

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: P242633

Luminaire Tested: S124DRP-S350D830-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P242633  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-21)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: S124DRP-S350D830-X4F0-XX-UDD-A-W  
Description: DEFINE 4 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER  
STANDARD LIGHT ENGINE  
Light Source: (92) 3000K CCT, 80 CRI LEDS  
Ballast/Driver: -

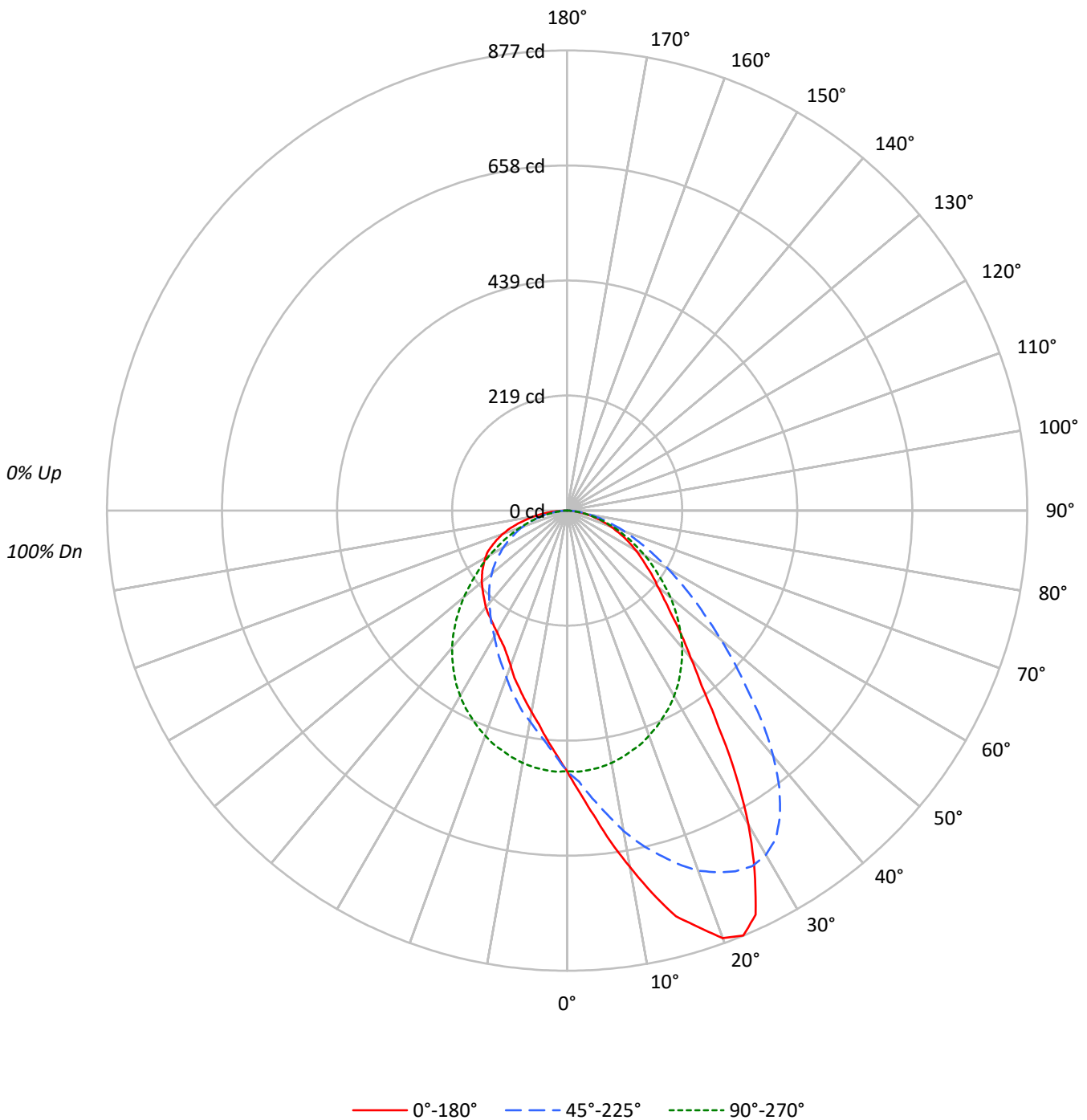
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1370.7 lumens  
Efficiency: N/A  
Efficacy: 118.2 lumens/watt  
Spacing Criteria (0/90/45): 1.3 / 1.22 / 1.41  
Luminous Opening: Rectangular (W 3.88' x L: 0.31' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 11.6  
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	109	105	101	97	107	103	99	96	98	95	93	95	92	90	91	89	87	85					85			
2	100	92	86	80	98	90	84	79	87	82	78	84	79	76	81	77	74	72					72			
3	92	82	74	68	89	80	73	67	77	71	66	74	69	65	72	67	64	62					62			
4	84	73	64	58	82	72	64	58	69	62	57	67	61	56	65	60	55	53					53			
5	78	65	57	50	76	64	56	50	62	55	50	60	54	49	58	53	49	46					46			
6	72	59	51	44	70	58	50	44	56	49	44	55	48	43	53	47	43	41					41			
7	67	54	45	39	65	53	45	39	52	44	39	50	44	39	49	43	38	36					36			
8	62	49	41	35	61	49	41	35	47	40	35	46	40	35	45	39	35	33					33			
9	58	45	37	32	57	45	37	32	44	37	32	43	36	32	42	36	31	30					30			
10	55	42	34	29	54	41	34	29	40	34	29	39	33	29	39	33	29	27					27			

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

	0°	45°	90°	135°	180°
0°	4415	4415	4415	4415	4415
5°	5199	4911	4427	3979	3907
10°	6225	5596	4407	3681	3517
15°	7366	6250	4363	3439	3230
20°	8202	6910	4317	3200	2974
25°	8335	7441	4251	3013	2797
30°	7092	7776	4186	2845	2742
35°	5453	7678	4081	2753	2742
40°	4250	7096	3959	2677	2794
45°	3544	6141	3774	2644	2840
50°	3118	5295	3548	2596	2937
55°	2858	4556	3278	2548	3055
60°	2677	3943	3036	2484	3196
65°	2492	3445	2766	2402	3315
70°	2279	3043	2498	2336	3392
75°	2037	2620	2198	2184	3349
80°	1705	2129	1802	1991	3245
85°	1254	1611	1305	1846	3111

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 55°  
 Vertical Angle: 45°  
 Luminance: 6779 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	48.3	3.5
10°-20°	149.2	10.9
20°-30°	237.0	17.3
30°-40°	263.4	19.2
40°-50°	239.5	17.5
50°-60°	195.7	14.3
60°-70°	139.7	10.2
70°-80°	76.9	5.6
80°-90°	20.8	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°	434.6	31.7
0°-40°	698.0	50.9
0°-60°	1133.3	82.7
0°-90°	1370.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1370.7	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	497	497	497	497	497	
5°	583	550	496	446	438	59
15°	800	679	474	374	351	226
25°	850	759	433	307	285	377
35°	502	708	376	254	253	318
45°	282	488	300	210	226	222
55°	184	294	212	164	197	166
65°	118	164	132	114	158	117
75°	59	76	64	64	98	63
85°	12	16	13	18	30	15
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°	496.7	496.7	496.7	496.7	496.7	496.7	496.7	496.7	496.7	496.7	496.7
2.5°	536.6	536.4	534.4	534.0	532.5	530.7	530.3	527.0	520.4	517.3	516.5
5°	582.7	586.9	581.5	580.5	579.9	573.1	569.6	565.5	556.0	550.4	546.1
7.5°	636.7	636.9	634.6	632.3	628.4	622.7	614.8	605.8	594.9	583.8	575.9
10°	689.7	691.4	688.7	688.3	677.8	671.2	658.1	646.9	634.2	620.0	607.0
12.5°	745.7	742.4	741.4	730.5	730.7	717.3	701.5	689.9	668.5	651.7	633.4
15°	800.4	795.9	793.0	780.9	774.9	758.3	742.0	729.5	703.7	679.2	660.7
17.5°	832.1	837.7	830.3	825.3	809.1	798.2	781.9	756.2	737.1	706.6	685.4
20°	867.1	867.5	863.8	858.7	846.5	831.7	813.6	784.8	760.7	730.5	698.4
22.5°	876.6	876.6	875.5	870.8	862.4	851.1	832.7	809.9	779.5	745.9	713.8
25°	849.8	849.0	850.9	856.2	852.7	849.0	838.5	820.6	793.4	758.7	724.1
27.5°	774.1	779.5	790.6	803.7	813.2	821.6	821.0	813.4	794.1	764.0	727.2
30°	691.0	698.0	705.8	719.0	744.5	759.1	775.1	787.3	780.5	757.6	723.9
32.5°	599.6	600.0	612.6	628.0	650.8	682.3	710.1	737.9	749.8	740.6	713.8
35°	502.5	505.4	517.9	532.7	561.3	595.7	634.0	668.1	696.3	707.6	693.2
37.5°	421.0	430.1	439.5	456.4	482.5	513.6	554.8	597.3	638.7	663.8	666.5
40°	366.3	371.4	377.8	389.9	411.3	441.8	475.9	526.6	571.2	611.5	624.7
42.5°	323.1	325.5	328.8	339.5	354.5	384.8	415.2	458.2	503.1	553.3	577.6
45°	281.9	285.0	291.6	298.0	310.3	331.3	360.3	396.9	442.0	488.5	529.2
47.5°	251.0	253.1	257.2	264.2	275.3	289.5	314.2	345.3	389.3	434.4	478.0
50°	225.5	227.2	230.3	236.4	244.5	256.8	276.1	304.7	337.5	382.9	425.5
52.5°	205.4	205.8	207.8	211.5	217.5	227.4	242.4	264.8	294.7	334.0	376.4
55°	184.4	185.2	187.3	190.3	195.9	202.5	214.6	232.3	258.9	294.0	330.9
57.5°	167.1	167.9	169.6	170.8	175.7	181.3	191.2	203.9	224.7	256.0	289.5
60°	150.6	150.2	152.3	153.3	156.4	160.9	168.1	180.3	197.7	221.8	252.1
62.5°	134.6	134.0	135.6	137.0	138.5	142.2	147.7	156.6	170.0	191.2	216.3
65°	118.5	117.7	118.7	120.4	122.0	124.1	128.4	136.8	148.2	163.8	183.8
67.5°	102.1	103.1	103.1	104.1	105.1	108.0	111.1	117.7	125.7	138.5	156.2
70°	87.7	87.9	88.7	88.7	89.3	91.8	94.2	97.7	105.6	117.1	130.9
72.5°	73.3	74.3	73.7	74.5	74.9	76.3	78.0	81.3	87.7	95.5	106.6
75°	59.3	59.9	59.9	60.1	60.7	61.3	62.8	65.2	70.0	76.3	84.4
77.5°	45.7	45.7	46.1	46.9	46.9	47.9	49.2	51.0	53.7	58.4	63.6
80°	33.3	33.7	33.5	34.0	34.0	34.8	35.2	37.7	38.7	41.6	45.5
82.5°	22.2	22.6	22.6	23.3	23.7	23.7	24.3	24.9	25.9	28.4	29.4
85°	12.3	12.8	12.3	12.8	13.4	13.6	14.2	14.4	15.2	15.8	17.3
87.5°	4.5	5.1	5.1	5.4	5.8	6.0	6.2	6.0	6.8	7.0	7.8
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):**

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	496.7	496.7	496.7	496.7	496.7	496.7	496.7	496.7	496.7	496.7	496.7
2.5°	516.7	513.8	511.7	510.1	505.6	502.9	500.8	498.0	494.7	491.2	486.9
5°	541.8	534.8	529.7	521.8	514.4	508.3	501.9	496.1	489.1	481.5	475.9
7.5°	567.5	557.8	544.9	534.8	522.7	512.2	502.9	493.2	482.9	473.1	463.8
10°	591.8	578.4	563.6	546.1	529.7	515.0	501.5	488.3	475.5	462.8	451.9
12.5°	617.9	600.4	576.8	555.6	536.6	515.9	498.8	481.9	465.9	452.3	439.1
15°	640.8	616.7	591.4	564.0	539.7	516.9	494.5	474.1	456.8	439.1	426.8
17.5°	655.2	625.3	598.2	569.6	541.6	513.0	489.7	466.9	445.5	428.2	412.8
20°	669.4	639.7	603.7	575.1	540.1	510.5	482.5	456.4	433.8	415.0	399.0
22.5°	681.7	646.3	610.3	570.4	535.6	503.7	472.4	446.1	422.9	402.9	387.7
25°	684.6	645.3	606.2	568.7	529.2	492.0	464.2	433.4	408.7	387.9	371.4
27.5°	685.6	644.1	600.6	559.9	519.2	485.2	449.0	422.0	396.5	374.5	358.9
30°	683.4	639.5	592.0	546.9	506.0	468.3	437.9	407.8	381.7	359.9	343.4
32.5°	676.2	630.1	580.9	532.5	489.7	453.1	421.4	393.2	367.9	346.5	329.0
35°	660.9	615.9	563.8	514.2	470.8	433.6	405.2	376.1	350.6	330.3	313.6
37.5°	640.6	598.6	545.7	494.1	452.3	414.4	385.8	359.1	336.0	315.0	297.7
40°	612.2	576.4	523.3	473.3	427.2	391.6	365.2	341.2	318.3	298.8	282.5
42.5°	579.4	549.4	501.5	447.8	403.7	367.9	342.4	321.4	300.2	282.5	266.3
45°	539.3	518.7	472.7	423.7	377.4	343.6	319.1	300.2	282.1	264.4	250.8
47.5°	494.7	483.1	443.0	396.1	351.7	317.9	296.7	278.6	262.2	246.7	234.6
50°	449.6	444.7	411.1	366.3	324.3	293.0	271.6	256.6	243.0	229.8	218.5
52.5°	405.2	406.2	376.8	336.6	298.6	268.7	247.5	233.8	222.4	212.4	202.5
55°	359.7	365.4	341.8	305.2	270.4	243.2	224.1	211.5	203.3	194.5	186.8
57.5°	317.9	327.6	307.0	273.5	244.0	218.1	201.2	191.6	182.5	176.8	170.8
60°	277.2	286.2	271.0	243.8	216.5	195.1	179.2	170.8	163.2	159.5	155.6
62.5°	241.0	248.8	238.5	213.8	191.0	170.6	157.8	149.8	145.3	141.2	138.9
65°	206.8	213.6	203.9	185.6	165.2	148.8	137.9	131.5	126.5	124.9	122.0
67.5°	173.1	179.2	174.1	158.0	140.7	127.8	119.1	112.4	109.5	107.8	106.0
70°	143.6	149.8	144.2	130.7	118.1	107.6	99.6	96.1	93.0	92.4	89.5
72.5°	118.7	122.4	116.9	107.0	96.7	88.3	82.5	78.8	77.6	76.3	75.1
75°	92.8	96.5	92.8	84.6	77.0	70.8	65.4	64.0	62.1	61.5	60.5
77.5°	69.6	73.0	70.2	64.6	58.6	53.5	50.4	48.4	48.2	46.9	47.3
80°	50.2	52.3	49.6	46.1	41.6	38.3	36.2	35.2	34.0	33.5	34.4
82.5°	32.5	33.1	32.1	30.0	27.0	25.1	23.9	22.6	22.6	22.8	22.6
85°	18.7	18.5	18.3	16.3	15.2	13.8	13.0	12.8	12.6	13.0	13.4
87.5°	7.8	8.0	7.8	7.0	6.4	5.8	5.6	5.4	5.6	5.8	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



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**CANDELA DISTRIBUTION (continued):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	496.7	496.7	496.7	496.7	496.7	496.7	496.7	496.7	496.7	496.7	496.7
2.5°	484.8	482.9	480.3	476.6	473.5	470.2	469.4	468.1	470.6	468.5	467.9
5°	471.2	466.9	461.3	455.0	451.3	445.9	444.9	442.8	440.8	440.6	438.5
7.5°	457.0	451.0	444.1	437.5	431.7	425.9	422.2	421.8	418.5	416.9	414.8
10°	443.4	435.6	427.2	421.0	414.0	407.8	403.5	401.0	399.0	396.7	394.7
12.5°	427.4	418.9	412.4	405.6	396.9	392.6	384.8	380.1	380.1	380.7	374.5
15°	415.7	407.4	396.7	387.3	382.7	373.7	369.8	364.8	361.7	358.7	356.2
17.5°	401.3	391.2	382.9	372.2	363.8	357.0	351.7	349.0	344.0	339.5	336.4
20°	387.9	377.0	368.1	356.6	347.1	338.3	334.0	329.8	326.4	322.6	319.1
22.5°	374.3	362.8	351.5	340.3	331.7	322.2	318.1	312.2	308.9	307.2	303.7
25°	359.9	347.5	335.2	324.5	315.4	307.2	301.7	297.3	293.6	292.0	289.7
27.5°	344.3	332.1	320.4	308.0	297.5	291.6	287.0	283.6	281.3	278.8	277.8
30°	329.4	316.7	303.9	292.6	283.1	277.2	273.1	270.8	269.1	268.1	267.1
32.5°	314.4	301.9	288.3	278.2	270.0	264.8	261.9	259.7	259.1	258.9	258.7
35°	298.2	285.4	273.1	263.8	255.8	253.7	251.0	249.8	249.4	250.8	251.5
37.5°	282.5	270.6	259.1	249.8	244.5	241.2	240.1	239.9	241.4	242.6	244.0
40°	267.5	256.0	245.3	237.5	232.5	230.7	230.3	231.3	232.9	234.4	236.0
42.5°	252.9	241.6	232.1	224.9	221.8	220.2	220.6	221.6	224.1	225.9	228.6
45°	237.7	228.2	218.7	212.8	209.9	210.3	210.3	212.1	214.4	217.1	219.8
47.5°	223.5	213.8	205.8	200.6	199.2	198.6	199.6	202.1	205.2	208.2	211.9
50°	209.1	200.0	193.2	188.7	187.0	187.7	189.3	191.6	195.5	199.6	203.5
52.5°	194.5	186.4	180.3	176.1	175.1	176.3	178.0	181.9	185.2	189.7	194.7
55°	179.2	172.2	167.3	164.2	163.8	164.4	166.3	170.2	175.1	180.7	185.2
57.5°	164.2	158.2	153.5	151.2	151.4	151.9	154.7	159.5	164.4	170.4	176.1
60°	149.0	143.6	139.9	138.3	138.5	139.7	143.4	147.7	154.3	160.1	166.3
62.5°	134.6	130.0	126.5	125.1	124.7	127.8	131.3	135.8	142.4	149.0	155.8
65°	118.9	115.2	112.4	111.5	112.1	114.2	118.7	124.7	130.3	137.0	144.0
67.5°	103.7	100.6	98.6	99.0	99.6	102.5	106.4	111.5	117.7	124.7	131.9
70°	89.3	86.4	84.8	85.0	86.2	89.9	93.2	98.4	105.1	112.4	118.1
72.5°	74.5	72.8	71.4	72.4	73.7	75.9	80.3	85.4	91.2	97.7	103.9
75°	59.5	59.5	58.6	59.3	61.1	63.6	66.7	72.0	78.0	83.3	88.3
77.5°	46.7	46.1	46.5	47.1	48.4	51.4	54.9	58.9	63.6	69.1	73.3
80°	33.7	34.0	35.0	36.2	36.6	38.9	42.6	46.1	49.6	54.1	58.0
82.5°	23.3	23.5	23.9	25.5	25.9	28.4	30.5	34.0	37.0	39.7	42.8
85°	13.8	13.8	14.8	15.4	16.5	18.1	19.5	21.6	24.5	26.5	29.6
87.5°	6.6	6.6	7.4	7.8	8.4	9.5	9.9	12.1	13.0	14.0	15.8
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: P242633

CATALOG NUMBER: S124DRP-S350D830-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	496.7	496.7	496.7	496.7
2.5°	467.5	467.1	465.7	465.5
5°	437.3	436.2	435.6	437.9
7.5°	414.4	413.6	411.7	411.1
10°	392.6	391.8	390.1	389.7
12.5°	371.6	369.8	369.8	370.4
15°	353.5	352.7	350.4	351.0
17.5°	335.0	334.2	331.1	334.2
20°	317.7	316.1	314.6	314.4
22.5°	301.2	299.8	300.0	298.4
25°	288.1	286.6	286.2	285.2
27.5°	277.4	276.6	275.7	276.1
30°	267.7	267.5	267.1	267.1
32.5°	259.7	259.7	260.1	260.1
35°	252.3	252.9	253.3	252.7
37.5°	245.7	246.1	246.7	247.3
40°	237.9	239.3	239.7	240.8
42.5°	230.5	232.1	233.3	233.3
45°	222.8	224.5	225.9	225.9
47.5°	215.0	217.3	218.7	218.9
50°	207.0	209.9	211.3	212.4
52.5°	199.2	202.1	204.1	204.5
55°	189.9	194.0	196.3	197.1
57.5°	181.7	185.4	187.9	188.5
60°	171.8	175.9	179.2	179.8
62.5°	161.7	166.1	168.9	170.8
65°	149.8	154.1	157.0	157.6
67.5°	137.2	141.8	143.6	144.9
70°	123.9	127.4	129.4	130.5
72.5°	108.6	112.4	114.8	114.8
75°	93.0	96.3	97.5	97.5
77.5°	76.8	78.6	80.3	80.7
80°	61.1	62.1	63.4	63.4
82.5°	45.1	45.9	47.1	46.9
85°	29.2	31.1	30.9	30.5
87.5°	16.5	16.7	17.3	17.7
90°	0.0	0.0	0.0	0.0



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**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	15.13	16.69	15.49	17.00	17.32	16.04	17.60	16.40	17.91	18.23
	3H	16.61	18.02	16.99	18.34	18.70	17.40	18.81	17.78	19.14	19.50
	4H	17.15	18.47	17.55	18.82	19.20	17.88	19.20	18.28	19.55	19.92
	6H	17.51	18.73	17.92	19.10	19.49	18.18	19.41	18.60	19.77	20.16
	8H	17.61	18.78	18.03	19.16	19.56	18.26	19.43	18.69	19.82	20.22
	12H	17.66	18.78	18.09	19.16	19.59	18.30	19.42	18.73	19.80	20.23
4H	2H	16.29	17.61	16.69	17.96	18.34	16.72	18.05	17.12	18.39	18.77
	3H	17.82	18.92	18.23	19.32	19.72	18.43	19.53	18.84	19.93	20.33
	4H	18.40	19.40	18.84	19.81	20.25	19.02	20.01	19.45	20.43	20.87
	6H	18.83	19.70	19.29	20.14	20.60	19.42	20.28	19.87	20.73	21.18
	8H	18.96	19.77	19.42	20.21	20.68	19.52	20.33	19.98	20.78	21.24
	12H	19.03	19.76	19.51	20.24	20.71	19.59	20.31	20.07	20.79	21.26
8H	4H	18.86	19.67	19.32	20.11	20.58	19.33	20.15	19.80	20.59	21.06
	6H	19.37	20.04	19.86	20.53	21.00	19.86	20.53	20.36	21.02	21.50
	8H	19.54	20.14	20.05	20.65	21.14	20.03	20.63	20.54	21.14	21.62
	12H	19.66	20.19	20.17	20.68	21.25	20.14	20.67	20.65	21.16	21.73
12H	4H	18.91	19.64	19.39	20.11	20.58	19.37	20.09	19.85	20.57	21.04
	6H	19.44	20.04	19.95	20.55	21.04	19.92	20.52	20.43	21.03	21.52
	8H	19.66	20.19	20.17	20.69	21.25	20.14	20.67	20.65	21.16	21.73