

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: P243621

Luminaire Tested: S124RDRP-H350D940-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P243621  
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-H350D940-X4F0-XX-UDD-A-W  
Description: DEFINE 4 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 4000K CCT, 90 CRI LEDS  
Ballast/Driver: -

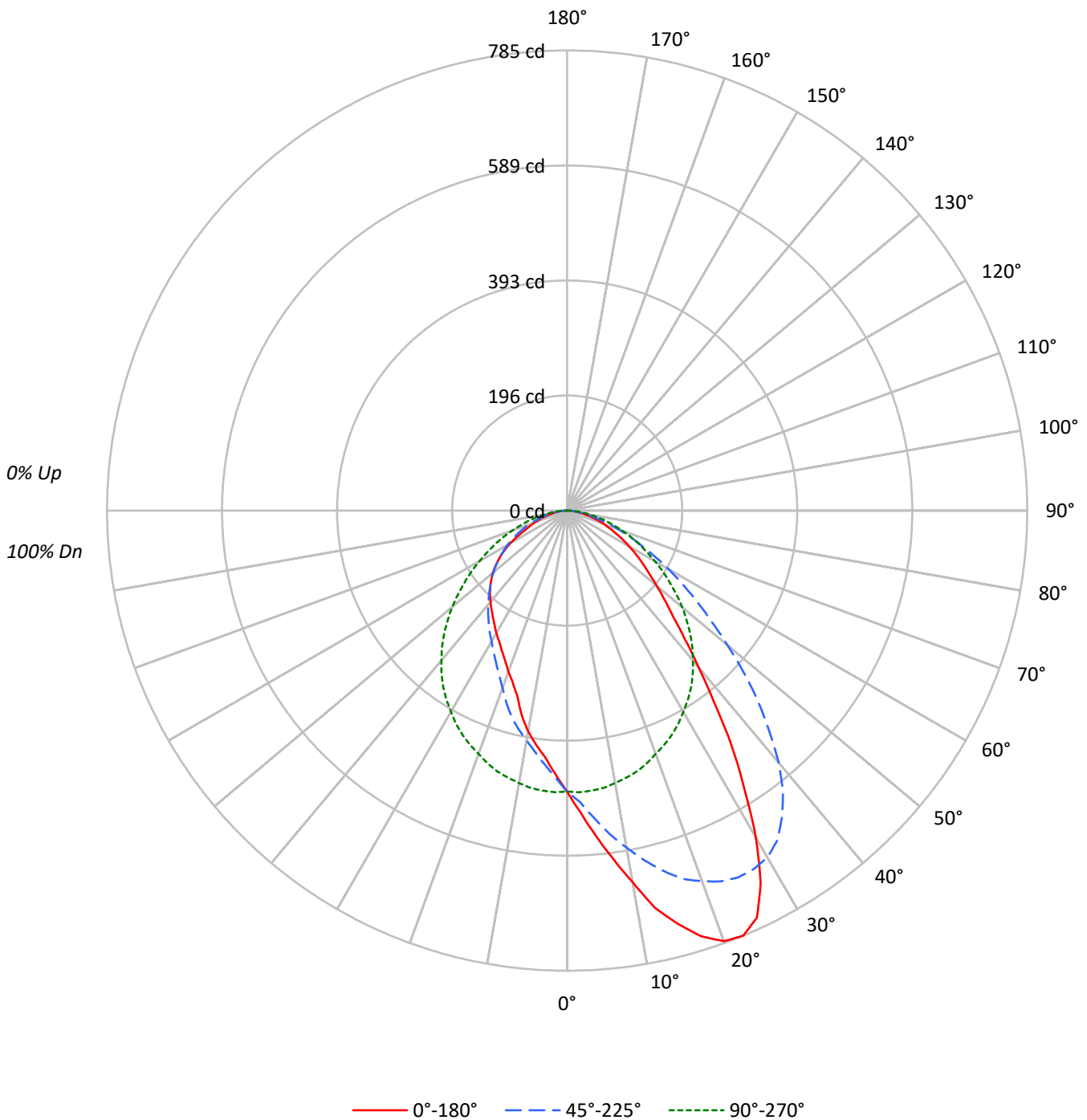
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1237.1 lumens  
Efficiency: N/A  
Efficacy: 110.5 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	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	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°	4260	4260	4260	4260	4260
5°	4963	4695	4279	3884	3777
10°	5812	5271	4260	3593	3453
15°	6716	5860	4239	3358	3017
20°	7394	6365	4179	3049	2765
25°	7513	6771	4141	2814	2584
30°	6613	7011	4068	2647	2479
35°	5306	6933	3998	2529	2398
40°	4037	6513	3870	2427	2360
45°	3206	5786	3729	2344	2332
50°	2752	4933	3544	2269	2291
55°	2430	4189	3315	2190	2180
60°	2176	3541	3076	2091	1998
65°	1916	2913	2842	1948	1681
70°	1708	2401	2581	1785	1513
75°	1487	1885	2346	1570	1346
80°	1259	1444	2017	1326	1244
85°	1101	1183	1734	1295	1254

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 55°  
 Vertical Angle: 45°  
 Luminance: 6228 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	46.5	3.8
10°-20°	141.0	11.4
20°-30°	220.1	17.8
30°-40°	245.5	19.8
40°-50°	220.6	17.8
50°-60°	174.3	14.1
60°-70°	115.8	9.4
70°-80°	58.1	4.7
80°-90°	15.1	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°	407.7	33.0
0°-40°	653.1	52.8
0°-60°	1048.1	84.7
0°-90°	1237.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1237.1	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	479	479	479	479	479	
5°	556	526	480	435	423	56
15°	730	637	461	365	328	207
25°	766	690	422	287	264	343
35°	489	639	368	233	221	304
45°	255	460	297	186	186	202
55°	157	270	214	141	141	141
65°	91	138	135	93	80	91
75°	43	55	68	46	39	46
85°	11	12	17	13	12	12
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°	479.3	479.3	479.3	479.3	479.3	479.3	479.3	479.3	479.3	479.3	479.3
2.5°	514.8	512.9	512.7	510.3	510.1	507.7	506.9	504.9	500.8	497.6	497.8
5°	556.2	554.7	554.5	552.1	551.4	548.4	543.7	538.1	531.6	526.2	522.6
7.5°	598.8	601.4	598.6	598.6	593.2	589.6	580.5	575.8	564.6	556.8	548.6
10°	643.9	646.4	645.2	643.0	635.9	628.6	619.1	610.0	596.3	584.0	575.8
12.5°	694.3	687.1	691.7	684.8	679.0	667.5	658.3	640.0	629.2	611.3	595.2
15°	729.8	727.0	726.8	722.1	715.8	703.1	693.2	674.2	655.7	636.8	618.7
17.5°	761.5	761.9	759.3	751.8	743.6	731.3	717.9	700.9	679.8	658.9	637.4
20°	781.7	781.9	780.0	776.1	767.1	755.9	742.1	719.9	696.0	672.9	651.4
22.5°	784.7	785.2	784.7	782.2	776.1	766.9	754.2	735.4	711.3	684.8	659.2
25°	766.0	767.9	768.1	771.4	768.2	764.7	755.4	739.5	717.3	690.4	662.6
27.5°	714.9	720.1	724.9	730.9	736.3	741.2	741.9	733.5	714.5	689.5	663.0
30°	644.3	650.5	660.2	666.5	683.3	694.0	708.3	711.5	702.4	683.1	657.6
32.5°	562.2	568.7	572.5	593.4	617.4	634.8	658.7	672.9	676.4	667.3	646.4
35°	489.0	490.1	492.9	516.6	540.5	566.9	596.5	621.2	638.0	638.9	628.6
37.5°	410.6	411.9	422.9	441.1	461.8	490.7	524.9	559.9	590.7	604.9	601.9
40°	347.9	347.5	359.3	375.0	395.1	425.2	460.5	498.7	531.6	561.3	568.3
42.5°	297.1	298.5	308.5	317.7	337.1	358.2	395.9	435.6	477.8	510.3	531.9
45°	255.0	258.3	265.2	273.8	288.4	307.8	338.6	378.2	421.3	460.3	486.2
47.5°	225.8	226.8	230.3	241.0	250.7	266.3	292.7	326.3	364.5	408.2	442.4
50°	199.0	201.2	202.5	208.9	218.4	233.3	253.7	278.7	316.6	356.7	399.4
52.5°	175.8	177.1	179.6	185.3	192.8	203.3	219.3	241.3	272.9	310.0	350.3
55°	156.8	157.0	159.4	163.5	169.3	177.3	192.6	208.5	236.5	270.3	306.9
57.5°	139.6	138.5	140.7	143.2	148.8	155.7	165.6	181.8	203.6	232.4	265.4
60°	122.4	123.4	123.2	126.0	129.0	135.9	144.3	154.9	172.8	199.2	227.2
62.5°	106.4	106.2	108.1	109.7	111.8	117.4	124.3	133.1	147.1	166.5	193.6
65°	91.1	91.5	93.0	94.3	96.5	100.0	105.3	112.4	123.6	138.5	161.3
67.5°	77.3	78.6	79.3	79.7	81.8	84.4	88.8	94.6	102.3	114.2	133.3
70°	65.7	66.1	66.4	67.8	68.7	70.2	73.5	76.7	83.6	92.4	106.2
72.5°	54.9	54.5	55.6	56.0	56.4	57.9	59.9	61.6	66.1	73.5	82.1
75°	43.3	43.5	43.7	44.2	45.7	45.9	46.8	48.7	51.9	54.9	60.7
77.5°	32.5	33.0	32.9	33.4	34.0	34.5	34.9	36.6	38.8	41.2	44.0
80°	24.6	24.6	24.6	25.0	24.6	25.9	25.9	26.5	27.1	28.2	30.2
82.5°	16.8	17.2	17.4	17.5	17.7	17.7	17.9	18.3	19.0	19.4	20.0
85°	10.8	10.5	10.6	10.6	10.6	10.6	11.0	11.4	11.4	11.6	12.1
87.5°	4.9	4.9	4.9	4.9	4.7	4.9	5.0	5.0	5.2	5.2	5.6
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):**

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	479.3	479.3	479.3	479.3	479.3	479.3	479.3	479.3	479.3	479.3	479.3
2.5°	496.7	496.1	493.3	490.3	487.5	484.7	483.8	481.0	477.6	474.6	471.3
5°	518.9	514.4	508.2	501.9	495.4	489.4	484.7	479.5	473.5	466.4	460.8
7.5°	541.3	533.1	523.0	513.7	502.5	493.5	484.5	477.1	468.5	458.4	450.8
10°	563.1	549.5	537.2	522.4	508.2	495.9	484.5	472.0	460.6	449.8	439.2
12.5°	580.5	566.9	549.1	531.0	512.7	496.7	481.4	466.6	452.4	439.4	427.6
15°	600.3	580.7	558.8	538.9	513.8	494.1	476.5	460.6	444.4	428.5	415.7
17.5°	614.8	591.7	564.6	541.7	517.6	492.9	471.8	451.9	433.2	416.6	403.3
20°	626.0	598.6	571.5	542.4	513.7	488.5	464.8	441.8	422.9	404.8	390.8
22.5°	630.9	601.9	571.9	540.3	509.7	481.2	456.5	432.8	411.6	392.9	376.7
25°	632.9	601.2	570.0	534.2	503.2	474.1	446.7	422.2	400.4	379.3	363.2
27.5°	631.2	597.3	561.4	527.7	492.6	464.0	434.9	410.1	387.3	367.0	349.0
30°	626.8	588.3	552.7	514.8	481.0	450.9	422.6	396.3	373.3	352.6	334.8
32.5°	615.2	578.2	537.7	500.8	464.4	434.7	408.9	383.0	359.7	338.0	320.8
35°	600.8	564.6	522.2	483.6	447.6	417.5	391.6	368.4	345.5	322.5	305.0
37.5°	582.7	545.9	505.1	463.4	428.2	399.1	375.4	352.0	329.2	308.2	288.6
40°	558.3	524.7	483.6	441.8	406.3	378.3	355.0	333.5	313.4	292.7	271.6
42.5°	527.8	502.3	459.9	418.7	383.9	356.1	335.4	316.2	296.8	275.5	256.5
45°	495.4	473.5	435.1	393.5	360.4	333.4	313.6	296.6	278.3	259.4	239.5
47.5°	458.8	442.5	409.3	368.1	333.4	310.2	291.9	276.4	259.8	243.0	223.6
50°	417.5	407.6	379.3	341.8	308.7	285.2	270.1	256.3	242.1	225.3	208.7
52.5°	376.3	374.4	347.9	314.9	283.7	261.9	247.1	234.4	222.9	207.0	193.0
55°	333.0	338.6	316.6	286.1	258.3	237.2	224.2	213.9	203.8	190.4	176.9
57.5°	294.5	300.9	285.8	257.8	231.8	213.9	202.7	193.4	184.6	172.3	163.3
60°	252.0	263.5	255.5	230.0	207.0	190.9	180.5	173.0	165.7	155.1	147.3
62.5°	218.4	226.4	221.7	202.7	182.4	169.3	160.0	153.1	147.3	139.1	131.4
65°	182.4	192.4	190.0	177.5	159.6	147.6	140.5	135.1	129.2	122.6	116.3
67.5°	149.9	160.3	159.8	151.2	137.9	128.0	121.3	117.4	112.5	106.2	102.3
70°	120.6	130.3	130.7	126.4	117.0	107.7	102.8	99.3	95.6	90.9	88.1
72.5°	93.7	102.5	104.0	101.9	95.9	89.8	85.5	83.1	79.9	76.0	73.5
75°	70.0	76.3	79.9	79.0	76.5	72.4	70.0	68.3	65.1	62.3	60.3
77.5°	49.8	54.9	58.4	59.9	58.8	57.1	54.9	53.6	50.2	48.9	47.8
80°	33.4	37.9	41.1	42.0	42.6	42.2	40.1	39.4	37.7	37.1	36.0
82.5°	20.5	23.0	25.2	27.6	28.7	28.7	27.6	27.8	26.3	25.6	25.2
85°	12.5	13.1	13.4	15.3	16.8	17.4	16.8	17.0	16.4	15.9	15.3
87.5°	5.8	5.8	6.0	6.3	6.7	7.8	8.2	8.8	8.0	8.0	6.7
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°	479.3	479.3	479.3	479.3	479.3	479.3	479.3	479.3	479.3	479.3	479.3
2.5°	469.2	466.8	464.9	462.0	459.5	455.6	454.3	454.3	455.1	454.1	455.1
5°	456.9	452.4	447.6	443.3	438.6	435.3	431.9	431.2	430.8	428.5	428.7
7.5°	444.6	438.6	432.5	426.9	421.1	415.9	412.3	410.8	409.5	408.0	406.3
10°	431.3	424.4	417.2	410.8	405.2	398.1	394.6	393.5	389.7	389.0	386.4
12.5°	417.3	410.3	403.0	394.8	389.3	382.4	377.2	374.8	371.2	368.6	364.7
15°	406.3	397.4	387.7	379.6	372.6	364.9	357.8	353.1	348.5	341.2	337.6
17.5°	392.7	382.4	374.0	365.5	355.2	344.0	335.6	328.7	323.6	317.7	314.1
20°	378.0	368.4	358.0	345.9	335.0	322.3	314.7	308.9	305.0	301.4	299.6
22.5°	364.9	353.9	339.5	327.9	312.8	302.7	296.6	292.9	289.1	285.4	283.5
25°	350.7	337.8	320.3	306.1	294.7	286.9	280.9	277.4	273.4	271.2	268.4
27.5°	336.7	320.1	302.6	289.7	280.7	271.6	266.5	263.7	260.7	257.6	255.3
30°	319.7	300.9	286.3	274.6	265.6	257.9	254.2	250.1	247.5	245.6	244.3
32.5°	302.0	283.9	270.6	260.6	251.8	246.0	241.3	238.7	236.5	234.4	232.9
35°	285.4	267.8	256.6	246.9	239.7	233.1	229.6	227.2	225.3	223.6	222.9
37.5°	269.0	254.0	241.9	234.2	226.6	221.4	218.0	215.8	214.6	213.0	213.2
40°	252.7	239.3	229.6	220.8	213.7	209.2	206.6	205.7	204.0	203.4	204.0
42.5°	238.2	225.8	216.5	208.3	202.1	197.8	195.8	194.5	193.9	193.7	193.9
45°	224.0	212.4	203.4	196.7	190.4	186.5	184.8	183.8	183.3	184.2	184.4
47.5°	209.8	199.3	191.3	183.5	178.2	175.4	173.8	173.0	173.6	174.0	175.3
50°	195.8	186.1	177.7	170.8	166.7	164.1	163.5	162.2	163.1	163.7	164.6
52.5°	181.6	172.8	165.4	158.8	154.5	152.9	151.6	151.0	152.3	152.3	153.2
55°	167.2	159.6	152.7	146.7	143.3	141.3	140.4	139.6	140.4	140.5	140.4
57.5°	153.8	146.5	139.2	134.2	131.4	129.2	128.2	127.9	127.7	128.4	128.2
60°	139.6	132.7	126.9	121.7	118.9	117.6	115.5	115.9	115.9	115.9	114.0
62.5°	125.4	118.5	113.5	109.9	106.6	104.3	104.0	103.4	102.3	102.1	99.7
65°	110.9	105.6	101.4	97.8	94.4	92.6	92.0	90.3	89.0	86.6	84.9
67.5°	97.4	93.7	88.7	85.7	82.9	80.6	78.6	77.3	74.7	72.2	70.7
70°	84.0	80.1	76.7	73.5	70.7	68.7	66.3	63.8	62.2	60.7	59.5
72.5°	70.6	67.2	64.4	61.4	58.4	56.4	54.5	52.6	51.9	51.1	50.6
75°	58.0	54.9	52.3	49.8	48.2	45.7	44.8	44.0	43.3	42.4	41.2
77.5°	45.9	43.5	41.4	39.4	37.9	36.6	35.8	33.6	31.7	31.4	31.0
80°	34.2	32.3	31.0	29.5	27.8	25.9	25.4	24.6	24.3	24.3	24.5
82.5°	23.9	22.8	21.3	20.0	19.4	18.7	18.7	18.5	18.3	18.5	18.5
85°	14.6	13.1	12.7	12.5	12.7	12.7	12.7	12.7	12.5	12.7	12.3
87.5°	6.3	6.9	7.1	6.5	6.7	6.3	6.5	6.5	6.5	6.7	6.5
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: P243621

CATALOG NUMBER: S124RDRP-H350D940-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	479.3	479.3	479.3	479.3
2.5°	453.9	453.9	452.1	450.6
5°	428.4	425.9	425.6	423.3
7.5°	404.5	404.1	403.2	403.2
10°	385.4	384.1	382.8	382.6
12.5°	358.6	360.4	358.2	357.6
15°	335.0	333.5	331.7	327.8
17.5°	313.2	310.4	309.7	308.0
20°	296.0	294.0	293.2	292.3
22.5°	279.8	279.4	277.2	276.6
25°	267.8	266.0	264.5	263.5
27.5°	254.8	253.5	252.7	251.2
30°	242.8	242.5	241.5	241.5
32.5°	232.0	230.9	230.9	230.7
35°	222.1	222.5	221.4	221.0
37.5°	212.8	212.2	212.4	212.0
40°	203.6	203.3	203.3	203.4
42.5°	194.3	194.5	194.9	194.9
45°	185.0	185.2	185.5	185.5
47.5°	176.2	175.8	176.2	175.8
50°	165.0	166.1	165.9	165.7
52.5°	153.6	153.2	154.0	153.8
55°	141.3	140.7	141.5	140.7
57.5°	127.5	127.7	127.7	127.3
60°	113.7	113.1	112.4	112.4
62.5°	97.6	95.9	94.8	95.6
65°	82.1	80.8	80.4	79.9
67.5°	69.8	68.3	67.8	67.6
70°	59.2	58.4	58.2	58.2
72.5°	50.2	50.2	49.6	49.3
75°	40.9	40.1	39.2	39.2
77.5°	30.6	30.4	30.2	30.2
80°	23.9	23.9	24.1	24.3
82.5°	17.9	18.1	18.3	18.3
85°	12.1	12.1	12.3	12.3
87.5°	6.5	6.5	6.5	6.3
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P243621  
 CATALOG NUMBER: S124RDRP-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	14.38	15.91	14.74	16.23	16.54	16.07	17.61	16.44	17.92	18.23
	3H	15.61	16.99	15.99	17.32	17.68	17.55	18.93	17.93	19.26	19.62
	4H	16.04	17.34	16.44	17.68	18.06	18.10	19.39	18.50	19.74	20.11
	6H	16.32	17.51	16.73	17.88	18.27	18.48	19.68	18.90	20.04	20.44
	8H	16.41	17.54	16.83	17.93	18.33	18.60	19.74	19.03	20.13	20.53
	12H	16.46	17.55	16.89	17.93	18.36	18.68	19.77	19.11	20.15	20.58
4H	2H	15.59	16.88	15.99	17.23	17.60	16.60	17.89	17.00	18.24	18.62
	3H	16.85	17.93	17.26	18.33	18.73	18.38	19.45	18.79	19.85	20.25
	4H	17.32	18.29	17.76	18.71	19.14	19.03	20.00	19.47	20.42	20.85
	6H	17.66	18.50	18.11	18.94	19.40	19.53	20.37	19.99	20.81	21.27
	8H	17.76	18.54	18.22	18.99	19.46	19.69	20.47	20.15	20.92	21.38
	12H	17.83	18.54	18.32	19.01	19.49	19.80	20.50	20.28	20.98	21.45
8H	4H	17.74	18.52	18.20	18.96	19.43	19.16	19.95	19.63	20.39	20.86
	6H	18.13	18.78	18.63	19.27	19.75	19.76	20.41	20.26	20.90	21.38
	8H	18.28	18.86	18.79	19.37	19.86	19.98	20.56	20.49	21.07	21.56
	12H	18.40	18.91	18.91	19.41	19.97	20.16	20.67	20.67	21.17	21.73
12H	4H	17.78	18.48	18.26	18.96	19.43	19.15	19.85	19.63	20.33	20.80
	6H	18.19	18.77	18.70	19.28	19.77	19.75	20.34	20.27	20.85	21.33
	8H	18.38	18.90	18.89	19.39	19.95	20.01	20.53	20.52	21.02	21.59