

Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



Scaled data based on original data using  
LM-79-2024 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P243149

Luminaire Tested: S122DRP-H290D830-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P243149  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-58)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: S122DRP-H290D830-X4F0-XX-UDD-A-W  
Description: DEFINE 2 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 3000K CCT, 80 CRI LEDS  
Ballast/Driver: -

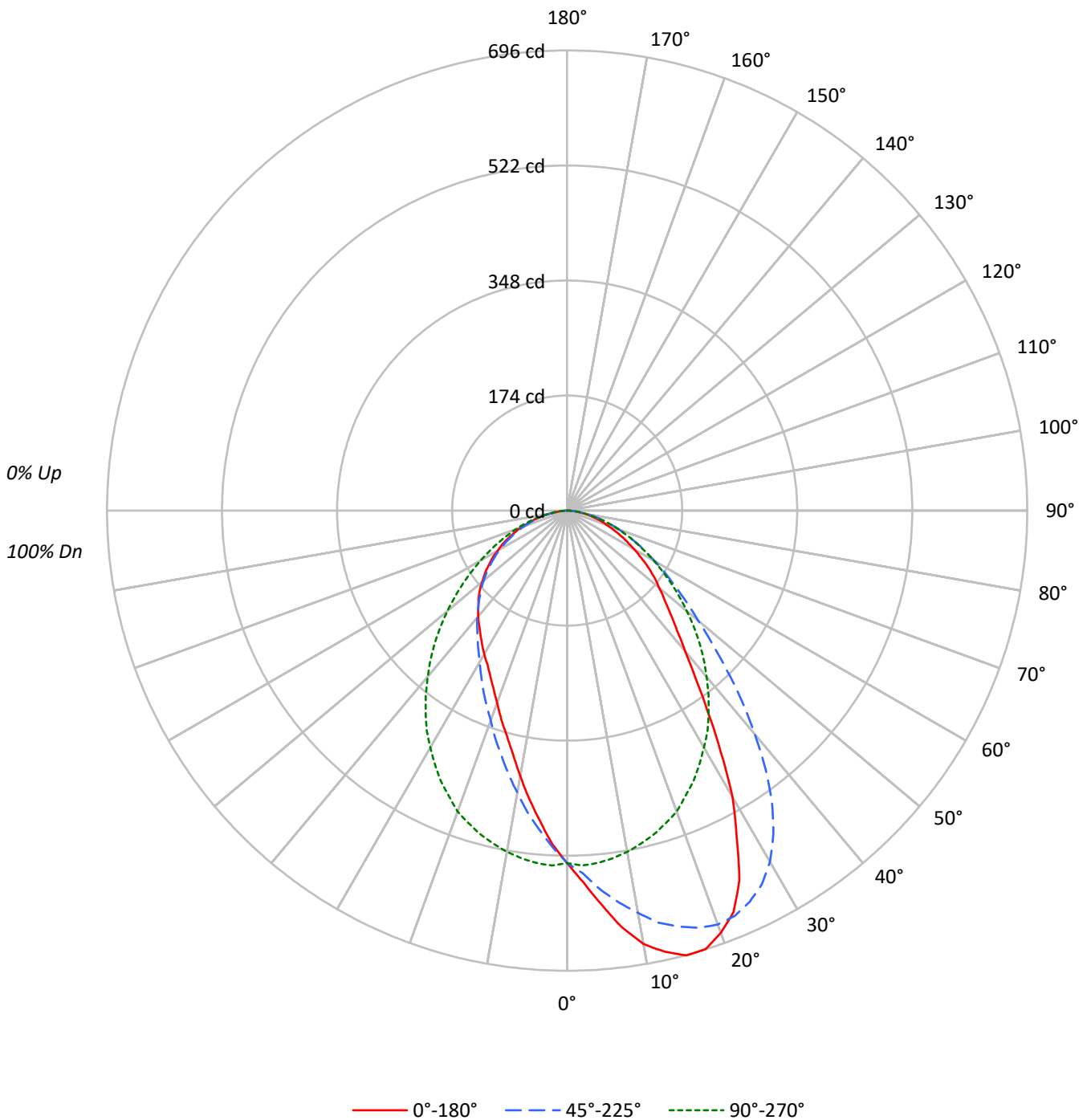
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1183.0 lumens  
Efficiency: N/A  
Efficacy: 105.6 lumens/watt  
Spacing Criteria (0/90/45): 1.09 / 1.16 / 1.24  
Luminous Opening: Rectangular (W 3.88' x L: 0.15' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 11.2  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

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CATALOG NUMBER: S122DRP-H290D830-X4F0-XX-UDD-A-W

### Luminous Intensity Polar Plot



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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20					20					20					20					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	50	30	10	50	30	10	0		
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100					100			
1	110	106	102	98	107	103	100	97	99	96	94	95	93	91	92	90	88					86				
2	101	93	87	82	98	92	86	81	88	83	79	85	81	77	82	79	76					74				
3	93	83	76	70	90	82	75	69	79	73	68	76	71	67	73	69	66					63				
4	86	74	66	60	83	73	66	60	71	64	59	68	63	58	66	61	57					55				
5	79	67	59	52	77	66	58	52	64	57	52	62	56	51	60	55	51					49				
6	73	61	52	46	72	60	52	46	58	51	46	57	50	45	55	49	45					43				
7	68	56	47	41	67	55	47	41	53	46	41	52	46	41	51	45	40					39				
8	64	51	43	37	62	50	43	37	49	42	37	48	41	37	47	41	37					35				
9	60	47	39	34	58	46	39	34	45	38	34	44	38	34	43	38	33					32				
10	56	44	36	31	55	43	36	31	42	35	31	41	35	31	40	35	31					29				

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°	135°	180°
0°	10154	10154	10154	10154	10154
5°	11440	11002	10228	9262	9010
10°	12876	11949	10137	8385	7886
15°	13735	12843	10000	7568	6949
20°	13776	13506	9819	6843	6272
25°	12955	13722	9493	6303	5782
30°	10997	13489	9097	5815	5521
35°	8599	12561	8671	5492	5313
40°	6908	10985	8148	5269	5209
45°	5942	9207	7613	5048	5113
50°	5390	7678	7005	4884	4969
55°	4968	6599	6383	4692	4835
60°	4465	5817	5749	4472	4617
65°	4020	5201	5165	4187	4394
70°	3581	4617	4595	3837	4110
75°	3223	4026	3952	3400	3599
80°	2819	3335	3181	2775	2819
85°	2404	2754	2382	1858	1552

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 65°  
 Vertical Angle: 45°  
 Luminance: 12731 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	50.8	4.3
10°-20°	146.0	12.3
20°-30°	212.3	17.9
30°-40°	227.7	19.3
40°-50°	204.1	17.3
50°-60°	162.7	13.8
60°-70°	110.1	9.3
70°-80°	56.1	4.7
80°-90°	13.2	1.1
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	409.1	34.6
0°-40°	636.8	53.8
0°-60°	1003.7	84.8
0°-90°	1183.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1183.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	533	533	533	533	533	
5°	598	575	535	484	471	59
15°	696	651	507	384	352	195
25°	616	653	452	300	275	277
35°	370	540	373	236	228	234
45°	221	342	283	187	190	173
55°	150	199	192	141	146	134
65°	89	115	115	93	98	88
75°	44	55	54	46	49	47
85°	11	13	11	8	7	13
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	533.1	533.1	533.1	533.1	533.1	533.1	533.1	533.1	533.1	533.1	533.1
2.5°	562.7	564.5	562.9	562.3	561.2	560.8	557.6	555.0	553.5	549.1	549.5
5°	598.3	602.2	600.0	599.8	595.5	592.7	590.0	586.0	580.1	575.4	571.6
7.5°	635.7	633.8	633.2	631.0	627.9	623.9	617.8	612.1	604.6	597.7	592.5
10°	665.7	665.1	666.1	660.6	658.6	652.5	647.2	638.3	628.6	617.8	611.1
12.5°	683.5	685.3	686.7	684.5	679.8	678.0	669.1	656.7	653.3	638.5	630.4
15°	696.5	697.3	697.5	695.1	692.8	688.2	682.9	675.0	664.2	651.3	645.2
17.5°	695.7	695.5	696.7	695.3	694.0	692.6	688.4	682.3	673.8	661.8	651.5
20°	679.6	683.1	685.9	686.5	686.3	687.1	685.1	681.1	675.0	666.3	654.7
22.5°	657.5	656.1	662.0	661.6	664.2	670.1	672.6	671.1	668.7	663.2	653.9
25°	616.4	617.8	621.9	626.3	636.3	639.9	647.6	653.5	654.3	652.9	647.2
27.5°	554.9	564.7	566.9	572.6	586.6	598.3	613.8	623.1	636.3	637.5	635.0
30°	500.0	499.6	503.0	513.2	526.0	543.6	563.7	587.6	602.8	613.3	617.0
32.5°	432.5	434.1	442.8	455.4	468.4	486.0	509.3	538.5	558.8	580.5	592.7
35°	369.8	374.7	383.0	391.7	405.9	430.0	455.8	480.1	511.2	540.2	560.0
37.5°	318.1	324.8	331.1	339.4	353.2	371.7	395.0	427.2	458.2	493.1	522.1
40°	277.8	280.4	284.7	292.8	302.1	320.6	344.1	368.2	401.7	441.8	479.9
42.5°	246.2	245.7	250.4	255.5	264.0	277.8	298.3	322.4	355.8	391.3	429.8
45°	220.6	220.8	222.8	228.1	234.8	242.7	258.5	281.2	306.4	341.8	382.6
47.5°	199.7	200.3	203.2	207.0	210.9	218.2	228.7	243.5	267.2	296.8	335.0
50°	181.9	182.9	184.9	187.6	190.6	195.7	203.6	215.3	234.0	259.1	293.8
52.5°	166.1	166.5	167.1	169.7	172.1	176.8	182.7	191.8	206.6	227.5	254.5
55°	149.6	149.2	150.6	152.7	154.9	158.2	164.4	171.7	182.1	198.7	221.0
57.5°	132.6	133.2	134.2	135.4	139.3	142.9	147.4	154.1	162.4	175.4	194.0
60°	117.2	117.2	118.4	120.0	122.5	124.9	129.2	135.4	142.7	152.7	168.3
62.5°	102.2	103.0	104.2	105.0	107.3	110.3	113.7	118.4	125.1	133.2	144.8
65°	89.2	88.8	90.0	91.6	93.3	95.3	99.1	103.0	108.1	115.4	125.1
67.5°	75.8	77.0	77.3	78.1	79.5	82.1	83.9	88.0	92.1	98.7	106.7
70°	64.3	65.1	65.7	66.7	67.9	69.1	70.8	74.2	78.3	82.9	88.6
72.5°	54.1	54.7	54.1	55.1	55.6	56.8	59.2	60.8	63.9	67.9	73.0
75°	43.8	44.2	44.0	45.0	45.2	46.4	47.6	48.9	52.5	54.7	58.2
77.5°	34.3	34.7	34.9	35.3	35.7	36.3	36.9	38.3	40.3	42.2	45.0
80°	25.7	25.7	26.2	26.4	26.6	27.0	28.0	28.4	29.8	30.4	32.6
82.5°	17.8	18.0	18.2	18.2	18.4	18.7	18.9	19.7	20.1	21.1	22.1
85°	11.0	11.2	11.2	11.2	11.8	11.6	11.6	12.0	12.6	12.6	13.0
87.5°	5.5	5.7	5.7	5.7	5.9	5.9	5.9	5.9	5.9	6.3	6.1
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	533.1	533.1	533.1	533.1	533.1	533.1	533.1	533.1	533.1	533.1	533.1
2.5°	549.3	549.1	548.3	544.8	542.0	538.5	537.9	537.3	532.4	527.0	525.5
5°	568.7	565.1	560.2	554.3	548.3	541.8	538.1	534.9	527.4	519.1	514.4
7.5°	587.6	580.7	573.0	563.7	553.9	543.4	536.7	530.4	520.1	509.3	502.8
10°	603.8	594.5	583.9	571.6	558.0	543.8	533.9	524.1	511.0	497.8	489.1
12.5°	617.2	605.4	591.4	574.8	562.3	542.8	529.0	516.0	501.6	484.4	474.9
15°	627.5	615.8	596.9	580.1	563.7	537.7	520.9	507.1	487.8	471.0	456.0
17.5°	639.9	623.3	604.6	580.5	562.3	532.6	513.6	495.7	474.7	455.0	438.4
20°	645.4	628.1	607.9	581.1	558.0	527.0	501.8	484.4	459.2	436.5	417.7
22.5°	646.2	629.6	607.7	579.3	550.5	518.9	489.9	467.2	442.0	417.9	396.8
25°	642.9	627.1	604.4	576.2	542.2	510.3	477.9	451.7	422.5	397.6	376.1
27.5°	633.8	621.0	599.4	569.3	533.7	496.8	461.5	432.9	404.1	375.9	355.4
30°	619.2	610.7	592.1	560.2	522.9	482.2	446.9	413.6	382.4	356.0	333.9
32.5°	600.4	596.3	580.9	549.3	511.8	466.3	429.4	395.0	361.1	336.0	313.3
35°	576.6	578.7	565.7	537.1	497.8	450.1	408.8	372.9	339.8	313.1	292.2
37.5°	545.6	556.2	547.9	521.1	479.9	433.7	387.3	351.2	316.5	290.8	272.5
40°	510.8	529.6	525.6	503.2	460.5	414.6	366.6	327.7	293.8	269.5	252.0
42.5°	470.0	497.2	501.6	481.3	441.4	390.7	343.3	305.8	273.1	249.2	232.4
45°	424.2	458.0	472.6	456.6	419.1	367.6	319.5	282.6	250.2	229.9	215.9
47.5°	378.3	418.9	438.6	430.9	393.1	342.9	295.8	259.7	229.1	211.3	198.1
50°	332.9	376.5	405.3	400.2	367.4	319.5	271.9	236.4	208.4	192.0	180.7
52.5°	293.0	334.3	365.6	368.2	338.8	292.6	246.6	213.7	189.8	175.0	165.5
55°	253.7	292.0	326.4	332.7	308.8	264.4	223.4	192.2	170.5	158.2	150.6
57.5°	218.6	253.4	287.5	298.5	279.2	239.1	198.3	170.9	152.1	142.7	136.0
60°	188.8	220.2	249.6	260.9	247.6	211.1	175.4	150.9	135.4	126.9	121.5
62.5°	162.8	187.1	213.1	225.5	216.7	184.9	153.7	132.0	119.4	112.1	107.9
65°	139.3	158.0	178.6	193.0	183.1	159.4	133.4	114.6	104.0	97.3	94.3
67.5°	117.6	133.2	149.6	161.0	156.1	134.6	112.7	98.1	89.2	84.1	81.3
70°	97.9	109.5	122.7	131.6	128.1	111.5	94.1	82.5	75.0	71.4	69.1
72.5°	80.3	87.8	97.9	105.2	101.4	89.8	77.3	68.1	62.5	58.4	56.6
75°	63.7	70.2	77.3	82.3	79.3	70.6	60.8	53.7	49.9	47.4	46.2
77.5°	48.3	53.5	58.4	60.8	59.4	53.1	46.4	40.8	37.7	36.1	34.7
80°	34.7	37.7	41.0	43.2	42.4	38.1	33.3	29.0	27.6	25.7	25.3
82.5°	23.3	25.7	26.4	27.4	26.8	24.9	21.5	18.9	17.8	16.8	16.6
85°	13.8	14.4	15.4	15.4	14.8	13.4	11.6	10.9	9.7	9.5	8.9
87.5°	6.1	6.1	6.1	6.1	6.1	5.7	4.9	4.5	4.1	3.9	3.7
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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**CANDELA DISTRIBUTION (continued):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	533.1	533.1	533.1	533.1	533.1	533.1	533.1	533.1	533.1	533.1	533.1
2.5°	524.1	522.1	519.3	516.2	513.4	509.1	507.7	507.7	508.7	507.5	506.5
5°	510.5	506.5	502.6	496.4	491.3	484.4	482.4	480.5	480.3	478.3	475.7
7.5°	495.9	489.9	481.8	473.2	467.6	460.1	456.0	454.8	451.1	447.5	443.4
10°	478.9	469.8	460.1	451.9	443.2	433.5	428.6	425.2	421.5	417.1	414.2
12.5°	458.4	448.1	439.2	429.6	422.3	408.6	407.1	402.7	395.2	388.7	386.3
15°	445.7	427.8	417.7	408.8	397.8	383.8	378.6	373.9	366.8	362.7	359.3
17.5°	423.4	407.3	394.6	382.8	372.1	361.3	353.6	349.6	343.9	340.4	337.0
20°	403.1	385.6	372.3	358.5	347.5	337.6	331.1	326.2	323.2	319.7	316.3
22.5°	382.6	364.2	351.6	337.6	324.6	318.7	311.0	306.8	302.9	300.1	296.6
25°	358.7	344.1	328.3	317.5	306.0	299.9	292.6	288.7	285.5	282.4	280.6
27.5°	337.4	322.6	308.0	297.2	287.5	281.6	277.0	273.3	269.3	267.0	265.6
30°	315.3	301.7	288.9	278.4	270.9	264.4	261.6	258.1	255.1	254.1	252.0
32.5°	295.6	280.4	270.1	260.7	254.3	249.8	247.8	244.1	243.5	242.5	241.3
35°	275.8	262.8	253.0	244.9	239.5	236.2	233.6	232.6	231.6	230.7	229.7
37.5°	256.3	246.1	236.8	230.3	225.9	223.4	222.8	220.8	220.6	219.2	219.2
40°	238.8	228.3	221.8	216.7	213.1	211.9	210.3	209.9	209.4	209.0	209.7
42.5°	221.2	214.1	208.6	203.2	200.5	199.5	199.1	198.5	198.1	199.3	199.7
45°	204.8	198.7	194.0	190.2	188.6	187.4	187.4	188.0	187.8	188.4	188.4
47.5°	189.6	184.1	180.1	178.8	176.8	176.4	176.6	176.4	177.4	178.2	179.0
50°	175.2	170.3	167.1	165.7	165.4	164.8	165.5	165.9	166.5	167.3	167.7
52.5°	159.2	156.9	154.9	153.5	153.3	153.5	153.3	154.7	155.3	156.5	156.3
55°	145.6	143.8	142.5	140.9	140.7	141.3	141.7	142.9	143.6	144.6	144.4
57.5°	132.8	131.4	129.8	129.4	129.2	129.4	131.2	131.0	132.2	133.0	133.4
60°	118.8	117.8	116.4	116.4	117.0	117.4	118.0	119.0	120.2	120.0	121.3
62.5°	106.0	104.8	104.4	105.0	104.8	105.8	106.4	106.4	107.9	108.5	108.9
65°	93.1	92.7	92.1	92.1	92.7	92.9	93.9	94.5	95.1	96.3	97.3
67.5°	81.1	80.1	80.1	79.7	80.5	81.1	81.7	82.5	82.9	84.3	84.8
70°	68.5	68.1	67.9	68.3	68.3	68.9	69.8	70.8	71.6	71.8	73.0
72.5°	56.2	56.2	56.2	56.8	57.2	57.8	58.0	58.8	60.0	60.2	60.8
75°	45.2	45.4	45.2	45.4	45.6	46.2	46.6	47.4	48.1	48.3	48.7
77.5°	34.9	34.5	34.1	34.7	35.1	36.3	36.1	36.5	37.3	36.9	37.3
80°	24.5	25.1	24.3	25.5	25.5	25.3	25.7	26.2	26.0	26.4	26.0
82.5°	16.6	16.0	16.0	16.6	16.8	16.2	16.6	16.8	17.0	16.6	16.4
85°	9.1	8.9	9.3	8.7	8.9	8.5	8.5	8.1	8.5	8.1	7.7
87.5°	3.4	3.2	3.4	2.8	2.6	2.4	2.2	2.2	1.8	1.8	1.8
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P243149

CATALOG NUMBER: S122DRP-H290D830-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	533.1	533.1	533.1	533.1
2.5°	507.9	505.7	504.7	505.5
5°	473.0	473.6	470.0	471.2
7.5°	442.8	440.2	441.0	439.6
10°	410.8	409.4	407.3	407.7
12.5°	389.3	380.0	379.4	377.7
15°	359.1	354.0	352.8	352.4
17.5°	335.0	330.7	332.3	331.1
20°	313.3	313.5	311.0	309.4
22.5°	294.2	293.8	292.8	291.2
25°	278.0	278.0	275.6	275.1
27.5°	263.2	263.6	261.6	261.6
30°	252.2	250.8	250.6	251.0
32.5°	241.1	239.5	239.7	239.5
35°	229.3	229.7	229.1	228.5
37.5°	219.2	219.2	219.2	218.6
40°	209.4	209.7	209.2	209.5
42.5°	199.5	199.7	199.7	198.9
45°	189.6	189.4	189.0	189.8
47.5°	179.4	179.4	179.2	179.6
50°	168.1	168.5	167.9	167.7
52.5°	156.7	156.9	156.7	157.1
55°	145.0	145.0	145.2	145.6
57.5°	133.0	134.4	133.4	134.2
60°	121.2	121.3	121.5	121.2
62.5°	109.9	109.7	109.9	110.5
65°	97.7	98.1	97.9	97.5
67.5°	85.6	85.2	85.8	85.2
70°	72.8	73.6	73.0	73.8
72.5°	61.2	61.0	61.4	60.4
75°	48.9	48.9	49.1	48.9
77.5°	37.5	37.1	36.9	36.3
80°	25.8	25.8	25.1	25.7
82.5°	15.8	16.0	16.2	15.0
85°	7.5	7.5	7.3	7.1
87.5°	1.6	1.6	1.8	2.0
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P243149  
 CATALOG NUMBER: S122DRP-H290D830-X4F0-XX-UDD-A-W

**CIE UGR TABLE:**

Reflectances:											
Ceiling		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference plane		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
X=2H	Y=2H	16.70	18.23	17.07	18.54	18.85	19.54	21.06	19.90	21.37	21.69
	3H	18.05	19.42	18.43	19.75	20.11	20.56	21.93	20.94	22.25	22.62
	4H	18.54	19.82	18.94	20.17	20.55	20.89	22.17	21.29	22.52	22.89
	6H	18.89	20.07	19.30	20.44	20.83	21.08	22.27	21.49	22.63	23.02
	8H	19.00	20.12	19.42	20.51	20.91	21.12	22.25	21.55	22.64	23.04
	12H	19.06	20.14	19.49	20.53	20.96	21.14	22.22	21.57	22.60	23.03
4H	2H	17.58	18.87	17.98	19.21	19.59	19.78	21.06	20.18	21.41	21.79
	3H	19.08	20.15	19.49	20.55	20.95	21.15	22.21	21.56	22.61	23.02
	4H	19.65	20.61	20.08	21.02	21.46	21.66	22.62	22.10	23.04	23.48
	6H	20.09	20.92	20.54	21.36	21.82	22.00	22.83	22.45	23.27	23.73
	8H	20.22	21.00	20.68	21.44	21.91	22.07	22.85	22.53	23.29	23.76
	12H	20.32	21.01	20.80	21.49	21.96	22.11	22.81	22.59	23.28	23.76
8H	4H	20.09	20.86	20.55	21.31	21.78	21.80	22.58	22.26	23.02	23.49
	6H	20.61	21.25	21.10	21.74	22.22	22.24	22.89	22.74	23.38	23.85
	8H	20.79	21.37	21.31	21.88	22.37	22.38	22.95	22.89	23.46	23.95
	12H	20.95	21.46	21.46	21.95	22.51	22.47	22.98	22.98	23.47	24.03
12H	4H	20.14	20.84	20.62	21.31	21.79	21.80	22.49	22.28	22.97	23.44
	6H	20.68	21.26	21.20	21.77	22.26	22.25	22.82	22.76	23.33	23.82
	8H	20.92	21.43	21.43	21.92	22.49	22.43	22.93	22.94	23.43	23.99