

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: P243440

Luminaire Tested: S123RDRP-H560D930-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P243440
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-69)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S123RDRP-H560D930-X4F0-XX-UDD-A-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3000K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

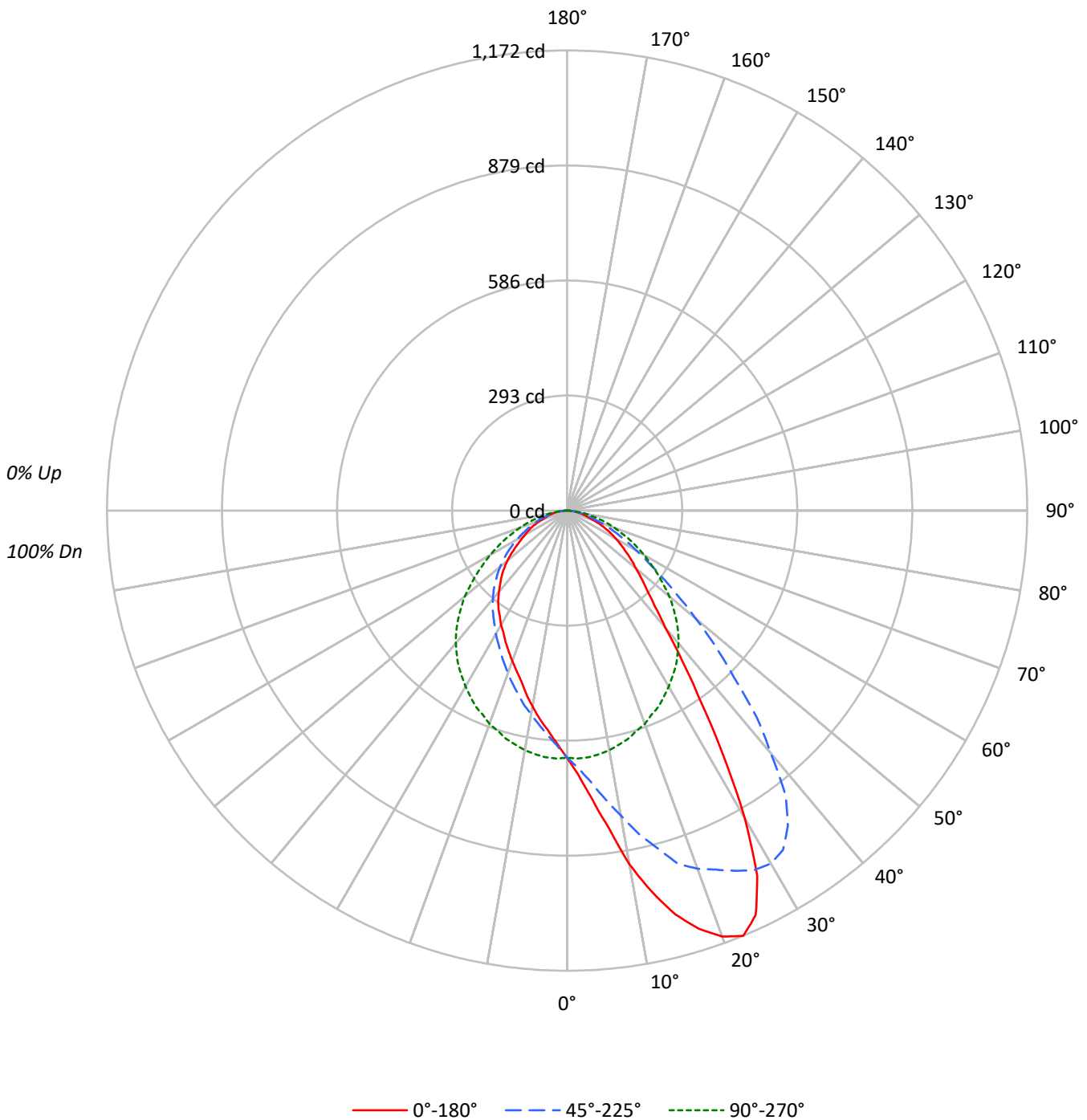
Lumens per Lamp: N/A
Luminaire Lumens: 1640.0 lumens
Efficiency: N/A
Efficacy: 95.3 lumens/watt
Spacing Criteria (0/90/45): 1.28 / 1.22 / 1.4
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

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	106	102	99	107	104	100	97	99	97	94	96	93	91	92	90	89					87				
2	101	94	88	83	99	92	86	82	89	84	80	85	81	78	82	79	76					74				
3	93	84	76	70	91	82	75	70	79	73	68	76	71	67	74	70	66					64				
4	86	75	67	61	84	74	66	60	71	65	59	69	63	59	67	62	58					56				
5	79	68	59	53	77	66	59	53	64	57	52	62	56	52	61	55	51					49				
6	74	61	53	47	72	60	52	47	59	52	46	57	51	46	55	50	46					44				
7	69	56	48	42	67	55	47	42	54	47	41	52	46	41	51	45	41					39				
8	64	51	43	38	62	51	43	37	49	42	37	48	42	37	47	41	37					35				
9	60	47	39	34	59	47	39	34	45	39	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°	7629	7629	7629	7629	7629
5°	8994	8442	7672	6973	6832
10°	11260	9707	7626	6483	6235
15°	13362	11168	7551	6064	5647
20°	14891	12519	7460	5690	5258
25°	15200	13539	7368	5350	4950
30°	12667	14527	7242	5085	4708
35°	8751	14504	7143	4849	4512
40°	6149	12771	6980	4652	4274
45°	4939	10287	6732	4445	4044
50°	4305	8050	6411	4198	3741
55°	3859	6213	5932	3922	3331
60°	3491	4948	5481	3559	3018
65°	3055	4061	5051	3218	2822
70°	2467	3303	4547	2956	2389
75°	2140	2595	3957	2496	2342
80°	1975	2122	3378	2387	2352
85°	1738	1808	2726	2156	2044

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 55°
 Vertical Angle: 45°
 Luminance: 12891 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	61.7	3.8
10°-20°	194.4	11.9
20°-30°	311.5	19.0
30°-40°	338.1	20.6
40°-50°	289.7	17.7
50°-60°	219.6	13.4
60°-70°	140.3	8.6
70°-80°	67.1	4.1
80°-90°	17.6	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°	567.6	34.6
0°-40°	905.7	55.2
0°-60°	1415.0	86.3
0°-90°	1640.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1640.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	629	629	629	629	629	
5°	739	694	630	573	562	76
15°	1065	890	602	483	450	302
25°	1136	1012	551	400	370	504
35°	591	980	483	328	305	380
45°	288	600	393	259	236	228
55°	183	294	281	186	158	165
65°	106	142	176	112	98	106
75°	46	55	84	53	50	49
85°	12	13	20	16	15	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°	629.4	629.4	629.4	629.4	629.4	629.4	629.4	629.4	629.4	629.4	629.4
2.5°	674.5	675.3	674.0	673.7	673.4	669.1	667.7	665.5	657.9	656.0	654.7
5°	739.2	737.0	739.5	734.8	729.7	726.7	721.8	710.9	701.4	693.8	688.9
7.5°	815.8	816.6	814.2	809.9	799.5	795.2	781.9	768.8	756.3	740.6	728.9
10°	914.8	908.2	909.6	896.0	885.1	872.1	853.9	833.0	810.9	788.7	772.1
12.5°	993.6	998.2	994.9	988.4	967.5	954.7	938.1	907.7	872.9	843.0	817.7
15°	1064.8	1058.5	1059.3	1043.6	1036.0	1024.3	996.8	966.7	944.1	890.0	860.1
17.5°	1116.9	1116.4	1115.6	1102.3	1093.0	1068.6	1040.6	1009.6	981.3	943.8	906.3
20°	1154.4	1158.5	1157.4	1146.6	1130.3	1106.6	1089.8	1051.2	1004.7	970.5	924.5
22.5°	1172.4	1172.7	1173.2	1168.0	1157.2	1141.9	1118.0	1087.0	1045.7	989.8	938.7
25°	1136.5	1137.9	1144.9	1149.3	1152.3	1145.5	1133.0	1105.0	1069.4	1012.3	959.3
27.5°	1048.5	1052.8	1060.7	1086.8	1097.4	1112.1	1117.2	1106.1	1079.7	1032.2	971.8
30°	905.0	917.2	924.8	954.4	996.0	1035.1	1053.6	1071.8	1069.4	1037.9	976.7
32.5°	740.8	748.7	770.7	802.5	835.4	892.7	956.9	1000.9	1025.6	1024.0	980.8
35°	591.4	602.8	621.5	645.7	691.1	750.6	823.2	892.5	954.4	980.2	964.8
37.5°	479.9	481.0	498.7	532.9	561.2	613.6	679.1	764.7	846.0	913.4	928.3
40°	388.6	396.2	405.5	426.9	460.4	510.6	554.1	638.4	722.6	807.1	867.5
42.5°	331.0	331.0	341.3	354.9	377.2	407.4	459.3	535.6	611.5	715.3	783.2
45°	288.1	290.8	295.4	304.1	319.9	343.2	383.5	435.4	512.8	600.1	702.2
47.5°	257.1	256.8	260.9	266.1	278.3	295.9	319.6	361.7	419.1	513.1	603.3
50°	228.3	229.4	232.4	236.7	244.9	257.4	272.3	304.1	352.5	426.9	521.5
52.5°	206.0	205.7	208.2	210.9	217.1	224.2	237.5	261.2	294.6	353.8	432.4
55°	182.6	183.7	186.7	188.3	193.5	198.1	209.3	222.6	249.5	294.0	365.5
57.5°	162.5	163.9	165.5	167.1	170.7	175.3	184.5	192.7	212.2	244.3	301.4
60°	144.0	143.5	145.4	148.1	150.0	154.1	159.3	167.7	181.3	204.1	245.9
62.5°	125.6	125.8	126.1	127.7	131.3	134.8	139.4	145.7	153.8	170.7	200.3
65°	106.5	106.8	107.3	109.0	112.5	114.7	119.6	125.0	131.5	141.6	162.2
67.5°	89.7	90.8	90.8	92.1	93.5	95.7	99.2	103.3	108.7	116.0	129.4
70°	69.6	69.3	70.7	73.4	74.7	78.5	81.0	83.7	88.6	93.2	104.6
72.5°	56.0	56.0	56.0	57.1	57.3	58.2	59.8	65.5	69.3	73.9	80.2
75°	45.7	45.9	45.9	46.2	46.5	47.3	47.8	49.5	50.5	55.4	59.2
77.5°	36.4	36.7	36.7	37.0	37.2	37.5	38.6	38.6	39.4	40.5	42.1
80°	28.3	28.0	28.0	28.3	28.3	29.1	29.1	29.6	29.9	30.4	31.3
82.5°	20.1	19.8	20.1	19.8	20.1	20.4	20.9	20.7	21.2	21.7	22.0
85°	12.5	12.8	12.8	13.3	13.0	12.8	13.0	13.0	13.0	13.0	13.6
87.5°	5.4	6.0	6.0	5.7	6.0	6.0	5.4	6.0	6.0	6.0	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



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	629.4	629.4	629.4	629.4	629.4	629.4	629.4	629.4	629.4	629.4	629.4
2.5°	653.9	652.8	648.7	644.9	639.2	636.7	633.5	632.1	627.8	621.8	619.1
5°	684.3	676.1	668.3	658.8	650.9	641.6	636.5	630.5	621.2	612.8	606.8
7.5°	716.6	704.7	690.0	674.2	660.1	646.8	635.4	625.9	613.9	602.2	593.0
10°	752.2	731.9	708.2	688.1	667.7	648.4	634.0	619.6	604.1	589.5	578.3
12.5°	790.6	761.8	733.2	703.0	672.6	650.3	628.9	610.4	593.0	577.5	564.2
15°	830.2	790.8	754.4	720.4	678.0	648.2	624.5	601.7	579.9	560.9	547.9
17.5°	858.5	813.4	767.5	719.4	682.9	646.0	616.6	587.8	567.7	548.1	530.5
20°	884.6	833.5	778.9	734.0	683.2	638.1	606.0	578.3	550.3	529.4	514.4
22.5°	895.7	849.5	794.4	732.1	681.3	635.1	593.8	562.5	537.5	514.7	495.2
25°	897.9	846.3	789.7	729.7	674.0	624.0	582.1	550.9	518.3	494.6	479.4
27.5°	907.4	836.8	781.3	721.5	665.0	612.8	568.8	534.0	503.6	478.3	458.7
30°	909.9	832.7	763.4	706.3	648.2	597.1	552.5	517.4	484.3	458.5	440.8
32.5°	910.9	827.2	744.6	682.1	626.7	578.6	537.8	499.8	468.2	441.1	422.9
35°	907.1	819.6	722.1	654.7	601.4	554.1	516.3	482.7	447.6	422.0	402.8
37.5°	892.2	807.7	709.3	622.6	571.8	527.2	495.2	462.0	429.7	401.9	382.1
40°	863.9	790.3	685.4	595.7	538.1	498.1	468.2	441.1	408.5	381.8	362.3
42.5°	818.8	766.6	663.4	565.3	504.7	466.9	441.9	418.5	389.2	363.9	342.4
45°	752.0	733.5	634.0	534.3	468.2	432.6	410.9	392.7	366.1	343.0	323.1
47.5°	679.7	683.8	604.4	502.8	435.1	401.1	382.1	366.1	346.0	321.2	303.0
50°	596.2	618.5	562.8	471.0	401.9	368.5	349.8	340.0	321.2	300.6	283.4
52.5°	519.9	555.2	520.7	436.2	369.3	336.4	319.0	309.3	296.8	279.6	262.3
55°	440.8	485.6	460.6	398.7	336.2	303.0	288.3	280.7	270.4	257.1	241.3
57.5°	375.3	423.1	407.4	359.3	303.8	273.9	260.9	252.2	245.9	233.7	220.9
60°	311.2	355.5	349.2	313.9	271.8	243.2	233.2	226.1	220.9	212.0	199.5
62.5°	251.1	294.0	297.9	270.1	240.5	214.7	205.5	200.6	196.5	189.4	178.0
65°	199.2	237.0	244.9	223.7	207.6	188.1	179.1	176.1	173.1	165.0	156.3
67.5°	156.0	185.6	195.9	184.0	172.6	161.2	154.1	150.0	147.8	142.9	137.0
70°	119.3	144.8	153.5	148.4	140.8	136.4	131.0	128.3	126.1	119.8	116.6
72.5°	89.4	106.8	117.7	116.0	114.4	111.4	108.2	107.3	104.1	100.0	97.0
75°	65.5	75.5	85.3	88.9	88.3	89.4	85.9	84.5	82.6	79.6	77.2
77.5°	47.0	53.0	59.8	64.1	66.3	66.6	66.6	65.8	64.4	62.2	60.3
80°	32.6	34.0	40.2	44.3	46.5	48.1	48.1	48.4	47.0	46.2	44.8
82.5°	22.6	23.4	24.7	28.0	30.7	32.6	32.9	32.6	32.1	31.8	29.9
85°	14.1	13.9	13.9	14.7	16.8	18.8	19.0	19.6	19.3	19.0	17.1
87.5°	6.0	6.0	6.3	6.0	6.8	7.1	7.6	9.0	8.7	7.3	6.8
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	629.4	629.4	629.4	629.4	629.4	629.4	629.4	629.4	629.4	629.4	629.4
2.5°	617.4	613.9	610.7	607.1	602.8	598.7	598.1	597.6	599.0	596.2	595.2
5°	602.2	595.4	590.3	583.7	579.1	573.1	569.9	569.1	568.8	567.2	565.0
7.5°	585.6	578.3	571.0	563.6	556.0	549.8	546.2	544.3	542.7	540.0	537.8
10°	570.2	560.9	553.0	543.0	534.8	526.7	523.4	520.7	519.1	515.3	512.3
12.5°	552.8	541.1	532.4	521.5	514.2	507.1	501.9	496.8	493.0	487.3	484.8
15°	537.5	525.3	510.6	504.1	493.8	483.2	477.5	477.5	469.6	465.0	462.0
17.5°	517.2	506.6	496.2	482.9	468.2	462.0	455.5	449.8	444.3	443.0	437.5
20°	499.2	486.7	476.1	461.7	448.4	441.1	433.5	427.2	423.1	419.3	416.3
22.5°	481.6	469.1	452.8	438.6	429.7	419.9	411.7	406.3	402.8	397.0	394.3
25°	463.1	448.1	433.5	419.6	408.5	400.0	391.6	388.6	382.4	379.4	375.6
27.5°	444.6	426.7	412.8	400.8	388.3	380.2	374.5	369.1	363.6	362.0	359.8
30°	423.9	407.4	394.1	382.4	370.4	363.3	356.6	351.7	347.0	343.5	341.1
32.5°	403.3	389.4	376.7	363.1	352.2	344.6	338.9	334.5	332.4	326.4	324.2
35°	384.3	370.1	356.6	343.8	335.1	327.7	322.6	318.5	313.9	310.1	307.9
37.5°	364.7	351.9	338.1	327.2	317.4	311.4	305.7	300.3	296.8	294.6	291.9
40°	345.7	332.1	321.5	309.5	300.8	294.0	288.1	284.0	279.6	277.7	274.2
42.5°	327.7	314.7	302.5	291.6	283.7	277.2	271.5	266.9	263.3	259.8	257.9
45°	307.1	295.7	284.5	273.7	266.3	259.3	253.0	248.9	244.0	241.1	240.0
47.5°	289.7	277.7	265.8	255.7	248.1	240.5	235.3	230.5	226.4	223.4	221.8
50°	269.0	257.9	248.1	238.1	230.7	222.6	216.3	211.7	207.1	204.9	202.2
52.5°	251.4	240.5	228.6	219.6	211.2	204.1	198.4	194.6	190.5	187.2	185.3
55°	229.4	218.8	209.3	199.7	191.3	185.6	181.0	174.5	170.9	167.7	162.5
57.5°	210.1	200.0	190.0	180.7	172.8	166.0	160.3	156.0	151.4	148.9	145.4
60°	189.7	179.1	169.9	162.8	154.1	146.8	142.9	137.8	134.0	130.2	129.1
62.5°	169.6	159.8	150.6	143.2	135.3	129.6	124.7	122.3	118.5	115.5	114.4
65°	148.7	140.5	131.8	123.7	118.8	112.2	109.5	105.4	103.3	101.9	101.6
67.5°	128.0	120.7	112.8	106.5	101.9	97.6	94.3	92.7	90.5	88.9	87.5
70°	109.2	102.2	95.4	90.2	86.7	83.4	81.3	78.3	76.1	73.9	70.9
72.5°	90.8	85.1	79.4	75.3	71.7	69.8	66.9	62.2	60.1	59.5	59.2
75°	73.6	67.4	63.3	61.1	57.9	53.3	51.4	50.8	50.5	50.0	50.0
77.5°	56.8	53.0	50.3	45.7	44.0	43.8	42.4	42.1	41.6	41.9	41.9
80°	41.3	39.1	35.9	34.5	34.0	34.2	33.7	34.0	33.4	33.7	33.2
82.5°	27.4	25.5	26.1	25.3	25.3	25.8	25.5	24.7	24.7	24.5	24.5
85°	16.3	16.0	16.6	16.6	16.3	15.5	16.0	15.8	14.9	15.2	15.2
87.5°	7.1	7.1	7.1	6.8	7.1	6.8	6.8	6.8	6.0	6.0	6.0
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: P243440

CATALOG NUMBER: S123RDRP-H560D930-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	629.4	629.4	629.4	629.4
2.5°	595.7	595.2	594.3	593.5
5°	565.0	562.5	562.3	561.5
7.5°	536.2	535.1	533.2	535.4
10°	509.8	510.6	508.7	506.6
12.5°	482.4	480.7	477.8	479.4
15°	458.2	455.5	453.8	450.0
17.5°	432.9	430.7	430.7	428.3
20°	410.9	408.7	409.3	407.6
22.5°	392.4	390.8	388.3	388.6
25°	375.0	372.6	369.9	370.1
27.5°	355.7	353.6	353.0	351.1
30°	338.6	336.7	336.4	336.4
32.5°	322.0	321.2	319.9	319.0
35°	307.6	306.5	304.4	304.9
37.5°	289.7	288.6	288.3	288.1
40°	272.8	272.0	269.9	270.1
42.5°	256.0	254.6	253.3	252.7
45°	237.8	237.5	235.3	235.9
47.5°	220.4	219.9	218.8	217.4
50°	201.1	200.8	200.0	198.4
52.5°	182.4	181.5	179.9	178.3
55°	161.2	158.7	159.0	157.6
57.5°	143.8	142.7	140.5	139.7
60°	126.9	125.8	125.6	124.5
62.5°	112.8	111.7	110.9	110.9
65°	100.0	98.6	98.4	98.4
67.5°	85.9	84.5	84.2	83.7
70°	68.2	67.9	67.4	67.4
72.5°	58.7	58.4	58.7	57.6
75°	50.0	49.7	49.7	50.0
77.5°	41.6	41.6	41.3	41.3
80°	32.9	33.2	32.9	33.7
82.5°	24.7	24.2	24.5	23.9
85°	15.2	15.2	14.7	14.7
87.5°	6.0	6.0	6.0	6.0
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P243440
 CATALOG NUMBER: S123RDRP-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	15.45	16.95	15.81	17.26	17.58	18.15	19.65	18.51	19.96	20.28
	3H	16.64	17.98	17.01	18.31	18.67	19.57	20.92	19.95	21.25	21.61
	4H	16.99	18.25	17.39	18.60	18.98	20.08	21.34	20.48	21.68	22.06
	6H	17.26	18.43	17.67	18.79	19.18	20.42	21.58	20.83	21.95	22.34
	8H	17.35	18.46	17.78	18.85	19.25	20.52	21.63	20.95	22.02	22.42
	12H	17.41	18.47	17.84	18.86	19.29	20.58	21.64	21.01	22.02	22.45
4H	2H	16.40	17.66	16.80	18.01	18.39	18.43	19.69	18.83	20.03	20.41
	3H	17.67	18.71	18.08	19.11	19.51	20.14	21.19	20.55	21.59	21.99
	4H	18.07	19.01	18.51	19.43	19.87	20.76	21.70	21.19	22.11	22.55
	6H	18.42	19.24	18.88	19.68	20.14	21.21	22.03	21.67	22.47	22.93
	8H	18.54	19.30	19.00	19.74	20.21	21.35	22.11	21.82	22.56	23.03
	12H	18.63	19.30	19.11	19.78	20.26	21.45	22.13	21.93	22.61	23.08
8H	4H	18.43	19.20	18.90	19.64	20.11	20.82	21.58	21.28	22.02	22.49
	6H	18.85	19.48	19.35	19.97	20.45	21.35	21.97	21.84	22.47	22.94
	8H	19.02	19.58	19.53	20.09	20.58	21.54	22.10	22.05	22.61	23.10
	12H	19.16	19.66	19.67	20.16	20.72	21.69	22.19	22.20	22.68	23.24
12H	4H	18.46	19.14	18.95	19.62	20.09	20.80	21.48	21.29	21.96	22.43
	6H	18.90	19.46	19.41	19.97	20.46	21.34	21.90	21.85	22.41	22.90
	8H	19.11	19.61	19.62	20.10	20.67	21.57	22.06	22.08	22.56	23.12