

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: P242590

Luminaire Tested: S123RDRP-S560D940-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P242590
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-S560D940-X4F0-XX-UDD-A-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 4000K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

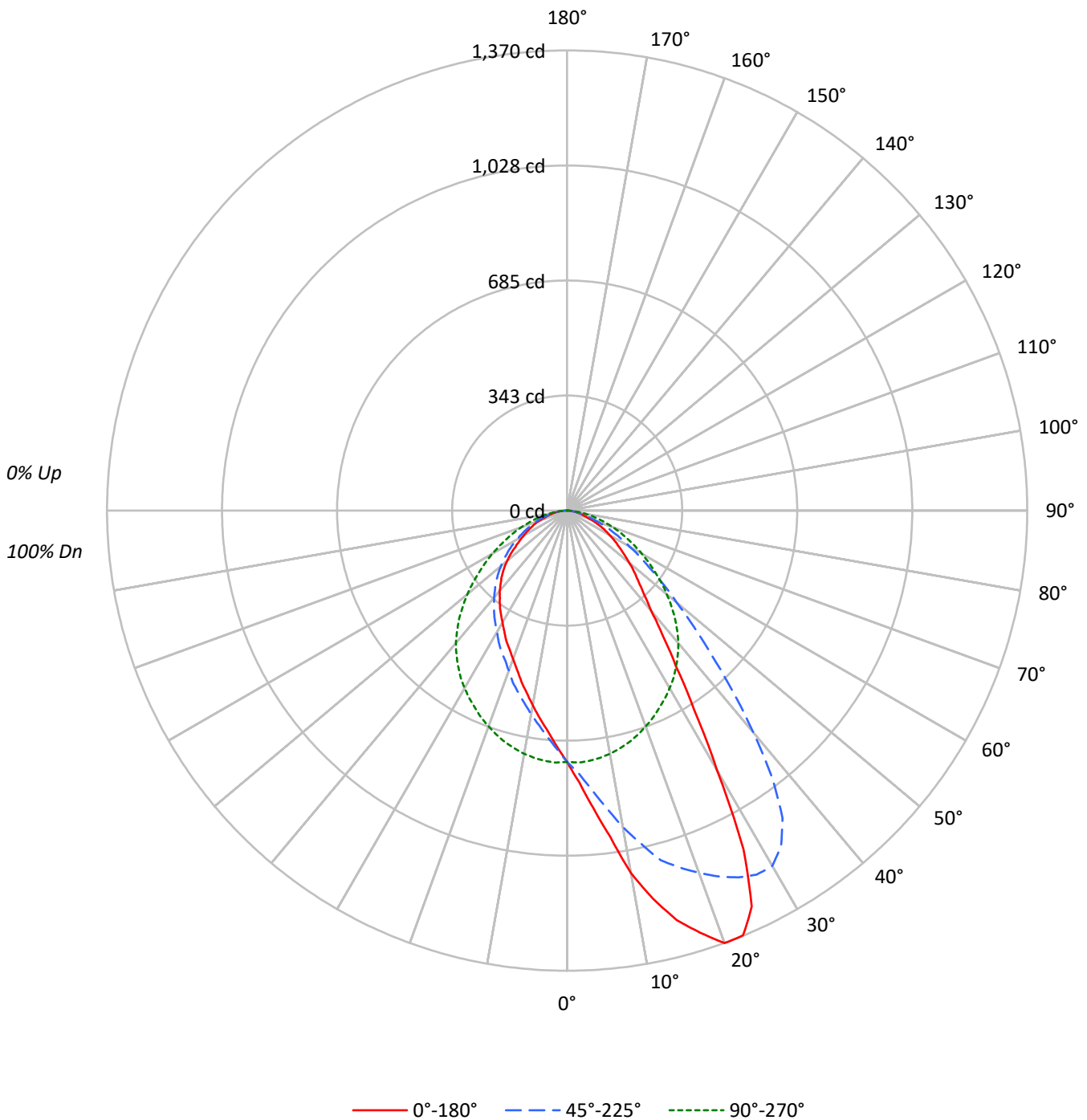
Lumens per Lamp: N/A
Luminaire Lumens: 1862.1 lumens
Efficiency: N/A
Efficacy: 99.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.22 / 1.35
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

Input Watts (W): 18.8
Input Voltage (V): 120
Input Current (A_{in}): 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: P242590

CATALOG NUMBER: S123RDRP-S560D940-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	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°	9065	9065	9065	9065	9065
5°	10806	10136	9104	8219	8017
10°	13492	11774	9051	7573	7242
15°	15837	13523	8959	7042	6604
20°	17674	14808	8820	6545	6063
25°	17392	16116	8675	6200	5730
30°	12502	17099	8541	5843	5386
35°	8347	16542	8366	5599	5164
40°	6150	13636	8155	5355	4934
45°	5158	10405	7788	5125	4709
50°	4552	8024	7305	4848	4396
55°	3992	6401	6752	4560	3964
60°	3554	5224	6225	4192	3632
65°	3121	4279	5656	3866	3379
70°	2452	3438	5149	3551	3087
75°	2159	2534	4496	3208	2819
80°	1878	2171	3818	2813	2771
85°	1516	1641	3074	2851	2934

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 60°
 Vertical Angle: 45°
 Luminance: 14641 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	73.4	3.9
10°-20°	229.9	12.3
20°-30°	362.1	19.4
30°-40°	376.6	20.2
40°-50°	322.1	17.3
50°-60°	245.5	13.2
60°-70°	157.3	8.4
70°-80°	75.4	4.0
80°-90°	19.8	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°	665.4	35.7
0°-40°	1042.0	56.0
0°-60°	1609.7	86.4
0°-90°	1862.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1862.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	748	748	748	748	748	
5°	888	833	748	676	659	91
15°	1262	1078	714	561	526	358
25°	1300	1205	649	464	428	565
35°	564	1118	565	378	349	367
45°	301	607	454	299	275	236
55°	189	303	320	216	188	171
65°	109	149	197	135	118	107
75°	46	54	96	68	60	49
85°	11	12	22	20	21	13
90°	0	0	0	0	0	



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CATALOG NUMBER: S123RDRP-S560D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	747.9	747.9	747.9	747.9	747.9	747.9	747.9	747.9	747.9	747.9	747.9
2.5°	808.7	810.0	805.8	805.2	800.4	799.1	799.1	792.4	788.2	782.7	779.5
5°	888.1	893.2	890.6	884.9	875.3	873.0	866.9	857.3	846.5	833.0	826.6
7.5°	979.0	989.6	987.6	978.7	968.4	962.0	945.1	931.3	910.5	891.6	876.9
10°	1096.2	1088.8	1083.0	1074.4	1065.1	1050.1	1032.1	1007.5	979.0	956.6	931.6
12.5°	1183.9	1184.2	1176.5	1167.6	1153.5	1139.4	1116.3	1085.0	1050.7	1015.8	986.4
15°	1262.0	1263.9	1259.1	1249.8	1231.3	1206.0	1172.7	1160.2	1112.8	1077.6	1042.4
17.5°	1317.7	1318.0	1317.1	1304.6	1284.4	1267.1	1236.1	1206.9	1162.1	1114.4	1067.4
20°	1370.2	1367.0	1367.6	1353.2	1339.2	1318.3	1288.3	1240.6	1205.3	1148.0	1099.0
22.5°	1368.9	1368.9	1371.8	1369.2	1360.0	1345.2	1323.1	1284.7	1237.3	1179.4	1122.7
25°	1300.4	1297.9	1312.9	1317.1	1333.4	1336.3	1329.2	1307.1	1264.6	1205.0	1136.8
27.5°	1137.1	1127.9	1159.2	1190.3	1231.6	1257.8	1284.7	1290.8	1270.6	1222.0	1150.6
30°	893.2	923.3	937.4	988.0	1044.3	1111.5	1170.4	1226.5	1240.2	1221.7	1165.6
32.5°	703.7	729.0	740.2	781.8	833.3	915.0	1010.7	1095.8	1162.4	1184.8	1156.7
35°	564.1	564.4	591.3	610.5	659.2	740.2	826.0	932.3	1037.9	1117.9	1126.3
37.5°	465.5	466.8	484.1	503.3	542.3	587.8	667.5	757.1	884.2	1003.6	1065.8
40°	388.7	391.5	403.7	422.6	448.8	481.2	540.1	623.3	725.1	861.8	973.6
42.5°	339.4	344.5	349.3	362.7	376.5	406.3	451.1	510.6	600.9	728.3	861.5
45°	300.9	303.5	308.3	315.0	329.7	350.9	382.9	426.1	502.9	607.0	736.0
47.5°	271.5	269.9	275.3	281.1	291.0	306.4	328.8	366.2	423.9	510.9	622.7
50°	241.4	241.1	244.6	248.8	258.0	268.6	286.2	312.8	356.3	425.5	525.7
52.5°	213.2	214.8	217.1	222.5	228.6	236.6	252.0	269.2	305.1	362.4	441.8
55°	188.9	189.8	193.4	196.2	201.0	209.7	219.6	235.6	261.2	302.9	371.7
57.5°	167.8	167.4	171.0	171.3	177.4	184.7	192.7	205.2	224.7	257.7	305.7
60°	146.6	145.7	148.5	150.8	153.7	159.4	165.8	178.0	192.7	215.5	255.2
62.5°	127.4	127.1	129.0	131.3	133.5	138.6	143.7	152.4	163.3	181.5	211.0
65°	108.8	109.8	110.8	111.7	113.0	116.2	121.3	127.7	135.7	149.2	171.9
67.5°	89.6	90.9	91.2	93.5	96.0	97.6	100.5	106.6	112.7	124.9	138.3
70°	69.2	68.8	69.2	70.1	73.6	77.2	81.3	85.5	89.0	97.0	107.9
72.5°	57.0	56.3	57.3	57.3	58.6	58.9	61.1	65.0	69.8	74.6	81.6
75°	46.1	46.1	46.1	46.1	47.4	48.0	49.0	49.9	51.5	54.1	59.9
77.5°	35.9	35.9	36.5	36.8	37.1	37.5	38.1	39.1	39.7	41.0	43.9
80°	26.9	27.2	26.9	27.2	27.2	27.9	28.2	29.1	29.5	31.1	32.0
82.5°	18.6	18.2	18.6	18.9	18.9	19.5	19.5	20.2	20.2	20.8	21.8
85°	10.9	10.2	10.9	10.6	11.2	10.6	10.9	11.5	11.5	11.8	13.1
87.5°	3.2	3.8	3.2	3.5	3.5	3.8	3.8	3.8	4.5	4.2	4.5
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: P242590

CATALOG NUMBER: S123RDRP-S560D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	747.9	747.9	747.9	747.9	747.9	747.9	747.9	747.9	747.9	747.9	747.9
2.5°	778.3	777.3	772.8	767.7	761.0	756.5	753.0	751.1	745.3	738.2	733.4
5°	819.9	810.3	800.0	787.5	776.0	764.2	756.8	748.2	737.6	725.8	717.4
7.5°	861.2	844.5	826.3	807.4	788.2	771.2	755.5	742.7	726.7	710.4	699.2
10°	910.2	882.6	854.1	825.0	798.4	773.5	754.3	735.4	715.2	695.7	680.9
12.5°	954.7	916.2	882.3	844.9	809.0	777.9	748.2	725.1	699.8	678.7	661.4
15°	990.8	953.7	914.0	859.6	814.4	776.7	743.1	713.9	684.5	658.9	642.5
17.5°	1028.6	972.3	920.1	877.8	818.9	773.1	733.8	699.8	667.8	641.6	621.1
20°	1050.4	996.3	938.3	880.4	822.8	769.9	722.2	683.8	650.2	619.5	600.9
22.5°	1063.5	1000.4	938.7	875.3	813.2	757.8	710.7	667.5	630.4	601.5	577.5
25°	1073.1	1000.1	932.9	871.4	809.0	749.5	693.4	648.6	609.2	578.2	553.8
27.5°	1080.8	996.3	919.1	852.2	789.2	728.6	678.1	630.0	590.7	558.3	531.8
30°	1082.7	991.5	902.8	828.8	764.5	710.1	655.7	610.2	567.9	533.0	508.7
32.5°	1085.3	979.6	880.7	801.0	734.7	680.9	632.9	590.0	546.5	512.2	487.3
35°	1076.3	976.8	858.3	768.0	702.1	649.9	605.4	565.4	522.8	489.5	464.2
37.5°	1049.1	961.1	835.9	731.2	663.0	615.0	577.9	541.4	502.0	465.5	442.1
40°	1003.3	935.5	809.0	698.2	626.2	576.6	543.9	515.4	477.7	444.0	418.4
42.5°	935.1	900.6	783.4	663.7	584.6	537.2	510.9	484.7	452.7	418.4	394.7
45°	848.7	854.1	746.6	626.5	546.8	498.8	472.9	454.3	424.8	396.7	372.0
47.5°	743.7	789.2	707.2	587.5	505.8	460.7	438.0	421.0	400.5	371.4	348.6
50°	641.2	713.9	657.9	548.1	467.7	422.9	400.5	387.4	370.1	348.3	326.9
52.5°	546.8	626.2	598.3	504.2	426.4	386.4	364.6	354.4	341.6	321.4	302.5
55°	461.3	540.4	532.7	460.0	385.1	348.3	331.7	319.5	310.2	294.9	279.5
57.5°	387.1	463.6	465.2	411.1	349.3	311.8	297.4	287.8	281.4	269.2	254.2
60°	317.6	386.4	399.9	361.4	310.2	278.2	264.1	256.8	252.0	242.7	231.8
62.5°	260.0	316.0	331.7	306.7	272.8	243.3	233.1	226.0	223.1	215.5	206.2
65°	207.8	256.4	271.2	255.8	236.3	212.3	203.3	197.2	194.3	189.8	182.8
67.5°	163.9	201.7	217.7	204.9	197.5	180.6	174.5	171.0	168.4	165.2	159.1
70°	125.5	151.7	168.4	165.5	159.8	151.7	147.6	145.3	142.8	140.2	135.1
72.5°	94.8	110.8	126.1	128.7	124.2	124.2	120.7	120.1	118.8	115.6	113.3
75°	66.9	79.4	90.3	94.4	96.4	98.0	96.4	96.0	95.7	93.2	91.6
77.5°	46.4	54.4	61.8	69.2	71.7	74.0	74.3	75.6	74.6	73.0	72.4
80°	33.6	35.2	40.0	46.1	50.9	52.8	54.1	54.7	54.4	54.1	52.8
82.5°	22.1	23.4	25.0	28.8	32.7	36.2	36.8	36.5	37.5	37.8	36.8
85°	13.1	13.4	14.1	14.7	17.0	20.5	21.4	22.1	22.7	22.7	20.8
87.5°	5.1	4.8	5.4	5.4	6.4	6.7	8.6	10.2	10.6	9.3	9.3
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	747.9	747.9	747.9	747.9	747.9	747.9	747.9	747.9	747.9	747.9	747.9
2.5°	731.8	727.7	724.8	718.4	714.2	709.8	705.3	708.2	707.8	707.5	707.5
5°	710.4	703.0	696.3	687.7	682.2	675.5	670.4	669.7	671.0	666.5	664.0
7.5°	690.2	680.6	671.0	662.1	652.1	644.4	639.6	637.7	634.2	631.3	628.8
10°	668.8	656.9	647.6	635.8	624.9	615.3	609.2	605.1	602.8	600.6	596.4
12.5°	646.7	635.2	622.7	608.9	598.7	587.1	583.0	578.2	573.4	570.8	564.7
15°	625.2	610.2	597.7	583.6	572.1	561.2	554.8	545.5	544.2	541.0	535.3
17.5°	604.4	587.8	569.5	559.9	548.4	536.9	526.6	523.8	514.1	510.9	505.5
20°	578.8	563.8	550.6	536.9	518.0	507.4	499.7	495.6	488.2	483.7	480.5
22.5°	556.7	541.4	525.7	509.0	494.3	482.1	477.0	470.0	466.8	460.0	456.5
25°	535.9	519.3	501.0	483.7	472.5	463.6	454.6	448.8	443.1	440.2	433.8
27.5°	510.6	494.0	476.4	462.9	450.1	441.2	432.5	427.7	420.3	415.5	412.0
30°	490.5	470.0	455.2	443.4	425.8	417.5	411.4	405.0	399.9	394.7	391.2
32.5°	467.1	448.8	435.1	419.7	407.2	397.9	389.6	384.2	380.0	375.2	371.7
35°	442.4	426.7	412.3	397.6	387.7	378.4	369.1	364.3	360.2	355.7	352.5
37.5°	420.0	405.3	391.9	377.8	365.6	357.6	349.9	346.7	341.0	337.8	334.5
40°	399.5	385.1	370.4	357.0	344.2	338.4	331.7	326.2	321.1	318.9	315.3
42.5°	377.1	362.7	350.9	336.1	326.2	317.9	311.8	305.7	302.2	298.7	297.1
45°	355.0	342.2	330.1	315.7	305.7	299.0	292.0	286.5	283.0	280.8	277.2
47.5°	333.9	320.8	308.6	295.8	286.2	278.5	271.2	267.6	262.8	260.3	257.7
50°	310.5	299.0	285.9	274.4	264.8	257.1	251.3	246.5	242.3	238.8	237.2
52.5°	289.1	276.6	265.7	255.2	244.9	235.9	230.8	225.7	222.8	218.7	216.7
55°	265.1	253.2	243.6	233.1	223.1	215.8	209.4	204.9	201.7	197.2	194.6
57.5°	243.0	232.7	220.9	211.6	201.0	195.3	189.8	183.4	179.6	176.1	173.5
60°	220.6	208.4	198.5	189.8	180.9	172.9	168.1	163.3	159.1	155.6	153.3
62.5°	197.2	187.0	177.7	168.1	160.1	153.3	147.6	143.7	140.2	138.3	136.1
65°	173.2	164.9	155.3	147.6	139.9	134.8	130.3	126.8	124.2	122.6	120.7
67.5°	151.1	143.1	134.5	126.5	121.3	117.2	114.0	110.8	109.5	107.6	106.3
70°	129.7	121.3	114.0	108.2	103.1	100.2	98.3	96.0	94.8	92.2	90.9
72.5°	106.3	100.8	96.0	91.6	87.7	85.2	82.6	79.7	77.5	74.6	73.3
75°	87.4	82.0	77.8	74.6	72.0	68.5	65.0	62.1	61.1	60.2	59.9
77.5°	68.2	64.7	61.5	58.9	55.4	52.2	51.2	50.6	50.3	49.6	49.6
80°	50.9	47.7	45.5	42.3	40.3	40.3	40.3	39.7	40.0	40.0	40.0
82.5°	34.6	31.7	30.7	30.1	30.1	30.4	30.4	30.7	30.4	31.1	30.7
85°	19.5	19.8	20.5	20.2	20.5	20.5	21.1	20.8	21.1	20.5	21.1
87.5°	9.0	9.9	10.2	10.6	10.9	10.6	10.9	10.9	11.2	11.2	11.2
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: P242590

CATALOG NUMBER: S123RDRP-S560D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	747.9	747.9	747.9	747.9
2.5°	703.7	703.4	703.7	702.4
5°	663.0	662.7	661.7	658.9
7.5°	626.2	625.6	623.0	623.6
10°	594.2	594.5	590.7	588.4
12.5°	563.1	561.2	558.3	555.8
15°	536.6	533.4	525.7	526.3
17.5°	503.6	501.0	500.7	496.2
20°	475.4	473.8	474.5	470.0
22.5°	453.3	451.7	448.2	447.6
25°	431.9	429.3	426.7	428.4
27.5°	410.1	408.2	405.3	405.3
30°	389.6	387.7	386.4	384.8
32.5°	368.8	368.8	366.2	366.2
35°	351.2	349.3	348.6	349.0
37.5°	334.2	331.7	330.4	329.1
40°	315.7	313.1	312.5	311.8
42.5°	294.9	294.2	293.9	292.6
45°	276.3	276.0	274.0	274.7
47.5°	256.4	254.8	253.9	254.8
50°	235.9	235.3	232.4	233.1
52.5°	215.5	212.6	211.9	211.3
55°	192.4	189.5	188.2	187.6
57.5°	169.7	168.7	167.4	168.4
60°	150.1	150.1	150.1	149.8
62.5°	135.1	134.1	133.8	134.5
65°	119.7	119.4	118.1	117.8
67.5°	105.6	104.4	104.4	103.7
70°	89.3	88.7	86.8	87.1
72.5°	71.7	71.1	71.1	70.4
75°	59.5	59.2	58.9	60.2
77.5°	49.6	49.6	49.9	49.3
80°	40.0	40.0	39.7	39.7
82.5°	30.1	30.4	30.7	30.1
85°	21.1	20.8	21.4	21.1
87.5°	11.8	11.2	11.2	11.5
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P242590
 CATALOG NUMBER: S123RDRP-S560D940-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	15.30	16.79	15.66	17.10	17.42	18.69	20.19	19.06	20.50	20.81
	3H	16.39	17.73	16.77	18.05	18.42	20.10	21.44	20.48	21.77	22.13
	4H	16.73	17.98	17.13	18.33	18.71	20.60	21.86	21.00	22.21	22.58
	6H	16.97	18.13	17.38	18.50	18.89	20.95	22.11	21.37	22.48	22.87
	8H	17.04	18.14	17.47	18.53	18.93	21.06	22.16	21.48	22.55	22.95
	12H	17.08	18.13	17.51	18.51	18.94	21.12	22.17	21.55	22.55	22.98
4H	2H	16.28	17.53	16.68	17.88	18.26	18.93	20.19	19.33	20.53	20.91
	3H	17.45	18.48	17.86	18.88	19.28	20.62	21.66	21.04	22.06	22.46
	4H	17.83	18.77	18.27	19.18	19.62	21.24	22.17	21.67	22.59	23.03
	6H	18.14	18.95	18.60	19.40	19.86	21.71	22.51	22.16	22.96	23.42
	8H	18.23	18.99	18.70	19.44	19.90	21.85	22.60	22.31	23.05	23.52
	12H	18.29	18.97	18.77	19.45	19.92	21.95	22.62	22.43	23.10	23.57
8H	4H	18.20	18.96	18.66	19.40	19.87	21.29	22.05	21.76	22.49	22.96
	6H	18.57	19.20	19.07	19.69	20.17	21.83	22.45	22.32	22.94	23.42
	8H	18.71	19.27	19.22	19.78	20.26	22.02	22.58	22.54	23.09	23.58
	12H	18.81	19.30	19.32	19.79	20.36	22.18	22.67	22.69	23.16	23.73
12H	4H	18.23	18.90	18.71	19.38	19.86	21.28	21.95	21.76	22.43	22.90
	6H	18.62	19.18	19.13	19.69	20.18	21.81	22.37	22.33	22.89	23.37
	8H	18.79	19.29	19.30	19.78	20.35	22.05	22.54	22.56	23.03	23.60