

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: P243159

Luminaire Tested: S122DRP-H290D840-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P243159
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-H290D840-X4F0-XX-UDD-A-W
Description: DEFINE 2 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

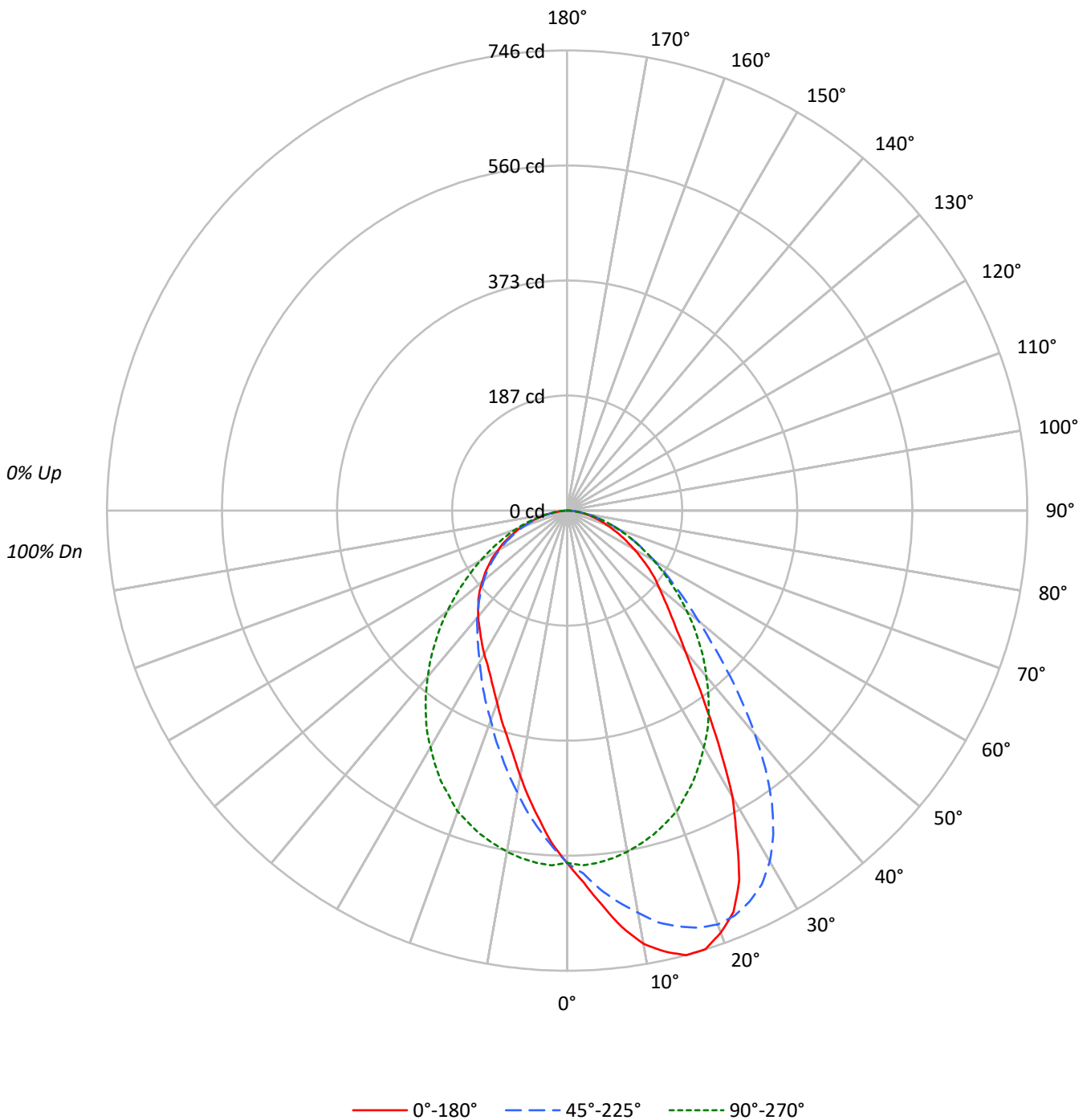
Lumens per Lamp: N/A
Luminaire Lumens: 1267.5 lumens
Efficiency: N/A
Efficacy: 113.2 lumens/watt
Spacing Criteria (0/90/45): 1.09 / 1.16 / 1.24
Luminous Opening: Rectangular (W 3.88' x L: 0.15' x H: 0')
CIE Type: Direct

Input Watts (W): 11.2
Input Voltage (V): 120
Input Current (A_{in}): 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: P243159

CATALOG NUMBER: S122DRP-H290D840-X4F0-XX-UDD-A-W

Luminous Intensity Polar Plot





TEST NUMBER: P243159

CATALOG NUMBER: S122DRP-H290D840-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°	10880	10880	10880	10880	10880
5°	12256	11788	10958	9924	9652
10°	13796	12802	10860	8984	8448
15°	14717	13762	10714	8109	7446
20°	14759	14471	10520	7332	6720
25°	13880	14703	10170	6753	6194
30°	11782	14453	9746	6231	5914
35°	9213	13459	9292	5885	5692
40°	7402	11769	8733	5647	5582
45°	6368	9865	8154	5409	5479
50°	5775	8226	7506	5230	5325
55°	5320	7070	6838	5028	5181
60°	4785	6232	6160	4792	4945
65°	4309	5575	5535	4489	4705
70°	3837	4945	4923	4110	4405
75°	3452	4313	4232	3643	3856
80°	3017	3576	3411	2973	3017
85°	2579	2950	2535	1989	1661

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 65°
 Vertical Angle: 45°
 Luminance: 13638 cd/sqm



TEST NUMBER: P243159

CATALOG NUMBER: S122DRP-H290D840-X4F0-XX-UDD-A-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	54.4	4.3
10°-20°	156.4	12.3
20°-30°	227.5	17.9
30°-40°	244.0	19.3
40°-50°	218.7	17.3
50°-60°	174.3	13.8
60°-70°	117.9	9.3
70°-80°	60.1	4.7
80°-90°	14.1	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°	438.3	34.6
0°-40°	682.3	53.8
0°-60°	1075.4	84.8
0°-90°	1267.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1267.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	571	571	571	571	571	
5°	641	616	573	519	505	63
15°	746	698	543	411	378	209
25°	660	700	484	321	295	297
35°	396	579	400	253	245	251
45°	236	366	303	201	203	185
55°	160	213	206	151	156	143
65°	96	124	123	100	104	95
75°	47	59	58	50	52	50
85°	12	14	12	9	8	14
90°	0	0	0	0	0	



TEST NUMBER: P243159

CATALOG NUMBER: S122DRP-H290D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	571.2	571.2	571.2	571.2	571.2	571.2	571.2	571.2	571.2	571.2	571.2
2.5°	602.9	604.8	603.1	602.5	601.2	600.8	597.4	594.7	593.0	588.4	588.8
5°	641.0	645.2	642.9	642.7	638.0	635.1	632.1	627.9	621.5	616.5	612.5
7.5°	681.2	679.0	678.4	676.1	672.7	668.5	661.9	655.8	647.8	640.4	634.9
10°	713.3	712.7	713.7	707.8	705.7	699.1	693.4	683.9	673.5	661.9	654.7
12.5°	732.3	734.2	735.7	733.4	728.3	726.4	716.9	703.6	700.0	684.1	675.5
15°	746.3	747.1	747.3	744.8	742.3	737.4	731.7	723.2	711.6	697.9	691.3
17.5°	745.4	745.2	746.5	745.0	743.5	742.0	737.6	731.1	722.0	709.1	698.1
20°	728.1	731.9	734.9	735.5	735.3	736.1	734.0	729.8	723.2	713.9	701.5
22.5°	704.4	702.9	709.3	708.9	711.6	717.9	720.7	719.0	716.5	710.5	700.6
25°	660.4	661.9	666.4	671.0	681.8	685.6	693.8	700.2	701.0	699.6	693.4
27.5°	594.5	605.1	607.4	613.5	628.5	641.0	657.7	667.6	681.8	683.1	680.3
30°	535.7	535.3	538.9	549.9	563.6	582.4	604.0	629.6	645.9	657.1	661.1
32.5°	463.4	465.1	474.4	487.9	501.9	520.7	545.6	576.9	598.7	622.0	635.1
35°	396.2	401.5	410.3	419.6	434.9	460.7	488.4	514.4	547.8	578.8	600.0
37.5°	340.8	348.0	354.7	363.6	378.4	398.3	423.2	457.7	490.9	528.3	559.4
40°	297.7	300.4	305.1	313.7	323.7	343.5	368.7	394.5	430.4	473.3	514.1
42.5°	263.8	263.2	268.3	273.8	282.9	297.7	319.7	345.4	381.2	419.2	460.4
45°	236.4	236.6	238.7	244.4	251.6	260.0	276.9	301.3	328.3	366.2	409.9
47.5°	213.9	214.6	217.8	221.8	226.0	233.8	245.0	260.9	286.2	318.0	359.0
50°	194.9	196.0	198.1	201.0	204.2	209.7	218.2	230.6	250.7	277.6	314.8
52.5°	178.0	178.4	179.1	181.8	184.3	189.4	195.8	205.5	221.3	243.8	272.7
55°	160.2	159.8	161.3	163.6	166.0	169.5	176.1	183.9	195.1	212.9	236.8
57.5°	142.1	142.7	143.8	145.0	149.3	153.1	157.9	165.1	174.0	187.9	207.8
60°	125.6	125.6	126.8	128.5	131.3	133.8	138.5	145.0	152.8	163.6	180.3
62.5°	109.5	110.4	111.6	112.5	115.0	118.2	121.8	126.8	134.0	142.7	155.2
65°	95.6	95.1	96.4	98.1	100.0	102.1	106.1	110.4	115.9	123.7	134.0
67.5°	81.2	82.4	82.9	83.7	85.2	87.9	89.8	94.3	98.7	105.7	114.4
70°	68.9	69.8	70.4	71.5	72.7	74.0	75.9	79.5	83.9	88.8	94.9
72.5°	57.9	58.6	57.9	59.0	59.6	60.9	63.4	65.1	68.5	72.7	78.2
75°	46.9	47.4	47.1	48.2	48.4	49.7	50.9	52.4	56.2	58.6	62.4
77.5°	36.8	37.2	37.4	37.8	38.3	38.9	39.5	41.0	43.1	45.2	48.2
80°	27.5	27.5	28.1	28.3	28.5	29.0	30.0	30.4	31.9	32.6	34.9
82.5°	19.0	19.2	19.4	19.4	19.7	20.1	20.3	21.1	21.6	22.6	23.7
85°	11.8	12.1	12.1	12.1	12.7	12.5	12.5	12.9	13.5	13.5	14.0
87.5°	5.9	6.1	6.1	6.1	6.3	6.3	6.3	6.3	6.3	6.8	6.6
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: P243159

CATALOG NUMBER: S122DRP-H290D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	571.2	571.2	571.2	571.2	571.2	571.2	571.2	571.2	571.2	571.2	571.2
2.5°	588.6	588.4	587.5	583.7	580.7	576.9	576.3	575.7	570.4	564.7	563.0
5°	609.3	605.5	600.2	593.8	587.5	580.5	576.5	573.1	565.1	556.2	551.1
7.5°	629.6	622.2	613.9	604.0	593.4	582.2	575.0	568.3	557.3	545.6	538.7
10°	646.9	637.0	625.6	612.5	597.9	582.6	572.1	561.5	547.5	533.4	524.1
12.5°	661.3	648.6	633.6	615.8	602.5	581.6	566.8	552.8	537.4	519.0	508.9
15°	672.3	659.8	639.5	621.5	604.0	576.1	558.1	543.3	522.6	504.6	488.6
17.5°	685.6	667.8	647.8	622.0	602.5	570.6	550.3	531.1	508.6	487.5	469.8
20°	691.5	672.9	651.4	622.6	597.9	564.7	537.6	519.0	491.9	467.6	447.6
22.5°	692.4	674.6	651.1	620.7	589.8	556.0	524.9	500.6	473.6	447.8	425.1
25°	688.8	671.9	647.5	617.3	581.0	546.7	512.0	483.9	452.6	426.0	402.9
27.5°	679.0	665.3	642.3	609.9	571.9	532.3	494.5	463.8	433.0	402.7	380.7
30°	663.4	654.3	634.4	600.2	560.2	516.7	478.8	443.1	409.7	381.4	357.7
32.5°	643.3	638.9	622.4	588.6	548.4	499.6	460.0	423.2	386.9	360.0	335.7
35°	617.7	620.1	606.1	575.5	533.4	482.2	438.0	399.6	364.0	335.5	313.1
37.5°	584.5	596.0	587.1	558.3	514.1	464.7	415.0	376.3	339.1	311.6	292.0
40°	547.3	567.4	563.2	539.1	493.4	444.2	392.8	351.2	314.8	288.8	270.0
42.5°	503.6	532.8	537.4	515.6	472.9	418.6	367.9	327.7	292.6	267.0	249.0
45°	454.5	490.7	506.3	489.2	449.0	393.9	342.3	302.7	268.1	246.3	231.3
47.5°	405.3	448.8	470.0	461.7	421.1	367.4	316.9	278.2	245.4	226.4	212.3
50°	356.6	403.4	434.2	428.7	393.6	342.3	291.3	253.3	223.2	205.7	193.7
52.5°	313.9	358.1	391.7	394.5	363.0	313.5	264.3	229.0	203.4	187.5	177.4
55°	271.9	312.9	349.7	356.4	330.9	283.3	239.3	205.9	182.7	169.5	161.3
57.5°	234.2	271.4	308.0	319.9	299.1	256.2	212.5	183.1	163.0	152.8	145.7
60°	202.3	235.9	267.4	279.5	265.3	226.2	187.9	161.7	145.0	135.9	130.2
62.5°	174.4	200.4	228.3	241.6	232.1	198.1	164.7	141.4	127.9	120.1	115.6
65°	149.3	169.3	191.3	206.8	196.2	170.8	142.9	122.8	111.4	104.2	101.1
67.5°	126.0	142.7	160.2	172.5	167.2	144.2	120.7	105.1	95.6	90.1	87.1
70°	104.9	117.3	131.5	141.0	137.2	119.4	100.8	88.4	80.3	76.5	74.0
72.5°	86.0	94.1	104.9	112.7	108.7	96.2	82.9	72.9	67.0	62.6	60.7
75°	68.3	75.3	82.9	88.2	85.0	75.7	65.1	57.5	53.5	50.7	49.5
77.5°	51.8	57.3	62.6	65.1	63.6	56.9	49.7	43.8	40.4	38.7	37.2
80°	37.2	40.4	44.0	46.3	45.5	40.8	35.7	31.1	29.6	27.5	27.1
82.5°	24.9	27.5	28.3	29.4	28.8	26.6	23.0	20.3	19.0	18.0	17.8
85°	14.8	15.4	16.5	16.5	15.9	14.4	12.5	11.6	10.4	10.1	9.5
87.5°	6.6	6.6	6.6	6.6	6.6	6.1	5.3	4.9	4.4	4.2	4.0
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: P243159

CATALOG NUMBER: S122DRP-H290D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	571.2	571.2	571.2	571.2	571.2	571.2	571.2	571.2	571.2	571.2	571.2
2.5°	561.5	559.4	556.4	553.0	550.1	545.4	544.0	544.0	545.0	543.7	542.7
5°	546.9	542.7	538.5	531.9	526.4	519.0	516.9	514.8	514.6	512.5	509.7
7.5°	531.3	524.9	516.3	507.0	501.0	493.0	488.6	487.3	483.3	479.5	475.0
10°	513.1	503.4	493.0	484.1	474.8	464.5	459.2	455.6	451.6	446.9	443.7
12.5°	491.1	480.1	470.6	460.2	452.4	437.8	436.1	431.5	423.5	416.5	413.9
15°	477.6	458.3	447.6	438.0	426.2	411.2	405.7	400.6	393.0	388.6	385.0
17.5°	453.7	436.3	422.8	410.1	398.7	387.1	378.8	374.6	368.5	364.7	361.1
20°	431.9	413.1	398.9	384.1	372.3	361.7	354.7	349.5	346.3	342.5	338.9
22.5°	409.9	390.3	376.7	361.7	347.8	341.4	333.2	328.7	324.5	321.6	317.7
25°	384.3	368.7	351.8	340.2	327.9	321.3	313.5	309.3	305.9	302.5	300.6
27.5°	361.5	345.7	330.0	318.4	308.0	301.7	296.8	292.8	288.6	286.0	284.6
30°	337.8	323.2	309.5	298.3	290.3	283.3	280.3	276.5	273.4	272.3	270.0
32.5°	316.7	300.4	289.4	279.3	272.5	267.6	265.5	261.5	260.9	259.8	258.6
35°	295.5	281.6	271.0	262.4	256.7	253.1	250.3	249.3	248.2	247.1	246.1
37.5°	274.6	263.6	253.7	246.7	242.1	239.3	238.7	236.6	236.4	234.9	234.9
40°	255.8	244.6	237.6	232.1	228.3	227.1	225.4	224.9	224.3	223.9	224.7
42.5°	237.0	229.4	223.5	217.8	214.8	213.7	213.3	212.7	212.3	213.5	213.9
45°	219.4	212.9	207.8	203.8	202.1	200.8	200.8	201.5	201.3	201.9	201.9
47.5°	203.2	197.2	193.0	191.5	189.4	189.0	189.2	189.0	190.1	190.9	191.7
50°	187.7	182.4	179.1	177.6	177.2	176.5	177.4	177.8	178.4	179.3	179.7
52.5°	170.6	168.1	166.0	164.5	164.3	164.5	164.3	165.7	166.4	167.6	167.4
55°	156.0	154.1	152.6	150.9	150.7	151.4	151.8	153.1	153.9	155.0	154.8
57.5°	142.3	140.8	139.1	138.7	138.5	138.7	140.6	140.4	141.6	142.5	142.9
60°	127.3	126.2	124.7	124.7	125.4	125.8	126.4	127.5	128.7	128.5	130.0
62.5°	113.5	112.3	111.8	112.5	112.3	113.3	113.9	113.9	115.6	116.3	116.7
65°	99.8	99.4	98.7	98.7	99.4	99.6	100.6	101.3	101.9	103.2	104.2
67.5°	86.9	85.8	85.8	85.4	86.3	86.9	87.5	88.4	88.8	90.3	90.9
70°	73.4	72.9	72.7	73.1	73.1	73.8	74.8	75.9	76.7	77.0	78.2
72.5°	60.3	60.3	60.3	60.9	61.3	61.9	62.2	63.0	64.3	64.5	65.1
75°	48.4	48.6	48.4	48.6	48.8	49.5	49.9	50.7	51.6	51.8	52.2
77.5°	37.4	37.0	36.6	37.2	37.6	38.9	38.7	39.1	40.0	39.5	40.0
80°	26.2	26.8	26.0	27.3	27.3	27.1	27.5	28.1	27.9	28.3	27.9
82.5°	17.8	17.1	17.1	17.8	18.0	17.3	17.8	18.0	18.2	17.8	17.5
85°	9.7	9.5	9.9	9.3	9.5	9.1	9.1	8.7	9.1	8.7	8.2
87.5°	3.6	3.4	3.6	3.0	2.7	2.5	2.3	2.3	1.9	1.9	1.9
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: P243159

CATALOG NUMBER: S122DRP-H290D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	571.2	571.2	571.2	571.2
2.5°	544.2	541.8	540.8	541.6
5°	506.7	507.4	503.6	504.8
7.5°	474.4	471.7	472.5	471.0
10°	440.2	438.7	436.3	436.8
12.5°	417.1	407.2	406.5	404.6
15°	384.8	379.3	378.0	377.6
17.5°	359.0	354.3	356.0	354.7
20°	335.7	335.9	333.2	331.5
22.5°	315.2	314.8	313.7	312.0
25°	297.9	297.9	295.3	294.7
27.5°	282.0	282.4	280.3	280.3
30°	270.2	268.7	268.5	268.9
32.5°	258.3	256.7	256.9	256.7
35°	245.7	246.1	245.4	244.8
37.5°	234.9	234.9	234.9	234.2
40°	224.3	224.7	224.1	224.5
42.5°	213.7	213.9	213.9	213.1
45°	203.2	203.0	202.5	203.4
47.5°	192.2	192.2	192.0	192.4
50°	180.1	180.5	179.9	179.7
52.5°	167.9	168.1	167.9	168.3
55°	155.4	155.4	155.6	156.0
57.5°	142.5	144.0	142.9	143.8
60°	129.8	130.0	130.2	129.8
62.5°	117.8	117.5	117.8	118.4
65°	104.6	105.1	104.9	104.4
67.5°	91.8	91.3	92.0	91.3
70°	78.0	78.9	78.2	79.1
72.5°	65.5	65.3	65.7	64.7
75°	52.4	52.4	52.6	52.4
77.5°	40.2	39.7	39.5	38.9
80°	27.7	27.7	26.8	27.5
82.5°	16.9	17.1	17.3	16.1
85°	8.0	8.0	7.8	7.6
87.5°	1.7	1.7	1.9	2.1
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P243159
 CATALOG NUMBER: S122DRP-H290D840-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	16.94	18.47	17.31	18.78	19.09	19.78	21.30	20.14	21.61	21.93
	3H	18.29	19.66	18.67	19.99	20.35	20.80	22.17	21.18	22.49	22.85
	4H	18.78	20.06	19.18	20.41	20.79	21.12	22.41	21.52	22.76	23.13
	6H	19.13	20.31	19.54	20.68	21.07	21.32	22.51	21.73	22.87	23.26
	8H	19.23	20.36	19.66	20.75	21.15	21.36	22.49	21.79	22.88	23.28
	12H	19.30	20.38	19.73	20.77	21.19	21.38	22.46	21.81	22.84	23.27
4H	2H	17.82	19.11	18.22	19.45	19.83	20.02	21.30	20.42	21.65	22.03
	3H	19.32	20.39	19.73	20.79	21.19	21.39	22.45	21.80	22.85	23.25
	4H	19.89	20.85	20.32	21.26	21.70	21.90	22.86	22.34	23.28	23.72
	6H	20.33	21.16	20.78	21.60	22.06	22.24	23.07	22.69	23.51	23.97
	8H	20.46	21.24	20.92	21.68	22.15	22.31	23.09	22.77	23.53	24.00
	12H	20.56	21.25	21.04	21.73	22.20	22.35	23.04	22.83	23.52	23.99
8H	4H	20.33	21.10	20.79	21.55	22.02	22.04	22.82	22.50	23.26	23.73
	6H	20.85	21.49	21.34	21.98	22.46	22.48	23.13	22.98	23.62	24.09
	8H	21.03	21.61	21.55	22.12	22.61	22.62	23.19	23.13	23.70	24.19
	12H	21.19	21.70	21.70	22.19	22.75	22.71	23.22	23.22	23.71	24.27
12H	4H	20.38	21.08	20.86	21.55	22.03	22.04	22.73	22.52	23.21	23.68
	6H	20.92	21.50	21.44	22.01	22.50	22.49	23.06	23.00	23.57	24.06
	8H	21.16	21.67	21.67	22.16	22.73	22.67	23.17	23.18	23.67	24.23