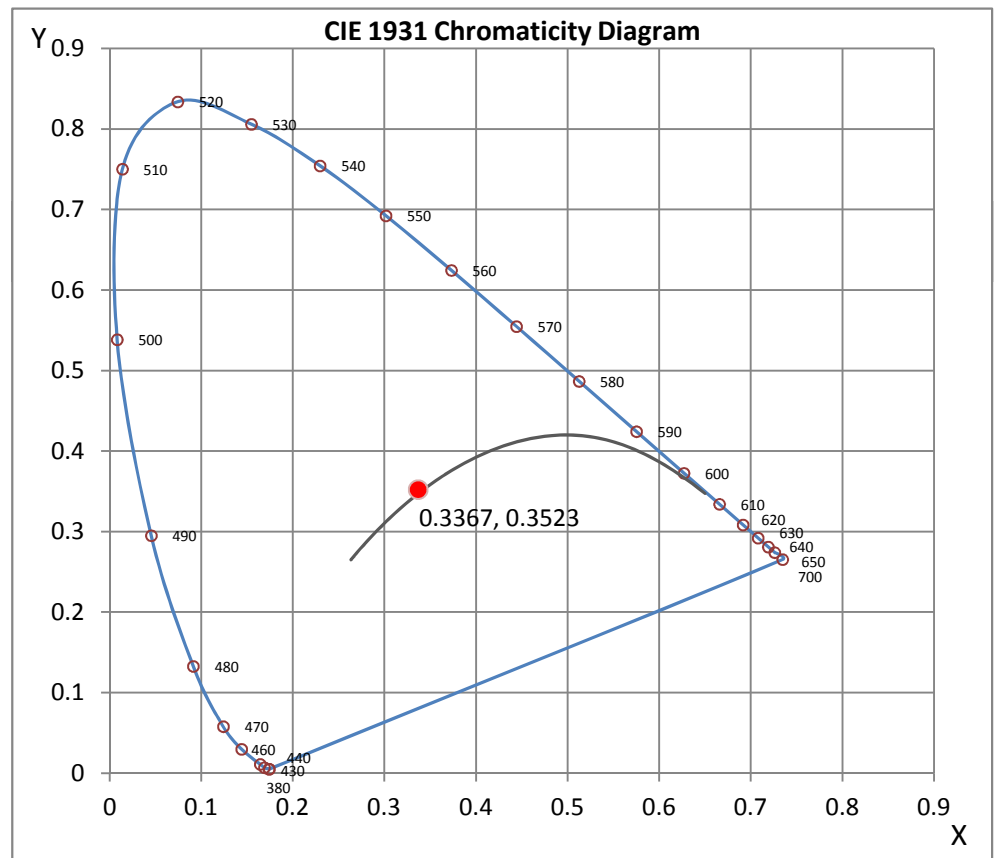
Wavelength	W/m <sup>2</sup> nm	440	0.0231	510	0.0310	580	0.0410	650	0.0216	720	0.0037
380	0.0000	450	0.0734	520	0.0387	590	0.0406	660	0.0174	730	0.0028
390	0.0001	460	0.0584	530	0.0426	600	0.0395	670	0.0138	740	0.0021
400	0.0001	470	0.0312	540	0.0432	610	0.0374	680	0.0108	750	0.0016
410	0.0003	480	0.0165	550	0.0421	620	0.0344	690	0.0084	760	0.0012
420	0.0012	490	0.0154	560	0.0410	630	0.0304	700	0.0064	770	0.0010
430	0.0060	500	0.0216	570	0.0405	640	0.0260	710	0.0049	780	0.0008

**CRI & CCT**

x	0.3367
y	0.3523
u'	0.2055
v'	0.4838
CRI	84.00
CCT	5334
Duv	0.00384

**R Values**

R1	83.66
R2	87.95
R3	88.89
R4	84.24
R5	82.24
R6	81.60
R7	89.98
R8	73.60
R9	22.36
R10	68.82
R11	82.44
R12	52.49
R13	85.02
R14	93.37



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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 :           THI NGUYEN          

Test Report Released by:

Test Report Reviewed by:

Jeff Ahn  
 Engineering Manager

Steve Kang  
 Quality Assurance

*\*Attached are photometric data reports. Total number of pages: 12*

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



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## Photometric Test Report

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L12132802.IES**

### DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002  
[TEST] L12132802  
[TESTLAB] LIGHT LABORATORY, INC.  
[ISSUE DATE] 12/18/2013  
[MANUFAC] LUMATEQ  
[LUMCAT] LW52-BRZ-110-00  
[LUMINAIRE] 5-1/4"L. X 13-1/4"W. X 9-1/4"H. LED FIXTURE  
[MORE] PRISMATIC LENS  
[BALLASTCAT] YIGUANG TECH LP50W-36-C1400  
[BALLAST] INPUT: 90-305VAC, 50/60HZ, 0.71A OUTPUT: 22-36VDC,  
1400mA [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, 45.04W  
[\_TEST PROCEDURE] IESNA:LM-79-08

### CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	4085
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	91
Total Luminaire Watts	45.04
Ballast Factor	1.00
CIE Type	Semi-Direct
Spacing Criterion (0-180)	2.50
Spacing Criterion (90-270)	1.18
Spacing Criterion (Diagonal)	1.58
Basic Luminous Shape	Rectangular w/Sides
Luminous Length (0-180)	0.17 ft
Luminous Width (90-270)	1.04 ft
Luminous Height	0.29 ft

**IES INDOOR REPORT**  
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**LUMINANCE DATA (cd/sq.m)**

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	36209	33285	26367
55	38391	30992	23359
65	39980	30295	20085
75	44919	33004	15432
85	46915	32517	10834

**IES INDOOR REPORT  
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**CANDELA TABULATION**

	<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>
<b>0</b>	620	620	620	620	620	620	620	620	620	620
<b>5</b>	666	666	666	664	663	662	660	658	655	652
<b>10</b>	836	836	831	825	816	805	791	774	755	733
<b>15</b>	923	923	919	914	907	894	881	868	855	843
<b>20</b>	1048	1042	1030	1014	987	961	935	910	886	869
<b>25</b>	1150	1147	1139	1114	1080	1038	991	942	910	877
<b>30</b>	1108	1119	1132	1149	1148	1122	1063	997	943	895
<b>35</b>	1007	999	994	1007	1052	1116	1131	1038	964	908
<b>40</b>	1063	1074	1074	1051	1004	980	1008	1005	989	922
<b>45</b>	1139	1140	1144	1146	1120	1062	1028	979	963	930
<b>50</b>	1259	1251	1224	1193	1163	1107	1063	1005	952	912
<b>55</b>	1244	1245	1245	1221	1157	1113	1051	996	934	878
<b>60</b>	1325	1307	1283	1249	1214	1141	1074	1011	931	855
<b>65</b>	1294	1310	1334	1226	1182	1103	1057	988	913	844
<b>70</b>	1447	1417	1391	1366	1281	1214	1131	1041	941	850
<b>75</b>	1408	1413	1380	1304	1231	1189	1126	1048	975	876
<b>80</b>	1322	1326	1273	1245	1174	1112	1042	980	894	819
<b>85</b>	1378	1291	1269	1219	1164	1099	1044	963	873	794
<b>90</b>	1363	1324	1270	1208	1141	1069	999	917	836	747
<b>95</b>	1127	1158	1066	1015	965	934	879	830	761	681
<b>100</b>	1080	1104	1002	989	949	901	847	783	711	631
<b>105</b>	1133	1057	922	969	889	803	745	663	602	528
<b>110</b>	867	778	795	900	770	740	696	617	552	470
<b>115</b>	658	658	710	720	630	603	555	494	429	375
<b>120</b>	542	541	550	538	491	469	428	381	345	300
<b>125</b>	466	461	448	427	408	374	339	303	267	230
<b>130</b>	346	345	341	330	311	289	268	241	217	190
<b>135</b>	266	264	259	254	247	231	220	202	183	160
<b>140</b>	226	225	222	216	209	200	191	178	159	140
<b>145</b>	199	197	192	187	180	174	169	146	123	107
<b>150</b>	156	156	153	146	136	123	108	97	90	81
<b>155</b>	96	96	95	93	90	86	82	76	71	65
<b>160</b>	75	76	74	73	70	67	64	60	56	51
<b>165</b>	55	55	54	53	51	49	46	43	39	35
<b>170</b>	33	33	32	31	30	29	27	25	23	21
<b>175</b>	12	12	12	12	12	12	12	12	12	12
<b>180</b>	0	0	0	0	0	0	0	0	0	0

**Vert. 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>
<b>0</b>	620	620	620	620	620	620	620	620	620	620
<b>5</b>	649	646	642	638	634	630	625	621	617	604
<b>10</b>	709	683	657	647	638	628	619	609	600	576
<b>15</b>	822	783	741	696	648	628	611	593	575	541
<b>20</b>	855	842	827	765	702	639	604	571	537	495
<b>25</b>	843	823	812	800	741	678	622	569	515	457
<b>30</b>	856	826	801	776	743	686	635	559	483	410
<b>35</b>	873	852	816	778	726	671	620	540	451	365
<b>40</b>	892	868	831	791	726	657	608	530	428	325
<b>45</b>	913	896	847	774	700	623	564	491	392	284
<b>50</b>	878	864	809	738	681	614	544	459	350	247
<b>55</b>	825	802	787	735	677	587	494	412	308	216
<b>60</b>	778	713	667	662	625	560	468	371	267	186

**IES INDOOR REPORT**  
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**CANDELA TABULATION - (Cont.)**

<b>65</b>	756	673	605	553	526	503	414	324	223	159
<b>70</b>	752	661	579	505	440	394	349	268	179	133
<b>75</b>	781	672	572	478	399	324	273	207	134	104
<b>80</b>	738	651	547	443	352	283	212	148	97	73
<b>85</b>	705	612	514	421	332	248	173	97	65	54
<b>90</b>	660	569	461	366	284	210	131	77	52	46
<b>95</b>	598	518	426	339	257	183	112	67	47	41
<b>100</b>	563	466	377	298	215	145	97	63	41	36
<b>105</b>	461	403	320	254	193	127	82	53	36	32
<b>110</b>	394	321	264	202	152	105	69	46	32	29
<b>115</b>	321	265	212	162	119	86	58	39	28	26
<b>120</b>	255	209	167	131	100	74	52	32	24	23
<b>125</b>	201	168	137	113	89	64	42	28	22	20
<b>130</b>	165	144	123	100	72	53	37	25	19	18
<b>135</b>	147	126	100	80	59	45	32	22	17	17
<b>140</b>	124	97	76	65	52	40	27	19	15	15
<b>145</b>	92	76	66	56	45	34	22	17	15	14
<b>150</b>	72	64	56	46	36	27	17	15	13	13
<b>155</b>	59	52	44	36	29	21	15	14	12	12
<b>160</b>	45	39	33	27	21	15	13	12	11	11
<b>165</b>	31	27	23	18	13	13	12	11	11	11
<b>170</b>	18	15	13	12	12	12	11	11	11	11
<b>175</b>	12	12	12	11	11	11	11	11	11	11
<b>180</b>	0	0	0	0	0	0	0	0	0	0

**Vert. Horizontal Angles**

	<u><b>100</b></u>	<u><b>105</b></u>	<u><b>110</b></u>	<u><b>115</b></u>	<u><b>120</b></u>	<u><b>125</b></u>	<u><b>130</b></u>	<u><b>135</b></u>	<u><b>140</b></u>	<u><b>145</b></u>
<b>0</b>	620	620	620	620	620	620	620	620	620	620
<b>5</b>	592	580	568	557	546	536	526	517	509	502
<b>10</b>	553	530	507	486	465	439	414	390	368	348
<b>15</b>	507	475	445	401	361	323	287	267	257	247
<b>20</b>	455	417	363	312	263	247	234	222	211	211
<b>25</b>	401	345	289	239	226	214	207	208	209	207
<b>30</b>	339	284	227	213	201	202	205	203	193	185
<b>35</b>	288	235	203	195	193	198	191	180	172	167
<b>40</b>	247	197	187	184	183	178	168	160	153	149
<b>45</b>	212	173	171	168	164	155	146	138	132	127
<b>50</b>	186	158	153	148	140	131	123	116	107	95
<b>55</b>	165	142	134	127	118	108	101	91	75	66
<b>60</b>	146	125	113	104	95	86	79	70	55	50
<b>65</b>	126	106	99	87	74	64	54	46	41	37
<b>70</b>	104	82	75	65	55	46	39	34	29	25
<b>75</b>	77	65	56	47	40	33	28	24	20	17
<b>80</b>	61	50	41	34	29	25	22	19	17	16
<b>85</b>	46	38	34	29	26	23	21	19	17	16
<b>90</b>	39	35	31	27	24	22	20	18	16	16
<b>95</b>	36	32	29	26	23	21	19	17	16	15
<b>100</b>	32	30	27	24	22	20	18	17	16	15
<b>105</b>	29	27	25	22	20	19	17	17	16	15
<b>110</b>	27	25	23	21	19	18	17	16	16	15
<b>115</b>	24	22	21	19	18	17	16	16	16	15
<b>120</b>	22	20	19	18	17	16	16	16	15	15
<b>125</b>	20	19	18	17	16	16	15	15	15	15
<b>130</b>	18	17	17	16	16	15	15	15	15	14
<b>135</b>	16	16	16	15	15	15	15	14	14	14



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**CANDELA TABULATION - (Cont.)**

140	15	15	15	15	15	14	14	14	14	14
145	14	14	14	14	14	14	14	14	14	14
150	13	13	13	13	13	13	13	13	14	14
155	12	12	12	13	13	13	13	13	13	13
160	12	12	12	12	12	12	13	13	13	13
165	11	11	11	12	12	12	12	12	13	13
170	11	11	11	11	11	12	12	12	12	12
175	11	11	11	11	11	11	11	11	11	11
180	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	620	620	620	620	620	620	620
5	495	490	485	481	479	477	477
10	330	314	301	290	282	277	276
15	238	231	224	219	216	213	213
20	211	212	212	212	212	212	212
25	202	198	194	191	189	188	188
30	180	178	178	177	177	177	177
35	165	163	162	162	161	160	161
40	147	143	137	132	129	127	127
45	117	110	101	93	87	82	81
50	85	75	68	65	63	63	64
55	61	57	52	50	49	50	51
60	46	43	40	38	38	38	39
65	34	32	29	27	27	27	28
70	23	21	18	17	17	17	17
75	15	14	13	13	12	13	12
80	14	13	13	13	0	13	13
85	15	0	0	0	0	13	13
90	15	0	0	0	0	0	0
95	15	0	0	0	0	0	0
100	15	0	0	0	0	0	0
105	15	0	0	0	0	0	0
110	15	0	0	0	0	0	0
115	15	0	0	0	0	0	0
120	15	0	0	0	0	0	0
125	14	0	0	0	0	0	0
130	14	0	0	0	0	0	0
135	14	0	0	0	0	0	0
140	14	0	0	0	0	0	0
145	14	0	0	0	0	0	0
150	14	0	0	0	0	0	0
155	14	0	0	0	0	0	0
160	13	0	0	0	0	0	0
165	13	0	0	0	0	0	0
170	12	0	0	0	0	0	0
175	11	0	0	0	0	0	0
180	0	0	0	0	0	0	0

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L12132802.IES**

**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	215.01	N.A.	5.30
0-30	477.17	N.A.	11.70
0-40	818.15	N.A.	20.00
0-60	1665.27	N.A.	40.80
0-80	2576.45	N.A.	63.10
0-90	2997.9	N.A.	73.40
10-90	2942.18	N.A.	72.00
20-40	603.14	N.A.	14.80
20-50	1006.56	N.A.	24.60
40-70	1302.14	N.A.	31.90
60-80	911.19	N.A.	22.30
70-80	456.17	N.A.	11.20
80-90	421.44	N.A.	10.30
90-110	651.22	N.A.	15.90
90-120	845.92	N.A.	20.70
90-130	960.37	N.A.	23.50
90-150	1063.21	N.A.	26.00
90-180	1087.02	N.A.	26.60
110-180	435.80	N.A.	10.70
0-180	4084.92	N.A.	100.00

Total Luminaire Efficiency = N.A.%

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	55.72
10-20	159.29
20-30	262.16
30-40	340.98
40-50	403.43
50-60	443.69
60-70	455.02
70-80	456.17
80-90	421.44
90-100	361.36
100-110	289.86
110-120	194.70
120-130	114.45
130-140	65.33
140-150	37.52
150-160	16.72
160-170	6.10
170-180	0.98

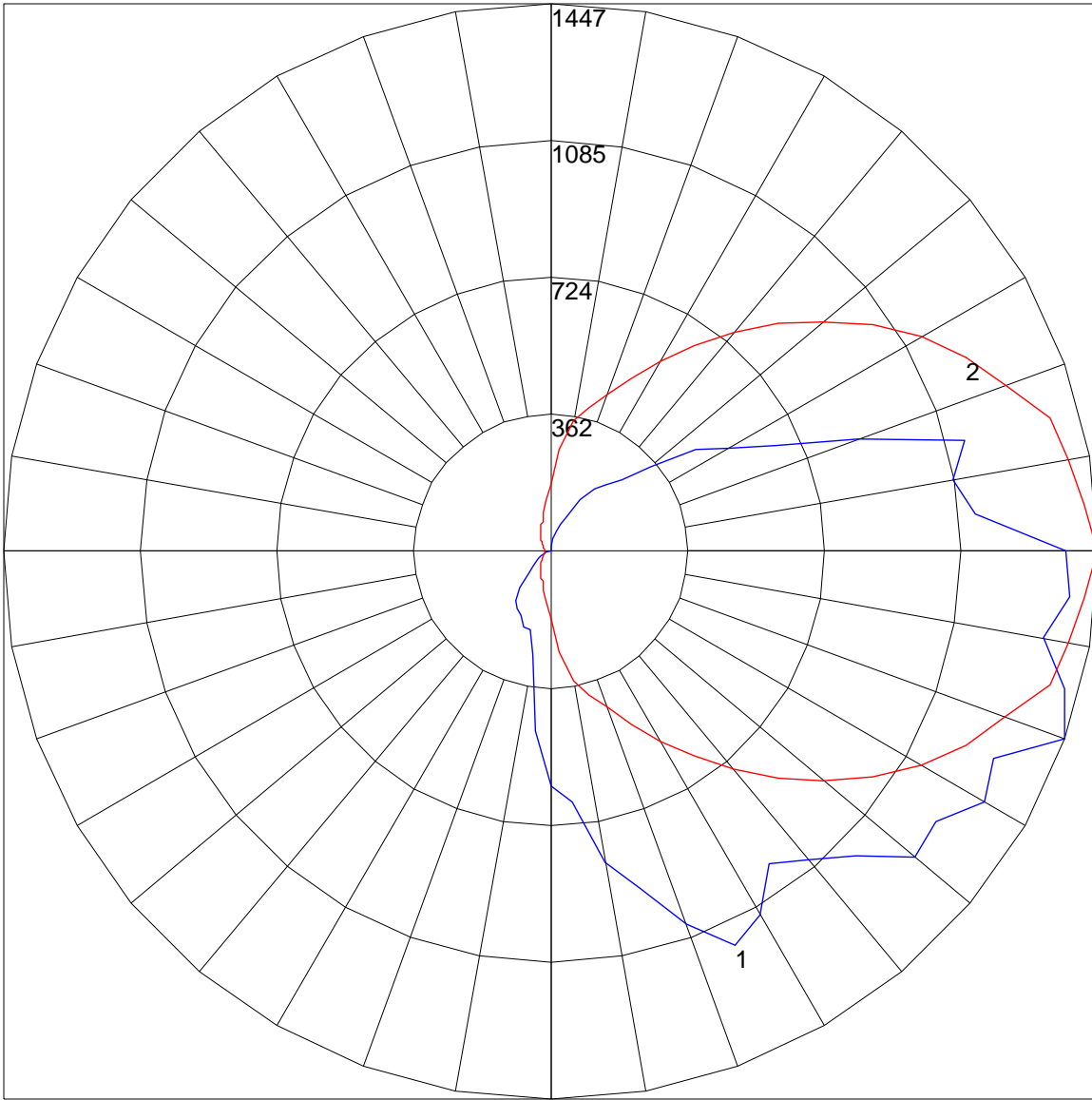
**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L12132802.IES**

**COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD**

Effective Floor Cavity Reflectance 0.20

RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	113	113	113	113	107	107	107	107	96	96	96	87	87	87	78	78	78	73
1	98	91	85	80	92	86	81	76	77	73	69	69	65	62	61	58	56	52
2	87	77	69	62	82	73	65	59	65	59	53	58	53	48	51	47	43	39
3	79	66	57	49	74	63	54	47	56	49	43	49	44	39	43	39	35	31
4	71	58	48	41	67	55	46	39	49	41	35	43	37	32	38	33	29	26
5	65	51	41	34	61	48	39	33	43	36	30	38	32	27	34	29	24	21
6	60	46	36	29	56	43	34	28	39	31	26	34	28	23	30	25	21	18
7	55	41	32	25	52	39	30	24	35	28	22	31	25	20	28	22	18	16
8	51	37	28	22	48	35	27	21	32	25	20	28	22	18	25	20	16	14
9	48	34	25	20	45	32	24	19	29	22	17	26	20	16	23	18	14	12
10	45	31	23	17	42	30	22	17	27	20	16	24	18	14	22	17	13	11

POLAR GRAPH



Maximum Candela = 1447 Located At Horizontal Angle = 0, Vertical Angle = 70  
# 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)  
# 2 - Horizontal Cone Through Vertical Angle (70) (Through Max. Cd.)