

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: P242314

Luminaire Tested: S122DRP-S290D940-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P242314
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-19)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S122DRP-S290D940-X4F0-XX-UDD-A-W
Description: DEFINE 2 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 4000K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

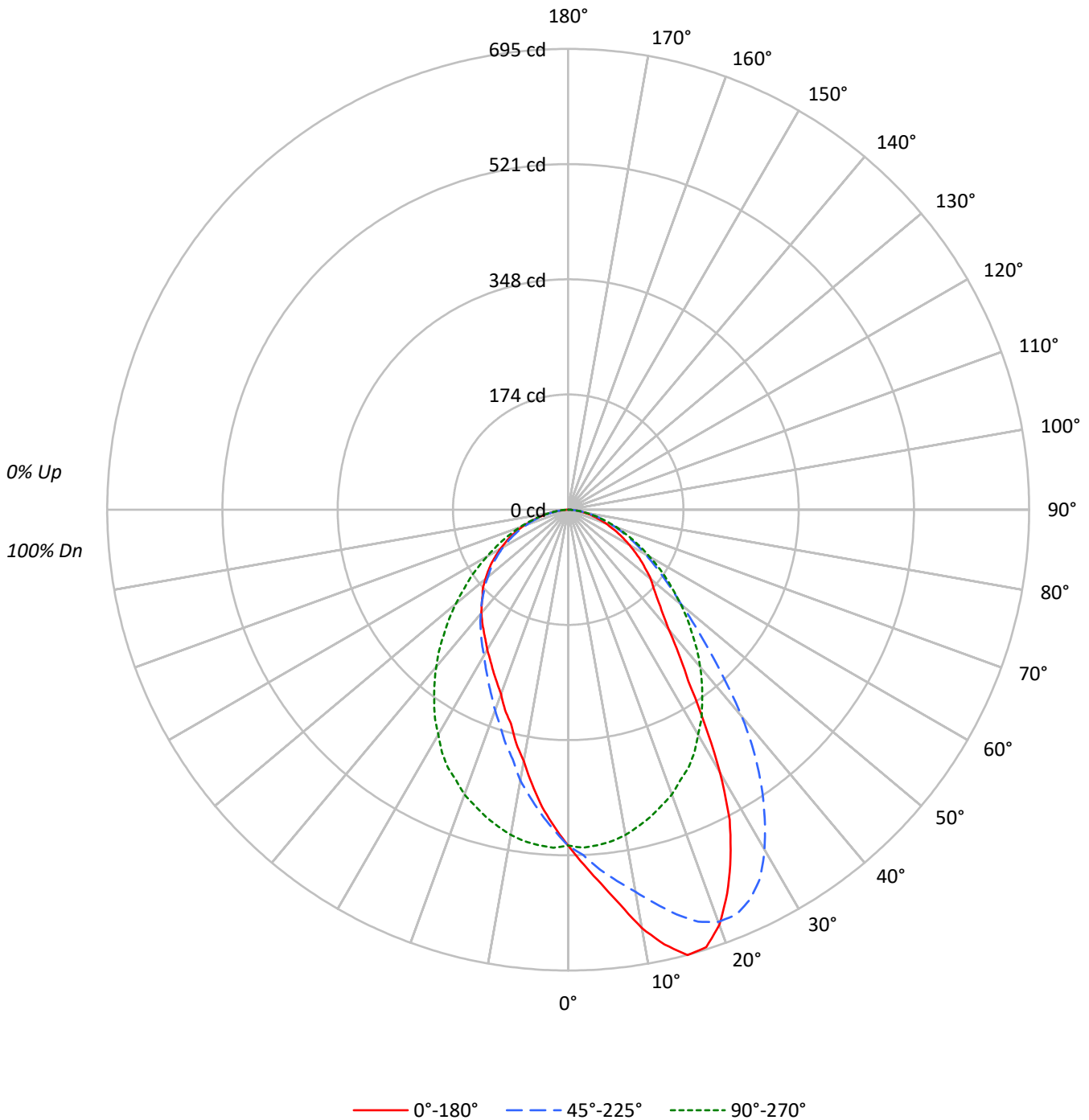
Lumens per Lamp: N/A
Luminaire Lumens: 1117.6 lumens
Efficiency: N/A
Efficacy: 96.3 lumens/watt
Spacing Criteria (0/90/45): 1.09 / 1.16 / 1.23
Luminous Opening: Rectangular (W 3.88' x L: 0.15' x H: 0')
CIE Type: Direct

Input Watts (W): 11.6
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

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Luminous Intensity Polar Plot





TEST NUMBER: P242314

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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	94	87	82	98	92	86	81	88	83	79	85	81	78	82	79	76					74				
3	93	83	76	70	90	82	75	69	79	73	68	76	71	67	74	69	66					64				
4	86	75	66	60	83	73	66	60	71	64	59	69	63	58	66	62	58					55				
5	79	67	59	53	77	66	58	52	64	57	52	62	56	51	60	55	51					49				
6	74	61	53	47	72	60	52	46	58	51	46	57	51	46	55	50	45					43				
7	69	56	48	42	67	55	47	42	54	46	41	52	46	41	51	45	41					39				
8	64	51	43	38	63	51	43	38	49	42	37	48	42	37	47	41	37					35				
9	60	47	39	34	59	47	39	34	46	39	34	45	38	34	44	38	34					32				
10	56	44	36	31	55	43	36	31	42	36	31	41	35	31	41	35	31					29				

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	9650	9650	9650	9650	9650
5°	10818	10413	9713	8822	8606
10°	12396	11319	9632	8025	7448
15°	13713	12459	9456	7192	6580
20°	13504	13411	9265	6527	5998
25°	12177	13634	9014	5994	5630
30°	10062	13023	8611	5580	5362
35°	7334	11815	8190	5325	5169
40°	5858	10132	7693	5102	5063
45°	5118	8103	7117	4878	4919
50°	4812	6611	6561	4691	4824
55°	4437	5748	5994	4520	4692
60°	4065	5116	5391	4316	4495
65°	3705	4624	4854	4052	4300
70°	3364	4132	4327	3742	4010
75°	2981	3650	3739	3356	3555
80°	2567	3093	3093	2753	2863
85°	2295	2513	2295	1923	1705

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 65°
 Vertical Angle: 45°
 Luminance: 12413 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	48.3	4.3
10°-20°	140.4	12.6
20°-30°	203.8	18.2
30°-40°	214.9	19.2
40°-50°	190.1	17.0
50°-60°	151.8	13.6
60°-70°	103.1	9.2
70°-80°	52.8	4.7
80°-90°	12.5	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°	392.5	35.1
0°-40°	607.4	54.3
0°-60°	949.3	84.9
0°-90°	1117.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1117.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	507	507	507	507	507	
5°	566	545	508	461	450	56
15°	695	632	480	365	334	193
25°	579	649	429	285	268	263
35°	315	508	352	229	222	204
45°	190	301	264	181	183	149
55°	134	173	180	136	141	120
65°	82	103	108	90	95	82
75°	40	50	51	46	48	43
85°	10	12	10	9	8	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°	506.6	506.6	506.6	506.6	506.6	506.6	506.6	506.6	506.6	506.6	506.6
2.5°	535.8	536.0	536.4	533.3	532.9	532.9	530.1	527.8	525.1	521.4	521.8
5°	565.8	567.9	568.7	566.4	562.9	562.5	559.2	553.7	548.6	544.6	541.6
7.5°	600.4	601.2	599.7	596.9	594.6	590.1	584.7	579.4	571.6	564.6	559.5
10°	640.9	642.1	638.8	634.3	630.6	625.2	616.2	607.1	596.0	585.2	576.7
12.5°	671.7	675.0	670.5	670.9	663.9	655.9	644.8	641.3	624.6	608.6	599.3
15°	695.4	695.2	695.6	691.9	687.3	686.1	674.8	662.5	640.5	631.8	616.6
17.5°	691.9	694.7	696.2	695.1	694.3	692.5	687.7	678.5	666.4	651.6	633.5
20°	666.2	670.1	670.7	675.2	677.7	681.0	682.4	680.3	673.4	661.6	646.4
22.5°	626.5	626.9	629.1	636.6	642.9	652.4	657.5	667.0	665.5	661.2	649.1
25°	579.4	577.5	584.3	587.8	600.4	613.7	623.2	633.7	643.1	648.7	645.0
27.5°	527.2	523.1	533.5	542.6	551.6	564.4	578.8	596.0	609.0	626.7	631.0
30°	457.5	459.3	469.0	478.9	494.5	514.8	531.5	550.8	571.6	592.1	606.3
32.5°	382.4	390.4	395.6	412.2	425.4	448.6	475.1	500.4	527.6	551.6	575.5
35°	315.4	323.2	331.8	342.9	362.1	384.5	408.5	441.0	476.4	508.1	534.2
37.5°	273.0	271.6	276.9	285.0	301.6	320.9	349.3	382.4	424.8	460.1	495.1
40°	235.6	234.8	238.3	245.7	257.6	270.8	295.0	323.2	361.9	407.5	451.3
42.5°	209.9	210.7	212.2	216.9	224.1	234.4	251.0	273.9	308.6	350.8	398.7
45°	190.0	191.4	193.5	196.1	200.7	209.7	219.8	236.9	265.0	300.8	347.1
47.5°	174.4	174.8	177.2	179.5	182.2	187.7	196.6	207.5	229.0	259.5	301.0
50°	162.4	161.0	162.6	164.3	167.2	170.7	176.2	186.3	199.6	223.1	256.4
52.5°	147.6	148.0	149.3	149.7	152.2	155.8	160.6	166.9	178.5	195.7	221.6
55°	133.6	134.5	135.3	136.5	138.8	141.3	145.2	149.9	159.3	173.1	193.3
57.5°	120.3	120.7	121.3	123.8	125.2	127.5	131.4	135.7	141.9	152.6	168.6
60°	106.7	106.7	108.2	109.2	111.2	113.5	116.4	120.5	126.0	134.3	146.6
62.5°	94.2	94.0	94.4	96.2	97.5	99.7	102.6	105.9	111.0	118.2	127.7
65°	82.2	81.8	82.9	83.3	84.9	87.0	89.4	93.1	97.2	102.6	111.6
67.5°	70.1	70.7	71.5	72.2	73.0	75.5	77.1	79.8	83.3	88.0	94.2
70°	60.4	60.4	60.4	60.9	62.1	63.3	64.8	67.0	70.3	74.2	79.6
72.5°	49.5	50.2	51.0	50.4	52.0	52.6	54.5	55.5	58.6	60.7	65.4
75°	40.5	40.5	40.5	41.5	42.1	42.6	43.8	45.0	46.5	49.6	52.2
77.5°	31.9	31.7	31.9	32.1	32.9	33.7	34.1	35.0	36.6	38.2	40.5
80°	23.4	23.8	23.9	24.3	24.3	24.7	24.9	26.3	27.3	28.2	29.6
82.5°	16.7	16.7	16.7	16.7	16.9	17.1	17.7	17.9	18.1	18.9	19.9
85°	10.5	10.3	10.3	10.7	10.5	10.5	10.9	11.3	11.3	11.5	12.1
87.5°	5.1	5.1	5.3	5.1	5.1	5.3	5.3	5.1	5.3	5.5	5.6
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°	506.6	506.6	506.6	506.6	506.6	506.6	506.6	506.6	506.6	506.6	506.6
2.5°	523.1	521.6	520.6	517.1	514.0	510.9	509.9	510.3	506.0	501.9	500.2
5°	540.1	536.2	532.5	527.2	521.0	514.2	510.7	508.0	501.1	493.7	489.5
7.5°	555.5	550.4	543.8	534.4	525.9	515.7	509.5	504.3	494.7	484.8	478.7
10°	569.3	561.7	552.5	540.5	529.4	516.3	507.2	498.0	486.3	473.9	466.1
12.5°	581.2	570.3	561.3	544.9	531.3	514.2	502.9	489.1	476.6	461.2	453.6
15°	601.4	582.5	565.4	547.9	531.7	508.9	496.9	479.5	463.4	445.1	436.3
17.5°	616.4	596.0	569.5	548.3	530.3	506.0	488.7	468.0	449.7	429.5	417.8
20°	628.9	604.5	575.5	549.0	526.4	497.6	478.4	457.1	434.7	411.2	398.3
22.5°	636.3	610.4	581.7	546.1	518.7	490.8	465.3	441.6	418.8	392.9	379.3
25°	636.6	613.3	582.9	544.8	512.4	480.7	451.5	428.9	401.5	377.7	358.0
27.5°	630.2	611.7	582.3	542.0	505.2	468.8	437.1	412.4	383.4	357.7	338.0
30°	616.0	606.3	577.8	537.4	496.3	456.4	420.5	391.5	362.7	336.6	316.4
32.5°	594.0	593.8	569.7	530.7	486.7	440.6	403.2	373.8	341.1	315.6	296.5
35°	563.8	573.2	557.4	520.2	474.3	425.8	385.7	352.2	319.1	294.6	276.5
37.5°	525.5	547.1	540.9	506.2	458.3	410.0	366.4	331.4	299.6	274.3	256.6
40°	485.6	515.2	519.4	489.7	441.2	391.1	344.2	309.4	278.6	256.0	238.1
42.5°	442.7	478.6	492.2	469.8	422.5	371.3	324.4	288.0	257.6	235.8	220.4
45°	393.9	439.6	460.8	447.2	401.3	349.1	300.8	264.2	236.6	215.9	203.6
47.5°	349.7	399.3	426.4	420.0	378.5	326.7	279.0	243.4	215.9	199.2	187.7
50°	302.2	353.6	388.0	389.6	353.6	302.4	254.5	221.4	196.6	181.3	172.3
52.5°	260.9	309.4	347.7	357.7	325.7	277.0	232.5	199.6	178.5	164.7	156.9
55°	226.0	267.5	309.2	324.4	298.1	251.3	209.5	180.5	160.0	150.3	143.3
57.5°	192.9	229.3	268.9	284.8	268.1	227.0	186.5	161.0	143.7	134.9	129.5
60°	167.8	195.1	229.3	249.4	235.4	199.8	165.5	141.5	127.9	120.3	115.3
62.5°	144.5	167.8	195.5	213.4	207.3	174.3	144.5	124.0	112.7	105.7	102.4
65°	123.0	142.1	164.5	181.5	176.4	150.9	125.8	107.7	98.3	92.7	89.8
67.5°	104.7	119.3	135.3	150.9	146.6	127.7	106.5	91.9	84.7	79.6	77.9
70°	87.6	98.1	111.9	123.8	120.5	105.7	89.8	77.7	71.6	67.6	65.8
72.5°	71.3	79.4	89.2	98.3	96.4	84.7	72.0	63.7	59.4	55.7	54.3
75°	56.3	62.9	69.3	75.7	75.2	65.6	57.8	50.8	47.1	44.2	43.6
77.5°	44.0	48.1	52.8	56.9	55.9	49.6	43.2	38.9	36.0	34.1	33.9
80°	31.7	33.9	37.0	39.7	38.4	36.0	31.2	28.2	26.3	24.3	23.6
82.5°	20.8	23.0	24.5	25.7	24.7	22.6	20.1	18.3	17.3	16.2	16.0
85°	12.1	13.2	14.0	14.4	14.0	12.7	11.3	10.5	9.5	9.0	8.8
87.5°	5.8	5.8	5.8	6.2	5.6	5.6	4.9	4.3	4.1	3.9	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°	506.6	506.6	506.6	506.6	506.6	506.6	506.6	506.6	506.6	506.6	506.6
2.5°	498.2	497.1	493.0	490.8	487.3	484.0	481.9	482.8	483.6	483.2	482.6
5°	485.6	481.9	476.2	471.4	467.8	461.4	458.7	457.3	456.2	454.8	453.4
7.5°	471.5	466.3	458.3	452.1	445.8	437.7	433.6	431.2	428.7	425.8	423.1
10°	456.4	448.2	439.6	429.9	422.1	414.9	408.5	404.2	400.3	396.6	393.9
12.5°	440.4	430.7	419.6	405.4	396.6	385.5	385.9	377.5	370.9	368.9	365.6
15°	423.3	410.0	396.6	380.8	374.0	364.7	358.8	353.0	347.7	344.0	343.0
17.5°	404.6	386.9	373.8	362.1	351.0	341.5	336.4	331.8	327.3	321.8	321.6
20°	382.6	367.8	353.2	343.2	331.8	322.0	315.4	310.7	307.0	304.1	301.6
22.5°	361.7	345.2	332.1	321.0	309.8	302.4	297.5	293.0	290.1	286.8	284.4
25°	339.2	326.5	311.9	299.6	290.3	285.2	280.9	277.0	275.1	273.0	270.2
27.5°	319.9	305.9	291.5	281.9	273.3	268.9	265.6	262.6	260.9	259.5	257.8
30°	299.2	285.0	274.3	265.0	258.2	253.7	251.7	250.2	248.0	247.3	246.5
32.5°	279.4	266.9	258.2	250.4	244.0	241.4	239.7	238.3	236.7	236.0	234.2
35°	260.9	250.2	241.2	236.7	231.5	229.0	227.6	225.6	224.1	223.3	223.1
37.5°	243.2	233.4	227.4	221.4	218.8	217.5	215.5	214.2	213.6	213.4	213.2
40°	226.0	218.4	213.2	208.5	207.5	205.2	203.6	202.5	202.5	202.7	202.5
42.5°	210.5	203.8	199.4	195.5	194.3	193.1	191.6	191.8	192.2	192.9	192.2
45°	194.7	189.8	186.5	184.6	182.4	181.1	180.9	181.5	181.6	181.8	182.4
47.5°	179.9	176.8	173.7	171.3	170.4	170.2	169.8	170.7	171.7	171.9	172.9
50°	167.0	163.3	160.8	159.5	158.7	158.3	158.7	159.8	160.6	161.6	162.2
52.5°	152.6	150.3	148.7	147.8	147.6	148.0	148.0	149.3	150.7	150.9	151.1
55°	139.6	137.6	137.3	135.5	136.3	136.1	137.1	137.8	139.0	140.2	140.4
57.5°	126.4	124.6	123.4	123.6	123.8	124.6	125.4	126.7	128.1	129.5	129.5
60°	113.1	112.3	111.8	111.8	112.1	113.3	114.3	115.6	116.4	117.2	117.8
62.5°	101.0	100.3	99.7	100.1	101.2	101.8	103.0	103.6	104.4	105.1	105.3
65°	88.2	87.8	88.4	88.8	89.0	89.9	91.3	91.9	92.7	93.1	94.4
67.5°	76.5	76.5	76.3	76.9	78.1	78.3	79.6	81.2	81.2	82.0	82.9
70°	64.6	65.0	65.4	65.8	66.8	67.2	68.1	68.7	69.5	70.1	70.7
72.5°	53.7	53.7	54.1	53.9	54.7	55.7	56.5	57.0	57.8	58.6	59.2
75°	43.0	43.0	43.4	43.6	44.6	45.6	45.4	45.8	46.5	47.3	47.7
77.5°	33.3	32.9	33.3	33.5	33.9	34.7	34.9	35.4	36.4	36.2	36.6
80°	23.9	23.4	23.9	24.1	24.1	25.1	25.1	25.5	26.1	25.5	26.1
82.5°	15.4	15.2	15.6	15.6	16.0	15.8	16.2	16.2	16.7	16.5	16.7
85°	8.6	8.4	8.6	8.4	8.6	8.8	8.8	8.6	8.6	9.0	8.4
87.5°	3.3	3.1	2.9	2.9	2.7	2.5	2.3	2.3	2.3	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: P242314

CATALOG NUMBER: S122DRP-S290D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	506.6	506.6	506.6	506.6
2.5°	480.7	480.3	480.3	478.6
5°	450.7	450.1	449.2	450.1
7.5°	422.3	419.8	419.4	417.4
10°	390.6	389.0	388.8	385.1
12.5°	366.4	362.1	363.1	361.3
15°	337.8	337.8	337.0	333.7
17.5°	317.3	317.2	315.4	316.6
20°	299.4	298.3	295.9	295.9
22.5°	282.5	282.7	280.2	281.1
25°	270.0	268.5	267.3	267.9
27.5°	257.2	256.6	256.4	254.7
30°	246.3	244.3	244.7	243.8
32.5°	233.8	233.4	232.9	232.1
35°	222.7	222.9	221.9	222.3
37.5°	212.8	213.6	213.0	213.0
40°	203.1	203.1	203.1	203.6
42.5°	193.7	193.3	192.9	192.7
45°	182.8	183.4	183.6	182.6
47.5°	173.3	173.5	173.3	174.4
50°	163.2	162.8	163.2	162.8
52.5°	152.4	152.6	152.2	152.2
55°	141.2	141.5	141.3	141.3
57.5°	129.7	129.9	130.2	129.3
60°	117.6	118.6	118.4	118.0
62.5°	106.5	106.7	106.7	106.7
65°	95.0	95.4	94.8	95.4
67.5°	82.5	82.7	83.1	83.3
70°	71.1	70.9	71.5	72.0
72.5°	59.0	59.6	59.2	59.6
75°	47.3	47.9	47.7	48.3
77.5°	36.2	36.4	36.4	36.6
80°	26.1	25.7	25.3	26.1
82.5°	16.2	16.5	16.2	16.0
85°	8.4	8.2	7.8	7.8
87.5°	1.9	1.8	1.8	1.6
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P242314
 CATALOG NUMBER: S122DRP-S290D940-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	16.17	17.69	16.54	18.00	18.32	19.43	20.94	19.79	21.26	21.57
	3H	17.58	18.94	17.96	19.27	19.63	20.44	21.80	20.81	22.12	22.49
	4H	18.08	19.36	18.48	19.71	20.09	20.75	22.03	21.15	22.38	22.76
	6H	18.44	19.62	18.85	19.98	20.37	20.95	22.13	21.36	22.49	22.89
	8H	18.55	19.67	18.97	20.06	20.46	20.99	22.12	21.42	22.51	22.91
	12H	18.62	19.69	19.05	20.08	20.51	21.01	22.09	21.44	22.47	22.90
4H	2H	17.03	18.31	17.43	18.66	19.04	19.64	20.91	20.04	21.26	21.64
	3H	18.59	19.65	19.00	20.05	20.45	20.98	22.04	21.39	22.44	22.84
	4H	19.18	20.13	19.61	20.55	20.99	21.48	22.44	21.92	22.85	23.29
	6H	19.62	20.45	20.08	20.90	21.36	21.82	22.65	22.27	23.09	23.55
	8H	19.76	20.54	20.23	20.98	21.45	21.89	22.67	22.36	23.11	23.58
	12H	19.87	20.56	20.35	21.04	21.51	21.93	22.63	22.42	23.10	23.57
8H	4H	19.61	20.39	20.07	20.83	21.30	21.61	22.39	22.07	22.83	23.30
	6H	20.14	20.78	20.64	21.27	21.75	22.05	22.69	22.55	23.18	23.66
	8H	20.34	20.91	20.85	21.42	21.91	22.18	22.76	22.70	23.27	23.75
	12H	20.49	21.00	21.00	21.49	22.06	22.27	22.78	22.78	23.27	23.84
12H	4H	19.67	20.36	20.15	20.84	21.31	21.61	22.30	22.09	22.78	23.25
	6H	20.22	20.79	20.73	21.30	21.79	22.05	22.62	22.56	23.13	23.62
	8H	20.46	20.97	20.97	21.46	22.03	22.23	22.73	22.74	23.23	23.79