

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: P243420

Luminaire Tested: S123RDRP-H560D927-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P243420  
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-H560D927-X4F0-XX-UDD-A-W  
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 2700K CCT, 90 CRI LEDS  
Ballast/Driver: -

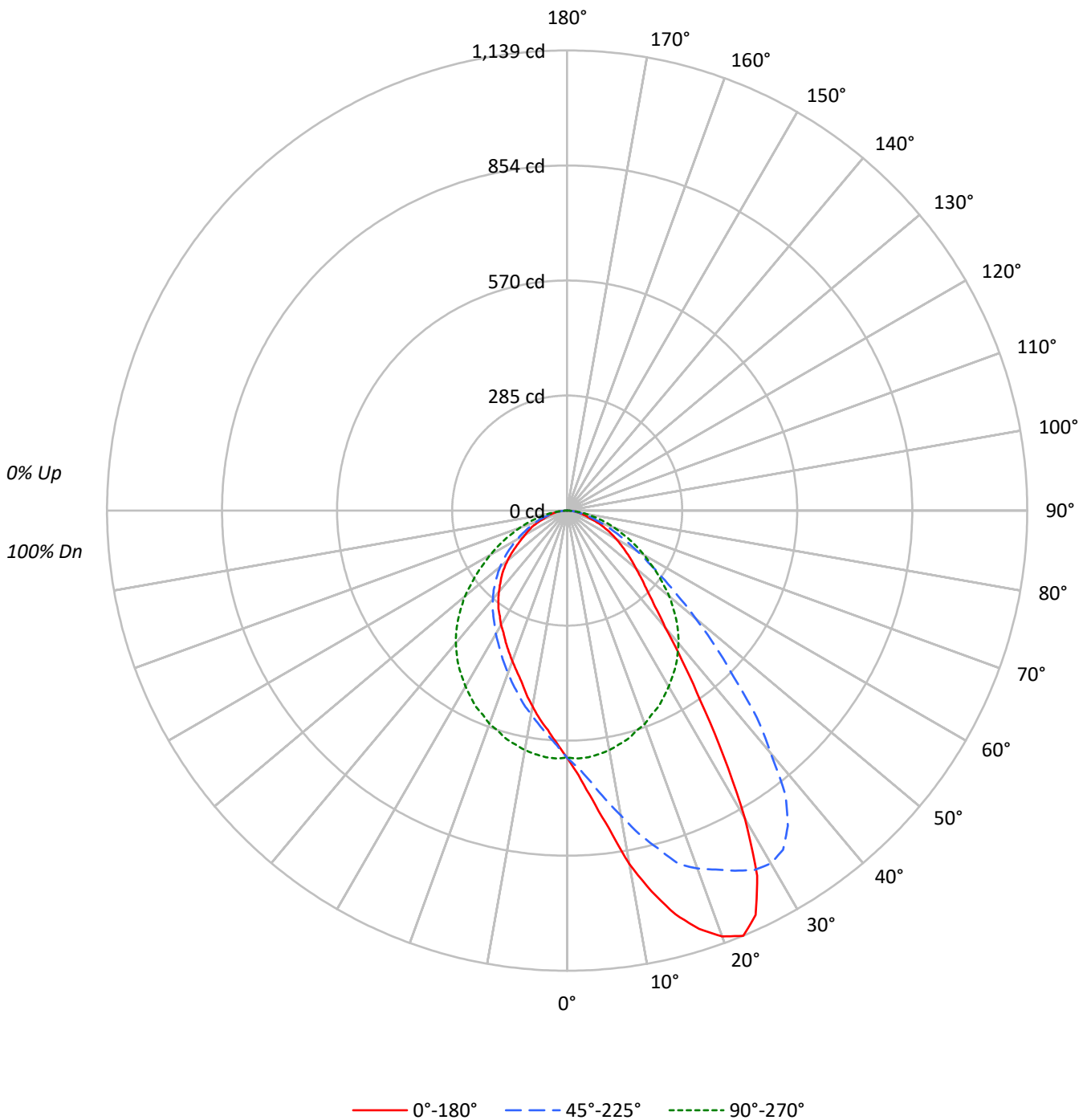
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1593.5 lumens  
Efficiency: N/A  
Efficacy: 92.6 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	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°	7413	7413	7413	7413	7413
5°	8739	8202	7454	6776	6637
10°	10940	9432	7410	6298	6058
15°	12983	10852	7336	5892	5488
20°	14469	12163	7248	5529	5109
25°	14769	13155	7158	5199	4809
30°	12307	14114	7037	4941	4575
35°	8503	14094	6940	4713	4384
40°	5975	12409	6782	4521	4154
45°	4798	9994	6541	4318	3929
50°	4183	7822	6229	4079	3636
55°	3749	6038	5765	3812	3238
60°	3394	4807	5326	3457	2931
65°	2969	3947	4907	3129	2742
70°	2396	3211	4416	2874	2321
75°	2079	2524	3845	2426	2276
80°	1920	2066	3281	2324	2283
85°	1683	1766	2642	2100	1989

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 55°  
 Vertical Angle: 45°  
 Luminance: 12524 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	60.0	3.8
10°-20°	188.9	11.9
20°-30°	302.6	19.0
30°-40°	328.5	20.6
40°-50°	281.5	17.7
50°-60°	213.4	13.4
60°-70°	136.3	8.6
70°-80°	65.2	4.1
80°-90°	17.1	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°	551.5	34.6
0°-40°	880.0	55.2
0°-60°	1374.8	86.3
0°-90°	1593.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1593.5	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	612	612	612	612	612	
5°	718	674	613	557	546	74
15°	1035	865	585	470	437	293
25°	1104	984	535	389	360	490
35°	575	952	469	318	296	369
45°	280	583	382	252	229	221
55°	177	286	273	180	153	160
65°	104	138	171	109	96	103
75°	44	54	82	52	49	48
85°	12	13	19	15	14	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°	611.6	611.6	611.6	611.6	611.6	611.6	611.6	611.6	611.6	611.6	611.6
2.5°	655.4	656.2	654.9	654.6	654.3	650.1	648.8	646.7	639.3	637.4	636.1
5°	718.2	716.1	718.5	714.0	709.0	706.1	701.3	690.8	681.5	674.1	669.4
7.5°	792.7	793.5	791.1	786.9	776.9	772.6	759.7	747.0	734.9	719.6	708.2
10°	888.8	882.5	883.8	870.6	860.0	847.4	829.7	809.3	787.9	766.3	750.2
12.5°	965.4	969.9	966.7	960.4	940.0	927.6	911.5	881.9	848.2	819.1	794.5
15°	1034.6	1028.5	1029.3	1014.0	1006.6	995.2	968.6	939.3	917.3	864.8	835.7
17.5°	1085.3	1084.7	1084.0	1071.0	1062.0	1038.3	1011.1	981.0	953.5	917.1	880.6
20°	1121.7	1125.7	1124.6	1114.1	1098.2	1075.2	1058.9	1021.4	976.2	942.9	898.3
22.5°	1139.1	1139.4	1139.9	1134.9	1124.4	1109.6	1086.3	1056.2	1016.1	961.7	912.1
25°	1104.3	1105.6	1112.5	1116.7	1119.6	1113.0	1100.9	1073.7	1039.1	983.6	932.1
27.5°	1018.7	1023.0	1030.6	1056.0	1066.3	1080.5	1085.5	1074.7	1049.1	1002.9	944.3
30°	879.3	891.2	898.6	927.4	967.8	1005.8	1023.7	1041.4	1039.1	1008.4	949.0
32.5°	719.8	727.5	748.9	779.8	811.7	867.4	929.7	972.5	996.6	995.0	953.0
35°	574.6	585.7	603.9	627.4	671.5	729.3	799.8	867.2	927.4	952.5	937.4
37.5°	466.3	467.4	484.5	517.8	545.3	596.2	659.9	743.1	822.0	887.5	902.0
40°	377.6	385.0	394.0	414.8	447.3	496.2	538.4	620.3	702.1	784.2	842.9
42.5°	321.6	321.6	331.7	344.9	366.5	395.8	446.3	520.5	594.1	695.0	761.0
45°	279.9	282.5	287.0	295.5	310.8	333.5	372.6	423.0	498.3	583.0	682.3
47.5°	249.8	249.5	253.5	258.5	270.4	287.6	310.5	351.5	407.2	498.5	586.2
50°	221.8	222.9	225.8	230.0	237.9	250.1	264.6	295.5	342.5	414.8	506.7
52.5°	200.2	199.9	202.3	204.9	211.0	217.8	230.8	253.8	286.2	343.8	420.1
55°	177.4	178.5	181.4	183.0	188.0	192.5	203.3	216.3	242.4	285.7	355.2
57.5°	157.9	159.2	160.8	162.4	165.8	170.3	179.3	187.2	206.2	237.4	292.8
60°	140.0	139.4	141.3	143.9	145.8	149.7	154.7	162.9	176.1	198.3	239.0
62.5°	122.0	122.3	122.5	124.1	127.5	131.0	135.5	141.5	149.5	165.8	194.6
65°	103.5	103.8	104.3	105.9	109.3	111.4	116.2	121.5	127.8	137.6	157.6
67.5°	87.1	88.2	88.2	89.5	90.8	92.9	96.4	100.3	105.6	112.8	125.7
70°	67.6	67.3	68.7	71.3	72.6	76.3	78.7	81.3	86.1	90.6	101.7
72.5°	54.4	54.4	54.4	55.5	55.7	56.5	58.1	63.6	67.3	71.8	77.9
75°	44.4	44.6	44.6	44.9	45.2	45.9	46.5	48.1	49.1	53.9	57.6
77.5°	35.4	35.6	35.6	35.9	36.2	36.4	37.5	37.5	38.3	39.3	40.9
80°	27.5	27.2	27.2	27.5	27.5	28.3	28.3	28.8	29.0	29.6	30.4
82.5°	19.5	19.3	19.5	19.3	19.5	19.8	20.3	20.1	20.6	21.1	21.4
85°	12.1	12.4	12.4	12.9	12.7	12.4	12.7	12.7	12.7	12.7	13.2
87.5°	5.3	5.8	5.8	5.5	5.8	5.8	5.3	5.8	5.8	5.8	6.1
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°	611.6	611.6	611.6	611.6	611.6	611.6	611.6	611.6	611.6	611.6	611.6
2.5°	635.3	634.3	630.3	626.6	621.1	618.7	615.5	614.2	610.0	604.2	601.5
5°	664.9	657.0	649.3	640.1	632.4	623.4	618.4	612.6	603.6	595.4	589.6
7.5°	696.3	684.7	670.4	655.1	641.4	628.5	617.4	608.1	596.5	585.1	576.2
10°	730.9	711.1	688.1	668.6	648.8	630.0	616.0	602.0	587.0	572.7	561.9
12.5°	768.1	740.2	712.4	683.1	653.5	631.9	611.0	593.1	576.2	561.1	548.2
15°	806.7	768.4	733.0	700.0	658.8	629.8	606.8	584.6	563.5	545.0	532.3
17.5°	834.2	790.3	745.7	699.0	663.6	627.7	599.1	571.2	551.6	532.6	515.4
20°	859.5	809.9	756.8	713.2	663.8	620.0	588.8	561.9	534.7	514.4	499.9
22.5°	870.3	825.4	771.8	711.4	662.0	617.1	577.0	546.6	522.3	500.1	481.1
25°	872.4	822.3	767.3	709.0	654.9	606.3	565.6	535.2	503.6	480.6	465.8
27.5°	881.7	813.0	759.2	701.1	646.1	595.4	552.7	518.9	489.3	464.7	445.7
30°	884.1	809.1	741.7	686.3	629.8	580.1	536.8	502.8	470.5	445.5	428.3
32.5°	885.1	803.8	723.5	662.8	608.9	562.2	522.6	485.6	455.0	428.6	410.9
35°	881.4	796.4	701.6	636.1	584.4	538.4	501.7	469.0	434.9	410.1	391.3
37.5°	866.9	784.8	689.2	605.0	555.6	512.3	481.1	448.9	417.5	390.5	371.3
40°	839.4	767.9	666.0	578.8	522.8	484.0	455.0	428.6	396.9	371.0	352.0
42.5°	795.6	744.9	644.6	549.2	490.4	453.6	429.4	406.6	378.1	353.6	332.7
45°	730.6	712.7	616.0	519.1	455.0	420.4	399.3	381.6	355.7	333.2	314.0
47.5°	660.4	664.4	587.3	488.5	422.8	389.7	371.3	355.7	336.1	312.1	294.4
50°	579.3	601.0	546.9	457.6	390.5	358.1	339.8	330.3	312.1	292.0	275.4
52.5°	505.1	539.5	505.9	423.8	358.9	326.9	310.0	300.5	288.4	271.7	254.8
55°	428.3	471.9	447.6	387.4	326.6	294.4	280.2	272.8	262.7	249.8	234.5
57.5°	364.7	411.1	395.8	349.1	295.2	266.2	253.5	245.0	239.0	227.1	214.7
60°	302.3	345.4	339.3	305.0	264.1	236.3	226.6	219.7	214.7	206.0	193.8
62.5°	244.0	285.7	289.4	262.5	233.7	208.6	199.6	194.9	190.9	184.0	173.0
65°	193.6	230.3	237.9	217.3	201.7	182.7	174.0	171.1	168.2	160.3	151.8
67.5°	151.6	180.4	190.4	178.8	167.7	156.6	149.7	145.8	143.6	138.9	133.1
70°	115.9	140.7	149.2	144.2	136.8	132.6	127.3	124.6	122.5	116.4	113.3
72.5°	86.9	103.8	114.3	112.8	111.2	108.3	105.1	104.3	101.1	97.2	94.3
75°	63.6	73.4	82.9	86.3	85.8	86.9	83.4	82.1	80.3	77.4	75.0
77.5°	45.7	51.5	58.1	62.3	64.4	64.7	64.7	63.9	62.6	60.5	58.6
80°	31.7	33.0	39.1	43.0	45.2	46.7	46.7	47.0	45.7	44.9	43.6
82.5°	21.9	22.7	24.0	27.2	29.8	31.7	32.0	31.7	31.2	30.9	29.0
85°	13.7	13.5	13.5	14.3	16.4	18.2	18.5	19.0	18.7	18.5	16.6
87.5°	5.8	5.8	6.1	5.8	6.6	6.9	7.4	8.7	8.4	7.1	6.6
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):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	611.6	611.6	611.6	611.6	611.6	611.6	611.6	611.6	611.6	611.6	611.6
2.5°	599.9	596.5	593.3	589.9	585.7	581.7	581.2	580.7	582.0	579.3	578.3
5°	585.1	578.5	573.5	567.2	562.7	556.9	553.7	552.9	552.7	551.1	549.0
7.5°	569.0	561.9	554.8	547.7	540.3	534.2	530.8	528.9	527.3	524.7	522.6
10°	554.0	545.0	537.4	527.6	519.7	511.7	508.6	505.9	504.3	500.7	497.7
12.5°	537.1	525.7	517.3	506.7	499.6	492.7	487.7	482.7	479.0	473.5	471.1
15°	522.3	510.4	496.2	489.8	479.8	469.5	463.9	463.9	456.3	451.8	448.9
17.5°	502.5	492.2	482.2	469.2	455.0	448.9	442.6	437.0	431.7	430.4	425.1
20°	485.1	472.9	462.6	448.6	435.7	428.6	421.2	415.1	411.1	407.4	404.5
22.5°	467.9	455.8	439.9	426.2	417.5	408.0	400.0	394.8	391.3	385.8	383.1
25°	450.0	435.4	421.2	407.7	396.9	388.7	380.5	377.6	371.5	368.6	364.9
27.5°	432.0	414.6	401.1	389.5	377.3	369.4	363.9	358.6	353.3	351.7	349.6
30°	411.9	395.8	382.9	371.5	359.9	353.0	346.4	341.7	337.2	333.8	331.4
32.5°	391.9	378.4	366.0	352.8	342.2	334.8	329.3	325.1	322.9	317.1	315.0
35°	373.4	359.6	346.4	334.0	325.6	318.5	313.4	309.5	305.0	301.3	299.2
37.5°	354.4	342.0	328.5	317.9	308.4	302.6	297.1	291.8	288.4	286.2	283.6
40°	335.9	322.7	312.4	300.8	292.3	285.7	279.9	275.9	271.7	269.9	266.4
42.5°	318.5	305.8	293.9	283.3	275.7	269.3	263.8	259.3	255.9	252.4	250.6
45°	298.4	287.3	276.5	265.9	258.8	251.9	245.8	241.9	237.1	234.2	233.2
47.5°	281.5	269.9	258.2	248.5	241.1	233.7	228.7	223.9	220.0	217.1	215.5
50°	261.4	250.6	241.1	231.3	224.2	216.3	210.2	205.7	201.2	199.1	196.5
52.5°	244.3	233.7	222.1	213.4	205.2	198.3	192.8	189.1	185.1	181.9	180.1
55°	222.9	212.6	203.3	194.1	185.9	180.4	175.9	169.5	166.1	162.9	157.9
57.5°	204.1	194.3	184.6	175.6	167.9	161.3	155.8	151.6	147.1	144.7	141.3
60°	184.3	174.0	165.0	158.2	149.7	142.6	138.9	133.9	130.2	126.5	125.4
62.5°	164.8	155.3	146.3	139.2	131.5	126.0	121.2	118.8	115.1	112.2	111.2
65°	144.4	136.5	128.1	120.1	115.4	109.1	106.4	102.5	100.3	99.0	98.8
67.5°	124.4	117.2	109.6	103.5	99.0	94.8	91.6	90.0	87.9	86.3	85.0
70°	106.2	99.3	92.7	87.7	84.2	81.1	79.0	76.0	73.9	71.8	68.9
72.5°	88.2	82.6	77.1	73.1	69.7	67.9	65.0	60.5	58.4	57.8	57.6
75°	71.6	65.5	61.5	59.4	56.2	51.8	49.9	49.4	49.1	48.6	48.6
77.5°	55.2	51.5	48.9	44.4	42.8	42.5	41.2	40.9	40.4	40.7	40.7
80°	40.1	38.0	34.9	33.5	33.0	33.3	32.7	33.0	32.5	32.7	32.2
82.5°	26.7	24.8	25.3	24.6	24.6	25.1	24.8	24.0	24.0	23.8	23.8
85°	15.8	15.6	16.1	16.1	15.8	15.1	15.6	15.3	14.5	14.8	14.8
87.5°	6.9	6.9	6.9	6.6	6.9	6.6	6.6	6.6	5.8	5.8	5.8
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: P243420

CATALOG NUMBER: S123RDRP-H560D927-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	611.6	611.6	611.6	611.6
2.5°	578.8	578.3	577.5	576.7
5°	549.0	546.6	546.3	545.5
7.5°	521.0	519.9	518.1	520.2
10°	495.4	496.2	494.3	492.2
12.5°	468.7	467.1	464.2	465.8
15°	445.2	442.6	441.0	437.3
17.5°	420.6	418.5	418.5	416.2
20°	399.3	397.1	397.7	396.1
22.5°	381.3	379.7	377.3	377.6
25°	364.4	362.0	359.4	359.6
27.5°	345.7	343.5	343.0	341.2
30°	329.0	327.2	326.9	326.9
32.5°	312.9	312.1	310.8	310.0
35°	298.9	297.9	295.7	296.3
37.5°	281.5	280.4	280.2	279.9
40°	265.1	264.3	262.2	262.5
42.5°	248.7	247.4	246.1	245.6
45°	231.0	230.8	228.7	229.2
47.5°	214.2	213.6	212.6	211.2
50°	195.4	195.1	194.3	192.8
52.5°	177.2	176.4	174.8	173.2
55°	156.6	154.2	154.5	153.2
57.5°	139.7	138.6	136.5	135.7
60°	123.3	122.3	122.0	120.9
62.5°	109.6	108.5	107.7	107.7
65°	97.2	95.9	95.6	95.6
67.5°	83.4	82.1	81.9	81.3
70°	66.3	66.0	65.5	65.5
72.5°	57.0	56.8	57.0	56.0
75°	48.6	48.3	48.3	48.6
77.5°	40.4	40.4	40.1	40.1
80°	32.0	32.2	32.0	32.7
82.5°	24.0	23.5	23.8	23.2
85°	14.8	14.8	14.3	14.3
87.5°	5.8	5.8	5.8	5.8
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P243420  
 CATALOG NUMBER: S123RDRP-H560D927-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	15.35	16.85	15.71	17.16	17.48	18.05	19.55	18.41	19.86	20.18
	3H	16.53	17.88	16.91	18.21	18.57	19.47	20.82	19.85	21.15	21.51
	4H	16.89	18.15	17.29	18.50	18.88	19.98	21.24	20.38	21.58	21.96
	6H	17.16	18.32	17.57	18.69	19.08	20.32	21.48	20.73	21.85	22.24
	8H	17.25	18.36	17.68	18.75	19.15	20.42	21.53	20.85	21.92	22.32
	12H	17.31	18.37	17.74	18.75	19.18	20.48	21.54	20.91	21.92	22.35
4H	2H	16.30	17.56	16.70	17.91	18.28	18.33	19.59	18.73	19.93	20.31
	3H	17.57	18.61	17.98	19.01	19.41	20.04	21.09	20.45	21.49	21.89
	4H	17.97	18.91	18.41	19.33	19.77	20.66	21.60	21.09	22.01	22.45
	6H	18.32	19.13	18.78	19.58	20.04	21.11	21.93	21.57	22.37	22.83
	8H	18.43	19.20	18.90	19.64	20.11	21.25	22.01	21.72	22.46	22.93
	12H	18.52	19.20	19.01	19.68	20.15	21.35	22.03	21.83	22.51	22.98
8H	4H	18.33	19.10	18.80	19.54	20.01	20.72	21.48	21.18	21.92	22.39
	6H	18.75	19.38	19.25	19.87	20.35	21.25	21.87	21.74	22.37	22.84
	8H	18.92	19.48	19.43	19.99	20.48	21.44	22.00	21.95	22.51	23.00
	12H	19.06	19.56	19.57	20.05	20.62	21.59	22.09	22.10	22.58	23.14
12H	4H	18.36	19.04	18.85	19.52	19.99	20.70	21.38	21.19	21.86	22.33
	6H	18.80	19.36	19.31	19.87	20.36	21.24	21.80	21.75	22.31	22.80
	8H	19.01	19.51	19.52	20.00	20.57	21.47	21.96	21.98	22.46	23.02