

IES Report

RaceRail® | 107 | Diffuse, round | 90 CRI | SO

107-RR-XX-4-48-XX-XX-XX-XX-X-X-Z-SO-359-2-X-XX-X

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	125	129	132	133
Total Lumens, 4' rail length (1219mm)	2982	3076	3139	3170
Lumens per foot (305mm)	746	769	785	793
Input Power (W), 4' rail length (1219mm)	24.0	24.0	24.0	24.0
Watts per foot (305mm)	6.0	6.0	6.0	6.0
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: L121911517



Report No: L121911517

Issue Date: 1/8/2020

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

Model Number: 107-RR-48-Z-SO-359-2-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: 1/2/20 - 1/8/20

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

Manufacturer:	Vode Lighting
Model Number:	107-RR-48-Z-SO-359-2-AL
Driver Model Number:	MEAN WELL HLG-40H-36A

Test Summary

Total Lumens:	3139.33
Efficacy:	131.03
Color Redering Index:	94.1
Correlated Color Temperature:	3408
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.2010
Input Power (W):	23.96
Input Power Factor:	0.9939
Current ATHD (%):	8.6%

Test Condition

Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:30
Total Operating Time (Hours):	2:05

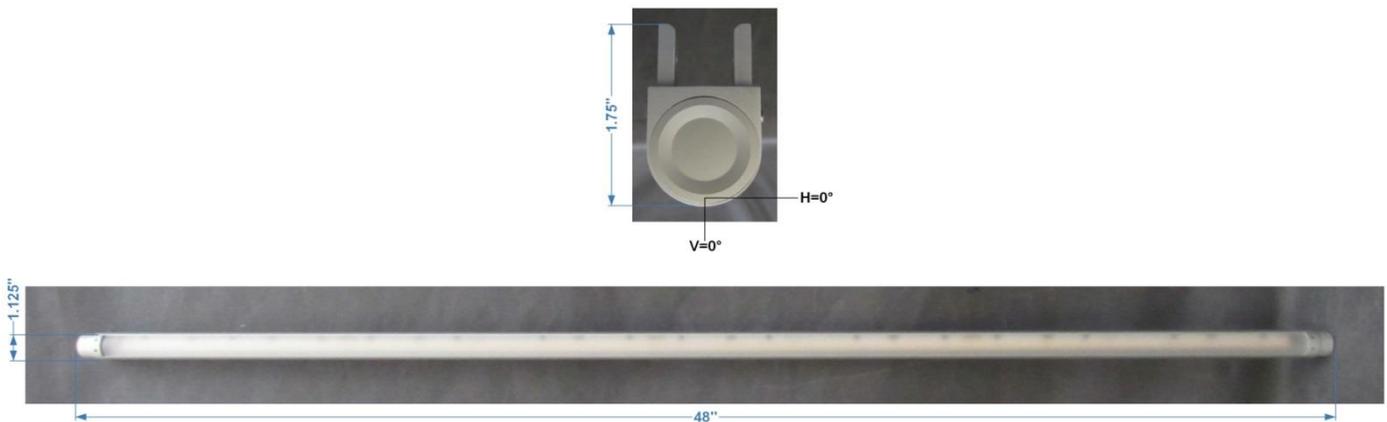
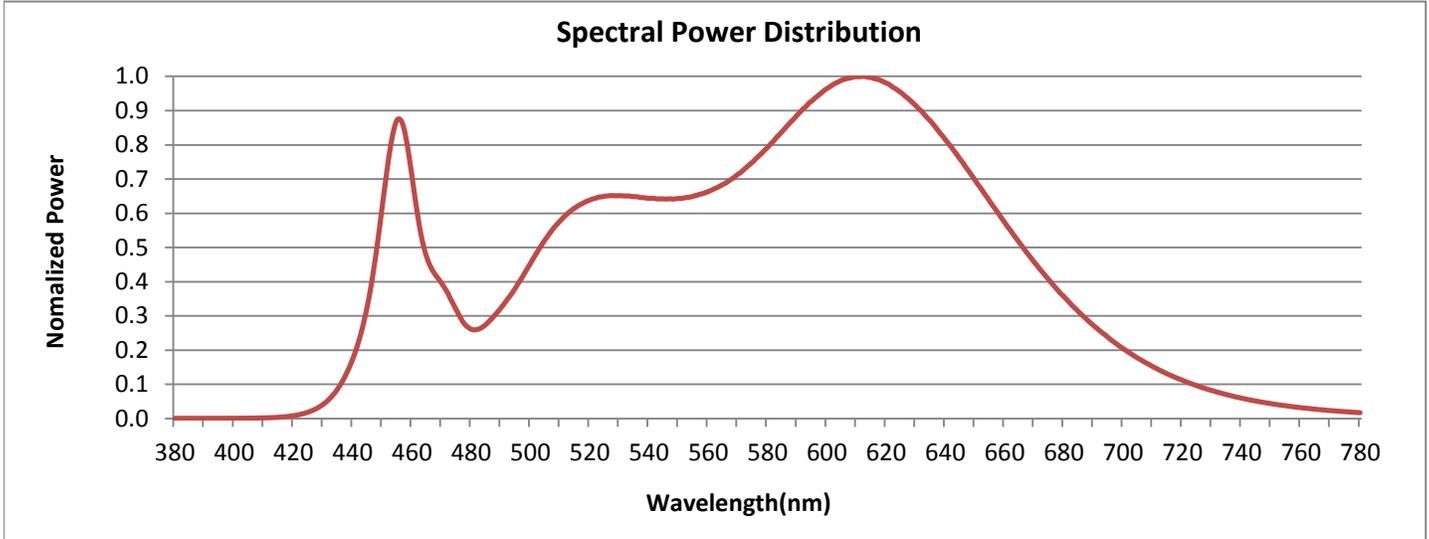


FIG. 1 LUMINAIRE

Colorimetry Test Results

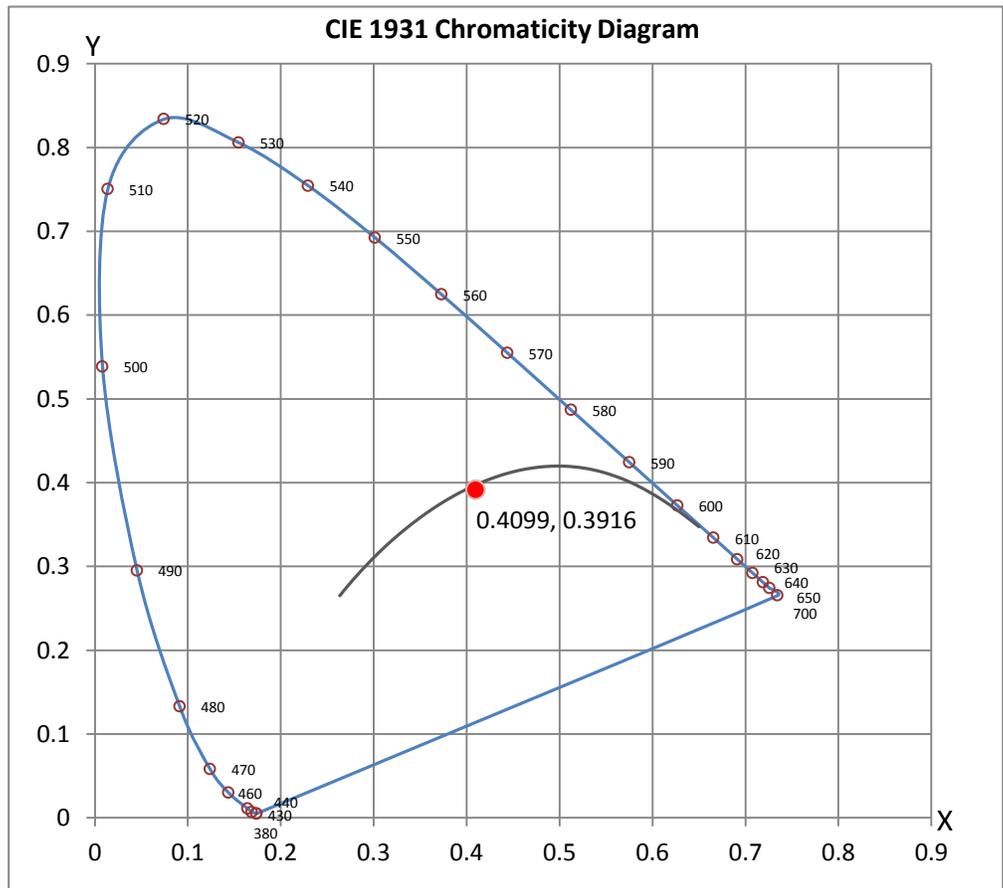


CRI & CCT

x	0.4099
y	0.3916
u'	0.2383
v'	0.5123
CRI	94.10
CCT	3408
Duv	-0.00060

R Values

R1	96.06
R2	98.86
R3	98.18
R4	96.41
R5	96.12
R6	95.89
R7	90.59
R8	81.00
R9	57.19
R10	97.01
R11	97.92
R12	77.12
R13	97.69
R14	99.62
R15	90.26



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 : L121911517.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L121911517
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 1/8/2020
[MANUFAC] Vode Lighting
[LUMCAT] 107-RR-48-Z-SO-359-2-AL
[LUMINAIRE] RaceRail LED, 48", 3500K, 90 CRI, zipper board, round diffuse lens,
[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, 23.96W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	3139
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	131
Total Luminaire Watts	23.96
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.26
Spacing Criterion (90-270)	1.22
Spacing Criterion (Diagonal)	1.36
Basic Luminous Shape	Rectangular w/Sides
Luminous Length (0-180)	0.07 ft
Luminous Width (90-270)	3.84 ft
Luminous Height	0.02 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	31464	33880	37936
55	25165	28357	32610
65	18373	22530	26588
75	13316	17226	20318
85	10761	14382	15163

IES INDOOR REPORT
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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	1146	1146	1146	1146	1146	1146	1146	1146	1146	1146
5	1143	1143	1143	1143	1143	1143	1143	1143	1143	1143
10	1129	1129	1129	1129	1129	1129	1128	1128	1128	1128
15	1104	1105	1104	1104	1104	1103	1103	1103	1103	1102
20	1070	1070	1070	1070	1069	1068	1067	1067	1066	1065
25	1025	1025	1025	1024	1023	1022	1021	1020	1019	1017
30	969	969	969	968	967	966	964	962	960	958
35	900	900	900	900	899	899	897	895	892	889
40	814	814	815	816	816	817	817	816	814	811
45	715	716	717	718	720	722	724	725	724	722
50	613	613	614	616	619	621	624	625	626	625
55	508	508	510	513	516	520	524	526	527	526
60	405	406	408	412	416	421	426	430	432	432
65	313	314	316	319	324	329	334	339	342	343
70	238	238	240	243	247	251	256	260	262	263
75	178	178	180	182	185	189	192	195	197	197
80	134	134	135	137	139	142	144	146	147	146
85	100	100	101	102	104	105	107	107	107	105
90	76	76	76	77	78	78	79	79	78	75
95	58	58	58	58	58	59	58	58	56	53
100	44	44	44	44	44	44	43	42	40	37
105	34	34	34	34	33	33	32	31	29	26
110	26	26	26	26	25	25	24	22	20	18
115	20	20	20	20	19	18	17	16	14	12
120	15	15	15	15	14	13	13	11	10	9
125	11	11	11	11	10	10	9	8	7	6
130	8	8	8	8	8	8	7	7	6	5
135	7	7	7	7	6	6	6	5	5	4
140	6	6	6	6	5	5	5	4	4	4
145	5	5	5	5	5	4	4	0	0	0
150	4	4	4	4	4	4	0	0	0	0
155	0	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0	0
180	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>
0	1146	1146	1146	1146	1146	1146	1146	1146	1146
5	1143	1143	1143	1143	1143	1143	1143	1143	1144
10	1128	1128	1128	1128	1128	1128	1128	1128	1128
15	1101	1101	1100	1100	1099	1100	1099	1099	1100
20	1064	1063	1061	1061	1060	1059	1059	1058	1059
25	1015	1013	1011	1009	1008	1006	1006	1006	1006
30	955	952	949	946	944	941	940	939	939
35	886	881	877	872	868	865	862	861	861
40	806	800	794	788	782	778	774	772	771
45	717	711	703	696	689	682	677	674	674
50	621	616	608	599	590	582	576	572	572
55	523	518	511	501	492	483	476	472	471
60	429	423	415	407	397	387	379	375	373

**IES INDOOR REPORT
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CANDELA TABULATION - (Cont.)

65	341	335	328	318	308	298	290	285	284
70	262	257	250	240	229	219	210	205	203
75	195	190	183	174	163	152	143	137	134
80	143	138	130	120	109	98	88	81	79
85	102	96	88	79	68	56	46	38	35
90	71	66	58	49	39	29	19	10	4
95	49	44	37	29	21	13	6	2	1
100	33	29	23	17	12	6	2	1	0
105	23	19	15	10	6	3	1	0	0
110	15	12	9	6	4	2	0	0	0
115	10	8	6	4	3	0	0	0	0
120	7	6	4	3	2	0	0	0	0
125	6	5	4	3	0	0	0	0	0
130	4	4	3	3	0	0	0	0	0
135	4	3	0	0	0	0	0	0	0
140	3	3	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	0	0	0
155	0	0	0	0	0	0	0	0	0
160	0	0	0	0	0	0	0	0	0
165	0	0	0	0	0	0	0	0	0
170	0	0	0	0	0	0	0	0	0
175	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0

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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	419.44	N.A.	13.40
0-30	887.14	N.A.	28.30
0-40	1439.42	N.A.	45.90
0-60	2439.1	N.A.	77.70
0-80	2949.75	N.A.	94.00
0-90	3048.44	N.A.	97.10
10-90	2939.83	N.A.	93.60
20-40	1019.98	N.A.	32.50
20-50	1565.03	N.A.	49.90
40-70	1319.49	N.A.	42.00
60-80	510.65	N.A.	16.30
70-80	190.83	N.A.	6.10
80-90	98.69	N.A.	3.10
90-110	69.93	N.A.	2.20
90-120	81.15	N.A.	2.60
90-130	86.66	N.A.	2.80
90-150	90.73	N.A.	2.90
90-180	90.88	N.A.	2.90
110-180	20.96	N.A.	0.70
0-180	3139.33	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	108.62
10-20	310.82
20-30	467.70
30-40	552.28
40-50	545.05
50-60	454.63
60-70	319.81
70-80	190.83
80-90	98.69
90-100	46.96
100-110	22.97
110-120	11.22
120-130	5.51
130-140	2.85
140-150	1.21
150-160	0.15
160-170	0.00
170-180	0.00

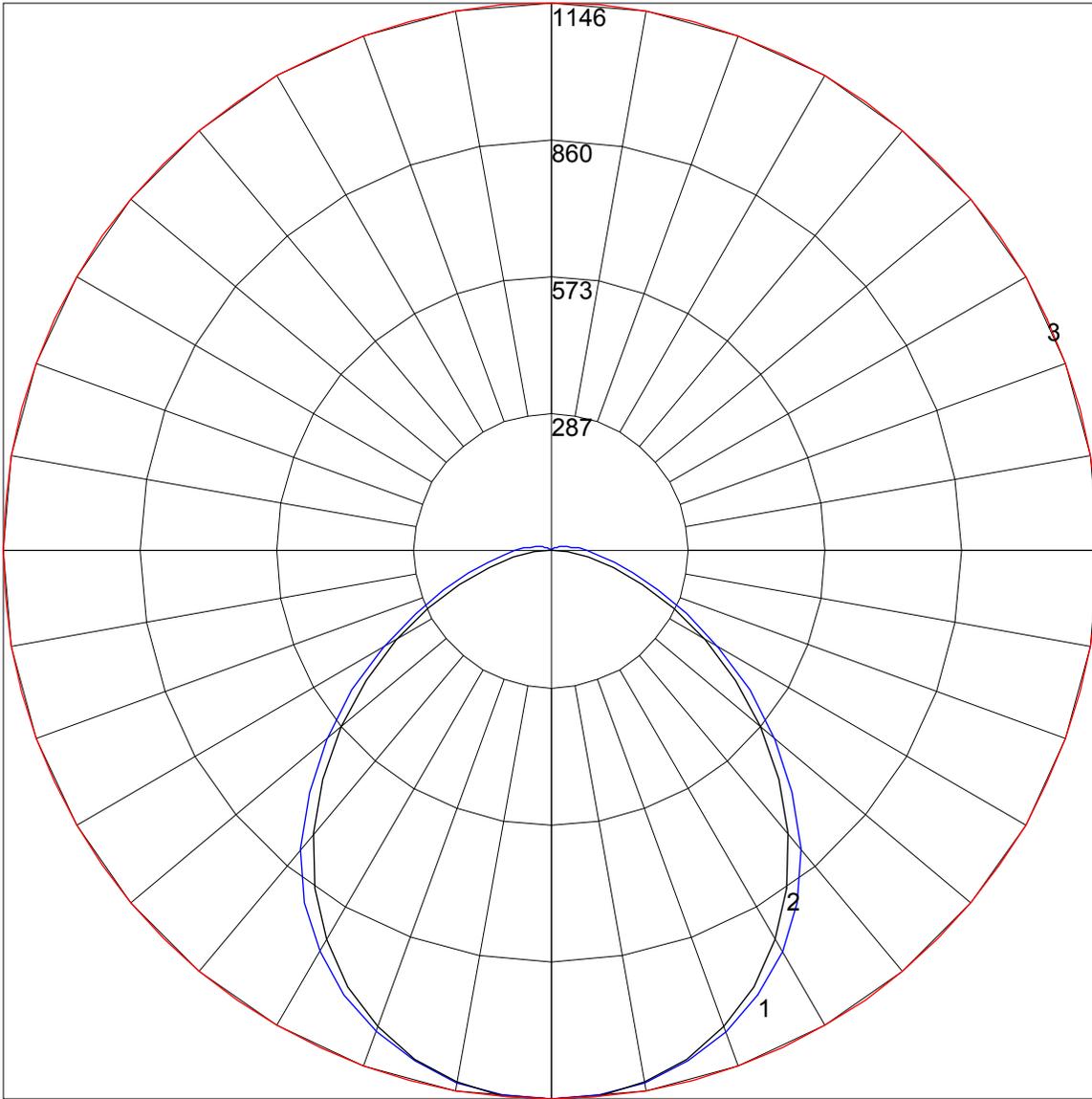
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	118	118	118	118	118	115	115	115	115	115	110	110	110	104	104	104	99	99	99	97
1	108	103	99	95	95	105	101	97	93	96	93	90	91	89	86	87	85	83	81	
2	98	90	83	78	78	95	88	82	77	84	79	74	80	76	72	77	73	70	68	
3	90	80	71	65	65	87	78	70	64	74	68	63	71	66	61	68	64	60	58	
4	83	71	62	55	55	80	69	61	55	66	59	54	64	58	53	61	56	52	50	
5	76	63	55	48	48	74	62	54	48	60	52	47	57	51	46	55	50	45	43	
6	70	57	48	42	42	68	56	48	42	54	47	41	52	46	41	50	44	40	38	
7	65	52	43	37	37	63	51	43	37	49	42	37	48	41	36	46	40	36	34	
8	61	47	39	33	33	59	47	39	33	45	38	33	44	37	32	42	36	32	30	
9	57	44	35	30	30	55	43	35	30	42	34	30	40	34	29	39	33	29	27	
10	53	40	32	27	27	52	40	32	27	38	32	27	37	31	27	36	31	26	25	

POLAR GRAPH



Maximum Candela = 1146 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.)