

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: P243518

Luminaire Tested: S124DRP-H350D940-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P243518
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-H350D940-X4F0-XX-UDD-A-W
Description: DEFINE 4 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

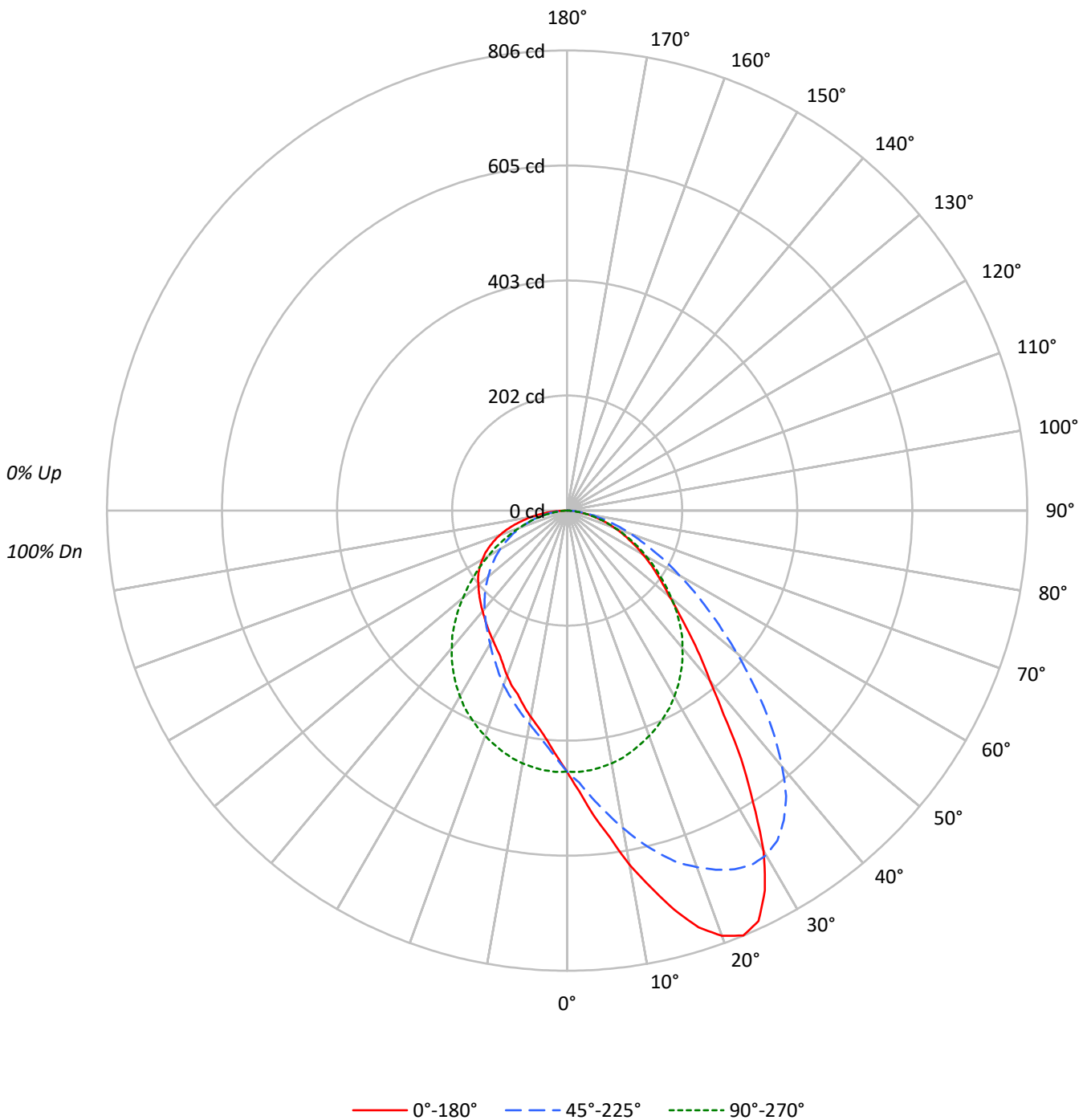
Lumens per Lamp: N/A
Luminaire Lumens: 1311.2 lumens
Efficiency: N/A
Efficacy: 117.1 lumens/watt
Spacing Criteria (0/90/45): 1.35 / 1.22 / 1.45
Luminous Opening: Rectangular (W 3.88' x L: 0.31' x H: 0')
CIE Type: Direct

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: P243518

CATALOG NUMBER: S124DRP-H350D940-X4F0-XX-UDD-A-W

Luminous Intensity Polar Plot



TEST NUMBER: P243518

CATALOG NUMBER: S124DRP-H350D940-X4F0-XX-UDD-A-W

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°	4065	4065	4065	4065	4065
5°	4784	4510	4075	3684	3598
10°	5685	5100	4057	3424	3313
15°	6658	5719	4021	3236	3068
20°	7497	6286	3974	3074	2910
25°	7781	6801	3921	2900	2738
30°	7066	7153	3854	2770	2678
35°	5764	7183	3763	2678	2662
40°	4514	6799	3645	2614	2672
45°	3778	6131	3498	2556	2722
50°	3241	5361	3294	2499	2803
55°	2962	4646	3072	2456	2938
60°	2715	4032	2844	2416	3045
65°	2488	3494	2602	2337	3163
70°	2290	3062	2347	2261	3259
75°	2040	2634	2064	2109	3256
80°	1699	2140	1689	1950	3251
85°	1295	1601	1275	1754	3049

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 50°
 Vertical Angle: 45°
 Luminance: 6407 cd/sqm



TEST NUMBER: P243518

CATALOG NUMBER: S124DRP-H350D940-X4F0-XX-UDD-A-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	44.5	3.4
10°-20°	137.9	10.5
20°-30°	221.5	16.9
30°-40°	253.2	19.3
40°-50°	233.0	17.8
50°-60°	190.6	14.5
60°-70°	135.9	10.4
70°-80°	74.6	5.7
80°-90°	20.1	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°	403.8	30.8
0°-40°	657.0	50.1
0°-60°	1080.7	82.4
0°-90°	1311.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1311.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	457	457	457	457	457	
5°	536	505	457	413	403	54
15°	724	622	437	352	333	206
25°	793	693	400	296	279	356
35°	531	662	347	247	245	330
45°	300	488	278	203	216	235
55°	191	300	198	158	190	171
65°	118	166	124	111	150	118
75°	59	77	60	61	95	63
85°	13	16	12	17	30	15
90°	0	0	0	0	0	



TEST NUMBER: P243518

CATALOG NUMBER: S124DRP-H350D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	457.3	457.3	457.3	457.3	457.3	457.3	457.3	457.3	457.3	457.3	457.3
2.5°	492.4	490.9	490.1	489.2	489.0	488.1	486.2	483.6	480.2	476.7	476.7
5°	536.1	535.7	532.9	533.1	529.5	525.6	522.6	518.9	511.6	505.4	501.2
7.5°	577.9	581.8	580.9	577.9	572.6	567.0	561.1	555.8	542.4	534.9	528.8
10°	629.8	631.2	628.6	624.3	619.7	608.8	601.0	592.2	577.7	565.0	553.8
12.5°	675.3	678.8	674.2	670.1	659.1	651.0	643.2	625.6	610.3	594.3	578.1
15°	723.5	719.7	722.1	712.1	704.2	696.6	676.6	658.7	641.3	621.5	604.6
17.5°	765.3	765.3	760.8	754.2	746.0	731.7	711.7	691.9	672.7	646.7	622.7
20°	792.5	794.6	789.3	782.4	772.5	757.6	741.7	720.3	694.7	664.5	637.2
22.5°	805.6	806.0	804.1	798.3	790.3	777.6	761.3	740.4	713.4	680.9	652.3
25°	793.3	795.3	794.8	794.4	790.3	783.0	769.9	750.5	725.9	693.4	662.6
27.5°	750.0	755.0	759.3	761.2	765.6	766.0	762.1	750.3	730.2	699.6	665.2
30°	688.4	685.7	697.3	703.1	718.4	727.6	734.1	733.3	721.8	696.9	664.3
32.5°	606.2	613.3	621.5	635.2	653.3	674.6	690.6	702.5	701.4	685.2	657.9
35°	531.2	531.2	541.7	558.5	577.7	603.3	630.1	652.3	666.0	661.9	642.6
37.5°	449.8	454.9	466.8	479.9	503.4	528.0	563.5	593.0	621.5	630.1	620.2
40°	389.0	391.2	403.9	414.9	439.0	464.6	494.2	532.0	564.8	585.9	587.2
42.5°	343.8	343.6	348.8	358.7	378.2	400.9	433.0	470.0	508.4	538.3	552.3
45°	300.5	300.1	305.5	315.6	329.4	349.6	377.4	414.4	453.7	487.7	509.7
47.5°	263.9	267.3	269.7	277.5	288.9	306.1	330.0	359.5	397.4	435.5	465.1
50°	234.4	235.9	241.2	244.9	257.6	269.5	288.7	315.3	347.7	387.7	419.8
52.5°	210.9	211.8	215.0	219.9	227.2	237.6	252.9	277.4	306.7	341.4	374.6
55°	191.1	190.6	192.6	195.8	202.1	210.9	222.1	240.8	266.3	299.8	330.4
57.5°	171.7	171.7	173.6	175.8	179.4	186.6	197.7	212.4	232.9	262.6	289.7
60°	152.7	154.0	154.7	157.0	160.0	165.4	173.6	185.2	202.5	226.8	253.7
62.5°	135.9	135.9	137.2	137.9	141.9	145.8	151.7	161.6	175.3	196.9	217.8
65°	118.3	119.5	119.5	120.9	124.3	127.3	132.0	139.4	150.6	166.1	185.7
67.5°	103.4	103.4	104.3	105.1	106.9	109.0	113.1	118.9	128.4	140.7	158.5
70°	88.1	88.7	88.3	89.2	90.3	92.4	95.4	100.2	107.1	117.8	130.8
72.5°	74.3	73.5	73.9	74.8	75.4	76.7	78.6	82.3	87.9	96.5	106.0
75°	59.4	59.0	60.3	59.9	60.8	62.0	63.6	66.4	70.7	76.7	84.0
77.5°	46.3	45.7	46.3	46.7	47.0	48.0	49.3	51.0	53.9	57.9	64.4
80°	33.2	33.0	33.4	33.8	34.0	35.5	35.8	37.5	38.8	41.8	45.0
82.5°	22.0	22.4	22.6	23.0	22.8	23.5	23.9	25.0	26.1	27.6	30.1
85°	12.7	12.1	12.7	12.7	12.7	13.6	13.4	14.2	14.9	15.7	17.4
87.5°	4.5	4.5	4.7	4.9	4.9	5.4	5.2	5.6	6.3	6.3	6.9
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: P243518

CATALOG NUMBER: S124DRP-H350D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	457.3	457.3	457.3	457.3	457.3	457.3	457.3	457.3	457.3	457.3	457.3
2.5°	475.6	473.5	472.0	467.7	465.1	462.7	460.5	458.0	455.4	452.1	450.0
5°	496.7	492.2	485.7	479.7	473.0	467.0	462.1	456.7	450.8	444.6	439.2
7.5°	520.0	511.6	501.5	490.5	480.1	471.3	462.1	453.6	445.2	436.9	429.3
10°	543.3	528.8	515.5	500.4	486.6	473.3	461.4	449.5	439.0	428.2	418.5
12.5°	565.0	547.4	528.0	509.2	490.7	473.5	458.8	444.2	430.8	417.9	406.5
15°	581.6	559.6	536.6	514.2	492.9	475.0	455.8	436.9	422.9	407.3	394.8
17.5°	600.6	574.5	551.7	524.9	498.4	469.4	449.1	428.5	411.7	396.6	384.1
20°	613.3	584.6	551.7	521.3	494.1	468.1	443.7	420.1	402.4	384.9	369.8
22.5°	623.4	593.7	557.5	525.8	491.6	460.3	433.8	410.6	389.7	373.1	358.7
25°	628.6	592.4	557.9	519.4	485.3	455.2	425.4	399.8	378.7	360.2	347.9
27.5°	628.8	591.7	550.8	512.7	476.1	443.7	414.2	389.0	365.3	347.5	332.8
30°	627.9	586.8	543.7	502.1	465.7	432.5	401.7	375.5	353.9	335.0	321.0
32.5°	621.9	580.1	533.1	489.4	449.8	416.4	388.0	362.1	339.0	321.8	307.0
35°	608.5	565.4	518.1	473.2	435.6	400.9	372.9	346.8	326.1	307.4	292.3
37.5°	591.3	551.0	503.0	456.0	415.5	382.6	356.3	331.7	310.0	292.9	277.7
40°	569.7	531.8	484.5	435.6	395.1	361.9	337.1	314.1	295.7	278.1	263.4
42.5°	540.0	510.9	462.3	414.7	372.4	341.0	316.9	297.9	278.9	263.0	248.2
45°	508.2	481.7	438.6	391.4	350.7	318.4	295.8	278.3	262.1	246.0	234.1
47.5°	473.2	451.5	411.6	365.5	325.3	296.8	274.6	258.9	244.0	231.6	219.7
50°	431.3	420.0	382.6	340.8	301.8	272.5	254.2	238.2	227.2	215.2	204.0
52.5°	392.5	383.4	353.0	311.9	276.4	250.7	231.1	218.4	207.6	198.8	189.8
55°	350.3	345.7	319.9	284.5	252.3	226.6	209.8	198.2	189.6	181.4	174.9
57.5°	311.5	311.1	288.4	257.9	226.6	204.8	188.7	179.2	171.7	165.9	160.3
60°	271.8	274.9	256.3	228.5	203.6	183.1	168.5	160.0	154.9	149.5	144.8
62.5°	235.7	240.6	223.6	201.8	177.3	160.5	149.3	142.8	137.2	133.3	129.7
65°	201.2	207.4	193.6	174.0	155.3	139.4	129.9	123.7	119.5	117.2	114.8
67.5°	170.8	174.1	164.8	149.5	134.0	120.2	112.4	106.9	103.2	102.3	99.5
70°	140.4	144.3	137.7	123.7	111.8	101.7	94.6	90.3	88.1	86.8	84.9
72.5°	115.9	117.6	111.1	101.4	91.8	83.4	78.2	75.0	72.4	71.9	70.9
75°	90.7	93.1	87.9	80.4	72.6	66.6	62.7	60.1	58.8	57.9	57.9
77.5°	68.5	70.6	67.6	61.0	56.4	51.1	48.5	46.1	45.5	44.6	45.0
80°	48.7	49.6	48.0	43.5	39.4	36.6	34.3	33.0	32.9	32.1	32.9
82.5°	32.3	32.5	30.6	28.6	25.4	23.9	22.4	21.8	21.7	21.7	21.3
85°	17.9	18.3	17.0	15.7	14.6	13.3	12.9	12.5	12.1	12.7	13.1
87.5°	6.9	7.1	6.9	6.3	6.0	5.6	5.4	5.8	5.2	5.6	5.8
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: P243518

CATALOG NUMBER: S124DRP-H350D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	457.3	457.3	457.3	457.3	457.3	457.3	457.3	457.3	457.3	457.3	457.3
2.5°	446.8	445.3	443.1	439.4	436.8	434.0	432.8	433.2	432.1	430.6	431.0
5°	435.1	430.8	427.1	421.8	417.0	412.9	411.6	409.9	408.4	407.5	406.5
7.5°	422.6	416.6	411.0	405.8	400.2	394.9	392.9	391.4	390.7	388.0	386.9
10°	410.6	403.7	397.0	390.8	385.1	379.3	377.2	375.4	372.7	371.6	370.3
12.5°	397.9	391.0	383.8	376.3	370.5	365.8	362.3	361.0	358.4	357.2	356.5
15°	385.6	377.2	371.4	365.6	356.9	351.6	350.2	345.5	344.0	341.8	340.3
17.5°	373.3	365.5	356.9	350.2	344.7	338.2	334.7	332.6	329.8	327.8	325.0
20°	361.2	352.0	345.3	336.9	330.9	325.0	320.5	318.6	316.2	313.4	309.5
22.5°	349.4	339.3	332.8	325.0	317.5	310.6	306.9	304.2	299.4	298.8	295.3
25°	335.6	326.6	318.1	309.8	302.6	295.7	293.2	289.1	287.4	284.1	283.5
27.5°	322.5	313.0	303.7	294.7	288.4	283.5	279.2	276.6	274.9	272.3	272.5
30°	308.9	298.5	289.7	281.5	274.6	269.9	267.1	265.8	263.4	263.0	261.7
32.5°	294.3	284.8	275.7	268.4	261.3	257.2	255.9	254.6	253.1	253.3	252.9
35°	279.8	271.4	261.7	255.0	249.2	246.8	244.7	244.3	243.8	244.1	244.1
37.5°	265.6	256.5	248.4	242.3	238.9	235.6	234.6	234.4	234.6	235.0	235.9
40°	251.8	243.4	235.6	230.5	226.8	225.3	224.0	224.5	225.3	226.6	227.7
42.5°	238.0	230.0	223.4	218.4	214.8	214.1	214.3	215.4	215.6	217.4	219.5
45°	223.4	216.5	210.4	206.4	204.2	203.3	203.6	204.8	206.1	208.7	211.3
47.5°	210.0	203.8	198.4	194.5	192.8	192.4	193.2	194.7	197.7	200.3	203.3
50°	196.4	190.8	185.7	182.2	182.0	180.7	182.4	184.2	187.8	191.3	195.8
52.5°	182.9	177.5	173.2	170.4	169.7	169.7	171.7	175.1	178.2	182.9	187.0
55°	168.9	164.1	160.0	159.0	157.9	158.5	160.7	164.1	168.5	173.8	178.2
57.5°	154.5	150.4	147.5	146.1	145.6	147.5	150.1	153.6	159.4	164.6	169.5
60°	140.9	137.4	134.2	133.8	133.5	135.9	139.1	142.8	148.6	153.8	159.8
62.5°	126.4	123.6	121.5	120.9	120.9	123.4	126.9	131.8	137.2	142.8	149.1
65°	111.6	109.2	108.6	107.9	109.6	111.1	114.6	119.3	125.1	131.2	137.9
67.5°	98.0	96.5	95.4	95.4	96.7	99.5	102.7	107.3	113.3	119.8	125.8
70°	84.4	82.9	81.9	82.9	83.6	87.0	90.3	94.8	100.4	106.8	113.1
72.5°	70.2	70.4	70.6	70.4	71.1	74.3	77.6	81.9	87.4	93.5	99.3
75°	57.7	56.7	56.9	57.3	59.7	61.4	64.8	68.9	74.7	80.3	85.1
77.5°	44.8	44.4	45.4	45.4	47.6	49.6	52.4	56.6	61.6	66.6	70.6
80°	32.9	33.0	33.8	34.0	35.8	38.1	41.1	43.9	48.3	51.9	55.6
82.5°	22.2	22.6	23.5	24.8	25.6	26.9	29.5	32.5	35.6	39.4	41.6
85°	12.9	13.4	14.2	15.1	15.9	17.2	19.0	21.5	23.7	25.8	27.6
87.5°	6.3	6.3	6.9	7.3	7.8	8.6	9.9	10.8	12.3	13.8	14.6
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: P243518

CATALOG NUMBER: S124DRP-H350D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	457.3	457.3	457.3	457.3
2.5°	430.2	430.0	429.3	429.7
5°	406.0	404.1	403.9	403.2
7.5°	385.1	384.5	384.5	383.0
10°	369.0	367.3	367.7	367.0
12.5°	353.7	352.8	351.6	350.5
15°	336.5	336.5	336.5	333.4
17.5°	323.1	322.9	322.0	321.8
20°	309.1	308.3	305.9	307.6
22.5°	294.9	294.3	292.3	292.7
25°	281.7	281.1	280.7	279.2
27.5°	270.3	270.5	270.8	269.9
30°	261.7	261.1	261.9	260.9
32.5°	253.7	253.7	252.9	253.1
35°	244.5	245.3	245.4	245.3
37.5°	236.5	237.4	238.2	237.4
40°	229.0	229.8	230.5	230.3
42.5°	221.2	222.5	223.0	223.6
45°	213.7	215.4	216.3	216.5
47.5°	206.1	208.1	210.0	209.8
50°	198.6	201.2	202.9	202.7
52.5°	191.1	193.7	195.8	196.7
55°	182.7	186.1	188.0	189.6
57.5°	174.3	178.1	179.9	180.7
60°	165.0	168.4	170.8	171.3
62.5°	154.5	158.1	161.3	162.0
65°	143.7	147.6	150.1	150.4
67.5°	131.2	134.9	137.4	138.5
70°	118.3	121.1	123.7	125.4
72.5°	104.0	107.3	109.7	110.9
75°	89.0	92.8	94.1	94.8
77.5°	73.5	75.8	77.8	78.0
80°	58.0	60.8	61.6	63.5
82.5°	42.7	45.4	44.8	45.5
85°	28.2	29.1	29.7	29.9
87.5°	14.9	15.5	15.9	16.1
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P243518
 CATALOG NUMBER: S124DRP-H350D940-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	15.44	17.01	15.81	17.33	17.64	15.73	17.30	16.09	17.61	17.93
	3H	16.88	18.30	17.26	18.62	18.99	17.11	18.53	17.49	18.86	19.22
	4H	17.40	18.73	17.80	19.08	19.46	17.60	18.93	18.00	19.28	19.65
	6H	17.75	18.98	18.16	19.34	19.74	17.91	19.14	18.33	19.51	19.90
	8H	17.84	19.02	18.27	19.41	19.81	18.00	19.17	18.42	19.56	19.96
	12H	17.89	19.02	18.32	19.40	19.83	18.04	19.17	18.47	19.55	19.98
4H	2H	16.58	17.91	16.98	18.26	18.63	16.52	17.85	16.92	18.20	18.57
	3H	18.08	19.19	18.49	19.59	19.99	18.22	19.34	18.63	19.73	20.13
	4H	18.65	19.65	19.08	20.07	20.51	18.82	19.82	19.25	20.23	20.67
	6H	19.07	19.94	19.52	20.38	20.84	19.22	20.09	19.67	20.53	20.99
	8H	19.18	20.00	19.65	20.44	20.91	19.32	20.14	19.79	20.58	21.05
	12H	19.26	19.99	19.74	20.47	20.94	19.39	20.12	19.87	20.60	21.07
8H	4H	19.08	19.90	19.54	20.34	20.81	19.16	19.97	19.62	20.42	20.88
	6H	19.58	20.25	20.07	20.74	21.22	19.69	20.37	20.18	20.86	21.33
	8H	19.74	20.35	20.25	20.86	21.34	19.85	20.46	20.36	20.97	21.46
	12H	19.86	20.39	20.37	20.89	21.45	19.97	20.51	20.48	21.00	21.56
12H	4H	19.12	19.85	19.60	20.33	20.80	19.19	19.92	19.67	20.40	20.87
	6H	19.64	20.25	20.16	20.76	21.25	19.75	20.36	20.26	20.87	21.35
	8H	19.86	20.39	20.36	20.89	21.45	19.97	20.51	20.48	21.00	21.57