

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: P243493

Luminaire Tested: S124DRP-H350D830-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P243493
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-H350D830-X4F0-XX-UDD-A-W
Description: DEFINE 4 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

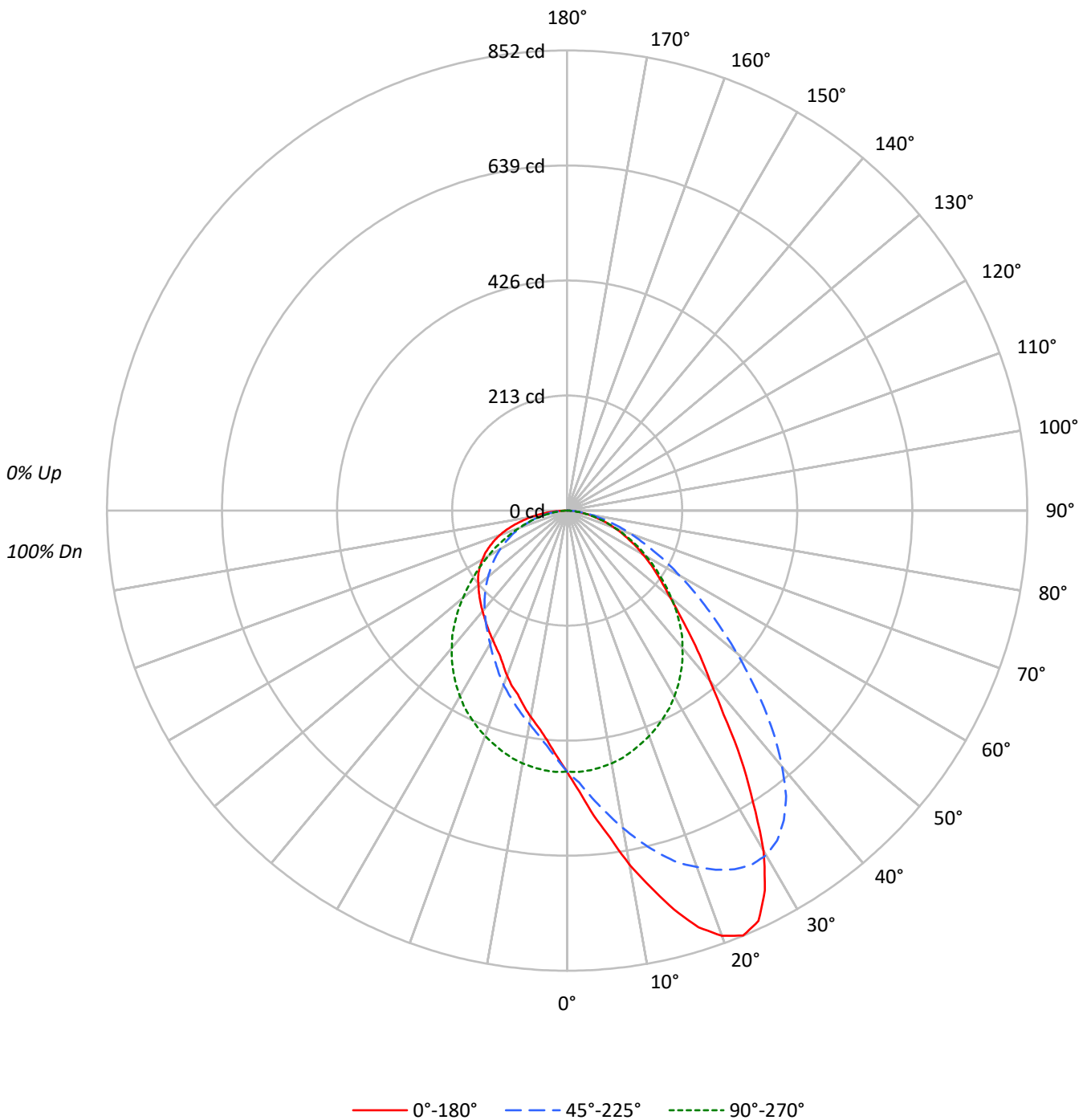
Lumens per Lamp: N/A
Luminaire Lumens: 1386.0 lumens
Efficiency: N/A
Efficacy: 123.7 lumens/watt
Spacing Criteria (0/90/45): 1.35 / 1.22 / 1.45
Luminous Opening: Rectangular (W 3.88' x L: 0.31' x H: 0')
CIE Type: Direct

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

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CATALOG NUMBER: S124DRP-H350D830-X4F0-XX-UDD-A-W

Luminous Intensity Polar Plot



TEST NUMBER: P243493

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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	94	92	90	91	89	87	85					85			
2	100	92	86	80	97	90	84	79	87	82	77	83	79	76	80	77	74	72					72			
3	92	81	74	67	89	80	73	67	77	71	66	74	69	64	72	67	63	61					61			
4	84	73	64	58	82	71	63	57	69	62	56	66	60	56	64	59	55	53					53			
5	78	65	56	50	75	64	56	50	62	55	49	60	54	49	58	53	48	46					46			
6	72	59	50	44	70	58	50	44	56	49	43	54	48	43	53	47	43	41					41			
7	67	53	45	39	65	53	45	39	51	44	38	50	43	38	48	42	38	36					36			
8	62	49	41	35	61	48	40	35	47	40	35	46	39	34	44	39	34	32					32			
9	58	45	37	31	57	44	37	31	43	36	31	42	36	31	41	35	31	29					29			
10	54	41	34	29	53	41	34	28	40	33	28	39	33	28	38	32	28	26					26			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	4297	4297	4297	4297	4297
5°	5056	4767	4308	3894	3802
10°	6009	5390	4288	3619	3501
15°	7037	6046	4251	3421	3243
20°	7924	6643	4201	3249	3075
25°	8224	7188	4145	3065	2894
30°	7468	7562	4074	2928	2831
35°	6093	7592	3978	2830	2813
40°	4771	7186	3852	2763	2825
45°	3992	6480	3698	2700	2877
50°	3427	5667	3481	2641	2963
55°	3130	4910	3247	2596	3106
60°	2869	4261	3006	2553	3220
65°	2631	3693	2751	2469	3344
70°	2420	3236	2482	2388	3446
75°	2153	2785	2181	2229	3441
80°	1797	2263	1787	2058	3435
85°	1367	1693	1346	1856	3223

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 50°
 Vertical Angle: 45°
 Luminance: 6773 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	47.1	3.4
10°-20°	145.7	10.5
20°-30°	234.1	16.9
30°-40°	267.6	19.3
40°-50°	246.3	17.8
50°-60°	201.5	14.5
60°-70°	143.6	10.4
70°-80°	78.9	5.7
80°-90°	21.2	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°	426.9	30.8
0°-40°	694.5	50.1
0°-60°	1142.3	82.4
0°-90°	1386.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1386.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	483	483	483	483	483	
5°	567	534	483	436	426	57
15°	765	657	462	372	352	218
25°	838	733	423	312	295	376
35°	562	700	367	261	259	349
45°	318	516	294	215	229	248
55°	202	317	210	168	200	181
65°	125	176	131	117	159	125
75°	63	81	64	65	100	67
85°	13	17	13	18	32	16
90°	0	0	0	0	0	



TEST NUMBER: P243493

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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	483.4	483.4	483.4	483.4	483.4	483.4	483.4	483.4	483.4	483.4	483.4
2.5°	520.4	518.9	518.1	517.1	516.9	515.9	513.9	511.2	507.6	503.9	503.9
5°	566.6	566.2	563.3	563.5	559.7	555.6	552.4	548.5	540.8	534.3	529.7
7.5°	610.8	615.0	614.0	610.8	605.3	599.4	593.1	587.5	573.3	565.4	558.9
10°	665.7	667.2	664.5	659.9	655.0	643.6	635.3	626.0	610.6	597.2	585.4
12.5°	713.8	717.5	712.6	708.3	696.6	688.1	679.9	661.3	645.1	628.2	611.0
15°	764.7	760.7	763.3	752.7	744.4	736.3	715.2	696.2	677.9	657.0	639.0
17.5°	808.9	808.9	804.2	797.2	788.6	773.4	752.3	731.4	711.0	683.6	658.2
20°	837.7	839.9	834.3	827.0	816.6	800.8	784.0	761.3	734.3	702.3	673.5
22.5°	851.5	851.9	849.9	843.8	835.3	821.9	804.7	782.6	754.0	719.7	689.5
25°	838.5	840.6	840.1	839.7	835.3	827.6	813.8	793.3	767.3	732.9	700.4
27.5°	792.7	798.0	802.6	804.5	809.3	809.7	805.5	793.1	771.8	739.4	703.1
30°	727.6	724.8	737.1	743.2	759.4	769.0	775.9	775.1	762.9	736.7	702.2
32.5°	640.8	648.3	657.0	671.4	690.5	713.0	730.0	742.6	741.4	724.2	695.4
35°	561.5	561.5	572.5	590.3	610.6	637.6	666.0	689.5	703.9	699.6	679.3
37.5°	475.5	480.8	493.4	507.2	532.1	558.1	595.6	626.8	657.0	666.0	655.6
40°	411.2	413.5	426.9	438.6	464.0	491.1	522.4	562.3	597.0	619.3	620.7
42.5°	363.4	363.2	368.7	379.2	399.7	423.8	457.7	496.8	537.4	569.0	583.8
45°	317.6	317.2	323.0	333.6	348.2	369.5	398.9	438.0	479.6	515.5	538.8
47.5°	279.0	282.5	285.1	293.4	305.4	323.6	348.8	380.0	420.0	460.3	491.6
50°	247.8	249.4	254.9	258.8	272.3	284.9	305.2	333.2	367.5	409.8	443.7
52.5°	222.9	223.9	227.3	232.4	240.1	251.1	267.3	293.2	324.1	360.8	396.0
55°	202.0	201.4	203.6	207.0	213.7	222.9	234.8	254.5	281.5	316.8	349.2
57.5°	181.5	181.5	183.5	185.8	189.6	197.3	208.9	224.5	246.2	277.6	306.2
60°	161.4	162.8	163.6	165.9	169.1	174.8	183.5	195.7	214.1	239.7	268.1
62.5°	143.6	143.6	145.0	145.8	149.9	154.1	160.4	170.9	185.3	208.1	230.2
65°	125.1	126.3	126.3	127.8	131.4	134.6	139.5	147.4	159.2	175.6	196.3
67.5°	109.3	109.3	110.3	111.1	113.0	115.2	119.6	125.7	135.7	148.8	167.5
70°	93.1	93.7	93.3	94.3	95.5	97.7	100.8	105.9	113.2	124.5	138.3
72.5°	78.5	77.7	78.1	79.1	79.7	81.1	83.1	87.0	92.9	102.0	112.1
75°	62.7	62.3	63.7	63.3	64.3	65.5	67.3	70.2	74.8	81.1	88.8
77.5°	48.9	48.3	48.9	49.3	49.7	50.7	52.1	53.9	57.0	61.2	68.1
80°	35.1	34.9	35.3	35.7	35.9	37.5	37.9	39.7	41.0	44.2	47.5
82.5°	23.3	23.7	23.9	24.3	24.1	24.9	25.3	26.4	27.6	29.2	31.8
85°	13.4	12.8	13.4	13.4	13.4	14.4	14.2	15.0	15.8	16.6	18.3
87.5°	4.7	4.7	4.9	5.1	5.1	5.7	5.5	5.9	6.7	6.7	7.3
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°	483.4	483.4	483.4	483.4	483.4	483.4	483.4	483.4	483.4	483.4	483.4
2.5°	502.7	500.5	498.9	494.4	491.6	489.1	486.7	484.1	481.4	477.8	475.7
5°	525.0	520.3	513.3	507.0	499.9	493.6	488.5	482.8	476.5	469.9	464.2
7.5°	549.6	540.8	530.1	518.5	507.4	498.2	488.5	479.4	470.5	461.9	453.8
10°	574.3	558.9	544.9	528.9	514.3	500.3	487.7	475.1	464.0	452.6	442.3
12.5°	597.2	578.6	558.1	538.2	518.7	500.5	484.9	469.5	455.3	441.7	429.7
15°	614.8	591.5	567.2	543.5	521.0	502.1	481.8	461.9	447.1	430.5	417.3
17.5°	634.9	607.3	583.2	554.8	526.8	496.2	474.7	453.0	435.2	419.2	406.0
20°	648.3	617.9	583.2	551.0	522.2	494.8	469.0	444.1	425.4	406.8	390.8
22.5°	658.9	627.6	589.3	555.8	519.7	486.5	458.5	434.0	411.9	394.4	379.2
25°	664.5	626.2	589.7	549.1	513.0	481.2	449.6	422.6	400.3	380.8	367.7
27.5°	664.7	625.4	582.2	542.0	503.3	469.0	437.8	411.2	386.1	367.4	351.8
30°	663.7	620.3	574.7	530.7	492.2	457.1	424.6	396.9	374.1	354.1	339.3
32.5°	657.4	613.2	563.5	517.3	475.5	440.2	410.2	382.7	358.3	340.1	324.5
35°	643.2	597.6	547.7	500.1	460.5	423.8	394.2	366.6	344.7	324.9	309.0
37.5°	625.0	582.4	531.7	482.0	439.2	404.4	376.6	350.6	327.7	309.5	293.6
40°	602.1	562.1	512.2	460.5	417.7	382.5	356.3	332.0	312.5	294.0	278.4
42.5°	570.8	540.0	488.7	438.4	393.6	360.4	335.0	314.9	294.7	278.0	262.4
45°	537.2	509.2	463.6	413.7	370.7	336.6	312.7	294.2	277.0	260.0	247.4
47.5°	500.1	477.2	435.0	386.3	343.9	313.7	290.2	273.6	257.9	244.8	232.2
50°	455.9	443.9	404.4	360.2	319.0	288.0	268.7	251.7	240.1	227.5	215.6
52.5°	414.9	405.2	373.1	329.7	292.2	265.0	244.2	230.8	219.4	210.1	200.6
55°	370.3	365.4	338.2	300.7	266.7	239.5	221.8	209.5	200.4	191.8	184.9
57.5°	329.3	328.9	304.8	272.7	239.5	216.4	199.5	189.4	181.5	175.4	169.5
60°	287.3	290.6	270.9	241.5	215.2	193.5	178.2	169.1	163.7	158.0	153.1
62.5°	249.2	254.3	236.4	213.3	187.4	169.7	157.8	150.9	145.0	140.9	137.1
65°	212.7	219.2	204.6	183.9	164.1	147.4	137.3	130.8	126.3	123.9	121.3
67.5°	180.5	184.1	174.2	158.0	141.7	127.1	118.8	113.0	109.1	108.1	105.2
70°	148.4	152.5	145.6	130.8	118.2	107.5	100.0	95.5	93.1	91.7	89.8
72.5°	122.5	124.3	117.4	107.1	97.1	88.2	82.7	79.3	76.5	76.0	75.0
75°	95.9	98.4	92.9	85.0	76.7	70.4	66.3	63.5	62.1	61.2	61.2
77.5°	72.4	74.6	71.4	64.5	59.6	54.1	51.3	48.7	48.1	47.2	47.5
80°	51.5	52.5	50.7	46.0	41.6	38.7	36.3	34.9	34.7	33.9	34.7
82.5°	34.1	34.3	32.4	30.2	26.8	25.3	23.7	23.1	22.9	22.9	22.5
85°	18.9	19.3	18.0	16.6	15.4	14.0	13.6	13.2	12.8	13.4	13.8
87.5°	7.3	7.5	7.3	6.7	6.3	5.9	5.7	6.1	5.5	5.9	6.1
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	483.4	483.4	483.4	483.4	483.4	483.4	483.4	483.4	483.4	483.4	483.4
2.5°	472.3	470.7	468.4	464.4	461.7	458.7	457.5	457.9	456.7	455.1	455.5
5°	459.9	455.3	451.4	445.9	440.7	436.4	435.0	433.2	431.7	430.7	429.7
7.5°	446.7	440.3	434.4	428.9	423.0	417.5	415.3	413.7	412.9	410.2	409.0
10°	434.0	426.7	419.6	413.1	407.0	400.9	398.7	396.7	394.0	392.8	391.4
12.5°	420.6	413.3	405.6	397.7	391.6	386.7	382.9	381.6	378.8	377.6	376.8
15°	407.6	398.7	392.6	386.5	377.2	371.7	370.1	365.2	363.6	361.2	359.7
17.5°	394.6	386.3	377.2	370.1	364.4	357.5	353.7	351.6	348.6	346.4	343.5
20°	381.8	372.1	365.0	356.1	349.8	343.5	338.7	336.8	334.2	331.2	327.1
22.5°	369.3	358.7	351.8	343.5	335.6	328.3	324.3	321.6	316.5	315.9	312.1
25°	354.7	345.3	336.2	327.5	319.8	312.5	309.9	305.6	303.8	300.3	299.7
27.5°	340.9	330.9	321.0	311.5	304.8	299.7	295.1	292.4	290.6	287.8	288.0
30°	326.5	315.5	306.2	297.5	290.2	285.3	282.3	280.9	278.4	278.0	276.6
32.5°	311.1	301.1	291.4	283.7	276.2	271.9	270.5	269.1	267.5	267.7	267.3
35°	295.7	286.9	276.6	269.5	263.4	260.8	258.6	258.3	257.7	258.1	258.1
37.5°	280.7	271.1	262.6	256.1	252.5	249.0	248.0	247.8	248.0	248.4	249.4
40°	266.1	257.3	249.0	243.7	239.7	238.1	236.7	237.3	238.1	239.5	240.7
42.5°	251.5	243.1	236.2	230.8	227.1	226.3	226.5	227.7	227.9	229.8	232.0
45°	236.2	228.9	222.3	218.2	215.8	214.8	215.2	216.4	217.8	220.6	223.3
47.5°	222.0	215.4	209.7	205.6	203.8	203.4	204.2	205.8	208.9	211.7	214.8
50°	207.5	201.6	196.3	192.6	192.4	191.0	192.8	194.7	198.5	202.2	207.0
52.5°	193.3	187.6	183.1	180.1	179.3	179.3	181.5	185.1	188.4	193.3	197.7
55°	178.5	173.4	169.1	168.1	166.9	167.5	169.9	173.4	178.2	183.7	188.4
57.5°	163.4	159.0	155.9	154.5	153.9	155.9	158.6	162.4	168.5	174.0	179.1
60°	149.0	145.2	141.9	141.5	141.1	143.6	147.0	150.9	157.0	162.6	168.9
62.5°	133.6	130.6	128.4	127.8	127.8	130.4	134.2	139.3	145.0	150.9	157.6
65°	118.0	115.4	114.8	114.0	115.8	117.4	121.1	126.1	132.2	138.7	145.8
67.5°	103.6	102.0	100.8	100.8	102.2	105.2	108.5	113.4	119.8	126.7	133.0
70°	89.2	87.6	86.6	87.6	88.4	91.9	95.5	100.2	106.1	112.8	119.6
72.5°	74.2	74.4	74.6	74.4	75.2	78.5	82.1	86.6	92.3	98.8	105.0
75°	61.0	60.0	60.2	60.6	63.1	64.9	68.5	72.8	78.9	84.8	90.0
77.5°	47.3	47.0	47.9	47.9	50.3	52.5	55.4	59.8	65.1	70.4	74.6
80°	34.7	34.9	35.7	35.9	37.9	40.2	43.4	46.4	51.1	54.8	58.8
82.5°	23.5	23.9	24.9	26.2	27.0	28.4	31.2	34.3	37.7	41.6	44.0
85°	13.6	14.2	15.0	16.0	16.8	18.2	20.1	22.7	25.1	27.2	29.2
87.5°	6.7	6.7	7.3	7.7	8.3	9.1	10.5	11.4	13.0	14.6	15.4
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: P243493

CATALOG NUMBER: S124DRP-H350D830-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	483.4	483.4	483.4	483.4
2.5°	454.8	454.6	453.8	454.2
5°	429.1	427.1	426.9	426.1
7.5°	407.0	406.4	406.4	404.8
10°	390.0	388.3	388.7	387.9
12.5°	373.9	372.9	371.7	370.5
15°	355.7	355.7	355.7	352.4
17.5°	341.5	341.3	340.3	340.1
20°	326.7	325.9	323.4	325.1
22.5°	311.7	311.1	309.0	309.3
25°	297.7	297.1	296.7	295.1
27.5°	285.7	285.9	286.3	285.3
30°	276.6	276.0	276.8	275.8
32.5°	268.1	268.1	267.3	267.5
35°	258.4	259.2	259.4	259.2
37.5°	250.0	251.0	251.7	251.0
40°	242.1	242.9	243.7	243.5
42.5°	233.8	235.2	235.8	236.4
45°	225.9	227.7	228.7	228.9
47.5°	217.8	220.0	222.0	221.8
50°	209.9	212.7	214.5	214.3
52.5°	202.0	204.8	207.0	207.9
55°	193.1	196.7	198.7	200.4
57.5°	184.3	188.2	190.2	191.0
60°	174.4	178.0	180.5	181.1
62.5°	163.4	167.1	170.5	171.2
65°	151.9	156.1	158.6	159.0
67.5°	138.7	142.6	145.2	146.4
70°	125.1	128.0	130.8	132.6
72.5°	109.9	113.4	116.0	117.2
75°	94.1	98.1	99.4	100.2
77.5°	77.7	80.1	82.3	82.5
80°	61.4	64.3	65.1	67.1
82.5°	45.2	47.9	47.3	48.1
85°	29.8	30.8	31.4	31.6
87.5°	15.8	16.4	16.8	17.0
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P243493
 CATALOG NUMBER: S124DRP-H350D830-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	15.63	17.20	16.00	17.52	17.83	15.92	17.49	16.29	17.81	18.12
	3H	17.07	18.49	17.45	18.82	19.18	17.31	18.72	17.68	19.05	19.41
	4H	17.59	18.92	17.99	19.27	19.65	17.79	19.12	18.19	19.47	19.85
	6H	17.94	19.17	18.35	19.54	19.93	18.11	19.34	18.52	19.70	20.09
	8H	18.03	19.21	18.46	19.60	20.00	18.19	19.36	18.62	19.75	20.15
	12H	18.09	19.21	18.52	19.59	20.02	18.23	19.36	18.66	19.74	20.17
4H	2H	16.77	18.10	17.17	18.45	18.83	16.71	18.04	17.11	18.39	18.77
	3H	18.27	19.38	18.68	19.78	20.18	18.42	19.53	18.83	19.93	20.33
	4H	18.85	19.85	19.28	20.26	20.70	19.01	20.01	19.44	20.43	20.86
	6H	19.26	20.13	19.71	20.57	21.03	19.41	20.29	19.87	20.73	21.19
	8H	19.38	20.19	19.84	20.64	21.10	19.52	20.33	19.98	20.78	21.24
	12H	19.45	20.18	19.93	20.66	21.13	19.58	20.32	20.07	20.79	21.26
8H	4H	19.27	20.09	19.73	20.53	21.00	19.35	20.17	19.81	20.61	21.08
	6H	19.77	20.45	20.26	20.94	21.41	19.88	20.56	20.38	21.05	21.52
	8H	19.93	20.54	20.44	21.05	21.54	20.05	20.65	20.56	21.16	21.65
	12H	20.05	20.59	20.56	21.08	21.64	20.16	20.70	20.67	21.19	21.75
12H	4H	19.32	20.05	19.80	20.52	20.99	19.38	20.12	19.87	20.59	21.06
	6H	19.84	20.45	20.35	20.95	21.44	19.94	20.55	20.46	21.06	21.55
	8H	20.05	20.59	20.56	21.08	21.64	20.17	20.70	20.67	21.20	21.76