

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: P242457

Luminaire Tested: S123DRP-S560D927-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P242457
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-20)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S123DRP-S560D927-X4F0-XX-UDD-A-W
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 2700K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

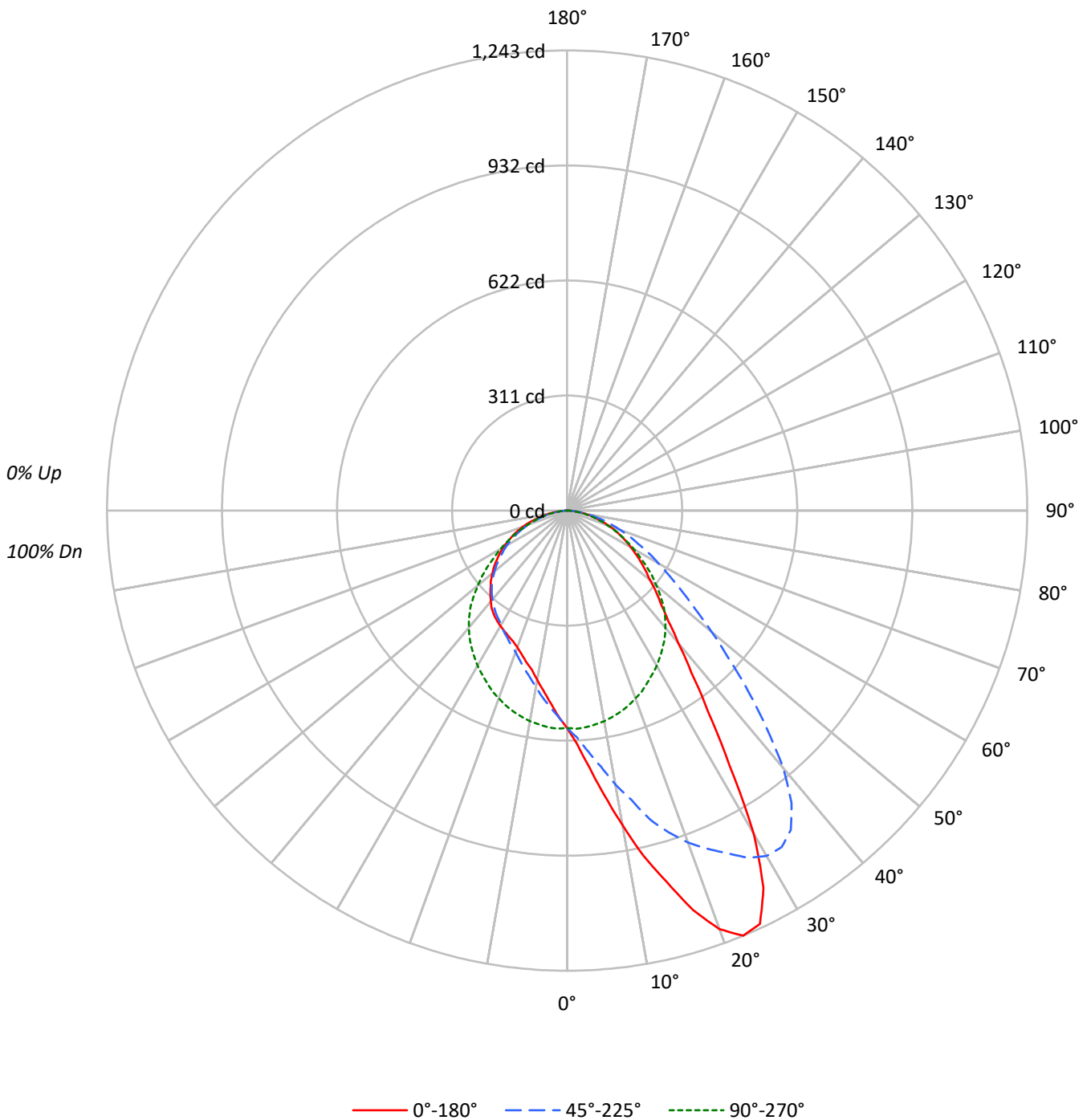
Lumens per Lamp: N/A
Luminaire Lumens: 1771.7 lumens
Efficiency: N/A
Efficacy: 94.2 lumens/watt
Spacing Criteria (0/90/45): 1.37 / 1.23 / 1.5
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

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

TEST NUMBER: P242457

CATALOG NUMBER: S123DRP-S560D927-X4F0-XX-UDD-A-W

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	105	101	98	107	103	99	96	99	96	93	95	92	90	91	89	87				85	
2	100	93	86	81	98	91	85	80	87	82	78	84	80	76	81	78	74				72	
3	92	82	74	68	89	80	73	67	77	71	66	75	69	65	72	68	64				62	
4	84	73	65	58	82	72	64	58	69	62	57	67	61	56	65	60	56				53	
5	78	66	57	51	76	64	56	50	62	55	50	60	54	49	59	53	49				47	
6	72	59	51	44	70	58	50	44	56	49	44	55	48	43	53	48	43				41	
7	67	54	45	39	65	53	45	39	52	44	39	50	44	39	49	43	38				36	
8	62	49	41	35	61	49	41	35	47	40	35	46	39	35	45	39	35				33	
9	58	45	37	32	57	45	37	32	43	36	32	42	36	31	41	36	31				29	
10	55	42	34	29	53	41	34	29	40	33	29	39	33	29	38	33	28				27	

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	7115	7115	7115	7115	7115
5°	8484	7951	7146	6471	6332
10°	10620	9245	7109	5961	5720
15°	13026	10842	7052	5560	5324
20°	15518	12311	6963	5246	5069
25°	16477	13655	6854	5093	5013
30°	14122	15078	6774	4995	5039
35°	9822	15579	6662	4978	5092
40°	7397	14382	6530	4968	5076
45°	6142	11895	6332	4933	5012
50°	5503	9600	5931	4837	4965
55°	5144	7963	5499	4700	4905
60°	4827	6887	5047	4565	4853
65°	4535	6060	4600	4331	4698
70°	4253	5412	4093	3980	4476
75°	3808	4688	3583	3555	4103
80°	3337	3853	2939	2876	3532
85°	2615	3004	2142	2100	2378

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 55°
 Vertical Angle: 45°
 Luminance: 14060 cd/sqm



TEST NUMBER: P242457

CATALOG NUMBER: S123DRP-S560D927-X4F0-XX-UDD-A-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	57.7	3.3
10°-20°	185.4	10.5
20°-30°	312.0	17.6
30°-40°	352.6	19.9
40°-50°	315.8	17.8
50°-60°	254.9	14.4
60°-70°	177.6	10.0
70°-80°	93.2	5.3
80°-90°	22.3	1.3
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°	555.1	31.3
0°-40°	907.7	51.2
0°-60°	1478.5	83.5
0°-90°	1771.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1771.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	587	587	587	587	587	
5°	697	654	587	532	520	72
15°	1038	864	562	443	424	300
25°	1232	1021	512	381	375	545
35°	664	1053	450	336	344	428
45°	358	694	369	288	292	283
55°	243	377	260	222	232	218
65°	158	211	160	151	164	158
75°	81	100	76	76	88	87
85°	19	22	15	15	17	23
90°	0	0	0	0	0	



TEST NUMBER: P242457

CATALOG NUMBER: S123DRP-S560D927-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	587.0	587.0	587.0	587.0	587.0	587.0	587.0	587.0	587.0	587.0	587.0
2.5°	631.9	631.4	629.9	631.1	628.8	625.7	625.4	622.5	614.3	613.7	611.4
5°	697.3	695.1	694.8	694.5	690.5	685.1	674.9	674.0	660.4	653.5	645.3
7.5°	776.4	775.5	773.3	770.7	757.3	750.8	741.1	728.6	712.7	697.3	687.7
10°	862.8	872.2	860.6	852.6	845.2	831.3	815.1	794.9	774.7	751.1	733.2
12.5°	955.6	959.0	959.0	951.6	939.1	916.0	884.2	861.4	843.2	800.0	784.6
15°	1038.0	1055.4	1044.3	1018.7	1019.3	999.1	961.5	920.3	898.4	864.0	817.1
17.5°	1131.3	1134.4	1131.0	1107.1	1095.5	1066.2	1032.3	994.0	952.7	910.9	862.3
20°	1203.0	1201.3	1191.3	1180.2	1155.8	1134.2	1096.3	1052.3	995.4	954.4	900.1
22.5°	1242.8	1239.7	1236.3	1227.4	1208.1	1184.5	1151.5	1102.3	1048.8	988.5	923.7
25°	1232.0	1235.7	1236.3	1233.7	1226.6	1212.6	1185.9	1147.5	1093.5	1021.0	955.6
27.5°	1148.4	1157.8	1169.7	1177.7	1190.5	1199.0	1190.5	1166.3	1121.9	1057.1	976.6
30°	1009.0	997.6	1025.8	1061.4	1085.5	1128.2	1152.1	1153.5	1131.0	1077.3	999.4
32.5°	815.6	834.1	842.7	888.4	948.4	997.6	1051.1	1098.6	1109.7	1078.4	1012.7
35°	663.8	679.4	702.2	724.9	781.8	830.7	914.3	987.1	1045.1	1052.8	1011.0
37.5°	551.7	560.8	574.8	598.9	637.9	698.5	764.7	859.4	939.3	995.7	990.0
40°	467.5	469.8	486.0	503.4	533.5	581.3	639.6	720.9	821.6	908.9	945.3
42.5°	404.4	410.1	414.6	431.1	453.6	486.6	539.8	603.5	693.6	797.4	877.3
45°	358.3	364.0	368.3	379.4	396.4	420.6	458.4	519.9	590.1	693.9	789.8
47.5°	326.5	325.9	329.6	338.4	350.7	370.0	397.9	438.8	506.2	593.0	693.3
50°	291.8	296.3	297.5	304.0	313.1	326.5	348.7	382.2	435.1	509.1	599.5
52.5°	267.3	267.9	271.6	275.9	283.5	293.2	311.7	336.2	374.8	435.1	516.5
55°	243.4	243.4	246.6	250.3	254.8	264.2	277.0	296.3	327.9	376.8	445.6
57.5°	221.3	222.4	225.2	226.1	230.1	236.6	247.7	263.1	287.2	326.8	383.6
60°	199.1	201.6	201.3	203.6	207.0	211.9	221.0	232.9	254.0	284.1	330.2
62.5°	179.7	178.9	178.9	181.7	185.1	189.7	194.8	204.8	221.8	247.7	285.2
65°	158.1	157.6	159.5	161.3	162.4	165.8	170.4	179.5	191.4	211.3	241.7
67.5°	139.4	137.6	139.1	139.6	141.6	144.5	149.0	154.7	164.4	181.2	205.6
70°	120.0	118.6	118.3	118.9	120.6	122.6	125.7	131.1	139.9	152.7	169.5
72.5°	100.1	99.3	99.3	100.7	101.2	102.4	104.4	109.2	115.7	124.6	139.9
75°	81.3	81.3	81.3	81.6	82.5	83.6	85.3	87.9	93.3	100.1	110.6
77.5°	64.3	64.6	64.0	63.7	65.1	65.7	66.0	68.8	72.0	77.1	85.3
80°	47.8	46.4	46.9	47.8	48.3	48.6	49.5	50.1	52.6	55.2	60.6
82.5°	32.4	31.3	31.3	32.7	32.7	33.0	33.8	34.7	35.3	37.5	39.8
85°	18.8	18.8	19.1	19.1	19.3	19.1	19.9	20.2	20.2	21.6	23.3
87.5°	8.5	8.0	8.2	8.5	8.2	8.5	8.8	9.1	9.4	9.7	10.0
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: P242457

CATALOG NUMBER: S123DRP-S560D927-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	587.0	587.0	587.0	587.0	587.0	587.0	587.0	587.0	587.0	587.0	587.0
2.5°	609.7	607.5	605.2	601.2	597.8	593.0	591.5	589.8	584.7	580.2	576.7
5°	642.2	635.3	625.4	616.3	608.9	598.9	593.2	587.3	578.7	571.1	564.8
7.5°	673.2	661.2	647.3	632.2	617.7	603.8	592.7	582.7	571.6	560.8	552.6
10°	711.5	692.2	670.6	647.3	627.4	608.0	591.8	577.6	562.2	548.9	537.8
12.5°	755.3	724.3	692.5	662.9	638.5	609.7	589.3	570.2	552.3	535.5	522.7
15°	788.1	751.6	716.4	677.4	641.6	608.0	584.7	562.0	541.8	525.3	509.3
17.5°	820.5	780.7	735.7	688.8	646.7	608.0	576.2	551.7	527.0	507.1	491.7
20°	847.2	800.3	747.7	698.5	650.7	606.3	570.5	539.8	512.5	491.1	473.2
22.5°	870.2	813.4	758.5	705.0	650.4	601.8	560.0	528.1	498.0	477.2	457.9
25°	884.7	819.0	764.4	702.7	643.3	593.8	548.3	512.5	482.9	458.4	438.8
27.5°	898.4	818.2	756.5	689.9	634.8	585.6	536.6	498.3	467.3	440.8	420.6
30°	912.0	819.6	742.5	676.9	621.1	569.9	522.7	484.0	451.0	424.0	405.3
32.5°	920.6	818.8	729.8	658.7	599.5	555.7	507.6	467.3	433.1	406.7	388.8
35°	922.9	813.9	714.7	632.2	575.9	531.8	491.7	450.2	414.6	389.9	369.4
37.5°	918.0	805.1	698.2	608.3	547.5	503.7	468.7	433.1	399.0	371.4	353.5
40°	902.4	796.6	678.3	582.7	517.9	476.1	447.3	412.7	379.1	353.2	336.7
42.5°	872.5	779.2	656.4	554.3	487.2	445.4	419.5	391.9	360.6	336.7	320.2
45°	820.2	752.5	634.5	525.8	457.0	413.8	390.5	369.4	340.7	317.1	302.9
47.5°	753.4	716.4	602.9	496.0	425.5	383.6	359.2	341.8	319.4	300.3	286.4
50°	683.1	669.7	570.8	465.3	393.9	353.2	329.9	314.5	299.5	280.4	267.9
52.5°	602.1	615.7	533.2	433.4	361.7	321.9	300.3	288.9	275.6	260.8	250.3
55°	527.0	556.8	488.9	397.0	329.9	291.8	271.0	260.2	252.3	240.6	231.2
57.5°	454.2	492.3	442.8	360.3	298.6	265.3	244.9	232.6	227.5	221.0	213.3
60°	390.8	428.3	392.7	323.4	267.0	235.8	218.1	208.2	203.1	198.8	192.5
62.5°	334.2	372.3	343.8	285.8	236.0	207.6	192.8	183.1	179.5	177.7	172.6
65°	283.3	316.0	296.1	246.6	206.8	181.2	167.2	160.4	156.7	155.8	152.4
67.5°	239.2	264.5	249.1	211.9	179.5	156.1	143.9	137.9	134.8	134.5	131.7
70°	195.9	219.3	208.2	175.2	148.2	130.8	120.6	115.5	113.8	113.5	112.1
72.5°	162.4	176.9	168.6	142.5	123.1	107.8	101.0	95.6	93.6	94.1	93.3
75°	125.1	137.4	132.2	113.2	96.4	86.2	79.9	76.5	74.8	75.6	74.5
77.5°	95.6	104.1	99.0	84.5	73.7	66.0	61.1	58.9	57.2	57.2	56.6
80°	68.0	72.5	70.0	62.0	53.5	47.2	43.5	42.1	41.2	41.0	40.7
82.5°	43.5	47.2	44.1	39.2	34.1	31.0	29.3	27.3	26.7	27.0	26.7
85°	24.5	25.9	24.7	21.3	19.1	17.3	16.2	15.4	14.8	15.1	14.5
87.5°	10.5	10.8	10.0	8.8	8.2	7.4	7.4	6.8	6.3	6.3	6.0
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: P242457

CATALOG NUMBER: S123DRP-S560D927-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	587.0	587.0	587.0	587.0	587.0	587.0	587.0	587.0	587.0	587.0	587.0
2.5°	574.8	572.8	569.9	565.7	562.2	556.8	556.8	557.7	557.7	557.4	556.8
5°	559.7	555.4	550.3	544.3	538.1	531.8	530.7	528.4	526.7	525.6	524.1
7.5°	544.3	537.2	530.1	521.9	514.7	508.8	504.5	500.8	498.5	496.0	494.0
10°	528.7	519.3	510.5	501.7	492.0	484.3	479.5	476.1	473.5	471.2	470.1
12.5°	510.2	499.1	489.2	480.9	470.1	462.1	457.6	456.4	453.3	447.9	445.1
15°	492.3	482.3	470.7	457.9	452.8	443.1	437.7	435.1	433.4	429.7	428.6
17.5°	477.5	464.1	450.8	441.4	432.0	424.3	421.2	417.8	415.5	412.1	411.2
20°	459.0	447.3	435.4	425.2	415.2	406.7	404.1	401.8	399.6	398.1	397.0
22.5°	440.2	428.6	419.2	409.8	399.0	394.2	391.3	388.8	387.3	386.5	385.4
25°	422.9	412.7	401.6	393.0	384.5	380.8	379.1	377.7	376.5	375.1	374.8
27.5°	407.5	396.2	386.8	378.5	372.3	369.1	367.2	366.3	366.3	366.9	367.2
30°	389.9	379.7	372.3	365.4	359.8	356.9	356.6	356.6	357.8	358.0	358.6
32.5°	373.7	365.7	358.3	351.8	347.8	346.1	347.5	347.5	348.4	349.2	350.4
35°	358.0	350.7	345.0	339.3	335.6	336.4	337.0	337.6	339.0	340.7	341.8
37.5°	343.3	336.4	330.5	325.9	323.6	325.3	326.8	327.9	329.6	331.0	332.2
40°	327.1	322.2	316.5	312.5	313.1	314.0	315.1	316.5	318.0	318.8	319.9
42.5°	312.0	306.9	302.9	299.7	300.6	301.7	302.3	302.9	304.6	306.3	306.9
45°	296.6	292.6	288.7	286.7	287.2	287.8	288.4	289.2	290.6	291.8	292.1
47.5°	279.3	276.4	273.9	271.6	272.7	272.4	273.3	275.0	275.6	276.1	277.9
50°	262.8	260.2	257.1	256.5	256.5	256.5	256.8	259.1	259.1	260.2	261.4
52.5°	244.6	243.2	241.4	240.3	239.7	239.7	241.2	242.0	242.6	244.3	245.4
55°	226.7	225.0	223.2	222.4	221.8	222.4	224.7	225.2	226.7	227.5	228.4
57.5°	207.9	206.8	205.3	204.8	204.8	205.0	206.8	208.2	208.5	211.3	212.4
60°	189.4	187.4	186.3	186.3	185.7	188.3	187.7	190.5	191.1	192.8	194.8
62.5°	170.4	167.5	167.2	167.2	168.4	168.6	169.8	170.6	172.3	174.6	176.0
65°	149.6	148.2	150.2	149.9	149.3	151.0	151.0	152.4	154.1	156.1	159.3
67.5°	130.3	129.1	129.7	129.4	130.3	131.4	132.2	133.4	135.4	137.6	139.6
70°	110.6	111.5	110.1	111.2	112.1	112.3	112.9	114.6	116.9	118.3	120.6
72.5°	91.6	91.3	91.9	92.1	93.0	93.6	94.1	96.1	98.7	99.8	101.5
75°	73.4	73.1	73.9	73.9	75.4	75.9	76.5	77.4	79.6	81.3	82.8
77.5°	56.9	57.2	56.9	58.0	57.4	57.7	59.4	60.3	60.6	64.3	64.8
80°	40.4	41.0	41.2	41.5	41.8	41.2	43.2	44.1	44.1	46.1	47.5
82.5°	26.2	26.4	27.3	27.6	27.6	28.4	28.2	28.7	29.6	30.1	32.1
85°	14.5	15.4	15.6	15.4	15.6	15.1	15.9	16.2	16.5	16.5	16.5
87.5°	5.7	6.0	5.7	6.0	5.7	6.0	6.0	5.4	5.4	6.3	5.1
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: P242457

CATALOG NUMBER: S123DRP-S560D927-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	587.0	587.0	587.0	587.0
2.5°	554.8	554.6	556.6	555.1
5°	522.4	523.3	520.4	520.4
7.5°	493.1	492.0	492.3	490.3
10°	466.7	465.0	464.4	464.7
12.5°	444.8	444.8	440.2	440.2
15°	428.6	423.2	422.6	424.3
17.5°	410.7	407.5	407.8	407.2
20°	397.0	395.3	395.0	393.0
22.5°	384.5	384.2	384.5	382.2
25°	374.5	376.0	374.8	374.8
27.5°	367.7	367.7	366.9	366.9
30°	359.8	359.5	360.0	360.0
32.5°	351.8	352.4	352.4	352.6
35°	343.5	343.8	344.7	344.1
37.5°	332.7	334.2	333.9	334.4
40°	320.2	321.1	320.8	320.8
42.5°	307.4	308.0	307.1	306.6
45°	293.2	292.6	293.5	292.4
47.5°	277.6	277.9	278.1	279.3
50°	261.9	263.6	263.6	263.3
52.5°	246.6	247.1	248.6	248.6
55°	230.6	231.2	231.8	232.1
57.5°	214.4	214.1	215.3	215.6
60°	197.1	197.1	199.4	200.2
62.5°	178.6	179.7	182.0	180.3
65°	160.7	163.0	162.7	163.8
67.5°	141.9	143.3	145.6	145.6
70°	122.9	124.3	125.4	126.3
72.5°	104.4	104.9	108.1	106.4
75°	84.7	86.7	88.4	87.6
77.5°	66.0	68.5	69.1	68.3
80°	49.5	49.2	50.9	50.6
82.5°	33.0	32.7	33.3	33.6
85°	17.6	18.5	17.3	17.1
87.5°	5.1	5.1	4.8	4.6
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P242457
 CATALOG NUMBER: S123DRP-S560D927-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	17.20	18.76	17.57	19.07	19.39	17.75	19.31	18.12	19.62	19.94
	3H	18.75	20.15	19.13	20.48	20.84	19.09	20.49	19.47	20.81	21.18
	4H	19.31	20.63	19.71	20.98	21.35	19.55	20.86	19.95	21.21	21.59
	6H	19.71	20.93	20.13	21.29	21.69	19.84	21.06	20.25	21.42	21.81
	8H	19.83	20.98	20.25	21.37	21.77	19.92	21.07	20.34	21.46	21.86
	12H	19.89	21.00	20.32	21.38	21.81	19.95	21.06	20.38	21.44	21.87
4H	2H	18.35	19.67	18.75	20.02	20.39	18.52	19.83	18.92	20.18	20.56
	3H	19.95	21.04	20.36	21.44	21.84	20.32	21.42	20.73	21.82	22.22
	4H	20.57	21.56	21.00	21.97	22.41	20.89	21.88	21.32	22.29	22.73
	6H	21.04	21.90	21.50	22.34	22.80	21.25	22.11	21.71	22.55	23.01
	8H	21.18	21.98	21.64	22.43	22.89	21.34	22.15	21.81	22.59	23.06
	12H	21.27	21.99	21.76	22.47	22.94	21.40	22.11	21.88	22.59	23.06
8H	4H	21.05	21.86	21.52	22.30	22.77	21.19	22.00	21.66	22.44	22.91
	6H	21.60	22.27	22.10	22.76	23.23	21.70	22.37	22.20	22.86	23.33
	8H	21.79	22.39	22.30	22.89	23.38	21.85	22.45	22.36	22.95	23.44
	12H	21.93	22.46	22.44	22.95	23.52	21.95	22.47	22.46	22.96	23.53
12H	4H	21.11	21.82	21.59	22.30	22.77	21.21	21.92	21.69	22.40	22.87
	6H	21.68	22.27	22.19	22.78	23.27	21.74	22.33	22.25	22.84	23.33
	8H	21.92	22.44	22.42	22.93	23.50	21.94	22.47	22.45	22.96	23.52