

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: P243337

Luminaire Tested: S123DRP-H560D930-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P243337
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-59)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S123DRP-H560D930-X4F0-XX-UDD-A-W
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3000K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

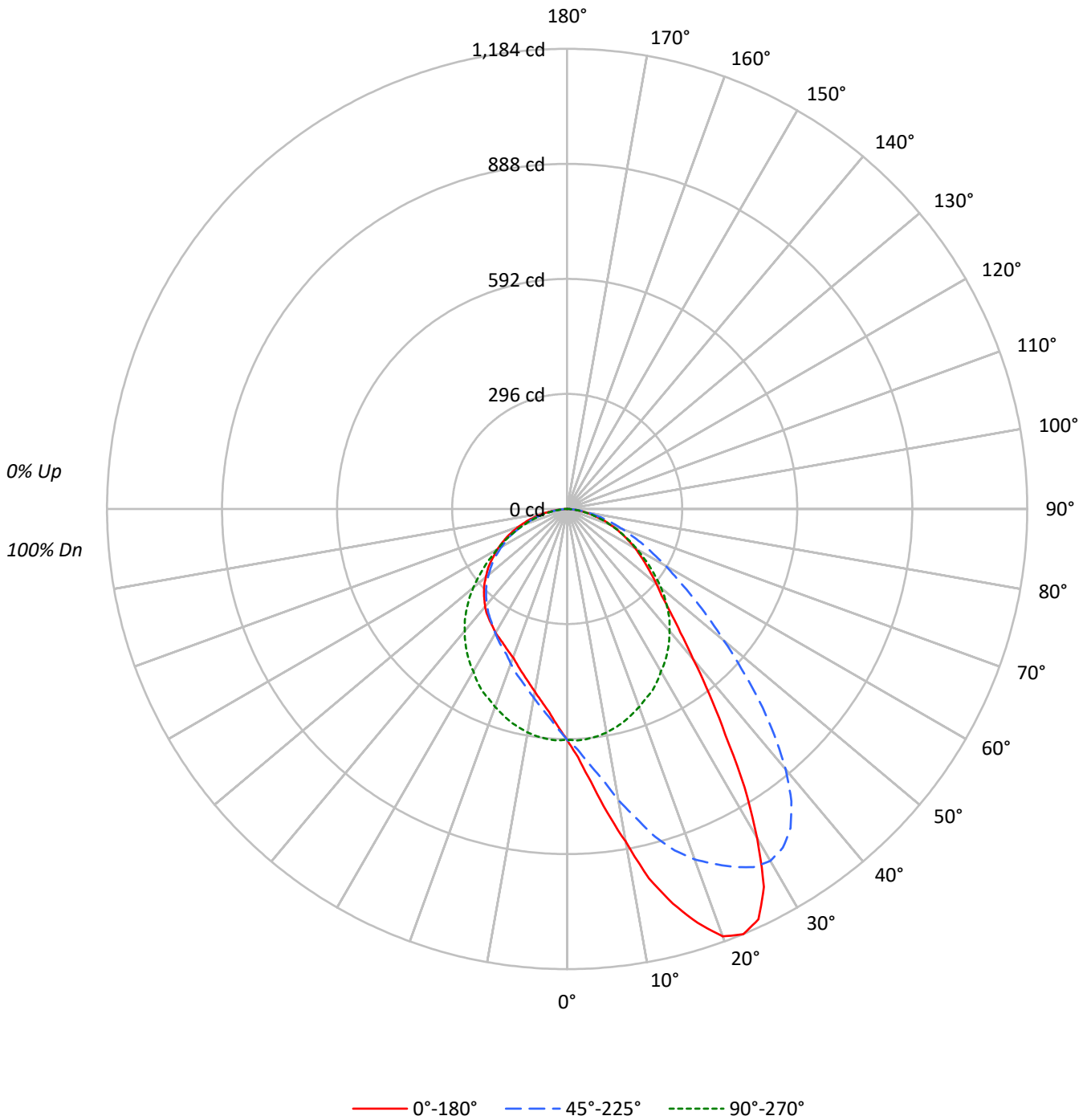
Lumens per Lamp: N/A
Luminaire Lumens: 1788.7 lumens
Efficiency: N/A
Efficacy: 104.0 lumens/watt
Spacing Criteria (0/90/45): 1.39 / 1.21 / 1.5
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

Input Watts (W): 17.2
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	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	105	101	98	107	103	99	96	99	96	93	95	92	90	91	89	87	85					85			
2	100	92	86	81	98	91	85	80	87	82	78	84	80	76	81	77	74	72					72			
3	92	82	74	68	89	80	73	67	77	71	66	75	69	65	72	68	64	62					62			
4	84	73	64	58	82	72	64	58	69	62	57	67	61	56	65	60	55	53					53			
5	78	65	57	50	76	64	56	50	62	55	50	60	54	49	58	53	49	46					46			
6	72	59	50	44	70	58	50	44	56	49	44	55	48	43	53	47	43	41					41			
7	67	54	45	39	65	53	45	39	51	44	39	50	43	39	49	43	38	36					36			
8	62	49	41	35	61	48	41	35	47	40	35	46	39	35	45	39	34	33					33			
9	58	45	37	32	57	45	37	32	43	36	31	42	36	31	41	35	31	29					29			
10	55	42	34	29	53	41	34	29	40	33	29	39	33	28	38	33	28	27					27			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	7194	7194	7194	7194	7194
5°	8571	8015	7229	6538	6388
10°	10703	9362	7184	6070	5873
15°	13190	10954	7106	5726	5511
20°	15095	12378	6993	5465	5243
25°	15577	13596	6916	5273	5146
30°	13686	14636	6752	5169	5151
35°	10503	14827	6651	5104	5155
40°	7989	13837	6489	5087	5195
45°	6428	11999	6279	5059	5189
50°	5657	9926	5944	4971	5144
55°	5216	8305	5507	4892	5112
60°	4914	7088	5040	4730	5006
65°	4566	6158	4606	4543	4910
70°	4178	5366	4132	4178	4699
75°	3719	4580	3601	3742	4379
80°	3113	3776	2981	3204	3832
85°	2197	2795	2156	2420	2879

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 55°
 Vertical Angle: 45°
 Luminance: 13472 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	58.4	3.3
10°-20°	187.5	10.5
20°-30°	309.6	17.3
30°-40°	354.4	19.8
40°-50°	321.1	18.0
50°-60°	259.5	14.5
60°-70°	180.8	10.1
70°-80°	94.8	5.3
80°-90°	22.6	1.3
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°	555.5	31.1
0°-40°	909.9	50.9
0°-60°	1490.5	83.3
0°-90°	1788.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1788.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	594	594	594	594	594	
5°	704	659	594	537	525	73
15°	1051	873	566	456	439	299
25°	1165	1017	517	394	385	520
35°	710	1002	450	345	348	450
45°	375	700	366	295	303	296
55°	247	393	261	232	242	222
65°	159	215	161	158	171	158
75°	79	98	77	80	94	85
85°	16	20	16	17	21	20
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°	593.5	593.5	593.5	593.5	593.5	593.5	593.5	593.5	593.5	593.5	593.5
2.5°	639.2	640.5	638.3	639.7	636.4	634.5	631.6	630.2	623.7	619.1	617.4
5°	704.4	704.4	704.9	701.7	697.9	691.1	682.1	676.4	669.9	658.7	653.0
7.5°	786.5	782.4	779.7	773.7	768.5	757.4	747.6	735.9	720.7	702.2	692.4
10°	869.6	874.0	871.2	865.0	851.7	833.5	819.1	802.2	778.6	760.6	735.1
12.5°	973.4	967.7	963.4	953.9	939.2	919.9	897.6	872.6	842.2	812.5	784.0
15°	1051.1	1052.0	1051.7	1039.2	1024.8	998.7	978.0	936.5	897.9	872.9	825.6
17.5°	1116.9	1120.4	1116.4	1097.6	1084.8	1069.3	1043.0	996.8	961.7	921.2	869.1
20°	1170.2	1170.7	1164.2	1150.3	1135.7	1118.3	1083.5	1048.2	1013.9	959.6	909.8
22.5°	1184.3	1185.7	1184.3	1178.3	1166.4	1147.9	1121.8	1089.2	1046.0	988.1	941.9
25°	1164.7	1163.9	1168.5	1165.0	1164.5	1158.5	1141.4	1115.0	1072.3	1016.6	957.9
27.5°	1096.3	1090.5	1102.2	1117.4	1119.6	1129.1	1129.4	1117.2	1086.5	1038.9	975.1
30°	977.8	983.2	988.9	1020.7	1038.4	1063.1	1084.6	1092.4	1080.8	1045.7	985.9
32.5°	849.0	866.3	882.4	904.4	930.2	972.1	1006.0	1035.9	1048.7	1033.2	985.9
35°	709.8	719.1	744.3	772.3	809.6	842.2	909.6	953.0	991.9	1002.0	973.4
37.5°	601.1	609.5	618.2	640.0	681.8	736.2	791.9	849.0	906.6	947.9	946.2
40°	504.9	506.8	514.4	533.2	568.0	616.3	674.8	743.5	818.2	874.5	898.1
42.5°	431.0	431.0	440.5	462.3	482.4	517.7	574.2	634.8	716.6	788.9	839.4
45°	375.0	375.6	383.2	398.7	414.4	442.1	484.0	541.1	625.3	700.0	770.4
47.5°	329.4	334.5	338.9	347.0	362.8	387.2	417.7	466.3	526.4	607.9	690.0
50°	300.0	301.1	304.4	309.3	321.5	337.5	363.9	400.8	454.1	526.4	609.3
52.5°	271.2	271.2	274.5	280.4	287.5	300.6	319.6	350.3	390.2	455.7	530.2
55°	246.8	247.6	248.1	253.0	259.0	268.8	283.7	303.8	340.5	393.0	457.9
57.5°	222.8	225.8	225.0	228.8	233.2	240.2	250.8	268.2	296.2	336.2	394.6
60°	202.7	202.2	203.5	205.2	208.2	213.1	222.8	235.6	259.0	292.4	340.2
62.5°	179.9	179.4	181.0	182.9	185.6	189.7	196.7	206.5	225.0	250.0	291.6
65°	159.2	158.7	159.5	160.6	163.6	166.9	172.3	180.4	192.7	214.7	246.5
67.5°	138.6	138.6	139.1	140.2	142.1	144.6	148.9	153.8	166.0	180.7	205.7
70°	117.9	118.2	118.2	119.3	120.9	122.8	126.4	130.7	138.3	151.4	171.5
72.5°	100.0	100.0	99.5	100.0	101.1	101.9	104.1	108.2	113.9	123.4	138.6
75°	79.4	80.7	80.4	80.2	81.0	82.3	84.2	87.5	91.0	97.8	109.2
77.5°	60.9	61.7	61.7	62.0	62.8	63.9	64.4	67.7	70.9	75.0	83.4
80°	44.6	45.1	44.6	44.8	45.4	46.5	47.6	48.1	50.5	54.1	58.2
82.5°	29.9	29.1	30.2	29.9	30.4	30.7	31.3	31.5	33.2	35.3	38.0
85°	15.8	17.1	16.8	17.4	16.8	17.1	17.4	18.5	18.8	20.1	21.7
87.5°	6.0	6.5	6.5	6.5	6.5	6.5	7.1	7.3	7.9	8.2	8.7
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°	593.5	593.5	593.5	593.5	593.5	593.5	593.5	593.5	593.5	593.5	593.5
2.5°	618.5	616.1	612.5	608.7	604.7	600.6	598.7	596.2	591.3	586.4	582.6
5°	648.4	641.6	632.4	625.6	615.8	606.6	599.2	594.1	586.2	576.7	570.4
7.5°	681.8	669.6	654.9	640.0	625.3	611.4	600.0	590.2	578.0	566.3	556.8
10°	721.2	697.6	677.2	655.5	633.7	614.2	597.9	583.7	568.0	553.8	542.1
12.5°	756.0	728.6	700.3	669.6	640.3	615.0	594.1	575.6	556.6	540.2	528.3
15°	794.3	755.7	716.6	681.8	646.2	615.2	587.8	566.3	544.6	526.1	512.3
17.5°	838.4	786.7	737.5	687.5	656.0	616.1	582.4	554.1	531.8	513.3	495.4
20°	864.4	813.1	752.8	701.4	649.2	608.2	570.7	542.1	516.1	494.9	480.2
22.5°	878.6	824.5	761.5	708.7	647.9	601.9	562.0	528.3	500.3	479.1	462.5
25°	898.4	824.5	766.1	702.8	650.0	594.6	549.5	517.1	487.8	463.3	445.9
27.5°	907.4	831.8	766.6	691.3	637.0	580.7	535.1	500.8	468.2	444.3	429.4
30°	914.7	833.2	755.7	682.4	621.8	565.2	520.7	482.4	451.9	429.1	413.3
32.5°	915.3	829.7	741.1	665.5	601.4	547.0	503.6	467.4	435.6	411.4	395.9
35°	910.4	821.0	724.2	639.7	577.7	528.3	484.8	449.5	417.1	394.0	378.3
37.5°	897.9	811.2	708.5	615.5	549.8	501.7	464.7	431.0	398.9	375.8	362.8
40°	871.2	795.4	687.8	589.7	521.5	473.4	441.1	410.1	381.5	357.6	344.6
42.5°	835.9	771.8	662.8	562.3	490.0	443.5	415.0	390.0	360.9	340.2	326.9
45°	785.9	739.7	637.8	533.5	458.7	413.1	387.0	366.3	341.3	320.7	309.0
47.5°	729.4	701.1	605.5	501.1	425.8	382.9	358.2	341.6	320.4	302.7	291.0
50°	665.8	655.2	569.9	468.5	395.1	351.1	328.3	315.2	297.3	283.2	273.1
52.5°	596.8	603.3	532.4	435.3	365.5	320.9	299.2	287.2	275.8	263.9	254.4
55°	526.7	542.1	487.0	399.2	331.5	292.7	271.5	260.6	252.2	242.1	235.3
57.5°	460.9	485.1	440.0	360.6	300.3	263.1	242.9	233.4	227.2	221.8	215.5
60°	397.0	425.0	391.6	324.5	269.0	235.1	217.1	207.9	204.9	200.8	194.8
62.5°	340.5	369.0	344.0	287.2	237.5	208.4	192.1	184.5	180.2	178.8	175.3
65°	287.5	314.1	295.1	248.4	207.6	181.8	167.4	160.6	158.2	157.9	155.2
67.5°	241.6	267.4	250.0	210.6	176.1	155.2	144.3	138.9	136.4	136.7	134.8
70°	199.2	217.4	207.1	176.1	149.5	131.0	122.6	116.6	114.7	114.7	114.1
72.5°	159.8	174.2	166.3	142.7	121.7	107.6	100.3	96.7	95.1	94.8	95.1
75°	125.0	137.5	130.4	112.0	96.2	85.6	79.4	76.9	76.1	75.5	75.8
77.5°	93.5	101.4	97.0	85.1	72.0	64.7	61.7	59.2	58.4	58.7	59.2
80°	66.0	70.4	67.9	60.3	51.6	46.7	44.6	42.7	41.8	42.7	42.7
82.5°	41.8	45.1	42.9	38.0	33.7	30.4	28.3	27.7	27.4	26.9	27.7
85°	22.8	24.5	23.4	21.7	18.8	17.4	15.8	15.5	15.5	15.5	15.5
87.5°	9.0	10.1	8.7	8.7	8.2	6.8	6.8	6.5	6.3	6.5	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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	593.5	593.5	593.5	593.5	593.5	593.5	593.5	593.5	593.5	593.5	593.5
2.5°	581.0	577.5	575.3	572.3	568.8	564.2	562.3	564.2	563.1	561.2	562.0
5°	565.0	560.4	554.4	549.5	544.0	537.3	535.1	534.0	532.4	531.5	530.2
7.5°	549.2	542.4	535.1	528.3	520.4	514.4	511.7	509.8	509.3	505.2	503.6
10°	532.9	524.5	517.1	507.9	501.1	493.2	490.0	487.8	485.4	482.6	480.7
12.5°	515.8	507.4	498.1	489.4	482.6	473.9	469.6	467.1	465.2	463.3	461.2
15°	500.8	492.4	479.6	473.1	465.0	456.3	453.6	448.1	448.7	445.4	443.2
17.5°	485.1	472.6	463.6	453.8	447.8	441.6	436.4	430.7	429.9	427.5	426.7
20°	467.4	454.4	448.1	438.1	429.9	423.7	419.0	418.5	416.9	413.3	412.0
22.5°	450.0	439.4	430.7	421.5	414.2	406.0	403.8	404.6	401.7	400.8	397.8
25°	434.3	425.0	414.2	405.5	399.5	394.3	391.3	390.2	389.2	388.3	387.0
27.5°	417.4	407.6	398.4	391.3	385.6	382.1	380.2	377.7	377.5	377.5	376.9
30°	400.6	391.9	385.6	376.6	371.5	369.3	367.7	366.9	367.7	367.7	368.0
32.5°	385.1	376.6	369.3	363.1	357.9	356.3	356.0	356.0	357.1	357.1	357.9
35°	369.0	360.6	353.8	349.5	345.1	344.9	345.1	345.7	347.0	347.3	348.4
37.5°	351.6	345.1	340.0	334.5	333.4	334.0	334.5	335.1	335.6	337.8	337.8
40°	335.6	330.7	325.6	322.0	320.1	321.5	322.3	322.6	324.2	325.6	326.6
42.5°	319.9	315.2	311.2	308.2	307.4	308.4	309.3	310.1	311.7	312.8	314.7
45°	302.2	299.2	295.7	293.2	293.5	295.1	295.1	297.8	298.9	299.5	300.8
47.5°	285.9	282.6	280.2	279.1	278.8	280.2	281.0	283.2	283.7	285.6	286.7
50°	268.5	266.0	264.1	262.8	263.1	263.6	265.5	267.7	268.2	270.4	272.3
52.5°	250.3	248.1	246.5	247.0	247.8	247.8	249.7	251.1	252.5	254.1	256.0
55°	232.3	229.4	229.6	228.8	229.6	231.5	232.3	234.5	235.6	236.4	239.1
57.5°	212.8	212.2	211.4	210.6	212.2	213.1	214.4	215.8	217.7	218.8	220.7
60°	192.7	191.9	191.9	192.9	193.5	195.1	197.3	198.1	198.7	200.8	203.3
62.5°	174.2	173.4	173.1	174.7	174.7	176.4	177.2	178.5	180.7	181.5	184.8
65°	154.4	153.8	153.8	155.2	155.4	158.4	158.4	158.4	159.8	162.8	164.4
67.5°	133.7	134.0	134.8	135.6	136.7	137.5	137.8	139.4	141.6	143.5	146.7
70°	113.0	114.4	116.0	115.8	116.6	117.9	118.2	119.8	121.7	124.2	128.0
72.5°	94.6	95.4	97.0	97.0	98.1	98.9	100.3	101.4	103.8	106.0	107.6
75°	76.1	76.4	77.7	78.5	79.4	79.9	81.3	83.2	84.5	86.4	88.9
77.5°	59.8	59.2	60.3	60.6	61.1	62.2	63.3	65.2	66.3	68.5	69.3
80°	42.4	43.5	43.8	44.0	44.6	45.9	46.7	47.6	48.6	50.5	51.4
82.5°	28.0	28.5	29.3	29.6	30.2	30.4	30.7	32.1	32.9	33.4	36.1
85°	16.3	17.1	16.6	16.6	17.1	17.4	18.5	18.5	19.6	19.0	20.4
87.5°	7.1	6.8	6.8	7.1	6.8	6.5	7.3	7.3	7.1	7.3	7.3
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: P243337

CATALOG NUMBER: S123DRP-H560D930-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	593.5	593.5	593.5	593.5
2.5°	560.6	560.6	558.5	559.3
5°	527.5	528.6	525.8	525.0
7.5°	503.0	501.9	500.0	500.0
10°	479.1	478.0	477.2	477.2
12.5°	458.4	457.4	455.7	457.1
15°	440.0	440.2	439.2	439.2
17.5°	425.8	423.4	422.6	422.3
20°	409.0	409.5	408.4	406.5
22.5°	398.4	397.0	395.9	395.7
25°	387.5	386.2	385.9	384.8
27.5°	376.6	376.9	376.1	376.1
30°	367.7	368.5	367.7	368.0
32.5°	358.7	358.7	358.7	357.6
35°	348.9	349.2	348.9	348.4
37.5°	338.9	338.9	339.1	339.7
40°	327.7	327.7	328.3	328.3
42.5°	314.4	315.8	316.6	315.2
45°	302.5	302.7	303.0	302.7
47.5°	289.1	288.3	288.6	289.1
50°	272.6	274.5	274.5	272.8
52.5°	256.5	257.1	258.2	258.2
55°	240.8	241.0	241.3	241.9
57.5°	222.8	223.1	223.1	222.8
60°	204.9	206.5	206.3	206.5
62.5°	185.6	188.1	188.9	188.6
65°	167.4	167.9	169.3	171.2
67.5°	148.1	149.5	151.6	151.1
70°	129.1	131.0	131.5	132.6
72.5°	110.1	112.5	113.0	113.6
75°	91.6	92.7	93.8	93.5
77.5°	71.5	73.1	75.0	73.9
80°	53.5	53.8	55.4	54.9
82.5°	35.3	37.5	37.5	36.4
85°	20.7	20.7	20.7	20.7
87.5°	7.1	6.8	7.3	7.1
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P243337
 CATALOG NUMBER: S123DRP-H560D930-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	17.25	18.81	17.62	19.13	19.44	17.78	19.34	18.15	19.66	19.97
	3H	18.77	20.18	19.15	20.50	20.86	19.12	20.53	19.50	20.85	21.22
	4H	19.32	20.64	19.72	20.99	21.36	19.58	20.90	19.98	21.25	21.62
	6H	19.68	20.90	20.09	21.27	21.66	19.88	21.10	20.29	21.47	21.86
	8H	19.78	20.94	20.21	21.33	21.73	19.96	21.12	20.38	21.51	21.91
	12H	19.83	20.94	20.26	21.33	21.75	19.99	21.10	20.42	21.49	21.92
4H	2H	18.42	19.74	18.82	20.08	20.46	18.58	19.90	18.98	20.24	20.62
	3H	19.98	21.07	20.39	21.47	21.87	20.37	21.46	20.78	21.86	22.26
	4H	20.57	21.56	21.00	21.97	22.41	20.93	21.92	21.36	22.33	22.77
	6H	21.00	21.86	21.45	22.30	22.76	21.30	22.16	21.75	22.60	23.06
	8H	21.12	21.92	21.58	22.37	22.83	21.39	22.19	21.85	22.64	23.10
	12H	21.19	21.91	21.67	22.39	22.86	21.44	22.16	21.92	22.64	23.11
8H	4H	21.03	21.84	21.50	22.28	22.75	21.23	22.04	21.70	22.48	22.95
	6H	21.53	22.20	22.03	22.69	23.17	21.74	22.41	22.24	22.90	23.38
	8H	21.70	22.29	22.21	22.80	23.29	21.89	22.49	22.40	23.00	23.48
	12H	21.81	22.34	22.32	22.83	23.40	21.99	22.52	22.50	23.01	23.57
12H	4H	21.08	21.80	21.56	22.28	22.75	21.25	21.97	21.73	22.45	22.92
	6H	21.60	22.20	22.12	22.71	23.20	21.78	22.37	22.29	22.88	23.37
	8H	21.81	22.34	22.32	22.83	23.39	21.98	22.51	22.49	23.00	23.56