

## IES Report

ZipThree® | 707 | 85° Asymmetric , downlight only | 90 CRI | SO

707-Z3-4-48-XX-XX-X-0-Z-SO-359-A1-X-AL / WH-X

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	85	88	89	93
Total Lumens, 4' rail length (1219mm)	2207	2277	2323	2346
Lumens per foot (305mm)	552	569	581	587
Input Power (W), 4' rail length (1219mm)	26.1	26.1	26.1	26.1
Watts per foot (305mm)	6.6	6.6	6.6	6.6
CRI	94	94	94	94

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: L121911543



**Report No:** L121911543

**Issue Date: 12/24/2019**

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

**Model Number:** 707-Z3-48-Z-SO-359-A1-AL

**Test:** Photometric/Colorimetric/Electrical Test

**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.

**Special Test Condition:** Fixture is tested with no special conditions.

**Sample Arrival Date:** 12/16/19

**Date of Tests:** 12/17/19 - 12/24/19

**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-S4	1/9/21
BK PRECISION	1747	PS-DC04	1/10/21
Fluke Digital Thermometer	52K/J	MT-TP05	1/10/21
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

### General Information

<b>Manufacturer:</b>	Vode Lighting
<b>Model Number:</b>	707-Z3-48-Z-SO-359-A1-AL
<b>Driver Model Number:</b>	MEAN WELL HLG-40H-36A

### Test Summary

<b>Total Lumens:</b>	2323.19
<b>Efficacy:</b>	88.91
<b>Color Redering Index:</b>	93.9
<b>Correlated Color Temperature:</b>	3300
<b>Input Voltage (VAC/60Hz):</b>	120.00
<b>Input Current (Amp):</b>	0.2189
<b>Input Power (W):</b>	26.13
<b>Input Power Factor:</b>	0.9944
<b>Current ATHD (%):</b>	7.9%

### Test Condition

<b>Ambient Temperature (°C):</b>	25.0
<b>Stabilization Time (Hours):</b>	0:35
<b>Total Operating Time (Hours):</b>	1:30

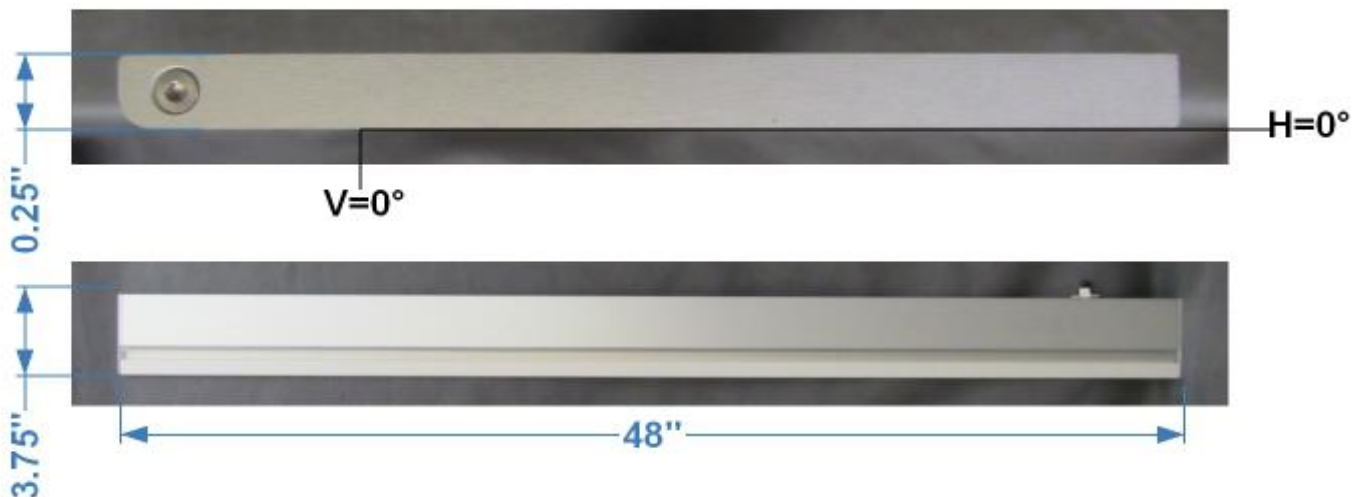
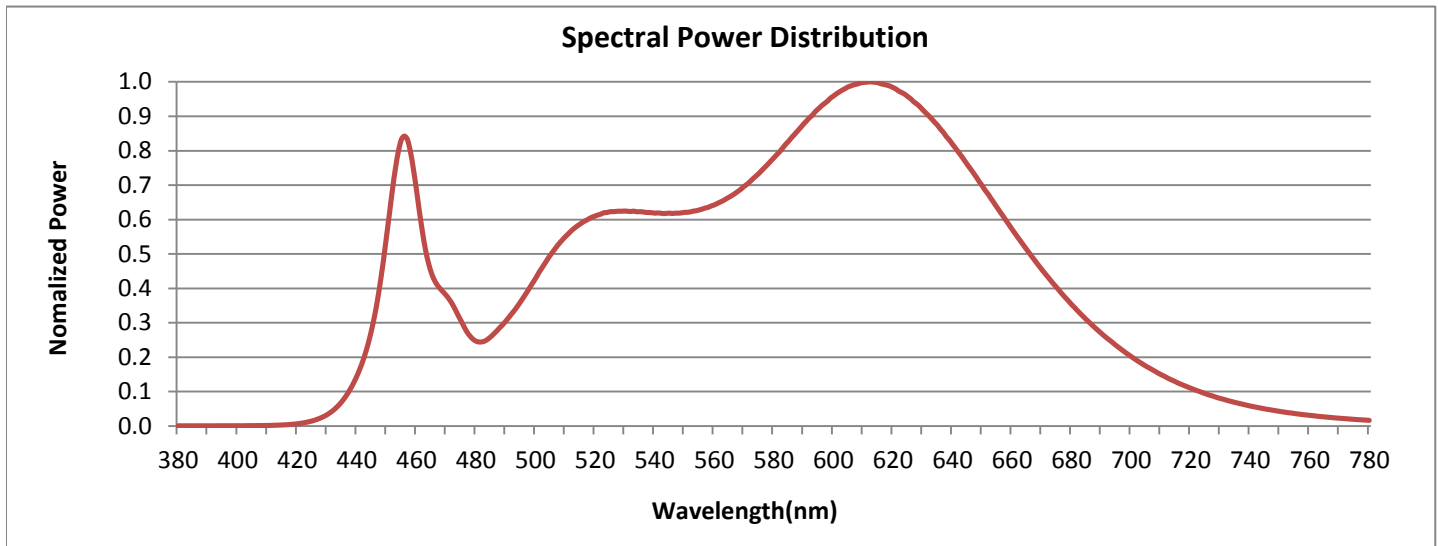


FIG. 1 LUMINAIRE

## Colorimetry Test Results

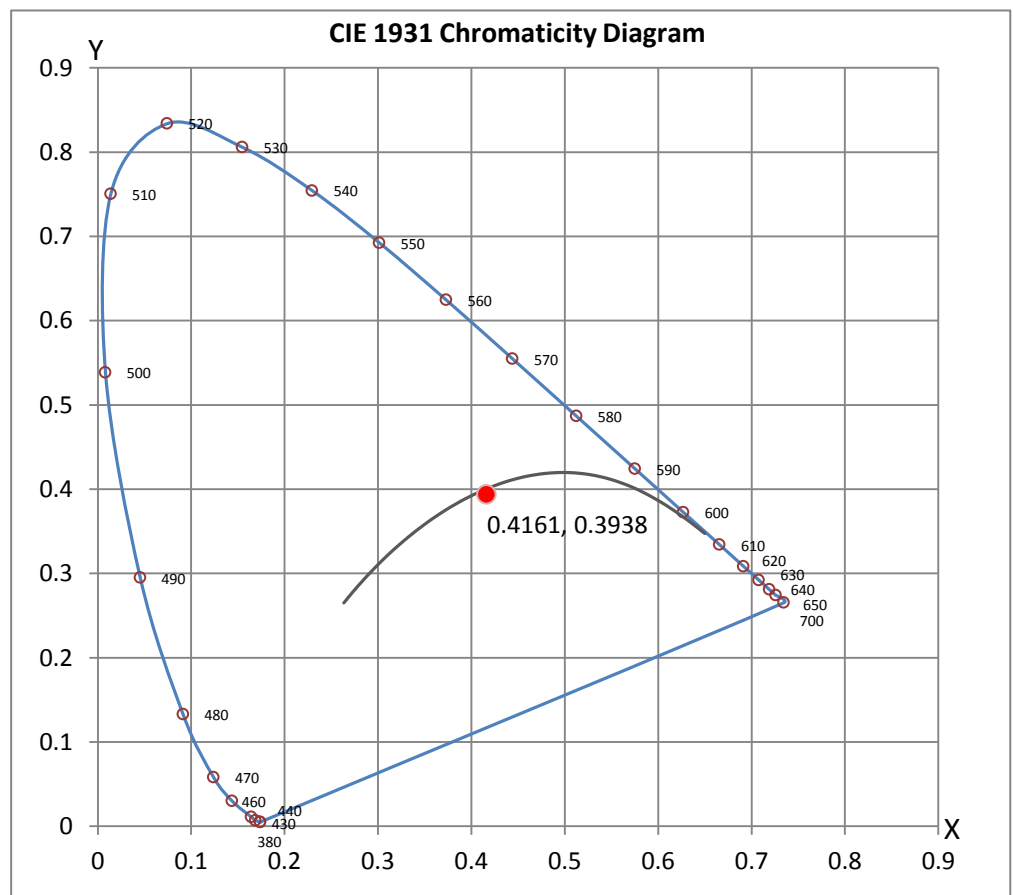


### CRI & CCT

x	0.4161
y	0.3938
u'	0.2414
v'	0.5141
CRI	93.90
CCT	3300
Duv	-0.00087

### R Values

R1	96.11
R2	99.11
R3	97.70
R4	96.31
R5	96.27
R6	95.52
R7	90.00
R8	80.28
R9	56.39
R10	97.73
R11	98.04
R12	77.72
R13	97.83
R14	99.55
R15	90.07





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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 Reviewed by:

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 : L121911543.IES

### DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002  
[TEST] L121911543  
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)  
[ISSUEDATE] 12/24/2019  
[MANUFAC] Vode Lighting  
[LUMCAT] 707-Z3-48-Z-SO-359-A1-AL  
[LUMINAIRE] ZipThree LED, 48", 3500K, 90 CRI, zipper board, 85° asymmetric lens down,  
[MORE] standard output, clear anodized finish  
[BALLASTCAT] MEAN WELL HLG-40H-36A  
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND  
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.  
[INPUT] 120.0VAC, 26.13W  
[TEST PROCEDURE] IESNA:LM-79-08

### CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	2323
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	89
Total Luminaire Watts	26.13
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.70
Spacing Criterion (90-270)	1.26
Spacing Criterion (Diagonal)	1.28
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	0.04 ft
Luminous Width (90-270)	3.98 ft
Luminous Height	0.00 ft

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

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	91421	88460	56649
55	81849	79965	49581
65	68729	66811	40758
75	55069	52459	31058
85	38752	34877	19376

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L121911543.IES**

**CANDELA TABULATION**

	<b>0</b>	<b>5</b>	<b>10</b>	<b>15</b>	<b>20</b>	<b>25</b>	<b>30</b>	<b>35</b>	<b>40</b>	<b>45</b>
<b>0</b>	953	953	953	953	953	953	953	953	953	953
<b>5</b>	1062	1061	1060	1058	1055	1052	1048	1043	1037	1030
<b>10</b>	1160	1160	1158	1155	1149	1143	1135	1126	1115	1103
<b>15</b>	1224	1223	1221	1216	1210	1202	1193	1181	1167	1152
<b>20</b>	1254	1253	1250	1246	1240	1231	1221	1209	1194	1177
<b>25</b>	1249	1250	1247	1243	1237	1230	1220	1209	1193	1177
<b>30</b>	1218	1217	1215	1211	1206	1200	1191	1181	1167	1151
<b>35</b>	1157	1157	1155	1152	1148	1143	1136	1127	1115	1100
<b>40</b>	1068	1068	1066	1065	1062	1058	1053	1046	1036	1025
<b>45</b>	957	957	956	955	953	951	947	943	935	926
<b>50</b>	830	830	829	828	827	825	823	820	815	808
<b>55</b>	695	695	694	694	693	692	690	688	684	679
<b>60</b>	559	559	559	558	558	556	555	553	550	546
<b>65</b>	430	430	430	430	429	428	426	425	422	418
<b>70</b>	315	315	315	314	313	312	311	309	307	304
<b>75</b>	211	211	211	210	210	209	207	206	204	201
<b>80</b>	123	123	122	122	121	121	120	118	116	114
<b>85</b>	50	50	50	49	49	49	48	47	46	45
<b>90</b>	0	0	0	0	0	0	0	0	0	0

**Vert. Angles**      **Horizontal Angles**

	<b>50</b>	<b>55</b>	<b>60</b>	<b>65</b>	<b>70</b>	<b>75</b>	<b>80</b>	<b>85</b>	<b>90</b>	<b>95</b>
<b>0</b>	953	953	953	953	953	953	953	953	953	953
<b>5</b>	1024	1016	1008	999	990	981	971	960	950	940
<b>10</b>	1089	1074	1058	1041	1023	1003	982	960	939	915
<b>15</b>	1134	1113	1091	1067	1041	1012	982	950	917	883
<b>20</b>	1156	1133	1107	1078	1046	1009	971	931	887	843
<b>25</b>	1156	1131	1103	1071	1034	993	948	900	847	793
<b>30</b>	1131	1107	1079	1046	1007	962	913	859	799	736
<b>35</b>	1083	1060	1034	1002	962	915	864	806	740	672
<b>40</b>	1010	990	966	934	897	852	799	740	672	601
<b>45</b>	914	898	877	849	815	771	721	662	593	525
<b>50</b>	799	785	767	744	714	675	627	573	511	445
<b>55</b>	671	661	646	627	601	567	526	476	421	365
<b>60</b>	540	531	520	504	483	455	420	380	332	290
<b>65</b>	414	407	397	385	368	347	320	289	255	218
<b>70</b>	300	295	287	278	266	250	230	207	182	156
<b>75</b>	198	194	189	182	174	163	150	135	119	103
<b>80</b>	112	109	106	102	97	91	84	75	66	58
<b>85</b>	44	42	41	39	37	34	32	29	25	22
<b>90</b>	0	0	0	0	0	0	0	0	0	0

**Vert. Angles**      **Horizontal Angles**

	<b>100</b>	<b>105</b>	<b>110</b>	<b>115</b>	<b>120</b>	<b>125</b>	<b>130</b>	<b>135</b>	<b>140</b>	<b>145</b>
<b>0</b>	953	953	953	953	953	953	953	953	953	953
<b>5</b>	929	919	909	899	889	880	872	863	856	850
<b>10</b>	893	871	848	827	806	785	766	748	733	718
<b>15</b>	848	814	779	747	714	684	656	631	608	587
<b>20</b>	796	751	706	663	621	584	550	518	491	467
<b>25</b>	739	682	628	579	530	488	451	417	389	364
<b>30</b>	674	611	550	496	444	400	363	330	303	280
<b>35</b>	605	536	473	417	365	324	289	259	234	215

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L121911543.IES**

**CANDELA TABULATION - (Cont.)**

<b>40</b>	531	462	399	345	296	259	228	201	182	167
<b>45</b>	456	390	330	281	237	205	179	158	143	132
<b>50</b>	381	321	268	225	189	162	142	126	114	106
<b>55</b>	311	259	215	179	150	129	113	101	92	86
<b>60</b>	245	202	168	140	117	101	89	80	74	69
<b>65</b>	184	153	127	106	90	78	69	63	58	54
<b>70</b>	132	110	92	77	66	58	52	47	43	41
<b>75</b>	88	74	62	52	45	40	36	33	30	29
<b>80</b>	49	42	35	31	27	24	22	20	19	18
<b>85</b>	19	17	15	13	12	11	10	9	9	8
<b>90</b>	0	0	0	0	0	0	0	0	0	0

<b>Vert. Angles</b>	<b>Horizontal Angles</b>						
	<b><u>150</u></b>	<b><u>155</u></b>	<b><u>160</u></b>	<b><u>165</u></b>	<b><u>170</u></b>	<b><u>175</u></b>	<b><u>180</u></b>
<b>0</b>	953	953	953	953	953	953	953
<b>5</b>	844	839	834	831	829	827	827
<b>10</b>	705	695	686	679	674	670	669
<b>15</b>	569	555	543	532	526	522	520
<b>20</b>	446	430	416	406	398	394	392
<b>25</b>	343	328	314	304	297	293	292
<b>30</b>	262	247	236	227	222	218	217
<b>35</b>	200	188	179	172	168	165	165
<b>40</b>	155	146	140	135	132	130	129
<b>45</b>	123	117	112	108	106	105	104
<b>50</b>	99	95	91	89	88	87	86
<b>55</b>	82	78	76	74	73	73	72
<b>60</b>	66	63	62	60	60	59	59
<b>65</b>	52	50	49	48	47	47	47
<b>70</b>	39	38	37	36	35	35	35
<b>75</b>	27	26	26	25	25	25	25
<b>80</b>	17	17	16	16	16	16	16
<b>85</b>	8	8	8	8	8	8	8
<b>90</b>	0	0	0	0	0	0	0



**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L121911543.IES**

**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	341.37	N.A.	14.70
0-30	711.19	N.A.	30.60
0-40	1142.06	N.A.	49.20
0-60	1921.00	N.A.	82.70
0-80	2290.02	N.A.	98.60
0-90	2323.19	N.A.	100.00
10-90	2233.46	N.A.	96.10
20-40	800.68	N.A.	34.50
20-50	1225.66	N.A.	52.80
40-70	1021.43	N.A.	44.00
60-80	369.02	N.A.	15.90
70-80	126.53	N.A.	5.40
80-90	33.17	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	2323.19	N.A.	100.00

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	89.73
10-20	251.64
20-30	369.82
30-40	430.86
40-50	424.97
50-60	353.97
60-70	242.48
70-80	126.53
80-90	33.17
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

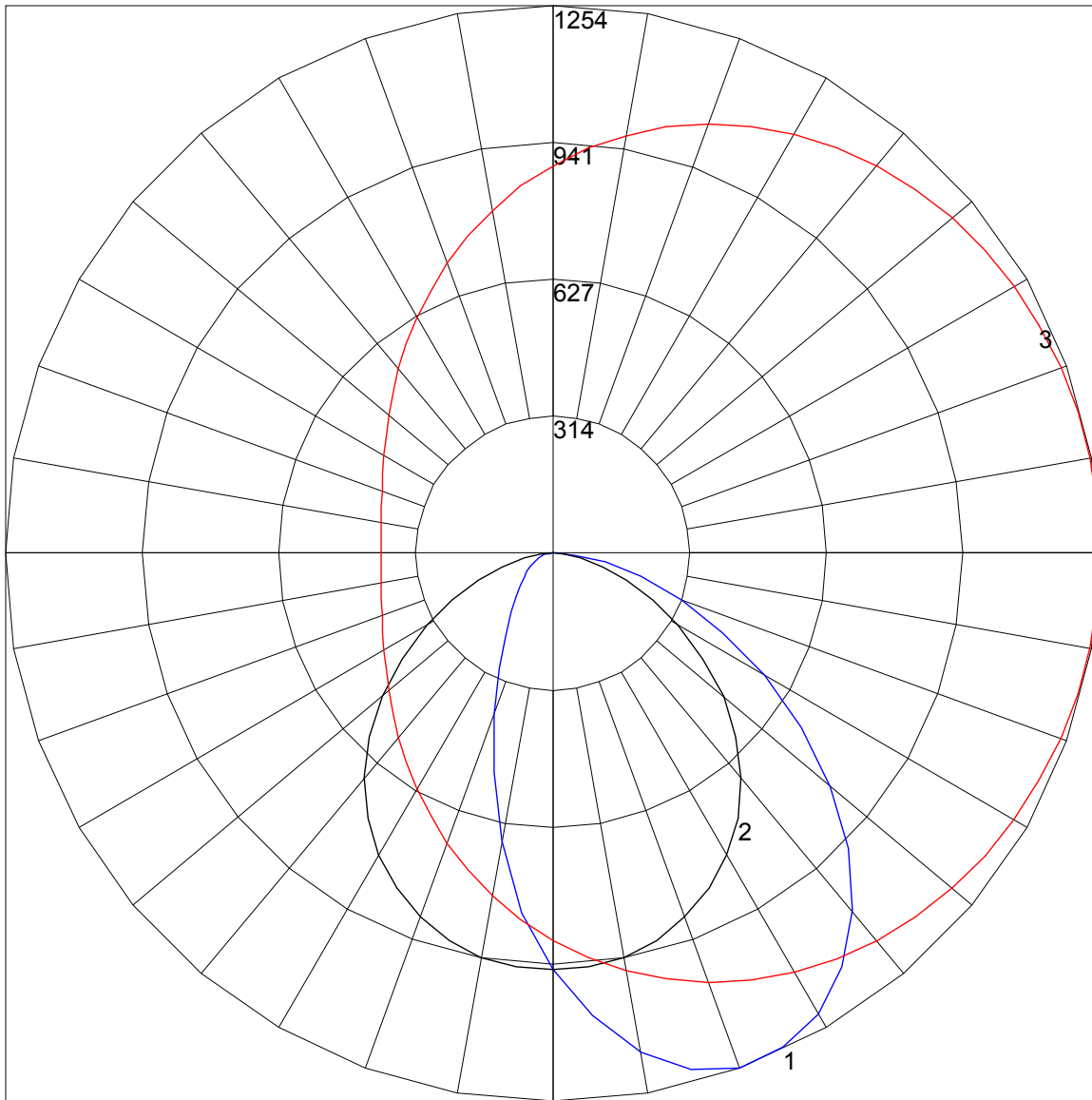
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	109	105	101	97	107	103	99	96	98	95	93	95	92	90	91	89	87	85
2	100	92	86	80	97	90	84	79	87	82	77	84	79	76	81	77	74	72
3	92	81	74	67	89	80	73	67	77	71	66	74	69	65	72	67	63	61
4	84	73	64	58	82	71	63	57	69	62	56	66	61	56	64	59	55	53
5	78	65	56	50	75	64	56	50	62	55	49	60	54	49	58	53	48	46
6	72	59	50	44	70	58	50	44	56	49	43	54	48	43	53	47	43	41
7	67	53	45	39	65	53	45	39	51	44	39	50	43	38	48	42	38	36
8	62	49	41	35	61	48	40	35	47	40	35	46	39	34	45	39	34	32
9	58	45	37	32	57	44	37	31	43	36	31	42	36	31	41	35	31	29
10	55	42	34	29	53	41	34	29	40	33	28	39	33	28	38	32	28	27

POLAR GRAPH



Maximum Candela = 1254 Located At Horizontal Angle = 0, Vertical Angle = 20  
# 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 (20) (Through Max. Cd.)