

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: P243425

Luminaire Tested: S123RDRP-H560D830-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P243425  
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-H560D830-X4F0-XX-UDD-A-W  
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 3000K CCT, 80 CRI LEDS  
Ballast/Driver: -

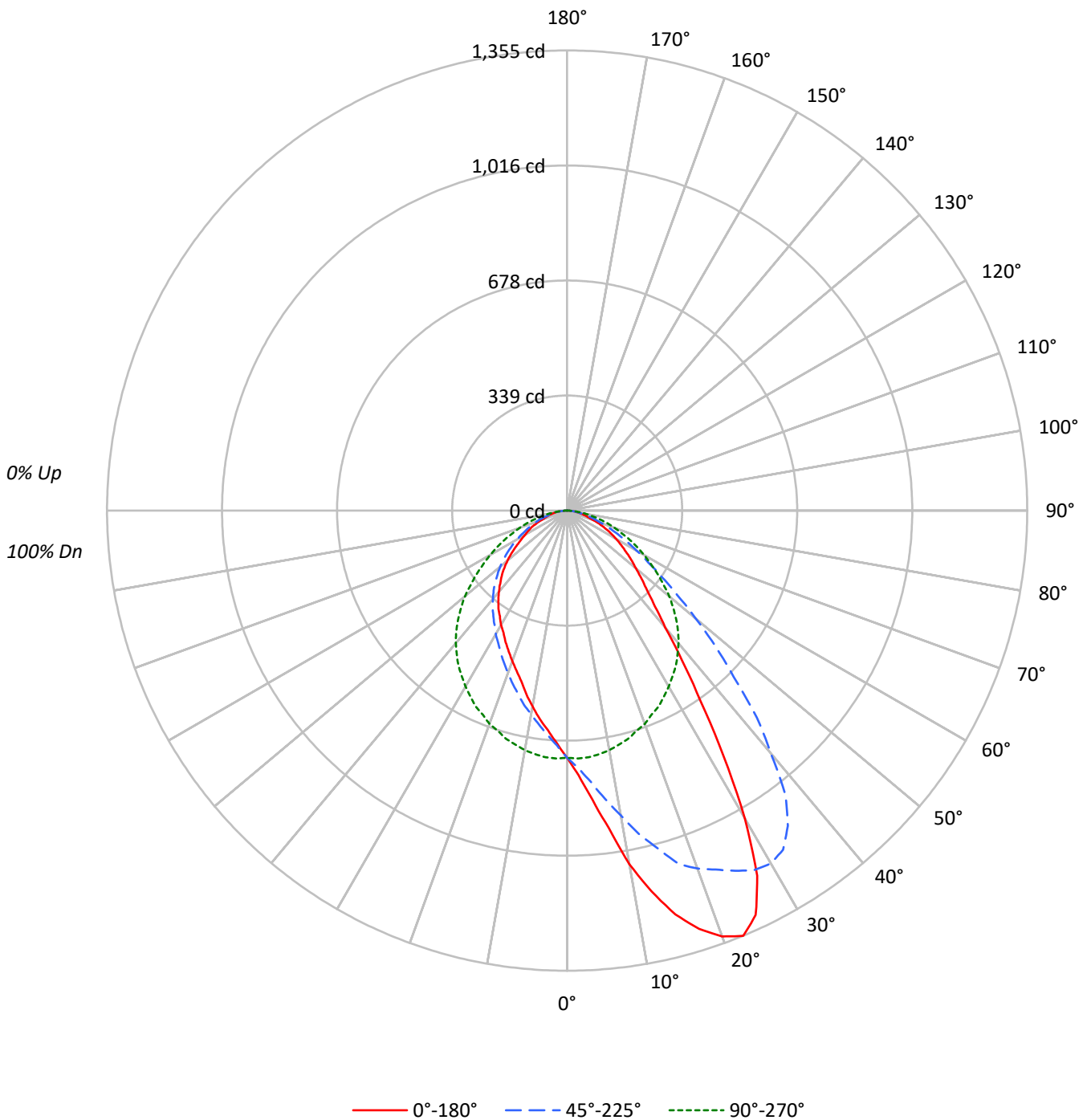
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1895.9 lumens  
Efficiency: N/A  
Efficacy: 110.2 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

TEST NUMBER: P243425

CATALOG NUMBER: S123RDRP-H560D830-X4F0-XX-UDD-A-W

### 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					87			
2	101	94	88	83	99	92	86	82	89	84	80	85	81	78	82	79	76	74					74			
3	93	84	76	70	91	82	75	70	79	73	68	76	71	67	74	70	66	64					64			
4	86	75	67	61	84	74	66	60	71	65	59	69	63	59	67	62	58	56					56			
5	79	68	59	53	77	66	59	53	64	57	52	62	56	52	61	55	51	49					49			
6	74	61	53	47	72	60	52	47	59	52	46	57	51	46	55	50	46	44					44			
7	69	56	48	42	67	55	47	42	54	47	41	52	46	41	51	45	41	39					39			
8	64	51	43	38	62	51	43	37	49	42	37	48	42	37	47	41	37	35					35			
9	60	47	39	34	59	47	39	34	45	39	34	44	38	34	43	38	33	32					32			
10	56	44	36	31	55	43	36	31	42	35	31	41	35	31	40	35	31	29					29			

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°	135°	180°
0°	8819	8819	8819	8819	8819
5°	10398	9760	8869	8062	7898
10°	13016	11221	8816	7494	7208
15°	15446	12911	8729	7010	6529
20°	17215	14472	8624	6577	6079
25°	17572	15652	8517	6186	5723
30°	14643	16793	8373	5880	5445
35°	10115	16768	8257	5607	5216
40°	7109	14765	8068	5378	4942
45°	5708	11891	7782	5137	4675
50°	4976	9308	7411	4852	4324
55°	4461	7183	6858	4535	3850
60°	4036	5719	6337	4114	3488
65°	3534	4695	5840	3723	3261
70°	2849	3820	5256	3420	2761
75°	2473	3002	4576	2885	2707
80°	2283	2457	3902	2764	2722
85°	2017	2100	3143	2489	2364

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 55°  
 Vertical Angle: 45°  
 Luminance: 14902 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	71.4	3.8
10°-20°	224.7	11.9
20°-30°	360.1	19.0
30°-40°	390.9	20.6
40°-50°	334.9	17.7
50°-60°	253.9	13.4
60°-70°	162.2	8.6
70°-80°	77.6	4.1
80°-90°	20.4	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°	656.1	34.6
0°-40°	1047.0	55.2
0°-60°	1635.8	86.3
0°-90°	1895.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1895.9	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	728	728	728	728	728	
5°	855	802	729	663	649	88
15°	1231	1029	696	559	520	349
25°	1314	1170	637	462	428	583
35°	684	1133	558	379	352	439
45°	333	694	454	300	273	263
55°	211	340	324	215	182	190
65°	123	164	204	130	114	122
75°	53	64	98	62	58	57
85°	14	15	23	18	17	16
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°	727.6	727.6	727.6	727.6	727.6	727.6	727.6	727.6	727.6	727.6	727.6
2.5°	779.8	780.7	779.2	778.8	778.5	773.5	771.9	769.4	760.6	758.4	756.9
5°	854.6	852.0	854.9	849.5	843.6	840.1	834.5	821.9	810.9	802.1	796.4
7.5°	943.2	944.1	941.3	936.2	924.3	919.3	903.9	888.8	874.4	856.1	842.6
10°	1057.5	1050.0	1051.5	1035.8	1023.3	1008.2	987.1	963.0	937.5	911.7	892.6
12.5°	1148.6	1154.0	1150.2	1142.7	1118.5	1103.7	1084.5	1049.3	1009.1	974.6	945.4
15°	1230.9	1223.7	1224.7	1206.4	1197.6	1184.1	1152.4	1117.5	1091.4	1028.9	994.4
17.5°	1291.3	1290.6	1289.7	1274.3	1263.6	1235.3	1203.0	1167.2	1134.5	1091.1	1047.8
20°	1334.6	1339.3	1338.1	1325.5	1306.7	1279.3	1259.8	1215.2	1161.5	1121.9	1068.8
22.5°	1355.4	1355.7	1356.3	1350.3	1337.8	1320.2	1292.5	1256.7	1208.9	1144.2	1085.2
25°	1313.9	1315.5	1323.6	1328.7	1332.1	1324.3	1309.8	1277.4	1236.3	1170.3	1109.0
27.5°	1212.1	1217.1	1226.2	1256.4	1268.6	1285.6	1291.6	1278.7	1248.2	1193.2	1123.5
30°	1046.2	1060.3	1069.1	1103.4	1151.5	1196.7	1218.1	1239.1	1236.3	1199.8	1129.1
32.5°	856.4	865.6	891.0	927.8	965.8	1032.1	1106.2	1157.1	1185.7	1183.8	1133.9
35°	683.6	696.8	718.5	746.5	799.0	867.8	951.6	1031.8	1103.4	1133.2	1115.3
37.5°	554.8	556.1	576.5	616.1	648.8	709.4	785.1	884.1	978.0	1055.9	1073.2
40°	449.3	458.1	468.8	493.6	532.2	590.3	640.6	738.0	835.4	933.1	1002.9
42.5°	382.7	382.7	394.6	410.3	436.1	471.0	531.0	619.2	706.9	826.9	905.5
45°	333.0	336.2	341.5	351.6	369.8	396.8	443.3	503.3	592.9	693.7	811.8
47.5°	297.2	296.9	301.6	307.6	321.7	342.1	369.5	418.2	484.5	593.2	697.5
50°	263.9	265.2	268.6	273.6	283.1	297.5	314.8	351.6	407.5	493.6	602.9
52.5°	238.1	237.8	240.7	243.8	251.0	259.2	274.6	301.9	340.6	409.1	499.9
55°	211.1	212.4	215.8	217.7	223.7	229.0	241.9	257.3	288.4	339.9	422.6
57.5°	187.9	189.4	191.3	193.2	197.3	202.6	213.3	222.8	245.4	282.4	348.4
60°	166.5	165.9	168.1	171.2	173.4	178.1	184.1	193.8	209.6	235.9	284.3
62.5°	145.1	145.5	145.8	147.7	151.7	155.8	161.2	168.4	177.8	197.3	231.5
65°	123.2	123.5	124.1	126.0	130.1	132.6	138.2	144.5	152.1	163.7	187.6
67.5°	103.7	104.9	104.9	106.5	108.1	110.6	114.7	119.4	125.7	134.2	149.5
70°	80.4	80.1	81.7	84.8	86.4	90.8	93.6	96.8	102.4	107.8	121.0
72.5°	64.7	64.7	64.7	66.0	66.3	67.2	69.1	75.7	80.1	85.5	92.7
75°	52.8	53.1	53.1	53.4	53.7	54.7	55.3	57.2	58.4	64.1	68.5
77.5°	42.1	42.4	42.4	42.7	43.0	43.4	44.6	44.6	45.6	46.8	48.7
80°	32.7	32.4	32.4	32.7	32.7	33.6	33.6	34.2	34.6	35.2	36.1
82.5°	23.2	22.9	23.2	22.9	23.2	23.6	24.2	23.9	24.5	25.1	25.4
85°	14.5	14.8	14.8	15.4	15.1	14.8	15.1	15.1	15.1	15.1	15.7
87.5°	6.3	6.9	6.9	6.6	6.9	6.9	6.3	6.9	6.9	6.9	7.2
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: P243425

CATALOG NUMBER: S123RDRP-H560D830-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	727.6	727.6	727.6	727.6	727.6	727.6	727.6	727.6	727.6	727.6	727.6
2.5°	755.9	754.7	749.9	745.5	738.9	736.1	732.3	730.8	725.7	718.8	715.7
5°	791.1	781.7	772.6	761.6	752.5	741.8	735.8	728.9	718.2	708.5	701.6
7.5°	828.5	814.7	797.7	779.5	763.1	747.7	734.5	723.5	709.7	696.2	685.5
10°	869.6	846.1	818.7	795.5	771.9	749.6	733.0	716.3	698.4	681.4	668.6
12.5°	913.9	880.6	847.6	812.8	777.6	751.8	727.0	705.6	685.5	667.6	652.2
15°	959.8	914.3	872.2	832.9	783.9	749.3	722.0	695.6	670.5	648.5	633.4
17.5°	992.5	940.3	887.2	831.6	789.5	746.8	712.9	679.6	656.3	633.7	613.3
20°	1022.6	963.6	900.4	848.6	789.8	737.7	700.6	668.6	636.2	612.0	594.7
22.5°	1035.5	982.1	918.3	846.4	787.6	734.2	686.5	650.3	621.4	595.0	572.4
25°	1038.0	978.3	913.0	843.6	779.2	721.3	673.0	636.8	599.1	571.8	554.2
27.5°	1049.0	967.3	903.3	834.1	768.8	708.5	657.6	617.4	582.2	553.0	530.3
30°	1051.9	962.6	882.5	816.5	749.3	690.2	638.7	598.2	559.9	530.0	509.6
32.5°	1053.1	956.4	860.8	788.6	724.5	668.9	621.8	577.8	541.3	509.9	488.9
35°	1048.7	947.6	834.8	756.9	695.3	640.6	596.9	558.0	517.4	487.9	465.6
37.5°	1031.4	933.7	820.0	719.8	661.0	609.5	572.4	534.1	496.7	464.7	441.7
40°	998.8	913.6	792.4	688.7	622.1	575.9	541.3	509.9	472.2	441.4	418.8
42.5°	946.6	886.3	766.9	653.5	583.4	539.8	510.9	483.8	449.9	420.7	395.9
45°	869.3	848.0	733.0	617.7	541.3	500.2	475.0	454.0	423.2	396.5	373.6
47.5°	785.8	790.5	698.7	581.2	503.0	463.7	441.7	423.2	399.9	371.4	350.3
50°	689.3	715.1	650.7	544.5	464.7	426.0	404.3	393.0	371.4	347.5	327.7
52.5°	601.0	641.9	602.0	504.3	427.0	389.0	368.8	357.5	343.1	323.3	303.2
55°	509.6	561.4	532.5	460.9	388.6	350.3	333.3	324.5	312.6	297.2	279.0
57.5°	433.9	489.2	471.0	415.3	351.2	316.7	301.6	291.6	284.3	270.2	255.4
60°	359.7	410.9	403.7	362.9	314.2	281.2	269.6	261.4	255.4	245.1	230.6
62.5°	290.3	339.9	344.3	312.3	278.0	248.2	237.5	231.9	227.1	219.0	205.8
65°	230.3	274.0	283.1	258.6	240.0	217.4	207.0	203.6	200.1	190.7	180.7
67.5°	180.3	214.6	226.5	212.7	199.5	186.3	178.1	173.4	170.9	165.3	158.3
70°	137.9	167.5	177.5	171.5	162.7	157.7	151.4	148.3	145.8	138.6	134.8
72.5°	103.4	123.5	136.0	134.2	132.3	128.8	125.0	124.1	120.3	115.6	112.2
75°	75.7	87.3	98.7	102.7	102.1	103.4	99.3	97.7	95.5	92.1	89.2
77.5°	54.4	61.3	69.1	74.1	76.7	77.0	77.0	76.0	74.5	71.9	69.7
80°	37.7	39.3	46.5	51.2	53.7	55.6	55.6	55.9	54.4	53.4	51.8
82.5°	26.1	27.0	28.6	32.4	35.5	37.7	38.0	37.7	37.1	36.8	34.6
85°	16.3	16.0	16.0	17.0	19.5	21.7	22.0	22.6	22.3	22.0	19.8
87.5°	6.9	6.9	7.2	6.9	7.9	8.2	8.8	10.4	10.1	8.5	7.9
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°	727.6	727.6	727.6	727.6	727.6	727.6	727.6	727.6	727.6	727.6	727.6
2.5°	713.8	709.7	706.0	701.9	696.8	692.1	691.5	690.9	692.4	689.3	688.0
5°	696.2	688.4	682.4	674.9	669.5	662.6	658.8	657.9	657.6	655.7	653.2
7.5°	677.0	668.6	660.1	651.6	642.8	635.6	631.5	629.3	627.4	624.3	621.8
10°	659.1	648.5	639.3	627.7	618.3	608.9	605.1	602.0	600.1	595.7	592.2
12.5°	639.0	625.5	615.5	602.9	594.4	586.3	580.3	574.3	569.9	563.3	560.5
15°	621.4	607.3	590.3	582.8	570.9	558.6	552.0	552.0	542.9	537.6	534.1
17.5°	597.9	585.6	573.7	558.3	541.3	534.1	526.6	520.0	513.7	512.1	505.8
20°	577.1	562.7	550.4	533.8	518.4	509.9	501.1	493.9	489.2	484.8	481.3
22.5°	556.7	542.3	523.4	507.1	496.7	485.4	476.0	469.7	465.6	459.0	455.9
25°	535.4	518.1	501.1	485.1	472.2	462.5	452.7	449.3	442.0	438.6	434.2
27.5°	514.0	493.3	477.2	463.4	449.0	439.5	432.9	426.7	420.4	418.5	416.0
30°	490.1	471.0	455.6	442.0	428.2	420.1	412.2	406.5	401.2	397.1	394.3
32.5°	466.2	450.2	435.4	419.7	407.2	398.4	391.8	386.8	384.2	377.3	374.8
35°	444.2	427.9	412.2	397.4	387.4	378.9	372.9	368.2	362.9	358.5	356.0
37.5°	421.6	406.9	390.8	378.3	367.0	360.0	353.4	347.2	343.1	340.6	337.4
40°	399.6	383.9	371.7	357.8	347.8	339.9	333.0	328.3	323.3	321.1	317.0
42.5°	378.9	363.8	349.7	337.1	328.0	320.5	313.9	308.5	304.4	300.4	298.2
45°	355.0	341.8	328.9	316.4	307.9	299.7	292.5	287.8	282.1	278.7	277.4
47.5°	334.9	321.1	307.3	295.6	286.8	278.0	272.1	266.4	261.7	258.3	256.4
50°	311.0	298.2	286.8	275.2	266.7	257.3	250.1	244.7	239.4	236.9	233.7
52.5°	290.6	278.0	264.2	253.9	244.1	235.9	229.3	225.0	220.2	216.5	214.3
55°	265.2	252.9	241.9	230.9	221.2	214.6	209.2	201.7	197.6	193.8	187.9
57.5°	242.9	231.2	219.6	208.9	199.8	192.0	185.4	180.3	175.0	172.2	168.1
60°	219.3	207.0	196.4	188.2	178.1	169.7	165.3	159.3	154.9	150.5	149.2
62.5°	196.0	184.7	174.1	165.6	156.5	149.9	144.2	141.4	137.0	133.5	132.3
65°	171.9	162.4	152.4	143.0	137.3	129.8	126.6	121.9	119.4	117.8	117.5
67.5°	148.0	139.5	130.4	123.2	117.8	112.8	109.0	107.1	104.6	102.7	101.2
70°	126.3	118.1	110.3	104.3	100.2	96.5	93.9	90.5	88.0	85.5	82.0
72.5°	104.9	98.3	91.7	87.0	82.9	80.7	77.3	71.9	69.4	68.8	68.5
75°	85.1	77.9	73.2	70.7	66.9	61.6	59.4	58.8	58.4	57.8	57.8
77.5°	65.7	61.3	58.1	52.8	50.9	50.6	49.0	48.7	48.1	48.4	48.4
80°	47.8	45.2	41.5	39.9	39.3	39.6	39.0	39.3	38.6	39.0	38.3
82.5°	31.7	29.5	30.2	29.2	29.2	29.8	29.5	28.6	28.6	28.3	28.3
85°	18.9	18.5	19.2	19.2	18.9	17.9	18.5	18.2	17.3	17.6	17.6
87.5°	8.2	8.2	8.2	7.9	8.2	7.9	7.9	7.9	6.9	6.9	6.9
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: P243425

CATALOG NUMBER: S123RDRP-H560D830-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	727.6	727.6	727.6	727.6
2.5°	688.7	688.0	687.1	686.2
5°	653.2	650.3	650.0	649.1
7.5°	619.9	618.6	616.4	618.9
10°	589.4	590.3	588.1	585.6
12.5°	557.7	555.8	552.3	554.2
15°	529.7	526.6	524.7	520.3
17.5°	500.5	498.0	498.0	495.1
20°	475.0	472.5	473.1	471.3
22.5°	453.7	451.8	449.0	449.3
25°	433.6	430.7	427.6	427.9
27.5°	411.3	408.7	408.1	405.9
30°	391.5	389.3	389.0	389.0
32.5°	372.3	371.4	369.8	368.8
35°	355.6	354.4	351.9	352.5
37.5°	334.9	333.7	333.3	333.0
40°	315.4	314.5	312.0	312.3
42.5°	296.0	294.4	292.8	292.2
45°	274.9	274.6	272.1	272.7
47.5°	254.8	254.2	252.9	251.3
50°	232.5	232.2	231.2	229.3
52.5°	210.8	209.9	208.0	206.1
55°	186.3	183.5	183.8	182.2
57.5°	166.2	164.9	162.4	161.5
60°	146.7	145.5	145.1	143.9
62.5°	130.4	129.1	128.2	128.2
65°	115.6	114.0	113.7	113.7
67.5°	99.3	97.7	97.4	96.8
70°	78.9	78.5	77.9	77.9
72.5°	67.9	67.5	67.9	66.6
75°	57.8	57.5	57.5	57.8
77.5°	48.1	48.1	47.8	47.8
80°	38.0	38.3	38.0	39.0
82.5°	28.6	28.0	28.3	27.6
85°	17.6	17.6	17.0	17.0
87.5°	6.9	6.9	6.9	6.9
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P243425  
 CATALOG NUMBER: S123RDRP-H560D830-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	15.95	17.45	16.32	17.77	18.08	18.65	20.15	19.02	20.47	20.78
	3H	17.14	18.48	17.52	18.81	19.17	20.08	21.42	20.45	21.75	22.11
	4H	17.49	18.75	17.89	19.10	19.48	20.58	21.84	20.98	22.19	22.57
	6H	17.77	18.93	18.18	19.30	19.69	20.92	22.09	21.34	22.45	22.85
	8H	17.86	18.96	18.28	19.35	19.75	21.03	22.13	21.45	22.52	22.92
	12H	17.92	18.98	18.35	19.36	19.79	21.08	22.14	21.52	22.53	22.96
4H	2H	16.90	18.16	17.30	18.51	18.89	18.93	20.19	19.33	20.54	20.92
	3H	18.17	19.21	18.58	19.61	20.02	20.65	21.69	21.06	22.09	22.49
	4H	18.58	19.52	19.01	19.93	20.37	21.26	22.20	21.69	22.62	23.05
	6H	18.92	19.74	19.38	20.18	20.64	21.72	22.53	22.18	22.98	23.44
	8H	19.04	19.80	19.50	20.24	20.71	21.86	22.62	22.32	23.06	23.53
	12H	19.13	19.81	19.61	20.29	20.76	21.95	22.63	22.43	23.11	23.58
8H	4H	18.94	19.70	19.40	20.14	20.61	21.32	22.08	21.78	22.53	22.99
	6H	19.36	19.99	19.86	20.48	20.96	21.85	22.48	22.35	22.97	23.45
	8H	19.52	20.09	20.04	20.60	21.08	22.04	22.60	22.55	23.11	23.60
	12H	19.67	20.17	20.18	20.66	21.22	22.19	22.69	22.70	23.18	23.75
12H	4H	18.97	19.65	19.45	20.13	20.60	21.31	21.99	21.79	22.47	22.94
	6H	19.40	19.97	19.92	20.48	20.97	21.84	22.40	22.35	22.91	23.40
	8H	19.61	20.11	20.12	20.61	21.17	22.07	22.57	22.58	23.06	23.63