

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: P243445

Luminaire Tested: S123RDRP-H560D935-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P243445
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-H560D935-X4F0-XX-UDD-A-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3500K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

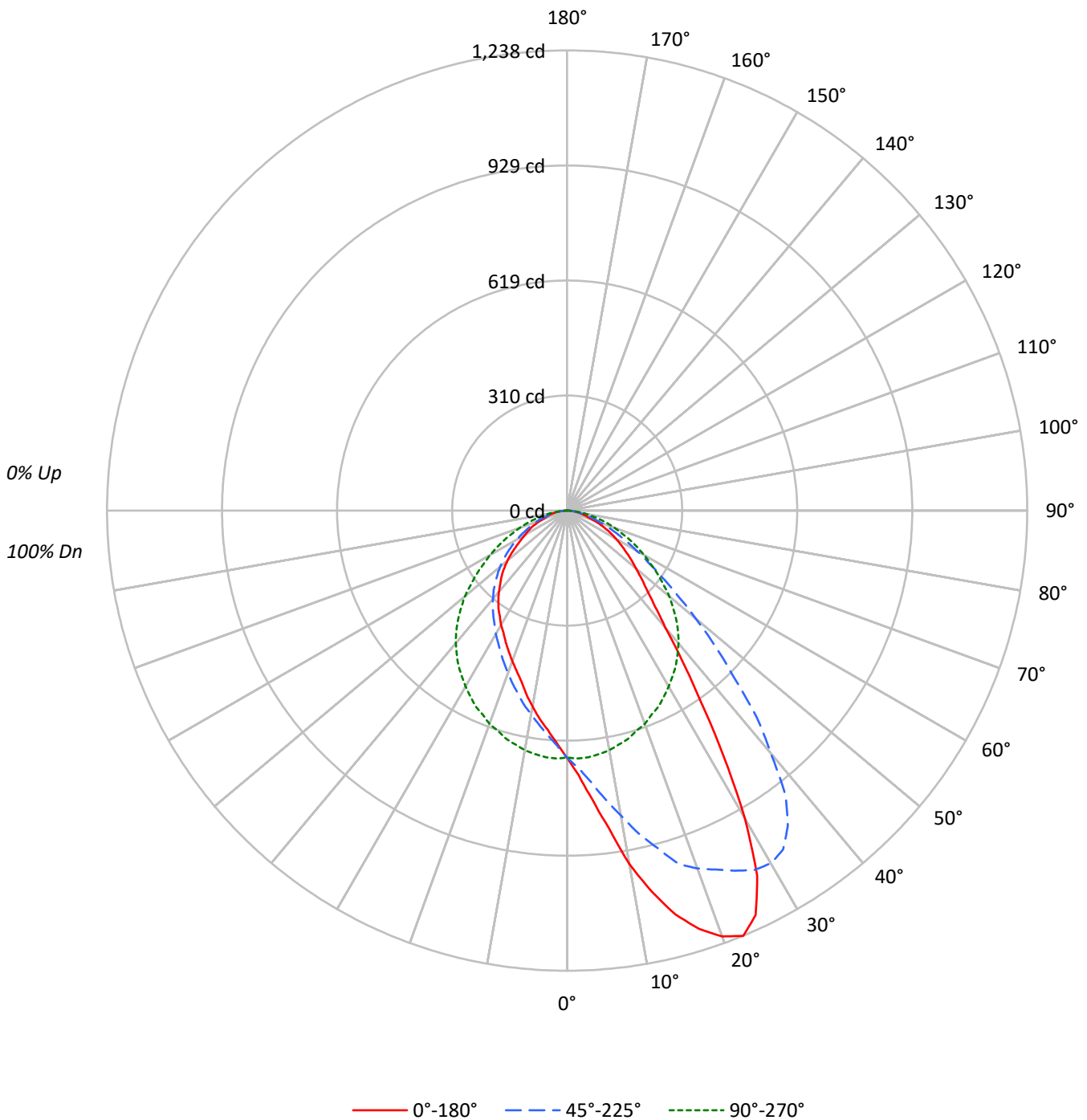
Lumens per Lamp: N/A
Luminaire Lumens: 1731.9 lumens
Efficiency: N/A
Efficacy: 100.7 lumens/watt
Spacing Criteria (0/90/45): 1.28 / 1.22 / 1.4
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

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				
2	101	94	88	83	99	92	86	82	89	84	80	85	81	78	82	79	76					74				
3	93	84	76	70	91	82	75	70	79	73	68	76	71	67	74	70	66					64				
4	86	75	67	61	84	74	66	60	71	65	59	69	63	59	67	62	58					56				
5	79	68	59	53	77	66	59	53	64	57	52	62	56	52	61	55	51					49				
6	74	61	53	47	72	60	52	47	59	52	46	57	51	46	55	50	46					44				
7	69	56	48	42	67	55	47	42	54	47	41	52	46	41	51	45	41					39				
8	64	51	43	38	62	51	43	37	49	42	37	48	42	37	47	41	37					35				
9	60	47	39	34	59	47	39	34	45	39	34	44	38	34	43	38	33					32				
10	56	44	36	31	55	43	36	31	42	35	31	41	35	31	40	35	31					29				

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	8057	8057	8057	8057	8057
5°	9498	8915	8101	7365	7214
10°	11890	10252	8054	6846	6585
15°	14110	11795	7974	6404	5964
20°	15727	13220	7878	6008	5553
25°	16052	14298	7780	5651	5228
30°	13376	15340	7648	5370	4973
35°	9241	15318	7542	5121	4765
40°	6494	13488	7370	4913	4514
45°	5215	10863	7109	4693	4270
50°	4546	8503	6770	4431	3951
55°	4076	6562	6266	4142	3519
60°	3687	5224	5789	3758	3185
65°	3227	4288	5335	3399	2980
70°	2605	3487	4802	3122	2523
75°	2257	2740	4182	2637	2473
80°	2080	2241	3567	2527	2485
85°	1836	1919	2879	2281	2156

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 55°
 Vertical Angle: 45°
 Luminance: 13612 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	65.2	3.8
10°-20°	205.3	11.9
20°-30°	328.9	19.0
30°-40°	357.1	20.6
40°-50°	305.9	17.7
50°-60°	231.9	13.4
60°-70°	148.2	8.6
70°-80°	70.9	4.1
80°-90°	18.6	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°	599.4	34.6
0°-40°	956.5	55.2
0°-60°	1494.3	86.3
0°-90°	1731.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1731.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	665	665	665	665	665	
5°	781	733	666	605	593	80
15°	1124	940	635	510	475	319
25°	1200	1069	582	422	391	533
35°	624	1035	510	346	322	401
45°	304	634	415	274	249	240
55°	193	310	296	196	166	174
65°	112	150	186	118	104	112
75°	48	58	89	56	53	52
85°	13	14	21	16	16	15
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°	664.7	664.7	664.7	664.7	664.7	664.7	664.7	664.7	664.7	664.7	664.7
2.5°	712.3	713.2	711.7	711.5	711.2	706.6	705.1	702.9	694.8	692.8	691.4
5°	780.6	778.3	780.9	776.0	770.6	767.4	762.3	750.8	740.7	732.7	727.5
7.5°	861.6	862.4	859.8	855.2	844.3	839.7	825.7	811.9	798.7	782.1	769.7
10°	966.0	959.1	960.6	946.2	934.7	921.0	901.7	879.6	856.4	832.9	815.4
12.5°	1049.3	1054.1	1050.7	1043.8	1021.7	1008.2	990.7	958.6	921.8	890.3	863.6
15°	1124.4	1117.8	1118.7	1102.1	1094.0	1081.7	1052.7	1020.8	997.0	939.9	908.3
17.5°	1179.6	1179.0	1178.1	1164.1	1154.3	1128.5	1098.9	1066.2	1036.3	996.7	957.1
20°	1219.2	1223.5	1222.3	1210.8	1193.6	1168.6	1150.9	1110.1	1061.0	1024.9	976.4
22.5°	1238.1	1238.4	1239.0	1233.5	1222.0	1206.0	1180.7	1148.0	1104.4	1045.2	991.3
25°	1200.2	1201.7	1209.1	1213.7	1216.9	1209.7	1196.5	1166.9	1129.3	1069.1	1013.1
27.5°	1107.2	1111.8	1120.1	1147.7	1158.9	1174.4	1179.8	1168.1	1140.2	1090.0	1026.3
30°	955.7	968.6	976.6	1007.9	1051.8	1093.2	1112.7	1131.9	1129.3	1096.0	1031.5
32.5°	782.4	790.7	813.9	847.5	882.2	942.8	1010.5	1057.0	1083.1	1081.4	1035.8
35°	624.5	636.6	656.4	681.9	729.8	792.7	869.3	942.5	1007.9	1035.2	1018.8
37.5°	506.8	508.0	526.6	562.8	592.6	648.0	717.2	807.6	893.4	964.6	980.4
40°	410.4	418.4	428.2	450.9	486.2	539.3	585.2	674.2	763.1	852.4	916.1
42.5°	349.6	349.6	360.5	374.8	398.4	430.2	485.0	565.7	645.7	755.4	827.1
45°	304.2	307.1	312.0	321.1	337.8	362.5	405.0	459.8	541.6	633.7	741.6
47.5°	271.5	271.2	275.5	281.0	293.9	312.5	337.5	382.0	442.5	541.8	637.1
50°	241.1	242.2	245.4	250.0	258.6	271.8	287.6	321.1	372.2	450.9	550.7
52.5°	217.5	217.3	219.8	222.7	229.3	236.8	250.8	275.8	311.1	373.7	456.6
55°	192.9	194.0	197.2	198.9	204.3	209.2	221.0	235.0	263.5	310.5	386.0
57.5°	171.6	173.1	174.8	176.5	180.2	185.1	194.9	203.5	224.1	258.0	318.3
60°	152.1	151.5	153.5	156.4	158.4	162.7	168.2	177.1	191.4	215.5	259.7
62.5°	132.6	132.9	133.2	134.9	138.6	142.3	147.2	153.8	162.4	180.2	211.5
65°	112.5	112.8	113.4	115.1	118.8	121.1	126.3	132.0	138.9	149.5	171.3
67.5°	94.7	95.9	95.9	97.3	98.7	101.0	104.8	109.1	114.8	122.5	136.6
70°	73.5	73.2	74.6	77.5	78.9	82.9	85.5	88.4	93.6	98.4	110.5
72.5°	59.1	59.1	59.1	60.3	60.6	61.4	63.1	69.2	73.2	78.1	84.7
75°	48.2	48.5	48.5	48.8	49.1	49.9	50.5	52.2	53.4	58.5	62.6
77.5°	38.5	38.7	38.7	39.0	39.3	39.6	40.8	40.8	41.6	42.8	44.5
80°	29.8	29.6	29.6	29.8	29.8	30.7	30.7	31.3	31.6	32.1	33.0
82.5°	21.2	21.0	21.2	21.0	21.2	21.5	22.1	21.8	22.4	23.0	23.2
85°	13.2	13.5	13.5	14.1	13.8	13.5	13.8	13.8	13.8	13.8	14.3
87.5°	5.7	6.3	6.3	6.0	6.3	6.3	5.7	6.3	6.3	6.3	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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	664.7	664.7	664.7	664.7	664.7	664.7	664.7	664.7	664.7	664.7	664.7
2.5°	690.5	689.4	685.1	681.0	675.0	672.4	669.0	667.6	663.0	656.6	653.8
5°	722.7	714.0	705.7	695.7	687.4	677.6	672.1	665.8	656.1	647.2	640.9
7.5°	756.8	744.2	728.7	712.0	697.1	683.0	671.0	661.0	648.3	636.0	626.2
10°	794.4	772.9	747.9	726.7	705.1	684.8	669.6	654.4	638.0	622.5	610.7
12.5°	834.9	804.4	774.3	742.5	710.3	686.8	664.1	644.6	626.2	609.9	595.8
15°	876.8	835.2	796.7	760.8	716.1	684.5	659.5	635.4	612.4	592.4	578.6
17.5°	906.6	859.0	810.5	759.7	721.2	682.2	651.2	620.8	599.5	578.9	560.2
20°	934.2	880.2	822.5	775.2	721.5	673.9	640.0	610.7	581.2	559.1	543.3
22.5°	945.9	897.1	838.9	773.2	719.5	670.7	627.1	594.1	567.7	543.6	522.9
25°	948.2	893.7	834.0	770.6	711.7	658.9	614.7	581.7	547.3	522.3	506.3
27.5°	958.3	883.7	825.1	762.0	702.3	647.2	600.7	563.9	531.8	505.1	484.4
30°	960.9	879.4	806.2	745.9	684.5	630.5	583.5	546.4	511.4	484.2	465.5
32.5°	962.0	873.6	786.4	720.4	661.8	611.0	568.0	527.8	494.5	465.8	446.6
35°	958.0	865.6	762.5	691.4	635.1	585.2	545.3	509.7	472.7	445.7	425.3
37.5°	942.2	853.0	749.1	657.5	603.8	556.8	522.9	487.9	453.7	424.5	403.5
40°	912.4	834.6	723.8	629.1	568.3	526.1	494.5	465.8	431.4	403.2	382.6
42.5°	864.7	809.6	700.6	597.0	533.0	493.1	466.7	442.0	411.0	384.3	361.6
45°	794.1	774.6	669.6	564.2	494.5	456.9	433.9	414.7	386.6	362.2	341.2
47.5°	717.8	722.1	638.3	530.9	459.5	423.6	403.5	386.6	365.3	339.2	320.0
50°	629.7	653.2	594.4	497.4	424.5	389.2	369.4	359.0	339.2	317.4	299.3
52.5°	549.0	586.3	549.9	460.6	390.0	355.3	336.9	326.6	313.4	295.3	277.0
55°	465.5	512.9	486.5	421.0	355.0	320.0	304.5	296.5	285.6	271.5	254.9
57.5°	396.3	446.9	430.2	379.4	320.9	289.3	275.5	266.3	259.7	246.8	233.3
60°	328.6	375.4	368.8	331.5	287.0	256.9	246.2	238.8	233.3	223.9	210.7
62.5°	265.2	310.5	314.5	285.3	254.0	226.7	217.0	211.8	207.5	200.0	188.0
65°	210.4	250.3	258.6	236.2	219.3	198.6	189.1	186.0	182.8	174.2	165.0
67.5°	164.7	196.0	206.9	194.3	182.2	170.2	162.7	158.4	156.1	151.0	144.6
70°	126.0	153.0	162.2	156.7	148.7	144.1	138.3	135.5	133.2	126.6	123.1
72.5°	94.4	112.8	124.3	122.5	120.8	117.7	114.2	113.4	109.9	105.6	102.5
75°	69.2	79.8	90.1	93.8	93.3	94.4	90.7	89.3	87.2	84.1	81.5
77.5°	49.7	56.0	63.1	67.7	70.0	70.3	70.3	69.5	68.0	65.7	63.7
80°	34.4	35.9	42.5	46.8	49.1	50.8	50.8	51.1	49.7	48.8	47.4
82.5°	23.8	24.7	26.1	29.6	32.4	34.4	34.7	34.4	33.9	33.6	31.6
85°	14.9	14.6	14.6	15.5	17.8	19.8	20.1	20.7	20.4	20.1	18.1
87.5°	6.3	6.3	6.6	6.3	7.2	7.5	8.0	9.5	9.2	7.7	7.2
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°	664.7	664.7	664.7	664.7	664.7	664.7	664.7	664.7	664.7	664.7	664.7
2.5°	652.1	648.3	644.9	641.1	636.6	632.3	631.7	631.1	632.5	629.7	628.5
5°	636.0	628.8	623.4	616.5	611.6	605.3	601.8	601.0	600.7	599.0	596.7
7.5°	618.5	610.7	603.0	595.2	587.2	580.6	576.9	574.9	573.1	570.3	568.0
10°	602.1	592.4	584.0	573.4	564.8	556.2	552.8	549.9	548.2	544.1	541.0
12.5°	583.7	571.4	562.2	550.7	543.0	535.5	530.1	524.6	520.6	514.6	512.0
15°	567.7	554.8	539.3	532.4	521.5	510.3	504.3	504.3	495.9	491.0	487.9
17.5°	546.2	535.0	524.1	510.0	494.5	487.9	481.0	475.0	469.2	467.8	462.1
20°	527.2	514.0	502.8	487.6	473.5	465.8	457.8	451.2	446.9	442.8	439.7
22.5°	508.6	495.4	478.1	463.2	453.7	443.4	434.8	429.1	425.3	419.3	416.4
25°	489.0	473.3	457.8	443.1	431.4	422.5	413.6	410.4	403.8	400.6	396.6
27.5°	469.5	450.6	435.9	423.3	410.1	401.5	395.5	389.7	384.0	382.3	380.0
30°	447.7	430.2	416.1	403.8	391.2	383.7	376.5	371.4	366.5	362.8	360.2
32.5°	425.9	411.3	397.8	383.4	371.9	363.9	357.9	353.3	351.0	344.7	342.4
35°	405.8	390.9	376.5	363.0	353.9	346.1	340.7	336.4	331.5	327.5	325.2
37.5°	385.1	371.7	357.0	345.5	335.2	328.9	322.9	317.1	313.4	311.1	308.2
40°	365.1	350.7	339.5	326.9	317.7	310.5	304.2	299.9	295.3	293.3	289.6
42.5°	346.1	332.3	319.4	307.9	299.6	292.7	286.7	281.8	278.1	274.4	272.4
45°	324.3	312.3	300.5	289.0	281.3	273.8	267.2	262.9	257.7	254.6	253.4
47.5°	305.9	293.3	280.7	270.1	262.0	254.0	248.5	243.4	239.1	235.9	234.2
50°	284.1	272.4	262.0	251.4	243.7	235.0	228.4	223.6	218.7	216.4	213.5
52.5°	265.5	254.0	241.4	231.9	223.0	215.5	209.5	205.5	201.2	197.7	195.7
55°	242.2	231.0	221.0	210.9	202.0	196.0	191.1	184.3	180.5	177.1	171.6
57.5°	221.8	211.2	200.6	190.9	182.5	175.4	169.3	164.7	159.9	157.3	153.5
60°	200.3	189.1	179.4	171.9	162.7	155.0	151.0	145.5	141.5	137.5	136.3
62.5°	179.1	168.8	159.0	151.2	142.9	136.9	131.7	129.1	125.1	122.0	120.8
65°	157.0	148.4	139.2	130.6	125.4	118.5	115.7	111.4	109.1	107.6	107.3
67.5°	135.2	127.4	119.1	112.5	107.6	103.0	99.6	97.9	95.6	93.8	92.4
70°	115.4	107.9	100.7	95.3	91.6	88.1	85.8	82.7	80.4	78.1	74.9
72.5°	95.9	89.8	83.8	79.5	75.8	73.8	70.6	65.7	63.4	62.9	62.6
75°	77.8	71.2	66.9	64.6	61.1	56.3	54.2	53.7	53.4	52.8	52.8
77.5°	60.0	56.0	53.1	48.2	46.5	46.2	44.8	44.5	43.9	44.2	44.2
80°	43.6	41.3	37.9	36.4	35.9	36.2	35.6	35.9	35.3	35.6	35.0
82.5°	29.0	27.0	27.6	26.7	26.7	27.3	27.0	26.1	26.1	25.8	25.8
85°	17.2	16.9	17.5	17.5	17.2	16.4	16.9	16.6	15.8	16.1	16.1
87.5°	7.5	7.5	7.5	7.2	7.5	7.2	7.2	7.2	6.3	6.3	6.3
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: P243445

CATALOG NUMBER: S123RDRP-H560D935-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	664.7	664.7	664.7	664.7
2.5°	629.1	628.5	627.7	626.8
5°	596.7	594.1	593.8	592.9
7.5°	566.2	565.1	563.1	565.4
10°	538.4	539.3	537.3	535.0
12.5°	509.4	507.7	504.5	506.3
15°	483.9	481.0	479.3	475.3
17.5°	457.2	454.9	454.9	452.3
20°	433.9	431.6	432.2	430.5
22.5°	414.4	412.7	410.1	410.4
25°	396.1	393.5	390.6	390.9
27.5°	375.7	373.4	372.8	370.8
30°	357.6	355.6	355.3	355.3
32.5°	340.1	339.2	337.8	336.9
35°	324.9	323.7	321.4	322.0
37.5°	305.9	304.8	304.5	304.2
40°	288.1	287.3	285.0	285.3
42.5°	270.3	268.9	267.5	266.9
45°	251.1	250.8	248.5	249.1
47.5°	232.8	232.2	231.0	229.6
50°	212.4	212.1	211.2	209.5
52.5°	192.6	191.7	190.0	188.3
55°	170.2	167.6	167.9	166.5
57.5°	151.8	150.7	148.4	147.5
60°	134.0	132.9	132.6	131.4
62.5°	119.1	118.0	117.1	117.1
65°	105.6	104.2	103.9	103.9
67.5°	90.7	89.3	89.0	88.4
70°	72.0	71.7	71.2	71.2
72.5°	62.0	61.7	62.0	60.8
75°	52.8	52.5	52.5	52.8
77.5°	43.9	43.9	43.6	43.6
80°	34.7	35.0	34.7	35.6
82.5°	26.1	25.5	25.8	25.3
85°	16.1	16.1	15.5	15.5
87.5°	6.3	6.3	6.3	6.3
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P243445
 CATALOG NUMBER: S123RDRP-H560D935-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	15.64	17.14	16.00	17.45	17.77	18.34	19.84	18.70	20.15	20.47
	3H	16.82	18.17	17.20	18.50	18.86	19.76	21.11	20.14	21.43	21.80
	4H	17.18	18.44	17.58	18.79	19.16	20.26	21.53	20.66	21.87	22.25
	6H	17.45	18.61	17.86	18.98	19.37	20.61	21.77	21.02	22.14	22.53
	8H	17.54	18.65	17.97	19.04	19.44	20.71	21.82	21.14	22.21	22.61
	12H	17.60	18.66	18.03	19.04	19.47	20.77	21.83	21.20	22.21	22.64
4H	2H	16.59	17.85	16.99	18.20	18.57	18.62	19.88	19.02	20.22	20.60
	3H	17.86	18.90	18.27	19.30	19.70	20.33	21.38	20.74	21.78	22.18
	4H	18.26	19.20	18.70	19.62	20.06	20.95	21.89	21.38	22.30	22.74
	6H	18.61	19.42	19.07	19.87	20.33	21.40	22.22	21.86	22.66	23.12
	8H	18.72	19.48	19.19	19.93	20.40	21.54	22.30	22.01	22.75	23.22
	12H	18.81	19.49	19.30	19.97	20.44	21.64	22.32	22.12	22.80	23.27
8H	4H	18.62	19.38	19.09	19.83	20.30	21.01	21.77	21.47	22.21	22.68
	6H	19.04	19.67	19.54	20.16	20.64	21.54	22.16	22.03	22.66	23.13
	8H	19.21	19.77	19.72	20.28	20.77	21.73	22.29	22.24	22.80	23.29
	12H	19.35	19.85	19.86	20.34	20.91	21.88	22.38	22.39	22.87	23.43
12H	4H	18.65	19.33	19.14	19.81	20.28	20.99	21.67	21.48	22.15	22.62
	6H	19.09	19.65	19.60	20.16	20.65	21.53	22.09	22.04	22.60	23.09
	8H	19.30	19.80	19.81	20.29	20.86	21.76	22.25	22.27	22.75	23.31