

IES File

Performance Summary

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



BoxRail LED - Zipper board™ with Diffuse Lens, Low Output

BoxRail LED, 48", 3500K, Zipper board with diffuse lens, low output
107-BX-X-4-48-X-X-X-X-X-Z-LO-35-1-X-X-X

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	71	74	77	80
Total Lumens, 4' rail length (1219mm)	1092	1140	1187	1235
Lumens per foot (305mm)	273	285	297	309
Input Power (W), 4' rail length (1219mm)	15.5	15.5	15.5	15.5
Watts per foot (305mm)	3.9	3.9	3.9	3.9
CRI (>80min., 85 avg.)	-	-	84	-

Report No: L031700402**Issue Date:** 3/23/2017**Report Prepared For:** Vode Lighting
1206 E MacArthur Suite 3 Sonoma, CA 95476**Model Number:** 107-BX-48-Z-LO-35-1-AL**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. Received in working and undamaged condition. No modifications were necessary.

Testing Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 3/15/17

Date of Tests: 3/22/17 - 3/23/17

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	11/28/17
ITECH	IT6122	PS-DC03-S1	11/28/17
Fluke Digital Thermometer	52k/J	MT-TP02-GC	11/28/17
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

Test Summary

Manufacturer:	Vode Lighting
Model Number:	107-BX-48-Z-LO-35-1-AL
Driver Model Number:	eldoLED SOLOdrive 1061/M(350mA)
Total Lumens:	1187.04
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.14
Input Power (W):	15.46
Input Power Factor:	0.90
Current ATHD @ 120V(%):	11%
Current ATHD @ 277V(%):	N/A
Efficacy:	77
Color Rendering Index (CRI):	84
Correlated Color Temperature (K):	3469
Chromaticity Coordinate x:	0.4076
Chromaticity Coordinate y:	0.3931
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:40
Total Operating Time (Hours):	1:40

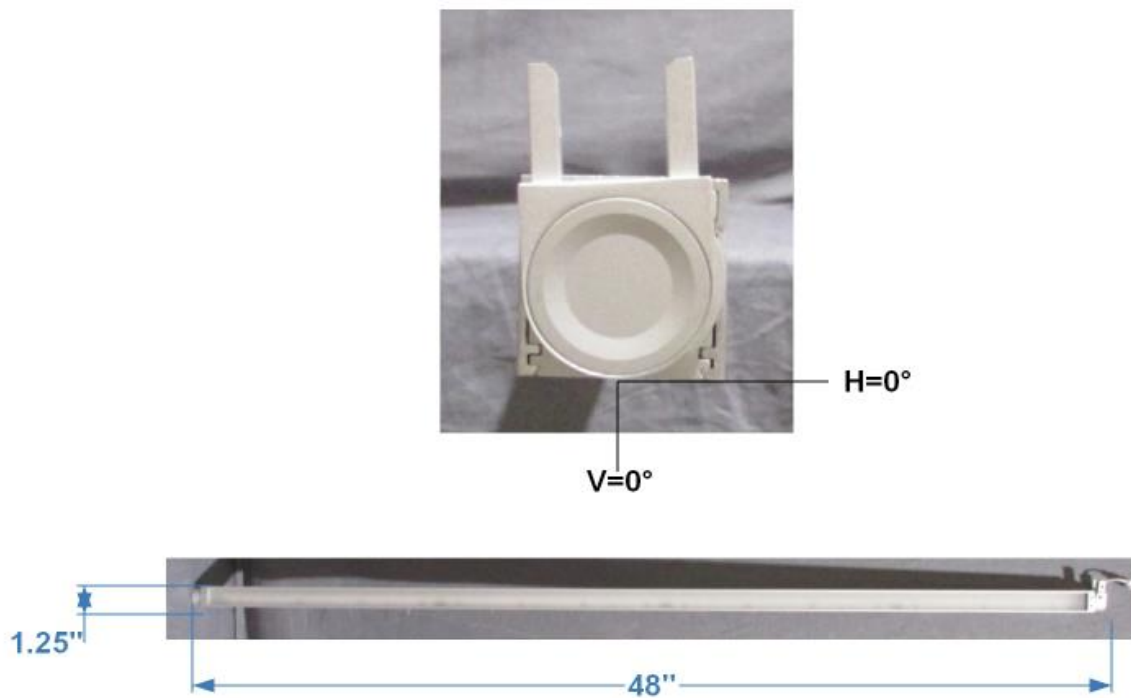
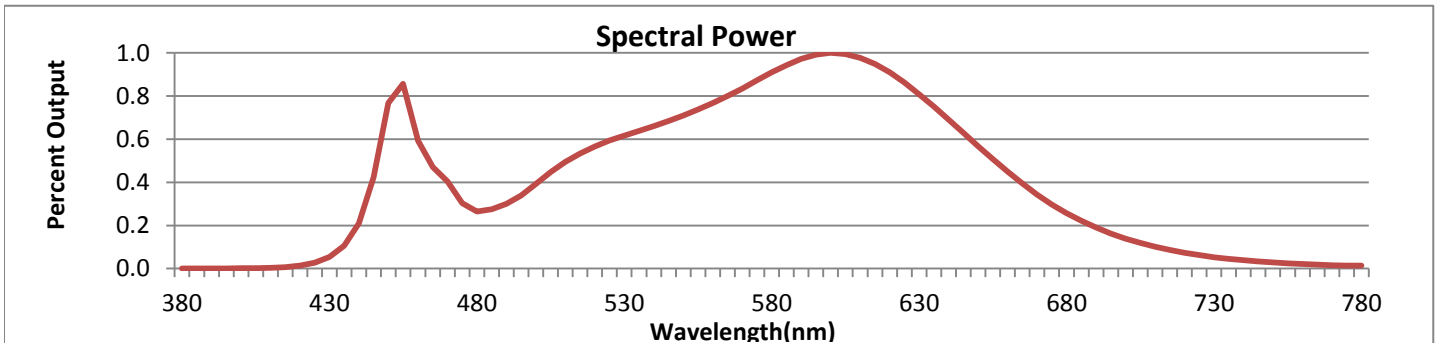


FIG. 1 LUMINAIRE

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



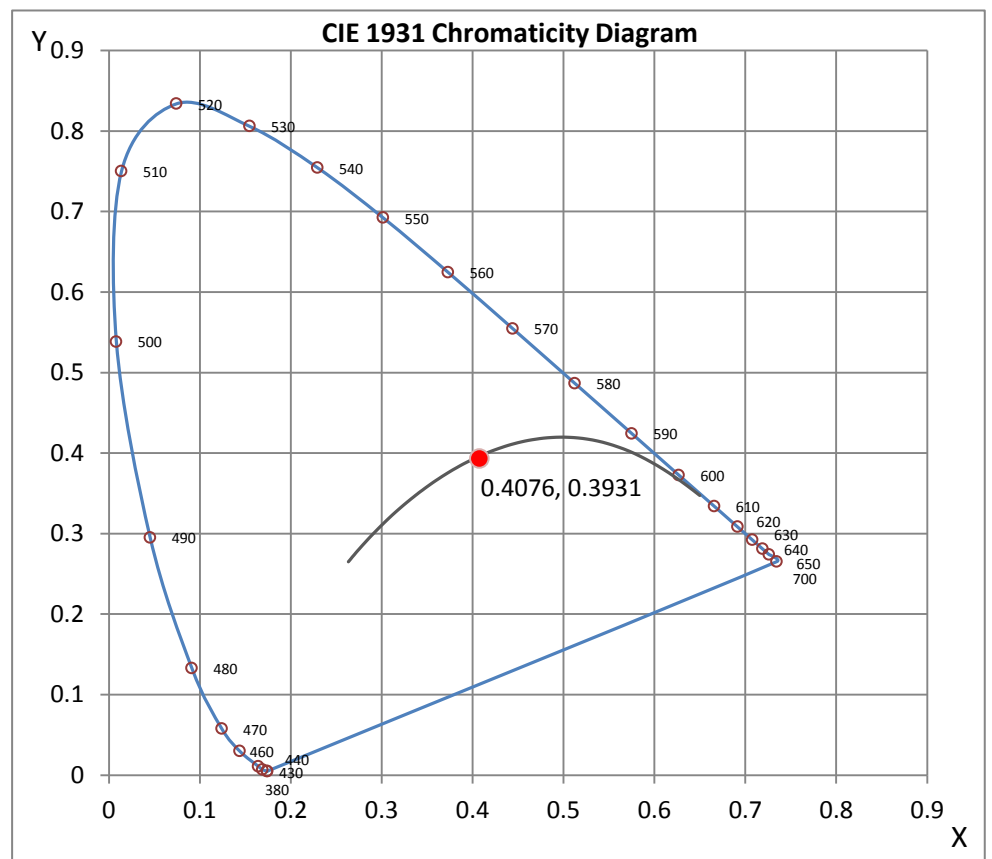
Wavelength	W/m ² nm	440	0.2102	510	0.4940	580	0.9096	650	0.5679	720	0.0732
380	0.0008	450	0.7675	520	0.5664	590	0.9729	660	0.4505	730	0.0529
390	0.0009	460	0.5925	530	0.6170	600	1.0000	670	0.3436	740	0.0384
400	0.0014	470	0.4040	540	0.6614	610	0.9772	680	0.2573	750	0.0284
410	0.0034	480	0.2643	550	0.7101	620	0.9097	690	0.1900	760	0.0208
420	0.0136	490	0.2996	560	0.7678	630	0.8078	700	0.1390	770	0.0155
430	0.0532	500	0.3924	570	0.8351	640	0.6909	710	0.1011	780	0.0134

CRI & CCT

x	0.4076
y	0.3931
u'	0.2362
v'	0.5126
CRI	84.30
CCT	3469
Duv	0.00054

R Values

R1	83.22
R2	91.92
R3	96.70
R4	82.15
R5	82.72
R6	88.79
R7	85.10
R8	64.07
R9	14.62
R10	80.32
R11	81.35
R12	64.59
R13	85.58
R14	98.56



*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.

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Test Report Released by:



Jeff Ahn
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Test Report Reviewed by:



Steve Kang
Quality Assurance

**Attached are photometric data reports. Total number of pages: 9*



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Photometric Test Report

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L031700402.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L031700402
[TESTLAB] LIGHT LABORATORY, INC.
[ISSUEDATE] 3/23/2017
[MANUFAC] VODE LIGHTING
[LUMCAT] 107-BX-48-Z-LO-35-1-AL
[LUMINAIRE] BOXRAIL LED, 48", 3500K, ZIPPER BOARD,
[MORE] DIFFUSE LENS, LOW OUTPUT (350MA)
[BALLASTCAT] eldoLED SOLOdrive 1061/M(350mA)
[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, 15.46W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	1187
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	77
Total Luminaire Watts	15.46
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.12
Spacing Criterion (90-270)	1.22
Spacing Criterion (Diagonal)	1.24
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	0.08 ft
Luminous Width (90-270)	3.85 ft
Luminous Height	0.00 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	11587	13528	15244
55	8715	10976	13193
65	6524	8699	11237
75	4974	6692	9500
85	3758	4875	9246

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L031700402.IES

CANDELA TABULATION

	0	5	10	15	20	25	30	35	40	45
0	538.92	538.92	538.92	538.92	538.92	538.92	538.92	538.92	538.92	538.92
5	537.25	537.46	537.41	537.16	537.37	537.41	537.41	537.66	537.54	537.83
10	527.03	526.79	526.91	526.95	527.53	527.62	527.99	528.03	528.36	528.74
15	507.69	507.60	507.89	508.02	508.72	509.43	509.93	510.43	511.38	511.88
20	478.79	479.08	479.41	480.08	480.95	481.61	483.27	484.56	486.26	487.51
25	440.34	440.72	441.59	442.67	444.25	446.07	448.36	450.35	452.67	455.25
30	394.42	394.84	395.79	397.29	399.61	402.27	405.72	409.08	412.32	416.39
35	342.94	343.23	344.52	346.39	349.34	353.40	357.27	361.71	366.57	371.22
40	288.39	288.68	290.42	293.24	296.52	301.30	306.45	311.89	317.57	323.51
45	234.66	235.16	237.19	239.89	243.67	248.82	254.34	260.74	267.38	273.98
50	185.67	186.09	187.79	190.57	194.47	199.33	205.10	211.62	218.47	225.57
55	143.16	143.57	145.31	147.72	151.38	155.82	160.93	166.95	173.51	180.31
60	107.45	107.99	109.28	111.44	114.43	118.16	122.85	128.08	134.02	140.21
65	78.97	79.47	80.46	82.04	84.24	87.27	90.93	95.20	100.02	105.29
70	55.55	55.80	56.51	57.63	59.21	61.41	64.10	67.30	71.00	75.02
75	36.87	36.95	37.37	37.99	38.99	40.31	42.02	44.13	46.71	49.61
80	21.84	21.92	22.09	22.38	22.84	23.54	24.37	25.53	26.99	28.77
85	9.38	9.38	9.47	9.63	9.84	10.13	10.42	10.88	11.46	12.17
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Vert. Horizontal Angles

	50	55	60	65	70	75	80	85	90
0	538.92	538.92	538.92	538.92	538.92	538.92	538.92	538.92	538.92
5	537.50	537.50	537.75	537.54	537.70	537.75	537.87	537.79	537.66
10	528.94	529.15	529.32	529.90	529.82	529.98	529.86	530.11	529.77
15	512.83	513.37	513.87	514.29	514.70	515.24	515.70	516.24	515.91
20	489.00	490.50	491.91	492.70	493.82	494.82	495.02	495.69	495.73
25	457.53	460.02	462.18	464.18	465.88	466.96	467.79	468.49	469.24
30	419.79	423.32	426.39	428.97	431.29	433.12	434.07	435.53	435.78
35	376.16	380.81	384.75	388.40	391.44	393.72	395.84	396.87	397.50
40	328.99	334.31	339.45	343.77	347.47	350.37	352.57	353.82	354.23
45	280.54	286.68	292.17	297.31	301.30	304.54	307.07	308.32	308.73
50	232.67	239.31	245.00	250.40	254.51	257.70	260.45	261.73	262.15
55	187.21	193.85	200.12	205.06	209.00	212.49	215.15	216.39	216.73
60	146.48	152.70	158.43	163.67	167.53	170.18	172.26	173.59	174.05
65	110.85	116.21	121.32	126.09	129.70	132.40	134.35	135.43	136.01
70	79.51	83.99	88.23	92.30	95.53	98.15	99.85	100.64	100.89
75	52.89	56.34	59.75	62.90	65.64	67.84	69.46	70.33	70.42
80	30.85	33.22	35.66	38.07	40.23	42.14	43.55	44.43	44.51
85	13.12	14.32	15.82	17.48	19.14	20.59	21.88	22.79	23.08
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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PHOTOMETRIC FILENAME : L031700402.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	195.08	N.A.	16.40
0-30	404.09	N.A.	34.00
0-40	635.49	N.A.	53.50
0-60	1008.46	N.A.	85.00
0-80	1170.87	N.A.	98.60
0-90	1187.04	N.A.	100.00
10-90	1136.03	N.A.	95.70
20-40	440.41	N.A.	37.10
20-50	651.14	N.A.	54.90
40-70	479.54	N.A.	40.40
60-80	162.41	N.A.	13.70
70-80	55.84	N.A.	4.70
80-90	16.17	N.A.	1.40
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	1187.04	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	51.01
10-20	144.07
20-30	209.01
30-40	231.40
40-50	210.73
50-60	162.24
60-70	106.58
70-80	55.84
80-90	16.17
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

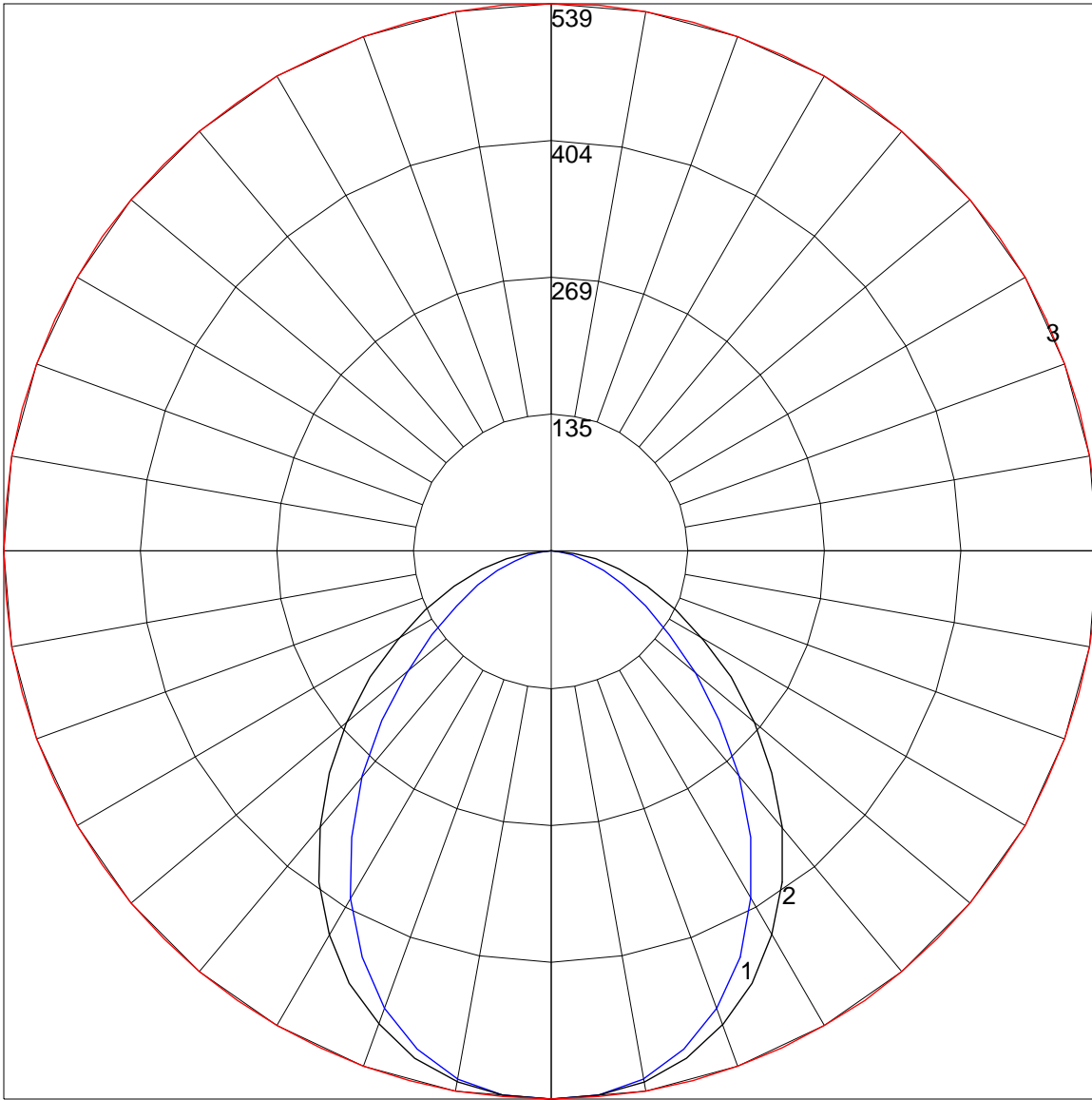
IES INDOOR REPORT
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

Effective Floor Cavity Reflectance 0.20

RC	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	110	106	102	98	107	103	100	97	99	96	94	95	93	91	92	90	88	86
2	101	93	87	82	98	91	86	81	88	83	79	85	81	77	82	79	76	74
3	93	83	75	69	90	81	74	69	79	73	68	76	71	67	73	69	65	63
4	85	74	66	60	83	73	65	60	71	64	59	68	63	58	66	61	57	55
5	79	67	59	52	77	66	58	52	64	57	52	62	56	51	60	55	50	48
6	73	61	52	46	71	60	52	46	58	51	46	56	50	45	55	49	45	43
7	68	55	47	41	67	55	47	41	53	46	41	52	45	41	50	45	40	38
8	64	51	43	37	62	50	43	37	49	42	37	48	41	37	47	41	37	35
9	60	47	39	34	58	46	39	34	45	38	34	44	38	33	43	37	33	31
10	56	43	36	31	55	43	36	31	42	35	31	41	35	31	40	35	30	29

POLAR GRAPH



Maximum Candela = 538.92 Located At Horizontal Angle = 0, Vertical Angle = 0
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 (0) (Through Max. Cd.)