

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: P243174

Luminaire Tested: S122DRP-H290D940-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P243174
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-H290D940-X4F0-XX-UDD-A-W
Description: DEFINE 2 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

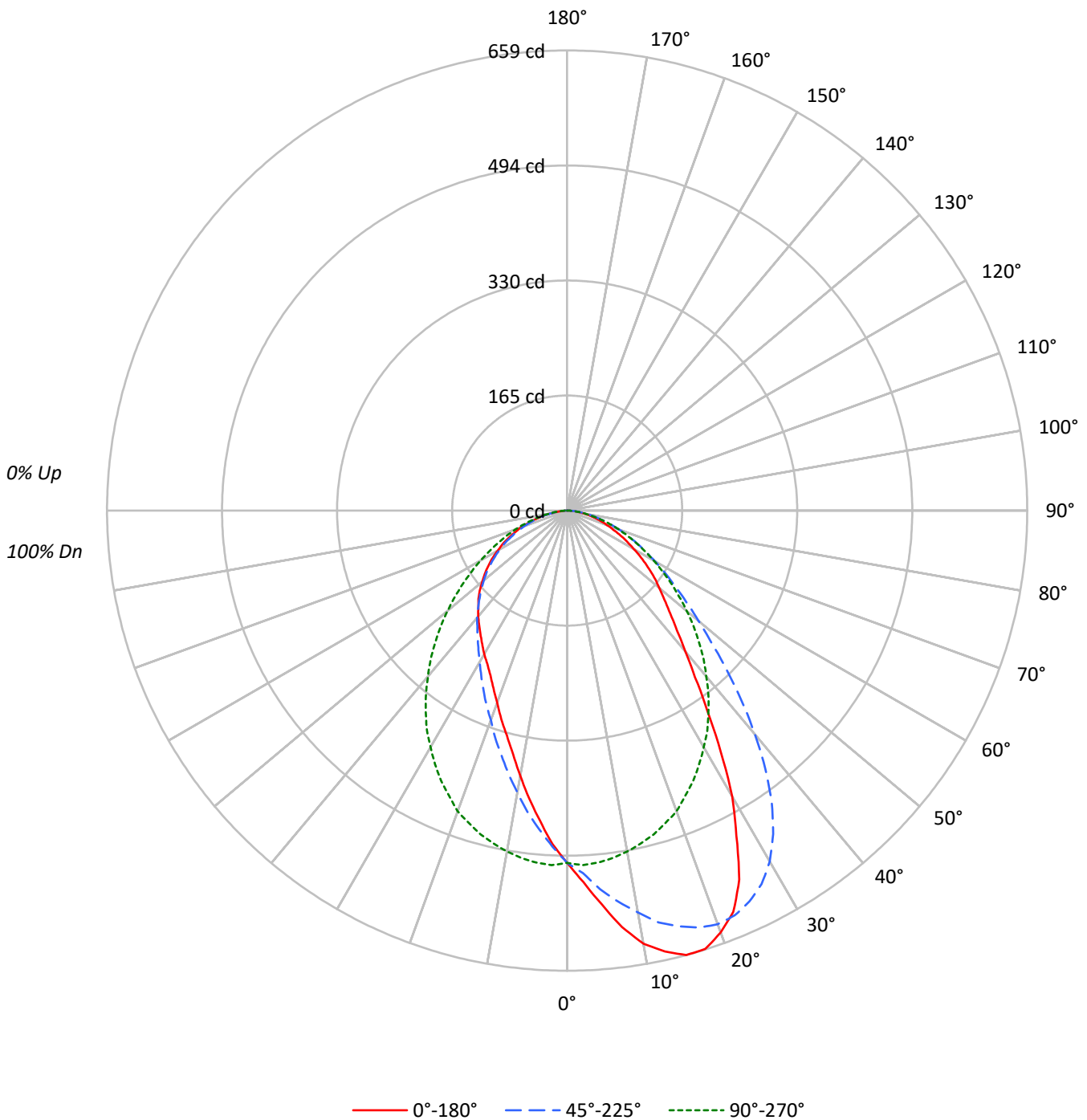
Lumens per Lamp: N/A
Luminaire Lumens: 1119.2 lumens
Efficiency: N/A
Efficacy: 99.9 lumens/watt
Spacing Criteria (0/90/45): 1.09 / 1.16 / 1.24
Luminous Opening: Rectangular (W 3.88' x L: 0.15' x H: 0')
CIE Type: Direct

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-H290D940-X4F0-XX-UDD-A-W

Luminous Intensity Polar Plot



TEST NUMBER: P243174

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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	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																												
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°	9608	9608	9608	9608	9608
5°	10822	10407	9677	8763	8524
10°	12181	11305	9590	7932	7460
15°	12995	12151	9461	7160	6575
20°	13032	12778	9290	6474	5933
25°	12257	12982	8980	5962	5469
30°	10403	12761	8606	5501	5221
35°	8134	11885	8204	5195	5027
40°	6535	10394	7711	4985	4928
45°	5622	8709	7200	4776	4838
50°	5100	7263	6626	4620	4703
55°	4699	6243	6037	4440	4576
60°	4225	5505	5440	4232	4366
65°	3804	4922	4890	3962	4156
70°	3392	4366	4344	3626	3887
75°	3047	3805	3739	3216	3407
80°	2666	3148	3006	2622	2666
85°	2295	2601	2251	1748	1464

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 65°
 Vertical Angle: 45°
 Luminance: 12044 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	48.1	4.3
10°-20°	138.1	12.3
20°-30°	200.9	17.9
30°-40°	215.5	19.3
40°-50°	193.1	17.3
50°-60°	153.9	13.8
60°-70°	104.1	9.3
70°-80°	53.1	4.7
80°-90°	12.4	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°	387.0	34.6
0°-40°	602.5	53.8
0°-60°	949.5	84.8
0°-90°	1119.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1119.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	504	504	504	504	504	
5°	566	544	506	458	446	56
15°	659	616	480	363	333	185
25°	583	618	427	284	260	262
35°	350	511	353	223	216	222
45°	209	323	267	177	180	163
55°	142	188	182	134	138	126
65°	84	109	108	88	92	84
75°	41	52	51	44	46	44
85°	10	12	10	8	7	12
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°	504.4	504.4	504.4	504.4	504.4	504.4	504.4	504.4	504.4	504.4	504.4
2.5°	532.4	534.1	532.6	532.0	530.9	530.5	527.5	525.1	523.6	519.5	519.9
5°	566.0	569.7	567.7	567.5	563.4	560.8	558.2	554.4	548.8	544.3	540.8
7.5°	601.5	599.6	599.0	597.0	594.0	590.3	584.5	579.1	572.0	565.4	560.6
10°	629.8	629.3	630.2	625.0	623.1	617.3	612.3	603.9	594.7	584.5	578.1
12.5°	646.6	648.3	649.6	647.6	643.1	641.4	633.0	621.3	618.1	604.1	596.4
15°	659.0	659.7	659.9	657.7	655.4	651.1	646.1	638.6	628.3	616.2	610.4
17.5°	658.2	658.0	659.1	657.8	656.5	655.2	651.3	645.5	637.5	626.1	616.4
20°	642.9	646.3	648.9	649.4	649.3	650.0	648.1	644.4	638.6	630.4	619.4
22.5°	622.0	620.7	626.3	625.9	628.3	633.9	636.4	634.9	632.6	627.4	618.6
25°	583.2	584.5	588.4	592.5	602.0	605.4	612.7	618.3	619.0	617.7	612.3
27.5°	524.9	534.3	536.3	541.7	555.0	566.0	580.7	589.5	602.0	603.1	600.7
30°	473.0	472.7	475.8	485.5	497.7	514.3	533.3	555.9	570.3	580.2	583.7
32.5°	409.2	410.7	418.9	430.8	443.2	459.8	481.8	509.4	528.7	549.2	560.8
35°	349.8	354.5	362.3	370.5	384.0	406.8	431.2	454.2	483.7	511.1	529.8
37.5°	300.9	307.3	313.2	321.1	334.1	351.7	373.7	404.1	433.5	466.5	493.9
40°	262.8	265.3	269.4	277.0	285.8	303.3	325.6	348.3	380.1	418.0	454.0
42.5°	233.0	232.4	236.9	241.7	249.8	262.8	282.3	305.0	336.6	370.2	406.6
45°	208.7	208.9	210.8	215.8	222.1	229.6	244.5	266.0	289.9	323.3	362.0
47.5°	188.9	189.5	192.3	195.8	199.6	206.5	216.4	230.4	252.8	280.8	317.0
50°	172.1	173.0	174.9	177.5	180.3	185.2	192.6	203.7	221.4	245.1	278.0
52.5°	157.2	157.6	158.1	160.5	162.8	167.3	172.9	181.4	195.4	215.2	240.8
55°	141.5	141.1	142.4	144.5	146.5	149.7	155.5	162.4	172.3	188.0	209.1
57.5°	125.4	126.0	126.9	128.1	131.8	135.2	139.4	145.8	153.6	166.0	183.5
60°	110.9	110.9	112.0	113.5	115.9	118.2	122.3	128.1	135.0	144.5	159.2
62.5°	96.7	97.4	98.6	99.3	101.6	104.4	107.5	112.0	118.4	126.0	137.0
65°	84.4	84.0	85.1	86.6	88.3	90.2	93.7	97.4	102.3	109.2	118.4
67.5°	71.7	72.8	73.2	73.9	75.2	77.7	79.3	83.3	87.2	93.3	101.0
70°	60.9	61.6	62.2	63.1	64.2	65.3	67.0	70.2	74.1	78.4	83.8
72.5°	51.1	51.7	51.1	52.1	52.6	53.8	56.0	57.5	60.5	64.2	69.1
75°	41.4	41.8	41.6	42.6	42.7	43.9	45.0	46.3	49.7	51.7	55.1
77.5°	32.5	32.9	33.0	33.4	33.8	34.3	34.9	36.2	38.1	39.9	42.6
80°	24.3	24.3	24.8	25.0	25.2	25.6	26.5	26.9	28.2	28.7	30.8
82.5°	16.8	17.0	17.2	17.2	17.4	17.7	17.9	18.7	19.0	20.0	20.9
85°	10.5	10.6	10.6	10.6	11.2	11.0	11.0	11.4	11.9	11.9	12.3
87.5°	5.2	5.4	5.4	5.4	5.6	5.6	5.6	5.6	5.6	6.0	5.8
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°	504.4	504.4	504.4	504.4	504.4	504.4	504.4	504.4	504.4	504.4	504.4
2.5°	519.7	519.5	518.8	515.4	512.8	509.4	508.9	508.3	503.6	498.6	497.1
5°	538.0	534.6	530.0	524.4	518.8	512.6	509.1	506.1	499.0	491.1	486.7
7.5°	555.9	549.4	542.1	533.3	524.0	514.1	507.8	501.8	492.1	481.8	475.6
10°	571.2	562.4	552.4	540.8	527.9	514.5	505.1	495.8	483.5	471.0	462.8
12.5°	583.9	572.7	559.5	543.8	532.0	513.5	500.5	488.2	474.5	458.3	449.3
15°	593.6	582.6	564.7	548.8	533.3	508.7	492.8	479.8	461.5	445.6	431.4
17.5°	605.4	589.7	572.0	549.2	532.0	503.8	485.9	468.9	449.1	430.5	414.8
20°	610.6	594.2	575.1	549.8	527.9	498.6	474.7	458.3	434.4	412.9	395.2
22.5°	611.4	595.7	575.0	548.1	520.8	491.0	463.5	442.0	418.1	395.4	375.4
25°	608.2	593.2	571.8	545.1	513.0	482.7	452.1	427.3	399.7	376.1	355.8
27.5°	599.6	587.5	567.1	538.6	505.0	470.0	436.6	409.6	382.3	355.6	336.2
30°	585.8	577.8	560.2	530.0	494.7	456.2	422.8	391.3	361.8	336.8	315.9
32.5°	568.0	564.1	549.6	519.7	484.2	441.1	406.2	373.7	341.6	317.9	296.4
35°	545.5	547.5	535.2	508.1	471.0	425.8	386.8	352.8	321.5	296.3	276.5
37.5°	516.2	526.2	518.4	493.0	454.0	410.3	366.4	332.3	299.4	275.2	257.8
40°	483.3	501.0	497.3	476.0	435.7	392.2	346.8	310.1	278.0	255.0	238.4
42.5°	444.7	470.4	474.5	455.3	417.6	369.6	324.8	289.3	258.4	235.8	219.9
45°	401.3	433.3	447.1	432.0	396.5	347.8	302.2	267.3	236.7	217.5	204.2
47.5°	357.9	396.3	415.0	407.7	371.9	324.4	279.8	245.7	216.7	199.9	187.4
50°	314.9	356.2	383.4	378.6	347.6	302.2	257.2	223.6	197.1	181.6	171.0
52.5°	277.2	316.2	345.9	348.3	320.5	276.8	233.3	202.2	179.6	165.6	156.6
55°	240.1	276.3	308.8	314.7	292.1	250.1	211.3	181.8	161.3	149.7	142.4
57.5°	206.8	239.7	272.0	282.4	264.1	226.2	187.6	161.7	143.9	135.0	128.6
60°	178.6	208.3	236.1	246.8	234.3	199.7	166.0	142.8	128.1	120.0	115.0
62.5°	154.0	177.0	201.6	213.4	205.0	174.9	145.4	124.9	112.9	106.0	102.1
65°	131.8	149.5	168.9	182.6	173.2	150.8	126.2	108.5	98.4	92.0	89.2
67.5°	111.3	126.0	141.5	152.3	147.7	127.3	106.6	92.8	84.4	79.5	76.9
70°	92.6	103.6	116.1	124.5	121.2	105.5	89.0	78.0	70.9	67.6	65.3
72.5°	76.0	83.1	92.6	99.5	96.0	84.9	73.2	64.4	59.2	55.3	53.6
75°	60.3	66.5	73.2	77.8	75.0	66.8	57.5	50.8	47.2	44.8	43.7
77.5°	45.7	50.6	55.3	57.5	56.2	50.2	43.9	38.6	35.7	34.2	32.9
80°	32.9	35.7	38.8	40.9	40.1	36.0	31.5	27.4	26.1	24.3	23.9
82.5°	22.0	24.3	25.0	25.9	25.4	23.5	20.3	17.9	16.8	15.9	15.7
85°	13.1	13.6	14.6	14.6	14.0	12.7	11.0	10.3	9.1	9.0	8.4
87.5°	5.8	5.8	5.8	5.8	5.8	5.4	4.7	4.3	3.9	3.7	3.5
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	504.4	504.4	504.4	504.4	504.4	504.4	504.4	504.4	504.4	504.4	504.4
2.5°	495.8	493.9	491.3	488.3	485.7	481.6	480.3	480.3	481.2	480.1	479.2
5°	482.9	479.2	475.5	469.7	464.8	458.3	456.4	454.6	454.4	452.5	450.1
7.5°	469.1	463.5	455.9	447.6	442.4	435.3	431.4	430.3	426.7	423.4	419.5
10°	453.1	444.5	435.3	427.5	419.3	410.1	405.5	402.3	398.7	394.6	391.8
12.5°	433.6	423.9	415.5	406.4	399.5	386.6	385.1	381.0	373.9	367.7	365.5
15°	421.7	404.7	395.2	386.8	376.3	363.1	358.2	353.7	347.0	343.1	339.9
17.5°	400.6	385.3	373.3	362.1	352.1	341.8	334.5	330.8	325.4	322.0	318.8
20°	381.4	364.8	352.3	339.2	328.7	319.4	313.2	308.6	305.8	302.4	299.2
22.5°	362.0	344.6	332.7	319.4	307.1	301.5	294.2	290.3	286.5	283.9	280.6
25°	339.4	325.6	310.6	300.4	289.5	283.7	276.8	273.1	270.1	267.1	265.5
27.5°	319.2	305.2	291.4	281.1	272.0	266.4	262.1	258.5	254.8	252.6	251.3
30°	298.3	285.4	273.3	263.4	256.3	250.1	247.5	244.2	241.4	240.4	238.4
32.5°	279.6	265.3	255.6	246.6	240.6	236.3	234.5	230.9	230.4	229.4	228.3
35°	261.0	248.6	239.3	231.7	226.6	223.4	221.0	220.1	219.2	218.2	217.3
37.5°	242.5	232.8	224.0	217.8	213.7	211.3	210.8	208.9	208.7	207.4	207.4
40°	225.9	216.0	209.8	205.0	201.6	200.5	199.0	198.6	198.1	197.7	198.4
42.5°	209.3	202.5	197.3	192.3	189.7	188.7	188.4	187.8	187.4	188.5	188.9
45°	193.8	188.0	183.5	180.0	178.5	177.3	177.3	177.9	177.7	178.3	178.3
47.5°	179.4	174.2	170.4	169.1	167.3	166.9	167.1	166.9	167.8	168.6	169.3
50°	165.8	161.1	158.1	156.8	156.4	155.9	156.6	157.0	157.6	158.3	158.7
52.5°	150.6	148.4	146.5	145.2	145.0	145.2	145.0	146.4	146.9	148.0	147.8
55°	137.8	136.1	134.8	133.3	133.1	133.7	134.0	135.2	135.9	136.8	136.6
57.5°	125.6	124.3	122.8	122.5	122.3	122.5	124.1	124.0	125.1	125.8	126.2
60°	112.4	111.4	110.1	110.1	110.7	111.1	111.6	112.6	113.7	113.5	114.8
62.5°	100.2	99.1	98.8	99.3	99.1	100.1	100.6	100.6	102.1	102.7	103.0
65°	88.1	87.7	87.2	87.2	87.7	87.9	88.9	89.4	90.0	91.1	92.0
67.5°	76.7	75.8	75.8	75.4	76.2	76.7	77.3	78.0	78.4	79.7	80.3
70°	64.8	64.4	64.2	64.6	64.6	65.1	66.1	67.0	67.8	67.9	69.1
72.5°	53.2	53.2	53.2	53.8	54.1	54.7	54.9	55.6	56.7	56.9	57.5
75°	42.7	42.9	42.7	42.9	43.1	43.7	44.1	44.8	45.5	45.7	46.1
77.5°	33.0	32.7	32.3	32.9	33.2	34.3	34.2	34.5	35.3	34.9	35.3
80°	23.1	23.7	23.0	24.1	24.1	23.9	24.3	24.8	24.6	25.0	24.6
82.5°	15.7	15.1	15.1	15.7	15.9	15.3	15.7	15.9	16.1	15.7	15.5
85°	8.6	8.4	8.8	8.2	8.4	8.0	8.0	7.7	8.0	7.7	7.3
87.5°	3.2	3.0	3.2	2.6	2.4	2.2	2.1	2.1	1.7	1.7	1.7
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: P243174

CATALOG NUMBER: S122DRP-H290D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	504.4	504.4	504.4	504.4
2.5°	480.5	478.4	477.5	478.3
5°	447.5	448.0	444.7	445.8
7.5°	418.9	416.5	417.2	415.9
10°	388.7	387.3	385.3	385.7
12.5°	368.3	359.5	359.0	357.3
15°	339.7	334.9	333.8	333.4
17.5°	317.0	312.9	314.4	313.2
20°	296.4	296.6	294.2	292.7
22.5°	278.3	278.0	277.0	275.5
25°	263.0	263.0	260.8	260.2
27.5°	249.0	249.4	247.5	247.5
30°	238.6	237.3	237.1	237.4
32.5°	228.1	226.6	226.8	226.6
35°	216.9	217.3	216.7	216.2
37.5°	207.4	207.4	207.4	206.8
40°	198.1	198.4	197.9	198.2
42.5°	188.7	188.9	188.9	188.2
45°	179.4	179.2	178.8	179.6
47.5°	169.7	169.7	169.5	169.9
50°	159.0	159.4	158.9	158.7
52.5°	148.2	148.4	148.2	148.6
55°	137.2	137.2	137.4	137.8
57.5°	125.8	127.1	126.2	126.9
60°	114.6	114.8	115.0	114.6
62.5°	104.0	103.8	104.0	104.5
65°	92.4	92.8	92.6	92.2
67.5°	81.0	80.6	81.2	80.6
70°	68.9	69.6	69.1	69.8
72.5°	57.9	57.7	58.1	57.1
75°	46.3	46.3	46.5	46.3
77.5°	35.5	35.1	34.9	34.3
80°	24.5	24.5	23.7	24.3
82.5°	14.9	15.1	15.3	14.2
85°	7.1	7.1	6.9	6.7
87.5°	1.5	1.5	1.7	1.9
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P243174
 CATALOG NUMBER: S122DRP-H290D940-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	16.51	18.03	16.88	18.35	18.66	19.35	20.87	19.71	21.18	21.50
	3H	17.86	19.23	18.24	19.56	19.92	20.37	21.73	20.74	22.06	22.42
	4H	18.35	19.63	18.75	19.98	20.36	20.69	21.97	21.09	22.32	22.70
	6H	18.70	19.88	19.11	20.25	20.64	20.89	22.07	21.30	22.44	22.83
	8H	18.80	19.93	19.23	20.32	20.72	20.93	22.06	21.36	22.45	22.85
	12H	18.87	19.95	19.30	20.33	20.76	20.95	22.03	21.38	22.41	22.84
4H	2H	17.39	18.67	17.79	19.02	19.40	19.59	20.87	19.99	21.22	21.60
	3H	18.89	19.95	19.30	20.35	20.75	20.96	22.02	21.37	22.42	22.82
	4H	19.46	20.41	19.89	20.83	21.27	21.47	22.43	21.90	22.85	23.28
	6H	19.89	20.73	20.35	21.17	21.63	21.80	22.64	22.26	23.08	23.54
	8H	20.03	20.81	20.49	21.25	21.72	21.88	22.66	22.34	23.10	23.57
	12H	20.13	20.82	20.61	21.30	21.77	21.92	22.61	22.40	23.09	23.56
8H	4H	19.89	20.67	20.36	21.12	21.58	21.61	22.39	22.07	22.83	23.30
	6H	20.42	21.06	20.91	21.55	22.03	22.05	22.69	22.55	23.18	23.66
	8H	20.60	21.18	21.12	21.69	22.18	22.18	22.76	22.70	23.27	23.76
	12H	20.76	21.27	21.27	21.76	22.32	22.27	22.78	22.78	23.28	23.84
12H	4H	19.95	20.64	20.43	21.12	21.59	21.60	22.30	22.08	22.78	23.25
	6H	20.49	21.07	21.01	21.58	22.07	22.05	22.63	22.57	23.14	23.63
	8H	20.73	21.24	21.24	21.73	22.30	22.23	22.74	22.74	23.23	23.80