

IES Report

ZipTwo® | 707 | 85° Asymmetric | 90 CRI | LO

707-Z2-4-48-XX-XX-X-0-Z-LO-359-A1-X-WH-0

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	47	48	49	50
Total Lumens, 4' rail length (1219mm)	753	777	793	808
Lumens per foot (305mm)	188	194	198	202
Input Power (W), 4' rail length (1219mm)	16.3	16.3	16.3	16.3
Watts per foot (305mm)	4.1	4.1	4.1	4.1
CRI	95	95	95	95

Due to the large number of options in Vode’s product offering, most Vode IES reports are factored reports prepared from source reports. Source reports are the IES test reports prepared for Vode by an NVLAP accredited photometric test laboratory. Factored reports are based on data from the Vode source reports.

If the data above is in black, it is directly from a Vode source report. If it is in grey, it is factored from Vode source reports. Reference details on Vode source reports can be found on the [IES File Finder](#) page on [vode.com](#).



8165 E Kaiser Blvd. Anaheim, CA 92808
www.lightlaboratory.com

Report No: L091700103



Report No: L091700103

Issue Date: 9/21/2017

Report Prepared For: Vode Lighting
21684 8th Street East, Suite 700, Sonoma, CA 95476

Model Number: 707-Z2-48-Z-LO-359-A1-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: 9/15/17

Date of Tests: 9/16/17 - 9/21/17

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

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

Test Summary

Manufacturer:	Vode Lighting
Model Number:	707-Z2-48-Z-LO-359-A1-AL
Driver Model Number:	eldoLED SOLOdrive 1061/M
Total Lumens:	792.51
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.15
Input Power (W):	16.25
Input Power Factor:	0.91
Current ATHD @ 120V(%):	11%
Current ATHD @ 277V(%):	N/A
Efficacy:	49
Color Rendering Index (CRI):	95
Correlated Color Temperature (K):	3231
Chromaticity Coordinate x:	0.4197
Chromaticity Coordinate y:	0.3942
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:35
Total Operating Time (Hours):	1:20

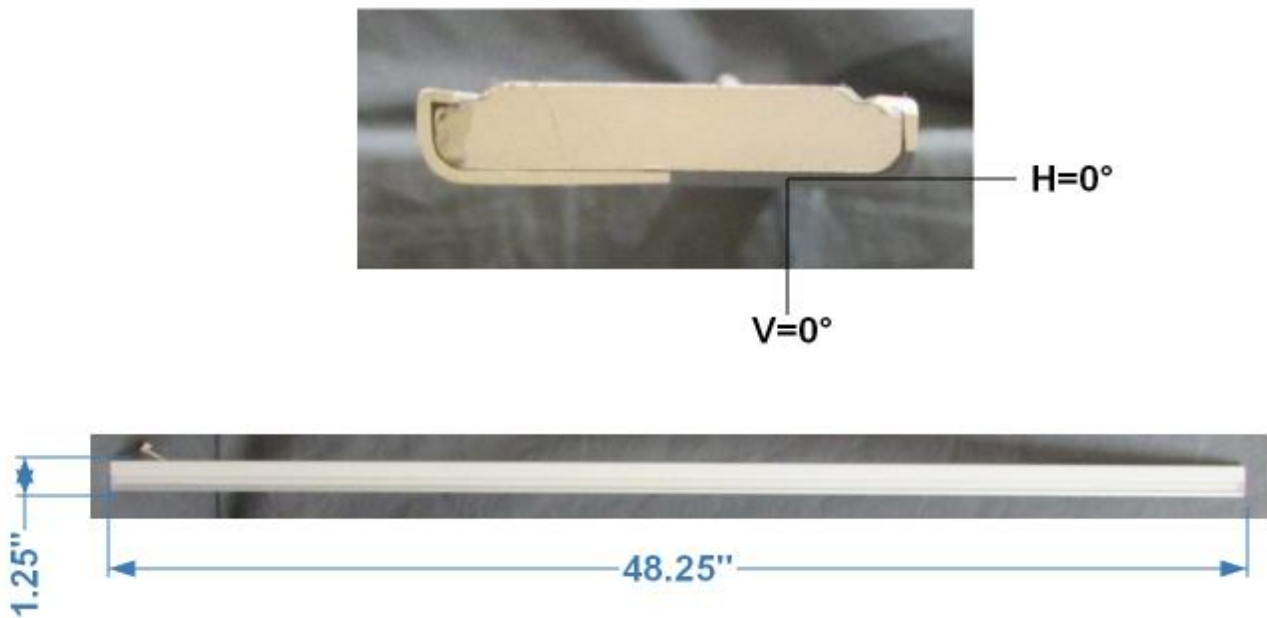
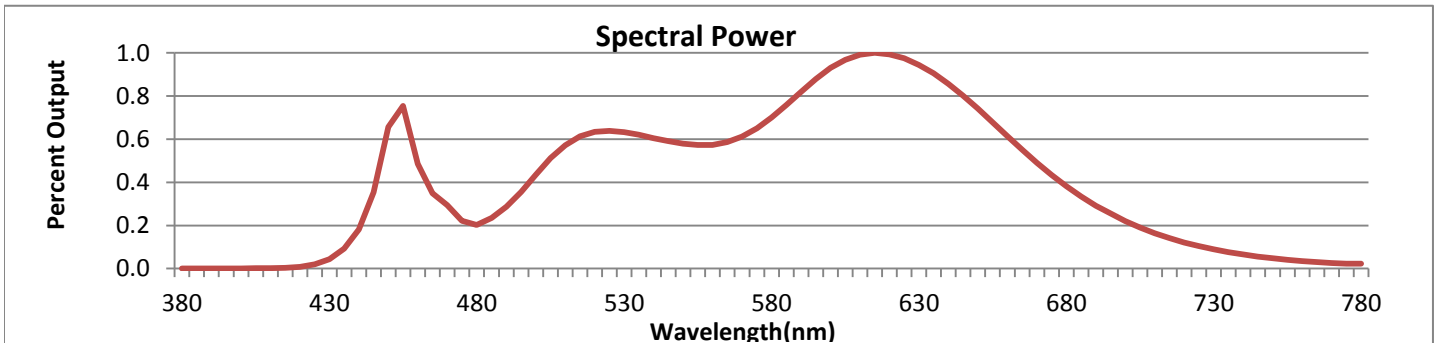


FIG. 1 LUMINAIRE

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



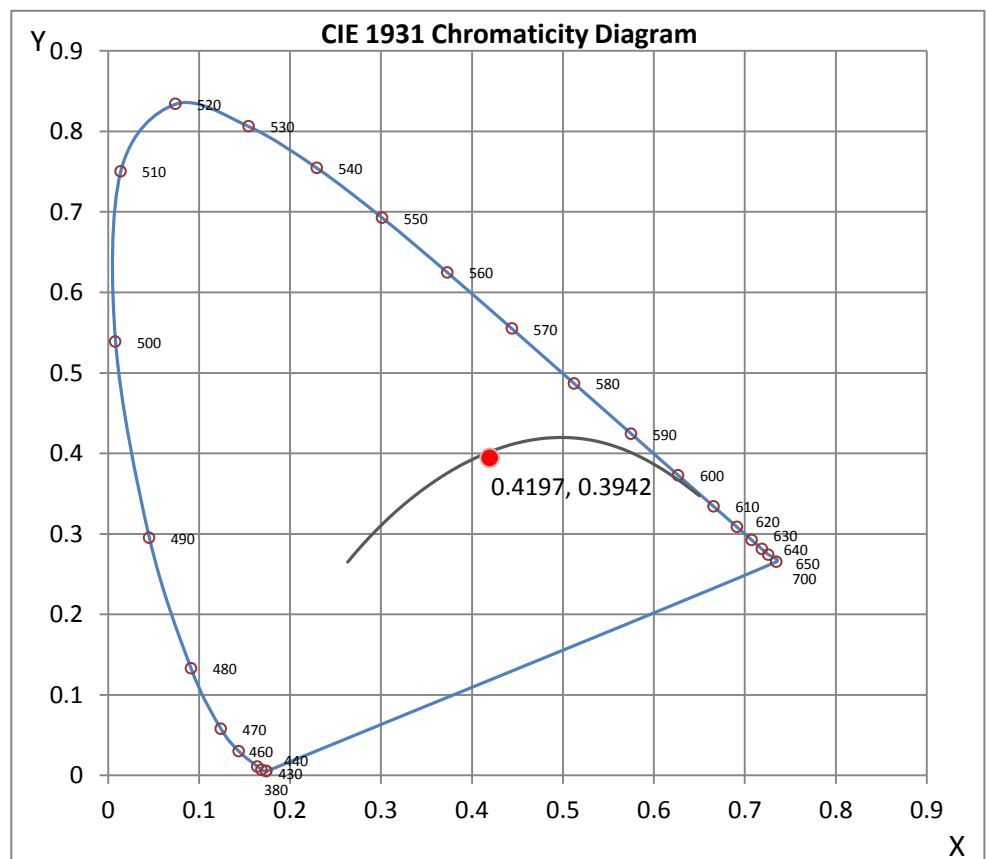
Wavelength	W/m ² nm	440	0.1810	510	0.5723	580	0.7002	650	0.7424	720	0.1210
380	0.0007	450	0.6564	520	0.6342	590	0.8204	660	0.6154	730	0.0890
390	0.0009	460	0.4863	530	0.6332	600	0.9303	670	0.4906	740	0.0653
400	0.0011	470	0.2949	540	0.6044	610	0.9918	680	0.3820	750	0.0479
410	0.0020	480	0.2028	550	0.5787	620	0.9937	690	0.2917	760	0.0353
420	0.0084	490	0.2862	560	0.5738	630	0.9447	700	0.2200	770	0.0261
430	0.0433	500	0.4359	570	0.6123	640	0.8566	710	0.1642	780	0.0225

CRI & CCT

x	0.4197
y	0.3942
u'	0.2436
v'	0.5148
CRI	95.20
CCT	3231
Duv	-0.00136

R Values

R1	97.05
R2	98.28
R3	98.88
R4	95.01
R5	96.87
R6	93.24
R7	93.90
R8	88.48
R9	73.28
R10	96.83
R11	87.51
R12	83.85
R13	96.51
R14	98.64



*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.

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*



8165 E. Kaiser Blvd. Anaheim, CA 92808
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Photometric Test Report

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L091700103.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L091700103
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 9/21/2017
[MANUFAC] Vode Lighting
[LUMCAT] 707-Z2-48-Z-LO-359-A1-AL
[LUMINAIRE] ZipTwo LED, 48", 3500K, 90 CRI, zipper board,
[MORE] 85° white asymmetric lens, low output
[BALLASTCAT] eldoLED SOLOdrive 1061/M
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] 120VAC, 16.25W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	793
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	49
Total Luminaire Watts	16.25
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	2.36
Spacing Criterion (90-270)	1.24
Spacing Criterion (Diagonal)	1.62
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	0.06 ft
Luminous Width (90-270)	4.02 ft
Luminous Height	0.00 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	29236	24602	8021
55	26360	21287	6642
65	22006	16925	5571
75	16794	12587	4434
85	12661	8707	2762

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>
0	224.97	224.97	224.97	224.97	224.97	224.97	224.97	224.97	224.97	224.97
5	290.30	289.72	288.97	287.72	285.90	283.32	280.75	277.26	273.52	269.62
10	363.20	362.21	360.63	357.47	353.32	348.34	342.11	335.14	327.58	318.53
15	435.28	434.20	431.96	427.47	421.08	413.36	404.31	392.85	380.39	366.52
20	494.40	493.16	490.08	485.10	477.79	468.99	457.62	444.16	427.97	410.04
25	531.93	530.85	528.28	522.88	515.58	506.28	494.73	479.95	463.10	443.67
30	546.55	545.72	543.14	538.74	532.27	523.30	511.34	497.47	480.28	459.36
35	538.24	537.66	535.34	531.10	526.04	516.99	506.86	493.57	476.22	456.29
40	509.35	508.60	506.61	503.37	498.72	491.08	481.20	468.24	451.55	432.12
45	463.68	462.93	461.27	458.45	453.71	446.74	437.11	424.73	408.87	390.19
50	404.89	404.97	403.06	400.24	395.59	389.03	379.31	367.19	352.16	335.63
55	339.12	338.87	337.38	334.97	331.57	324.92	315.87	304.33	289.80	273.86
60	273.19	273.19	271.86	269.45	265.30	258.99	251.10	240.31	228.10	214.82
65	208.59	208.17	207.01	204.94	201.53	196.13	189.08	180.44	170.81	160.43
70	149.30	148.80	148.05	146.48	143.82	139.50	134.10	127.79	120.65	113.18
75	97.49	97.32	96.74	95.58	93.58	90.84	87.02	82.79	78.14	73.07
80	55.47	55.30	54.89	54.14	52.81	51.07	48.91	46.33	43.51	40.61
85	24.75	24.66	24.41	23.92	23.08	22.25	21.09	19.85	18.35	17.02
90	9.63	9.63	9.38	9.22	8.80	8.30	7.81	7.14	6.56	5.90

Vert. Horizontal Angles
 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>
0	224.97	224.97	224.97	224.97	224.97	224.97	224.97	224.97	224.97	224.97
5	264.97	260.74	256.00	250.52	245.46	240.06	234.91	229.35	224.20	218.89
10	309.15	298.43	287.97	276.43	265.55	254.01	242.97	232.17	221.13	211.25
15	351.58	335.47	318.53	300.93	283.57	265.63	248.53	232.00	215.23	200.70
20	390.94	369.26	346.01	323.10	300.10	275.35	252.60	230.01	209.09	190.15
25	420.25	394.42	366.69	336.71	309.56	279.75	250.94	224.03	199.37	176.87
30	434.78	407.46	377.07	341.70	311.64	277.26	243.71	213.40	185.75	160.43
35	431.54	403.89	372.09	338.37	302.75	267.21	231.09	197.63	168.90	142.91
40	408.29	380.72	347.68	318.53	281.91	245.79	209.92	177.70	148.72	124.22
45	367.60	342.94	314.79	283.49	250.44	216.06	182.93	153.78	127.21	105.21
50	315.54	291.71	266.55	239.73	210.42	180.61	153.29	128.21	105.79	87.77
55	256.50	236.99	215.48	192.65	169.56	145.98	124.06	103.80	85.45	71.74
60	199.95	184.26	167.49	150.21	132.53	114.51	97.32	81.96	68.51	57.38
65	148.89	137.26	124.89	112.18	99.48	86.52	73.99	62.78	52.81	44.51
70	105.21	96.90	88.60	79.88	71.25	62.28	53.64	45.75	38.70	32.80
75	68.01	62.86	57.54	52.06	46.67	41.02	35.46	30.39	25.74	22.09
80	37.70	34.88	31.89	28.90	26.07	22.92	19.85	17.02	14.45	12.46
85	15.69	14.28	12.95	11.63	10.30	8.97	7.64	6.39	5.40	4.65
90	5.31	4.57	3.82	3.16	2.49	1.74	1.08	0.58	0.25	0.33

Vert. Horizontal Angles
 Angles

	<u>100</u>	<u>105</u>	<u>110</u>	<u>115</u>	<u>120</u>	<u>125</u>	<u>130</u>	<u>135</u>	<u>140</u>	<u>145</u>
0	224.97	224.97	224.97	224.97	224.97	224.97	224.97	224.97	224.97	224.97
5	213.99	209.25	204.27	200.20	195.80	191.90	188.49	184.92	181.93	179.53
10	201.61	192.15	183.51	175.54	167.82	161.26	155.11	149.72	144.90	140.83
15	187.00	173.71	162.17	151.71	141.91	133.61	126.63	119.99	114.76	110.19
20	172.88	157.11	143.24	131.45	120.65	112.02	104.63	97.98	92.92	88.68
25	157.27	139.17	124.80	112.52	101.80	93.50	86.77	81.96	77.06	73.65
30	139.75	121.73	107.45	95.82	86.11	79.05	73.49	69.09	65.85	63.27
35	122.31	104.96	91.67	82.04	73.57	67.59	63.19	59.87	57.38	55.47

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L091700103.IES

CANDELA TABULATION - (Cont.)

40	104.88	89.76	79.96	69.09	62.86	58.29	54.89	52.23	50.57	49.08
45	88.35	77.14	65.77	58.79	53.64	50.07	47.50	45.50	44.18	43.10
50	74.07	63.19	55.22	49.82	45.59	42.76	40.77	39.28	38.11	37.28
55	60.70	52.06	45.84	41.52	38.20	35.96	34.38	33.13	32.30	31.64
60	48.83	42.02	37.37	33.96	31.39	29.64	28.23	27.32	26.66	26.07
65	38.03	32.97	29.48	26.90	24.83	23.50	22.50	21.67	21.17	20.76
70	28.23	24.66	22.17	20.26	18.77	17.77	17.02	16.36	15.94	15.61
75	19.10	16.86	15.20	13.95	12.95	12.29	11.79	11.29	11.04	10.88
80	10.96	9.72	8.80	8.22	7.64	7.31	6.98	6.73	6.56	6.48
85	4.24	3.82	3.65	3.41	3.24	3.16	3.07	2.99	2.99	2.99
90	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.33	0.33	0.33

Vert. Angles **Horizontal Angles**

	<u>150</u>	<u>155</u>	<u>160</u>	<u>165</u>	<u>170</u>	<u>175</u>	<u>180</u>
0	224.97	224.97	224.97	224.97	224.97	224.97	224.97
5	177.28	175.29	173.71	172.55	171.55	171.06	170.72
10	137.18	134.35	132.03	130.12	128.79	127.96	127.88
15	106.45	103.38	100.81	98.81	97.57	96.66	96.32
20	85.28	82.87	80.63	79.05	77.97	77.31	77.06
25	71.00	68.92	67.34	66.18	65.43	64.94	64.77
30	61.28	59.87	58.79	57.96	57.46	57.13	57.13
35	54.22	53.14	52.40	51.82	51.48	51.23	51.15
40	48.16	47.33	46.75	46.42	46.17	46.00	46.00
45	42.27	41.77	41.35	41.02	40.85	40.77	40.85
50	36.70	36.29	35.96	35.71	35.62	35.62	35.54
55	31.22	30.81	30.64	30.39	30.39	30.31	30.23
60	25.74	25.41	25.16	25.08	24.99	24.99	24.91
65	20.43	20.18	19.93	19.76	19.76	19.68	19.76
70	15.36	15.20	15.03	14.95	14.86	14.78	14.78
75	10.63	10.46	10.38	10.30	10.21	10.13	10.13
80	6.31	6.31	6.23	6.23	6.15	6.15	6.15
85	2.99	2.91	2.91	2.91	2.91	2.99	2.99
90	0.33	0.33	0.33	0.33	0.25	0.17	0.17

IES INDOOR REPORT
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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	90.75	N.A.	11.50
0-30	208.31	N.A.	26.30
0-40	360.75	N.A.	45.50
0-60	647.80	N.A.	81.70
0-80	779.93	N.A.	98.40
0-90	792.51	N.A.	100.00
10-90	770.61	N.A.	97.20
20-40	270.00	N.A.	34.10
20-50	426.97	N.A.	53.90
40-70	374.60	N.A.	47.30
60-80	132.13	N.A.	16.70
70-80	44.57	N.A.	5.60
80-90	12.58	N.A.	1.60
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	792.51	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

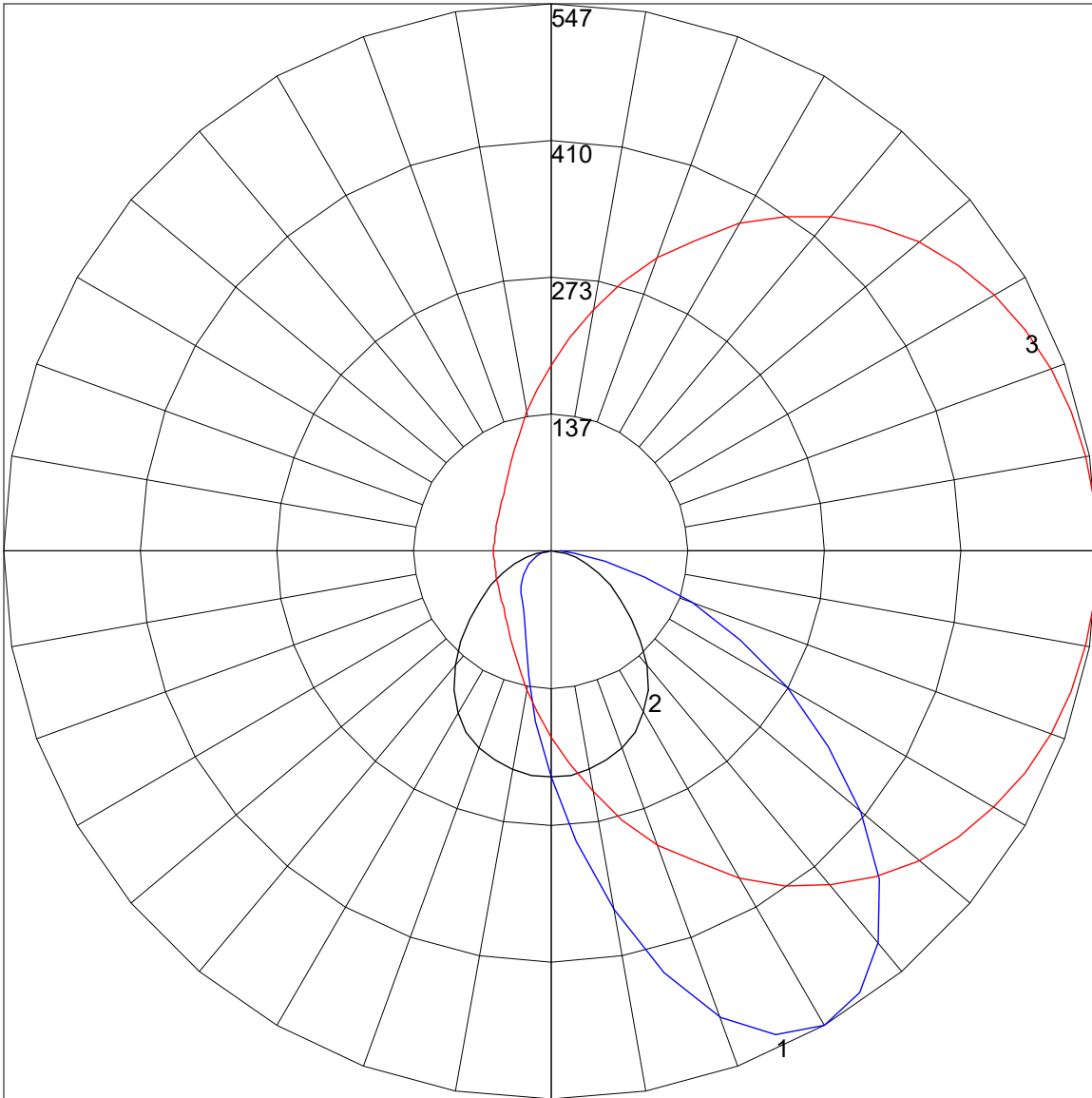
Zone	Lumens
0-10	21.90
10-20	68.85
20-30	117.55
30-40	152.45
40-50	156.97
50-60	130.07
60-70	87.56
70-80	44.57
80-90	12.58
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

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	109	104	100	96	106	102	98	95	98	95	92	94	91	89	90	88	86	84
2	99	91	85	79	97	89	83	78	86	81	76	83	78	74	79	76	73	71
3	91	80	72	66	88	79	71	65	76	69	64	73	67	63	70	66	62	60
4	83	71	62	56	81	70	61	55	67	60	54	65	59	54	63	57	53	51
5	76	63	54	48	74	62	54	47	60	53	47	58	52	46	56	50	46	44
6	70	57	48	41	68	56	47	41	54	47	41	52	46	41	51	45	40	38
7	65	51	43	36	63	51	42	36	49	42	36	48	41	36	46	40	36	34
8	60	47	38	32	59	46	38	32	45	37	32	43	37	32	42	36	32	30
9	56	43	35	29	55	42	34	29	41	34	29	40	33	29	39	33	28	27
10	53	39	31	26	51	39	31	26	38	31	26	37	30	26	36	30	26	24

POLAR GRAPH



Maximum Candela = 546.55 Located At Horizontal Angle = 0, Vertical Angle = 30
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 (30) (Through Max. Cd.)