

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: P243154

Luminaire Tested: S122DRP-H290D835-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P243154
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-H290D835-X4F0-XX-UDD-A-W
Description: DEFINE 2 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3500K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

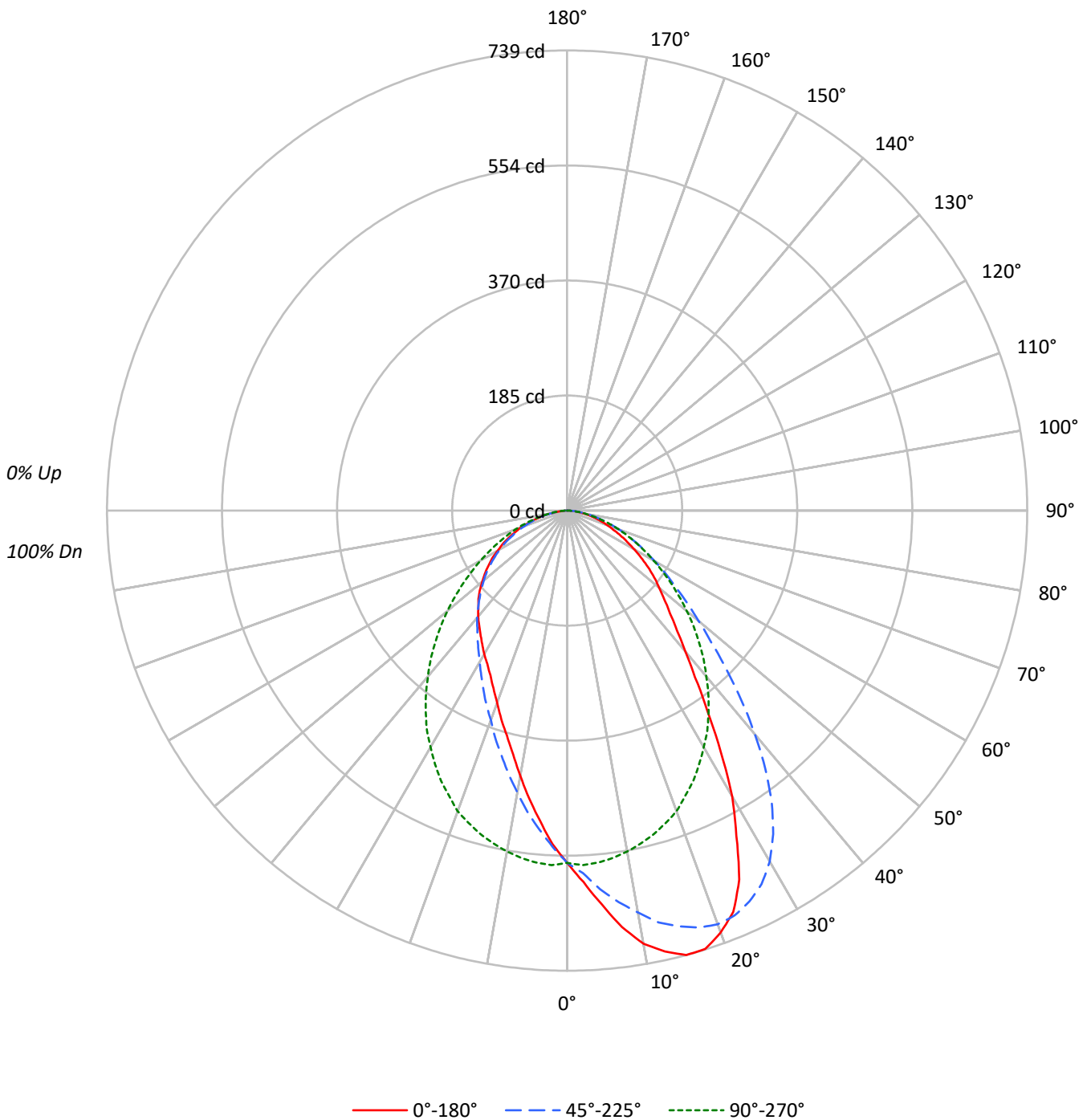
Lumens per Lamp: N/A
Luminaire Lumens: 1255.2 lumens
Efficiency: N/A
Efficacy: 112.1 lumens/watt
Spacing Criteria (0/90/45): 1.09 / 1.16 / 1.24
Luminous Opening: Rectangular (W 3.88' x L: 0.15' x H: 0')
CIE Type: Direct

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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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	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				86
2	101	93	87	82	98	92	86	81	88	83	79	85	81	77	82	79	76	74				74
3	93	83	76	70	90	82	75	69	79	73	68	76	71	67	73	69	66	63				63
4	86	74	66	60	83	73	66	60	71	64	59	68	63	58	66	61	57	55				55
5	79	67	59	52	77	66	58	52	64	57	52	62	56	51	60	55	51	49				49
6	73	61	52	46	72	60	52	46	58	51	46	57	50	45	55	49	45	43				43
7	68	56	47	41	67	55	47	41	53	46	41	52	46	41	51	45	40	39				39
8	64	51	43	37	62	50	43	37	49	42	37	48	41	37	47	41	37	35				35
9	60	47	39	34	58	46	39	34	45	38	34	44	38	34	43	38	33	32				32
10	56	44	36	31	55	43	36	31	42	35	31	41	35	31	40	35	31	29				29

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	10773	10773	10773	10773	10773
5°	12136	11671	10851	9826	9558
10°	13661	12678	10754	8895	8365
15°	14573	13626	10609	8030	7373
20°	14615	14331	10417	7261	6655
25°	13745	14558	10071	6688	6133
30°	11668	14310	9651	6169	5857
35°	9122	13329	9201	5827	5637
40°	7330	11654	8646	5590	5527
45°	6303	9768	8076	5358	5425
50°	5719	8146	7432	5180	5272
55°	5270	7000	6771	4978	5131
60°	4739	6171	6099	4747	4895
65°	4264	5521	5481	4444	4660
70°	3798	4895	4873	4071	4361
75°	3422	4268	4188	3606	3820
80°	2984	3532	3378	2940	2984
85°	2557	2929	2513	1967	1639

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 65°
 Vertical Angle: 45°
 Luminance: 13506 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	53.9	4.3
10°-20°	154.9	12.3
20°-30°	225.3	17.9
30°-40°	241.6	19.3
40°-50°	216.6	17.3
50°-60°	172.6	13.8
60°-70°	116.8	9.3
70°-80°	59.6	4.7
80°-90°	14.0	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°	434.0	34.6
0°-40°	675.7	53.8
0°-60°	1064.9	84.8
0°-90°	1255.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1255.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	566	566	566	566	566	
5°	635	610	568	514	500	63
15°	739	691	538	407	374	207
25°	654	693	479	318	292	294
35°	392	573	396	251	242	249
45°	234	363	300	199	201	183
55°	159	211	204	150	154	142
65°	95	122	122	99	103	94
75°	46	58	57	49	52	50
85°	12	13	12	9	8	14
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°	565.6	565.6	565.6	565.6	565.6	565.6	565.6	565.6	565.6	565.6	565.6
2.5°	597.0	598.9	597.3	596.6	595.4	595.0	591.6	588.9	587.2	582.6	583.0
5°	634.7	638.9	636.6	636.4	631.8	628.9	625.9	621.8	615.5	610.4	606.5
7.5°	674.5	672.4	671.8	669.5	666.1	661.9	655.5	649.4	641.4	634.1	628.7
10°	706.3	705.7	706.7	700.9	698.8	692.3	686.6	677.2	667.0	655.5	648.3
12.5°	725.2	727.1	728.5	726.2	721.2	719.3	709.9	696.7	693.1	677.4	668.9
15°	739.0	739.8	740.0	737.5	735.0	730.2	724.5	716.2	704.7	691.0	684.6
17.5°	738.1	737.9	739.2	737.7	736.3	734.8	730.4	723.9	714.9	702.1	691.3
20°	721.0	724.7	727.7	728.3	728.1	728.9	726.8	722.7	716.2	707.0	694.6
22.5°	697.5	696.1	702.3	701.9	704.7	710.9	713.7	712.0	709.5	703.6	693.8
25°	654.0	655.5	659.9	664.5	675.1	678.9	687.1	693.3	694.2	692.7	686.6
27.5°	588.7	599.1	601.4	607.5	622.4	634.7	651.3	661.1	675.1	676.4	673.7
30°	530.5	530.1	533.6	544.5	558.1	576.7	598.1	623.4	639.5	650.6	654.6
32.5°	458.9	460.6	469.8	483.2	497.0	515.6	540.3	571.3	592.9	615.9	628.9
35°	392.3	397.5	406.3	415.5	430.6	456.2	483.6	509.3	542.4	573.2	594.1
37.5°	337.5	344.6	351.3	360.1	374.7	394.4	419.1	453.2	486.1	523.1	553.9
40°	294.8	297.5	302.1	310.7	320.5	340.2	365.1	390.6	426.2	468.7	509.1
42.5°	261.3	260.6	265.7	271.1	280.1	294.8	316.5	342.1	377.4	415.1	456.0
45°	234.0	234.3	236.3	242.0	249.1	257.5	274.2	298.3	325.1	362.6	405.9
47.5°	211.9	212.5	215.6	219.6	223.8	231.5	242.6	258.3	283.5	314.9	355.5
50°	193.0	194.1	196.2	199.1	202.2	207.7	216.0	228.4	248.3	274.9	311.7
52.5°	176.3	176.7	177.3	180.0	182.5	187.6	193.9	203.5	219.2	241.4	270.1
55°	158.7	158.3	159.7	162.0	164.3	167.9	174.4	182.1	193.2	210.8	234.5
57.5°	140.7	141.3	142.4	143.6	147.8	151.6	156.4	163.5	172.3	186.1	205.8
60°	124.4	124.4	125.6	127.3	130.0	132.5	137.1	143.6	151.4	162.0	178.6
62.5°	108.4	109.3	110.5	111.4	113.9	117.0	120.6	125.6	132.7	141.3	153.7
65°	94.6	94.2	95.5	97.1	99.0	101.1	105.1	109.3	114.7	122.5	132.7
67.5°	80.4	81.6	82.1	82.9	84.4	87.1	89.0	93.4	97.8	104.7	113.3
70°	68.2	69.1	69.7	70.8	72.0	73.3	75.2	78.7	83.1	87.9	94.0
72.5°	57.4	58.0	57.4	58.4	59.0	60.3	62.8	64.5	67.8	72.0	77.5
75°	46.5	46.9	46.7	47.7	47.9	49.2	50.5	51.9	55.7	58.0	61.8
77.5°	36.4	36.8	37.1	37.5	37.9	38.5	39.1	40.6	42.7	44.8	47.7
80°	27.2	27.2	27.8	28.1	28.3	28.7	29.7	30.1	31.6	32.2	34.5
82.5°	18.8	19.1	19.3	19.3	19.5	19.9	20.1	20.9	21.4	22.4	23.4
85°	11.7	11.9	11.9	11.9	12.6	12.4	12.4	12.8	13.4	13.4	13.8
87.5°	5.9	6.1	6.1	6.1	6.3	6.3	6.3	6.3	6.3	6.7	6.5
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°	565.6	565.6	565.6	565.6	565.6	565.6	565.6	565.6	565.6	565.6	565.6
2.5°	582.8	582.6	581.8	578.0	575.1	571.3	570.7	570.0	564.8	559.2	557.5
5°	603.3	599.6	594.3	588.0	581.8	574.9	570.9	567.5	559.6	550.8	545.8
7.5°	623.4	616.1	607.9	598.1	587.6	576.5	569.4	562.7	551.8	540.3	533.4
10°	640.6	630.8	619.4	606.5	592.0	577.0	566.5	556.0	542.2	528.2	519.0
12.5°	654.8	642.3	627.4	609.8	596.6	575.9	561.3	547.4	532.2	513.9	503.9
15°	665.7	653.4	633.3	615.5	598.1	570.5	552.7	538.0	517.5	499.7	483.8
17.5°	678.9	661.3	641.4	615.9	596.6	565.0	544.9	525.9	503.7	482.7	465.2
20°	684.8	666.3	645.0	616.5	592.0	559.2	532.4	513.9	487.1	463.1	443.2
22.5°	685.6	668.0	644.8	614.6	584.1	550.6	519.8	495.7	468.9	443.4	421.0
25°	682.0	665.3	641.2	611.3	575.3	541.4	507.0	479.2	448.2	421.8	399.0
27.5°	672.4	658.8	636.0	604.0	566.3	527.1	489.7	459.3	428.7	398.8	377.0
30°	656.9	647.9	628.2	594.3	554.8	511.6	474.2	438.8	405.7	377.7	354.2
32.5°	637.0	632.6	616.3	582.8	543.0	494.7	455.5	419.1	383.1	356.5	332.4
35°	611.7	614.0	600.2	569.8	528.2	477.5	433.8	395.7	360.5	332.2	310.0
37.5°	578.8	590.1	581.3	552.9	509.1	460.1	410.9	372.6	335.8	308.6	289.1
40°	542.0	561.9	557.7	533.8	488.6	439.8	389.0	347.7	311.7	286.0	267.3
42.5°	498.7	527.5	532.2	510.6	468.3	414.5	364.3	324.5	289.7	264.4	246.6
45°	450.1	485.9	501.4	484.4	444.6	390.0	338.9	299.8	265.4	243.9	229.0
47.5°	401.3	444.4	465.4	457.2	417.0	363.8	313.8	275.5	243.0	224.2	210.2
50°	353.2	399.4	430.0	424.5	389.8	338.9	288.5	250.8	221.1	203.7	191.8
52.5°	310.9	354.6	387.9	390.6	359.4	310.5	261.7	226.7	201.4	185.7	175.6
55°	269.2	309.8	346.3	353.0	327.6	280.5	237.0	203.9	180.9	167.9	159.7
57.5°	232.0	268.8	305.0	316.7	296.2	253.7	210.4	181.3	161.4	151.4	144.2
60°	200.3	233.6	264.8	276.8	262.7	224.0	186.1	160.1	143.6	134.6	129.0
62.5°	172.7	198.5	226.1	239.3	229.9	196.2	163.1	140.1	126.7	118.9	114.5
65°	147.8	167.7	189.5	204.7	194.3	169.1	141.5	121.6	110.3	103.2	100.1
67.5°	124.8	141.3	158.7	170.8	165.6	142.8	119.5	104.0	94.6	89.2	86.2
70°	103.8	116.2	130.2	139.6	135.9	118.3	99.9	87.5	79.6	75.8	73.3
72.5°	85.2	93.2	103.8	111.6	107.6	95.3	82.1	72.2	66.4	62.0	60.1
75°	67.6	74.5	82.1	87.3	84.2	74.9	64.5	56.9	53.0	50.2	49.0
77.5°	51.3	56.7	62.0	64.5	63.0	56.3	49.2	43.3	40.0	38.3	36.8
80°	36.8	40.0	43.5	45.8	45.0	40.4	35.4	30.8	29.3	27.2	26.8
82.5°	24.7	27.2	28.1	29.1	28.5	26.4	22.8	20.1	18.8	17.8	17.6
85°	14.7	15.3	16.3	16.3	15.7	14.2	12.4	11.5	10.3	10.0	9.4
87.5°	6.5	6.5	6.5	6.5	6.5	6.1	5.2	4.8	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



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CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	565.6	565.6	565.6	565.6	565.6	565.6	565.6	565.6	565.6	565.6	565.6
2.5°	556.0	553.9	551.0	547.6	544.7	540.1	538.6	538.6	539.7	538.4	537.4
5°	541.6	537.4	533.2	526.7	521.3	513.9	511.8	509.8	509.5	507.4	504.7
7.5°	526.1	519.8	511.2	502.0	496.1	488.2	483.8	482.5	478.6	474.8	470.4
10°	508.1	498.4	488.2	479.4	470.2	459.9	454.7	451.1	447.2	442.6	439.4
12.5°	486.3	475.4	466.0	455.7	448.0	433.6	431.9	427.3	419.3	412.4	409.9
15°	472.9	453.9	443.2	433.8	422.0	407.2	401.7	396.7	389.2	384.8	381.2
17.5°	449.3	432.1	418.7	406.1	394.8	383.3	375.1	371.0	364.9	361.1	357.6
20°	427.7	409.1	395.0	380.4	368.7	358.2	351.3	346.0	342.9	339.1	335.6
22.5°	405.9	386.4	373.1	358.2	344.4	338.1	329.9	325.5	321.3	318.4	314.6
25°	380.6	365.1	348.3	336.8	324.7	318.2	310.5	306.3	302.9	299.6	297.7
27.5°	358.0	342.3	326.8	315.3	305.0	298.7	293.9	289.9	285.8	283.2	281.8
30°	334.5	320.1	306.5	295.4	287.4	280.5	277.6	273.8	270.7	269.6	267.3
32.5°	313.6	297.5	286.6	276.5	269.8	265.0	262.9	259.0	258.3	257.3	256.0
35°	292.7	278.8	268.4	259.8	254.1	250.6	247.9	246.8	245.8	244.7	243.7
37.5°	271.9	261.1	251.2	244.3	239.7	237.0	236.3	234.3	234.0	232.6	232.6
40°	253.3	242.2	235.3	229.9	226.1	224.8	223.2	222.7	222.1	221.7	222.5
42.5°	234.7	227.1	221.3	215.6	212.7	211.6	211.2	210.6	210.2	211.4	211.9
45°	217.3	210.8	205.8	201.8	200.1	198.9	198.9	199.5	199.3	199.9	199.9
47.5°	201.2	195.3	191.1	189.7	187.6	187.2	187.4	187.2	188.2	189.0	189.9
50°	185.9	180.7	177.3	175.8	175.4	174.8	175.6	176.1	176.7	177.5	177.9
52.5°	168.9	166.4	164.3	162.9	162.7	162.9	162.7	164.1	164.8	166.0	165.8
55°	154.5	152.6	151.1	149.5	149.3	149.9	150.3	151.6	152.4	153.4	153.2
57.5°	140.9	139.4	137.7	137.3	137.1	137.3	139.2	139.0	140.3	141.1	141.5
60°	126.0	125.0	123.5	123.5	124.1	124.6	125.2	126.2	127.5	127.3	128.7
62.5°	112.4	111.2	110.7	111.4	111.2	112.2	112.8	112.8	114.5	115.1	115.6
65°	98.8	98.4	97.8	97.8	98.4	98.6	99.6	100.3	100.9	102.2	103.2
67.5°	86.0	85.0	85.0	84.6	85.4	86.0	86.7	87.5	87.9	89.4	90.0
70°	72.6	72.2	72.0	72.4	72.4	73.1	74.1	75.2	76.0	76.2	77.5
72.5°	59.7	59.7	59.7	60.3	60.7	61.3	61.5	62.4	63.6	63.8	64.5
75°	47.9	48.1	47.9	48.1	48.4	49.0	49.4	50.2	51.1	51.3	51.7
77.5°	37.1	36.6	36.2	36.8	37.3	38.5	38.3	38.7	39.6	39.1	39.6
80°	26.0	26.6	25.7	27.0	27.0	26.8	27.2	27.8	27.6	28.1	27.6
82.5°	17.6	17.0	17.0	17.6	17.8	17.2	17.6	17.8	18.0	17.6	17.4
85°	9.6	9.4	9.8	9.2	9.4	9.0	9.0	8.6	9.0	8.6	8.2
87.5°	3.6	3.3	3.6	2.9	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: P243154

CATALOG NUMBER: S122DRP-H290D835-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	565.6	565.6	565.6	565.6
2.5°	538.9	536.5	535.5	536.3
5°	501.8	502.4	498.7	499.9
7.5°	469.8	467.0	467.9	466.4
10°	435.9	434.4	432.1	432.5
12.5°	413.0	403.2	402.6	400.7
15°	381.0	375.6	374.3	373.9
17.5°	355.5	350.9	352.5	351.3
20°	332.4	332.6	329.9	328.3
22.5°	312.1	311.7	310.7	309.0
25°	295.0	295.0	292.5	291.8
27.5°	279.3	279.7	277.6	277.6
30°	267.5	266.1	265.9	266.3
32.5°	255.8	254.1	254.4	254.1
35°	243.3	243.7	243.0	242.4
37.5°	232.6	232.6	232.6	232.0
40°	222.1	222.5	221.9	222.3
42.5°	211.6	211.9	211.9	211.0
45°	201.2	201.0	200.6	201.4
47.5°	190.3	190.3	190.1	190.5
50°	178.4	178.8	178.2	177.9
52.5°	166.2	166.4	166.2	166.6
55°	153.9	153.9	154.1	154.5
57.5°	141.1	142.6	141.5	142.4
60°	128.5	128.7	129.0	128.5
62.5°	116.6	116.4	116.6	117.2
65°	103.6	104.0	103.8	103.4
67.5°	90.9	90.4	91.1	90.4
70°	77.2	78.1	77.5	78.3
72.5°	64.9	64.7	65.1	64.1
75°	51.9	51.9	52.1	51.9
77.5°	39.8	39.4	39.1	38.5
80°	27.4	27.4	26.6	27.2
82.5°	16.7	17.0	17.2	15.9
85°	8.0	8.0	7.7	7.5
87.5°	1.7	1.7	1.9	2.1
90°	0.0	0.0	0.0	0.0

TEST NUMBER: P243154

CATALOG NUMBER: S122DRP-H290D835-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	16.91	18.43	17.27	18.74	19.06	19.74	21.27	20.11	21.58	21.89
	3H	18.26	19.63	18.64	19.95	20.32	20.76	22.13	21.14	22.46	22.82
	4H	18.75	20.03	19.14	20.38	20.75	21.09	22.37	21.49	22.72	23.10
	6H	19.10	20.28	19.51	20.65	21.04	21.29	22.47	21.70	22.84	23.23
	8H	19.20	20.33	19.63	20.72	21.12	21.33	22.46	21.76	22.85	23.25
	12H	19.27	20.35	19.70	20.73	21.16	21.35	22.42	21.78	22.81	23.24
4H	2H	17.79	19.07	18.19	19.42	19.80	19.99	21.27	20.38	21.62	21.99
	3H	19.29	20.35	19.70	20.75	21.15	21.35	22.42	21.77	22.82	23.22
	4H	19.85	20.81	20.29	21.23	21.67	21.87	22.83	22.30	23.24	23.68
	6H	20.29	21.13	20.75	21.57	22.03	22.20	23.04	22.66	23.48	23.94
	8H	20.43	21.21	20.89	21.65	22.12	22.28	23.05	22.74	23.50	23.97
	12H	20.53	21.22	21.01	21.70	22.17	22.32	23.01	22.80	23.49	23.96
8H	4H	20.29	21.07	20.75	21.51	21.98	22.01	22.78	22.47	23.23	23.70
	6H	20.81	21.46	21.31	21.95	22.43	22.45	23.09	22.95	23.58	24.06
	8H	21.00	21.58	21.52	22.09	22.58	22.58	23.16	23.10	23.67	24.16
	12H	21.16	21.66	21.67	22.16	22.72	22.67	23.18	23.18	23.67	24.24
12H	4H	20.35	21.04	20.83	21.52	21.99	22.00	22.70	22.48	23.17	23.65
	6H	20.89	21.47	21.40	21.98	22.47	22.45	23.03	22.96	23.54	24.03
	8H	21.13	21.64	21.64	22.13	22.69	22.63	23.14	23.14	23.63	24.20