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Report No: L041608804

Date: 5/13/2016



NVLAP LAB CODE 200927-0

**Report No:** L041608804

**Prepared For:** Number Eight Lighting Company  
 526 Portal Street, Cotati, CA 94931

**Model Number:** 400-HI-25/DIM1-4(PR1-4, DIM2-4, PR2-4)-1000/FLR(FR)-4-WH(OB)

**Test:** Photometric/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. Catalog number is 400-HI-25/DIM1-4(PR1-4, DIM2-4, PR2-4)-1000/FLR(FR)-4-WH(OB). Received in working and undamaged condition. No modifications were necessary.

**Testing Condition:** Fixture is tested with no special conditions.

**Sample Arrival Date:** 4/9/16

**Date of Tests:** 5/12/16 - 5/12/16

**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	11/18/16
Xitron Power Analyzer	2503AH	MT-EL01	11/30/16
ITECH DC Power Supply	IT6122	PSDC-03-S1	11/17/16
Fluke Digital Thermometer	52k/J	MT-TP02-GC	11/24/16
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**

<b>Manufacturer:</b>	Number Eight Lighting Company
<b>Model Number:</b>	400-HI-25/DIM1-4(PR1-4, DIM2-4, PR2-4)-1000/FLR(FR)-4-WH(OB)
<b>Driver Model Number:</b>	INTUITIVE SYSTEMS ISD-601-1050-15-D
<b>Total Lumens:</b>	640.50
<b>Input Voltage (VAC/60Hz):</b>	120.00
<b>Input Current (Amp):</b>	0.13
<b>Input Power (W):</b>	14.68
<b>Input Power Factor:</b>	0.97
<b>Current ATHD @ 120V(%):</b>	14%
<b>Current ATHD @ 277V(%):</b>	N/A
<b>Efficacy:</b>	44
<b>Ambient Temperature (°C):</b>	25.0
<b>Stabilization Time (Hours):</b>	0:30
<b>Total Operating Time (Hours):</b>	1:40
<b>Off State Power(W):</b>	0.00

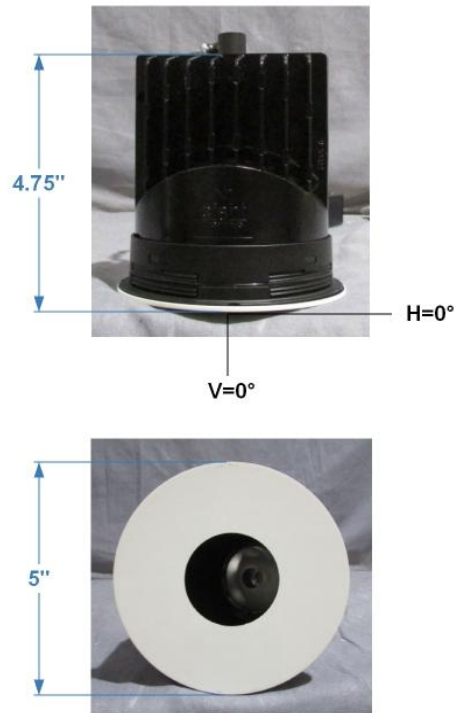


FIG.1 LUMINAIRE

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

## 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 : Dennis Malonzo

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: 12*



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# Photometric Test Report

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L041608804.IES**

**DESCRIPTION INFORMATION (From Photometric File)**

IESNA:LM-63-2002  
 [TEST] L041608804  
 [TESTLAB] LIGHT LABORATORY, INC.  
 [ISSUEDATE] 05/13/2016  
 [MANUFAC] Number Eight Lighting Company  
 [LUMCAT] 400-HI-25/DIM1-4(PR1-4, DIM2-4, PR2-4)-1000/FLR(FR)-4-WH(OB)  
 [LUMINAIRE] 5"DI. X 4.75"H. LED Recessed Adjustable Downlight, 90+ CRI,  
 [MORE] 25° Beam Spread, 35° Aiming Angle, 2" Aperture Trim LUMINAIRE  
 [BALLASTCAT] INTUITIVE SYSTEMS ISD-601-1050-15-D  
 [BALLAST] 120V 60Hz MAGNETIC.  
 [LAMPPOSITION] 0,0  
 [LAMPCAT] N/A  
 [OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND  
 [MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.  
 [INPUT] 120VAC, 14.68  
 [TEST PROCEDURE] IESNA:LM-79-08

**CHARACTERISTICS**

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	641
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	44
Total Luminaire Watts	14.68
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	0.20
Spacing Criterion (90-270)	0.66
Spacing Criterion (Diagonal)	1.36
Basic Luminous Shape	Circular
Luminous Length (0-180)	0.17 ft (Diameter)
Luminous Width (90-270)	0.17 ft (Diameter)
Luminous Height	0.00 ft

**IES INDOOR REPORT**  
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**LUMINANCE DATA (cd/sq.m)**

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	670	670	3015
55	826	826	2065
65	1121	1121	2242
75	1831	1831	3661
85	5436	5436	10872

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>
<b>0</b>	105	105	105	105	105	105	105	105	105	105
<b>2</b>	82	83	83	83	84	85	86	87	88	89
<b>4</b>	65	65	66	66	67	69	70	72	73	76
<b>6</b>	49	49	50	51	52	53	55	57	60	62
<b>8</b>	33	33	34	35	36	38	40	42	45	48
<b>10</b>	24	24	24	25	26	27	28	30	32	35
<b>12</b>	15	15	16	16	17	19	20	22	24	26
<b>14</b>	10	10	10	11	11	12	14	15	17	20
<b>16</b>	7	7	7	7	8	9	9	11	12	14
<b>18</b>	5	5	5	5	6	6	7	8	9	10
<b>20</b>	4	4	4	4	4	5	5	6	7	8
<b>22</b>	3	3	3	3	4	4	4	5	5	6
<b>24</b>	3	3	3	3	3	3	4	4	4	5
<b>26</b>	2	2	2	2	3	3	3	3	4	4
<b>28</b>	2	2	2	2	2	2	3	3	3	4
<b>30</b>	2	2	2	2	2	2	2	3	3	3
<b>32</b>	2	2	2	2	2	2	2	2	3	3
<b>34</b>	1	1	1	1	1	2	2	2	2	3
<b>35</b>	1	1	1	1	1	2	2	2	2	3
<b>36</b>	1	1	1	1	1	1	2	2	2	3
<b>38</b>	1	1	1	1	1	1	1	1	2	2
<b>40</b>	1	1	1	1	1	1	1	1	1	2
<b>42</b>	1	1	1	1	1	1	1	1	1	1
<b>44</b>	1	1	1	1	1	1	1	1	1	1
<b>46</b>	1	1	1	1	1	1	1	1	1	1
<b>48</b>	1	1	1	1	1	1	1	1	1	1
<b>50</b>	1	1	1	1	1	1	1	1	1	1
<b>52</b>	1	1	1	1	1	1	1	1	1	1
<b>54</b>	1	1	1	1	1	1	1	1	1	1
<b>56</b>	1	1	1	1	1	1	1	1	1	1
<b>58</b>	1	1	1	1	1	1	1	1	1	1
<b>60</b>	1	1	1	1	1	1	1	1	1	1
<b>62</b>	1	1	1	1	1	1	1	1	1	1
<b>64</b>	1	1	1	1	1	1	1	1	1	1
<b>66</b>	1	1	1	1	1	1	1	1	1	1
<b>68</b>	1	1	1	1	1	1	1	1	1	1
<b>70</b>	1	1	1	1	1	1	1	1	1	1
<b>75</b>	1	1	1	1	1	1	1	1	1	1
<b>80</b>	1	1	1	1	1	1	1	1	1	1
<b>85</b>	1	1	1	1	1	1	1	1	1	1
<b>90</b>	0	0	0	0	0	0	0	0	0	0

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>	<u>95</u>
<b>0</b>	105	105	105	105	105	105	105	105	105	105
<b>2</b>	91	92	94	95	97	99	101	103	105	108
<b>4</b>	78	80	83	86	89	92	96	99	103	107
<b>6</b>	65	68	72	76	80	84	89	95	100	106
<b>8</b>	52	56	60	66	70	76	82	89	96	104
<b>10</b>	39	43	49	54	61	67	74	82	90	99
<b>12</b>	29	33	38	43	50	57	65	74	84	94
<b>14</b>	22	26	29	34	40	48	57	65	77	89
<b>16</b>	16	20	23	27	32	39	48	58	67	81

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

18	12	14	17	21	25	32	39	49	60	74
20	9	11	13	16	20	25	31	41	51	65
22	7	8	10	12	15	20	25	32	43	56
24	6	7	8	10	12	15	21	26	35	47
26	5	6	7	8	9	12	15	21	28	38
28	4	5	6	7	8	10	12	16	22	30
30	4	4	5	6	7	8	10	13	19	25
32	3	4	4	5	6	7	8	10	13	20
34	3	3	4	4	5	6	7	9	11	15
35	3	3	4	4	5	5	6	8	10	13
36	3	3	4	4	5	5	6	7	9	12
38	3	3	3	4	4	5	5	6	8	10
40	2	3	3	3	4	4	5	5	6	8
42	2	2	3	3	4	4	4	5	5	7
44	1	2	2	3	3	4	4	4	5	6
46	1	2	2	2	3	3	4	4	4	5
48	1	2	2	2	2	3	3	3	4	4
50	1	2	2	2	2	2	3	3	3	4
52	1	2	2	2	2	2	2	3	3	3
54	1	2	2	2	2	2	2	2	3	3
56	1	2	2	2	2	2	2	2	2	3
58	1	2	2	2	2	2	2	2	2	2
60	1	2	2	2	2	2	2	2	2	2
62	2	2	2	2	2	2	2	2	2	2
64	2	2	2	2	2	2	2	2	2	2
66	2	2	2	2	2	2	2	2	2	2
68	2	2	2	2	2	2	2	2	2	2
70	2	2	2	2	2	2	2	2	2	2
75	2	2	2	2	2	2	2	2	2	2
80	1	2	2	2	2	2	2	2	2	2
85	1	2	2	2	2	2	2	2	2	2
90	0	0	0	0	0	0	0	0	0	0

Vert. Angles	Horizontal 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	105	105	105	105	105	105	105	105	105	105
2	110	112	114	116	118	120	122	123	125	126
4	112	116	120	125	129	134	138	142	146	150
6	113	120	127	134	141	148	156	163	171	178
8	112	121	131	141	152	164	177	189	202	215
10	110	121	135	149	164	181	199	219	239	260
12	106	120	135	153	174	197	222	251	279	309
14	103	118	135	157	181	211	244	282	321	364
16	97	113	134	158	191	225	265	311	366	430
18	90	108	129	156	193	233	281	340	409	489
20	82	101	125	153	192	237	292	361	451	557
22	73	93	117	147	193	237	298	383	486	611
24	60	83	108	139	188	233	299	392	511	651
26	53	85	97	129	186	225	295	395	525	666
28	44	85	86	117	170	214	285	390	530	673
30	35	51	86	103	142	199	270	376	521	680
32	27	40	56	87	127	192	250	353	499	660
34	21	31	47	61	105	172	227	326	467	639
35	19	27	41	57	96	144	217	305	447	636
36	18	24	36	54	86	132	203	288	425	622

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

38	13	19	27	43	58	108	195	257	379	556
40	10	14	21	32	51	85	137	216	329	501
42	8	12	18	24	38	58	102	200	271	416
44	7	9	13	19	28	44	63	123	224	340
46	6	7	10	14	22	34	53	90	168	249
48	5	6	8	11	18	25	40	60	108	202
50	4	5	6	8	12	20	29	48	68	129
52	4	4	5	7	9	14	22	35	56	94
54	3	3	4	5	7	10	16	25	39	62
56	3	3	3	4	5	7	10	19	27	43
58	3	3	3	3	4	5	7	11	19	28
60	2	2	3	3	3	4	5	7	10	18
62	2	2	2	3	3	3	3	4	6	9
64	2	2	2	2	2	3	3	3	4	5
66	2	2	2	2	2	2	2	2	3	3
68	2	2	2	2	2	2	2	2	2	2
70	2	2	2	2	2	2	2	2	2	2
75	2	2	2	2	2	2	1	1	1	1
80	2	2	2	2	2	2	1	1	1	1
85	2	2	2	2	2	2	1	1	1	1
90	0	0	0	0	0	0	0	0	0	0

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

	<b>150</b>	<b>155</b>	<b>160</b>	<b>165</b>	<b>170</b>	<b>175</b>	<b>180</b>
0	105	105	105	105	105	105	105
2	127	128	129	130	131	131	131
4	153	155	158	160	161	162	163
6	184	190	195	200	202	205	205
8	226	238	248	256	262	266	267
10	279	297	315	329	340	346	349
12	340	370	401	427	447	459	464
14	413	460	508	547	579	598	604
16	496	563	631	683	732	760	769
18	582	673	771	847	911	952	964
20	667	800	922	1025	1106	1160	1180
22	760	923	1076	1206	1315	1384	1407
24	848	1030	1217	1379	1511	1602	1633
26	910	1120	1339	1534	1702	1813	1847
28	951	1187	1440	1670	1870	1999	2049
30	966	1225	1508	1771	1995	2157	2215
32	955	1229	1536	1824	2091	2261	2326
34	920	1196	1513	1815	2087	2287	2362
35	881	1167	1481	1797	2054	2254	2330
36	864	1134	1442	1737	2002	2196	2269
38	702	1051	1327	1611	1864	2037	2089
40	671	956	1221	1465	1676	1830	1883
42	617	847	1080	1308	1496	1620	1660
44	515	669	956	1154	1311	1419	1456
46	403	600	808	999	1150	1243	1272
48	290	451	637	836	969	1061	1091
50	214	334	469	631	773	858	885
52	152	239	345	458	557	625	647
54	104	161	238	320	404	461	483
56	63	109	155	213	268	307	320
58	45	63	103	141	177	205	215



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CANDELA TABULATION - (Cont.)

60	27	42	61	88	113	130	137
62	14	23	34	49	63	75	79
64	7	10	15	21	28	33	35
66	4	5	6	8	10	11	12
68	2	3	3	3	4	4	4
70	2	2	2	2	2	2	2
75	1	1	1	1	1	1	1
80	1	1	1	1	0	0	0
85	1	1	1	1	0	0	0
90	0	0	0	0	0	0	0

**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L041608804.IES**

**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	65.91	N.A.	10.30
0-30	216.22	N.A.	33.80
0-40	432.27	N.A.	67.50
0-60	632.05	N.A.	98.70
0-80	639.40	N.A.	99.80
0-90	640.50	N.A.	100.00
10-90	629.26	N.A.	98.20
20-40	366.37	N.A.	57.20
20-50	517.89	N.A.	80.90
40-70	205.55	N.A.	32.10
60-80	7.35	N.A.	1.10
70-80	1.58	N.A.	0.20
80-90	1.10	N.A.	0.20
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	640.50	N.A.	100.00

Total Luminaire Efficiency = N.A.%

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	11.24
10-20	54.67
20-30	150.32
30-40	216.05
40-50	151.53
50-60	48.25
60-70	5.77
70-80	1.58
80-90	1.10
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

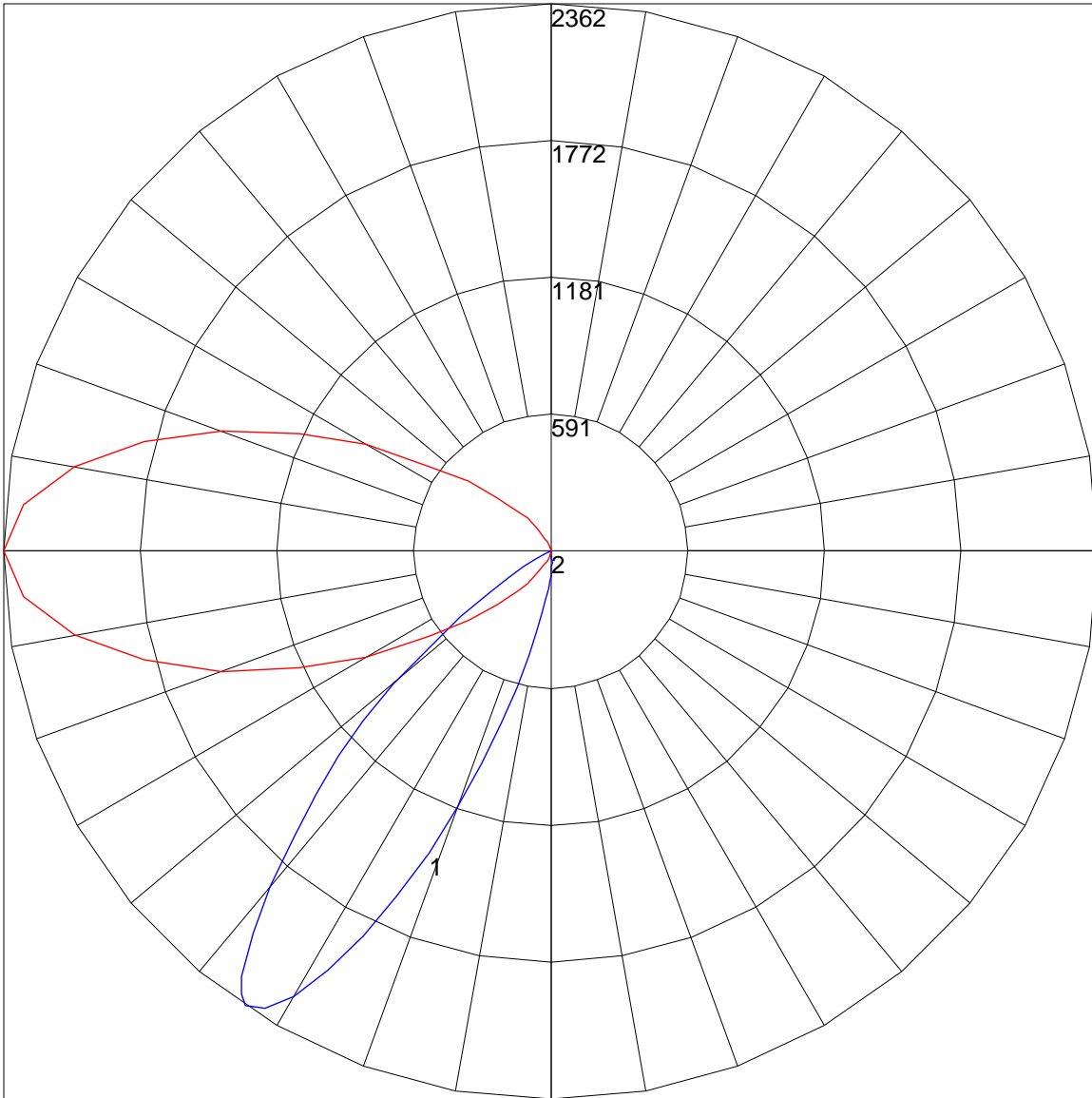
**IES INDOOR REPORT**  
**PHOTOMETRIC FILENAME : L041608804.IES**

**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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	112	108	105	102	109	106	103	101	102	100	98	98	96	95	95	93	92	90
2	104	98	93	88	102	96	91	87	93	89	85	90	86	83	87	84	82	80
3	97	88	82	77	94	87	81	76	84	79	75	81	77	73	79	75	72	70
4	90	80	72	67	87	78	72	66	76	70	66	74	69	65	72	68	64	62
5	83	72	64	59	81	71	64	58	69	63	58	67	62	57	65	61	57	55
6	77	65	57	52	75	64	57	52	63	56	51	61	55	51	60	54	50	49
7	71	59	51	46	70	58	51	46	57	50	46	56	50	45	54	49	45	43
8	66	54	46	41	65	53	46	41	52	45	41	51	45	40	50	44	40	38
9	62	49	42	37	60	49	42	37	48	41	36	47	41	36	46	40	36	34
10	58	45	38	33	56	45	38	33	44	37	33	43	37	33	42	36	32	31

POLAR GRAPH



Maximum Candela = 2362 Located At Horizontal Angle = 180, Vertical Angle = 34  
# 1 - Vertical Plane Through Horizontal Angles (180 - 0) (Through Max. Cd.)  
# 2 - Horizontal Cone Through Vertical Angle (34) (Through Max. Cd.)