

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: P242580

Luminaire Tested: S123RDRP-S560D930-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P242580
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-S560D930-X4F0-XX-UDD-A-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 3000K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

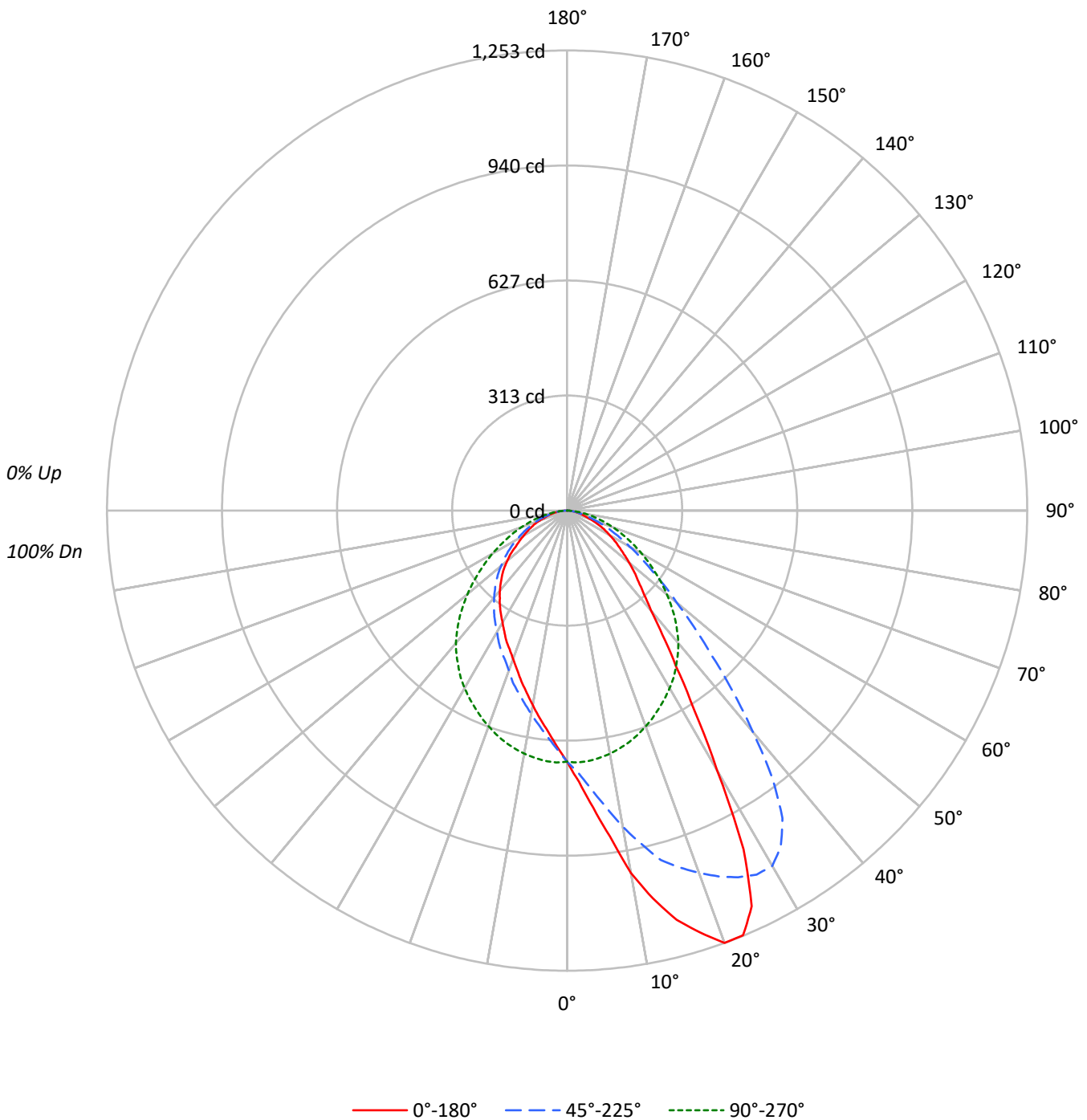
Lumens per Lamp: N/A
Luminaire Lumens: 1702.6 lumens
Efficiency: N/A
Efficacy: 90.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.22 / 1.35
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

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

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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	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°	8288	8288	8288	8288	8288
5°	9880	9267	8324	7515	7330
10°	12335	10765	8276	6925	6622
15°	14480	12364	8191	6439	6038
20°	16160	13540	8065	5984	5543
25°	15902	14736	7931	5668	5237
30°	11431	15634	7809	5342	4924
35°	7632	15124	7649	5120	4722
40°	5622	12469	7457	4896	4511
45°	4716	9514	7121	4687	4304
50°	4162	7335	6679	4431	4018
55°	3650	5852	6173	4169	3624
60°	3251	4776	5692	3833	3321
65°	2854	3912	5171	3534	3089
70°	2240	3144	4710	3246	2821
75°	1976	2318	4112	2932	2576
80°	1717	1982	3497	2576	2534
85°	1391	1502	2809	2601	2684

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 60°
 Vertical Angle: 45°
 Luminance: 13386 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	67.1	3.9
10°-20°	210.2	12.3
20°-30°	331.1	19.4
30°-40°	344.3	20.2
40°-50°	294.5	17.3
50°-60°	224.5	13.2
60°-70°	143.8	8.4
70°-80°	68.9	4.0
80°-90°	18.1	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°	608.4	35.7
0°-40°	952.7	56.0
0°-60°	1471.7	86.4
0°-90°	1702.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1702.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	684	684	684	684	684	
5°	812	762	684	618	602	83
15°	1154	985	653	513	481	327
25°	1189	1102	593	424	392	517
35°	516	1022	517	346	319	335
45°	275	555	415	273	251	216
55°	173	277	292	197	172	156
65°	100	136	180	123	108	98
75°	42	50	88	63	55	45
85°	10	11	20	19	19	11
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°	683.8	683.8	683.8	683.8	683.8	683.8	683.8	683.8	683.8	683.8	683.8
2.5°	739.4	740.6	736.7	736.2	731.8	730.6	730.6	724.5	720.6	715.7	712.7
5°	812.0	816.7	814.3	809.0	800.3	798.2	792.7	783.9	773.9	761.6	755.8
7.5°	895.1	904.8	903.0	894.8	885.4	879.6	864.1	851.5	832.5	815.2	801.7
10°	1002.2	995.5	990.2	982.3	973.8	960.1	943.7	921.2	895.1	874.6	851.8
12.5°	1082.4	1082.7	1075.7	1067.5	1054.6	1041.8	1020.7	992.0	960.7	928.8	901.8
15°	1153.9	1155.6	1151.2	1142.7	1125.8	1102.6	1072.2	1060.8	1017.5	985.3	953.1
17.5°	1204.8	1205.1	1204.2	1192.8	1174.3	1158.5	1130.1	1103.5	1062.5	1018.9	975.9
20°	1252.8	1249.9	1250.5	1237.3	1224.4	1205.4	1177.9	1134.2	1102.0	1049.7	1004.9
22.5°	1251.6	1251.6	1254.3	1251.9	1243.4	1230.0	1209.8	1174.6	1131.3	1078.3	1026.5
25°	1189.0	1186.6	1200.4	1204.2	1219.1	1221.8	1215.3	1195.1	1156.2	1101.8	1039.4
27.5°	1039.7	1031.2	1059.9	1088.3	1126.1	1150.1	1174.6	1180.2	1161.8	1117.3	1052.0
30°	816.7	844.2	857.1	903.3	954.8	1016.3	1070.1	1121.4	1134.0	1117.0	1065.8
32.5°	643.4	666.5	676.7	714.8	761.9	836.6	924.1	1001.9	1062.8	1083.3	1057.6
35°	515.8	516.0	540.6	558.2	602.7	676.7	755.2	852.4	949.0	1022.1	1029.8
37.5°	425.6	426.8	442.6	460.1	495.8	537.4	610.3	692.3	808.5	917.6	974.4
40°	355.3	358.0	369.1	386.4	410.4	439.9	493.8	569.9	663.0	788.0	890.1
42.5°	310.3	315.0	319.3	331.6	344.2	371.4	412.4	466.9	549.4	665.9	787.7
45°	275.1	277.5	281.9	288.0	301.5	320.8	350.1	389.6	459.8	555.0	672.9
47.5°	248.2	246.8	251.7	257.0	266.1	280.1	300.6	334.9	387.5	467.2	569.3
50°	220.7	220.4	223.6	227.4	235.9	245.6	261.7	286.0	325.8	389.0	480.6
52.5°	194.9	196.4	198.5	203.4	209.0	216.3	230.4	246.2	279.0	331.3	403.9
55°	172.7	173.6	176.8	179.4	183.8	191.7	200.8	215.4	238.9	276.9	339.8
57.5°	153.4	153.1	156.3	156.6	162.2	168.9	176.2	187.6	205.5	235.6	279.5
60°	134.1	133.2	135.8	137.9	140.5	145.8	151.6	162.7	176.2	197.0	233.3
62.5°	116.5	116.2	118.0	120.0	122.1	126.7	131.4	139.3	149.3	166.0	192.9
65°	99.5	100.4	101.3	102.2	103.3	106.3	110.9	116.8	124.1	136.4	157.2
67.5°	82.0	83.1	83.4	85.5	87.8	89.3	91.9	97.5	103.0	114.2	126.5
70°	63.2	62.9	63.2	64.1	67.3	70.5	74.3	78.2	81.4	88.7	98.6
72.5°	52.1	51.5	52.4	52.4	53.6	53.9	55.9	59.4	63.8	68.2	74.6
75°	42.2	42.2	42.2	42.2	43.3	43.9	44.8	45.7	47.1	49.5	54.7
77.5°	32.8	32.8	33.4	33.7	34.0	34.2	34.8	35.7	36.3	37.5	40.1
80°	24.6	24.9	24.6	24.9	24.9	25.5	25.8	26.6	26.9	28.4	29.3
82.5°	17.0	16.7	17.0	17.3	17.3	17.9	17.9	18.4	18.4	19.0	19.9
85°	10.0	9.4	10.0	9.7	10.2	9.7	10.0	10.5	10.5	10.8	12.0
87.5°	2.9	3.5	2.9	3.2	3.2	3.5	3.5	3.5	4.1	3.8	4.1
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°	683.8	683.8	683.8	683.8	683.8	683.8	683.8	683.8	683.8	683.8	683.8
2.5°	711.6	710.7	706.6	701.9	695.8	691.7	688.5	686.7	681.4	675.0	670.6
5°	749.6	740.8	731.5	720.1	709.5	698.7	692.0	684.1	674.4	663.6	656.0
7.5°	787.4	772.2	755.5	738.2	720.6	705.1	690.8	679.1	664.4	649.5	639.3
10°	832.2	807.0	780.9	754.3	730.0	707.2	689.6	672.4	653.9	636.1	622.6
12.5°	872.9	837.7	806.7	772.5	739.7	711.3	684.1	663.0	639.9	620.5	604.7
15°	905.9	872.0	835.7	785.9	744.7	710.1	679.4	652.7	625.8	602.4	587.5
17.5°	940.5	889.0	841.2	802.6	748.7	706.9	670.9	639.9	610.6	586.6	567.9
20°	960.4	910.9	857.9	804.9	752.3	704.0	660.4	625.2	594.5	566.4	549.4
22.5°	972.4	914.7	858.2	800.3	743.5	692.8	649.8	610.3	576.3	550.0	528.0
25°	981.2	914.4	853.0	796.8	739.7	685.2	634.0	593.0	557.0	528.6	506.4
27.5°	988.2	910.9	840.4	779.2	721.5	666.2	620.0	576.1	540.0	510.5	486.2
30°	989.9	906.5	825.4	757.8	699.0	649.2	599.5	557.9	519.3	487.4	465.1
32.5°	992.3	895.7	805.2	732.4	671.8	622.6	578.7	539.5	499.7	468.3	445.5
35°	984.1	893.1	784.8	702.2	641.9	594.2	553.5	516.9	478.0	447.6	424.4
37.5°	959.2	878.7	764.3	668.5	606.2	562.3	528.3	495.0	459.0	425.6	404.2
40°	917.3	855.3	739.7	638.4	572.5	527.2	497.3	471.3	436.7	406.0	382.6
42.5°	855.0	823.4	716.3	606.8	534.5	491.2	467.2	443.2	413.9	382.6	360.9
45°	776.0	780.9	682.6	572.8	499.9	456.0	432.3	415.4	388.4	362.7	340.1
47.5°	680.0	721.5	646.6	537.1	462.5	421.2	400.4	384.9	366.2	339.5	318.8
50°	586.3	652.7	601.5	501.1	427.6	386.7	366.2	354.2	338.4	318.5	298.9
52.5°	499.9	572.5	547.1	461.0	389.9	353.3	333.4	324.0	312.3	293.9	276.6
55°	421.8	494.1	487.1	420.6	352.1	318.5	303.2	292.1	283.6	269.6	255.5
57.5°	353.9	423.8	425.3	375.8	319.3	285.1	271.9	263.1	257.3	246.2	232.4
60°	290.4	353.3	365.6	330.5	283.6	254.4	241.5	234.8	230.4	221.9	211.9
62.5°	237.7	288.9	303.2	280.4	249.4	222.5	213.1	206.7	204.0	197.0	188.5
65°	190.0	234.5	247.9	233.9	216.0	194.1	185.9	180.3	177.7	173.6	167.1
67.5°	149.9	184.4	199.0	187.3	180.6	165.1	159.5	156.3	154.0	151.0	145.5
70°	114.7	138.7	154.0	151.3	146.1	138.7	134.9	132.9	130.5	128.2	123.5
72.5°	86.6	101.3	115.3	117.7	113.6	113.6	110.4	109.8	108.6	105.7	103.6
75°	61.2	72.6	82.5	86.3	88.1	89.6	88.1	87.8	87.5	85.2	83.7
77.5°	42.4	49.8	56.5	63.2	65.6	67.6	67.9	69.1	68.2	66.7	66.2
80°	30.7	32.2	36.6	42.2	46.5	48.3	49.5	50.1	49.8	49.5	48.3
82.5°	20.2	21.4	22.8	26.3	29.9	33.1	33.7	33.4	34.2	34.5	33.7
85°	12.0	12.3	12.9	13.5	15.5	18.7	19.6	20.2	20.8	20.8	19.0
87.5°	4.7	4.4	5.0	5.0	5.9	6.1	7.9	9.4	9.7	8.5	8.5
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°	683.8	683.8	683.8	683.8	683.8	683.8	683.8	683.8	683.8	683.8	683.8
2.5°	669.1	665.3	662.7	656.8	653.0	648.9	644.8	647.5	647.2	646.9	646.9
5°	649.5	642.8	636.6	628.7	623.8	617.6	612.9	612.3	613.5	609.4	607.1
7.5°	631.1	622.3	613.5	605.3	596.2	589.2	584.8	583.1	579.9	577.2	574.9
10°	611.5	600.6	592.2	581.3	571.4	562.6	557.0	553.2	551.2	549.1	545.3
12.5°	591.3	580.7	569.3	556.7	547.4	536.8	533.0	528.6	524.2	521.9	516.3
15°	571.7	557.9	546.5	533.6	523.1	513.1	507.3	498.8	497.6	494.7	489.4
17.5°	552.6	537.4	520.7	511.9	501.4	490.9	481.5	478.9	470.1	467.2	462.2
20°	529.2	515.5	503.5	490.9	473.6	463.9	456.9	453.1	446.4	442.3	439.4
22.5°	509.0	495.0	480.6	465.4	451.9	440.8	436.1	429.7	426.8	420.6	417.4
25°	490.0	474.8	458.1	442.3	432.0	423.8	415.6	410.4	405.1	402.5	396.6
27.5°	466.9	451.6	435.6	423.3	411.5	403.4	395.4	391.1	384.3	379.9	376.7
30°	448.4	429.7	416.2	405.4	389.3	381.7	376.1	370.3	365.6	360.9	357.7
32.5°	427.1	410.4	397.8	383.7	372.3	363.8	356.2	351.3	347.4	343.1	339.8
35°	404.5	390.2	377.0	363.5	354.5	346.0	337.5	333.1	329.3	325.2	322.3
37.5°	384.0	370.6	358.3	345.4	334.3	327.0	319.9	317.0	311.7	308.8	305.9
40°	365.3	352.1	338.7	326.4	314.7	309.4	303.2	298.3	293.6	291.5	288.3
42.5°	344.8	331.6	320.8	307.3	298.3	290.7	285.1	279.5	276.3	273.1	271.6
45°	324.6	312.9	301.8	288.6	279.5	273.4	267.0	262.0	258.8	256.7	253.5
47.5°	305.3	293.3	282.2	270.5	261.7	254.7	247.9	244.7	240.3	238.0	235.6
50°	283.9	273.4	261.4	250.9	242.1	235.0	229.8	225.4	221.6	218.4	216.9
52.5°	264.3	252.9	242.9	233.3	223.9	215.7	211.0	206.4	203.7	199.9	198.2
55°	242.4	231.5	222.8	213.1	204.0	197.3	191.4	187.3	184.4	180.3	178.0
57.5°	222.2	212.8	202.0	193.5	183.8	178.6	173.6	167.7	164.2	161.0	158.6
60°	201.7	190.6	181.5	173.6	165.4	158.1	153.7	149.3	145.5	142.3	140.2
62.5°	180.3	170.9	162.5	153.7	146.4	140.2	134.9	131.4	128.2	126.5	124.4
65°	158.4	150.7	142.0	134.9	127.9	123.2	119.1	115.9	113.6	112.1	110.4
67.5°	138.2	130.8	122.9	115.6	110.9	107.1	104.2	101.3	100.1	98.4	97.2
70°	118.5	110.9	104.2	98.9	94.3	91.6	89.9	87.8	86.6	84.3	83.1
72.5°	97.2	92.2	87.8	83.7	80.2	77.9	75.5	72.9	70.8	68.2	67.0
75°	79.9	74.9	71.1	68.2	65.9	62.6	59.4	56.8	55.9	55.0	54.7
77.5°	62.3	59.1	56.2	53.9	50.6	47.7	46.8	46.2	46.0	45.4	45.4
80°	46.5	43.6	41.6	38.6	36.9	36.9	36.9	36.3	36.6	36.6	36.6
82.5°	31.6	29.0	28.1	27.5	27.5	27.8	27.8	28.1	27.8	28.4	28.1
85°	17.9	18.1	18.7	18.4	18.7	18.7	19.3	19.0	19.3	18.7	19.3
87.5°	8.2	9.1	9.4	9.7	10.0	9.7	10.0	10.0	10.2	10.2	10.2
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: P242580

CATALOG NUMBER: S123RDRP-S560D930-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	683.8	683.8	683.8	683.8
2.5°	643.4	643.1	643.4	642.2
5°	606.2	605.9	605.0	602.4
7.5°	572.5	572.0	569.6	570.2
10°	543.3	543.6	540.0	538.0
12.5°	514.9	513.1	510.5	508.1
15°	490.6	487.7	480.6	481.2
17.5°	460.4	458.1	457.8	453.7
20°	434.7	433.2	433.8	429.7
22.5°	414.5	413.0	409.8	409.2
25°	394.9	392.5	390.2	391.6
27.5°	375.0	373.2	370.6	370.6
30°	356.2	354.5	353.3	351.8
32.5°	337.2	337.2	334.9	334.9
35°	321.1	319.3	318.8	319.1
37.5°	305.6	303.2	302.1	300.9
40°	288.6	286.3	285.7	285.1
42.5°	269.6	269.0	268.7	267.5
45°	252.6	252.3	250.6	251.1
47.5°	234.5	233.0	232.1	233.0
50°	215.7	215.1	212.5	213.1
52.5°	197.0	194.4	193.8	193.2
55°	175.9	173.3	172.1	171.5
57.5°	155.1	154.3	153.1	154.0
60°	137.3	137.3	137.3	137.0
62.5°	123.5	122.6	122.4	122.9
65°	109.5	109.2	108.0	107.7
67.5°	96.6	95.4	95.4	94.8
70°	81.7	81.1	79.3	79.6
72.5°	65.6	65.0	65.0	64.4
75°	54.4	54.2	53.9	55.0
77.5°	45.4	45.4	45.7	45.1
80°	36.6	36.6	36.3	36.3
82.5°	27.5	27.8	28.1	27.5
85°	19.3	19.0	19.6	19.3
87.5°	10.8	10.2	10.2	10.5
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P242580
 CATALOG NUMBER: S123RDRP-S560D930-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	14.99	16.48	15.35	16.79	17.11	18.38	19.88	18.75	20.19	20.50
	3H	16.08	17.42	16.46	17.74	18.11	19.79	21.13	20.17	21.46	21.82
	4H	16.42	17.67	16.82	18.02	18.40	20.29	21.54	20.69	21.89	22.27
	6H	16.66	17.82	17.07	18.18	18.58	20.64	21.80	21.06	22.17	22.56
	8H	16.73	17.83	17.16	18.22	18.62	20.74	21.84	21.17	22.23	22.64
	12H	16.77	17.82	17.20	18.20	18.63	20.81	21.86	21.24	22.24	22.67
4H	2H	15.97	17.22	16.37	17.57	17.95	18.62	19.87	19.02	20.22	20.60
	3H	17.13	18.17	17.55	18.57	18.97	20.31	21.35	20.72	21.75	22.15
	4H	17.52	18.46	17.96	18.87	19.31	20.93	21.86	21.36	22.28	22.71
	6H	17.83	18.64	18.29	19.09	19.55	21.39	22.20	21.85	22.65	23.11
	8H	17.92	18.68	18.39	19.13	19.59	21.54	22.29	22.00	22.74	23.21
	12H	17.98	18.66	18.46	19.14	19.61	21.64	22.31	22.12	22.79	23.26
8H	4H	17.89	18.64	18.35	19.09	19.56	20.98	21.74	21.44	22.18	22.65
	6H	18.26	18.89	18.76	19.38	19.86	21.52	22.14	22.01	22.63	23.11
	8H	18.40	18.96	18.91	19.47	19.95	21.71	22.27	22.22	22.78	23.27
	12H	18.50	18.99	19.01	19.48	20.05	21.86	22.36	22.38	22.85	23.42
12H	4H	17.92	18.59	18.40	19.07	19.54	20.97	21.64	21.45	22.12	22.59
	6H	18.31	18.87	18.82	19.38	19.87	21.50	22.06	22.02	22.57	23.06
	8H	18.48	18.98	18.99	19.47	20.04	21.73	22.23	22.24	22.72	23.29