



IES File

# Performance Summary

The performance data in black text is confirmed through third party testing (see the following Light Laboratories report for details). The performance data in grey text is calculated by Vode. For reference only.



## BoxRail LED - Button board™ with 36° Medium Optic, High Output

BoxRail LED, 48", 3500K, Button board with 36° medium optic, high output

107-BX-X-4-48-X-X-X-X-X-B-HO-35-36-X-X-X

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	64	66	70	72
Total Lumens, 4' rail length (1219mm)	2989	3113	3243	3373
Lumens per foot (305mm)	747	778	810	843
Input Power (W), 4' rail length (1219mm)	46.6	46.6	46.6	46.6
Watts per foot (305mm)	11.7	11.7	11.7	11.7
Center Beam Candela	-	-	6545 @ 0°	-
CRI (>80min., 85 avg.)	-	-	83	-



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Test #: L01141906

Date: 1/8/2014



NVLAP LAB CODE 200927-0

**Test Report:** L01141906

**Model Number:** 107-BX-48-B-HO-35-36-AL

**Report Prepared For:** Vode Lighting  
 1206 E. MacArthur Street #3 Sonoma, CA 95476

**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 107-BX-48-B-HO-35-36-AL . Received in working and undamaged condition. No modifications were necessary.

**Testing Condition:** Driver output set to 1750mA.

**Sample Arrival Date:** 1/3/14

**Date of Tests:** 1/7/14 - 1/7/14

**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	01/04/15
Xitron Power Analysis System	2503AH	MT-EL01	01/09/15
Fluke Digital Thermometer	52k/J	MT-TP02-GC	01/04/15
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.

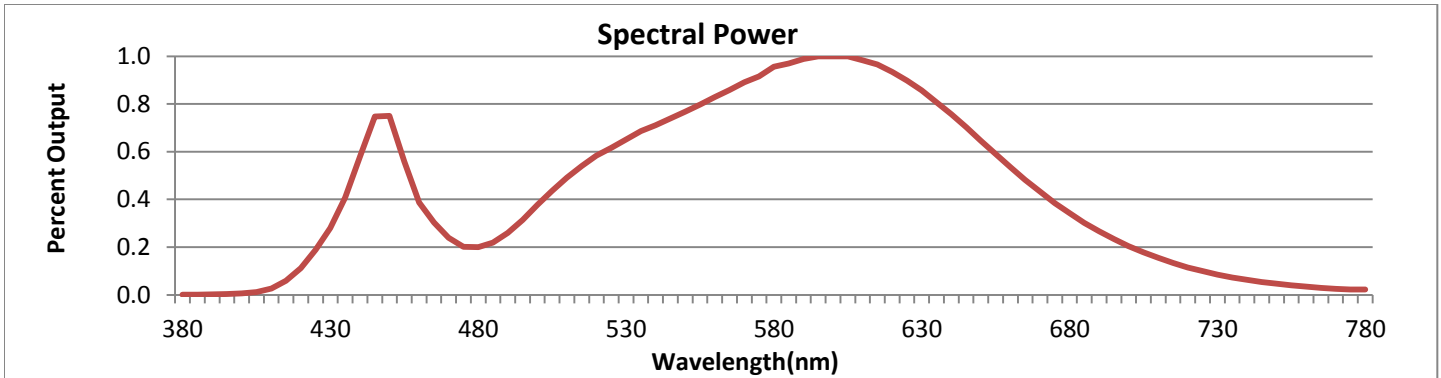
**LM-79 Test Summary**

<b>Manufacturer:</b>	Vode Lighting
<b>Model Number:</b>	107-BX-48-B-HO-35-36-AL
<b>LAMPCAT:</b>	N/A
<b>Driver Model Number:</b>	MEAN WELL HLG-60H-30A
<b>Total Lumens:</b>	3243.48
<b>Input Voltage (VAC/60Hz):</b>	120.00
<b>Input Current (Amp):</b>	0.39
<b>Input Power (W):</b>	46.59
<b>Input Power Factor:</b>	1.00
<b>Total Harmonic Distortion @ 120V(%):</b>	6%
<b>Total Harmonic Distortion @ 277V(%):</b>	N/A
<b>Efficacy:</b>	70
<b>Color Rendering Index (CRI):</b>	83
<b>Correlated Color Temperature (K):</b>	3456
<b>Chromaticity Coordinate x:</b>	0.4063
<b>Chromaticity Coordinate y:</b>	0.3880
<b>Ambient Temperature (°F):</b>	77.0
<b>Stabilization Time (Hours):</b>	0:55
<b>Total Operating Time (Hours):</b>	1:55
<b>Off State Power(W):</b>	0.00



FIG1. LUMINAIRE

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



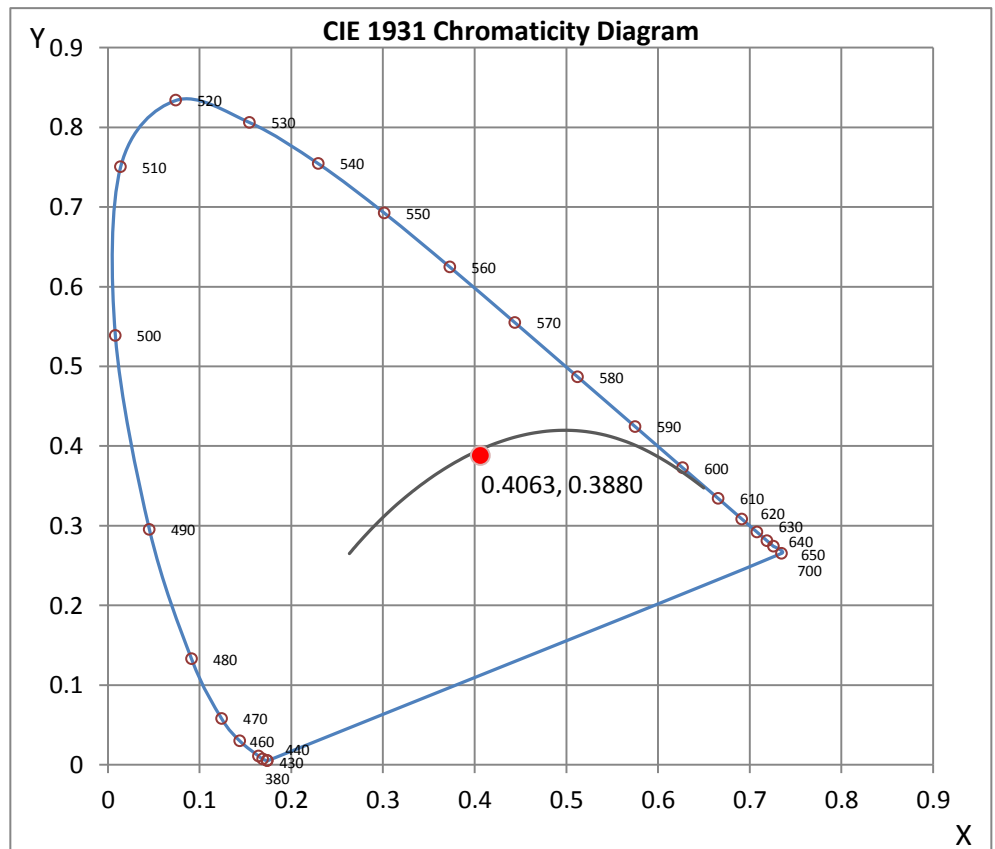
Wavelength	W/m <sup>2</sup> nm	440	0.0278	510	0.0236	580	0.0459	650	0.0310	720	0.0055
380	0.0000	450	0.0361	520	0.0281	590	0.0476	660	0.0257	730	0.0041
390	0.0001	460	0.0186	530	0.0313	600	0.0481	670	0.0208	740	0.0030
400	0.0003	470	0.0115	540	0.0342	610	0.0473	680	0.0165	750	0.0022
410	0.0013	480	0.0096	550	0.0369	620	0.0449	690	0.0128	760	0.0017
420	0.0054	490	0.0125	560	0.0399	630	0.0412	700	0.0098	770	0.0012
430	0.0134	500	0.0182	570	0.0429	640	0.0364	710	0.0074	780	0.0011

**CRI & CCT**

x	0.4063
y	0.3880
u'	0.2375
v'	0.5103
CRI	82.70
CCT	3456
Duv	-0.00142

**R Values**

R1	81.61
R2	87.58
R3	92.07
R4	82.54
R5	81.07
R6	82.78
R7	86.30
R8	67.52
R9	19.52
R10	70.44
R11	81.15
R12	66.44
R13	82.52
R14	95.08



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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 Released by:

Test Report Reviewed by:

Jeff Ahn  
 Engineering Manager

Steve Kang  
 Quality Assurance

*\*Attached are photometric data reports. Total number of pages: 10*

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# Photometric Test Report

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L01141906.IES**

## DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002  
[TEST] L01141906  
[TESTLAB] LIGHT LABORATORY, INC.  
[ISSUEDATE] 1/8/2013  
[MANUFAC] VODE LIGHTING  
[LUMCAT] 107-BX-48-B-HO-35-36-AL  
[LUMINAIRE] 48-1/2"L. X 1-1/4"W. X 1-1/4"H. LED LUMINAIRE  
[MORE] CLEAR LENS  
[BALLASTCAT] MEAN WELL HLG-60H-30A  
[BALLAST] INPUT: 100-277VAC, 0.30-0.64A, 50/60Hz. OUTPUT: 30VDC, 2.0A  
[LAMPPOSITION] 0,0  
[LAMPCAT] N/A  
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND  
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.  
[OTHER] DRIVER OUTPUT SET TO 1750mA  
[\_INPUT] 120VAC, 46.59W  
[\_TEST PROCEDURE] IESNA:LM-79-08

## CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	3243
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	70
Total Luminaire Watts	46.59
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	0.62
Spacing Criterion (90-270)	0.62
Spacing Criterion (Diagonal)	0.62
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	3.83 ft
Luminous Width (90-270)	0.08 ft
Luminous Height	0.00 ft

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L01141906.IES**

**LUMINANCE DATA (cd/sq.m)**

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	8860	10225	9282
55	4222	4773	4467
65	2325	2574	2491
75	1220	1356	1220
85	403	403	0

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L01141906.IES**

**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>0.0</b>	6545	6545	6545	6545	6545	6545	6545	6545	6545	6545
<b>1.0</b>	6543	6543	6543	6543	6543	6543	6543	6543	6543	6543
<b>3.0</b>	6476	6476	6477	6476	6477	6476	6477	6477	6476	6476
<b>5.0</b>	6325	6324	6323	6324	6325	6325	6325	6325	6325	6325
<b>7.0</b>	6086	6085	6086	6087	6088	6089	6090	6091	6091	6091
<b>9.0</b>	5754	5689	5686	5684	5681	5679	5677	5676	5674	5672
<b>11.0</b>	5337	5338	5340	5342	5345	5349	5352	5353	5354	5354
<b>13.0</b>	4845	4844	4845	4848	4849	4852	4854	4856	4855	4855
<b>15.0</b>	4300	4299	4300	4300	4301	4302	4302	4302	4301	4299
<b>17.0</b>	3733	3732	3732	3732	3732	3732	3732	3730	3728	3725
<b>19.5</b>	3054	3053	3054	3055	3056	3057	3057	3056	3053	3051
<b>22.5</b>	2324	2324	2326	2330	2334	2338	2341	2343	2344	2344
<b>25.5</b>	1708	1709	1713	1719	1726	1734	1742	1748	1752	1754
<b>29.0</b>	1130	1131	1137	1144	1153	1164	1175	1185	1191	1195
<b>33.0</b>	676	678	682	689	699	710	721	731	739	743
<b>37.5</b>	388	389	392	398	405	414	423	432	439	442
<b>42.5</b>	222	223	225	229	233	239	245	250	255	257
<b>47.5</b>	135	135	137	139	142	145	148	151	154	155
<b>55.0</b>	69	69	70	71	73	74	75	76	77	78
<b>65.0</b>	28	28	29	29	29	29	30	30	31	31
<b>75.0</b>	9	9	10	9	9	9	9	10	10	10
<b>85.0</b>	1	2	2	2	1	1	1	1	1	1
<b>90.0</b>	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>
<b>0.0</b>	6545	6545	6545	6545	6545	6545	6545	6545	6545
<b>1.0</b>	6543	6543	6542	6543	6543	6543	6543	6543	6543
<b>3.0</b>	6475	6475	6475	6475	6475	6475	6475	6474	6475
<b>5.0</b>	6325	6325	6325	6323	6323	6322	6322	6321	6321
<b>7.0</b>	6090	6089	6088	6086	6085	6083	6082	6082	6080
<b>9.0</b>	5671	5669	5667	5667	5669	5669	5674	5677	5747
<b>11.0</b>	5352	5350	5345	5342	5337	5334	5330	5328	5326
<b>13.0</b>	4853	4850	4845	4840	4836	4832	4828	4826	4825
<b>15.0</b>	4296	4292	4288	4283	4279	4275	4272	4270	4267
<b>17.0</b>	3721	3716	3711	3706	3701	3697	3693	3691	3690
<b>19.5</b>	3047	3041	3034	3027	3021	3014	3010	3007	3004
<b>22.5</b>	2341	2335	2329	2319	2309	2300	2292	2288	2284
<b>25.5</b>	1752	1747	1739	1730	1718	1707	1698	1694	1691
<b>29.0</b>	1193	1188	1181	1169	1159	1150	1142	1138	1134
<b>33.0</b>	742	738	730	721	712	703	697	693	692
<b>37.5</b>	442	438	432	425	417	411	406	403	401
<b>42.5</b>	258	256	252	247	243	238	235	233	232
<b>47.5</b>	156	155	153	151	148	145	144	142	142
<b>55.0</b>	78	78	78	77	76	74	74	73	73
<b>65.0</b>	31	31	31	31	30	30	30	30	30
<b>75.0</b>	10	10	10	9	9	9	9	9	9
<b>85.0</b>	1	1	0	0	0	0	0	0	0
<b>90.0</b>	0	0	0	0	0	0	0	0	0



**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L01141906.IES**

**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	1692.51	N.A.	52.20
0-30	2533.58	N.A.	78.10
0-40	2905.95	N.A.	89.60
0-60	3167.96	N.A.	97.70
0-80	3237.76	N.A.	99.80
0-90	3243.48	N.A.	100.00
10-90	2767.66	N.A.	85.30
20-40	1213.44	N.A.	37.40
20-50	1404.58	N.A.	43.30
40-70	311.57	N.A.	9.60
60-80	69.80	N.A.	2.20
70-80	20.24	N.A.	0.60
80-90	5.72	N.A.	0.20
90-110	0.00	N.A.	0.00
90-120	0.00	N.A.	0.00
90-130	0.00	N.A.	0.00
90-150	0.00	N.A.	0.00
90-180	0.00	N.A.	0.00
110-180	0.00	N.A.	0.00
0-180	3243.48	N.A.	100.00

Total Luminaire Efficiency = N.A.%

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	475.82
10-20	1216.69
20-30	841.07
30-40	372.36
40-50	191.14
50-60	70.87
60-70	49.56
70-80	20.24
80-90	5.72
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

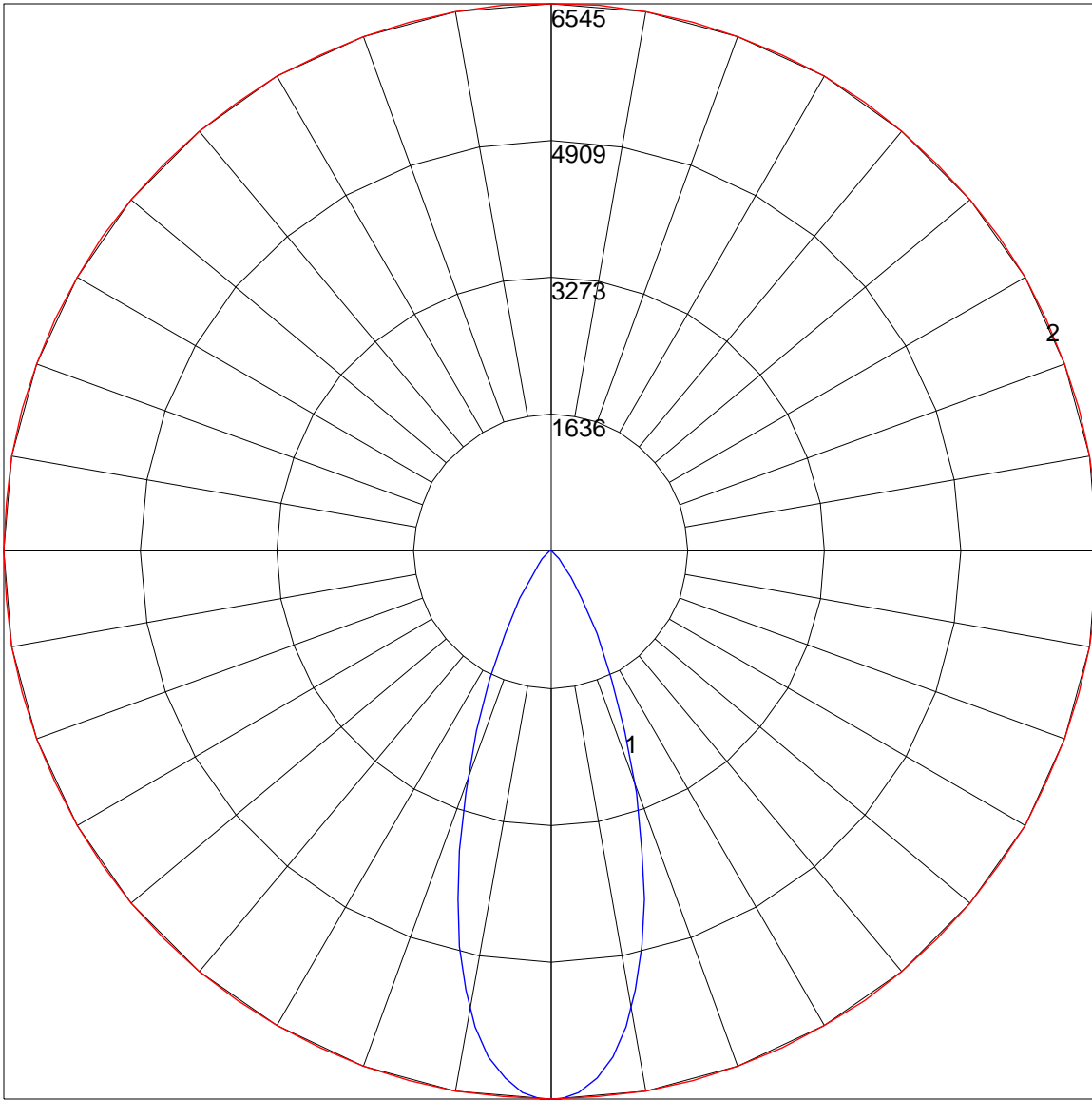
**IES INDOOR REPORT**  
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**COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD**

Effective Floor Cavity Reflectance 0.20

RC RW	80				70				50			30			10			0
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	114	111	108	106	111	109	107	105	105	103	101	101	100	98	98	96	95	94
2	108	103	100	96	106	102	98	95	99	96	93	96	93	91	93	91	89	88
3	103	97	92	88	101	96	91	88	93	89	86	91	87	85	88	86	84	82
4	98	91	86	82	97	90	85	81	88	84	80	86	82	79	84	81	79	77
5	94	86	80	76	92	85	80	76	83	79	75	82	78	75	80	77	74	73
6	90	81	76	72	88	80	75	71	79	74	71	78	74	70	76	73	70	69
7	86	77	71	67	84	76	71	67	75	70	67	74	70	67	73	69	66	65
8	82	73	68	64	81	73	67	64	72	67	63	71	66	63	70	66	63	62
9	79	70	64	61	78	69	64	60	68	64	60	68	63	60	67	63	60	59
10	76	67	61	58	75	66	61	58	65	61	57	65	60	57	64	60	57	56

POLAR GRAPH



Maximum Candela = 6545 Located At Horizontal Angle = 0, Vertical Angle = 0  
# 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)  
# 2 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)