

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: P243450

Luminaire Tested: S123RDRP-H560D940-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P243450
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-H560D940-X4F0-XX-UDD-A-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

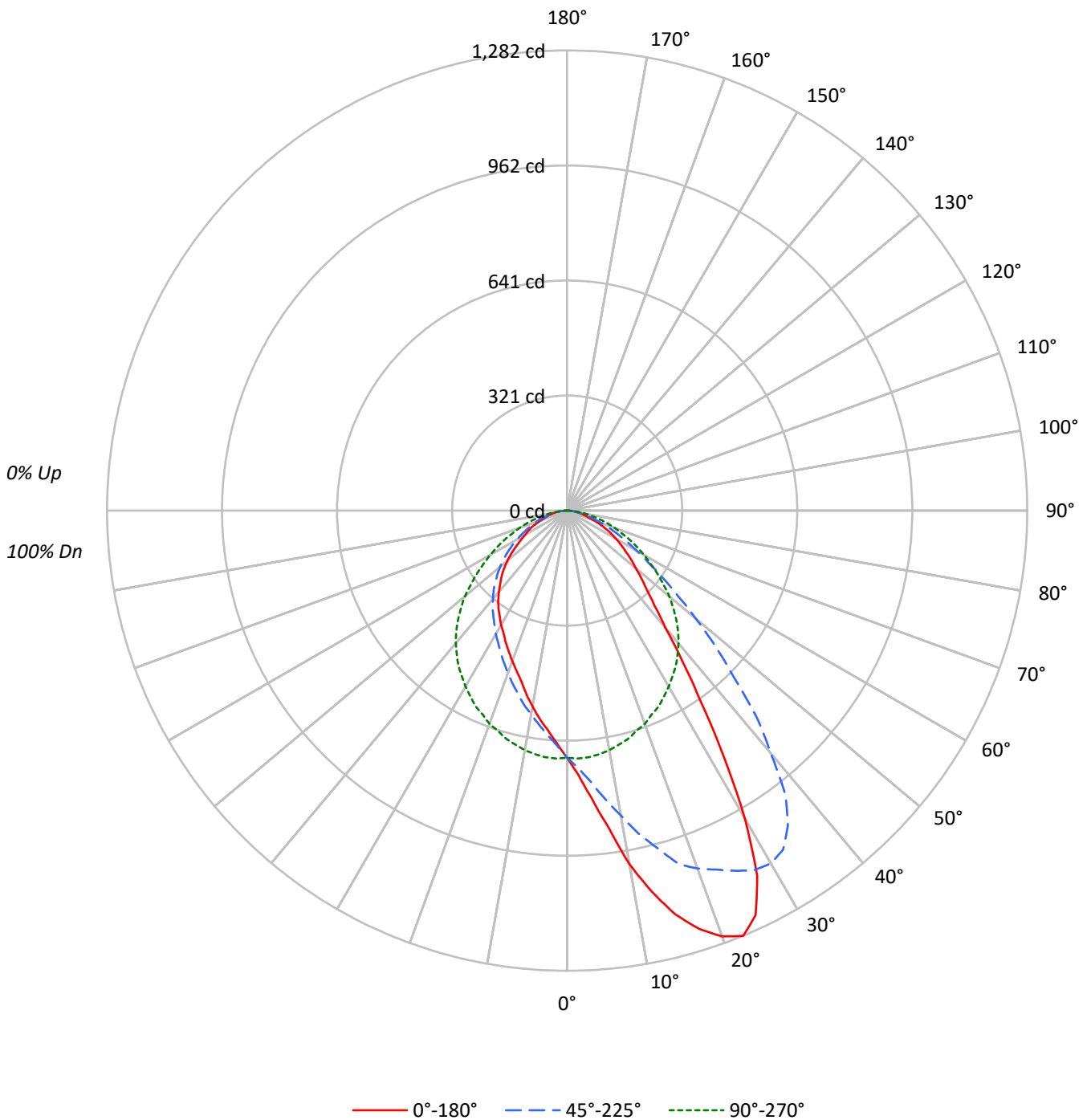
Lumens per Lamp: N/A
Luminaire Lumens: 1793.7 lumens
Efficiency: N/A
Efficacy: 104.3 lumens/watt
Spacing Criteria (0/90/45): 1.28 / 1.22 / 1.4
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

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	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°	8344	8344	8344	8344	8344
5°	9837	9233	8391	7628	7472
10°	12314	10617	8341	7090	6819
15°	14614	12215	8258	6632	6177
20°	16286	13691	8159	6223	5750
25°	16624	14808	8058	5851	5414
30°	13854	15887	7921	5562	5151
35°	9571	15864	7811	5305	4935
40°	6725	13969	7633	5089	4674
45°	5401	11250	7362	4861	4423
50°	4709	8806	7011	4590	4092
55°	4220	6796	6488	4290	3643
60°	3818	5411	5995	3891	3299
65°	3341	4443	5524	3522	3086
70°	2697	3615	4972	3236	2612
75°	2337	2838	4327	2730	2562
80°	2157	2324	3693	2618	2576
85°	1905	1989	2976	2350	2239

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 55°
 Vertical Angle: 45°
 Luminance: 14098 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	67.5	3.8
10°-20°	212.6	11.9
20°-30°	340.6	19.0
30°-40°	369.8	20.6
40°-50°	316.8	17.7
50°-60°	240.2	13.4
60°-70°	153.5	8.6
70°-80°	73.4	4.1
80°-90°	19.3	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°	620.8	34.6
0°-40°	990.6	55.2
0°-60°	1547.6	86.3
0°-90°	1793.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1793.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	688	688	688	688	688	
5°	808	759	690	627	614	83
15°	1165	973	658	528	492	330
25°	1243	1107	602	438	405	552
35°	647	1072	528	358	334	415
45°	315	656	430	284	258	249
55°	200	322	307	203	172	180
65°	116	155	193	123	108	116
75°	50	61	92	58	55	54
85°	14	14	21	17	16	16
90°	0	0	0	0	0	



TEST NUMBER: P243450

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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	688.4	688.4	688.4	688.4	688.4	688.4	688.4	688.4	688.4	688.4	688.4
2.5°	737.7	738.6	737.1	736.8	736.5	731.8	730.3	727.9	719.6	717.5	716.0
5°	808.5	806.1	808.8	803.7	798.1	794.8	789.4	777.6	767.2	758.8	753.5
7.5°	892.3	893.2	890.5	885.8	874.5	869.7	855.1	840.9	827.2	810.0	797.2
10°	1000.5	993.4	994.8	980.0	968.1	953.8	933.9	911.0	886.9	862.6	844.4
12.5°	1086.7	1091.7	1088.2	1081.0	1058.1	1044.2	1026.0	992.8	954.7	922.0	894.4
15°	1164.6	1157.7	1158.6	1141.4	1133.1	1120.3	1090.2	1057.3	1032.6	973.4	940.7
17.5°	1221.6	1221.0	1220.1	1205.6	1195.5	1168.7	1138.1	1104.2	1073.3	1032.3	991.3
20°	1262.6	1267.1	1265.9	1254.0	1236.2	1210.3	1191.9	1149.7	1098.9	1061.4	1011.2
22.5°	1282.3	1282.6	1283.2	1277.5	1265.6	1249.0	1222.8	1188.9	1143.8	1082.5	1026.6
25°	1243.0	1244.5	1252.2	1257.0	1260.3	1252.8	1239.2	1208.5	1169.6	1107.2	1049.2
27.5°	1146.7	1151.5	1160.1	1188.6	1200.2	1216.3	1221.9	1209.7	1180.9	1128.9	1062.9
30°	989.8	1003.2	1011.5	1043.9	1089.4	1132.2	1152.4	1172.3	1169.6	1135.1	1068.3
32.5°	810.3	818.9	843.0	877.7	913.7	976.4	1046.6	1094.7	1121.8	1120.0	1072.7
35°	646.8	659.3	679.8	706.2	755.9	821.0	900.3	976.1	1043.9	1072.1	1055.2
37.5°	524.9	526.1	545.4	582.9	613.8	671.2	742.8	836.4	925.3	999.0	1015.3
40°	425.0	433.4	443.5	467.0	503.5	558.5	606.1	698.2	790.3	882.8	948.8
42.5°	362.0	362.0	373.3	388.2	412.6	445.6	502.3	585.8	668.8	782.3	856.6
45°	315.1	318.0	323.1	332.6	349.8	375.4	419.4	476.2	560.9	656.3	768.0
47.5°	281.2	280.9	285.3	291.0	304.4	323.7	349.5	395.6	458.3	561.2	659.9
50°	249.7	250.9	254.1	258.9	267.8	281.5	297.8	332.6	385.5	467.0	570.4
52.5°	225.3	225.0	227.7	230.7	237.5	245.2	259.8	285.6	322.2	387.0	472.9
55°	199.7	200.9	204.2	206.0	211.6	216.7	228.9	243.4	272.9	321.6	399.8
57.5°	177.7	179.2	181.0	182.8	186.7	191.7	201.8	210.7	232.1	267.2	329.6
60°	157.5	156.9	159.0	162.0	164.1	168.5	174.2	183.4	198.3	223.2	269.0
62.5°	137.3	137.6	137.9	139.7	143.6	147.4	152.5	159.3	168.2	186.7	219.1
65°	116.5	116.8	117.4	119.2	123.1	125.4	130.8	136.7	143.9	154.9	177.4
67.5°	98.1	99.3	99.3	100.8	102.2	104.6	108.5	112.9	118.9	126.9	141.5
70°	76.1	75.8	77.3	80.3	81.7	85.9	88.6	91.5	96.9	102.0	114.4
72.5°	61.2	61.2	61.2	62.4	62.7	63.6	65.4	71.6	75.8	80.8	87.7
75°	49.9	50.2	50.2	50.5	50.8	51.7	52.3	54.1	55.3	60.6	64.8
77.5°	39.8	40.1	40.1	40.4	40.7	41.0	42.2	42.2	43.1	44.3	46.1
80°	30.9	30.6	30.6	30.9	30.9	31.8	31.8	32.4	32.7	33.3	34.2
82.5°	22.0	21.7	22.0	21.7	22.0	22.3	22.9	22.6	23.2	23.8	24.1
85°	13.7	14.0	14.0	14.6	14.3	14.0	14.3	14.3	14.3	14.3	14.9
87.5°	5.9	6.5	6.5	6.2	6.5	6.5	5.9	6.5	6.5	6.5	6.8
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°	688.4	688.4	688.4	688.4	688.4	688.4	688.4	688.4	688.4	688.4	688.4
2.5°	715.1	714.0	709.5	705.3	699.1	696.4	692.8	691.4	686.6	680.1	677.1
5°	748.4	739.5	730.9	720.5	711.9	701.8	696.1	689.6	679.5	670.3	663.7
7.5°	783.8	770.7	754.7	737.4	722.0	707.4	694.9	684.5	671.4	658.7	648.6
10°	822.7	800.4	774.6	752.6	730.3	709.2	693.4	677.7	660.7	644.7	632.5
12.5°	864.6	833.1	801.9	768.9	735.7	711.3	687.8	667.6	648.6	631.6	617.1
15°	908.0	864.9	825.1	788.0	741.6	708.9	683.0	658.1	634.3	613.5	599.2
17.5°	939.0	889.6	839.4	786.8	746.9	706.5	674.4	642.9	620.9	599.5	580.2
20°	967.5	911.6	851.9	802.8	747.2	697.9	662.8	632.5	601.9	579.0	562.7
22.5°	979.7	929.1	868.8	800.7	745.2	694.6	649.5	615.3	587.9	563.0	541.6
25°	982.1	925.6	863.8	798.1	737.1	682.4	636.7	602.5	566.8	541.0	524.3
27.5°	992.5	915.2	854.5	789.2	727.3	670.3	622.1	584.1	550.8	523.1	501.7
30°	995.1	910.7	834.9	772.5	708.9	653.0	604.3	565.9	529.7	501.4	482.1
32.5°	996.3	904.8	814.4	746.1	685.4	632.8	588.2	546.6	512.1	482.4	462.5
35°	992.2	896.5	789.7	716.0	657.8	606.1	564.7	527.9	489.5	461.6	440.5
37.5°	975.8	883.4	775.8	681.0	625.4	576.6	541.6	505.3	469.9	439.6	417.9
40°	944.9	864.4	749.6	651.5	588.5	544.8	512.1	482.4	446.7	417.6	396.2
42.5°	895.6	838.5	725.5	618.2	552.0	510.6	483.3	457.7	425.6	398.0	374.5
45°	822.4	802.2	693.4	584.4	512.1	473.2	449.4	429.5	400.4	375.1	353.4
47.5°	743.4	747.8	661.0	549.9	475.9	438.7	417.9	400.4	378.4	351.3	331.4
50°	652.1	676.5	615.6	515.1	439.6	403.0	382.5	371.8	351.3	328.7	310.0
52.5°	568.6	607.2	569.5	477.1	403.9	368.0	349.0	338.3	324.6	305.9	286.8
55°	482.1	531.2	503.8	436.0	367.7	331.4	315.4	307.0	295.7	281.2	263.9
57.5°	410.5	462.8	445.6	392.9	332.3	299.6	285.3	275.8	269.0	255.6	241.7
60°	340.3	388.8	381.9	343.3	297.2	266.0	255.0	247.3	241.7	231.8	218.2
62.5°	274.6	321.6	325.8	295.4	263.1	234.8	224.7	219.4	214.9	207.2	194.7
65°	217.9	259.2	267.8	244.6	227.1	205.7	195.9	192.6	189.3	180.4	170.9
67.5°	170.6	203.0	214.3	201.2	188.7	176.3	168.5	164.1	161.7	156.3	149.8
70°	130.5	158.4	167.9	162.3	154.0	149.2	143.3	140.3	137.9	131.1	127.5
72.5°	97.8	116.8	128.7	126.9	125.1	121.9	118.3	117.4	113.8	109.4	106.1
75°	71.6	82.6	93.3	97.2	96.6	97.8	93.9	92.4	90.4	87.1	84.4
77.5°	51.4	58.0	65.4	70.1	72.5	72.8	72.8	71.9	70.4	68.1	66.0
80°	35.7	37.2	44.0	48.4	50.8	52.6	52.6	52.9	51.4	50.5	49.0
82.5°	24.7	25.6	27.0	30.6	33.6	35.7	36.0	35.7	35.1	34.8	32.7
85°	15.5	15.2	15.2	16.1	18.4	20.5	20.8	21.4	21.1	20.8	18.7
87.5°	6.5	6.5	6.8	6.5	7.4	7.7	8.3	9.8	9.5	8.0	7.4
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°	688.4	688.4	688.4	688.4	688.4	688.4	688.4	688.4	688.4	688.4	688.4
2.5°	675.3	671.4	667.9	664.0	659.3	654.8	654.2	653.6	655.1	652.1	650.9
5°	658.7	651.2	645.6	638.5	633.4	626.9	623.3	622.4	622.1	620.3	617.9
7.5°	640.5	632.5	624.5	616.5	608.1	601.3	597.4	595.4	593.6	590.6	588.2
10°	623.6	613.5	604.9	593.9	585.0	576.0	572.5	569.5	567.7	563.6	560.3
12.5°	604.6	591.8	582.3	570.4	562.4	554.6	549.0	543.3	539.2	532.9	530.3
15°	587.9	574.6	558.5	551.4	540.1	528.5	522.2	522.2	513.6	508.6	505.3
17.5°	565.6	554.0	542.7	528.2	512.1	505.3	498.2	491.9	486.0	484.5	478.5
20°	546.0	532.3	520.8	505.0	490.4	482.4	474.1	467.2	462.8	458.6	455.4
22.5°	526.7	513.0	495.2	479.7	469.9	459.2	450.3	444.4	440.5	434.3	431.3
25°	506.5	490.1	474.1	458.9	446.7	437.5	428.3	425.0	418.2	414.9	410.8
27.5°	486.3	466.7	451.5	438.4	424.7	415.8	409.6	403.6	397.7	395.9	393.5
30°	463.7	445.6	431.0	418.2	405.1	397.4	390.0	384.6	379.6	375.7	373.0
32.5°	441.1	425.9	412.0	397.1	385.2	376.9	370.6	365.9	363.5	357.0	354.6
35°	420.3	404.8	390.0	376.0	366.5	358.5	352.8	348.4	343.3	339.1	336.8
37.5°	398.9	384.9	369.8	357.9	347.2	340.6	334.4	328.4	324.6	322.2	319.2
40°	378.1	363.2	351.6	338.5	329.0	321.6	315.1	310.6	305.9	303.8	299.9
42.5°	358.5	344.2	330.8	318.9	310.3	303.2	296.9	291.9	288.0	284.2	282.1
45°	335.9	323.4	311.2	299.3	291.3	283.6	276.7	272.3	266.9	263.6	262.5
47.5°	316.8	303.8	290.7	279.7	271.4	263.1	257.4	252.1	247.6	244.3	242.5
50°	294.3	282.1	271.4	260.4	252.4	243.4	236.6	231.5	226.5	224.1	221.1
52.5°	274.9	263.1	250.0	240.2	230.9	223.2	217.0	212.8	208.4	204.8	202.7
55°	250.9	239.3	228.9	218.5	209.3	203.0	198.0	190.8	187.0	183.4	177.7
57.5°	229.8	218.8	207.8	197.7	189.0	181.6	175.4	170.6	165.6	162.9	159.0
60°	207.5	195.9	185.8	178.0	168.5	160.5	156.3	150.7	146.5	142.4	141.2
62.5°	185.5	174.8	164.7	156.6	148.0	141.8	136.4	133.8	129.6	126.3	125.1
65°	162.6	153.7	144.2	135.2	129.9	122.8	119.8	115.3	112.9	111.5	111.2
67.5°	140.0	132.0	123.4	116.5	111.5	106.7	103.1	101.4	99.0	97.2	95.7
70°	119.5	111.8	104.3	98.7	94.8	91.3	88.9	85.6	83.2	80.8	77.6
72.5°	99.3	93.0	86.8	82.3	78.5	76.4	73.1	68.1	65.7	65.1	64.8
75°	80.6	73.7	69.3	66.9	63.3	58.3	56.2	55.6	55.3	54.7	54.7
77.5°	62.1	58.0	55.0	49.9	48.2	47.9	46.4	46.1	45.5	45.8	45.8
80°	45.2	42.8	39.2	37.7	37.2	37.5	36.9	37.2	36.6	36.9	36.3
82.5°	30.0	27.9	28.5	27.6	27.6	28.2	27.9	27.0	27.0	26.8	26.8
85°	17.8	17.5	18.1	18.1	17.8	16.9	17.5	17.2	16.3	16.6	16.6
87.5°	7.7	7.7	7.7	7.4	7.7	7.4	7.4	7.4	6.5	6.5	6.5
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: P243450

CATALOG NUMBER: S123RDRP-H560D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	688.4	688.4	688.4	688.4
2.5°	651.5	650.9	650.0	649.2
5°	617.9	615.3	615.0	614.1
7.5°	586.4	585.3	583.2	585.5
10°	557.6	558.5	556.4	554.0
12.5°	527.6	525.8	522.5	524.3
15°	501.1	498.2	496.4	492.2
17.5°	473.5	471.1	471.1	468.4
20°	449.4	447.0	447.6	445.8
22.5°	429.2	427.4	424.7	425.0
25°	410.2	407.5	404.5	404.8
27.5°	389.1	386.7	386.1	384.0
30°	370.4	368.3	368.0	368.0
32.5°	352.2	351.3	349.8	349.0
35°	336.5	335.3	332.9	333.5
37.5°	316.8	315.7	315.4	315.1
40°	298.4	297.5	295.2	295.4
42.5°	280.0	278.5	277.0	276.4
45°	260.1	259.8	257.4	258.0
47.5°	241.1	240.5	239.3	237.8
50°	220.0	219.7	218.8	217.0
52.5°	199.4	198.6	196.8	195.0
55°	176.3	173.6	173.9	172.4
57.5°	157.2	156.0	153.7	152.8
60°	138.8	137.6	137.3	136.1
62.5°	123.4	122.2	121.3	121.3
65°	109.4	107.9	107.6	107.6
67.5°	93.9	92.4	92.1	91.5
70°	74.6	74.3	73.7	73.7
72.5°	64.2	63.9	64.2	63.0
75°	54.7	54.4	54.4	54.7
77.5°	45.5	45.5	45.2	45.2
80°	36.0	36.3	36.0	36.9
82.5°	27.0	26.5	26.8	26.2
85°	16.6	16.6	16.1	16.1
87.5°	6.5	6.5	6.5	6.5
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P243450
 CATALOG NUMBER: S123RDRP-H560D940-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	15.76	17.26	16.12	17.57	17.89	18.46	19.96	18.82	20.27	20.59
	3H	16.95	18.29	17.33	18.62	18.98	19.88	21.23	20.26	21.56	21.92
	4H	17.30	18.56	17.70	18.91	19.29	20.39	21.65	20.79	22.00	22.38
	6H	17.57	18.74	17.99	19.10	19.50	20.73	21.90	21.15	22.26	22.65
	8H	17.66	18.77	18.09	19.16	19.56	20.83	21.94	21.26	22.33	22.73
	12H	17.73	18.78	18.16	19.17	19.60	20.89	21.95	21.32	22.33	22.76
4H	2H	16.71	17.97	17.11	18.32	18.70	18.74	20.00	19.14	20.35	20.73
	3H	17.98	19.02	18.39	19.42	19.82	20.45	21.50	20.86	21.90	22.30
	4H	18.38	19.32	18.82	19.74	20.18	21.07	22.01	21.50	22.42	22.86
	6H	18.73	19.55	19.19	19.99	20.45	21.53	22.34	21.98	22.78	23.24
	8H	18.85	19.61	19.31	20.05	20.52	21.66	22.43	22.13	22.87	23.34
	12H	18.94	19.62	19.42	20.09	20.57	21.76	22.44	22.24	22.92	23.39
8H	4H	18.75	19.51	19.21	19.95	20.42	21.13	21.89	21.59	22.33	22.80
	6H	19.17	19.79	19.66	20.28	20.76	21.66	22.29	22.16	22.78	23.26
	8H	19.33	19.89	19.84	20.40	20.89	21.85	22.41	22.36	22.92	23.41
	12H	19.48	19.97	19.99	20.47	21.03	22.00	22.50	22.51	22.99	23.56
12H	4H	18.78	19.46	19.26	19.93	20.41	21.12	21.80	21.60	22.27	22.75
	6H	19.21	19.77	19.72	20.28	20.77	21.65	22.21	22.16	22.72	23.21
	8H	19.42	19.92	19.93	20.41	20.98	21.88	22.37	22.39	22.87	23.43