

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: P242294

Luminaire Tested: S122DRP-S290D835-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P242294
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-S290D835-X4F0-XX-UDD-A-W
Description: DEFINE 2 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 3500K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

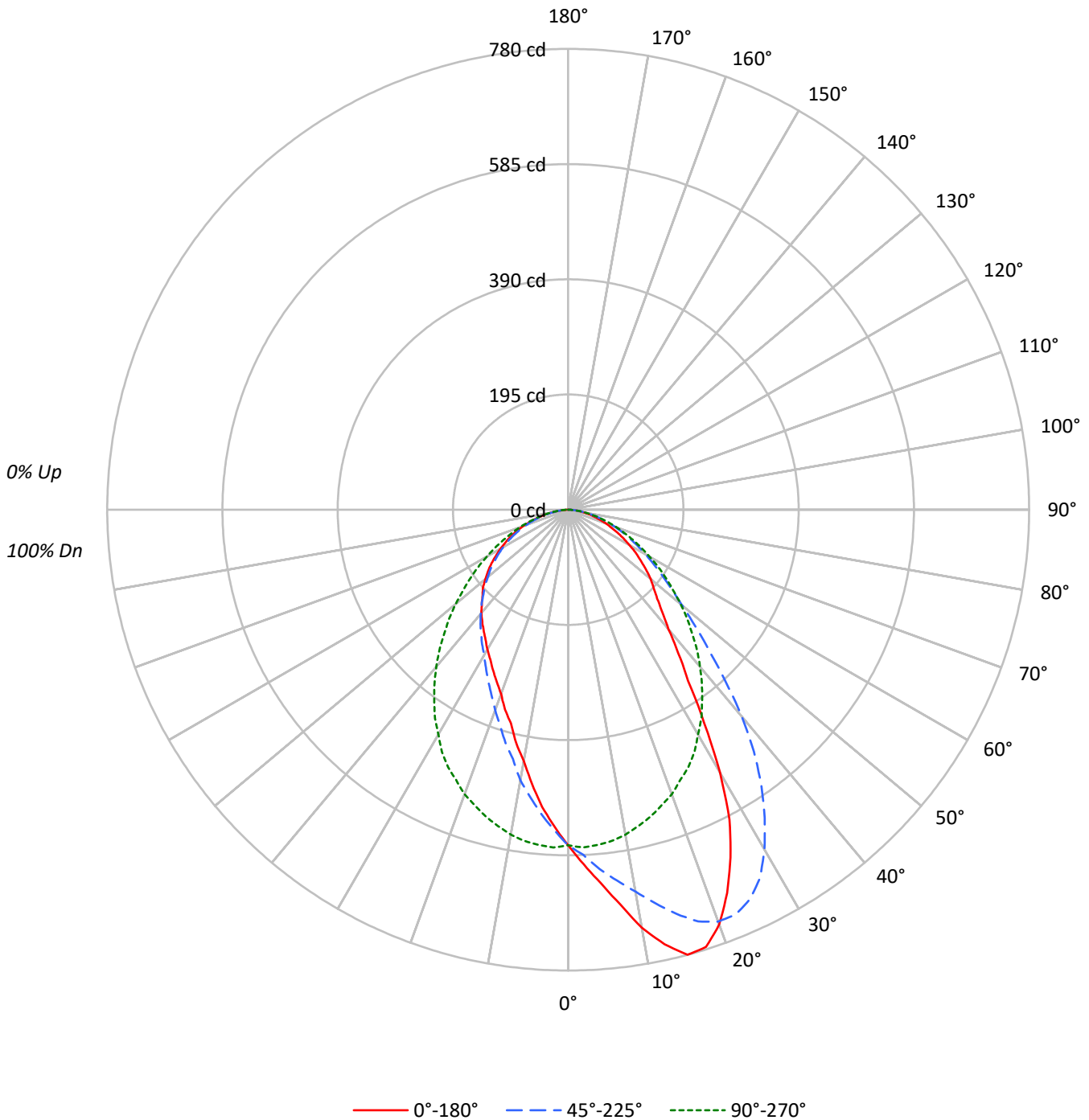
Lumens per Lamp: N/A
Luminaire Lumens: 1253.3 lumens
Efficiency: N/A
Efficacy: 108.0 lumens/watt
Spacing Criteria (0/90/45): 1.09 / 1.16 / 1.23
Luminous Opening: Rectangular (W 3.88' x L: 0.15' x H: 0')
CIE Type: Direct

Input Watts (W): 11.6
Input Voltage (V): 120
Input Current (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: P242294

CATALOG NUMBER: S122DRP-S290D835-X4F0-XX-UDD-A-W

Luminous Intensity Polar Plot





TEST NUMBER: P242294

CATALOG NUMBER: S122DRP-S290D835-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	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	94	87	82	98	92	86	81	88	83	79	85	81	78	82	79	76	74				74
3	93	83	76	70	90	82	75	69	79	73	68	76	71	67	74	69	66	64				64
4	86	75	66	60	83	73	66	60	71	64	59	69	63	58	66	62	58	55				55
5	79	67	59	53	77	66	58	52	64	57	52	62	56	51	60	55	51	49				49
6	74	61	53	47	72	60	52	46	58	51	46	57	51	46	55	50	45	43				43
7	69	56	48	42	67	55	47	42	54	46	41	52	46	41	51	45	41	39				39
8	64	51	43	38	63	51	43	38	49	42	37	48	42	37	47	41	37	35				35
9	60	47	39	34	59	47	39	34	46	39	34	45	38	34	44	38	34	32				32
10	56	44	36	31	55	43	36	31	42	36	31	41	35	31	41	35	31	29				29

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	10821	10821	10821	10821	10821
5°	12132	11677	10891	9895	9652
10°	13903	12694	10802	9000	8354
15°	15379	13971	10605	8063	7379
20°	15144	15038	10393	7320	6728
25°	13657	15290	10109	6723	6313
30°	11285	14604	9658	6257	6013
35°	8225	13252	9185	5971	5797
40°	6569	11363	8626	5721	5679
45°	5740	9086	7982	5471	5517
50°	5396	7414	7355	5260	5408
55°	4975	6446	6721	5068	5264
60°	4556	5741	6046	4842	5040
65°	4151	5188	5440	4548	4823
70°	3770	4634	4851	4194	4500
75°	3341	4099	4195	3761	3981
80°	2874	3477	3477	3093	3214
85°	2579	2819	2579	2142	1901

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 65°
 Vertical Angle: 45°
 Luminance: 13921 cd/sqm



TEST NUMBER: P242294

CATALOG NUMBER: S122DRP-S290D835-X4F0-XX-UDD-A-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	54.1	4.3
10°-20°	157.5	12.6
20°-30°	228.6	18.2
30°-40°	241.0	19.2
40°-50°	213.2	17.0
50°-60°	170.2	13.6
60°-70°	115.6	9.2
70°-80°	59.2	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°	440.2	35.1
0°-40°	681.1	54.3
0°-60°	1064.5	84.9
0°-90°	1253.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1253.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	568	568	568	568	568	
5°	634	611	570	518	505	63
15°	780	708	538	409	374	216
25°	650	728	481	320	300	295
35°	354	570	395	257	249	229
45°	213	337	296	203	205	167
55°	150	194	202	153	158	134
65°	92	115	121	101	107	91
75°	45	56	57	51	54	48
85°	12	13	12	10	9	13
90°	0	0	0	0	0	



TEST NUMBER: P242294

CATALOG NUMBER: S122DRP-S290D835-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	568.1	568.1	568.1	568.1	568.1	568.1	568.1	568.1	568.1	568.1	568.1
2.5°	600.9	601.1	601.5	598.0	597.6	597.6	594.5	591.9	588.9	584.7	585.1
5°	634.5	636.9	637.8	635.1	631.2	630.8	627.1	620.9	615.3	610.7	607.4
7.5°	673.3	674.2	672.5	669.4	666.8	661.8	655.7	649.8	641.0	633.2	627.5
10°	718.8	720.1	716.4	711.3	707.2	701.1	691.0	680.8	668.3	656.3	646.7
12.5°	753.3	757.0	752.0	752.4	744.5	735.6	723.1	719.2	700.4	682.5	672.0
15°	779.9	779.7	780.1	776.0	770.7	769.4	756.8	743.0	718.3	708.5	691.5
17.5°	776.0	779.0	780.8	779.5	778.6	776.6	771.2	760.9	747.4	730.8	710.5
20°	747.1	751.5	752.2	757.2	760.0	763.7	765.3	762.9	755.2	741.9	724.9
22.5°	702.6	703.0	705.4	714.0	720.9	731.6	737.3	748.0	746.3	741.5	727.9
25°	649.8	647.6	655.2	659.2	673.3	688.2	698.9	710.7	721.2	727.5	723.3
27.5°	591.3	586.7	598.2	608.5	618.5	633.0	649.1	668.3	683.0	702.8	707.6
30°	513.1	515.1	526.0	537.1	554.6	577.3	596.1	617.7	641.0	664.0	679.9
32.5°	428.8	437.8	443.7	462.2	477.1	503.0	532.7	561.1	591.7	618.5	645.4
35°	353.7	362.4	372.0	384.5	406.1	431.2	458.1	494.5	534.3	569.9	599.1
37.5°	306.1	304.6	310.5	319.6	338.2	359.8	391.7	428.8	476.4	515.9	555.2
40°	264.2	263.3	267.2	275.5	288.9	303.7	330.8	362.4	405.9	457.0	506.1
42.5°	235.4	236.2	238.0	243.2	251.3	262.9	281.4	307.2	346.1	393.4	447.2
45°	213.1	214.6	217.0	219.9	225.1	235.1	246.5	265.7	297.2	337.3	389.3
47.5°	195.6	196.1	198.7	201.3	204.4	210.5	220.5	232.7	256.8	291.0	337.5
50°	182.1	180.6	182.3	184.3	187.6	191.5	197.6	208.9	223.8	250.2	287.5
52.5°	165.5	165.9	167.5	167.9	170.7	174.7	180.1	187.1	200.2	219.4	248.5
55°	149.8	150.9	151.7	153.1	155.7	158.5	162.9	168.1	178.6	194.1	216.8
57.5°	134.9	135.4	136.0	138.9	140.4	143.0	147.4	152.2	159.2	171.2	189.1
60°	119.6	119.6	121.4	122.5	124.7	127.3	130.6	135.2	141.3	150.7	164.4
62.5°	105.7	105.5	105.9	107.9	109.4	111.8	115.1	118.8	124.5	132.5	143.2
65°	92.1	91.7	93.0	93.4	95.2	97.6	100.2	104.4	108.9	115.1	125.1
67.5°	78.6	79.3	80.1	81.0	81.9	84.7	86.5	89.5	93.4	98.7	105.7
70°	67.7	67.7	67.7	68.3	69.6	71.0	72.7	75.1	78.8	83.2	89.3
72.5°	55.5	56.3	57.2	56.5	58.3	59.0	61.1	62.2	65.7	68.1	73.4
75°	45.4	45.4	45.4	46.5	47.2	47.8	49.1	50.4	52.2	55.7	58.5
77.5°	35.8	35.6	35.8	36.0	36.9	37.8	38.2	39.3	41.0	42.8	45.4
80°	26.2	26.6	26.9	27.3	27.3	27.7	27.9	29.5	30.6	31.7	33.2
82.5°	18.8	18.8	18.8	18.8	19.0	19.2	19.9	20.1	20.3	21.2	22.3
85°	11.8	11.6	11.6	12.0	11.8	11.8	12.2	12.7	12.7	12.9	13.5
87.5°	5.7	5.7	5.9	5.7	5.7	5.9	5.9	5.7	5.9	6.1	6.3
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: P242294

CATALOG NUMBER: S122DRP-S290D835-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	568.1	568.1	568.1	568.1	568.1	568.1	568.1	568.1	568.1	568.1	568.1
2.5°	586.7	584.9	583.8	579.9	576.4	572.9	571.8	572.3	567.5	562.9	560.9
5°	605.7	601.3	597.1	591.3	584.3	576.6	572.7	569.6	562.0	553.7	548.9
7.5°	622.9	617.2	609.8	599.3	589.7	578.4	571.4	565.5	554.8	543.7	536.9
10°	638.4	629.9	619.6	606.1	593.7	579.0	568.8	558.5	545.4	531.4	522.7
12.5°	651.7	639.5	629.5	611.1	595.8	576.6	564.0	548.5	534.5	517.2	508.7
15°	674.4	653.3	634.0	614.4	596.3	570.7	557.2	537.8	519.6	499.1	489.3
17.5°	691.3	668.3	638.6	614.8	594.7	567.5	548.0	524.9	504.4	481.6	468.5
20°	705.2	677.9	645.4	615.7	590.4	558.1	536.5	512.7	487.5	461.1	446.7
22.5°	713.5	684.5	652.4	612.4	581.6	550.4	521.8	495.2	469.6	440.6	425.3
25°	714.0	687.8	653.7	610.9	574.7	539.1	506.3	481.0	450.2	423.6	401.5
27.5°	706.8	686.0	653.0	607.8	566.6	525.8	490.2	462.4	429.9	401.1	379.0
30°	690.8	679.9	648.0	602.6	556.5	511.8	471.6	439.1	406.8	377.5	354.8
32.5°	666.1	665.9	638.9	595.2	545.8	494.1	452.2	419.2	382.5	353.9	332.5
35°	632.3	642.8	625.1	583.4	531.9	477.5	432.5	395.0	357.9	330.3	310.0
37.5°	589.3	613.5	606.5	567.7	514.0	459.8	410.9	371.6	336.0	307.6	287.8
40°	544.5	577.7	582.5	549.1	494.7	438.6	386.0	346.9	312.4	287.1	267.0
42.5°	496.5	536.7	552.0	526.8	473.8	416.4	363.7	322.9	288.9	264.4	247.2
45°	441.7	493.0	516.8	501.5	450.0	391.5	337.3	296.3	265.3	242.1	228.4
47.5°	392.1	447.8	478.2	471.0	424.4	366.4	312.9	272.9	242.1	223.4	210.5
50°	338.9	396.5	435.1	436.9	396.5	339.1	285.4	248.2	220.5	203.3	193.2
52.5°	292.6	346.9	389.9	401.1	365.3	310.7	260.7	223.8	200.2	184.7	176.0
55°	253.5	300.0	346.7	363.7	334.3	281.9	234.9	202.4	179.5	168.6	160.7
57.5°	216.4	257.2	301.5	319.4	300.6	254.6	209.2	180.6	161.1	151.3	145.2
60°	188.2	218.8	257.2	279.7	264.0	224.0	185.6	158.7	143.4	134.9	129.3
62.5°	162.0	188.2	219.2	239.3	232.5	195.4	162.0	139.1	126.4	118.6	114.8
65°	138.0	159.4	184.5	203.5	197.8	169.2	141.0	120.7	110.3	103.9	100.7
67.5°	117.5	133.8	151.7	169.2	164.4	143.2	119.4	103.1	95.0	89.3	87.3
70°	98.3	110.0	125.5	138.9	135.2	118.6	100.7	87.1	80.3	75.8	73.8
72.5°	79.9	89.1	100.0	110.3	108.1	95.0	80.8	71.4	66.6	62.4	60.9
75°	63.1	70.5	77.7	84.9	84.3	73.6	64.8	57.0	52.8	49.6	48.9
77.5°	49.3	53.9	59.2	63.8	62.7	55.7	48.5	43.7	40.4	38.2	38.0
80°	35.6	38.0	41.5	44.5	43.0	40.4	34.9	31.7	29.5	27.3	26.4
82.5°	23.4	25.8	27.5	28.8	27.7	25.3	22.5	20.5	19.4	18.1	17.9
85°	13.5	14.8	15.7	16.2	15.7	14.2	12.7	11.8	10.7	10.0	9.8
87.5°	6.6	6.6	6.6	7.0	6.3	6.3	5.5	4.8	4.6	4.4	3.9
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: P242294

CATALOG NUMBER: S122DRP-S290D835-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	568.1	568.1	568.1	568.1	568.1	568.1	568.1	568.1	568.1	568.1	568.1
2.5°	558.7	557.4	552.8	550.4	546.5	542.8	540.4	541.5	542.3	541.9	541.3
5°	544.5	540.4	534.1	528.6	524.7	517.5	514.4	512.9	511.6	510.0	508.5
7.5°	528.8	522.9	514.0	507.0	500.0	490.8	486.2	483.6	480.8	477.5	474.4
10°	511.8	502.6	493.0	482.1	473.4	465.3	458.1	453.3	448.9	444.8	441.7
12.5°	493.9	483.0	470.5	454.6	444.8	432.3	432.7	423.4	415.9	413.7	410.0
15°	474.7	459.8	444.8	427.1	419.4	408.9	402.4	395.8	389.9	385.8	384.7
17.5°	453.7	433.8	419.2	406.1	393.7	383.0	377.3	372.0	367.0	360.9	360.7
20°	429.0	412.4	396.1	384.9	372.0	361.1	353.7	348.5	344.3	341.0	338.2
22.5°	405.7	387.1	372.5	360.0	347.4	339.1	333.6	328.6	325.3	321.6	319.0
25°	380.3	366.1	349.8	336.0	325.5	319.9	315.1	310.7	308.5	306.1	303.1
27.5°	358.7	343.0	326.8	316.2	306.5	301.5	297.8	294.5	292.6	291.0	289.1
30°	335.6	319.6	307.6	297.2	289.5	284.5	282.3	280.6	278.2	277.3	276.4
32.5°	313.3	299.3	289.5	280.8	273.6	270.7	268.8	267.2	265.5	264.6	262.7
35°	292.6	280.6	270.5	265.5	259.6	256.8	255.2	253.1	251.3	250.4	250.2
37.5°	272.7	261.8	255.0	248.2	245.4	243.9	241.7	240.2	239.5	239.3	239.1
40°	253.5	245.0	239.1	233.8	232.7	230.1	228.4	227.1	227.1	227.3	227.1
42.5°	236.0	228.6	223.6	219.2	217.9	216.6	214.8	215.1	215.5	216.4	215.5
45°	218.3	212.9	209.2	207.0	204.6	203.1	202.8	203.5	203.7	203.9	204.6
47.5°	201.7	198.2	194.8	192.1	191.0	190.8	190.4	191.5	192.6	192.8	193.9
50°	187.3	183.2	180.3	178.8	177.9	177.5	177.9	179.3	180.1	181.2	181.9
52.5°	171.2	168.6	166.8	165.7	165.5	165.9	165.9	167.5	169.0	169.2	169.4
55°	156.5	154.4	153.9	152.0	152.8	152.6	153.7	154.6	155.9	157.2	157.4
57.5°	141.7	139.7	138.4	138.6	138.9	139.7	140.6	142.1	143.7	145.2	145.2
60°	126.9	126.0	125.3	125.3	125.8	127.1	128.2	129.7	130.6	131.4	132.1
62.5°	113.3	112.4	111.8	112.2	113.5	114.2	115.5	116.2	117.0	117.9	118.1
65°	98.9	98.5	99.1	99.6	99.8	100.9	102.4	103.1	103.9	104.4	105.9
67.5°	85.8	85.8	85.6	86.2	87.6	87.8	89.3	91.0	91.0	91.9	93.0
70°	72.5	72.9	73.4	73.8	74.9	75.3	76.4	77.1	77.9	78.6	79.3
72.5°	60.3	60.3	60.7	60.5	61.4	62.4	63.3	64.0	64.8	65.7	66.4
75°	48.3	48.3	48.7	48.9	50.0	51.1	50.9	51.3	52.2	53.1	53.5
77.5°	37.3	36.9	37.3	37.6	38.0	38.9	39.1	39.7	40.8	40.6	41.0
80°	26.9	26.2	26.9	27.1	27.1	28.2	28.2	28.6	29.3	28.6	29.3
82.5°	17.2	17.0	17.5	17.5	17.9	17.7	18.1	18.1	18.8	18.6	18.8
85°	9.6	9.4	9.6	9.4	9.6	9.8	9.8	9.6	9.6	10.0	9.4
87.5°	3.7	3.5	3.3	3.3	3.1	2.8	2.6	2.6	2.6	2.2	2.2
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: P242294

CATALOG NUMBER: S122DRP-S290D835-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	568.1	568.1	568.1	568.1
2.5°	539.1	538.6	538.6	536.7
5°	505.4	504.8	503.7	504.8
7.5°	473.6	470.7	470.3	468.1
10°	438.0	436.2	436.0	431.9
12.5°	410.9	406.1	407.2	405.2
15°	378.8	378.8	377.9	374.2
17.5°	355.9	355.7	353.7	355.0
20°	335.8	334.5	331.9	331.9
22.5°	316.8	317.0	314.2	315.3
25°	302.8	301.1	299.8	300.4
27.5°	288.4	287.8	287.5	285.6
30°	276.2	274.0	274.4	273.4
32.5°	262.2	261.8	261.1	260.3
35°	249.8	250.0	248.9	249.3
37.5°	238.6	239.5	238.9	238.9
40°	227.7	227.7	227.7	228.4
42.5°	217.2	216.8	216.4	216.2
45°	205.0	205.7	205.9	204.8
47.5°	194.3	194.5	194.3	195.6
50°	183.0	182.5	183.0	182.5
52.5°	171.0	171.2	170.7	170.7
55°	158.3	158.7	158.5	158.5
57.5°	145.4	145.6	146.1	145.0
60°	131.9	133.0	132.7	132.3
62.5°	119.4	119.6	119.6	119.6
65°	106.5	107.0	106.3	107.0
67.5°	92.6	92.8	93.2	93.4
70°	79.7	79.5	80.1	80.8
72.5°	66.2	66.8	66.4	66.8
75°	53.1	53.7	53.5	54.1
77.5°	40.6	40.8	40.8	41.0
80°	29.3	28.8	28.4	29.3
82.5°	18.1	18.6	18.1	17.9
85°	9.4	9.2	8.7	8.7
87.5°	2.2	2.0	2.0	1.7
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P242294
 CATALOG NUMBER: S122DRP-S290D835-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	16.57	18.09	16.94	18.40	18.72	19.82	21.34	20.19	21.65	21.97
	3H	17.98	19.34	18.35	19.67	20.03	20.83	22.19	21.21	22.52	22.88
	4H	18.48	19.76	18.88	20.11	20.48	21.15	22.43	21.55	22.78	23.16
	6H	18.84	20.01	19.25	20.38	20.77	21.35	22.53	21.76	22.89	23.28
	8H	18.95	20.07	19.37	20.46	20.86	21.39	22.51	21.82	22.90	23.30
	12H	19.02	20.09	19.45	20.48	20.91	21.41	22.48	21.84	22.87	23.29
4H	2H	17.43	18.71	17.83	19.06	19.43	20.03	21.31	20.43	21.66	22.04
	3H	18.98	20.04	19.40	20.44	20.85	21.37	22.43	21.79	22.83	23.24
	4H	19.58	20.53	20.01	20.95	21.38	21.88	22.84	22.31	23.25	23.69
	6H	20.02	20.85	20.48	21.29	21.75	22.22	23.04	22.67	23.49	23.95
	8H	20.16	20.94	20.63	21.38	21.85	22.29	23.07	22.75	23.51	23.98
	12H	20.27	20.96	20.75	21.44	21.91	22.33	23.02	22.81	23.50	23.97
8H	4H	20.01	20.78	20.47	21.23	21.70	22.01	22.78	22.47	23.23	23.69
	6H	20.54	21.18	21.04	21.67	22.15	22.45	23.09	22.94	23.58	24.06
	8H	20.73	21.31	21.25	21.82	22.31	22.58	23.15	23.09	23.66	24.15
	12H	20.89	21.40	21.40	21.89	22.46	22.67	23.18	23.18	23.67	24.23
12H	4H	20.06	20.76	20.55	21.24	21.71	22.00	22.70	22.49	23.17	23.64
	6H	20.62	21.19	21.13	21.70	22.19	22.45	23.02	22.96	23.53	24.02
	8H	20.86	21.37	21.37	21.86	22.43	22.63	23.13	23.14	23.62	24.19