

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: P243513

Luminaire Tested: S124DRP-H350D935-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P243513  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-60)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: S124DRP-H350D935-X4F0-XX-UDD-A-W  
Description: DEFINE 4 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 3500K CCT, 90 CRI LEDS  
Ballast/Driver: -

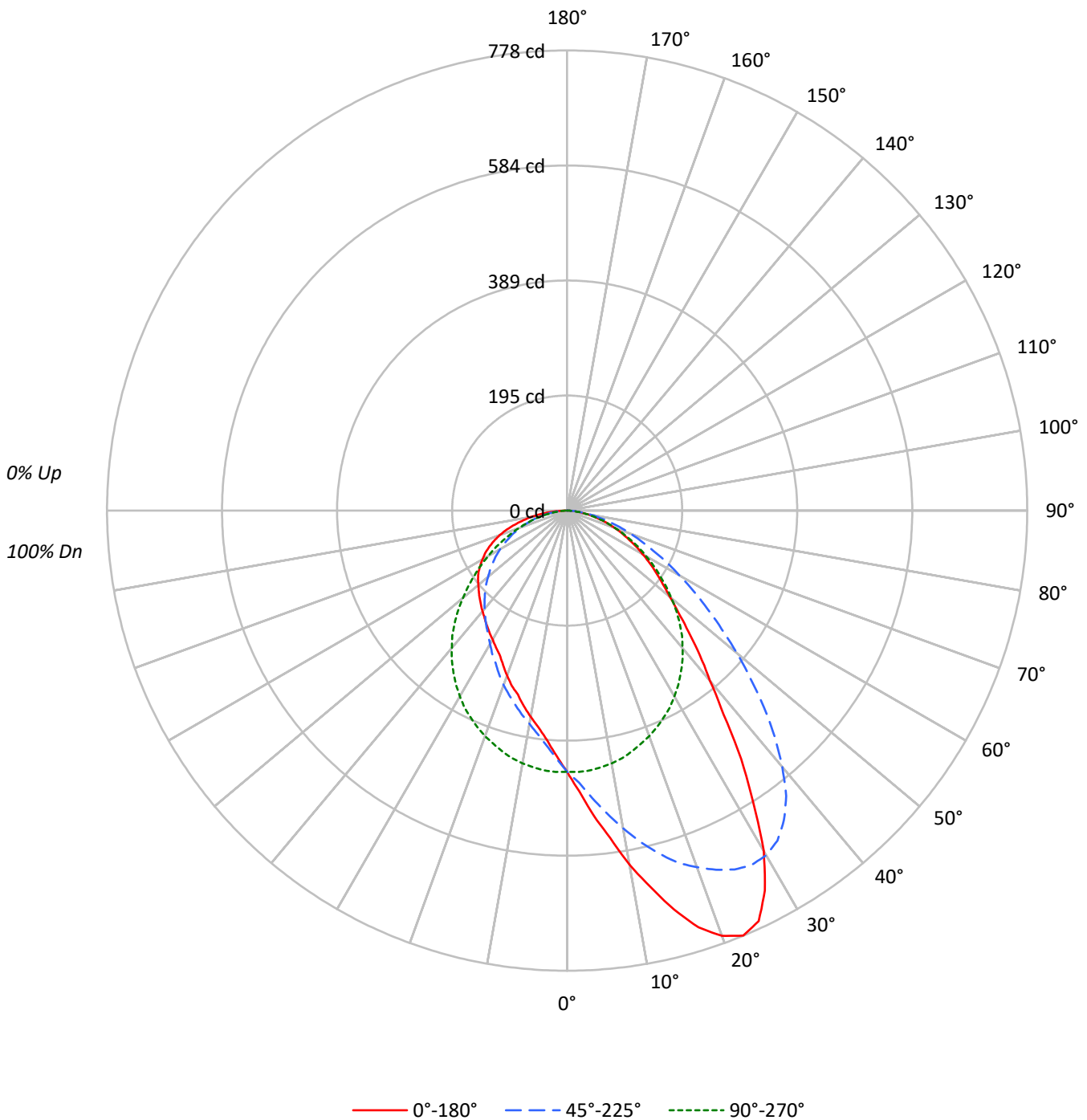
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1266.1 lumens  
Efficiency: N/A  
Efficacy: 113.0 lumens/watt  
Spacing Criteria (0/90/45): 1.35 / 1.22 / 1.45  
Luminous Opening: Rectangular (W 3.88' x L: 0.31' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 11.2  
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

TEST NUMBER: P243513

CATALOG NUMBER: S124DRP-H350D935-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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102
1	109	105	101	97	107	103	99	96	98	95	93	94	92	90	91	89	87
2	100	92	86	80	97	90	84	79	87	82	77	83	79	76	80	77	74
3	92	81	74	67	89	80	73	67	77	71	66	74	69	64	72	67	63
4	84	73	64	58	82	71	63	57	69	62	56	66	60	56	64	59	55
5	78	65	56	50	75	64	56	50	62	55	49	60	54	49	58	53	48
6	72	59	50	44	70	58	50	44	56	49	43	54	48	43	53	47	43
7	67	53	45	39	65	53	45	39	51	44	38	50	43	38	48	42	38
8	62	49	41	35	61	48	40	35	47	40	35	46	39	34	44	39	34
9	58	45	37	31	57	44	37	31	43	36	31	42	36	31	41	35	31
10	54	41	34	29	53	41	34	28	40	33	28	39	33	28	38	32	28

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°	135°	180°
0°	3924	3924	3924	3924	3924
5°	4618	4354	3935	3557	3474
10°	5489	4924	3917	3305	3198
15°	6428	5522	3883	3124	2962
20°	7238	6069	3838	2968	2809
25°	7512	6566	3786	2800	2644
30°	6823	6907	3722	2675	2586
35°	5566	6935	3634	2586	2570
40°	4358	6564	3519	2524	2581
45°	3648	5920	3378	2468	2629
50°	3131	5176	3181	2413	2706
55°	2859	4485	2966	2371	2838
60°	2620	3893	2745	2332	2940
65°	2404	3374	2513	2255	3056
70°	2212	2955	2266	2183	3147
75°	1968	2545	1992	2037	3146
80°	1643	2068	1633	1884	3138
85°	1254	1540	1234	1693	2937

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 50°  
 Vertical Angle: 45°  
 Luminance: 6187 cd/sqm



TEST NUMBER: P243513

CATALOG NUMBER: S124DRP-H350D935-X4F0-XX-UDD-A-W

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	43.0	3.4
10°-20°	133.1	10.5
20°-30°	213.8	16.9
30°-40°	244.4	19.3
40°-50°	225.0	17.8
50°-60°	184.1	14.5
60°-70°	131.2	10.4
70°-80°	72.1	5.7
80°-90°	19.4	1.5
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°	389.9	30.8
0°-40°	634.4	50.1
0°-60°	1043.5	82.4
0°-90°	1266.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1266.1	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	442	442	442	442	442	
5°	518	488	441	399	389	52
15°	698	600	422	340	322	199
25°	766	670	386	286	270	344
35°	513	639	335	238	237	319
45°	290	471	269	196	209	226
55°	184	289	191	153	183	165
65°	114	160	120	107	145	114
75°	57	74	58	59	92	61
85°	12	15	12	17	29	15
90°	0	0	0	0	0	



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CATALOG NUMBER: S124DRP-H350D935-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	441.5	441.5	441.5	441.5	441.5	441.5	441.5	441.5	441.5	441.5	441.5
2.5°	475.4	474.0	473.3	472.4	472.2	471.3	469.5	467.0	463.7	460.3	460.3
5°	517.6	517.2	514.5	514.7	511.3	507.5	504.6	501.0	494.0	488.0	483.9
7.5°	558.0	561.7	560.8	558.0	552.9	547.5	541.7	536.7	523.7	516.5	510.6
10°	608.1	609.5	607.0	602.8	598.3	587.9	580.3	571.8	557.8	545.5	534.7
12.5°	652.0	655.5	651.0	647.0	636.4	628.6	621.0	604.1	589.3	573.8	558.1
15°	698.5	694.9	697.3	687.5	680.0	672.6	653.3	636.0	619.2	600.1	583.7
17.5°	738.9	738.9	734.6	728.3	720.3	706.5	687.2	668.1	649.5	624.5	601.2
20°	765.2	767.2	762.2	755.5	745.9	731.5	716.2	695.5	670.8	641.6	615.3
22.5°	777.8	778.2	776.4	770.8	763.1	750.8	735.1	714.9	688.8	657.4	629.9
25°	765.9	767.9	767.4	767.0	763.1	756.0	743.4	724.7	700.9	669.5	639.8
27.5°	724.1	729.0	733.1	734.9	739.3	739.6	735.8	724.5	705.0	675.5	642.3
30°	664.7	662.1	673.3	678.9	693.7	702.5	708.8	708.1	696.9	672.9	641.4
32.5°	585.4	592.2	600.1	613.3	630.8	651.3	666.8	678.4	677.3	661.6	635.3
35°	512.9	512.9	523.0	539.2	557.8	582.5	608.4	629.9	643.0	639.1	620.5
37.5°	434.3	439.2	450.7	463.3	486.1	509.8	544.1	572.6	600.1	608.4	598.9
40°	375.6	377.7	390.0	400.6	423.9	448.6	477.2	513.6	545.3	565.7	567.0
42.5°	332.0	331.8	336.8	346.4	365.1	387.1	418.1	453.8	490.9	519.8	533.3
45°	290.2	289.8	295.0	304.8	318.1	337.6	364.4	400.1	438.1	470.9	492.2
47.5°	254.8	258.1	260.4	268.0	279.0	295.6	318.6	347.1	383.7	420.5	449.1
50°	226.4	227.8	232.8	236.4	248.7	260.2	278.8	304.4	335.8	374.3	405.3
52.5°	203.6	204.6	207.6	212.3	219.3	229.4	244.2	267.8	296.1	329.6	361.7
55°	184.5	184.0	186.0	189.1	195.2	203.6	214.5	232.5	257.2	289.4	319.0
57.5°	165.8	165.8	167.6	169.8	173.2	180.2	190.9	205.1	224.9	253.6	279.7
60°	147.4	148.7	149.4	151.6	154.4	159.7	167.6	178.8	195.5	219.0	244.9
62.5°	131.2	131.2	132.5	133.2	137.0	140.8	146.5	156.1	169.2	190.1	210.3
65°	114.3	115.3	115.3	116.8	120.0	122.9	127.4	134.6	145.4	160.4	179.3
67.5°	99.8	99.8	100.7	101.5	103.3	105.2	109.2	114.8	124.0	135.9	153.0
70°	85.1	85.6	85.2	86.1	87.2	89.2	92.1	96.8	103.4	113.7	126.3
72.5°	71.7	71.0	71.4	72.3	72.8	74.1	75.9	79.5	84.9	93.2	102.4
75°	57.3	56.9	58.2	57.9	58.8	59.8	61.5	64.2	68.3	74.1	81.1
77.5°	44.7	44.2	44.7	45.1	45.4	46.3	47.6	49.2	52.1	55.9	62.2
80°	32.1	31.9	32.3	32.6	32.8	34.2	34.6	36.2	37.5	40.4	43.4
82.5°	21.3	21.6	21.8	22.2	22.0	22.7	23.1	24.1	25.2	26.7	29.0
85°	12.3	11.7	12.3	12.3	12.3	13.2	13.0	13.7	14.4	15.1	16.8
87.5°	4.3	4.3	4.5	4.7	4.7	5.2	5.0	5.4	6.1	6.1	6.7
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: P243513

CATALOG NUMBER: S124DRP-H350D935-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	441.5	441.5	441.5	441.5	441.5	441.5	441.5	441.5	441.5	441.5	441.5
2.5°	459.2	457.2	455.8	451.6	449.1	446.8	444.6	442.3	439.7	436.5	434.5
5°	479.6	475.2	468.9	463.2	456.7	450.9	446.2	441.0	435.2	429.3	424.1
7.5°	502.1	494.0	484.3	473.6	463.5	455.1	446.2	437.9	429.8	421.9	414.5
10°	524.6	510.6	497.8	483.2	469.8	457.0	445.5	434.0	423.9	413.4	404.1
12.5°	545.5	528.6	509.8	491.6	473.8	457.2	443.0	428.9	415.9	403.5	392.5
15°	561.6	540.3	518.1	496.5	476.0	458.7	440.1	421.9	408.4	393.2	381.2
17.5°	580.0	554.7	532.7	506.8	481.2	453.3	433.6	413.8	397.6	383.0	370.9
20°	592.2	564.5	532.7	503.4	477.0	452.0	428.4	405.7	388.6	371.6	357.0
22.5°	601.9	573.3	538.3	507.7	474.7	444.4	418.8	396.5	376.3	360.3	346.4
25°	607.0	572.0	538.7	501.6	468.6	439.6	410.7	386.0	365.7	347.8	335.9
27.5°	607.2	571.3	531.8	495.1	459.7	428.4	399.9	375.6	352.7	335.6	321.3
30°	606.3	566.6	525.0	484.8	449.7	417.6	387.8	362.6	341.7	323.5	310.0
32.5°	600.5	560.1	514.7	472.5	434.3	402.1	374.7	349.6	327.3	310.7	296.5
35°	587.5	545.9	500.3	456.9	420.6	387.1	360.1	334.9	314.8	296.8	282.2
37.5°	570.9	532.0	485.7	440.3	401.2	369.5	344.0	320.3	299.3	282.8	268.2
40°	550.0	513.4	467.9	420.6	381.5	349.4	325.5	303.3	285.5	268.5	254.3
42.5°	521.4	493.3	446.4	400.5	359.5	329.3	306.0	287.6	269.3	253.9	239.7
45°	490.7	465.2	423.5	377.9	338.6	307.5	285.7	268.7	253.0	237.5	226.0
47.5°	456.9	436.0	397.4	352.9	314.1	286.6	265.1	250.0	235.5	223.7	212.1
50°	416.5	405.5	369.5	329.1	291.4	263.1	245.5	230.0	219.3	207.8	197.0
52.5°	379.0	370.2	340.8	301.1	266.9	242.0	223.1	210.9	200.4	191.9	183.3
55°	338.3	333.8	308.9	274.7	243.7	218.8	202.6	191.4	183.1	175.2	168.9
57.5°	300.8	300.4	278.4	249.1	218.8	197.7	182.2	173.0	165.8	160.2	154.8
60°	262.4	265.5	247.4	220.6	196.6	176.8	162.7	154.4	149.6	144.4	139.9
62.5°	227.6	232.3	215.9	194.8	171.2	155.0	144.2	137.9	132.5	128.7	125.3
65°	194.3	200.2	186.9	168.0	149.9	134.6	125.4	119.5	115.3	113.2	110.8
67.5°	164.9	168.1	159.1	144.4	129.4	116.1	108.5	103.3	99.7	98.8	96.1
70°	135.5	139.3	133.0	119.5	108.0	98.2	91.4	87.2	85.1	83.8	82.0
72.5°	111.9	113.5	107.2	97.9	88.7	80.6	75.5	72.4	69.9	69.4	68.5
75°	87.6	89.9	84.9	77.7	70.1	64.3	60.6	58.0	56.8	55.9	55.9
77.5°	66.1	68.1	65.2	58.9	54.4	49.4	46.9	44.5	44.0	43.1	43.4
80°	47.0	47.9	46.3	42.0	38.0	35.3	33.2	31.9	31.7	31.0	31.7
82.5°	31.2	31.4	29.6	27.6	24.5	23.1	21.6	21.1	20.9	20.9	20.5
85°	17.3	17.7	16.4	15.1	14.1	12.8	12.4	12.1	11.7	12.3	12.6
87.5°	6.7	6.8	6.7	6.1	5.8	5.4	5.2	5.6	5.0	5.4	5.6
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: P243513

CATALOG NUMBER: S124DRP-H350D935-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	441.5	441.5	441.5	441.5	441.5	441.5	441.5	441.5	441.5	441.5	441.5
2.5°	431.4	430.0	427.8	424.2	421.7	419.0	417.9	418.3	417.2	415.8	416.1
5°	420.1	415.9	412.3	407.3	402.6	398.6	397.4	395.8	394.3	393.4	392.5
7.5°	408.0	402.3	396.8	391.8	386.4	381.3	379.4	377.9	377.2	374.7	373.6
10°	396.5	389.8	383.3	377.4	371.8	366.2	364.2	362.4	359.9	358.8	357.6
12.5°	384.2	377.6	370.5	363.3	357.7	353.2	349.8	348.5	346.0	344.9	344.2
15°	372.3	364.2	358.6	353.1	344.6	339.5	338.1	333.6	332.1	330.0	328.5
17.5°	360.4	352.9	344.6	338.1	332.9	326.6	323.1	321.2	318.5	316.5	313.8
20°	348.7	339.9	333.4	325.3	319.5	313.8	309.4	307.6	305.3	302.6	298.8
22.5°	337.4	327.6	321.3	313.8	306.6	299.9	296.3	293.8	289.1	288.5	285.1
25°	324.0	315.4	307.1	299.2	292.1	285.5	283.1	279.2	277.5	274.3	273.8
27.5°	311.4	302.2	293.2	284.6	278.4	273.8	269.6	267.1	265.5	262.9	263.1
30°	298.3	288.2	279.7	271.8	265.1	260.6	257.9	256.6	254.3	253.9	252.7
32.5°	284.2	275.0	266.2	259.2	252.3	248.3	247.1	245.8	244.4	244.6	244.2
35°	270.2	262.0	252.7	246.2	240.6	238.3	236.3	235.9	235.4	235.7	235.7
37.5°	256.5	247.6	239.9	233.9	230.7	227.4	226.5	226.4	226.5	226.9	227.8
40°	243.1	235.0	227.4	222.6	219.0	217.5	216.3	216.8	217.5	218.8	219.9
42.5°	229.8	222.0	215.7	210.9	207.4	206.7	206.9	208.0	208.2	210.0	211.9
45°	215.7	209.1	203.1	199.3	197.2	196.3	196.6	197.7	199.0	201.5	204.0
47.5°	202.7	196.8	191.6	187.8	186.2	185.8	186.5	188.0	190.9	193.4	196.3
50°	189.6	184.2	179.3	175.9	175.7	174.5	176.1	177.9	181.3	184.7	189.1
52.5°	176.6	171.4	167.2	164.5	163.8	163.8	165.8	169.0	172.1	176.6	180.6
55°	163.1	158.4	154.4	153.5	152.5	153.0	155.2	158.4	162.7	167.8	172.1
57.5°	149.2	145.3	142.4	141.1	140.6	142.4	144.9	148.3	153.9	159.0	163.6
60°	136.1	132.6	129.6	129.2	128.9	131.2	134.3	137.9	143.5	148.5	154.3
62.5°	122.0	119.3	117.3	116.8	116.8	119.1	122.6	127.2	132.5	137.9	144.0
65°	107.8	105.4	104.9	104.2	105.8	107.2	110.7	115.2	120.7	126.7	133.2
67.5°	94.6	93.2	92.1	92.1	93.4	96.1	99.1	103.6	109.4	115.7	121.5
70°	81.5	80.0	79.1	80.0	80.7	84.0	87.2	91.6	97.0	103.1	109.2
72.5°	67.8	67.9	68.1	67.9	68.7	71.7	75.0	79.1	84.3	90.3	95.9
75°	55.7	54.8	55.0	55.3	57.7	59.3	62.5	66.5	72.1	77.5	82.2
77.5°	43.3	42.9	43.8	43.8	46.0	47.9	50.6	54.6	59.5	64.3	68.1
80°	31.7	31.9	32.6	32.8	34.6	36.8	39.6	42.4	46.7	50.1	53.7
82.5°	21.4	21.8	22.7	24.0	24.7	26.0	28.5	31.4	34.4	38.0	40.2
85°	12.4	13.0	13.7	14.6	15.3	16.6	18.4	20.7	22.9	24.9	26.7
87.5°	6.1	6.1	6.7	7.0	7.6	8.3	9.6	10.5	11.9	13.3	14.1
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: P243513

CATALOG NUMBER: S124DRP-H350D935-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	441.5	441.5	441.5	441.5
2.5°	415.4	415.2	414.5	414.9
5°	392.0	390.2	390.0	389.3
7.5°	371.8	371.3	371.3	369.8
10°	356.3	354.7	355.0	354.3
12.5°	341.5	340.6	339.5	338.5
15°	324.9	324.9	324.9	321.9
17.5°	312.0	311.8	310.9	310.7
20°	298.4	297.7	295.4	297.0
22.5°	284.7	284.2	282.2	282.6
25°	272.0	271.4	271.1	269.6
27.5°	261.0	261.1	261.5	260.6
30°	252.7	252.1	252.8	251.9
32.5°	244.9	244.9	244.2	244.4
35°	236.1	236.8	237.0	236.8
37.5°	228.3	229.2	230.0	229.2
40°	221.1	221.9	222.6	222.4
42.5°	213.6	214.8	215.4	215.9
45°	206.4	208.0	208.9	209.1
47.5°	199.0	200.9	202.7	202.6
50°	191.8	194.3	195.9	195.7
52.5°	184.5	187.1	189.1	190.0
55°	176.4	179.7	181.5	183.1
57.5°	168.3	171.9	173.7	174.5
60°	159.3	162.6	164.9	165.4
62.5°	149.2	152.6	155.7	156.4
65°	138.8	142.6	144.9	145.3
67.5°	126.7	130.3	132.6	133.7
70°	114.3	117.0	119.5	121.1
72.5°	100.4	103.6	106.0	107.1
75°	86.0	89.6	90.8	91.6
77.5°	71.0	73.2	75.2	75.3
80°	56.0	58.8	59.5	61.3
82.5°	41.3	43.8	43.3	44.0
85°	27.2	28.1	28.7	28.8
87.5°	14.4	15.0	15.3	15.5
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P243513  
 CATALOG NUMBER: S124DRP-H350D935-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	15.32	16.89	15.68	17.20	17.52	15.61	17.18	15.97	17.49	17.81
	3H	16.76	18.18	17.14	18.50	18.86	16.99	18.41	17.37	18.74	19.10
	4H	17.28	18.61	17.68	18.96	19.34	17.48	18.81	17.88	19.16	19.53
	6H	17.63	18.86	18.04	19.22	19.61	17.79	19.02	18.20	19.39	19.78
	8H	17.72	18.90	18.15	19.28	19.68	17.88	19.05	18.30	19.44	19.84
	12H	17.77	18.90	18.20	19.28	19.71	17.92	19.05	18.35	19.43	19.86
4H	2H	16.45	17.79	16.85	18.13	18.51	16.40	17.73	16.80	18.08	18.45
	3H	17.96	19.07	18.37	19.47	19.87	18.10	19.21	18.51	19.61	20.01
	4H	18.53	19.53	18.96	19.95	20.38	18.70	19.70	19.13	20.11	20.55
	6H	18.94	19.82	19.40	20.26	20.72	19.10	19.97	19.55	20.41	20.87
	8H	19.06	19.88	19.52	20.32	20.79	19.20	20.02	19.66	20.46	20.93
	12H	19.14	19.87	19.62	20.34	20.81	19.27	20.00	19.75	20.48	20.95
8H	4H	18.96	19.78	19.42	20.22	20.68	19.03	19.85	19.50	20.30	20.76
	6H	19.46	20.13	19.95	20.62	21.10	19.57	20.24	20.06	20.73	21.21
	8H	19.62	20.23	20.13	20.73	21.22	19.73	20.34	20.24	20.85	21.33
	12H	19.74	20.27	20.24	20.76	21.33	19.85	20.38	20.35	20.87	21.44
12H	4H	19.00	19.73	19.48	20.21	20.68	19.07	19.80	19.55	20.28	20.75
	6H	19.52	20.13	20.03	20.64	21.13	19.63	20.24	20.14	20.75	21.23
	8H	19.74	20.27	20.24	20.76	21.33	19.85	20.39	20.36	20.88	21.44