

IES Report

ulo[™] | 507

507-ULO-07-11-XX-0-PP-XX-1-Z2-XX-XX-1-0-X-0

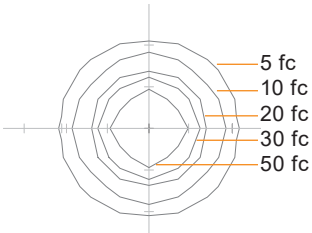
	2700K	3000K	3500K	4000K	4200K	5000K
Efficacy - Lumens per Watt	77	75	77	80	80	87
Total Lumens	451	442	456	470	470	511
Input Power (W)	6	6	6	6	6	6
CRI	94	94	94	94	94	94

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](#).

isofootcandle Plot

isofootcandle Plot Multipliers



Lamp is 14" above desk surface at full brightness light output and 3500K (table is at 1' measurements)

	2700K	3000K	3500K	4000K	4200K	5000K
Multiplier	0.99	0.97	1	1.03	1.03	1.12
Foot Candles	50	49.5	50	51.5	51.5	56
	30	29.7	30	30.9	30.9	33.6
	20	19.8	20	20.6	20.6	22.4
	10	9.9	10	10.3	10.3	11.2
	5	4.95	5	5.15	5.15	5.6

Report No: L051808701

Issue Date: 6/19/2018

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

Model Number: 507-ULO-TW-WH

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.

Testing Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 6/15/18

Date of Tests: 6/18/18 - 6/18/18

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	1/9/19
BK PRECISION	1747	PS-DC04	1/10/19
Fluke Digital Thermometer	52K/J	MT-TP05	1/10/19
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:	507-ULO-TW-WH
Driver Model Number:	CUSTOM AC ADAPTER
Total Lumens:	455.89
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.092
Input Power (W):	5.89
Input Power Factor:	0.53
Current ATHD @ 120V(%):	84%
Current ATHD @ 277V(%):	N/A
Efficacy:	77.40
Color Rendering Index (CRI):	94
Correlated Color Temperature (K):	3546
Chromaticity Coordinate x:	0.3972
Chromaticity Coordinate y:	0.3740
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:30
Total Operating Time (Hours):	1:00

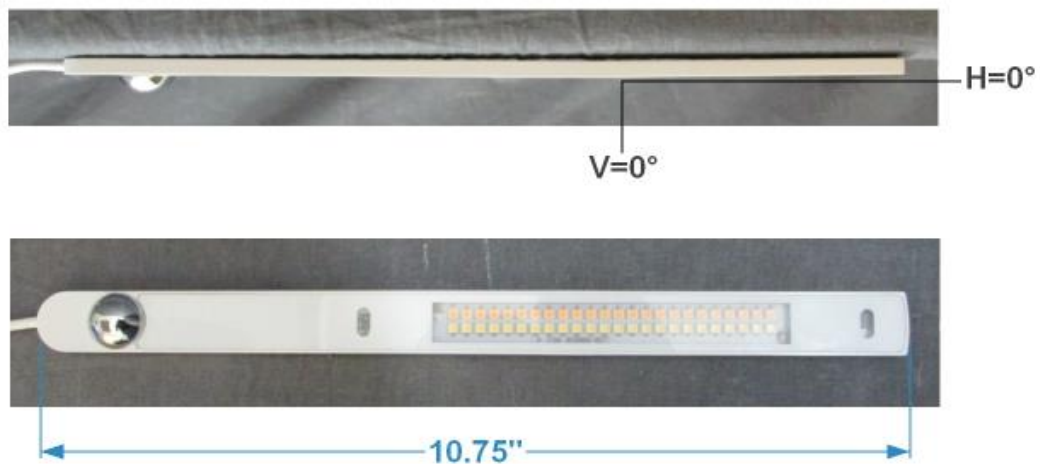
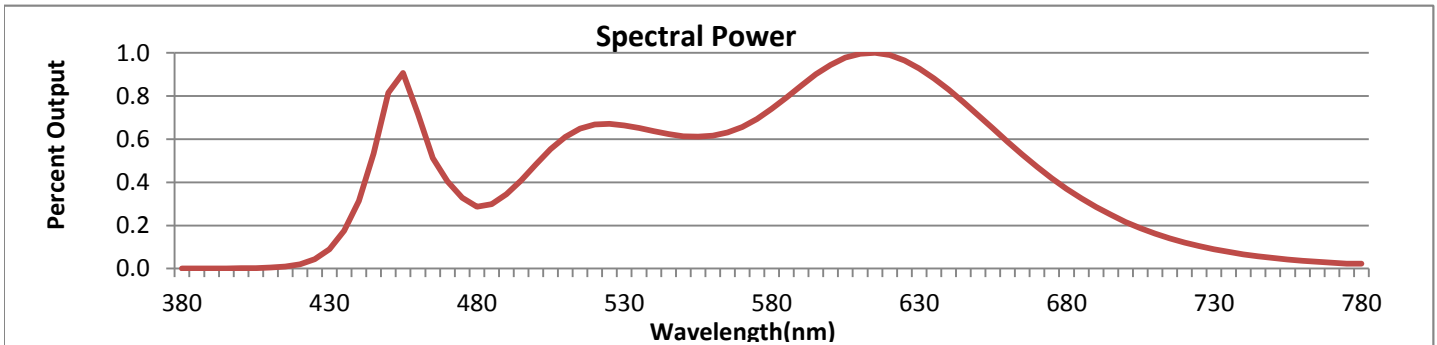


FIG. 1 LUMINAIRE

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



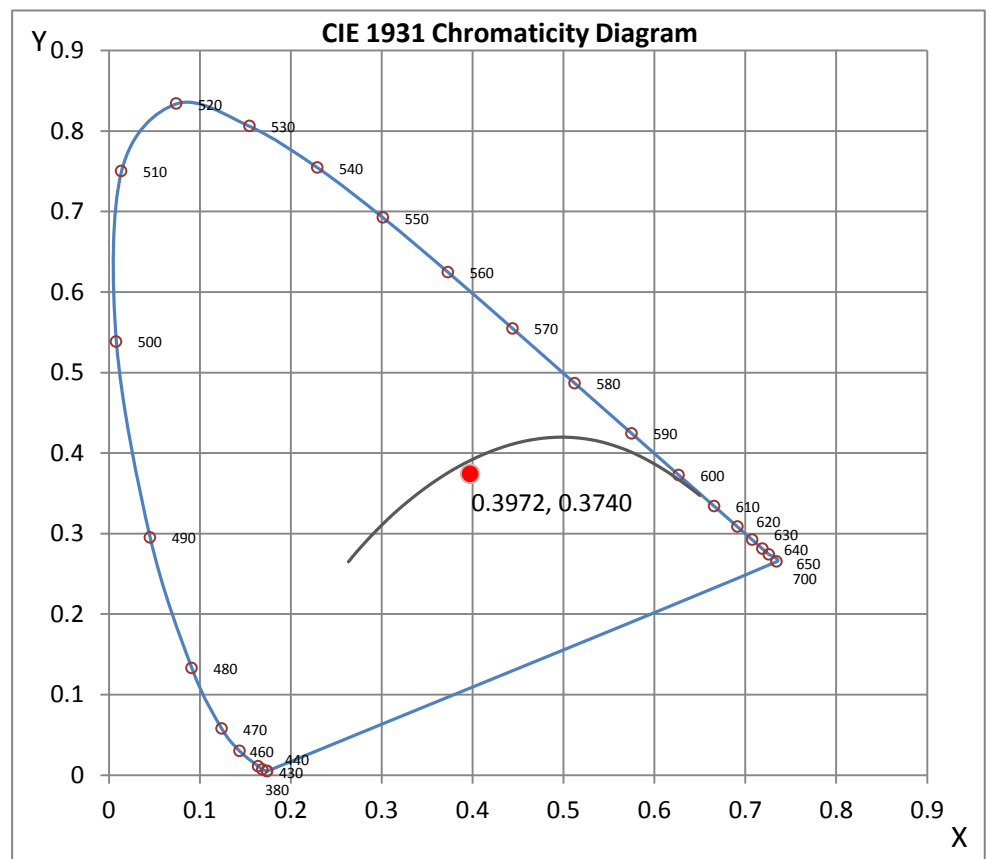
Wavelength	W/m ² nm	440	0.3129	510	0.6106	580	0.7405	650	0.7118	720	0.1206
380	0.0009	450	0.8156	520	0.6681	590	0.8477	660	0.5884	730	0.0893
390	0.0011	460	0.7162	530	0.6641	600	0.9448	670	0.4722	740	0.0661
400	0.0016	470	0.4035	540	0.6373	610	0.9960	680	0.3703	750	0.0489
410	0.0042	480	0.2873	550	0.6135	620	0.9899	690	0.2849	760	0.0363
420	0.0197	490	0.3452	560	0.6161	630	0.9284	700	0.2160	770	0.0266
430	0.0901	500	0.4821	570	0.6569	640	0.8296	710	0.1622	780	0.0230

CRI & CCT

x	0.3972
y	0.3740
u'	0.2374
v'	0.5029
CRI	94.40
CCT	3546
Duv	-0.00571

R Values

R1	95.96
R2	96.48
R3	97.52
R4	95.85
R5	95.97
R6	91.52
R7	92.82
R8	89.24
R9	76.92
R10	93.78
R11	89.18
R12	82.63
R13	95.20
R14	98.97



*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 : Jeff Ahn

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: 9*



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

Photometric Test Report

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L051808701.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L051808701
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 6/19/2018
[MANUFAC] Vode Lighting
[LUMCAT] 507-ULO-TW-WH
[LUMINAIRE] Multi-Mount LED, Tunable*, 90 CRI
[BALLASTCAT] Custom AC Adapter
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] 120VAC, 5.89w
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	456
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	77
Total Luminaire Watts	5.89
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.22
Spacing Criterion (90-270)	1.22
Spacing Criterion (Diagonal)	1.34
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	0.35 ft
Luminous Width (90-270)	0.04 ft
Luminous Height	0.00 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	119471	119102	118429
55	107886	106520	103614
65	94095	89769	83953
75	73869	67726	62473
85	41158	37104	34019

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L051808701.IES

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	178.86	178.86	178.86	178.86	178.86	178.86	178.86	178.86	178.86	178.86
5	176.55	176.49	176.44	176.61	176.85	177.03	177.18	177.33	177.50	177.68
10	173.63	173.53	173.48	173.65	173.89	174.07	174.22	174.36	174.53	174.70
15	169.12	169.05	169.00	169.17	169.43	169.59	169.72	169.87	170.01	170.17
20	162.84	162.75	162.69	162.89	163.15	163.32	163.41	163.54	163.68	163.79
25	154.94	154.81	154.75	155.00	155.26	155.37	155.44	155.56	155.63	155.68
30	145.68	145.52	145.51	145.74	146.01	146.09	146.13	146.20	146.22	146.25
35	134.80	134.65	134.64	134.87	135.11	135.17	135.16	135.16	135.14	135.12
40	123.09	122.96	123.00	123.25	123.44	123.45	123.39	123.31	123.22	123.13
45	109.98	109.91	109.98	110.16	110.30	110.24	110.10	109.95	109.78	109.64
50	96.02	96.03	96.19	96.36	96.39	96.28	96.03	95.78	95.54	95.37
55	80.56	80.80	81.10	81.17	81.02	80.82	80.50	80.13	79.81	79.54
60	66.08	66.25	66.54	66.51	66.31	66.01	65.64	65.20	64.79	64.38
65	51.77	51.87	52.03	51.94	51.66	51.33	50.93	50.45	49.91	49.39
70	37.80	37.87	37.93	37.79	37.52	37.18	36.74	36.29	35.79	35.29
75	24.89	24.93	24.92	24.79	24.58	24.26	23.94	23.55	23.18	22.82
80	13.19	13.19	13.16	13.08	12.93	12.77	12.56	12.35	12.13	11.93
85	4.67	4.65	4.62	4.59	4.56	4.49	4.42	4.35	4.27	4.21
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Vert. 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	178.86	178.86	178.86	178.86	178.86	178.86	178.86	178.86	178.86
5	177.81	177.97	178.16	178.33	178.52	178.66	178.76	178.79	178.81
10	174.81	174.97	175.12	175.35	175.51	175.61	175.71	175.75	175.74
15	170.25	170.35	170.55	170.74	170.90	171.01	171.08	171.12	171.14
20	163.88	164.00	164.15	164.32	164.46	164.55	164.57	164.60	164.60
25	155.75	155.85	155.97	156.11	156.23	156.27	156.31	156.33	156.31
30	146.28	146.34	146.42	146.52	146.58	146.60	146.60	146.62	146.63
35	135.10	135.11	135.14	135.22	135.24	135.20	135.18	135.18	135.17
40	123.06	123.06	123.07	123.05	123.03	122.96	122.90	122.87	122.88
45	109.52	109.49	109.41	109.34	109.24	109.14	109.07	109.00	109.02
50	95.22	95.02	94.84	94.67	94.53	94.37	94.29	94.22	94.17
55	79.22	78.93	78.59	78.21	77.93	77.69	77.49	77.40	77.37
60	63.95	63.47	62.97	62.52	62.10	61.79	61.57	61.40	61.38
65	48.93	48.30	47.78	47.32	46.91	46.60	46.40	46.25	46.19
70	34.78	34.33	33.89	33.50	33.22	32.95	32.79	32.69	32.67
75	22.47	22.13	21.85	21.61	21.37	21.22	21.10	21.03	21.05
80	11.74	11.55	11.41	11.24	11.14	11.04	10.98	10.94	10.92
85	4.13	4.07	4.02	3.96	3.92	3.89	3.86	3.86	3.86
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L051808701.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	64.83	N.A.	14.20
0-30	136.54	N.A.	30.00
0-40	221.04	N.A.	48.50
0-60	376.74	N.A.	82.60
0-80	450.32	N.A.	98.80
0-90	455.89	N.A.	100.00
10-90	439.02	N.A.	96.30
20-40	156.20	N.A.	34.30
20-50	240.73	N.A.	52.80
40-70	204.71	N.A.	44.90
60-80	73.58	N.A.	16.10
70-80	24.57	N.A.	5.40
80-90	5.57	N.A.	1.20
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	455.89	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	16.87
10-20	47.97
20-30	71.70
30-40	84.50
40-50	84.52
50-60	71.19
60-70	49.00
70-80	24.57
80-90	5.57
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

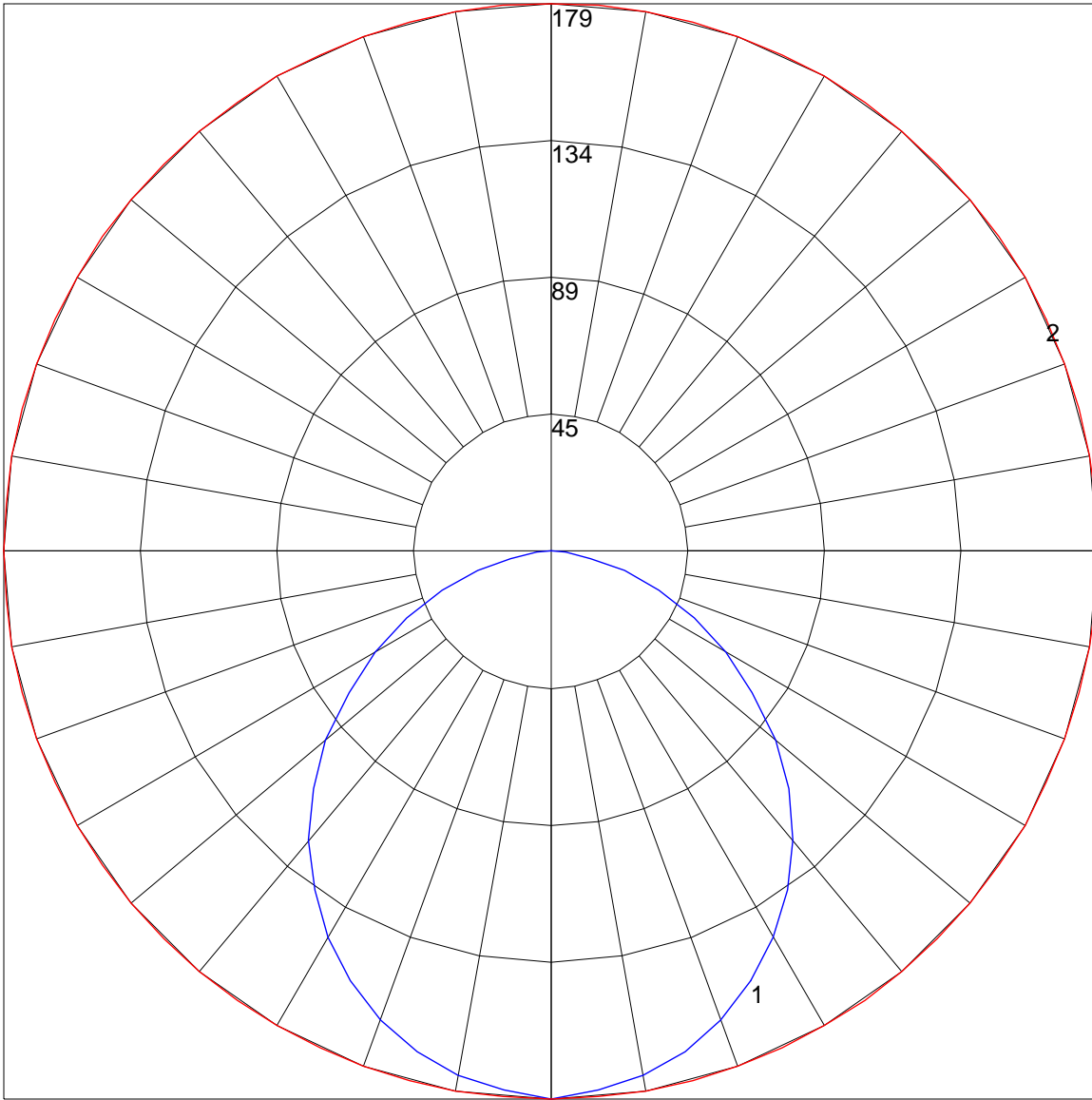
IES INDOOR REPORT
PHOTOMETRIC FILENAME : L051808701.IES

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	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	109	105	101	97	96	107	103	99	96	98	95	93	95	92	90	91	89	87	85
2	100	92	86	80	79	97	90	84	79	87	82	77	83	79	76	80	77	74	72
3	91	81	73	67	67	89	80	72	67	77	71	65	74	69	64	72	67	63	61
4	84	72	64	57	57	82	71	63	57	69	62	56	66	60	55	64	59	55	53
5	77	65	56	50	49	75	64	56	49	62	54	49	60	53	48	58	52	48	46
6	71	58	50	44	43	70	58	49	43	56	48	43	54	48	43	53	47	42	40
7	66	53	45	39	38	65	52	44	38	51	43	38	49	43	38	48	42	38	36
8	62	49	40	34	34	60	48	40	34	47	39	34	45	39	34	44	38	34	32
9	58	45	37	31	31	56	44	36	31	43	36	31	42	35	31	41	35	31	29
10	54	41	33	28	28	53	41	33	28	40	33	28	39	32	28	38	32	28	26

POLAR GRAPH



Maximum Candela = 178.86 Located At Horizontal Angle = 0, Vertical Angle = 0
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)