

IES Report

ZipTwo® | 707 | Diffuse | 90 CRI | SO

707-Z2-4-48-XX-XX-X-0-Z-SO-359-D3-X-WH-0

	2700K	3000K	3500K	4000K
Efficacy - Lumens per Watt	127	131	134	135
Total Lumens, 4' rail length (1219mm)	3318	3423	3493	3528
Lumens per foot (305mm)	829	856	873	882
Input Power (W), 4' rail length (1219mm)	26.2	26.2	26.1	26.2
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: L121911534



Report No: L121911534

Issue Date: 1/13/2020

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

Model Number: 707-Z2-48-Z-SO-359-D3-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: 1/8/19 - 1/13/19

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

Manufacturer:	Vode Lighting
Model Number:	707-Z2-48-Z-SO-359-D3-AL
Driver Model Number:	MEAN WELL HLG-40H-36A

Test Summary

Total Lumens:	3492.63
Efficacy:	133.81
Color Redering Index:	94.0
Correlated Color Temperature:	3386
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.2187
Input Power (W):	26.10
Input Power Factor:	0.9944
Current ATHD (%):	7.9%

Test Condition

Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:30
Total Operating Time (Hours):	1:30

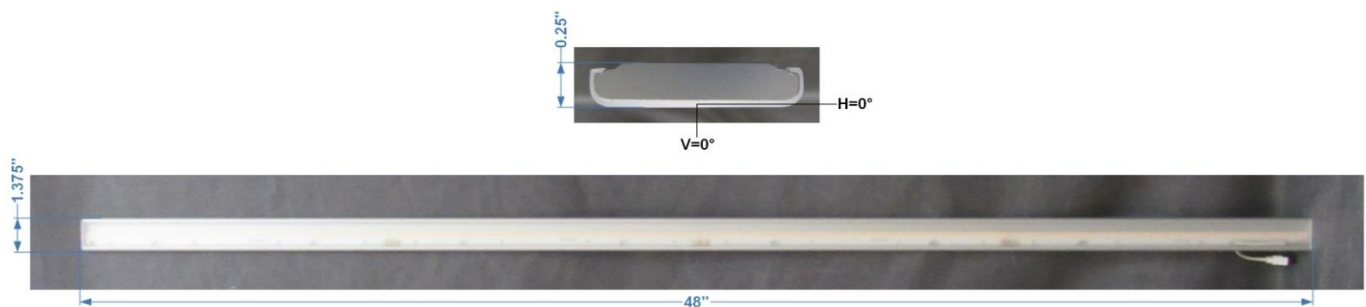
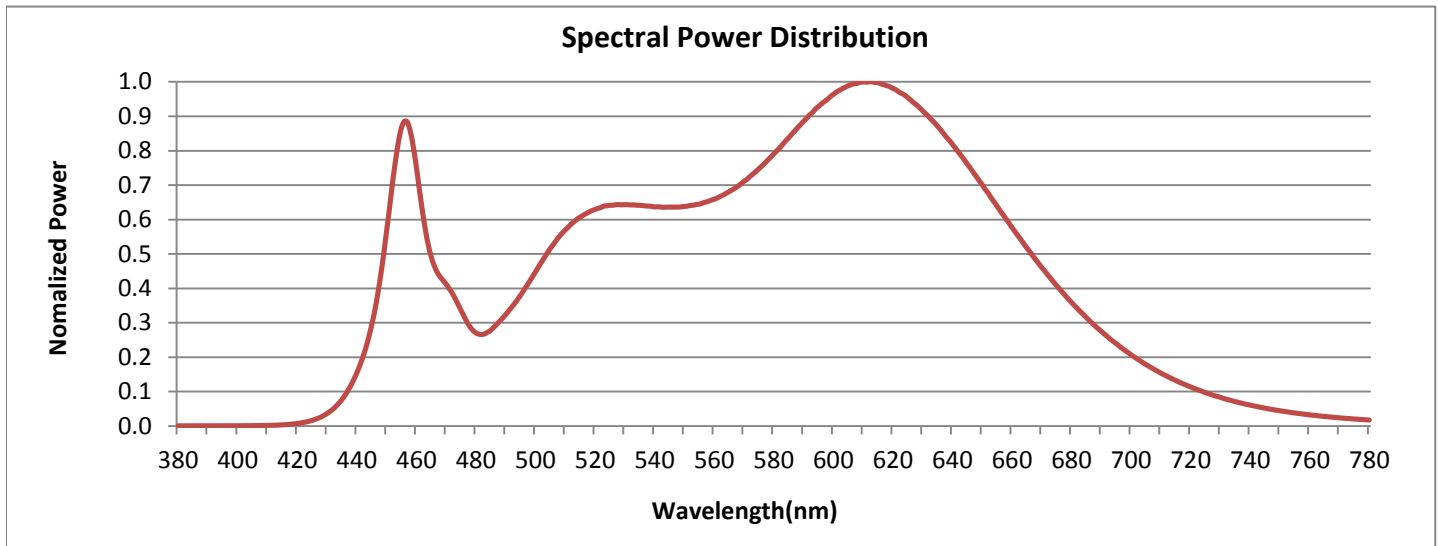


FIG. 1 LUMINAIRE

Colorimetry Test Results

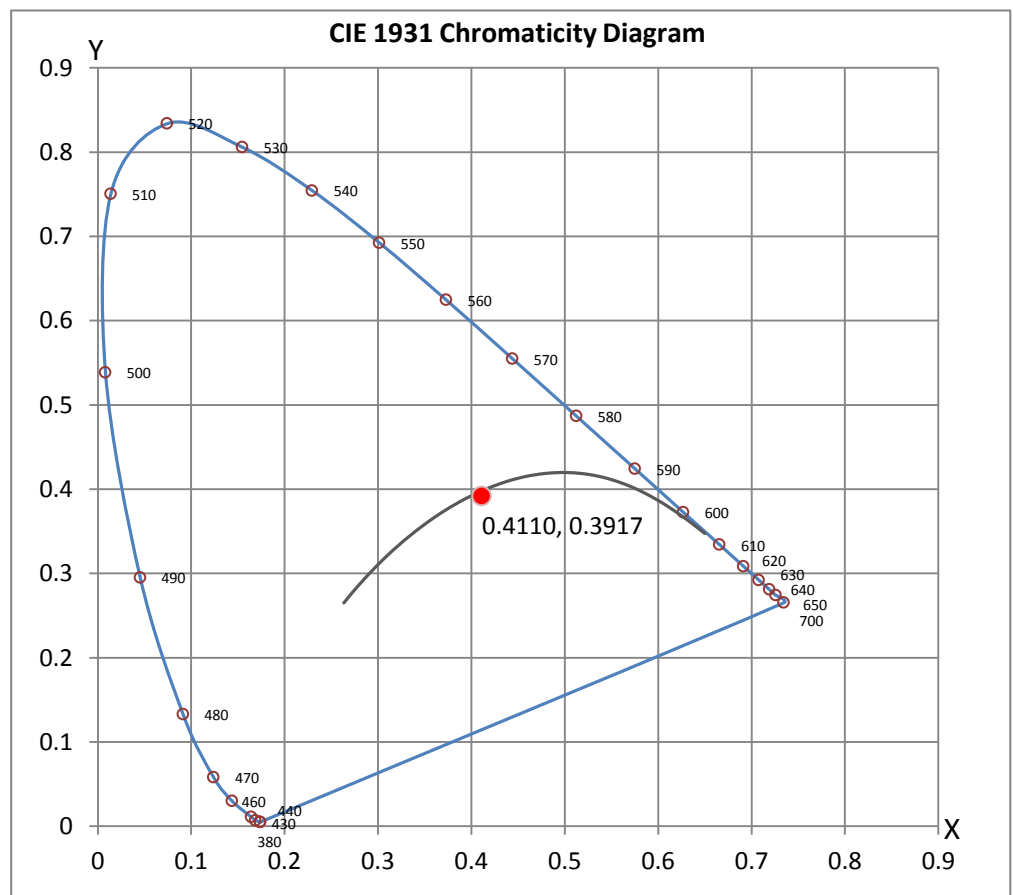


CRI & CCT

x	0.4110
y	0.3917
u'	0.2390
v'	0.5125
CRI	94.00
CCT	3386
Duv	-0.00078

R Values

R1	96.22
R2	99.27
R3	97.60
R4	96.03
R5	96.14
R6	95.51
R7	90.11
R8	80.85
R9	57.67
R10	98.07
R11	98.40
R12	76.94
R13	98.02
R14	99.53
R15	90.44





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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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www.lightlaboratory.com

Photometric Test Report

IES INDOOR REPORT

PHOTOMETRIC FILENAME : L121911534.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L121911534
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 1/13/2020
[MANUFAC] Vode Lighting
[LUMCAT] 707-Z2-48-Z-SO-359-D3-AL
[LUMINAIRE] ZipTwo LED, 48", 3500K, 90 CRI, zipper board, 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, 26.10W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	3493
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	134
Total Luminaire Watts	26.1
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.22
Spacing Criterion (90-270)	1.24
Spacing Criterion (Diagonal)	1.32
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	0.08 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	38546	38833	39119
55	34271	34388	34506
65	29729	29649	29410
75	25969	25447	24272
85	29064	26351	21314

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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	1360	1360	1360	1360	1360	1360	1360	1360	1360	1360
5	1355	1355	1355	1355	1355	1355	1355	1355	1355	1355
10	1336	1335	1336	1335	1336	1336	1335	1336	1336	1336
15	1301	1300	1300	1300	1300	1300	1301	1301	1301	1302
20	1251	1250	1251	1251	1251	1251	1252	1253	1253	1254
25	1186	1186	1187	1187	1188	1189	1189	1190	1191	1191
30	1108	1109	1109	1109	1109	1110	1112	1112	1113	1114
35	1018	1018	1018	1018	1019	1020	1021	1022	1023	1024
40	917	917	917	917	919	919	920	921	921	923
45	807	808	808	808	809	810	810	811	811	813
50	695	695	695	695	695	696	697	697	697	698
55	582	582	582	582	583	583	583	584	584	584
60	473	473	474	474	474	474	474	474	474	474
65	372	372	372	372	372	372	372	371	371	371
70	280	280	280	280	280	279	279	279	278	277
75	199	199	199	198	198	198	197	197	196	195
80	131	130	130	130	129	129	128	127	126	125
85	75	75	75	75	74	73	72	71	70	68
90	32	32	31	30	30	29	27	26	24	22
95	0	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0	0
140	0	0	0	0	0	0	0	0	0	0
145	0	0	0	0	0	0	0	0	0	0
150	0	0	0	0	0	0	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	1360	1360	1360	1360	1360	1360	1360	1360	1360
5	1355	1355	1355	1355	1355	1355	1355	1355	1355
10	1336	1336	1336	1336	1337	1336	1337	1337	1336
15	1303	1303	1303	1304	1304	1304	1303	1304	1304
20	1254	1255	1256	1256	1257	1257	1256	1257	1256
25	1192	1193	1194	1195	1196	1196	1196	1196	1196
30	1115	1116	1116	1119	1118	1119	1120	1120	1120
35	1025	1027	1028	1028	1029	1030	1030	1031	1031
40	923	925	926	927	928	928	929	929	929
45	813	814	815	816	817	818	818	818	819
50	699	699	700	701	701	702	702	702	702
55	584	585	585	585	585	586	586	586	586
60	474	474	474	474	473	473	473	473	473

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CANDELA TABULATION - (Cont.)

65	370	370	370	369	369	368	368	367	368
70	277	276	275	275	274	273	272	272	272
75	194	193	192	190	189	188	187	187	186
80	124	122	121	119	118	117	115	114	114
85	67	65	63	62	60	58	57	56	55
90	20	19	17	15	13	11	9	8	6
95	0	0	0	0	0	0	0	0	0
100	0	0	0	0	0	0	0	0	0
105	0	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0	0
120	0	0	0	0	0	0	0	0	0
125	0	0	0	0	0	0	0	0	0
130	0	0	0	0	0	0	0	0	0
135	0	0	0	0	0	0	0	0	0
140	0	0	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	495.83	N.A.	14.20
0-30	1044.07	N.A.	29.90
0-40	1683.81	N.A.	48.20
0-60	2833.83	N.A.	81.10
0-80	3410.85	N.A.	97.70
0-90	3486.82	N.A.	99.80
10-90	3358.1	N.A.	96.10
20-40	1187.98	N.A.	34.00
20-50	1814.68	N.A.	52.00
40-70	1519.06	N.A.	43.50
60-80	577.02	N.A.	16.50
70-80	207.99	N.A.	6.00
80-90	75.97	N.A.	2.20
90-110	5.81	N.A.	0.20
90-120	5.81	N.A.	0.20
90-130	5.81	N.A.	0.20
90-150	5.81	N.A.	0.20
90-180	5.81	N.A.	0.20
110-180	0.00	N.A.	0.00
0-180	3492.63	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	128.72
10-20	367.11
20-30	548.24
30-40	639.74
40-50	626.71
50-60	523.32
60-70	369.03
70-80	207.99
80-90	75.97
90-100	5.81
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

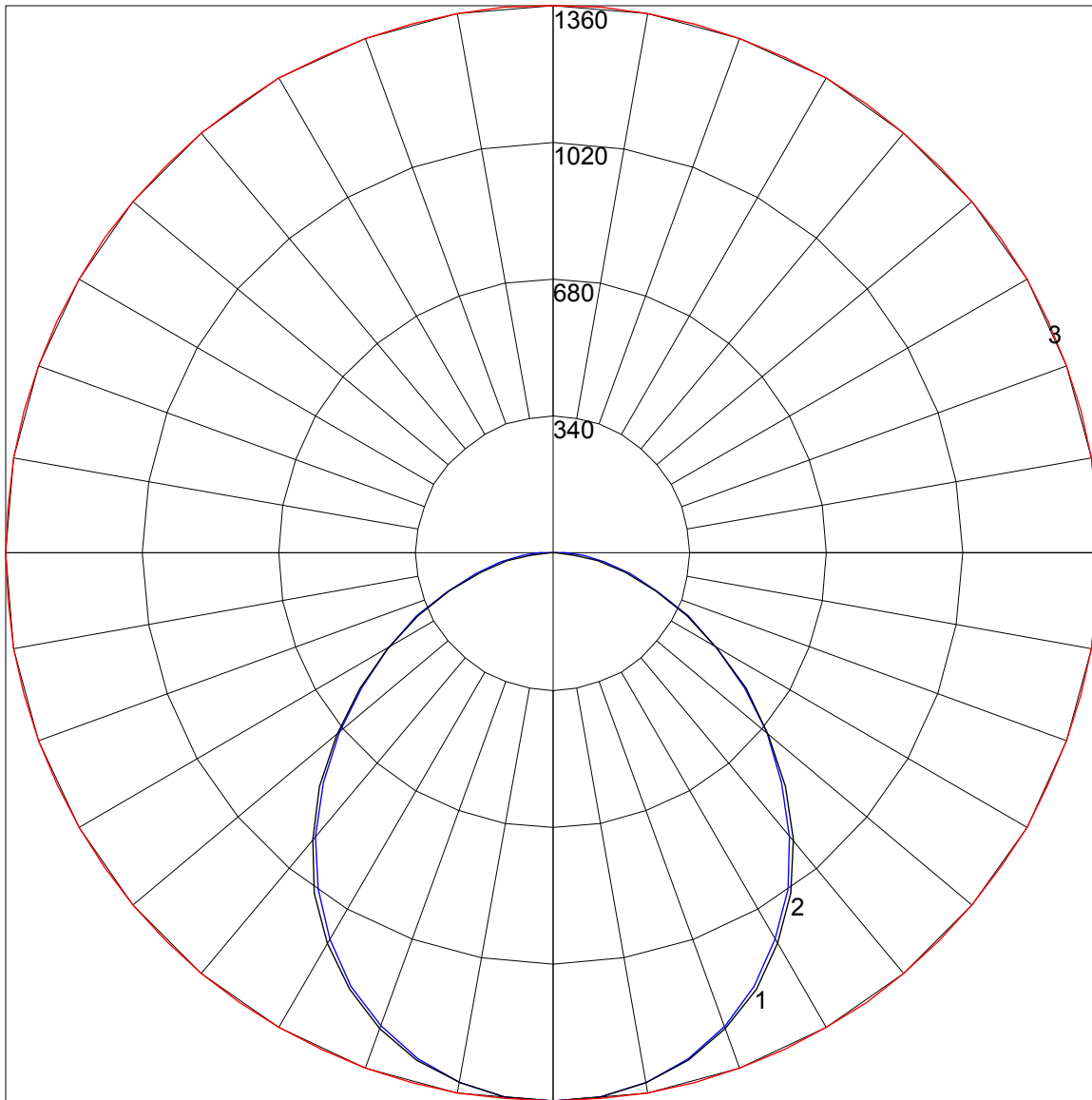
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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	104	100	96	106	102	98	95	98	95	92	94	91	89	90	88	86	84
2	99	91	85	79	97	90	83	78	86	81	76	83	78	75	80	76	73	71
3	91	81	73	66	89	79	72	66	76	70	65	73	68	63	71	66	62	60
4	84	72	63	57	81	70	62	56	68	61	56	66	60	55	63	58	54	52
5	77	64	56	49	75	63	55	49	61	54	48	59	53	48	57	52	47	45
6	71	58	49	43	69	57	49	43	55	48	43	54	47	42	52	46	42	40
7	66	53	44	38	64	52	44	38	51	43	38	49	42	38	48	42	37	35
8	62	48	40	34	60	48	40	34	46	39	34	45	38	34	44	38	33	32
9	58	44	36	31	56	44	36	31	43	36	31	42	35	30	41	35	30	29
10	54	41	33	28	53	41	33	28	40	33	28	39	32	28	38	32	28	26

POLAR GRAPH



Maximum Candela = 1360 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.)