

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: P242565

Luminaire Tested: S123RDRP-S560D830-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P242565
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-S560D830-X4F0-XX-UDD-A-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 3000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

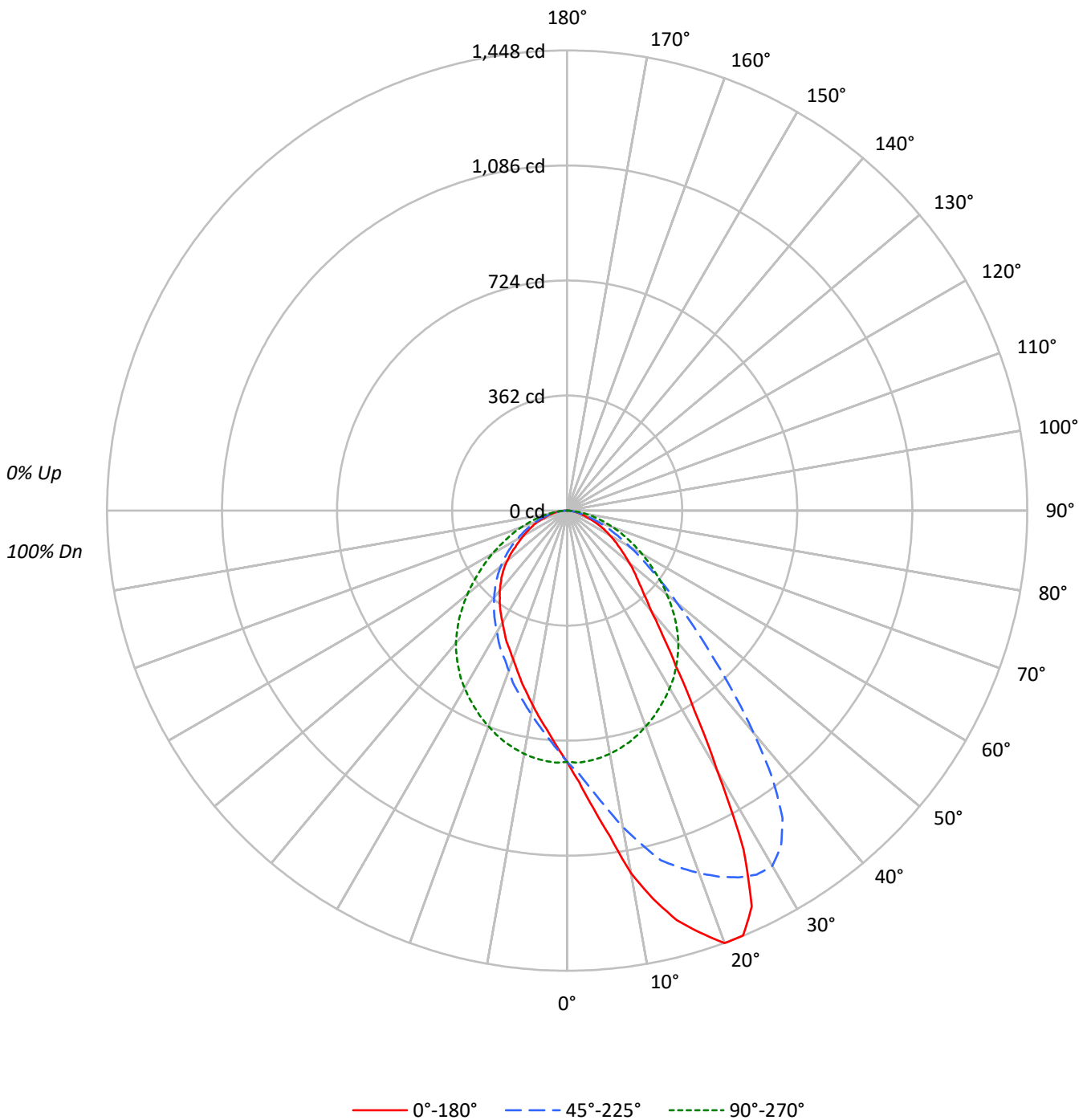
Lumens per Lamp: N/A
Luminaire Lumens: 1968.3 lumens
Efficiency: N/A
Efficacy: 104.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.22 / 1.35
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

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°	9582	9582	9582	9582	9582
5°	11422	10714	9622	8688	8473
10°	14262	12445	9567	8005	7656
15°	16739	14293	9469	7444	6981
20°	18682	15653	9323	6919	6408
25°	18383	17035	9169	6553	6056
30°	13214	18074	9028	6177	5692
35°	8822	17486	8843	5919	5457
40°	6500	14415	8620	5660	5215
45°	5453	10998	8232	5419	4976
50°	4810	8480	7722	5124	4645
55°	4220	6765	7137	4820	4191
60°	3758	5520	6579	4429	3840
65°	3301	4523	5977	4087	3571
70°	2591	3633	5444	3753	3260
75°	2281	2679	4754	3391	2979
80°	1982	2290	4042	2974	2932
85°	1599	1738	3240	3018	3101

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 60°
 Vertical Angle: 45°
 Luminance: 15476 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	77.6	3.9
10°-20°	243.0	12.3
20°-30°	382.7	19.4
30°-40°	398.0	20.2
40°-50°	340.5	17.3
50°-60°	259.5	13.2
60°-70°	166.3	8.4
70°-80°	79.7	4.0
80°-90°	20.9	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°	703.4	35.7
0°-40°	1101.4	56.0
0°-60°	1701.4	86.4
0°-90°	1968.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1968.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	790	790	790	790	790	
5°	939	880	791	714	696	96
15°	1334	1139	755	593	556	378
25°	1374	1274	686	490	453	597
35°	596	1182	598	400	369	388
45°	318	642	480	316	290	249
55°	200	320	338	228	198	180
65°	115	158	208	142	124	113
75°	49	57	102	72	64	52
85°	12	12	23	22	22	13
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°	790.5	790.5	790.5	790.5	790.5	790.5	790.5	790.5	790.5	790.5	790.5
2.5°	854.8	856.1	851.7	851.1	846.0	844.6	844.6	837.5	833.1	827.4	824.0
5°	938.7	944.1	941.4	935.3	925.2	922.8	916.4	906.2	894.7	880.5	873.7
7.5°	1034.8	1046.0	1043.9	1034.5	1023.6	1016.9	998.9	984.4	962.4	942.4	926.9
10°	1158.7	1150.9	1144.8	1135.6	1125.8	1109.9	1091.0	1064.9	1034.8	1011.1	984.7
12.5°	1251.4	1251.7	1243.6	1234.1	1219.2	1204.3	1180.0	1146.8	1110.6	1073.7	1042.6
15°	1333.9	1336.0	1330.9	1321.1	1301.5	1274.7	1239.5	1226.3	1176.3	1139.0	1101.8
17.5°	1392.8	1393.2	1392.1	1378.9	1357.6	1339.4	1306.5	1275.7	1228.4	1177.9	1128.2
20°	1448.3	1444.9	1445.6	1430.4	1415.5	1393.5	1361.7	1311.3	1274.0	1213.5	1161.7
22.5°	1447.0	1447.0	1450.0	1447.3	1437.5	1421.9	1398.6	1358.0	1307.9	1246.6	1186.7
25°	1374.5	1371.8	1387.7	1392.1	1409.4	1412.4	1405.0	1381.7	1336.6	1273.7	1201.6
27.5°	1202.0	1192.2	1225.3	1258.1	1301.8	1329.5	1358.0	1364.4	1343.1	1291.6	1216.2
30°	944.1	975.9	990.8	1044.3	1103.8	1174.9	1237.2	1296.4	1310.9	1291.3	1232.1
32.5°	743.8	770.5	782.4	826.4	880.8	967.1	1068.3	1158.3	1228.7	1252.4	1222.6
35°	596.2	596.6	625.0	645.3	696.7	782.4	873.1	985.4	1097.1	1181.7	1190.5
37.5°	492.0	493.4	511.6	532.0	573.2	621.3	705.5	800.3	934.6	1060.9	1126.5
40°	410.8	413.9	426.7	446.7	474.4	508.6	570.9	658.8	766.5	911.0	1029.0
42.5°	358.7	364.1	369.2	383.4	397.9	429.4	476.8	539.7	635.2	769.8	910.6
45°	318.1	320.8	325.9	333.0	348.5	370.9	404.7	450.4	531.6	641.6	778.0
47.5°	287.0	285.3	291.0	297.1	307.6	323.8	347.5	387.1	448.0	540.1	658.2
50°	255.1	254.8	258.5	262.9	272.7	283.9	302.5	330.6	376.6	449.7	555.6
52.5°	225.4	227.1	229.4	235.2	241.6	250.1	266.3	284.6	322.5	383.1	467.0
55°	199.7	200.7	204.4	207.4	212.5	221.6	232.1	249.1	276.1	320.1	392.9
57.5°	177.3	177.0	180.7	181.0	187.5	195.3	203.7	216.9	237.6	272.4	323.2
60°	155.0	154.0	157.0	159.4	162.4	168.5	175.3	188.1	203.7	227.7	269.7
62.5°	134.7	134.3	136.4	138.7	141.1	146.5	151.9	161.1	172.6	191.9	223.0
65°	115.1	116.1	117.1	118.1	119.5	122.8	128.3	135.0	143.5	157.7	181.7
67.5°	94.7	96.1	96.4	98.8	101.5	103.2	106.3	112.7	119.1	132.0	146.2
70°	73.1	72.8	73.1	74.1	77.8	81.6	86.0	90.4	94.1	102.5	114.0
72.5°	60.2	59.6	60.6	60.6	61.9	62.3	64.6	68.7	73.8	78.8	86.3
75°	48.7	48.7	48.7	48.7	50.1	50.8	51.8	52.8	54.5	57.2	63.3
77.5°	37.9	37.9	38.6	38.9	39.3	39.6	40.3	41.3	42.0	43.3	46.4
80°	28.4	28.8	28.4	28.8	28.8	29.4	29.8	30.8	31.1	32.8	33.8
82.5°	19.6	19.3	19.6	20.0	20.0	20.6	20.6	21.3	21.3	22.0	23.0
85°	11.5	10.8	11.5	11.2	11.8	11.2	11.5	12.2	12.2	12.5	13.9
87.5°	3.4	4.1	3.4	3.7	3.7	4.1	4.1	4.1	4.7	4.4	4.7
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°	790.5	790.5	790.5	790.5	790.5	790.5	790.5	790.5	790.5	790.5	790.5
2.5°	822.6	821.6	816.9	811.5	804.4	799.6	795.9	793.9	787.8	780.3	775.3
5°	866.6	856.5	845.6	832.4	820.3	807.7	800.0	790.8	779.7	767.1	758.3
7.5°	910.3	892.7	873.4	853.4	833.1	815.2	798.6	785.1	768.1	750.9	739.0
10°	962.0	932.9	902.8	872.0	843.9	817.6	797.3	777.3	756.0	735.3	719.8
12.5°	1009.1	968.5	932.6	893.0	855.1	822.3	790.8	766.5	739.7	717.4	699.1
15°	1047.3	1008.1	966.1	908.6	860.9	820.9	785.4	754.6	723.5	696.4	679.2
17.5°	1087.3	1027.7	972.5	927.9	865.6	817.2	775.6	739.7	705.9	678.1	656.5
20°	1110.3	1053.1	991.8	930.6	869.7	813.8	763.4	722.8	687.3	654.8	635.2
22.5°	1124.1	1057.5	992.2	925.2	859.5	801.0	751.2	705.5	666.3	635.8	610.5
25°	1134.3	1057.1	986.1	921.1	855.1	792.2	733.0	685.6	644.0	611.1	585.4
27.5°	1142.4	1053.1	971.5	900.8	834.1	770.2	716.7	666.0	624.3	590.2	562.1
30°	1144.4	1048.0	954.3	876.1	808.1	750.6	693.0	645.0	600.3	563.4	537.7
32.5°	1147.1	1035.5	930.9	846.7	776.6	719.8	669.0	623.7	577.6	541.4	515.0
35°	1137.7	1032.4	907.2	811.8	742.1	686.9	639.9	597.6	552.6	517.4	490.7
37.5°	1108.9	1015.9	883.5	772.9	700.8	650.1	610.8	572.2	530.6	492.0	467.3
40°	1060.5	988.8	855.1	738.0	661.9	609.4	574.9	544.8	504.9	469.3	442.3
42.5°	988.4	951.9	828.0	701.5	617.9	567.8	540.1	512.3	478.5	442.3	417.2
45°	897.1	902.8	789.1	662.2	578.0	527.2	499.8	480.2	449.0	419.3	393.2
47.5°	786.1	834.1	747.5	620.9	534.7	486.9	462.9	445.0	423.3	392.5	368.5
50°	677.8	754.6	695.4	579.3	494.4	447.0	423.3	409.5	391.2	368.2	345.5
52.5°	578.0	661.9	632.5	533.0	450.7	408.4	385.4	374.6	361.1	339.7	319.8
55°	487.6	571.2	563.1	486.3	407.1	368.2	350.6	337.7	327.9	311.7	295.4
57.5°	409.1	490.0	491.7	434.5	369.2	329.6	314.4	304.2	297.4	284.6	268.7
60°	335.7	408.4	422.7	382.0	327.9	294.1	279.2	271.4	266.3	256.5	245.0
62.5°	274.8	334.0	350.6	324.2	288.3	257.2	246.3	238.9	235.9	227.7	217.9
65°	219.6	271.1	286.6	270.4	249.7	224.4	214.9	208.4	205.4	200.7	193.2
67.5°	173.3	213.2	230.1	216.6	208.8	190.9	184.4	180.7	178.0	174.6	168.2
70°	132.6	160.4	178.0	174.9	168.9	160.4	156.0	153.6	150.9	148.2	142.8
72.5°	100.2	117.1	133.3	136.0	131.3	131.3	127.6	126.9	125.5	122.2	119.8
75°	70.7	83.9	95.4	99.8	101.9	103.5	101.9	101.5	101.2	98.5	96.8
77.5°	49.1	57.5	65.3	73.1	75.8	78.2	78.5	79.9	78.8	77.2	76.5
80°	35.5	37.2	42.3	48.7	53.8	55.8	57.2	57.9	57.5	57.2	55.8
82.5°	23.3	24.7	26.4	30.5	34.5	38.2	38.9	38.6	39.6	39.9	38.9
85°	13.9	14.2	14.9	15.6	17.9	21.7	22.7	23.3	24.0	24.0	22.0
87.5°	5.4	5.1	5.8	5.8	6.8	7.1	9.1	10.8	11.2	9.8	9.8
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	790.5	790.5	790.5	790.5	790.5	790.5	790.5	790.5	790.5	790.5	790.5
2.5°	773.6	769.2	766.1	759.4	755.0	750.2	745.5	748.5	748.2	747.8	747.8
5°	750.9	743.1	736.0	726.9	721.1	714.0	708.6	707.9	709.3	704.5	701.8
7.5°	729.6	719.4	709.3	699.8	689.3	681.2	676.1	674.1	670.4	667.3	664.6
10°	706.9	694.4	684.6	672.0	660.5	650.4	644.0	639.6	637.2	634.8	630.4
12.5°	683.6	671.4	658.2	643.6	632.8	620.6	616.2	611.1	606.1	603.4	596.9
15°	660.9	645.0	631.8	616.9	604.7	593.2	586.4	576.6	575.3	571.9	565.8
17.5°	638.9	621.3	602.0	591.8	579.7	567.5	556.7	553.6	543.5	540.1	534.3
20°	611.8	595.9	582.0	567.5	547.5	536.4	528.2	523.8	516.0	511.3	507.9
22.5°	588.5	572.2	555.6	538.0	522.5	509.6	504.2	496.8	493.4	486.3	482.5
25°	566.5	548.9	529.6	511.3	499.5	490.0	480.5	474.4	468.3	465.3	458.5
27.5°	539.7	522.1	503.5	489.3	475.8	466.3	457.2	452.1	444.3	439.2	435.5
30°	518.4	496.8	481.2	468.7	450.1	441.3	434.8	428.1	422.7	417.2	413.5
32.5°	493.7	474.4	459.9	443.6	430.4	420.6	411.8	406.1	401.7	396.6	392.9
35°	467.7	451.1	435.8	420.3	409.8	400.0	390.2	385.1	380.7	376.0	372.6
37.5°	444.0	428.4	414.2	399.3	386.4	378.0	369.9	366.5	360.4	357.0	353.6
40°	422.3	407.1	391.5	377.3	363.8	357.7	350.6	344.8	339.4	337.0	333.3
42.5°	398.6	383.4	370.9	355.3	344.8	336.0	329.6	323.2	319.4	315.7	314.0
45°	375.3	361.7	348.9	333.7	323.2	316.1	308.6	302.9	299.1	296.8	293.0
47.5°	352.9	339.1	326.2	312.7	302.5	294.4	286.6	282.9	277.8	275.1	272.4
50°	328.2	316.1	302.2	290.0	279.9	271.7	265.6	260.6	256.2	252.4	250.7
52.5°	305.6	292.4	280.9	269.7	258.9	249.4	244.0	238.6	235.5	231.1	229.1
55°	280.2	267.7	257.5	246.3	235.9	228.1	221.3	216.6	213.2	208.4	205.7
57.5°	256.8	246.0	233.5	223.7	212.5	206.4	200.7	193.9	189.8	186.1	183.4
60°	233.2	220.3	209.8	200.7	191.2	182.7	177.7	172.6	168.2	164.5	162.1
62.5°	208.4	197.6	187.8	177.7	169.2	162.1	156.0	151.9	148.2	146.2	143.8
65°	183.1	174.3	164.1	156.0	147.9	142.5	137.7	134.0	131.3	129.6	127.6
67.5°	159.7	151.3	142.1	133.7	128.3	123.9	120.5	117.1	115.7	113.7	112.3
70°	137.0	128.3	120.5	114.4	109.0	105.9	103.9	101.5	100.2	97.5	96.1
72.5°	112.3	106.6	101.5	96.8	92.7	90.0	87.3	84.3	81.9	78.8	77.5
75°	92.4	86.6	82.2	78.8	76.1	72.4	68.7	65.6	64.6	63.6	63.3
77.5°	72.1	68.4	65.0	62.3	58.5	55.2	54.1	53.5	53.1	52.5	52.5
80°	53.8	50.4	48.1	44.7	42.6	42.6	42.6	42.0	42.3	42.3	42.3
82.5°	36.5	33.5	32.5	31.8	31.8	32.1	32.1	32.5	32.1	32.8	32.5
85°	20.6	21.0	21.7	21.3	21.7	21.7	22.3	22.0	22.3	21.7	22.3
87.5°	9.5	10.5	10.8	11.2	11.5	11.2	11.5	11.5	11.8	11.8	11.8
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: P242565

CATALOG NUMBER: S123RDRP-S560D830-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	790.5	790.5	790.5	790.5
2.5°	743.8	743.4	743.8	742.4
5°	700.8	700.5	699.5	696.4
7.5°	661.9	661.2	658.5	659.2
10°	628.1	628.4	624.3	622.0
12.5°	595.2	593.2	590.2	587.4
15°	567.1	563.8	555.6	556.3
17.5°	532.3	529.6	529.2	524.5
20°	502.5	500.8	501.5	496.8
22.5°	479.2	477.5	473.7	473.1
25°	456.5	453.8	451.1	452.8
27.5°	433.5	431.4	428.4	428.4
30°	411.8	409.8	408.4	406.7
32.5°	389.8	389.8	387.1	387.1
35°	371.2	369.2	368.5	368.8
37.5°	353.3	350.6	349.2	347.9
40°	333.7	330.9	330.3	329.6
42.5°	311.7	311.0	310.6	309.3
45°	292.0	291.7	289.7	290.3
47.5°	271.1	269.4	268.3	269.4
50°	249.4	248.7	245.7	246.3
52.5°	227.7	224.7	224.0	223.3
55°	203.4	200.3	199.0	198.3
57.5°	179.3	178.3	177.0	178.0
60°	158.7	158.7	158.7	158.4
62.5°	142.8	141.8	141.4	142.1
65°	126.6	126.2	124.9	124.5
67.5°	111.7	110.3	110.3	109.6
70°	94.4	93.7	91.7	92.0
72.5°	75.8	75.1	75.1	74.4
75°	62.9	62.6	62.3	63.6
77.5°	52.5	52.5	52.8	52.1
80°	42.3	42.3	42.0	42.0
82.5°	31.8	32.1	32.5	31.8
85°	22.3	22.0	22.7	22.3
87.5°	12.5	11.8	11.8	12.2
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P242565
 CATALOG NUMBER: S123RDRP-S560D830-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	15.49	16.98	15.86	17.30	17.61	18.89	20.38	19.25	20.69	21.01
	3H	16.58	17.92	16.96	18.25	18.61	20.30	21.63	20.67	21.96	22.32
	4H	16.92	18.17	17.32	18.52	18.90	20.80	22.05	21.20	22.40	22.78
	6H	17.16	18.32	17.58	18.69	19.08	21.15	22.30	21.56	22.67	23.06
	8H	17.23	18.33	17.66	18.72	19.13	21.25	22.35	21.68	22.74	23.14
	12H	17.27	18.32	17.70	18.71	19.13	21.31	22.36	21.74	22.74	23.17
4H	2H	16.47	17.72	16.87	18.07	18.45	19.13	20.38	19.53	20.73	21.11
	3H	17.64	18.68	18.05	19.08	19.48	20.82	21.85	21.23	22.25	22.66
	4H	18.03	18.96	18.46	19.37	19.81	21.43	22.36	21.86	22.78	23.22
	6H	18.34	19.15	18.80	19.59	20.05	21.90	22.71	22.36	23.15	23.61
	8H	18.43	19.18	18.89	19.63	20.10	22.04	22.80	22.51	23.24	23.71
	12H	18.48	19.16	18.97	19.64	20.11	22.14	22.81	22.62	23.29	23.77
8H	4H	18.39	19.15	18.86	19.59	20.06	21.48	22.24	21.95	22.68	23.15
	6H	18.77	19.39	19.26	19.88	20.36	22.02	22.64	22.52	23.14	23.61
	8H	18.90	19.46	19.41	19.97	20.46	22.21	22.77	22.73	23.28	23.77
	12H	19.00	19.49	19.51	19.99	20.55	22.37	22.86	22.88	23.36	23.92
12H	4H	18.42	19.10	18.91	19.58	20.05	21.47	22.14	21.95	22.62	23.10
	6H	18.81	19.37	19.32	19.88	20.37	22.01	22.57	22.52	23.08	23.57
	8H	18.99	19.48	19.50	19.97	20.54	22.24	22.73	22.75	23.23	23.79