

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: P242585

Luminaire Tested: S123RDRP-S560D935-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P242585  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-30)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: S123RDRP-S560D935-X4F0-XX-UDD-A-W  
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER  
STANDARD LIGHT ENGINE  
Light Source: (92) 3500K CCT, 90 CRI LEDS  
Ballast/Driver: -

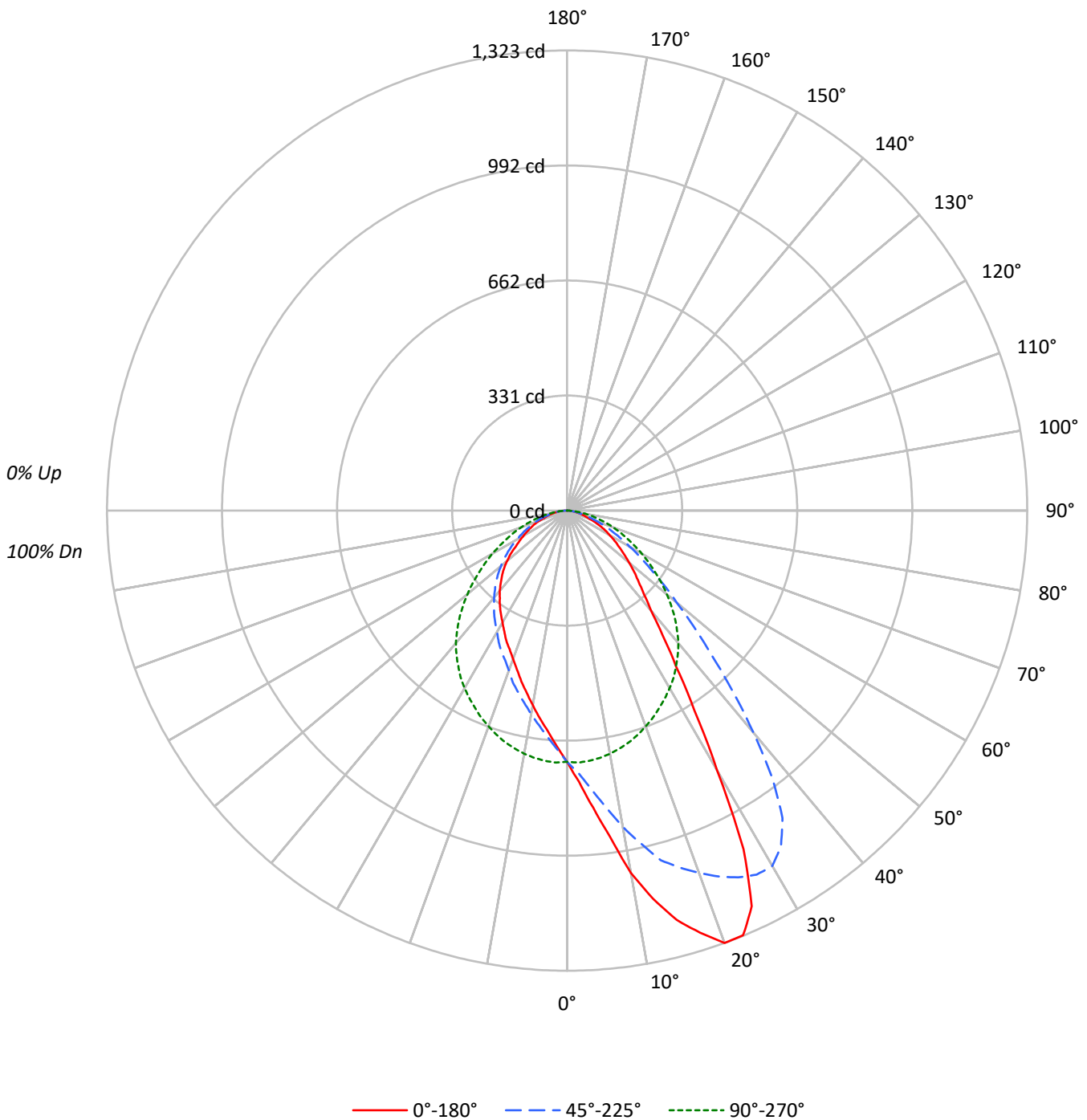
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1798.0 lumens  
Efficiency: N/A  
Efficacy: 95.6 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.22 / 1.35  
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 18.8  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): 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	108	104	100	97	100	97	94	96	93	91	92	90	89	87					87			
2	101	94	88	83	99	92	87	82	89	84	80	86	82	78	83	79	77	74					74			
3	93	84	76	71	91	82	75	70	79	74	69	77	72	68	74	70	66	64					64			
4	86	75	67	61	84	74	66	61	71	65	60	69	64	59	67	62	58	56					56			
5	80	68	60	53	78	67	59	53	65	58	53	63	57	52	61	56	52	50					50			
6	74	62	53	47	72	61	53	47	59	52	47	57	51	46	56	50	46	44					44			
7	69	56	48	42	67	55	48	42	54	47	42	53	46	42	51	46	41	39					39			
8	64	52	44	38	63	51	43	38	50	43	38	48	42	38	47	42	37	36					36			
9	60	48	40	35	59	47	40	35	46	39	34	45	39	34	44	38	34	32					32			
10	57	44	37	32	55	44	36	32	43	36	31	42	36	31	41	35	31	29					29			

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

	0°	45°	90°	135°	180°
0°	8753	8753	8753	8753	8753
5°	10434	9786	8790	7936	7741
10°	13027	11368	8739	7312	6994
15°	15291	13057	8650	6800	6377
20°	17066	14299	8517	6319	5854
25°	16793	15561	8376	5986	5532
30°	12070	16510	8247	5642	5201
35°	8060	15972	8078	5407	4985
40°	5938	13166	7875	5169	4764
45°	4981	10047	7518	4949	4546
50°	4396	7747	7053	4680	4243
55°	3855	6179	6519	4402	3827
60°	3433	5042	6010	4046	3508
65°	3014	4130	5461	3731	3264
70°	2367	3321	4972	3431	2981
75°	2084	2445	4341	3100	2721
80°	1815	2094	3693	2715	2673
85°	1460	1585	2962	2754	2837

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 60°  
 Vertical Angle: 45°  
 Luminance: 14137 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	70.9	3.9
10°-20°	222.0	12.3
20°-30°	349.6	19.4
30°-40°	363.6	20.2
40°-50°	311.0	17.3
50°-60°	237.1	13.2
60°-70°	151.9	8.4
70°-80°	72.8	4.0
80°-90°	19.1	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°	642.5	35.7
0°-40°	1006.1	56.0
0°-60°	1554.2	86.4
0°-90°	1798.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1798.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	722	722	722	722	722	
5°	858	804	722	652	636	88
15°	1218	1040	689	542	508	346
25°	1256	1164	626	448	414	546
35°	545	1079	546	365	337	354
45°	291	586	439	289	265	228
55°	182	292	308	208	181	165
65°	105	144	190	130	114	103
75°	44	52	93	66	58	48
85°	10	11	21	20	20	12
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°	722.1	722.1	722.1	722.1	722.1	722.1	722.1	722.1	722.1	722.1	722.1
2.5°	780.8	782.1	778.0	777.4	772.8	771.6	771.6	765.1	761.0	755.8	752.7
5°	857.5	862.4	860.0	854.4	845.1	843.0	837.1	827.8	817.3	804.3	798.1
7.5°	945.3	955.5	953.6	945.0	935.1	928.9	912.5	899.2	879.1	860.9	846.7
10°	1058.4	1051.3	1045.7	1037.4	1028.4	1013.9	996.6	972.8	945.3	923.6	899.5
12.5°	1143.1	1143.4	1136.0	1127.3	1113.7	1100.1	1077.9	1047.6	1014.5	980.8	952.4
15°	1218.5	1220.4	1215.8	1206.8	1188.9	1164.4	1132.3	1120.2	1074.5	1040.5	1006.5
17.5°	1272.3	1272.6	1271.7	1259.6	1240.2	1223.5	1193.5	1165.4	1122.1	1076.0	1030.6
20°	1323.0	1319.9	1320.5	1306.6	1293.0	1272.9	1243.9	1197.8	1163.8	1108.5	1061.2
22.5°	1321.8	1321.8	1324.6	1322.1	1313.1	1298.9	1277.6	1240.5	1194.7	1138.8	1084.1
25°	1255.6	1253.2	1267.7	1271.7	1287.5	1290.3	1283.5	1262.1	1221.0	1163.5	1097.7
27.5°	1098.0	1089.0	1119.3	1149.3	1189.2	1214.5	1240.5	1246.4	1226.9	1179.9	1111.0
30°	862.4	891.5	905.1	953.9	1008.3	1073.3	1130.1	1184.2	1197.5	1179.6	1125.5
32.5°	679.4	703.9	714.7	754.9	804.6	883.5	975.9	1058.1	1122.4	1144.0	1116.8
35°	544.7	545.0	570.9	589.5	636.5	714.7	797.5	900.1	1002.2	1079.4	1087.5
37.5°	449.5	450.7	467.4	485.9	523.6	567.5	644.5	731.1	853.8	969.1	1029.0
40°	375.3	378.0	389.8	408.0	433.4	464.6	521.5	601.8	700.1	832.1	940.0
42.5°	327.7	332.6	337.2	350.2	363.5	392.3	435.5	493.0	580.2	703.2	831.8
45°	290.6	293.0	297.7	304.2	318.4	338.8	369.7	411.4	485.6	586.1	710.7
47.5°	262.1	260.6	265.8	271.4	281.0	295.8	317.5	353.6	409.3	493.3	601.2
50°	233.1	232.8	236.2	240.2	249.1	259.3	276.4	302.0	344.0	410.8	507.6
52.5°	205.9	207.4	209.6	214.8	220.7	228.4	243.3	260.0	294.6	349.9	426.6
55°	182.4	183.3	186.7	189.5	194.1	202.5	212.1	227.5	252.2	292.4	358.9
57.5°	162.0	161.7	165.1	165.4	171.3	178.4	186.1	198.1	217.0	248.8	295.2
60°	141.6	140.6	143.4	145.6	148.4	153.9	160.1	171.9	186.1	208.0	246.4
62.5°	123.0	122.7	124.6	126.7	128.9	133.8	138.8	147.1	157.6	175.3	203.7
65°	105.1	106.0	107.0	107.9	109.1	112.2	117.2	123.3	131.1	144.0	166.0
67.5°	86.6	87.8	88.1	90.3	92.7	94.3	97.1	102.9	108.8	120.6	133.5
70°	66.8	66.5	66.8	67.7	71.1	74.5	78.5	82.5	85.9	93.7	104.2
72.5°	55.0	54.4	55.3	55.3	56.6	56.9	59.0	62.8	67.4	72.0	78.8
75°	44.5	44.5	44.5	44.5	45.7	46.4	47.3	48.2	49.8	52.2	57.8
77.5°	34.6	34.6	35.2	35.5	35.9	36.2	36.8	37.7	38.3	39.6	42.3
80°	26.0	26.3	26.0	26.3	26.3	26.9	27.2	28.1	28.4	30.0	30.9
82.5°	17.9	17.6	17.9	18.2	18.2	18.9	18.9	19.5	19.5	20.1	21.0
85°	10.5	9.9	10.5	10.2	10.8	10.2	10.5	11.1	11.1	11.4	12.7
87.5°	3.1	3.7	3.1	3.4	3.4	3.7	3.7	3.7	4.3	4.0	4.3
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°	722.1	722.1	722.1	722.1	722.1	722.1	722.1	722.1	722.1	722.1	722.1
2.5°	751.5	750.5	746.2	741.3	734.8	730.4	727.0	725.2	719.6	712.8	708.2
5°	791.6	782.4	772.5	760.4	749.3	737.9	730.8	722.4	712.2	700.8	692.7
7.5°	831.5	815.4	797.8	779.6	761.0	744.7	729.5	717.2	701.7	685.9	675.1
10°	878.8	852.2	824.7	796.6	770.9	746.8	728.3	710.0	690.6	671.7	657.5
12.5°	921.8	884.7	851.9	815.8	781.1	751.2	722.4	700.1	675.7	655.3	638.6
15°	956.7	920.9	882.5	830.0	786.4	749.9	717.5	689.3	660.9	636.2	620.4
17.5°	993.2	938.8	888.4	847.6	790.7	746.5	708.5	675.7	644.8	619.5	599.7
20°	1014.2	962.0	906.0	850.1	794.4	743.4	697.4	660.3	627.8	598.1	580.2
22.5°	1026.9	966.0	906.3	845.1	785.2	731.7	686.2	644.5	608.7	580.8	557.6
25°	1036.2	965.7	900.8	841.4	781.1	723.6	669.5	626.3	588.2	558.3	534.8
27.5°	1043.6	962.0	887.5	822.9	762.0	703.5	654.7	608.3	570.3	539.1	513.4
30°	1045.4	957.3	871.7	800.3	738.2	685.6	633.1	589.2	548.4	514.7	491.2
32.5°	1047.9	945.9	850.4	773.4	709.4	657.5	611.1	569.7	527.7	494.6	470.5
35°	1039.2	943.1	828.7	741.6	677.9	627.5	584.5	545.9	504.8	472.6	448.2
37.5°	1013.0	928.0	807.1	706.0	640.2	593.8	558.0	522.7	484.7	449.5	426.9
40°	968.8	903.2	781.1	674.2	604.6	556.7	525.2	497.7	461.2	428.7	404.0
42.5°	902.9	869.5	756.4	640.8	564.4	518.7	493.3	468.0	437.1	404.0	381.1
45°	819.5	824.7	720.9	604.9	528.0	481.6	456.6	438.6	410.2	383.0	359.2
47.5°	718.1	762.0	682.8	567.2	488.4	444.8	422.9	406.5	386.7	358.6	336.6
50°	619.2	689.3	635.2	529.2	451.6	408.3	386.7	374.0	357.3	336.3	315.6
52.5°	528.0	604.6	577.7	486.9	411.7	373.1	352.1	342.2	329.8	310.4	292.1
55°	445.4	521.8	514.4	444.2	371.9	336.3	320.2	308.5	299.5	284.7	269.9
57.5°	373.7	447.6	449.1	396.9	337.2	301.1	287.2	277.9	271.7	260.0	245.4
60°	306.6	373.1	386.1	349.0	299.5	268.6	255.0	247.9	243.3	234.3	223.8
62.5°	251.0	305.1	320.2	296.1	263.4	234.9	225.0	218.2	215.5	208.0	199.1
65°	200.6	247.6	261.8	247.0	228.1	204.9	196.3	190.4	187.6	183.3	176.5
67.5°	158.3	194.7	210.2	197.8	190.7	174.3	168.5	165.1	162.6	159.5	153.6
70°	121.2	146.5	162.6	159.8	154.2	146.5	142.5	140.3	137.9	135.4	130.4
72.5°	91.5	107.0	121.8	124.3	119.9	119.9	116.5	115.9	114.7	111.6	109.4
75°	64.6	76.7	87.2	91.2	93.0	94.6	93.0	92.7	92.4	90.0	88.4
77.5°	44.8	52.5	59.7	66.8	69.2	71.4	71.7	73.0	72.0	70.5	69.9
80°	32.5	34.0	38.6	44.5	49.1	51.0	52.2	52.9	52.5	52.2	51.0
82.5°	21.3	22.6	24.1	27.8	31.5	34.9	35.5	35.2	36.2	36.5	35.5
85°	12.7	13.0	13.6	14.2	16.4	19.8	20.7	21.3	21.9	21.9	20.1
87.5°	4.9	4.6	5.3	5.3	6.2	6.5	8.3	9.9	10.2	9.0	9.0
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°	722.1	722.1	722.1	722.1	722.1	722.1	722.1	722.1	722.1	722.1	722.1
2.5°	706.6	702.6	699.8	693.7	689.6	685.3	681.0	683.8	683.5	683.1	683.1
5°	685.9	678.8	672.3	664.0	658.7	652.2	647.3	646.7	647.9	643.6	641.1
7.5°	666.5	657.2	647.9	639.3	629.7	622.3	617.6	615.8	612.4	609.6	607.1
10°	645.7	634.3	625.3	613.9	603.4	594.1	588.2	584.2	582.1	579.9	575.9
12.5°	624.4	613.3	601.2	587.9	578.0	566.9	562.9	558.3	553.6	551.2	545.3
15°	603.7	589.2	577.1	563.5	552.4	541.9	535.7	526.7	525.5	522.4	516.8
17.5°	583.6	567.5	549.9	540.6	529.5	518.4	508.5	505.7	496.4	493.3	488.1
20°	558.9	544.4	531.7	518.4	500.2	489.9	482.5	478.5	471.4	467.1	464.0
22.5°	537.6	522.7	507.6	491.5	477.3	465.5	460.6	453.8	450.7	444.2	440.8
25°	517.5	501.4	483.8	467.1	456.3	447.6	438.9	433.4	427.8	425.0	418.9
27.5°	493.0	477.0	460.0	447.0	434.6	426.0	417.6	413.0	405.9	401.2	397.8
30°	473.6	453.8	439.6	428.1	411.1	403.1	397.2	391.0	386.1	381.1	377.7
32.5°	451.0	433.4	420.1	405.3	393.2	384.2	376.2	370.9	366.9	362.3	358.9
35°	427.2	412.1	398.1	383.9	374.3	365.4	356.4	351.8	347.8	343.4	340.3
37.5°	405.6	391.3	378.4	364.8	353.0	345.3	337.9	334.8	329.2	326.1	323.0
40°	385.8	371.9	357.6	344.7	332.3	326.7	320.2	315.0	310.0	307.9	304.5
42.5°	364.1	350.2	338.8	324.6	315.0	307.0	301.1	295.2	291.8	288.4	286.9
45°	342.8	330.4	318.7	304.8	295.2	288.7	281.9	276.7	273.3	271.1	267.7
47.5°	322.4	309.7	298.0	285.6	276.4	268.9	261.8	258.4	253.8	251.3	248.8
50°	299.8	288.7	276.0	264.9	255.6	248.2	242.7	238.0	234.0	230.6	229.1
52.5°	279.1	267.1	256.6	246.4	236.5	227.8	222.9	217.9	215.1	211.1	209.3
55°	255.9	244.5	235.2	225.0	215.5	208.3	202.2	197.8	194.7	190.4	187.9
57.5°	234.6	224.7	213.3	204.3	194.1	188.6	183.3	177.1	173.4	170.0	167.5
60°	213.0	201.2	191.7	183.3	174.7	166.9	162.3	157.6	153.6	150.2	148.1
62.5°	190.4	180.5	171.6	162.3	154.6	148.1	142.5	138.8	135.4	133.5	131.4
65°	167.2	159.2	149.9	142.5	135.1	130.1	125.8	122.4	119.9	118.4	116.5
67.5°	145.9	138.2	129.8	122.1	117.2	113.1	110.0	107.0	105.7	103.9	102.6
70°	125.2	117.2	110.0	104.5	99.5	96.8	94.9	92.7	91.5	89.0	87.8
72.5°	102.6	97.4	92.7	88.4	84.7	82.2	79.8	77.0	74.8	72.0	70.8
75°	84.4	79.1	75.1	72.0	69.6	66.2	62.8	60.0	59.0	58.1	57.8
77.5°	65.8	62.4	59.4	56.9	53.5	50.4	49.5	48.8	48.5	47.9	47.9
80°	49.1	46.1	43.9	40.8	38.9	38.9	38.9	38.3	38.6	38.6	38.6
82.5°	33.4	30.6	29.7	29.1	29.1	29.4	29.4	29.7	29.4	30.0	29.7
85°	18.9	19.2	19.8	19.5	19.8	19.8	20.4	20.1	20.4	19.8	20.4
87.5°	8.7	9.6	9.9	10.2	10.5	10.2	10.5	10.5	10.8	10.8	10.8
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: P242585

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**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	722.1	722.1	722.1	722.1
2.5°	679.4	679.1	679.4	678.2
5°	640.2	639.9	638.9	636.2
7.5°	604.6	604.0	601.5	602.2
10°	573.7	574.0	570.3	568.2
12.5°	543.7	541.9	539.1	536.6
15°	518.1	515.0	507.6	508.2
17.5°	486.2	483.8	483.5	479.1
20°	459.0	457.5	458.1	453.8
22.5°	437.7	436.2	432.8	432.1
25°	417.0	414.5	412.1	413.6
27.5°	396.0	394.1	391.3	391.3
30°	376.2	374.3	373.1	371.6
32.5°	356.1	356.1	353.6	353.6
35°	339.1	337.2	336.6	336.9
37.5°	322.7	320.2	319.0	317.8
40°	304.8	302.3	301.7	301.1
42.5°	284.7	284.1	283.8	282.5
45°	266.8	266.5	264.6	265.2
47.5°	247.6	246.1	245.1	246.1
50°	227.8	227.2	224.4	225.0
52.5°	208.0	205.3	204.6	204.0
55°	185.8	183.0	181.8	181.1
57.5°	163.8	162.9	161.7	162.6
60°	145.0	145.0	145.0	144.7
62.5°	130.4	129.5	129.2	129.8
65°	115.6	115.3	114.1	113.8
67.5°	102.0	100.8	100.8	100.2
70°	86.2	85.6	83.8	84.1
72.5°	69.2	68.6	68.6	68.0
75°	57.5	57.2	56.9	58.1
77.5°	47.9	47.9	48.2	47.6
80°	38.6	38.6	38.3	38.3
82.5°	29.1	29.4	29.7	29.1
85°	20.4	20.1	20.7	20.4
87.5°	11.4	10.8	10.8	11.1
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P242585  
 CATALOG NUMBER: S123RDRP-S560D935-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	15.18	16.67	15.54	16.98	17.30	18.57	20.06	18.94	20.38	20.69
	3H	16.27	17.61	16.65	17.93	18.30	19.98	21.32	20.36	21.65	22.01
	4H	16.60	17.86	17.00	18.21	18.59	20.48	21.73	20.88	22.08	22.46
	6H	16.85	18.01	17.26	18.37	18.77	20.83	21.99	21.24	22.35	22.75
	8H	16.92	18.02	17.35	18.41	18.81	20.93	22.03	21.36	22.42	22.82
	12H	16.96	18.01	17.39	18.39	18.82	20.99	22.05	21.43	22.43	22.86
4H	2H	16.16	17.41	16.56	17.76	18.14	18.81	20.06	19.21	20.41	20.79
	3H	17.32	18.36	17.74	18.76	19.16	20.50	21.54	20.91	21.94	22.34
	4H	17.71	18.64	18.15	19.06	19.50	21.12	22.05	21.55	22.46	22.90
	6H	18.02	18.83	18.48	19.28	19.74	21.58	22.39	22.04	22.84	23.30
	8H	18.11	18.87	18.58	19.31	19.78	21.73	22.48	22.19	22.93	23.39
	12H	18.17	18.84	18.65	19.32	19.79	21.83	22.50	22.31	22.98	23.45
8H	4H	18.08	18.83	18.54	19.28	19.75	21.17	21.93	21.63	22.37	22.84
	6H	18.45	19.08	18.95	19.57	20.05	21.70	22.33	22.20	22.82	23.30
	8H	18.58	19.14	19.10	19.65	20.14	21.90	22.46	22.41	22.97	23.46
	12H	18.68	19.18	19.19	19.67	20.24	22.05	22.55	22.56	23.04	23.61
12H	4H	18.11	18.78	18.59	19.26	19.73	21.16	21.83	21.64	22.31	22.78
	6H	18.50	19.06	19.01	19.57	20.06	21.69	22.25	22.21	22.76	23.25
	8H	18.67	19.17	19.18	19.66	20.22	21.92	22.42	22.43	22.91	23.48