

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: P243164

Luminaire Tested: S122DRP-H290D930-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P243164  
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-H290D930-X4F0-XX-UDD-A-W  
Description: DEFINE 2 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 3000K CCT, 90 CRI LEDS  
Ballast/Driver: -

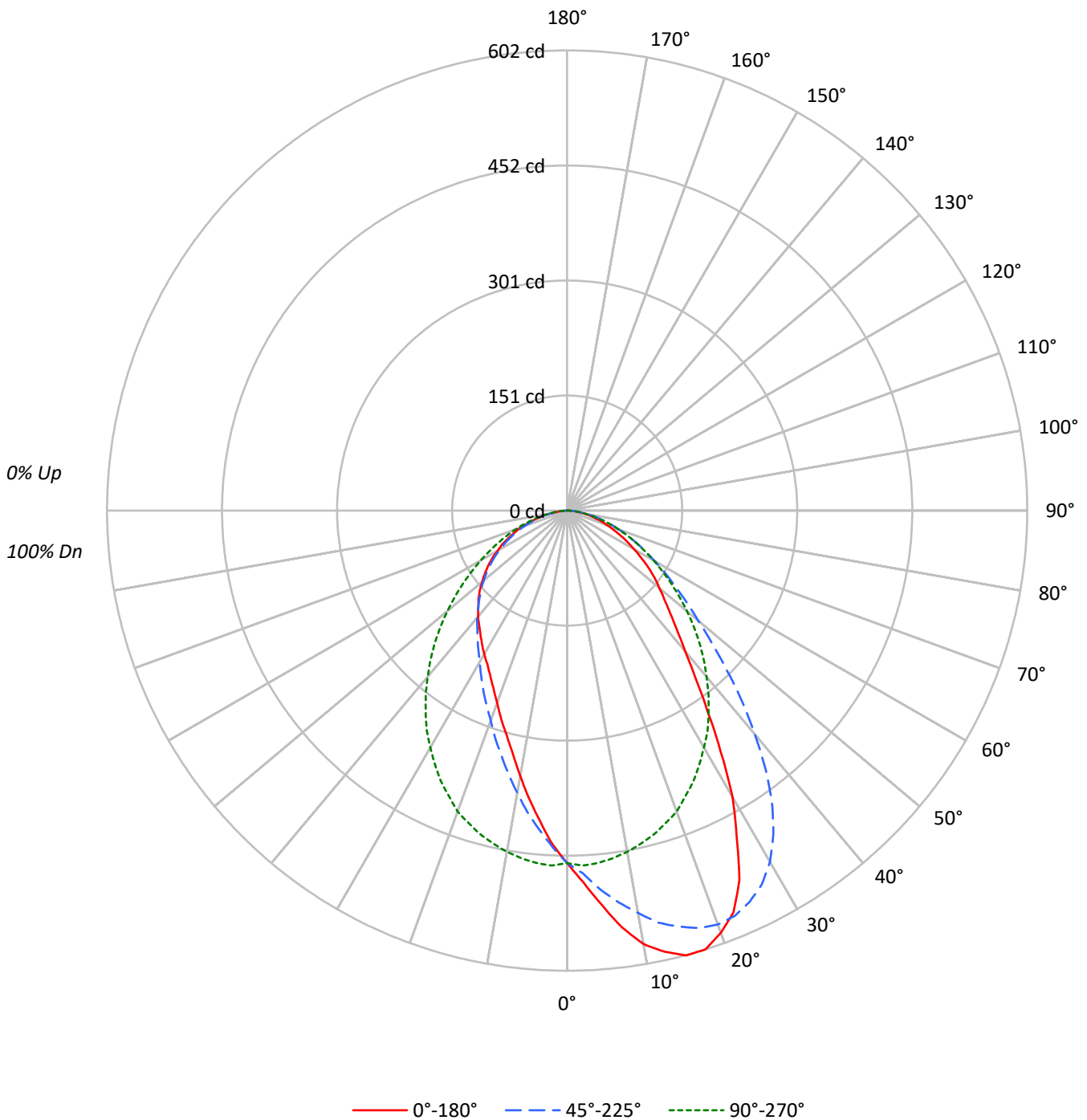
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1023.3 lumens  
Efficiency: N/A  
Efficacy: 91.4 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

TEST NUMBER: P243164

CATALOG NUMBER: S122DRP-H290D930-X4F0-XX-UDD-A-W

### Luminous Intensity Polar Plot



TEST NUMBER: P243164

CATALOG NUMBER: S122DRP-H290D930-X4F0-XX-UDD-A-W

**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°	8785	8785	8785	8785	8785
5°	9895	9516	8847	8011	7794
10°	11139	10336	8768	7253	6820
15°	11881	11110	8649	6547	6011
20°	11915	11684	8493	5919	5424
25°	11206	11870	8211	5452	5000
30°	9513	11668	7867	5030	4775
35°	7439	10866	7501	4751	4595
40°	5975	9501	7049	4558	4508
45°	5140	7963	6584	4367	4423
50°	4664	6641	6060	4223	4300
55°	4297	5709	5519	4058	4184
60°	3863	5032	4975	3870	3992
65°	3475	4498	4471	3624	3799
70°	3096	3993	3971	3319	3553
75°	2789	3481	3415	2936	3113
80°	2435	2885	2753	2391	2435
85°	2098	2382	2054	1595	1333

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 65°  
 Vertical Angle: 45°  
 Luminance: 11012 cd/sqm



TEST NUMBER: P243164

CATALOG NUMBER: S122DRP-H290D930-X4F0-XX-UDD-A-W

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	43.9	4.3
10°-20°	126.3	12.3
20°-30°	183.6	17.9
30°-40°	197.0	19.3
40°-50°	176.6	17.3
50°-60°	140.8	13.8
60°-70°	95.2	9.3
70°-80°	48.6	4.7
80°-90°	11.4	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°	353.9	34.6
0°-40°	550.9	53.8
0°-60°	868.2	84.8
0°-90°	1023.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1023.3	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	461	461	461	461	461	
5°	518	498	463	419	408	51
15°	602	563	439	332	305	169
25°	533	565	391	259	238	240
35°	320	467	323	204	198	203
45°	191	296	244	162	164	149
55°	129	172	166	122	126	116
65°	77	100	99	80	84	77
75°	38	47	46	40	42	40
85°	10	11	9	7	6	11
90°	0	0	0	0	0	



TEST NUMBER: P243164

CATALOG NUMBER: S122DRP-H290D930-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	461.2	461.2	461.2	461.2	461.2	461.2	461.2	461.2	461.2	461.2	461.2
2.5°	486.8	488.3	486.9	486.4	485.4	485.1	482.3	480.1	478.8	475.0	475.3
5°	517.5	520.9	519.0	518.9	515.1	512.7	510.3	506.9	501.8	497.7	494.5
7.5°	549.9	548.2	547.7	545.8	543.1	539.7	534.4	529.4	523.0	517.0	512.5
10°	575.9	575.4	576.2	571.4	569.7	564.4	559.8	552.1	543.8	534.4	528.6
12.5°	591.2	592.8	594.0	592.1	588.0	586.4	578.8	568.0	565.1	552.3	545.3
15°	602.5	603.2	603.3	601.3	599.2	595.3	590.7	583.9	574.5	563.4	558.1
17.5°	601.8	601.6	602.7	601.5	600.3	599.1	595.5	590.2	582.9	572.5	563.6
20°	587.8	590.9	593.3	593.8	593.6	594.3	592.6	589.2	583.9	576.4	566.3
22.5°	568.7	567.5	572.6	572.3	574.5	579.6	581.8	580.5	578.4	573.6	565.6
25°	533.2	534.4	538.0	541.7	550.4	553.5	560.2	565.3	566.0	564.8	559.8
27.5°	479.9	488.5	490.4	495.3	507.4	517.5	531.0	539.0	550.4	551.5	549.2
30°	432.5	432.2	435.1	443.9	455.0	470.2	487.6	508.3	521.4	530.5	533.7
32.5°	374.1	375.5	383.0	393.9	405.2	420.4	440.5	465.8	483.4	502.1	512.7
35°	319.9	324.1	331.3	338.8	351.1	371.9	394.3	415.3	442.2	467.3	484.4
37.5°	275.1	280.9	286.4	293.6	305.5	321.6	341.7	369.5	396.3	426.5	451.6
40°	240.3	242.5	246.3	253.3	261.3	277.4	297.7	318.5	347.5	382.1	415.1
42.5°	213.0	212.5	216.6	221.0	228.4	240.3	258.1	278.9	307.7	338.5	371.7
45°	190.8	191.0	192.7	197.3	203.1	209.9	223.6	243.2	265.1	295.6	330.9
47.5°	172.7	173.2	175.8	179.0	182.5	188.8	197.8	210.6	231.1	256.7	289.8
50°	157.4	158.2	159.9	162.3	164.9	169.3	176.1	186.2	202.4	224.1	254.1
52.5°	143.7	144.1	144.6	146.8	148.8	152.9	158.0	165.9	178.7	196.8	220.2
55°	129.4	129.0	130.2	132.1	134.0	136.9	142.2	148.5	157.5	171.9	191.2
57.5°	114.7	115.2	116.1	117.1	120.5	123.6	127.5	133.3	140.5	151.7	167.8
60°	101.4	101.4	102.4	103.8	106.0	108.0	111.8	117.1	123.4	132.1	145.6
62.5°	88.4	89.1	90.1	90.8	92.8	95.4	98.3	102.4	108.2	115.2	125.3
65°	77.1	76.8	77.8	79.2	80.7	82.4	85.7	89.1	93.5	99.8	108.2
67.5°	65.5	66.6	66.9	67.6	68.8	71.0	72.5	76.1	79.7	85.3	92.3
70°	55.6	56.3	56.8	57.7	58.7	59.7	61.3	64.2	67.8	71.7	76.6
72.5°	46.8	47.3	46.8	47.6	48.1	49.2	51.2	52.6	55.3	58.7	63.2
75°	37.9	38.2	38.1	38.9	39.1	40.1	41.1	42.3	45.4	47.3	50.3
77.5°	29.7	30.0	30.2	30.6	30.9	31.4	31.9	33.1	34.8	36.5	38.9
80°	22.2	22.2	22.7	22.9	23.0	23.4	24.2	24.6	25.8	26.3	28.2
82.5°	15.4	15.5	15.7	15.7	15.9	16.2	16.4	17.1	17.4	18.3	19.1
85°	9.6	9.7	9.7	9.7	10.2	10.1	10.1	10.4	10.9	10.9	11.3
87.5°	4.8	4.9	4.9	4.9	5.1	5.1	5.1	5.1	5.1	5.5	5.3
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: P243164

CATALOG NUMBER: S122DRP-H290D930-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	461.2	461.2	461.2	461.2	461.2	461.2	461.2	461.2	461.2	461.2	461.2
2.5°	475.2	475.0	474.3	471.2	468.9	465.8	465.3	464.8	460.5	455.9	454.5
5°	491.9	488.8	484.6	479.4	474.3	468.7	465.4	462.7	456.2	449.1	445.0
7.5°	508.3	502.3	495.6	487.6	479.1	470.0	464.2	458.8	449.9	440.5	434.9
10°	522.3	514.3	505.0	494.5	482.7	470.4	461.9	453.3	442.1	430.6	423.1
12.5°	533.9	523.6	511.5	497.2	486.4	469.5	457.6	446.3	433.9	419.0	410.8
15°	542.8	532.7	516.3	501.8	487.6	465.1	450.6	438.6	421.9	407.4	394.4
17.5°	553.5	539.2	523.0	502.1	486.4	460.7	444.3	428.7	410.7	393.6	379.2
20°	558.3	543.3	525.9	502.6	482.7	455.9	434.0	419.0	397.2	377.5	361.3
22.5°	559.0	544.6	525.7	501.1	476.2	448.9	423.8	404.2	382.3	361.5	343.2
25°	556.1	542.4	522.8	498.4	469.0	441.4	413.4	390.7	365.4	343.9	325.3
27.5°	548.2	537.1	518.5	492.4	461.7	429.8	399.2	374.5	349.5	325.1	307.4
30°	535.6	528.2	512.2	484.6	452.3	417.1	386.6	357.7	330.8	307.9	288.8
32.5°	519.4	515.8	502.5	475.2	442.7	403.3	371.4	341.7	312.3	290.7	271.0
35°	498.7	500.6	489.3	464.6	430.6	389.3	353.6	322.6	293.9	270.9	252.8
37.5°	471.9	481.1	474.0	450.8	415.1	375.1	335.0	303.8	273.8	251.6	235.7
40°	441.9	458.1	454.7	435.2	398.4	358.6	317.1	283.5	254.1	233.1	218.0
42.5°	406.6	430.1	433.9	416.3	381.8	337.9	297.0	264.6	236.2	215.6	201.1
45°	367.0	396.1	408.8	394.9	362.5	318.0	276.3	244.4	216.4	198.8	186.7
47.5°	327.2	362.3	379.4	372.8	340.0	296.6	255.8	224.6	198.2	182.8	171.4
50°	287.9	325.7	350.6	346.1	317.8	276.3	235.2	204.5	180.2	166.1	156.3
52.5°	253.5	289.1	316.3	318.5	293.1	253.1	213.3	184.8	164.2	151.4	143.2
55°	219.5	252.6	282.3	287.8	267.1	228.7	193.2	166.2	147.5	136.9	130.2
57.5°	189.1	219.2	248.7	258.2	241.5	206.9	171.5	147.8	131.6	123.4	117.6
60°	163.3	190.5	215.9	225.6	214.2	182.6	151.7	130.6	117.1	109.7	105.1
62.5°	140.8	161.8	184.3	195.1	187.4	159.9	133.0	114.2	103.3	96.9	93.4
65°	120.5	136.7	154.5	166.9	158.4	137.9	115.4	99.2	89.9	84.1	81.6
67.5°	101.7	115.2	129.4	139.3	135.0	116.4	97.5	84.8	77.1	72.7	70.3
70°	84.7	94.7	106.2	113.8	110.8	96.4	81.4	71.3	64.9	61.8	59.7
72.5°	69.5	76.0	84.7	91.0	87.7	77.7	66.9	58.9	54.1	50.5	49.0
75°	55.1	60.8	66.9	71.2	68.6	61.1	52.6	46.4	43.2	41.0	39.9
77.5°	41.8	46.3	50.5	52.6	51.4	45.9	40.1	35.3	32.6	31.2	30.0
80°	30.0	32.6	35.5	37.4	36.7	32.9	28.8	25.1	23.9	22.2	21.8
82.5°	20.1	22.2	22.9	23.7	23.2	21.5	18.6	16.4	15.4	14.5	14.3
85°	11.9	12.5	13.3	13.3	12.8	11.6	10.1	9.4	8.4	8.2	7.7
87.5°	5.3	5.3	5.3	5.3	5.3	4.9	4.3	3.9	3.6	3.4	3.2
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: P243164

CATALOG NUMBER: S122DRP-H290D930-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	461.2	461.2	461.2	461.2	461.2	461.2	461.2	461.2	461.2	461.2	461.2
2.5°	453.3	451.6	449.2	446.5	444.1	440.3	439.2	439.2	440.0	439.0	438.1
5°	441.5	438.1	434.7	429.4	425.0	419.0	417.3	415.6	415.4	413.7	411.5
7.5°	428.9	423.8	416.8	409.3	404.5	398.0	394.4	393.4	390.2	387.1	383.5
10°	414.2	406.4	398.0	390.9	383.3	375.0	370.7	367.8	364.6	360.8	358.3
12.5°	396.5	387.6	379.9	371.6	365.3	353.5	352.1	348.4	341.9	336.2	334.2
15°	385.6	370.0	361.3	353.6	344.1	332.0	327.5	323.4	317.3	313.7	310.8
17.5°	366.3	352.3	341.4	331.1	321.9	312.5	305.9	302.4	297.5	294.4	291.5
20°	348.7	333.5	322.1	310.1	300.6	292.0	286.4	282.1	279.6	276.5	273.6
22.5°	330.9	315.1	304.1	292.0	280.8	275.6	269.0	265.4	262.0	259.6	256.5
25°	310.3	297.7	284.0	274.6	264.7	259.4	253.1	249.7	247.0	244.2	242.7
27.5°	291.9	279.1	266.4	257.0	248.7	243.6	239.6	236.4	233.0	230.9	229.7
30°	272.7	261.0	249.9	240.8	234.3	228.7	226.3	223.2	220.7	219.8	218.0
32.5°	255.7	242.5	233.7	225.5	220.0	216.1	214.4	211.1	210.6	209.8	208.7
35°	238.6	227.3	218.8	211.8	207.2	204.3	202.1	201.2	200.4	199.5	198.7
37.5°	221.7	212.8	204.8	199.2	195.4	193.2	192.7	191.0	190.8	189.6	189.6
40°	206.5	197.5	191.8	187.4	184.3	183.3	181.9	181.6	181.1	180.7	181.4
42.5°	191.3	185.2	180.4	175.8	173.4	172.6	172.2	171.7	171.4	172.4	172.7
45°	177.2	171.9	167.8	164.5	163.2	162.1	162.1	162.7	162.5	163.0	163.0
47.5°	164.0	159.2	155.8	154.6	152.9	152.6	152.8	152.6	153.4	154.1	154.8
50°	151.6	147.3	144.6	143.4	143.0	142.5	143.2	143.5	144.1	144.7	145.1
52.5°	137.7	135.7	134.0	132.8	132.6	132.8	132.6	133.8	134.3	135.3	135.2
55°	126.0	124.4	123.2	121.9	121.7	122.2	122.5	123.6	124.3	125.1	124.9
57.5°	114.9	113.7	112.3	112.0	111.8	112.0	113.5	113.3	114.4	115.0	115.4
60°	102.7	101.9	100.7	100.7	101.2	101.6	102.1	102.9	103.9	103.8	105.0
62.5°	91.7	90.6	90.3	90.8	90.6	91.5	92.0	92.0	93.4	93.9	94.2
65°	80.6	80.2	79.7	79.7	80.2	80.4	81.2	81.8	82.3	83.3	84.1
67.5°	70.1	69.3	69.3	69.0	69.6	70.1	70.7	71.3	71.7	72.9	73.4
70°	59.2	58.9	58.7	59.1	59.1	59.6	60.4	61.3	62.0	62.1	63.2
72.5°	48.6	48.6	48.6	49.2	49.5	50.0	50.2	50.9	51.9	52.1	52.6
75°	39.1	39.3	39.1	39.3	39.4	39.9	40.3	41.0	41.6	41.8	42.2
77.5°	30.2	29.9	29.5	30.0	30.4	31.4	31.2	31.6	32.3	31.9	32.3
80°	21.2	21.7	21.0	22.0	22.0	21.8	22.2	22.7	22.5	22.9	22.5
82.5°	14.3	13.8	13.8	14.3	14.5	14.0	14.3	14.5	14.7	14.3	14.2
85°	7.9	7.7	8.0	7.5	7.7	7.3	7.3	7.0	7.3	7.0	6.7
87.5°	2.9	2.7	2.9	2.4	2.2	2.0	1.9	1.9	1.5	1.5	1.5
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: P243164

CATALOG NUMBER: S122DRP-H290D930-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	461.2	461.2	461.2	461.2
2.5°	439.3	437.4	436.6	437.3
5°	409.1	409.6	406.6	407.6
7.5°	383.0	380.8	381.5	380.3
10°	355.4	354.2	352.3	352.6
12.5°	336.7	328.7	328.2	326.7
15°	310.6	306.2	305.2	304.8
17.5°	289.8	286.1	287.4	286.4
20°	271.0	271.2	269.0	267.6
22.5°	254.5	254.1	253.3	251.9
25°	240.5	240.5	238.4	237.9
27.5°	227.7	228.0	226.3	226.3
30°	218.1	216.9	216.8	217.1
32.5°	208.6	207.2	207.4	207.2
35°	198.3	198.7	198.2	197.6
37.5°	189.6	189.6	189.6	189.1
40°	181.1	181.4	180.9	181.3
42.5°	172.6	172.7	172.7	172.0
45°	164.0	163.9	163.5	164.2
47.5°	155.1	155.1	155.0	155.3
50°	145.4	145.8	145.2	145.1
52.5°	135.5	135.7	135.5	135.9
55°	125.4	125.4	125.6	126.0
57.5°	115.0	116.2	115.4	116.1
60°	104.8	105.0	105.1	104.8
62.5°	95.1	94.9	95.1	95.6
65°	84.5	84.8	84.7	84.3
67.5°	74.1	73.7	74.2	73.7
70°	63.0	63.7	63.2	63.8
72.5°	52.9	52.7	53.1	52.2
75°	42.3	42.3	42.5	42.3
77.5°	32.4	32.1	31.9	31.4
80°	22.4	22.4	21.7	22.2
82.5°	13.7	13.8	14.0	13.0
85°	6.5	6.5	6.3	6.1
87.5°	1.4	1.4	1.5	1.7
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P243164  
 CATALOG NUMBER: S122DRP-H290D930-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	16.20	17.72	16.56	18.03	18.35	19.04	20.56	19.40	20.87	21.19
	3H	17.55	18.92	17.93	19.24	19.61	20.06	21.42	20.43	21.75	22.11
	4H	18.04	19.32	18.44	19.67	20.04	20.38	21.66	20.78	22.01	22.39
	6H	18.39	19.57	18.80	19.94	20.33	20.58	21.76	20.99	22.13	22.52
	8H	18.49	19.62	18.92	20.01	20.41	20.62	21.75	21.05	22.14	22.54
	12H	18.56	19.64	18.99	20.02	20.45	20.64	21.72	21.07	22.10	22.53
4H	2H	17.08	18.36	17.48	18.71	19.09	19.28	20.56	19.68	20.91	21.29
	3H	18.58	19.64	18.99	20.04	20.44	20.65	21.71	21.06	22.11	22.51
	4H	19.14	20.10	19.58	20.52	20.96	21.16	22.12	21.59	22.53	22.97
	6H	19.58	20.42	20.04	20.86	21.32	21.49	22.33	21.95	22.77	23.23
	8H	19.72	20.50	20.18	20.94	21.41	21.57	22.35	22.03	22.79	23.26
	12H	19.81	20.51	20.30	20.99	21.46	21.61	22.30	22.09	22.78	23.25
8H	4H	19.58	20.36	20.05	20.80	21.27	21.30	22.08	21.76	22.52	22.99
	6H	20.10	20.75	20.60	21.24	21.72	21.74	22.38	22.24	22.87	23.35
	8H	20.29	20.87	20.80	21.38	21.86	21.87	22.45	22.39	22.96	23.45
	12H	20.45	20.95	20.95	21.45	22.01	21.96	22.47	22.47	22.96	23.53
12H	4H	19.64	20.33	20.12	20.81	21.28	21.29	21.99	21.77	22.47	22.94
	6H	20.18	20.76	20.70	21.27	21.76	21.74	22.32	22.26	22.83	23.32
	8H	20.42	20.93	20.93	21.42	21.98	21.92	22.43	22.43	22.92	23.49