

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: P242570

Luminaire Tested: S123RDRP-S560D835-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P242570
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-S560D835-X4F0-XX-UDD-A-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 3500K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

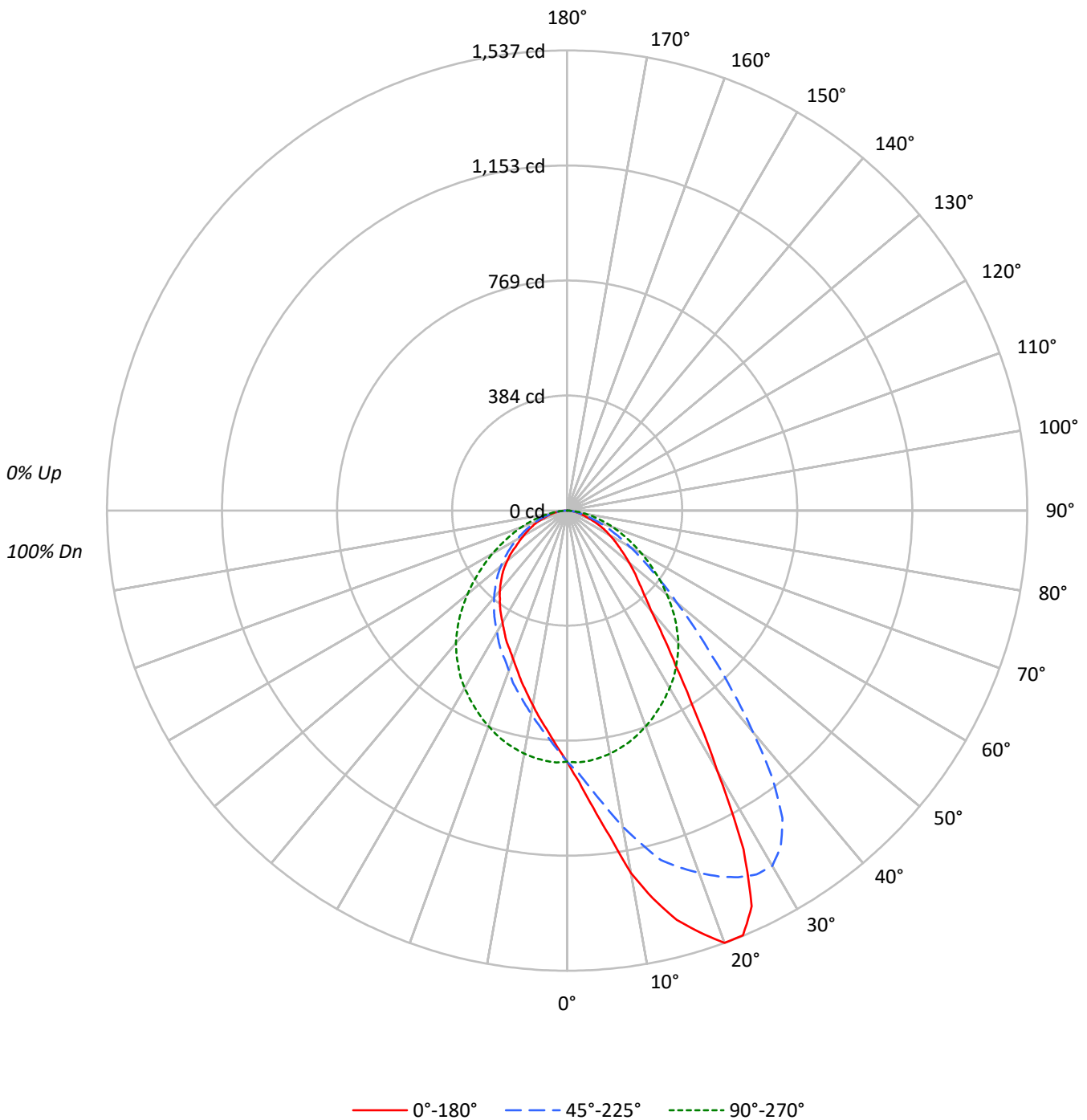
Lumens per Lamp: N/A
Luminaire Lumens: 2088.3 lumens
Efficiency: N/A
Efficacy: 111.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.22 / 1.35
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

Input Watts (W): 18.8
Input Voltage (V): 120
Input Current (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	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°	10166	10166	10166	10166	10166
5°	12118	11367	10209	9217	8991
10°	15130	13204	10151	8493	8122
15°	17760	15165	10047	7898	7406
20°	19821	16606	9892	7340	6798
25°	19504	18074	9728	6953	6425
30°	14020	19175	9578	6553	6039
35°	9361	18551	9381	6280	5790
40°	6897	15293	9146	6005	5533
45°	5785	11669	8732	5748	5280
50°	5105	8997	8192	5437	4929
55°	4476	7177	7572	5114	4446
60°	3985	5857	6979	4701	4073
65°	3502	4798	6344	4334	3789
70°	2747	3856	5777	3983	3462
75°	2421	2843	5044	3597	3161
80°	2108	2429	4286	3155	3106
85°	1697	1850	3449	3199	3296

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 60°
 Vertical Angle: 45°
 Luminance: 16420 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	82.4	3.9
10°-20°	257.8	12.3
20°-30°	406.1	19.4
30°-40°	422.3	20.2
40°-50°	361.3	17.3
50°-60°	275.3	13.2
60°-70°	176.4	8.4
70°-80°	84.5	4.0
80°-90°	22.2	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°	746.2	35.7
0°-40°	1168.5	56.0
0°-60°	1805.1	86.4
0°-90°	2088.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2088.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	839	839	839	839	839	
5°	996	934	839	758	739	102
15°	1415	1208	801	629	590	402
25°	1458	1351	727	520	480	634
35°	633	1254	634	424	391	411
45°	338	681	509	335	308	265
55°	212	340	358	242	210	191
65°	122	167	221	151	132	120
75°	52	61	108	77	68	55
85°	12	13	25	23	24	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°	838.7	838.7	838.7	838.7	838.7	838.7	838.7	838.7	838.7	838.7	838.7
2.5°	906.9	908.3	903.7	902.9	897.6	896.1	896.1	888.6	883.9	877.8	874.2
5°	995.9	1001.7	998.8	992.3	981.6	979.0	972.2	961.5	949.2	934.2	927.0
7.5°	1097.9	1109.7	1107.6	1097.5	1086.0	1078.9	1059.8	1044.4	1021.1	999.9	983.4
10°	1229.3	1221.0	1214.6	1204.9	1194.5	1177.6	1157.5	1129.8	1097.9	1072.8	1044.7
12.5°	1327.7	1328.0	1319.4	1309.3	1293.5	1277.8	1251.9	1216.7	1178.3	1139.2	1106.1
15°	1415.3	1417.4	1412.0	1401.6	1380.8	1352.4	1315.1	1301.1	1248.0	1208.5	1169.0
17.5°	1477.7	1478.1	1477.0	1463.0	1440.4	1421.0	1386.2	1353.5	1303.2	1249.7	1197.0
20°	1536.6	1533.0	1533.7	1517.6	1501.8	1478.4	1444.7	1391.2	1351.7	1287.4	1232.5
22.5°	1535.2	1535.2	1538.4	1535.5	1525.1	1508.6	1483.8	1440.7	1387.6	1322.6	1259.1
25°	1458.3	1455.5	1472.3	1477.0	1495.3	1498.6	1490.7	1465.9	1418.1	1351.4	1274.9
27.5°	1275.2	1264.8	1300.0	1334.8	1381.2	1410.6	1440.7	1447.6	1425.0	1370.4	1290.3
30°	1001.7	1035.4	1051.2	1107.9	1171.1	1246.5	1312.6	1375.4	1390.8	1370.0	1307.2
32.5°	789.1	817.5	830.1	876.7	934.5	1026.1	1133.4	1228.9	1303.6	1328.7	1297.1
35°	632.6	633.0	663.1	684.7	739.2	830.1	926.3	1045.5	1163.9	1253.7	1263.0
37.5°	522.0	523.5	542.8	564.4	608.2	659.2	748.6	849.1	991.6	1125.5	1195.2
40°	435.9	439.1	452.7	473.9	503.3	539.6	605.7	699.0	813.2	966.5	1091.8
42.5°	380.6	386.3	391.7	406.8	422.2	455.6	505.9	572.6	673.9	816.8	966.1
45°	337.5	340.4	345.7	353.3	369.8	393.5	429.4	477.9	564.0	680.7	825.4
47.5°	304.4	302.7	308.8	315.2	326.3	343.6	368.7	410.7	475.3	573.0	698.3
50°	270.7	270.3	274.3	279.0	289.4	301.2	321.0	350.8	399.6	477.1	589.5
52.5°	239.1	240.9	243.4	249.5	256.3	265.3	282.5	301.9	342.1	406.4	495.4
55°	211.8	212.9	216.8	220.1	225.5	235.2	246.3	264.2	293.0	339.6	416.8
57.5°	188.1	187.8	191.7	192.1	198.9	207.2	216.1	230.1	252.0	289.0	342.9
60°	164.4	163.4	166.6	169.1	172.3	178.8	186.0	199.6	216.1	241.6	286.1
62.5°	142.9	142.5	144.7	147.2	149.7	155.5	161.2	170.9	183.1	203.6	236.6
65°	122.1	123.1	124.2	125.3	126.7	130.3	136.1	143.2	152.2	167.3	192.8
67.5°	100.5	102.0	102.3	104.8	107.7	109.5	112.7	119.6	126.4	140.0	155.1
70°	77.5	77.2	77.5	78.6	82.6	86.5	91.2	95.9	99.8	108.8	121.0
72.5°	63.9	63.2	64.3	64.3	65.7	66.1	68.6	72.9	78.3	83.7	91.6
75°	51.7	51.7	51.7	51.7	53.1	53.9	54.9	56.0	57.8	60.7	67.1
77.5°	40.2	40.2	40.9	41.3	41.6	42.0	42.7	43.8	44.5	46.0	49.2
80°	30.2	30.5	30.2	30.5	30.5	31.2	31.6	32.7	33.0	34.8	35.9
82.5°	20.8	20.5	20.8	21.2	21.2	21.9	21.9	22.6	22.6	23.3	24.4
85°	12.2	11.5	12.2	11.8	12.6	11.8	12.2	12.9	12.9	13.3	14.7
87.5°	3.6	4.3	3.6	3.9	3.9	4.3	4.3	4.3	5.0	4.7	5.0
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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	838.7	838.7	838.7	838.7	838.7	838.7	838.7	838.7	838.7	838.7	838.7
2.5°	872.8	871.7	866.7	860.9	853.4	848.4	844.4	842.3	835.8	827.9	822.5
5°	919.5	908.7	897.2	883.2	870.3	857.0	848.7	839.0	827.2	813.9	804.6
7.5°	965.8	947.1	926.6	905.4	883.9	864.9	847.3	832.9	815.0	796.7	784.1
10°	1020.7	989.8	957.9	925.2	895.4	867.4	845.9	824.7	802.1	780.2	763.6
12.5°	1070.6	1027.5	989.5	947.5	907.2	872.4	839.0	813.2	784.8	761.1	741.7
15°	1111.2	1069.5	1025.0	964.0	913.3	871.0	833.3	800.6	767.6	738.9	720.6
17.5°	1153.5	1090.3	1031.8	984.4	918.4	867.0	822.9	784.8	748.9	719.5	696.5
20°	1177.9	1117.3	1052.3	987.3	922.7	863.4	809.9	766.9	729.2	694.7	673.9
22.5°	1192.7	1121.9	1052.6	981.6	911.9	849.8	797.0	748.6	706.9	674.6	647.7
25°	1203.4	1121.6	1046.2	977.3	907.2	840.5	777.6	727.4	683.2	648.4	621.1
27.5°	1212.1	1117.3	1030.7	955.7	885.0	817.1	760.4	706.6	662.4	626.1	596.3
30°	1214.2	1111.9	1012.4	929.5	857.3	796.3	735.3	684.3	636.9	597.8	570.5
32.5°	1217.1	1098.6	987.7	898.3	824.0	763.6	709.8	661.7	612.8	574.4	546.4
35°	1207.0	1095.4	962.5	861.3	787.3	728.8	678.9	634.0	586.3	548.9	520.6
37.5°	1176.5	1077.8	937.4	820.0	743.5	689.7	648.0	607.1	562.9	522.0	495.8
40°	1125.2	1049.1	907.2	783.0	702.2	646.6	610.0	578.0	535.7	498.0	469.2
42.5°	1048.7	1009.9	878.5	744.2	655.6	602.4	573.0	543.6	507.7	469.2	442.7
45°	951.8	957.9	837.2	702.6	613.2	559.4	530.3	509.4	476.4	444.8	417.2
47.5°	834.0	885.0	793.1	658.8	567.3	516.6	491.1	472.1	449.1	416.5	391.0
50°	719.1	800.6	737.8	614.6	524.5	474.3	449.1	434.4	415.0	390.6	366.6
52.5°	613.2	702.2	671.0	565.5	478.2	433.3	408.9	397.4	383.1	360.5	339.3
55°	517.3	606.0	597.4	515.9	431.9	390.6	371.9	358.3	347.9	330.7	313.4
57.5°	434.1	519.9	521.7	461.0	391.7	349.7	333.5	322.8	315.6	301.9	285.1
60°	356.1	433.3	448.4	405.3	347.9	312.0	296.2	287.9	282.5	272.1	259.9
62.5°	291.5	354.4	371.9	343.9	305.9	272.9	261.4	253.5	250.2	241.6	231.2
65°	233.0	287.6	304.1	286.9	265.0	238.0	228.0	221.2	217.9	212.9	205.0
67.5°	183.8	226.2	244.1	229.8	221.5	202.5	195.7	191.7	188.8	185.3	178.4
70°	140.7	170.2	188.8	185.6	179.2	170.2	165.5	163.0	160.1	157.3	151.5
72.5°	106.3	124.2	141.5	144.3	139.3	139.3	135.4	134.6	133.2	129.6	127.1
75°	75.0	89.0	101.2	105.9	108.1	109.9	108.1	107.7	107.3	104.5	102.7
77.5°	52.1	61.0	69.3	77.5	80.4	82.9	83.3	84.7	83.7	81.9	81.1
80°	37.7	39.5	44.9	51.7	57.1	59.2	60.7	61.4	61.0	60.7	59.2
82.5°	24.8	26.2	28.0	32.3	36.6	40.6	41.3	40.9	42.0	42.4	41.3
85°	14.7	15.1	15.8	16.5	19.0	23.0	24.1	24.8	25.5	25.5	23.3
87.5°	5.7	5.4	6.1	6.1	7.2	7.5	9.7	11.5	11.8	10.4	10.4
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°	838.7	838.7	838.7	838.7	838.7	838.7	838.7	838.7	838.7	838.7	838.7
2.5°	820.7	816.1	812.8	805.6	801.0	795.9	790.9	794.2	793.8	793.4	793.4
5°	796.7	788.4	780.9	771.2	765.1	757.5	751.8	751.1	752.5	747.5	744.6
7.5°	774.0	763.3	752.5	742.5	731.3	722.7	717.3	715.2	711.2	708.0	705.1
10°	750.0	736.7	726.3	713.0	700.8	690.0	683.2	678.5	676.0	673.5	668.9
12.5°	725.2	712.3	698.3	682.9	671.4	658.4	653.8	648.4	643.0	640.1	633.3
15°	701.2	684.3	670.3	654.5	641.6	629.4	622.2	611.8	610.3	606.7	600.3
17.5°	677.8	659.2	638.7	627.9	615.0	602.1	590.6	587.4	576.6	573.0	566.9
20°	649.1	632.2	617.5	602.1	580.9	569.0	560.4	555.8	547.5	542.5	538.9
22.5°	624.3	607.1	589.5	570.8	554.3	540.7	534.9	527.0	523.5	515.9	512.0
25°	601.0	582.3	561.9	542.5	529.9	519.9	509.8	503.3	496.9	493.7	486.5
27.5°	572.6	554.0	534.2	519.1	504.8	494.7	485.0	479.7	471.4	466.0	462.1
30°	550.0	527.0	510.5	497.2	477.5	468.2	461.3	454.2	448.4	442.7	438.7
32.5°	523.8	503.3	487.9	470.7	456.7	446.3	436.9	430.8	426.2	420.8	416.8
35°	496.2	478.6	462.4	445.9	434.8	424.4	414.0	408.6	403.9	398.9	395.3
37.5°	471.0	454.5	439.4	423.6	410.0	401.0	392.4	388.8	382.4	378.8	375.2
40°	448.1	431.9	415.4	400.3	385.9	379.5	371.9	365.8	360.1	357.6	353.6
42.5°	422.9	406.8	393.5	377.0	365.8	356.5	349.7	342.9	338.9	335.0	333.2
45°	398.2	383.8	370.1	354.0	342.9	335.3	327.4	321.3	317.4	314.9	310.9
47.5°	374.5	359.7	346.1	331.7	321.0	312.3	304.1	300.1	294.8	291.9	289.0
50°	348.2	335.3	320.6	307.7	296.9	288.3	281.8	276.4	271.8	267.8	266.0
52.5°	324.2	310.2	298.0	286.1	274.7	264.6	258.9	253.1	249.9	245.2	243.1
55°	297.3	284.0	273.2	261.4	250.2	242.0	234.8	229.8	226.2	221.2	218.3
57.5°	272.5	261.0	247.7	237.3	225.5	219.0	212.9	205.7	201.4	197.5	194.6
60°	247.4	233.7	222.6	212.9	202.8	193.9	188.5	183.1	178.4	174.5	172.0
62.5°	221.2	209.7	199.3	188.5	179.5	172.0	165.5	161.2	157.3	155.1	152.6
65°	194.2	184.9	174.1	165.5	156.9	151.1	146.1	142.2	139.3	137.5	135.4
67.5°	169.5	160.5	150.8	141.8	136.1	131.4	127.8	124.2	122.8	120.6	119.2
70°	145.4	136.1	127.8	121.3	115.6	112.4	110.2	107.7	106.3	103.4	102.0
72.5°	119.2	113.1	107.7	102.7	98.4	95.5	92.6	89.4	86.9	83.7	82.2
75°	98.0	91.9	87.2	83.7	80.8	76.8	72.9	69.6	68.6	67.5	67.1
77.5°	76.5	72.5	68.9	66.1	62.1	58.5	57.4	56.7	56.4	55.6	55.6
80°	57.1	53.5	51.0	47.4	45.2	45.2	45.2	44.5	44.9	44.9	44.9
82.5°	38.8	35.5	34.5	33.7	33.7	34.1	34.1	34.5	34.1	34.8	34.5
85°	21.9	22.3	23.0	22.6	23.0	23.0	23.7	23.3	23.7	23.0	23.7
87.5°	10.1	11.1	11.5	11.8	12.2	11.8	12.2	12.2	12.6	12.6	12.6
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: P242570

CATALOG NUMBER: S123RDRP-S560D835-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	838.7	838.7	838.7	838.7
2.5°	789.1	788.8	789.1	787.7
5°	743.5	743.2	742.1	738.9
7.5°	702.2	701.5	698.7	699.4
10°	666.3	666.7	662.4	659.9
12.5°	631.5	629.4	626.1	623.3
15°	601.7	598.1	589.5	590.2
17.5°	564.7	561.9	561.5	556.5
20°	533.1	531.3	532.1	527.0
22.5°	508.4	506.6	502.6	501.9
25°	484.3	481.4	478.6	480.4
27.5°	459.9	457.8	454.5	454.5
30°	436.9	434.8	433.3	431.5
32.5°	413.6	413.6	410.7	410.7
35°	393.8	391.7	391.0	391.3
37.5°	374.8	371.9	370.5	369.1
40°	354.0	351.1	350.4	349.7
42.5°	330.7	329.9	329.6	328.1
45°	309.8	309.5	307.3	308.0
47.5°	287.6	285.8	284.7	285.8
50°	264.6	263.9	260.6	261.4
52.5°	241.6	238.4	237.7	237.0
55°	215.8	212.5	211.1	210.4
57.5°	190.3	189.2	187.8	188.8
60°	168.4	168.4	168.4	168.0
62.5°	151.5	150.4	150.1	150.8
65°	134.3	133.9	132.5	132.1
67.5°	118.5	117.0	117.0	116.3
70°	100.2	99.4	97.3	97.7
72.5°	80.4	79.7	79.7	79.0
75°	66.8	66.4	66.1	67.5
77.5°	55.6	55.6	56.0	55.3
80°	44.9	44.9	44.5	44.5
82.5°	33.7	34.1	34.5	33.7
85°	23.7	23.3	24.1	23.7
87.5°	13.3	12.6	12.6	12.9
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P242570
 CATALOG NUMBER: S123RDRP-S560D835-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	15.70	17.19	16.06	17.50	17.82	19.09	20.58	19.46	20.90	21.21
	3H	16.79	18.12	17.17	18.45	18.81	20.50	21.84	20.88	22.17	22.53
	4H	17.12	18.38	17.52	18.73	19.10	21.00	22.25	21.40	22.60	22.98
	6H	17.37	18.53	17.78	18.89	19.29	21.35	22.51	21.76	22.88	23.27
	8H	17.44	18.54	17.87	18.93	19.33	21.45	22.55	21.88	22.94	23.35
	12H	17.48	18.53	17.91	18.91	19.34	21.52	22.57	21.95	22.95	23.38
4H	2H	16.67	17.93	17.07	18.28	18.66	19.33	20.58	19.73	20.93	21.31
	3H	17.84	18.88	18.25	19.28	19.68	21.02	22.06	21.43	22.46	22.86
	4H	18.23	19.16	18.66	19.58	20.02	21.64	22.57	22.07	22.99	23.42
	6H	18.54	19.35	19.00	19.79	20.26	22.10	22.91	22.56	23.36	23.82
	8H	18.63	19.39	19.10	19.83	20.30	22.25	23.00	22.71	23.45	23.92
	12H	18.69	19.36	19.17	19.84	20.31	22.35	23.02	22.83	23.50	23.97
8H	4H	18.60	19.35	19.06	19.80	20.27	21.69	22.45	22.15	22.89	23.36
	6H	18.97	19.60	19.47	20.09	20.57	22.23	22.85	22.72	23.34	23.82
	8H	19.10	19.66	19.62	20.17	20.66	22.42	22.98	22.93	23.49	23.98
	12H	19.20	19.70	19.71	20.19	20.76	22.57	23.07	23.09	23.56	24.13
12H	4H	18.63	19.30	19.11	19.78	20.25	21.68	22.35	22.16	22.83	23.30
	6H	19.01	19.58	19.53	20.09	20.57	22.21	22.77	22.73	23.28	23.77
	8H	19.19	19.69	19.70	20.18	20.74	22.44	22.94	22.95	23.43	24.00