

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: P243596

Luminaire Tested: S124RDRP-H350D830-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P243596  
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-H350D830-X4F0-XX-UDD-A-W  
Description: DEFINE 4 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 3000K CCT, 80 CRI LEDS  
Ballast/Driver: -

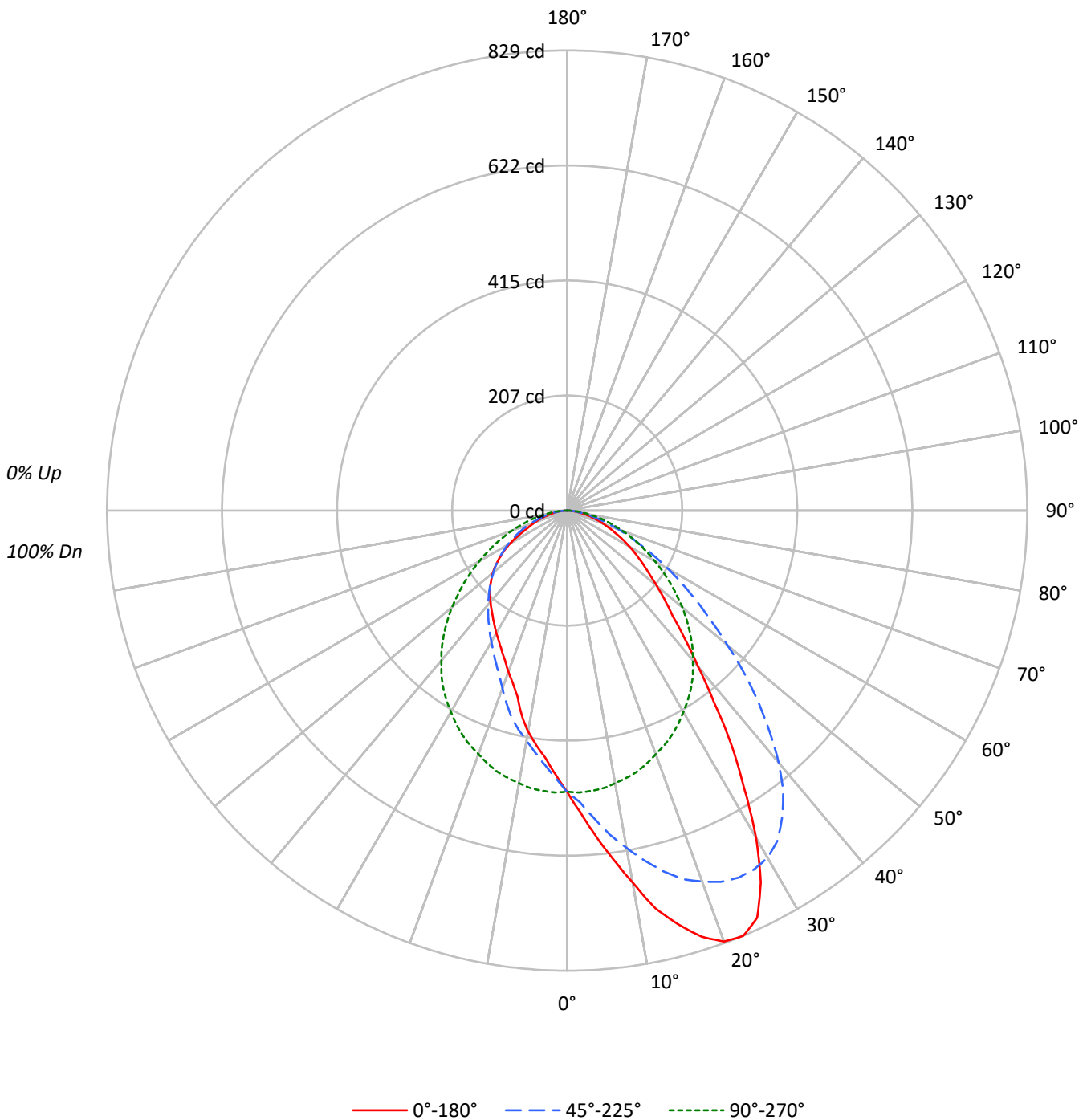
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1307.6 lumens  
Efficiency: N/A  
Efficacy: 116.7 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°	4503	4503	4503	4503	4503
5°	5246	4963	4522	4105	3993
10°	6143	5572	4503	3798	3650
15°	7099	6194	4481	3549	3188
20°	7815	6728	4418	3223	2923
25°	7941	7158	4377	2974	2732
30°	6990	7412	4299	2799	2620
35°	5609	7328	4226	2674	2535
40°	4267	6883	4091	2567	2495
45°	3388	6116	3941	2478	2465
50°	2908	5213	3746	2398	2423
55°	2568	4428	3504	2314	2306
60°	2300	3742	3252	2210	2112
65°	2025	3079	3004	2059	1775
70°	1804	2539	2729	1887	1601
75°	1573	1992	2480	1659	1422
80°	1331	1525	2129	1403	1310
85°	1163	1244	1836	1367	1326

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 55°  
 Vertical Angle: 45°  
 Luminance: 6582 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	49.2	3.8
10°-20°	149.1	11.4
20°-30°	232.7	17.8
30°-40°	259.4	19.8
40°-50°	233.2	17.8
50°-60°	184.3	14.1
60°-70°	122.4	9.4
70°-80°	61.4	4.7
80°-90°	16.0	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°	430.9	33.0
0°-40°	690.3	52.8
0°-60°	1107.8	84.7
0°-90°	1307.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1307.6	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	507	507	507	507	507	
5°	588	556	507	460	448	59
15°	771	673	487	386	346	219
25°	810	730	446	303	279	362
35°	517	675	389	246	234	321
45°	270	486	314	197	196	214
55°	166	286	226	149	149	149
65°	96	146	143	98	84	96
75°	46	58	72	48	41	49
85°	11	12	18	13	13	13
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°	506.6	506.6	506.6	506.6	506.6	506.6	506.6	506.6	506.6	506.6	506.6
2.5°	544.1	542.1	542.0	539.4	539.2	536.6	535.8	533.7	529.3	526.0	526.2
5°	587.9	586.3	586.1	583.6	582.8	579.6	574.7	568.8	561.9	556.2	552.4
7.5°	632.9	635.7	632.7	632.7	627.0	623.2	613.6	608.6	596.8	588.5	579.8
10°	680.6	683.2	682.0	679.7	672.2	664.5	654.4	644.7	630.3	617.3	608.6
12.5°	733.9	726.2	731.2	723.9	717.7	705.5	695.8	676.5	665.1	646.1	629.2
15°	771.4	768.4	768.2	763.3	756.6	743.2	732.7	712.6	693.1	673.1	654.0
17.5°	804.9	805.3	802.6	794.7	786.0	773.0	758.8	740.8	718.5	696.4	673.7
20°	826.2	826.4	824.5	820.3	810.9	799.0	784.4	760.9	735.7	711.2	688.5
22.5°	829.4	830.0	829.4	826.8	820.3	810.7	797.2	777.3	751.9	723.9	696.8
25°	809.7	811.6	811.8	815.4	812.0	808.3	798.4	781.7	758.2	729.8	700.4
27.5°	755.6	761.1	766.3	772.6	778.3	783.4	784.2	775.3	755.2	728.8	700.8
30°	681.0	687.6	697.8	704.5	722.3	733.5	748.7	752.1	742.4	722.1	695.0
32.5°	594.2	601.1	605.1	627.2	652.6	671.0	696.2	711.2	715.0	705.3	683.2
35°	516.9	518.1	521.0	546.1	571.3	599.2	630.5	656.6	674.3	675.3	664.5
37.5°	434.0	435.4	447.1	466.2	488.1	518.7	554.8	591.9	624.4	639.4	636.3
40°	367.7	367.4	379.8	396.4	417.7	449.4	486.7	527.2	561.9	593.2	600.7
42.5°	314.1	315.5	326.1	335.8	356.3	378.6	418.4	460.5	505.1	539.4	562.3
45°	269.5	273.0	280.3	289.4	304.8	325.3	357.9	399.7	445.3	486.5	513.9
47.5°	238.7	239.7	243.5	254.7	265.0	281.5	309.3	344.9	385.3	431.5	467.6
50°	210.3	212.7	214.1	220.8	230.8	246.6	268.1	294.6	334.6	377.0	422.2
52.5°	185.8	187.2	189.8	195.9	203.8	214.8	231.8	255.1	288.4	327.7	370.3
55°	165.7	165.9	168.5	172.8	178.9	187.4	203.6	220.4	250.0	285.7	324.3
57.5°	147.6	146.4	148.8	151.3	157.2	164.5	175.0	192.2	215.2	245.6	280.5
60°	129.4	130.4	130.2	133.2	136.3	143.6	152.5	163.7	182.7	210.5	240.1
62.5°	112.5	112.3	114.2	116.0	118.2	124.1	131.4	140.7	155.5	176.0	204.6
65°	96.3	96.7	98.2	99.6	102.0	105.7	111.3	118.8	130.6	146.4	170.5
67.5°	81.7	83.1	83.8	84.2	86.4	89.2	93.9	100.0	108.1	120.7	140.9
70°	69.4	69.8	70.2	71.6	72.6	74.2	77.7	81.1	88.4	97.7	112.3
72.5°	58.0	57.6	58.8	59.2	59.6	61.2	63.3	65.1	69.8	77.7	86.8
75°	45.8	46.0	46.2	46.8	48.3	48.5	49.5	51.5	54.8	58.0	64.1
77.5°	34.3	34.9	34.7	35.3	35.9	36.5	36.9	38.7	41.0	43.6	46.6
80°	26.0	26.0	26.0	26.4	26.0	27.4	27.4	28.0	28.6	29.8	32.0
82.5°	17.8	18.2	18.3	18.5	18.7	18.7	18.9	19.3	20.1	20.5	21.1
85°	11.4	11.0	11.2	11.2	11.2	11.2	11.6	12.0	12.0	12.2	12.8
87.5°	5.1	5.1	5.1	5.1	4.9	5.1	5.3	5.3	5.5	5.5	5.9
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°	506.6	506.6	506.6	506.6	506.6	506.6	506.6	506.6	506.6	506.6	506.6
2.5°	525.0	524.4	521.4	518.3	515.3	512.4	511.4	508.4	504.9	501.7	498.2
5°	548.5	543.7	537.2	530.5	523.6	517.3	512.4	506.8	500.5	493.0	487.1
7.5°	572.1	563.5	552.8	542.9	531.1	521.6	512.2	504.3	495.2	484.5	476.5
10°	595.2	580.8	567.8	552.2	537.2	524.2	512.2	498.9	486.9	475.5	464.2
12.5°	613.6	599.2	580.4	561.3	542.0	525.0	508.8	493.2	478.2	464.4	452.0
15°	634.5	613.8	590.7	569.6	543.1	522.2	503.7	486.9	469.7	453.0	439.4
17.5°	649.9	625.4	596.8	572.5	547.1	521.0	498.7	477.6	457.9	440.3	426.3
20°	661.7	632.7	604.1	573.3	542.9	516.3	491.2	467.0	447.1	427.9	413.1
22.5°	666.8	636.3	604.5	571.2	538.8	508.6	482.6	457.5	435.0	415.3	398.1
25°	669.0	635.5	602.5	564.6	531.9	501.1	472.1	446.3	423.2	400.9	383.9
27.5°	667.2	631.3	593.4	557.7	520.6	490.5	459.7	433.4	409.4	387.9	368.9
30°	662.5	621.9	584.2	544.1	508.4	476.6	446.7	418.8	394.6	372.7	353.9
32.5°	650.3	611.2	568.4	529.3	490.9	459.5	432.3	404.8	380.2	357.3	339.1
35°	635.1	596.8	552.0	511.2	473.1	441.3	413.9	389.4	365.2	340.9	322.4
37.5°	615.9	577.1	533.9	489.9	452.6	421.8	396.7	372.1	348.0	325.7	305.0
40°	590.1	554.6	511.2	467.0	429.5	399.9	375.2	352.6	331.2	309.3	287.1
42.5°	557.9	530.9	486.1	442.5	405.8	376.4	354.5	334.2	313.7	291.2	271.1
45°	523.6	500.5	459.9	415.9	381.0	352.4	331.4	313.5	294.2	274.2	253.1
47.5°	484.9	467.8	432.7	389.1	352.4	327.9	308.6	292.2	274.6	256.9	236.4
50°	441.3	430.9	400.9	361.2	326.3	301.5	285.5	270.9	255.9	238.1	220.6
52.5°	397.7	395.8	367.7	332.8	299.9	276.8	261.2	247.8	235.6	218.8	204.0
55°	352.0	357.9	334.6	302.4	273.0	250.8	236.9	226.1	215.4	201.2	187.0
57.5°	311.3	318.0	302.0	272.5	245.0	226.1	214.3	204.4	195.1	182.1	172.6
60°	266.3	278.6	270.1	243.1	218.8	201.8	190.8	182.9	175.2	163.9	155.7
62.5°	230.8	239.3	234.4	214.3	192.8	178.9	169.1	161.8	155.7	147.0	138.9
65°	192.8	203.4	200.8	187.6	168.7	156.1	148.6	142.8	136.5	129.6	122.9
67.5°	158.4	169.5	168.9	159.8	145.8	135.3	128.2	124.1	119.0	112.3	108.1
70°	127.4	137.7	138.1	133.6	123.7	113.8	108.7	105.0	101.0	96.1	93.1
72.5°	99.0	108.3	109.9	107.7	101.4	94.9	90.4	87.8	84.4	80.3	77.7
75°	74.0	80.7	84.4	83.5	80.9	76.5	74.0	72.2	68.9	65.9	63.7
77.5°	52.7	58.0	61.8	63.3	62.1	60.4	58.0	56.6	53.1	51.7	50.5
80°	35.3	40.0	43.4	44.4	45.0	44.6	42.4	41.6	39.9	39.3	38.1
82.5°	21.7	24.3	26.6	29.2	30.4	30.4	29.2	29.4	27.8	27.0	26.6
85°	13.2	13.8	14.2	16.2	17.8	18.3	17.8	18.0	17.4	16.8	16.2
87.5°	6.1	6.1	6.3	6.7	7.1	8.3	8.7	9.3	8.5	8.5	7.1
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°	506.6	506.6	506.6	506.6	506.6	506.6	506.6	506.6	506.6	506.6	506.6
2.5°	496.0	493.4	491.4	488.3	485.7	481.6	480.2	480.2	481.0	480.0	481.0
5°	483.0	478.2	473.1	468.6	463.6	460.1	456.5	455.7	455.3	453.0	453.2
7.5°	469.9	463.6	457.1	451.2	445.1	439.6	435.8	434.2	432.9	431.3	429.5
10°	455.9	448.6	440.9	434.2	428.3	420.8	417.1	415.9	411.9	411.1	408.4
12.5°	441.1	433.6	425.9	417.3	411.5	404.2	398.7	396.2	392.4	389.6	385.5
15°	429.5	420.0	409.8	401.3	393.8	385.7	378.2	373.3	368.3	360.6	356.9
17.5°	415.1	404.2	395.4	386.3	375.4	363.6	354.7	347.4	342.1	335.8	332.0
20°	399.5	389.4	378.4	365.6	354.1	340.7	332.6	326.5	322.4	318.6	316.6
22.5°	385.7	374.1	358.9	346.6	330.7	320.0	313.5	309.5	305.6	301.7	299.7
25°	370.7	357.1	338.5	323.6	311.5	303.2	296.9	293.2	289.0	286.7	283.7
27.5°	355.9	338.4	319.8	306.2	296.7	287.1	281.7	278.8	275.6	272.3	269.9
30°	338.0	318.0	302.6	290.2	280.7	272.7	268.7	264.4	261.6	259.6	258.3
32.5°	319.2	300.1	286.1	275.4	266.1	260.0	255.1	252.3	250.0	247.8	246.2
35°	301.7	283.1	271.3	261.0	253.3	246.4	242.7	240.1	238.1	236.4	235.6
37.5°	284.3	268.5	255.7	247.6	239.5	234.0	230.4	228.1	226.9	225.1	225.3
40°	267.1	252.9	242.7	233.4	225.9	221.2	218.4	217.4	215.6	215.0	215.6
42.5°	251.7	238.7	228.9	220.2	213.7	209.1	207.0	205.6	205.0	204.8	205.0
45°	236.7	224.5	215.0	207.9	201.2	197.1	195.3	194.3	193.7	194.7	194.9
47.5°	221.8	210.7	202.2	193.9	188.4	185.5	183.7	182.9	183.5	183.9	185.3
50°	207.0	196.7	187.8	180.5	176.2	173.4	172.8	171.4	172.4	173.0	174.0
52.5°	192.0	182.7	174.8	167.9	163.4	161.6	160.2	159.6	161.0	161.0	162.0
55°	176.8	168.7	161.4	155.1	151.5	149.3	148.4	147.6	148.4	148.6	148.4
57.5°	162.6	154.9	147.2	141.9	138.9	136.5	135.5	135.1	134.9	135.7	135.5
60°	147.6	140.3	134.2	128.6	125.7	124.3	122.1	122.5	122.5	122.5	120.5
62.5°	132.6	125.3	120.0	116.2	112.7	110.3	109.9	109.3	108.1	107.9	105.4
65°	117.2	111.7	107.1	103.4	99.8	97.9	97.3	95.5	94.1	91.5	89.8
67.5°	103.0	99.0	93.7	90.6	87.6	85.2	83.1	81.7	78.9	76.4	74.8
70°	88.8	84.6	81.1	77.7	74.8	72.6	70.0	67.5	65.7	64.1	62.9
72.5°	74.6	71.0	68.1	64.9	61.8	59.6	57.6	55.6	54.8	54.1	53.5
75°	61.4	58.0	55.2	52.7	50.9	48.3	47.3	46.6	45.8	44.8	43.6
77.5°	48.5	46.0	43.8	41.6	40.0	38.7	37.9	35.5	33.5	33.1	32.7
80°	36.1	34.1	32.7	31.2	29.4	27.4	26.8	26.0	25.6	25.6	25.8
82.5°	25.3	24.1	22.5	21.1	20.5	19.7	19.7	19.5	19.3	19.5	19.5
85°	15.4	13.8	13.4	13.2	13.4	13.4	13.4	13.4	13.2	13.4	13.0
87.5°	6.7	7.3	7.5	6.9	7.1	6.7	6.9	6.9	6.9	7.1	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: P243596

CATALOG NUMBER: S124RDRP-H350D830-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	506.6	506.6	506.6	506.6
2.5°	479.8	479.8	477.8	476.3
5°	452.8	450.2	449.8	447.5
7.5°	427.5	427.1	426.1	426.1
10°	407.4	406.0	404.6	404.4
12.5°	379.0	381.0	378.6	378.0
15°	354.1	352.6	350.6	346.4
17.5°	331.1	328.1	327.3	325.5
20°	312.9	310.7	309.9	309.0
22.5°	295.7	295.3	293.0	292.4
25°	283.1	281.1	279.6	278.6
27.5°	269.3	267.9	267.1	265.6
30°	256.7	256.3	255.3	255.3
32.5°	245.2	244.0	244.0	243.8
35°	234.8	235.2	234.0	233.6
37.5°	224.9	224.3	224.5	224.1
40°	215.2	214.8	214.8	215.0
42.5°	205.4	205.6	206.0	206.0
45°	195.5	195.7	196.1	196.1
47.5°	186.2	185.8	186.2	185.8
50°	174.4	175.6	175.4	175.2
52.5°	162.4	162.0	162.8	162.6
55°	149.3	148.8	149.5	148.8
57.5°	134.7	134.9	134.9	134.6
60°	120.1	119.6	118.8	118.8
62.5°	103.2	101.4	100.2	101.0
65°	86.8	85.4	85.0	84.4
67.5°	73.8	72.2	71.6	71.4
70°	62.5	61.8	61.6	61.6
72.5°	53.1	53.1	52.5	52.1
75°	43.2	42.4	41.4	41.4
77.5°	32.4	32.2	32.0	32.0
80°	25.3	25.3	25.5	25.6
82.5°	18.9	19.1	19.3	19.3
85°	12.8	12.8	13.0	13.0
87.5°	6.9	6.9	6.9	6.7
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P243596  
 CATALOG NUMBER: S124RDRP-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	14.57	16.10	14.93	16.42	16.73	16.26	17.80	16.63	18.11	18.43
	3H	15.80	17.18	16.18	17.50	17.87	17.75	19.12	18.13	19.45	19.81
	4H	16.23	17.53	16.63	17.87	18.25	18.29	19.58	18.69	19.93	20.31
	6H	16.51	17.71	16.92	18.07	18.46	18.68	19.87	19.09	20.24	20.63
	8H	16.60	17.73	17.02	18.12	18.52	18.80	19.93	19.22	20.32	20.72
	12H	16.65	17.74	17.08	18.12	18.55	18.87	19.96	19.30	20.34	20.77
4H	2H	15.78	17.07	16.18	17.42	17.80	16.79	18.09	17.19	18.43	18.81
	3H	17.04	18.12	17.46	18.52	18.92	18.57	19.64	18.98	20.04	20.44
	4H	17.52	18.48	17.95	18.90	19.33	19.23	20.19	19.66	20.61	21.05
	6H	17.85	18.69	18.30	19.13	19.59	19.72	20.56	20.18	21.01	21.47
	8H	17.95	18.74	18.41	19.18	19.65	19.88	20.67	20.34	21.11	21.58
	12H	18.03	18.73	18.51	19.21	19.68	19.99	20.70	20.48	21.17	21.64
8H	4H	17.93	18.71	18.39	19.16	19.62	19.35	20.14	19.82	20.58	21.05
	6H	18.32	18.97	18.82	19.46	19.94	19.95	20.60	20.45	21.09	21.57
	8H	18.47	19.05	18.98	19.56	20.05	20.17	20.75	20.68	21.26	21.75
	12H	18.59	19.11	19.10	19.60	20.16	20.35	20.87	20.86	21.36	21.92
12H	4H	17.97	18.67	18.45	19.15	19.62	19.35	20.05	19.83	20.53	21.00
	6H	18.38	18.96	18.89	19.47	19.96	19.95	20.53	20.46	21.04	21.53
	8H	18.57	19.09	19.08	19.58	20.14	20.21	20.72	20.72	21.21	21.78