IES File

Performance Summary

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

BoxRail LED - Button board™ with 19° x 48° Oval Optic, Standard Output

BoxRail LED, 48", 3500K, Button board with 19° x 48° oval optic, standard output
107-BX-X-4-48-X-X-X-X-X-X-B-SO-35-19-X-X-X

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	61	64	67	69
Total Lumens, 4' rail length (1219mm)	1695	1766	1839	1913
Lumens per foot (305mm)	423	441	460	478
Input Power (W), 4' rail length (1219mm)	27.5	27.5	27.5	27.5
Watts per foot (305mm)	6.9	6.9	6.9	6.9
Center Beam Candela	-	-	3705 @ 0°	-
CRI (>80min., 85 avg.)	-	-	83	-

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

Test #: L01141903
Date: 1/8/2014

NVLAP LAB CODE 200927-0

Test Report: **L01141903**

Model Number: **107-BX-48-B-SO-35-19-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-SO-35-19-AL. Received in working and undamaged condition. No modifications were necessary.

Testing Condition: Driver output set to 1050mA.

Sample Arrival Date: 1/3/14

Date of Tests: 1/6/14 - 1/6/14

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.

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NVLAP LAB CODE 200927-0

LM-79 Test Summary	
Manufacturer:	Vode Lighting
Model Number:	107-BX-48-B-SO-35-19-AL
LAMPCAT:	N/A
Driver Model Number:	MEAN WELL HLG-40H-30A
Total Lumens:	1839.98
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.23
Input Power (W):	27.49
Input Power Factor:	0.99
Total Harmonic Distortion @ 120V(%):	9%
Total Harmonic Distortion @ 277V(%):	N/A
Efficacy:	67
Color Rendering Index (CRI):	83
Correlated Color Temperature (K):	3428
Chromaticity Coordinate x:	0.4087
Chromaticity Coordinate y:	0.3909
Ambient Temperature (°F):	77.0
Stabilization Time (Hours):	0:30
Total Operating Time (Hours):	1:30
Off State Power(W):	0.00

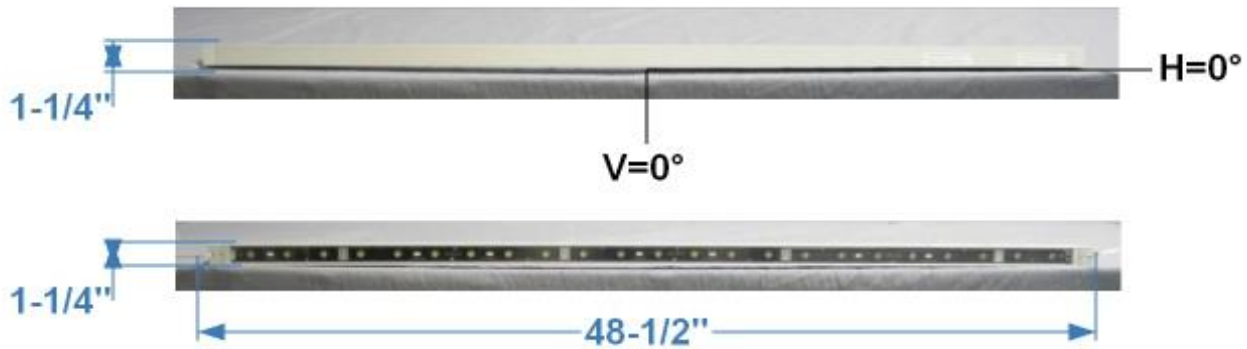

FIG1. LUMINAIRE

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

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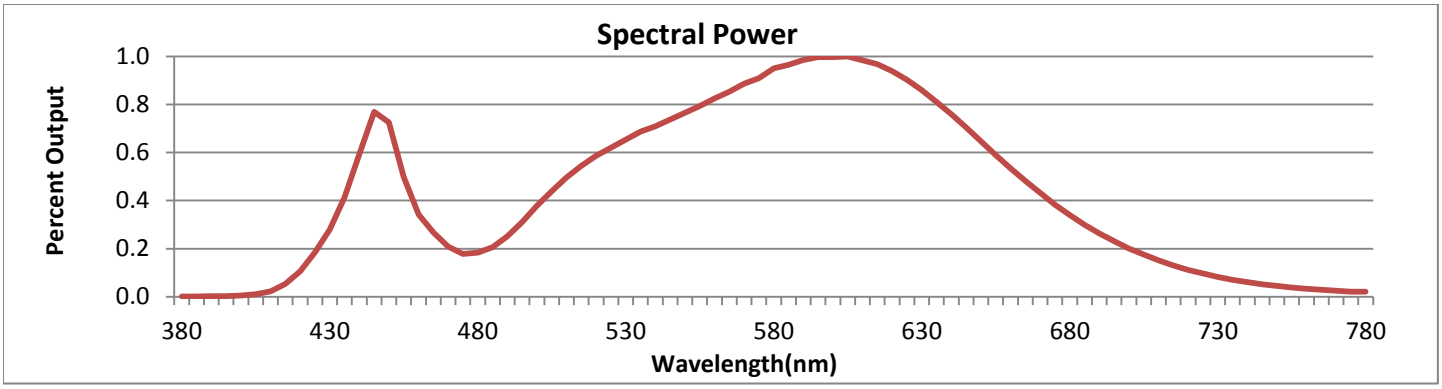
NVLAP LAB CODE 200927-0



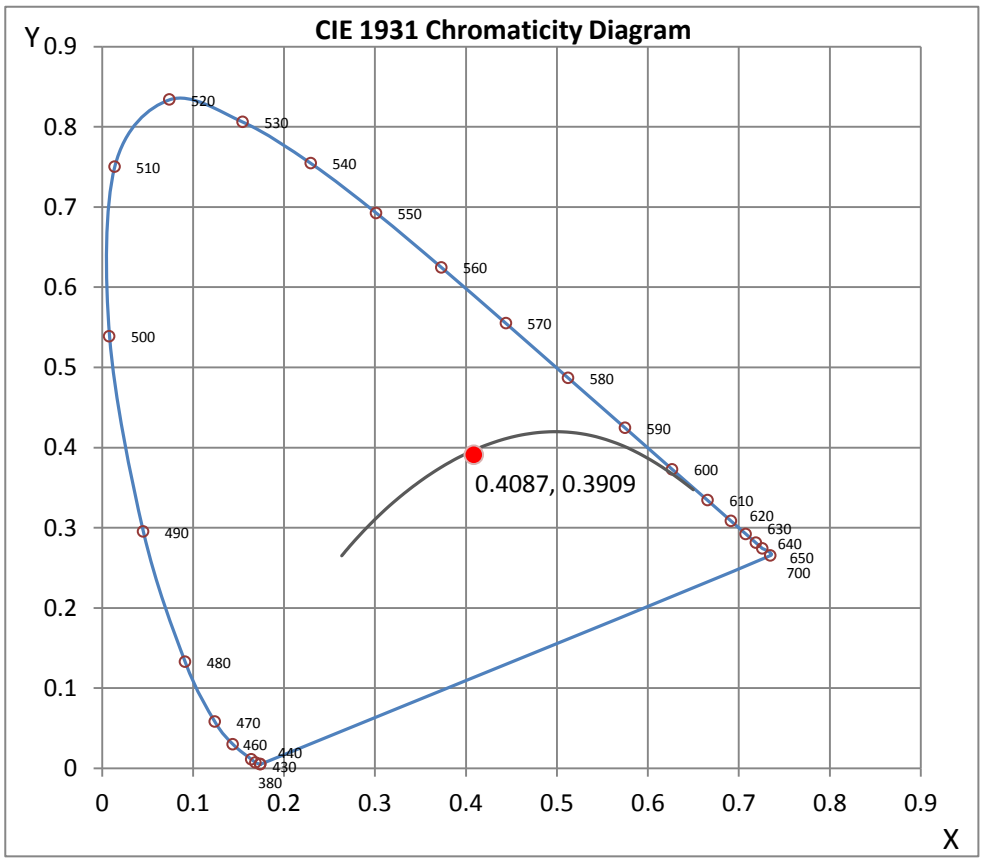
Wavelength	W/m²nm	440	0.0163	510	0.0136	580	0.0261	650	0.0178	720	0.0031
380	0.0000	450	0.0199	520	0.0161	590	0.0270	660	0.0147	730	0.0023
390	0.0000	460	0.0094	530	0.0179	600	0.0274	670	0.0119	740	0.0017
400	0.0001	470	0.0057	540	0.0195	610	0.0270	680	0.0093	750	0.0012
410	0.0006	480	0.0050	550	0.0210	620	0.0257	690	0.0072	760	0.0009
420	0.0029	490	0.0069	560	0.0226	630	0.0236	700	0.0055	770	0.0007
430	0.0077	500	0.0104	570	0.0243	640	0.0209	710	0.0042	780	0.0006

CRI & CCT

x	0.4087
y	0.3909
u'	0.2378
v'	0.5118
CRI	82.50
CCT	3428
Duv	-0.00065

R Values

R1	81.48
R2	87.12
R3	91.62
R4	82.78
R5	80.92
R6	82.34
R7	86.33
R8	67.52
R9	19.15
R10	69.59
R11	81.74
R12	65.89
R13	82.24
R14	94.82



*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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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: 10*

*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 : L01141903.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L01141903
[TESTLAB] LIGHT LABORATORY, INC.
[ISSUEDATE] 1/8/2013
[MANUFAC] VODE LIGHTING
[LUMCAT] 107-BX-48-B-SO-35-19-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-40H-30A
[BALLAST] INPUT: 100-277VAC, 0.23-0.43A, 50/60Hz. OUTPUT: 30VDC, 1.34A
[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 1050mA
[_INPUT] 120VAC, 27.49W
[_TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	1840
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	67
Total Luminaire Watts	27.49
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	0.74
Spacing Criterion (90-270)	0.44
Spacing Criterion (Diagonal)	0.58
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 : L01141903.IES

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	12831	7172	4343
55	3182	2876	2203
65	1495	1246	1329
75	1356	949	678
85	2416	0	0

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L01141903.IES

CANDELA TABULATION

	0	5	10	15	20	25	30	35	40	45
0.0	3705	3705	3705	3705	3705	3705	3705	3705	3705	3705
1.0	3705	3705	3705	3704	3704	3703	3703	3703	3701	3702
3.0	3686	3685	3683	3679	3674	3669	3663	3655	3648	3638
5.0	3641	3639	3633	3623	3608	3592	3573	3550	3527	3501
7.0	3572	3568	3556	3537	3511	3479	3441	3396	3348	3296
9.0	3466	3431	3380	3319	3244	3154	3058	2946	2841	2737
11.0	3317	3310	3289	3254	3200	3130	3044	2946	2838	2733
13.0	3121	3113	3090	3049	2981	2890	2783	2664	2532	2401
15.0	2899	2890	2864	2816	2738	2625	2499	2358	2210	2066
17.0	2652	2645	2617	2559	2469	2346	2203	2044	1886	1744
19.5	2341	2331	2298	2229	2123	1989	1835	1670	1522	1401
22.5	1974	1961	1919	1842	1726	1583	1432	1291	1175	1082
25.5	1619	1604	1557	1474	1357	1221	1098	992	907	841
29.0	1246	1232	1183	1101	997	892	803	733	676	629
33.0	892	878	834	763	686	617	564	520	481	445
37.5	584	573	539	492	445	407	379	350	320	293
42.5	340	333	312	288	268	254	239	219	198	180
47.5	177	174	166	158	152	146	138	129	119	109
55.0	52	52	52	52	52	52	52	51	49	47
65.0	18	17	17	16	15	15	15	15	15	15
75.0	10	10	12	8	7	7	7	7	7	7
85.0	6	6	6	4	2	2	1	1	1	0
90.0	0	0	0	0	0	0	0	0	0	0

Vert. Angles	**Horizontal Angles**								
	50	**55**	**60**	**65**	**70**	**75**	**80**	**85**	**90**
0.0	3705	3705	3705	3705	3705	3705	3705	3705	3705
1.0	3701	3701	3701	3701	3700	3701	3701	3699	3700
3.0	3631	3622	3615	3609	3603	3599	3595	3593	3591
5.0	3476	3450	3427	3406	3387	3371	3361	3355	3350
7.0	3244	3194	3148	3104	3069	3040	3018	3006	2999
9.0	2634	2543	2462	2395	2342	2304	2274	2261	2580
11.0	2626	2522	2430	2348	2281	2227	2188	2166	2156
13.0	2274	2157	2057	1968	1903	1850	1814	1792	1784
15.0	1929	1815	1720	1643	1584	1541	1509	1493	1487
17.0	1621	1518	1439	1378	1331	1297	1273	1259	1254
19.5	1300	1221	1162	1116	1082	1057	1038	1029	1024
22.5	1009	952	909	875	848	826	811	802	799
25.5	787	744	708	677	653	634	621	613	610
29.0	586	549	517	491	471	456	445	440	437
33.0	410	379	353	333	319	307	300	297	295
37.5	267	245	227	213	203	195	189	186	185
42.5	165	152	139	129	122	116	111	109	108
47.5	101	93	85	79	76	72	69	67	67
55.0	45	42	40	38	37	36	36	36	36
65.0	15	15	16	15	15	15	15	16	16
75.0	7	6	6	6	5	5	5	5	5
85.0	0	0	0	0	0	0	0	0	0
90.0	0	0	0	0	0	0	0	0	0

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L01141903.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	869.52	N.A.	47.30
0-30	1333.3	N.A.	72.50
0-40	1590.63	N.A.	86.40
0-60	1794.77	N.A.	97.50
0-80	1835.08	N.A.	99.70
0-90	1839.98	N.A.	100.00
10-90	1583.01	N.A.	86.00
20-40	721.11	N.A.	39.20
20-50	874.18	N.A.	47.50
40-70	232.91	N.A.	12.70
60-80	40.31	N.A.	2.20
70-80	11.54	N.A.	0.60
80-90	4.90	N.A.	0.30
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	1839.98	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	256.97
10-20	612.55
20-30	463.77
30-40	257.34
40-50	153.07
50-60	51.06
60-70	28.77
70-80	11.54
80-90	4.90
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
PHOTOMETRIC FILENAME : L01141903.IES

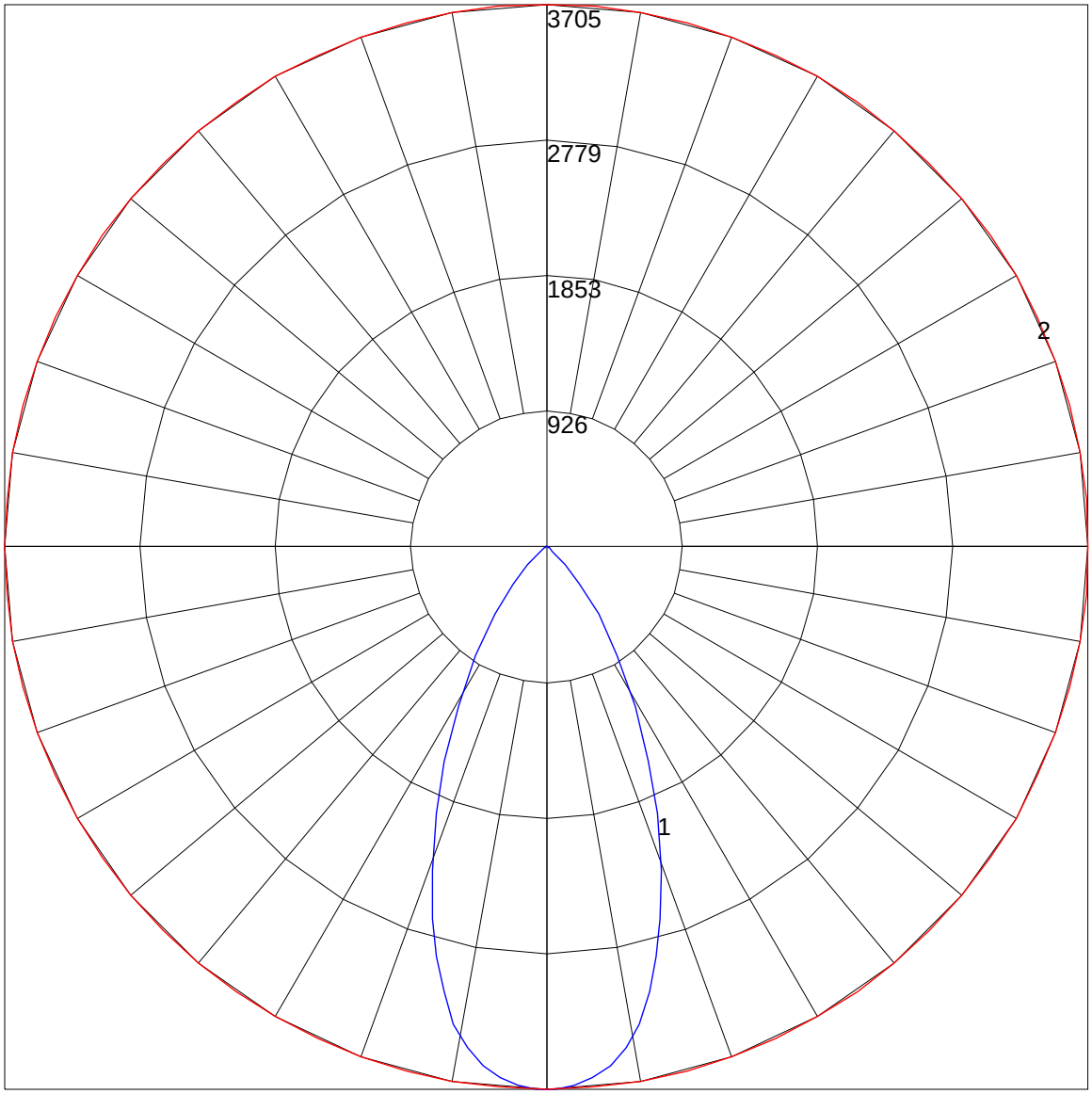
COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	113	110	108	106	111	108	106	104	104	102	101	101	99	98	97	96	95	93
2	108	103	99	95	105	101	97	94	98	95	92	95	92	90	92	90	88	87
3	102	96	91	87	100	94	90	86	92	88	85	89	86	83	87	84	82	81
4	97	90	84	80	95	89	83	79	86	82	79	84	81	78	83	79	77	75
5	93	84	78	74	91	83	78	74	81	77	73	80	76	73	78	75	72	70
6	88	79	73	69	87	79	73	69	77	72	68	76	71	68	74	71	68	66
7	84	75	69	65	83	74	69	65	73	68	64	72	67	64	71	67	64	62
8	80	71	65	61	79	70	65	61	69	64	61	68	64	60	67	63	60	59
9	77	67	62	58	76	67	61	58	66	61	57	65	61	57	64	60	57	56
10	74	64	59	55	73	64	58	55	63	58	55	62	58	54	61	57	54	53

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L01141903.IES

POLAR GRAPH



Maximum Candela = 3705 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.)