

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: P243430

Luminaire Tested: S123RDRP-H560D835-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P243430
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-H560D835-X4F0-XX-UDD-A-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3500K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

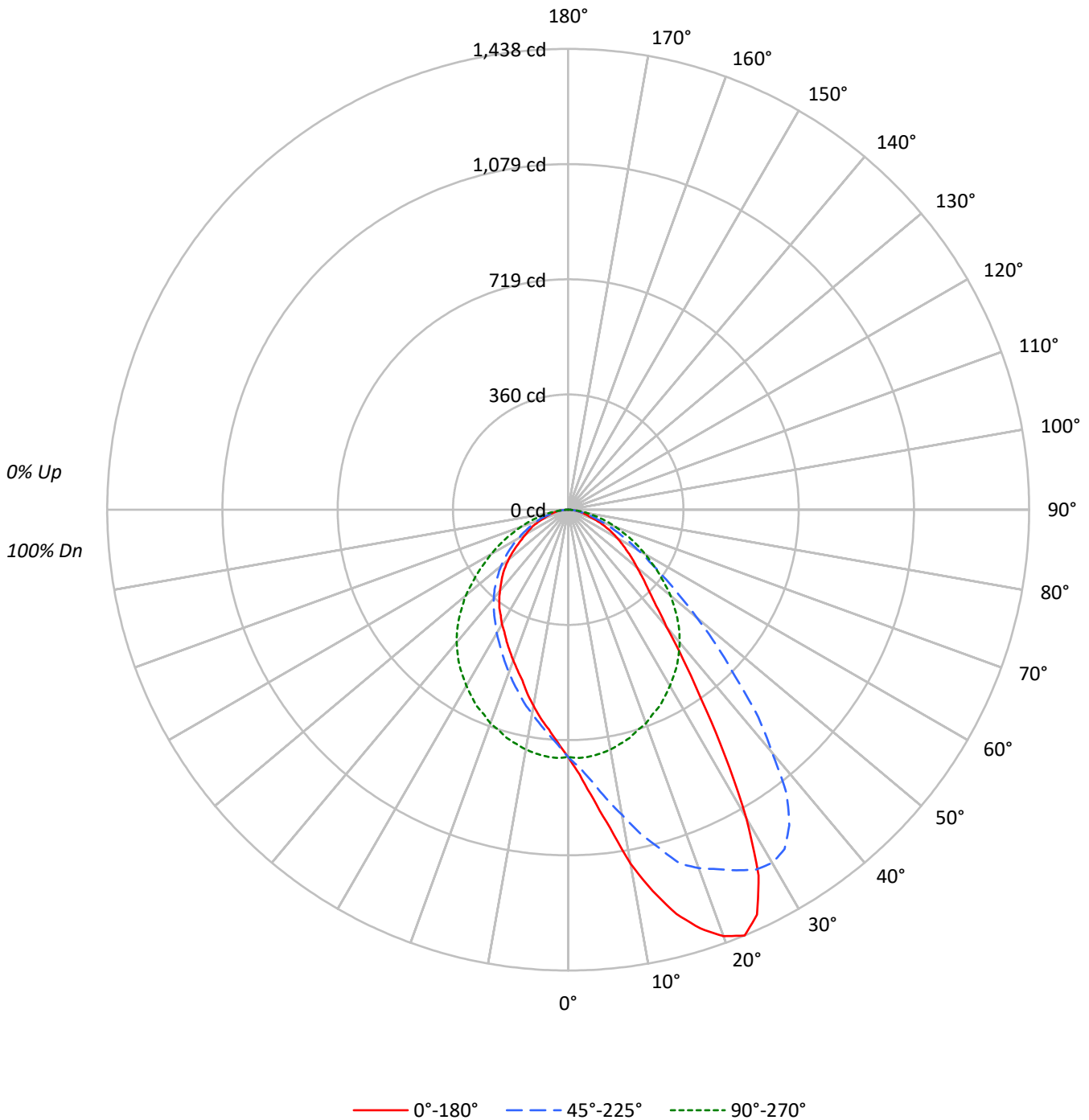
Lumens per Lamp: N/A
Luminaire Lumens: 2011.5 lumens
Efficiency: N/A
Efficacy: 116.9 lumens/watt
Spacing Criteria (0/90/45): 1.28 / 1.22 / 1.4
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

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°	9358	9358	9358	9358	9358
5°	11032	10355	9409	8554	8380
10°	13810	11906	9354	7951	7647
15°	16389	13700	9261	7438	6927
20°	18265	15354	9149	6978	6450
25°	18644	16606	9037	6563	6072
30°	15536	17817	8884	6238	5776
35°	10732	17791	8760	5949	5534
40°	7543	15665	8560	5707	5242
45°	6056	12617	8257	5451	4959
50°	5280	9876	7863	5148	4588
55°	4734	7623	7276	4812	4085
60°	4284	6068	6722	4364	3702
65°	3749	4982	6195	3949	3462
70°	3023	4051	5575	3626	2931
75°	2623	3185	4857	3058	2871
80°	2422	2604	4139	2932	2883
85°	2128	2225	3338	2642	2503

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 55°
 Vertical Angle: 45°
 Luminance: 15810 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	75.7	3.8
10°-20°	238.4	11.9
20°-30°	382.0	19.0
30°-40°	414.7	20.6
40°-50°	355.3	17.7
50°-60°	269.3	13.4
60°-70°	172.1	8.6
70°-80°	82.3	4.1
80°-90°	21.6	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°	696.1	34.6
0°-40°	1110.9	55.2
0°-60°	1735.5	86.3
0°-90°	2011.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2011.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	772	772	772	772	772	
5°	907	851	773	703	689	93
15°	1306	1092	738	593	552	370
25°	1394	1242	676	491	454	619
35°	725	1202	592	402	374	466
45°	353	736	482	318	289	279
55°	224	361	344	228	193	202
65°	131	174	216	138	121	130
75°	56	68	104	65	61	60
85°	15	16	24	19	18	17
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°	772.0	772.0	772.0	772.0	772.0	772.0	772.0	772.0	772.0	772.0	772.0
2.5°	827.3	828.3	826.7	826.3	826.0	820.7	819.0	816.3	807.0	804.7	803.0
5°	906.7	904.0	907.0	901.3	895.0	891.3	885.3	872.0	860.3	851.0	845.0
7.5°	1000.7	1001.7	998.7	993.3	980.7	975.3	959.0	943.0	927.7	908.3	894.0
10°	1122.0	1114.0	1115.7	1099.0	1085.7	1069.7	1047.3	1021.7	994.7	967.3	947.0
12.5°	1218.6	1224.3	1220.3	1212.3	1186.6	1171.0	1150.6	1113.3	1070.7	1034.0	1003.0
15°	1306.0	1298.3	1299.3	1280.0	1270.6	1256.3	1222.6	1185.6	1158.0	1091.7	1055.0
17.5°	1370.0	1369.3	1368.3	1352.0	1340.6	1310.6	1276.3	1238.3	1203.6	1157.6	1111.7
20°	1416.0	1421.0	1419.6	1406.3	1386.3	1357.3	1336.6	1289.3	1232.3	1190.3	1134.0
22.5°	1438.0	1438.3	1439.0	1432.6	1419.3	1400.6	1371.3	1333.3	1282.6	1214.0	1151.3
25°	1394.0	1395.6	1404.3	1409.6	1413.3	1405.0	1389.6	1355.3	1311.6	1241.6	1176.6
27.5°	1286.0	1291.3	1301.0	1333.0	1346.0	1364.0	1370.3	1356.6	1324.3	1266.0	1192.0
30°	1110.0	1125.0	1134.3	1170.6	1221.6	1269.6	1292.3	1314.6	1311.6	1273.0	1198.0
32.5°	908.7	918.3	945.3	984.3	1024.7	1095.0	1173.6	1227.6	1258.0	1256.0	1203.0
35°	725.3	739.3	762.3	792.0	847.7	920.7	1009.7	1094.7	1170.6	1202.3	1183.3
37.5°	588.7	590.0	611.7	653.7	688.3	752.7	833.0	938.0	1037.7	1120.3	1138.6
40°	476.7	486.0	497.3	523.7	564.7	626.3	679.7	783.0	886.3	990.0	1064.0
42.5°	406.0	406.0	418.7	435.3	462.7	499.7	563.3	657.0	750.0	877.3	960.7
45°	353.3	356.7	362.3	373.0	392.3	421.0	470.3	534.0	629.0	736.0	861.3
47.5°	315.3	315.0	320.0	326.3	341.3	363.0	392.0	443.7	514.0	629.3	740.0
50°	280.0	281.3	285.0	290.3	300.3	315.7	334.0	373.0	432.3	523.7	639.7
52.5°	252.7	252.3	255.3	258.7	266.3	275.0	291.3	320.3	361.3	434.0	530.3
55°	224.0	225.3	229.0	231.0	237.3	243.0	256.7	273.0	306.0	360.7	448.3
57.5°	199.3	201.0	203.0	205.0	209.3	215.0	226.3	236.3	260.3	299.7	369.7
60°	176.7	176.0	178.3	181.7	184.0	189.0	195.3	205.7	222.3	250.3	301.7
62.5°	154.0	154.3	154.7	156.7	161.0	165.3	171.0	178.7	188.7	209.3	245.7
65°	130.7	131.0	131.7	133.7	138.0	140.7	146.7	153.3	161.3	173.7	199.0
67.5°	110.0	111.3	111.3	113.0	114.7	117.3	121.7	126.7	133.3	142.3	158.7
70°	85.3	85.0	86.7	90.0	91.7	96.3	99.3	102.7	108.7	114.3	128.3
72.5°	68.7	68.7	68.7	70.0	70.3	71.3	73.3	80.3	85.0	90.7	98.3
75°	56.0	56.3	56.3	56.7	57.0	58.0	58.7	60.7	62.0	68.0	72.7
77.5°	44.7	45.0	45.0	45.3	45.7	46.0	47.3	47.3	48.3	49.7	51.7
80°	34.7	34.3	34.3	34.7	34.7	35.7	35.7	36.3	36.7	37.3	38.3
82.5°	24.7	24.3	24.7	24.3	24.7	25.0	25.7	25.3	26.0	26.7	27.0
85°	15.3	15.7	15.7	16.3	16.0	15.7	16.0	16.0	16.0	16.0	16.7
87.5°	6.7	7.3	7.3	7.0	7.3	7.3	6.7	7.3	7.3	7.3	7.7
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°	772.0	772.0	772.0	772.0	772.0	772.0	772.0	772.0	772.0	772.0	772.0
2.5°	802.0	800.7	795.7	791.0	784.0	781.0	777.0	775.3	770.0	762.7	759.3
5°	839.3	829.3	819.7	808.0	798.3	787.0	780.7	773.3	762.0	751.7	744.3
7.5°	879.0	864.3	846.3	827.0	809.7	793.3	779.3	767.7	753.0	738.7	727.3
10°	922.7	897.7	868.7	844.0	819.0	795.3	777.7	760.0	741.0	723.0	709.3
12.5°	969.7	934.3	899.3	862.3	825.0	797.7	771.3	748.7	727.3	708.3	692.0
15°	1018.3	970.0	925.3	883.7	831.7	795.0	766.0	738.0	711.3	688.0	672.0
17.5°	1053.0	997.7	941.3	882.3	837.7	792.3	756.3	721.0	696.3	672.3	650.7
20°	1085.0	1022.3	955.3	900.3	838.0	782.7	743.3	709.3	675.0	649.3	631.0
22.5°	1098.7	1042.0	974.3	898.0	835.7	779.0	728.3	690.0	659.3	631.3	607.3
25°	1101.3	1038.0	968.7	895.0	826.7	765.3	714.0	675.7	635.7	606.7	588.0
27.5°	1113.0	1026.3	958.3	885.0	815.7	751.7	697.7	655.0	617.7	586.7	562.7
30°	1116.0	1021.3	936.3	866.3	795.0	732.3	677.7	634.7	594.0	562.3	540.7
32.5°	1117.3	1014.7	913.3	836.7	768.7	709.7	659.7	613.0	574.3	541.0	518.7
35°	1112.7	1005.3	885.7	803.0	737.7	679.7	633.3	592.0	549.0	517.7	494.0
37.5°	1094.3	990.7	870.0	763.7	701.3	646.7	607.3	566.7	527.0	493.0	468.7
40°	1059.7	969.3	840.7	730.7	660.0	611.0	574.3	541.0	501.0	468.3	444.3
42.5°	1004.3	940.3	813.7	693.3	619.0	572.7	542.0	513.3	477.3	446.3	420.0
45°	922.3	899.7	777.7	655.3	574.3	530.7	504.0	481.7	449.0	420.7	396.3
47.5°	833.7	838.7	741.3	616.7	533.7	492.0	468.7	449.0	424.3	394.0	371.7
50°	731.3	758.7	690.3	577.7	493.0	452.0	429.0	417.0	394.0	368.7	347.7
52.5°	637.7	681.0	638.7	535.0	453.0	412.7	391.3	379.3	364.0	343.0	321.7
55°	540.7	595.7	565.0	489.0	412.3	371.7	353.7	344.3	331.7	315.3	296.0
57.5°	460.3	519.0	499.7	440.7	372.7	336.0	320.0	309.3	301.7	286.7	271.0
60°	381.7	436.0	428.3	385.0	333.3	298.3	286.0	277.3	271.0	260.0	244.7
62.5°	308.0	360.7	365.3	331.3	295.0	263.3	252.0	246.0	241.0	232.3	218.3
65°	244.3	290.7	300.3	274.3	254.7	230.7	219.7	216.0	212.3	202.3	191.7
67.5°	191.3	227.7	240.3	225.7	211.7	197.7	189.0	184.0	181.3	175.3	168.0
70°	146.3	177.7	188.3	182.0	172.7	167.3	160.7	157.3	154.7	147.0	143.0
72.5°	109.7	131.0	144.3	142.3	140.3	136.7	132.7	131.7	127.7	122.7	119.0
75°	80.3	92.7	104.7	109.0	108.3	109.7	105.3	103.7	101.3	97.7	94.7
77.5°	57.7	65.0	73.3	78.7	81.3	81.7	81.7	80.7	79.0	76.3	74.0
80°	40.0	41.7	49.3	54.3	57.0	59.0	59.0	59.3	57.7	56.7	55.0
82.5°	27.7	28.7	30.3	34.3	37.7	40.0	40.3	40.0	39.3	39.0	36.7
85°	17.3	17.0	17.0	18.0	20.7	23.0	23.3	24.0	23.7	23.3	21.0
87.5°	7.3	7.3	7.7	7.3	8.3	8.7	9.3	11.0	10.7	9.0	8.3
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°	772.0	772.0	772.0	772.0	772.0	772.0	772.0	772.0	772.0	772.0	772.0
2.5°	757.3	753.0	749.0	744.7	739.3	734.3	733.7	733.0	734.7	731.3	730.0
5°	738.7	730.3	724.0	716.0	710.3	703.0	699.0	698.0	697.7	695.7	693.0
7.5°	718.3	709.3	700.3	691.3	682.0	674.3	670.0	667.7	665.7	662.3	659.7
10°	699.3	688.0	678.3	666.0	656.0	646.0	642.0	638.7	636.7	632.0	628.3
12.5°	678.0	663.7	653.0	639.7	630.7	622.0	615.7	609.3	604.7	597.7	594.7
15°	659.3	644.3	626.3	618.3	605.7	592.7	585.7	585.7	576.0	570.3	566.7
17.5°	634.3	621.3	608.7	592.3	574.3	566.7	558.7	551.7	545.0	543.3	536.7
20°	612.3	597.0	584.0	566.3	550.0	541.0	531.7	524.0	519.0	514.3	510.7
22.5°	590.7	575.3	555.3	538.0	527.0	515.0	505.0	498.3	494.0	487.0	483.7
25°	568.0	549.7	531.7	514.7	501.0	490.7	480.3	476.7	469.0	465.3	460.7
27.5°	545.3	523.3	506.3	491.7	476.3	466.3	459.3	452.7	446.0	444.0	441.3
30°	520.0	499.7	483.3	469.0	454.3	445.7	437.3	431.3	425.7	421.3	418.3
32.5°	494.7	477.7	462.0	445.3	432.0	422.7	415.7	410.3	407.7	400.3	397.7
35°	471.3	454.0	437.3	421.7	411.0	402.0	395.7	390.7	385.0	380.3	377.7
37.5°	447.3	431.7	414.7	401.3	389.3	382.0	375.0	368.3	364.0	361.3	358.0
40°	424.0	407.3	394.3	379.7	369.0	360.7	353.3	348.3	343.0	340.7	336.3
42.5°	402.0	386.0	371.0	357.7	348.0	340.0	333.0	327.3	323.0	318.7	316.3
45°	376.7	362.7	349.0	335.7	326.7	318.0	310.3	305.3	299.3	295.7	294.3
47.5°	355.3	340.7	326.0	313.7	304.3	295.0	288.7	282.7	277.7	274.0	272.0
50°	330.0	316.3	304.3	292.0	283.0	273.0	265.3	259.7	254.0	251.3	248.0
52.5°	308.3	295.0	280.3	269.3	259.0	250.3	243.3	238.7	233.7	229.7	227.3
55°	281.3	268.3	256.7	245.0	234.7	227.7	222.0	214.0	209.7	205.7	199.3
57.5°	257.7	245.3	233.0	221.7	212.0	203.7	196.7	191.3	185.7	182.7	178.3
60°	232.7	219.7	208.3	199.7	189.0	180.0	175.3	169.0	164.3	159.7	158.3
62.5°	208.0	196.0	184.7	175.7	166.0	159.0	153.0	150.0	145.3	141.7	140.3
65°	182.3	172.3	161.7	151.7	145.7	137.7	134.3	129.3	126.7	125.0	124.7
67.5°	157.0	148.0	138.3	130.7	125.0	119.7	115.7	113.7	111.0	109.0	107.3
70°	134.0	125.3	117.0	110.7	106.3	102.3	99.7	96.0	93.3	90.7	87.0
72.5°	111.3	104.3	97.3	92.3	88.0	85.7	82.0	76.3	73.7	73.0	72.7
75°	90.3	82.7	77.7	75.0	71.0	65.3	63.0	62.3	62.0	61.3	61.3
77.5°	69.7	65.0	61.7	56.0	54.0	53.7	52.0	51.7	51.0	51.3	51.3
80°	50.7	48.0	44.0	42.3	41.7	42.0	41.3	41.7	41.0	41.3	40.7
82.5°	33.7	31.3	32.0	31.0	31.0	31.7	31.3	30.3	30.3	30.0	30.0
85°	20.0	19.7	20.3	20.3	20.0	19.0	19.7	19.3	18.3	18.7	18.7
87.5°	8.7	8.7	8.7	8.3	8.7	8.3	8.3	8.3	7.3	7.3	7.3
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: P243430

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CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	772.0	772.0	772.0	772.0
2.5°	730.7	730.0	729.0	728.0
5°	693.0	690.0	689.7	688.7
7.5°	657.7	656.3	654.0	656.7
10°	625.3	626.3	624.0	621.3
12.5°	591.7	589.7	586.0	588.0
15°	562.0	558.7	556.7	552.0
17.5°	531.0	528.3	528.3	525.3
20°	504.0	501.3	502.0	500.0
22.5°	481.3	479.3	476.3	476.7
25°	460.0	457.0	453.7	454.0
27.5°	436.3	433.7	433.0	430.7
30°	415.3	413.0	412.7	412.7
32.5°	395.0	394.0	392.3	391.3
35°	377.3	376.0	373.3	374.0
37.5°	355.3	354.0	353.7	353.3
40°	334.7	333.7	331.0	331.3
42.5°	314.0	312.3	310.7	310.0
45°	291.7	291.3	288.7	289.3
47.5°	270.3	269.7	268.3	266.7
50°	246.7	246.3	245.3	243.3
52.5°	223.7	222.7	220.7	218.7
55°	197.7	194.7	195.0	193.3
57.5°	176.3	175.0	172.3	171.3
60°	155.7	154.3	154.0	152.7
62.5°	138.3	137.0	136.0	136.0
65°	122.7	121.0	120.7	120.7
67.5°	105.3	103.7	103.3	102.7
70°	83.7	83.3	82.7	82.7
72.5°	72.0	71.7	72.0	70.7
75°	61.3	61.0	61.0	61.3
77.5°	51.0	51.0	50.7	50.7
80°	40.3	40.7	40.3	41.3
82.5°	30.3	29.7	30.0	29.3
85°	18.7	18.7	18.0	18.0
87.5°	7.3	7.3	7.3	7.3
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P243430
 CATALOG NUMBER: S123RDRP-H560D835-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	16.16	17.66	16.52	17.97	18.29	18.86	20.36	19.22	20.67	20.99
	3H	17.34	18.69	17.72	19.02	19.38	20.28	21.63	20.66	21.96	22.32
	4H	17.70	18.96	18.10	19.31	19.68	20.79	22.05	21.19	22.39	22.77
	6H	17.97	19.13	18.38	19.50	19.89	21.13	22.29	21.54	22.66	23.05
	8H	18.06	19.17	18.49	19.56	19.96	21.23	22.34	21.66	22.73	23.13
	12H	18.12	19.18	18.55	19.56	19.99	21.29	22.35	21.72	22.73	23.16
4H	2H	17.11	18.37	17.51	18.72	19.09	19.14	20.40	19.54	20.75	21.12
	3H	18.38	19.42	18.79	19.82	20.22	20.85	21.90	21.26	22.30	22.70
	4H	18.78	19.72	19.22	20.14	20.58	21.47	22.41	21.90	22.82	23.26
	6H	19.13	19.94	19.59	20.39	20.85	21.92	22.74	22.38	23.18	23.64
	8H	19.24	20.01	19.71	20.45	20.92	22.06	22.82	22.53	23.27	23.74
	12H	19.33	20.01	19.82	20.49	20.96	22.16	22.84	22.64	23.32	23.79
8H	4H	19.14	19.91	19.61	20.35	20.82	21.53	22.29	21.99	22.73	23.20
	6H	19.56	20.19	20.06	20.68	21.16	22.06	22.68	22.55	23.18	23.65
	8H	19.73	20.29	20.24	20.80	21.29	22.25	22.81	22.76	23.32	23.81
	12H	19.87	20.37	20.38	20.86	21.43	22.40	22.90	22.91	23.39	23.95
12H	4H	19.17	19.85	19.66	20.33	20.80	21.51	22.19	22.00	22.67	23.14
	6H	19.61	20.17	20.12	20.68	21.17	22.05	22.61	22.56	23.12	23.61
	8H	19.82	20.32	20.33	20.81	21.38	22.28	22.77	22.79	23.27	23.83