

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: P243606

Luminaire Tested: S124RDRP-H350D840-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P243606
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-70)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S124RDRP-H350D840-X4F0-XX-UDD-A-W
Description: DEFINE 4 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

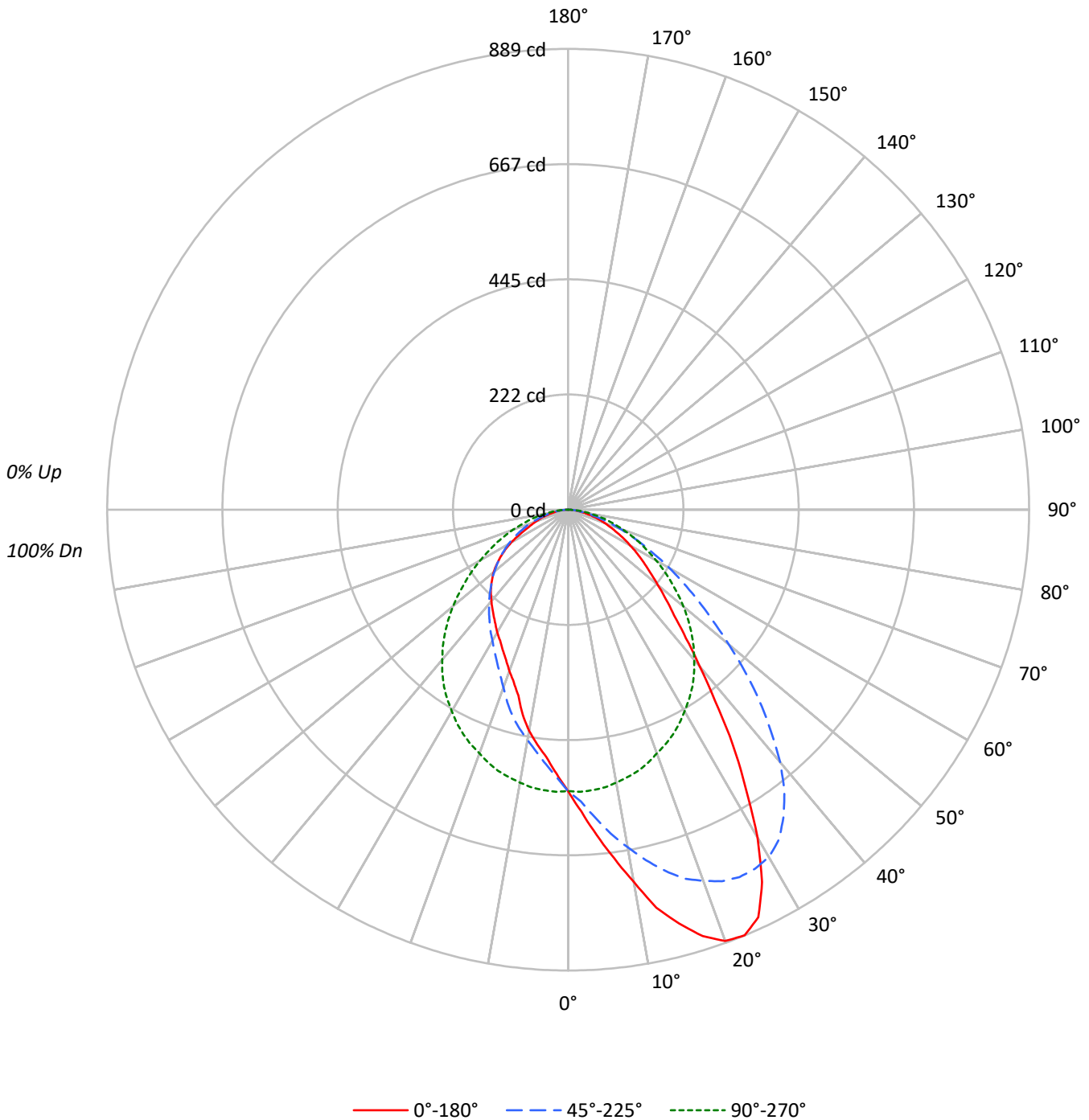
Lumens per Lamp: N/A
Luminaire Lumens: 1401.0 lumens
Efficiency: N/A
Efficacy: 125.1 lumens/watt
Spacing Criteria (0/90/45): 1.27 / 1.23 / 1.39
Luminous Opening: Rectangular (W 3.88' x L: 0.31' x H: 0')
CIE Type: Direct

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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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	110	105	102	98	107	103	100	97	99	96	93	95	93	91	92	90	88					86				
2	101	93	87	82	98	91	86	81	88	83	79	85	81	77	82	78	75					73				
3	92	83	75	69	90	81	74	68	78	72	67	76	70	66	73	69	65					63				
4	85	74	66	59	83	73	65	59	70	63	58	68	62	57	66	61	57					55				
5	79	66	58	52	77	65	57	51	63	56	51	61	55	50	60	54	50					48				
6	73	60	52	46	71	59	51	45	58	50	45	56	50	45	54	49	44					42				
7	68	55	46	41	66	54	46	40	53	45	40	51	45	40	50	44	40					38				
8	63	50	42	36	62	50	42	36	48	41	36	47	41	36	46	40	36					34				
9	59	46	38	33	58	46	38	33	45	38	33	43	37	33	42	37	32					31				
10	56	43	35	30	54	42	35	30	41	35	30	40	34	30	39	34	30					28				

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	4825	4825	4825	4825	4825
5°	5621	5317	4845	4398	4278
10°	6583	5970	4825	4070	3911
15°	7606	6637	4801	3802	3416
20°	8374	7208	4733	3454	3131
25°	8508	7669	4689	3187	2928
30°	7490	7941	4606	2998	2807
35°	6009	7852	4528	2865	2716
40°	4572	7375	4383	2750	2673
45°	3629	6553	4223	2655	2641
50°	3116	5585	4013	2569	2596
55°	2752	4744	3753	2480	2470
60°	2466	4009	3483	2368	2263
65°	2171	3298	3218	2204	1903
70°	1934	2718	2924	2022	1715
75°	1683	2133	2658	1779	1525
80°	1428	1633	2283	1505	1408
85°	1254	1336	1958	1469	1428

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 55°
 Vertical Angle: 45°
 Luminance: 7052 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	52.7	3.8
10°-20°	159.7	11.4
20°-30°	249.3	17.8
30°-40°	278.0	19.8
40°-50°	249.9	17.8
50°-60°	197.4	14.1
60°-70°	131.1	9.4
70°-80°	65.7	4.7
80°-90°	17.1	1.2
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°	461.7	33.0
0°-40°	739.7	52.8
0°-60°	1187.0	84.7
0°-90°	1401.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1401.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	543	543	543	543	543	
5°	630	596	543	493	479	63
15°	826	721	522	413	371	235
25°	868	782	478	325	298	388
35°	554	724	417	264	250	344
45°	289	521	336	211	210	229
55°	178	306	242	160	159	160
65°	103	157	153	105	90	103
75°	49	62	77	52	44	52
85°	12	13	19	14	14	14
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°	542.8	542.8	542.8	542.8	542.8	542.8	542.8	542.8	542.8	542.8	542.8
2.5°	583.0	580.9	580.7	577.9	577.7	575.0	574.1	571.8	567.1	563.5	563.8
5°	629.9	628.2	628.0	625.3	624.4	621.0	615.8	609.4	602.0	595.9	591.9
7.5°	678.1	681.1	677.9	677.9	671.8	667.8	657.4	652.1	639.4	630.5	621.2
10°	729.3	732.0	730.7	728.2	720.2	711.9	701.1	690.8	675.4	661.4	652.1
12.5°	786.3	778.1	783.4	775.6	769.0	755.9	745.5	724.8	712.6	692.3	674.1
15°	826.5	823.3	823.1	817.8	810.6	796.3	785.1	763.5	742.6	721.2	700.7
17.5°	862.4	862.9	859.9	851.4	842.1	828.2	813.0	793.7	769.8	746.2	721.9
20°	885.3	885.5	883.4	878.9	868.8	856.1	840.4	815.3	788.2	762.0	737.7
22.5°	888.6	889.3	888.6	885.9	878.9	868.6	854.2	832.8	805.6	775.6	746.6
25°	867.5	869.6	869.8	873.6	870.0	866.0	855.5	837.5	812.3	781.9	750.4
27.5°	809.6	815.5	821.0	827.8	833.9	839.4	840.2	830.7	809.2	780.8	750.8
30°	729.7	736.7	747.7	754.8	773.9	785.9	802.2	805.8	795.4	773.7	744.7
32.5°	636.7	644.1	648.3	672.0	699.2	718.9	746.0	762.0	766.0	755.7	732.0
35°	553.8	555.1	558.3	585.1	612.2	642.0	675.6	703.5	722.5	723.6	711.9
37.5°	465.0	466.5	479.0	499.5	523.0	555.7	594.4	634.1	669.0	685.1	681.7
40°	394.0	393.6	406.9	424.7	447.5	481.5	521.5	564.8	602.0	635.6	643.7
42.5°	336.5	338.0	349.4	359.8	381.8	405.6	448.3	493.4	541.1	577.9	602.4
45°	288.7	292.6	300.4	310.1	326.6	348.6	383.4	428.3	477.1	521.3	550.6
47.5°	255.8	256.8	260.8	272.9	283.9	301.6	331.4	369.5	412.8	462.3	501.0
50°	225.3	227.9	229.3	236.5	247.3	264.2	287.3	315.6	358.5	403.9	452.4
52.5°	199.1	200.6	203.3	209.9	218.4	230.2	248.4	273.3	309.0	351.1	396.8
55°	177.6	177.8	180.5	185.2	191.7	200.8	218.1	236.1	267.8	306.1	347.5
57.5°	158.1	156.8	159.4	162.1	168.5	176.3	187.5	205.9	230.6	263.2	300.6
60°	138.7	139.7	139.5	142.7	146.1	153.9	163.4	175.4	195.7	225.5	257.3
62.5°	120.5	120.3	122.4	124.3	126.6	133.0	140.8	150.7	166.6	188.6	219.2
65°	103.2	103.6	105.3	106.7	109.3	113.3	119.2	127.3	139.9	156.8	182.6
67.5°	87.5	89.0	89.8	90.3	92.6	95.5	100.6	107.2	115.8	129.4	150.9
70°	74.4	74.8	75.3	76.7	77.8	79.5	83.3	86.9	94.7	104.6	120.3
72.5°	62.1	61.7	63.0	63.4	63.8	65.5	67.9	69.8	74.8	83.3	93.0
75°	49.0	49.3	49.5	50.1	51.8	52.0	53.1	55.2	58.8	62.1	68.7
77.5°	36.8	37.4	37.2	37.8	38.5	39.1	39.5	41.4	44.0	46.7	49.9
80°	27.9	27.9	27.9	28.3	27.9	29.4	29.4	30.0	30.7	31.9	34.2
82.5°	19.0	19.4	19.7	19.9	20.1	20.1	20.3	20.7	21.6	22.0	22.6
85°	12.3	11.8	12.0	12.0	12.0	12.0	12.5	12.9	12.9	13.1	13.7
87.5°	5.5	5.5	5.5	5.5	5.3	5.5	5.7	5.7	5.9	5.9	6.3
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°	542.8	542.8	542.8	542.8	542.8	542.8	542.8	542.8	542.8	542.8	542.8
2.5°	562.5	561.8	558.7	555.3	552.1	549.0	547.9	544.7	540.9	537.5	533.7
5°	587.6	582.6	575.6	568.4	561.0	554.2	549.0	543.0	536.3	528.2	521.9
7.5°	613.0	603.7	592.3	581.7	569.0	558.9	548.7	540.3	530.6	519.2	510.5
10°	637.7	622.3	608.4	591.7	575.6	561.6	548.7	534.6	521.7	509.4	497.4
12.5°	657.4	642.0	621.9	601.4	580.7	562.5	545.2	528.5	512.4	497.6	484.3
15°	679.8	657.6	632.9	610.3	581.9	559.5	539.7	521.7	503.3	485.3	470.7
17.5°	696.3	670.1	639.4	613.4	586.2	558.3	534.4	511.8	490.6	471.8	456.8
20°	709.0	677.9	647.2	614.3	581.7	553.2	526.3	500.3	479.0	458.5	442.6
22.5°	714.5	681.7	647.7	611.9	577.3	544.9	517.0	490.2	466.1	445.0	426.6
25°	716.8	680.9	645.6	605.0	569.9	536.9	505.8	478.1	453.4	429.5	411.3
27.5°	714.9	676.4	635.8	597.6	557.8	525.5	492.5	464.4	438.6	415.6	395.3
30°	709.8	666.3	625.9	583.0	544.7	510.7	478.6	448.8	422.8	399.3	379.2
32.5°	696.7	654.9	609.0	567.1	525.9	492.3	463.1	433.8	407.3	382.8	363.4
35°	680.4	639.4	591.4	547.7	506.9	472.9	443.5	417.3	391.3	365.3	345.4
37.5°	659.9	618.3	572.0	524.9	484.9	451.9	425.1	398.7	372.9	349.0	326.8
40°	632.2	594.2	547.7	500.3	460.2	428.5	402.0	377.7	354.9	331.4	307.6
42.5°	597.8	568.8	520.8	474.1	434.8	403.3	379.9	358.1	336.1	312.0	290.4
45°	561.0	536.3	492.7	445.6	408.2	377.5	355.1	335.9	315.2	293.8	271.2
47.5°	519.6	501.2	463.6	416.8	377.5	351.3	330.6	313.1	294.2	275.2	253.2
50°	472.9	461.7	429.5	387.0	349.6	323.0	305.9	290.2	274.2	255.1	236.3
52.5°	426.1	424.0	394.0	356.6	321.3	296.6	279.9	265.5	252.4	234.4	218.6
55°	377.1	383.4	358.5	324.0	292.6	268.7	253.9	242.2	230.8	215.6	200.4
57.5°	333.6	340.7	323.6	291.9	262.5	242.2	229.6	219.0	209.1	195.1	185.0
60°	285.4	298.5	289.4	260.4	234.4	216.2	204.4	195.9	187.7	175.7	166.8
62.5°	247.3	256.4	251.1	229.6	206.5	191.7	181.2	173.3	166.8	157.5	148.8
65°	206.5	217.9	215.2	201.0	180.7	167.2	159.2	153.0	146.3	138.9	131.7
67.5°	169.7	181.6	180.9	171.2	156.2	145.0	137.4	133.0	127.5	120.3	115.8
70°	136.6	147.5	148.0	143.1	132.5	122.0	116.5	112.5	108.2	102.9	99.8
72.5°	106.1	116.0	117.7	115.4	108.6	101.7	96.8	94.1	90.5	86.0	83.3
75°	79.3	86.5	90.5	89.4	86.7	82.0	79.3	77.4	73.8	70.6	68.3
77.5°	56.4	62.1	66.2	67.9	66.6	64.7	62.1	60.7	56.9	55.4	54.1
80°	37.8	42.9	46.5	47.6	48.2	47.8	45.4	44.6	42.7	42.1	40.8
82.5°	23.3	26.0	28.5	31.3	32.6	32.6	31.3	31.5	29.8	29.0	28.5
85°	14.2	14.8	15.2	17.3	19.0	19.7	19.0	19.2	18.6	18.0	17.3
87.5°	6.6	6.6	6.8	7.2	7.6	8.9	9.3	9.9	9.1	9.1	7.6
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°	542.8	542.8	542.8	542.8	542.8	542.8	542.8	542.8	542.8	542.8	542.8
2.5°	531.4	528.7	526.5	523.2	520.4	516.0	514.5	514.5	515.3	514.3	515.3
5°	517.5	512.4	506.9	502.0	496.7	492.9	489.1	488.3	487.9	485.3	485.5
7.5°	503.5	496.7	489.8	483.4	476.9	471.0	466.9	465.2	463.8	462.1	460.2
10°	488.5	480.7	472.4	465.2	458.9	450.9	446.9	445.6	441.4	440.5	437.6
12.5°	472.6	464.6	456.4	447.1	440.9	433.1	427.2	424.5	420.4	417.5	413.0
15°	460.2	450.0	439.0	429.9	421.9	413.2	405.2	399.9	394.6	386.4	382.4
17.5°	444.7	433.1	423.6	413.9	402.3	389.6	380.1	372.2	366.5	359.8	355.8
20°	428.0	417.3	405.4	391.7	379.4	365.1	356.4	349.8	345.4	341.4	339.3
22.5°	413.2	400.8	384.5	371.4	354.3	342.9	335.9	331.7	327.4	323.2	321.1
25°	397.2	382.6	362.7	346.7	333.8	324.9	318.1	314.1	309.7	307.1	304.0
27.5°	381.3	362.5	342.6	328.1	317.9	307.6	301.9	298.7	295.3	291.7	289.2
30°	362.1	340.7	324.3	310.9	300.8	292.1	287.9	283.2	280.3	278.2	276.7
32.5°	342.0	321.5	306.5	295.1	285.2	278.6	273.3	270.4	267.8	265.5	263.8
35°	323.2	303.3	290.6	279.7	271.4	264.0	260.0	257.3	255.1	253.2	252.4
37.5°	304.6	287.7	273.9	265.3	256.6	250.7	246.9	244.4	243.1	241.2	241.4
40°	286.2	271.0	260.0	250.1	242.0	237.0	234.0	232.9	231.0	230.4	231.0
42.5°	269.7	255.8	245.2	235.9	228.9	224.1	221.7	220.3	219.6	219.4	219.6
45°	253.7	240.6	230.4	222.8	215.6	211.2	209.3	208.2	207.6	208.6	208.8
47.5°	237.6	225.8	216.7	207.8	201.9	198.7	196.8	195.9	196.6	197.0	198.5
50°	221.7	210.7	201.2	193.4	188.8	185.8	185.2	183.7	184.7	185.4	186.4
52.5°	205.7	195.7	187.3	179.9	175.0	173.1	171.6	171.0	172.5	172.5	173.5
55°	189.4	180.7	172.9	166.1	162.3	160.0	159.0	158.1	159.0	159.2	159.0
57.5°	174.2	165.9	157.7	152.0	148.8	146.3	145.2	144.8	144.6	145.4	145.2
60°	158.1	150.3	143.7	137.8	134.6	133.2	130.8	131.3	131.3	131.3	129.2
62.5°	142.0	134.2	128.5	124.5	120.7	118.2	117.7	117.1	115.8	115.6	112.9
65°	125.6	119.6	114.8	110.8	107.0	104.8	104.2	102.3	100.8	98.1	96.2
67.5°	110.3	106.1	100.4	97.0	93.9	91.3	89.0	87.5	84.6	81.8	80.1
70°	95.1	90.7	86.9	83.3	80.1	77.8	75.0	72.3	70.4	68.7	67.4
72.5°	79.9	76.1	72.9	69.5	66.2	63.8	61.7	59.6	58.8	57.9	57.3
75°	65.7	62.1	59.2	56.4	54.5	51.8	50.7	49.9	49.0	48.0	46.7
77.5°	52.0	49.3	46.9	44.6	42.9	41.4	40.6	38.0	35.9	35.5	35.1
80°	38.7	36.6	35.1	33.4	31.5	29.4	28.7	27.9	27.5	27.5	27.7
82.5°	27.1	25.8	24.1	22.6	22.0	21.1	21.1	20.9	20.7	20.9	20.9
85°	16.5	14.8	14.4	14.2	14.4	14.4	14.4	14.4	14.2	14.4	14.0
87.5°	7.2	7.8	8.0	7.4	7.6	7.2	7.4	7.4	7.4	7.6	7.4
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: P243606

CATALOG NUMBER: S124RDRP-H350D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	542.8	542.8	542.8	542.8
2.5°	514.1	514.1	512.0	510.3
5°	485.1	482.4	481.9	479.4
7.5°	458.1	457.6	456.6	456.6
10°	436.5	435.0	433.5	433.3
12.5°	406.1	408.2	405.6	405.0
15°	379.4	377.7	375.6	371.2
17.5°	354.7	351.5	350.7	348.8
20°	335.2	332.9	332.1	331.0
22.5°	316.9	316.4	313.9	313.3
25°	303.3	301.2	299.5	298.5
27.5°	288.5	287.1	286.2	284.5
30°	275.0	274.6	273.5	273.5
32.5°	262.7	261.5	261.5	261.3
35°	251.5	252.0	250.7	250.3
37.5°	241.0	240.3	240.6	240.1
40°	230.6	230.2	230.2	230.4
42.5°	220.0	220.3	220.7	220.7
45°	209.5	209.7	210.1	210.1
47.5°	199.5	199.1	199.5	199.1
50°	186.9	188.1	187.9	187.7
52.5°	174.0	173.5	174.4	174.2
55°	160.0	159.4	160.2	159.4
57.5°	144.4	144.6	144.6	144.2
60°	128.7	128.1	127.3	127.3
62.5°	110.6	108.6	107.4	108.2
65°	93.0	91.5	91.1	90.5
67.5°	79.1	77.4	76.7	76.5
70°	67.0	66.2	66.0	66.0
72.5°	56.9	56.9	56.2	55.8
75°	46.3	45.4	44.4	44.4
77.5°	34.7	34.5	34.2	34.2
80°	27.1	27.1	27.3	27.5
82.5°	20.3	20.5	20.7	20.7
85°	13.7	13.7	14.0	14.0
87.5°	7.4	7.4	7.4	7.2
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P243606
 CATALOG NUMBER: S124RDRP-H350D840-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	14.81	16.34	15.17	16.66	16.97	16.50	18.04	16.87	18.35	18.67
	3H	16.04	17.42	16.42	17.75	18.11	17.99	19.36	18.36	19.69	20.05
	4H	16.48	17.77	16.87	18.12	18.49	18.53	19.82	18.93	20.17	20.55
	6H	16.75	17.95	17.17	18.31	18.71	18.92	20.11	19.33	20.48	20.87
	8H	16.84	17.98	17.26	18.37	18.77	19.04	20.17	19.46	20.56	20.96
	12H	16.89	17.98	17.32	18.36	18.79	19.11	20.20	19.54	20.58	21.01
4H	2H	16.02	17.31	16.42	17.66	18.04	17.03	18.32	17.43	18.67	19.05
	3H	17.29	18.36	17.70	18.76	19.16	18.81	19.88	19.22	20.28	20.68
	4H	17.76	18.72	18.19	19.14	19.58	19.47	20.43	19.90	20.85	21.29
	6H	18.09	18.93	18.55	19.37	19.83	19.96	20.80	20.42	21.25	21.71
	8H	18.19	18.98	18.65	19.42	19.89	20.12	20.91	20.58	21.35	21.82
	12H	18.27	18.97	18.75	19.45	19.92	20.23	20.94	20.71	21.41	21.88
8H	4H	18.17	18.95	18.63	19.40	19.86	19.59	20.38	20.06	20.82	21.29
	6H	18.57	19.21	19.06	19.71	20.18	20.19	20.84	20.69	21.33	21.81
	8H	18.71	19.29	19.22	19.80	20.29	20.41	20.99	20.92	21.50	21.99
	12H	18.83	19.35	19.34	19.84	20.40	20.59	21.11	21.10	21.60	22.16
12H	4H	18.21	18.91	18.69	19.39	19.86	19.58	20.29	20.07	20.76	21.24
	6H	18.62	19.20	19.13	19.71	20.20	20.19	20.77	20.70	21.28	21.77
	8H	18.81	19.33	19.32	19.82	20.38	20.45	20.96	20.96	21.45	22.02