

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 19° x 48° Oval Optic, High Output

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

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	55	57	60	62
Total Lumens, 4' rail length (1219mm)	2585	2693	2805	2917
Lumens per foot (305mm)	646	673	701	729
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	-	-	5650 @ 0°	-
CRI (>80min., 85 avg.)	-	-	83	-



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Test #: L01141904

Date: 1/8/2014



NVLAP LAB CODE 200927-0

**Test Report:** L01141904

**Model Number:** 107-BX-48-B-HO-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-HO-35-19-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:** 1/6/14 - 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.

**LM-79 Test Summary**

<b>Manufacturer:</b>	Vode Lighting
<b>Model Number:</b>	107-BX-48-B-HO-35-19-AL
<b>LAMPCAT:</b>	N/A
<b>Driver Model Number:</b>	MEAN WELL HLG-60H-30A
<b>Total Lumens:</b>	2805.32
<b>Input Voltage (VAC/60Hz):</b>	120.00
<b>Input Current (Amp):</b>	0.39
<b>Input Power (W):</b>	46.51
<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>	60
<b>Color Rendering Index (CRI):</b>	83
<b>Correlated Color Temperature (K):</b>	3453
<b>Chromaticity Coordinate x:</b>	0.4067
<b>Chromaticity Coordinate y:</b>	0.3887
<b>Ambient Temperature (°F):</b>	77.0
<b>Stabilization Time (Hours):</b>	0:30
<b>Total Operating Time (Hours):</b>	1:30
<b>Off State Power(W):</b>	0.00

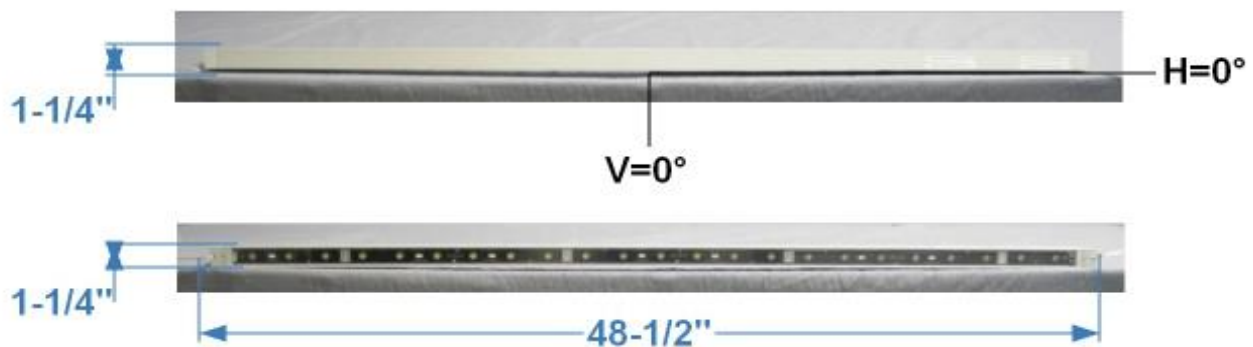
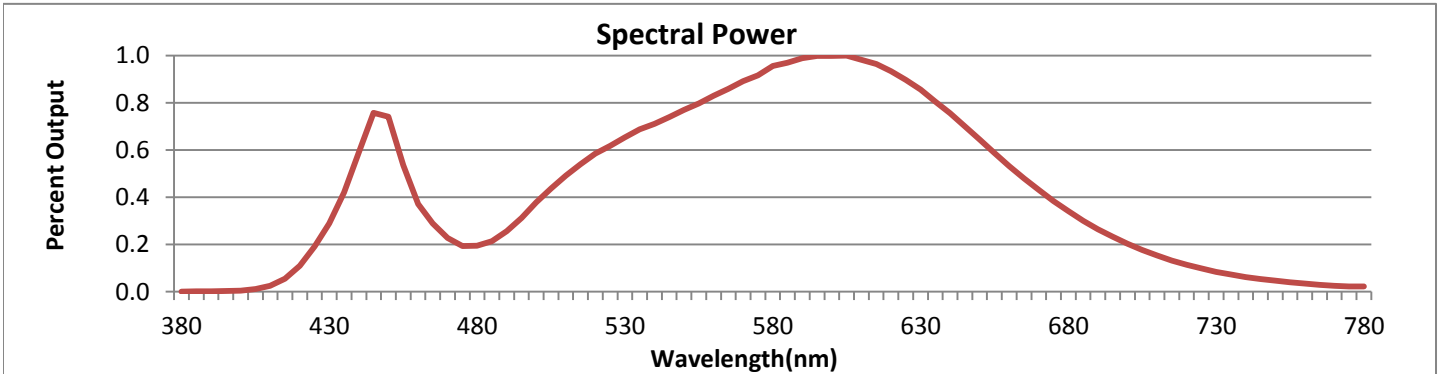


FIG1 LUMINAIRE

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



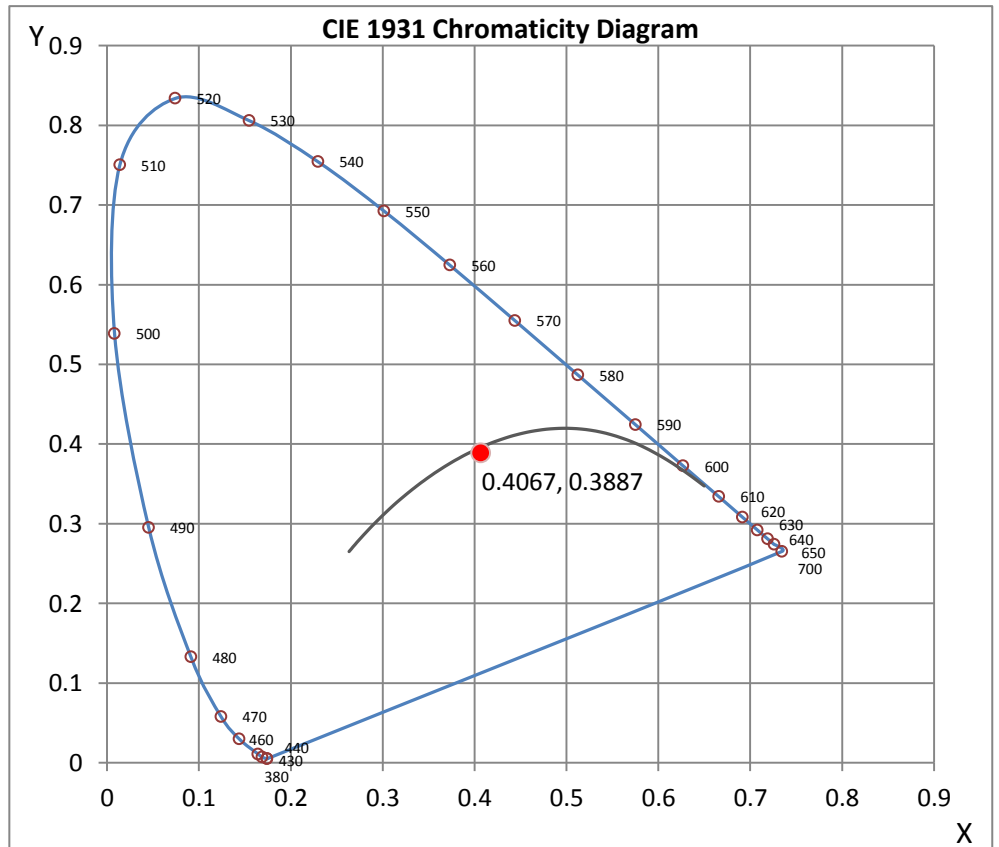
Wavelength	W/m <sup>2</sup> nm	440	0.0248	510	0.0206	580	0.0400	650	0.0269	720	0.0047
380	0.0000	450	0.0310	520	0.0245	590	0.0414	660	0.0223	730	0.0035
390	0.0001	460	0.0156	530	0.0273	600	0.0418	670	0.0180	740	0.0026
400	0.0002	470	0.0095	540	0.0298	610	0.0411	680	0.0143	750	0.0019
410	0.0010	480	0.0081	550	0.0322	620	0.0391	690	0.0111	760	0.0014
420	0.0046	490	0.0107	560	0.0347	630	0.0358	700	0.0085	770	0.0011
430	0.0121	500	0.0158	570	0.0373	640	0.0316	710	0.0064	780	0.0009

**CRI & CCT**

x	0.4067
y	0.3887
u'	0.2375
v'	0.5106
CRI	82.50
CCT	3453
Duv	-0.00119

**R Values**

R1	81.40
R2	87.29
R3	91.81
R4	82.47
R5	80.86
R6	82.43
R7	86.22
R8	67.35
R9	18.89
R10	69.84
R11	81.17
R12	66.11
R13	82.25
R14	94.93



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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 : L01141904.IES**

**DESCRIPTION INFORMATION (From Photometric File)**

IESNA:LM-63-2002  
 [TEST] L01141904  
 [TESTLAB] LIGHT LABORATORY, INC.  
 [ISSUEDATE] 1/8/2013  
 [MANUFAC] VODE LIGHTING  
 [LUMCAT] 107-BX-48-B-HO-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-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, 46.51W  
 [\_TEST PROCEDURE] IESNA:LM-79-08

**CHARACTERISTICS**

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	2805
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	60
Total Luminaire Watts	46.51
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 : L01141904.IES**

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

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	19457	11019	6676
55	4895	4406	3365
65	2242	1910	1993
75	2034	1356	949
85	4027	403	0

**IES INDOOR REPORT  
PHOTOMETRIC FILENAME : L01141904.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>	5649	5649	5649	5649	5649	5649	5649	5649	5649	5649
<b>1.0</b>	5648	5648	5647	5646	5647	5650	5647	5644	5645	5647
<b>3.0</b>	5617	5616	5612	5608	5601	5594	5584	5572	5560	5549
<b>5.0</b>	5548	5545	5535	5521	5499	5475	5444	5410	5375	5337
<b>7.0</b>	5438	5432	5415	5386	5347	5299	5240	5175	5100	5025
<b>9.0</b>	5272	5220	5140	5047	4933	4802	4655	4490	4330	4171
<b>11.0</b>	5040	5030	5000	4950	4868	4765	4637	4489	4326	4166
<b>13.0</b>	4742	4730	4697	4634	4535	4399	4237	4053	3859	3661
<b>15.0</b>	4398	4385	4348	4276	4160	3998	3804	3591	3366	3145
<b>17.0</b>	4023	4011	3972	3889	3749	3568	3355	3113	2872	2657
<b>19.5</b>	3547	3534	3484	3384	3228	3024	2791	2543	2316	2135
<b>22.5</b>	2985	2970	2907	2792	2616	2400	2172	1961	1784	1647
<b>25.5</b>	2454	2434	2364	2239	2058	1858	1670	1512	1385	1286
<b>29.0</b>	1890	1868	1795	1672	1514	1356	1225	1118	1033	963
<b>33.0</b>	1351	1331	1266	1159	1041	939	859	795	736	682
<b>37.5</b>	887	869	817	745	676	621	578	535	491	450
<b>42.5</b>	516	505	473	437	409	387	365	335	304	277
<b>47.5</b>	268	263	251	239	230	222	211	197	181	167
<b>55.0</b>	80	79	79	79	79	80	80	78	75	72
<b>65.0</b>	27	26	26	24	23	23	23	23	23	23
<b>75.0</b>	15	16	18	13	11	10	10	10	10	10
<b>85.0</b>	10	10	8	6	4	2	2	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>	5649	5649	5649	5649	5649	5649	5649	5649	5649
<b>1.0</b>	5643	5645	5645	5642	5645	5644	5643	5642	5644
<b>3.0</b>	5537	5524	5513	5503	5495	5487	5481	5480	5478
<b>5.0</b>	5298	5261	5225	5192	5164	5141	5124	5115	5108
<b>7.0</b>	4943	4869	4797	4731	4677	4634	4600	4581	4570
<b>9.0</b>	4016	3880	3751	3653	3575	3514	3474	3454	3933
<b>11.0</b>	4000	3846	3709	3582	3481	3396	3340	3305	3291
<b>13.0</b>	3468	3289	3134	3002	2901	2822	2767	2733	2720
<b>15.0</b>	2941	2767	2624	2507	2419	2352	2305	2278	2268
<b>17.0</b>	2465	2316	2195	2102	2031	1980	1944	1924	1915
<b>19.5</b>	1982	1865	1777	1706	1657	1617	1591	1576	1569
<b>22.5</b>	1536	1455	1391	1339	1298	1266	1243	1230	1223
<b>25.5</b>	1205	1140	1086	1040	1005	976	956	945	940
<b>29.0</b>	899	843	795	756	726	704	688	679	675
<b>33.0</b>	630	583	545	514	492	475	464	459	457
<b>37.5</b>	411	378	351	330	314	301	292	288	286
<b>42.5</b>	254	233	215	200	189	178	171	167	166
<b>47.5</b>	154	142	131	122	116	110	105	103	103
<b>55.0</b>	68	65	61	59	57	56	55	55	55
<b>65.0</b>	23	24	24	24	24	23	24	24	24
<b>75.0</b>	10	10	9	9	8	8	8	8	7
<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 : L01141904.IES**

**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	1324.36	N.A.	47.20
0-30	2030.98	N.A.	72.40
0-40	2424.18	N.A.	86.40
0-60	2735.97	N.A.	97.50
0-80	2797.76	N.A.	99.70
0-90	2805.32	N.A.	100.00
10-90	2413.69	N.A.	86.00
20-40	1099.82	N.A.	39.20
20-50	1333.74	N.A.	47.50
40-70	355.90	N.A.	12.70
60-80	61.79	N.A.	2.20
70-80	17.68	N.A.	0.60
80-90	7.56	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	2805.32	N.A.	100.00

Total Luminaire Efficiency = N.A.%

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	391.63
10-20	932.73
20-30	706.63
30-40	393.20
40-50	233.92
50-60	77.88
60-70	44.11
70-80	17.68
80-90	7.56
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

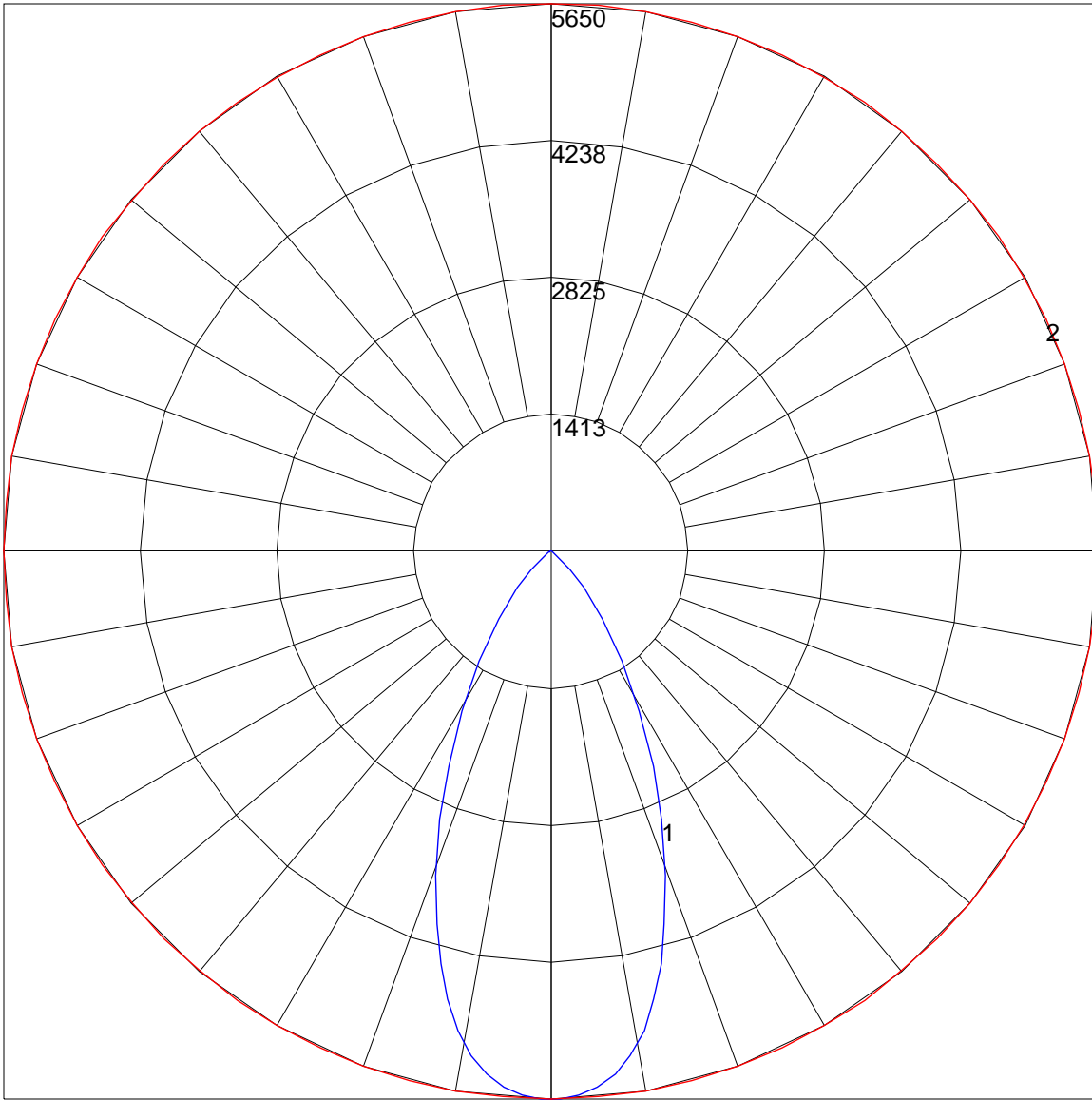
**IES INDOOR REPORT**  
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**COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD**

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	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	78	84	81	78	83	79	77	75
5	93	84	78	74	91	83	78	74	81	77	73	80	76	72	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	58	55	73	64	58	55	63	58	55	62	58	54	61	57	54	53

POLAR GRAPH



Maximum Candela = 5650 Located At Horizontal Angle = 25, Vertical Angle = 1  
# 1 - Vertical Plane Through Horizontal Angles (0 - 180)  
# 2 - Horizontal Cone Through Vertical Angle (0)