

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: P243508

Luminaire Tested: S124DRP-H350D930-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P243508
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-H350D930-X4F0-XX-UDD-A-W
Description: DEFINE 4 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3000K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

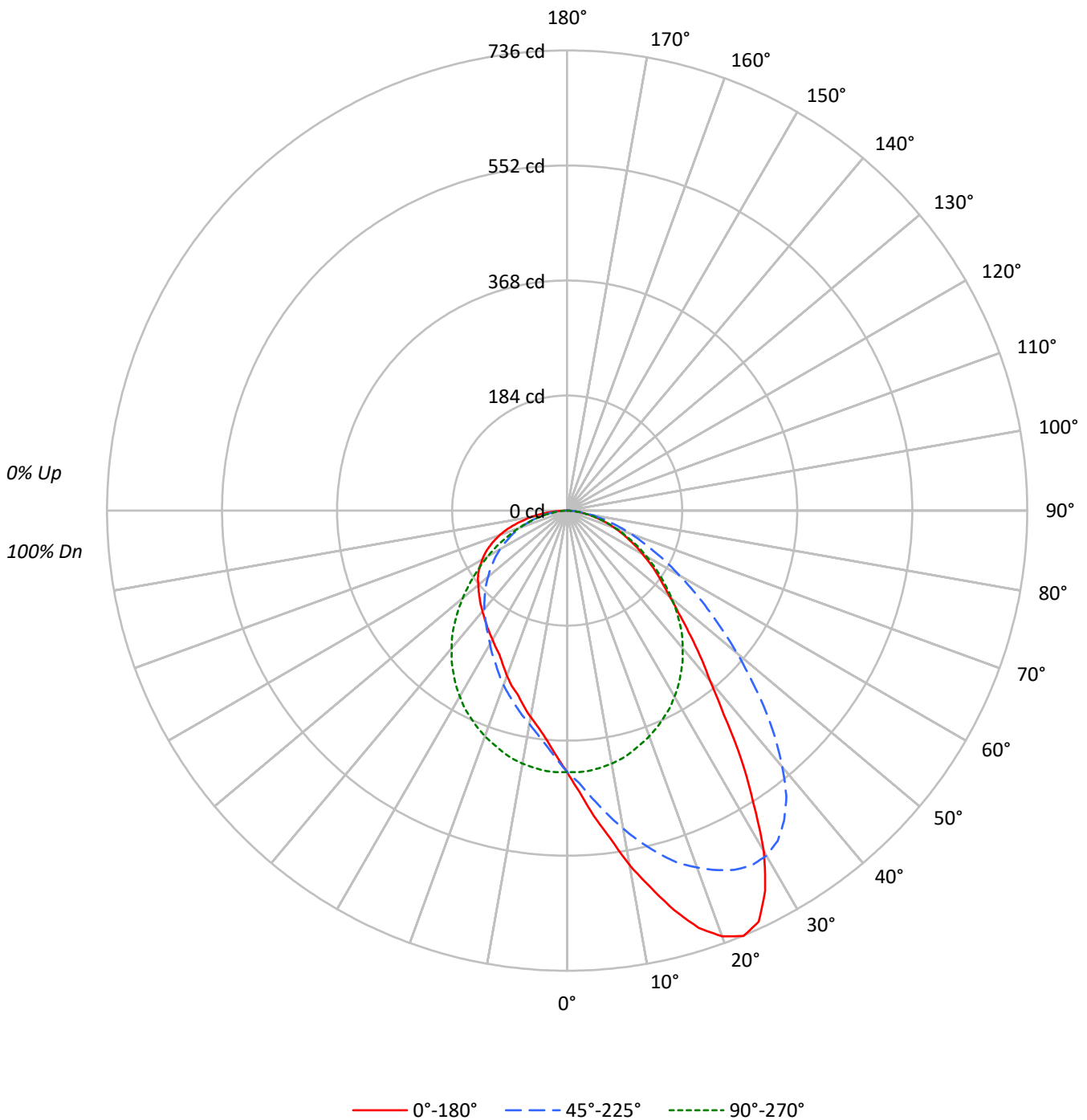
Lumens per Lamp: N/A
Luminaire Lumens: 1198.9 lumens
Efficiency: N/A
Efficacy: 107.0 lumens/watt
Spacing Criteria (0/90/45): 1.35 / 1.22 / 1.45
Luminous Opening: Rectangular (W 3.88' x L: 0.31' x H: 0')
CIE Type: Direct

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: P243508

CATALOG NUMBER: S124DRP-H350D930-X4F0-XX-UDD-A-W

Luminous Intensity Polar Plot



TEST NUMBER: P243508

CATALOG NUMBER: S124DRP-H350D930-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	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°	3716	3716	3716	3716	3716
5°	4373	4123	3726	3368	3289
10°	5197	4663	3709	3130	3028
15°	6087	5230	3676	2959	2805
20°	6854	5747	3633	2810	2660
25°	7114	6218	3585	2651	2504
30°	6460	6540	3525	2533	2449
35°	5271	6566	3441	2448	2433
40°	4126	6216	3333	2390	2444
45°	3454	5605	3198	2336	2489
50°	2963	4902	3012	2284	2562
55°	2709	4248	2808	2246	2687
60°	2482	3685	2601	2208	2786
65°	2276	3195	2379	2135	2892
70°	2092	2799	2147	2066	2981
75°	1865	2408	1889	1927	2978
80°	1556	1955	1546	1781	2969
85°	1183	1458	1163	1601	2784

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 50°
 Vertical Angle: 45°
 Luminance: 5859 cd/sqm



TEST NUMBER: P243508

CATALOG NUMBER: S124DRP-H350D930-X4F0-XX-UDD-A-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	40.7	3.4
10°-20°	126.0	10.5
20°-30°	202.5	16.9
30°-40°	231.5	19.3
40°-50°	213.1	17.8
50°-60°	174.3	14.5
60°-70°	124.2	10.4
70°-80°	68.3	5.7
80°-90°	18.3	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°	369.2	30.8
0°-40°	600.7	50.1
0°-60°	988.1	82.4
0°-90°	1198.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1198.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	418	418	418	418	418	
5°	490	462	418	378	369	49
15°	662	568	400	322	305	189
25°	725	634	366	270	255	326
35°	486	605	317	226	224	302
45°	275	446	254	186	198	214
55°	175	274	181	145	173	157
65°	108	152	113	102	138	108
75°	54	70	55	56	87	58
85°	12	14	11	16	27	14
90°	0	0	0	0	0	



TEST NUMBER: P243508

CATALOG NUMBER: S124DRP-H350D930-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	418.1	418.1	418.1	418.1	418.1	418.1	418.1	418.1	418.1	418.1	418.1
2.5°	450.2	448.8	448.1	447.3	447.1	446.3	444.6	442.2	439.1	435.9	435.9
5°	490.1	489.8	487.2	487.4	484.1	480.6	477.8	474.4	467.8	462.1	458.2
7.5°	528.3	531.9	531.1	528.3	523.6	518.5	513.0	508.2	495.9	489.1	483.5
10°	575.8	577.2	574.8	570.8	566.6	556.7	549.5	541.5	528.2	516.6	506.3
12.5°	617.4	620.7	616.4	612.7	602.6	595.2	588.1	572.0	558.0	543.4	528.5
15°	661.5	658.0	660.3	651.0	643.9	636.9	618.6	602.2	586.4	568.3	552.8
17.5°	699.7	699.7	695.6	689.6	682.1	669.0	650.7	632.6	615.0	591.3	569.3
20°	724.6	726.5	721.7	715.4	706.3	692.7	678.2	658.6	635.2	607.5	582.6
22.5°	736.5	736.9	735.2	729.9	722.6	710.9	696.1	677.0	652.2	622.5	596.4
25°	725.3	727.2	726.6	726.3	722.6	715.9	704.0	686.2	663.7	634.0	605.8
27.5°	685.7	690.3	694.2	695.9	700.0	700.4	696.8	686.0	667.6	639.6	608.2
30°	629.4	627.0	637.6	642.9	656.9	665.2	671.2	670.5	659.9	637.2	607.4
32.5°	554.3	560.8	568.3	580.7	597.3	616.7	631.4	642.3	641.3	626.5	601.6
35°	485.7	485.7	495.2	510.6	528.2	551.6	576.1	596.4	608.9	605.1	587.6
37.5°	411.3	415.9	426.8	438.8	460.3	482.8	515.2	542.2	568.3	576.1	567.1
40°	355.6	357.7	369.3	379.4	401.4	424.8	451.9	486.4	516.4	535.7	536.9
42.5°	314.3	314.2	319.0	328.0	345.7	366.6	395.9	429.7	464.9	492.2	505.0
45°	274.8	274.4	279.4	288.6	301.2	319.6	345.1	378.9	414.9	445.9	466.1
47.5°	241.3	244.4	246.6	253.8	264.2	279.9	301.7	328.7	363.3	398.1	425.3
50°	214.3	215.7	220.5	223.9	235.5	246.4	264.0	288.2	317.9	354.5	383.8
52.5°	192.8	193.7	196.6	201.0	207.7	217.2	231.2	253.6	280.4	312.1	342.5
55°	174.8	174.2	176.1	179.0	184.8	192.8	203.1	220.1	243.5	274.1	302.1
57.5°	157.0	157.0	158.7	160.8	164.0	170.7	180.7	194.2	213.0	240.1	264.9
60°	139.6	140.8	141.5	143.5	146.3	151.2	158.7	169.3	185.2	207.3	231.9
62.5°	124.2	124.2	125.4	126.1	129.7	133.3	138.7	147.8	160.2	180.0	199.2
65°	108.2	109.2	109.2	110.6	113.7	116.4	120.7	127.5	137.7	151.9	169.8
67.5°	94.5	94.5	95.4	96.1	97.8	99.7	103.4	108.7	117.4	128.7	144.9
70°	80.5	81.1	80.7	81.6	82.6	84.5	87.2	91.6	98.0	107.7	119.6
72.5°	67.9	67.2	67.6	68.4	68.9	70.1	71.8	75.3	80.4	88.2	96.9
75°	54.3	53.9	55.1	54.8	55.6	56.7	58.2	60.8	64.7	70.1	76.8
77.5°	42.3	41.8	42.3	42.7	43.0	43.9	45.1	46.6	49.3	52.9	58.9
80°	30.4	30.2	30.5	30.9	31.1	32.4	32.8	34.3	35.5	38.2	41.1
82.5°	20.1	20.5	20.6	21.0	20.8	21.5	21.8	22.9	23.9	25.3	27.5
85°	11.6	11.1	11.6	11.6	11.6	12.5	12.3	13.0	13.7	14.3	15.9
87.5°	4.1	4.1	4.3	4.4	4.4	4.9	4.8	5.1	5.8	5.8	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



TEST NUMBER: P243508

CATALOG NUMBER: S124DRP-H350D930-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	418.1	418.1	418.1	418.1	418.1	418.1	418.1	418.1	418.1	418.1	418.1
2.5°	434.8	433.0	431.6	427.7	425.3	423.1	421.0	418.8	416.4	413.3	411.4
5°	454.1	450.0	444.0	438.6	432.4	427.0	422.5	417.6	412.1	406.5	401.6
7.5°	475.4	467.8	458.6	448.5	438.9	430.9	422.5	414.7	407.0	399.5	392.5
10°	496.8	483.5	471.3	457.5	444.9	432.8	421.9	410.9	401.4	391.5	382.6
12.5°	516.6	500.5	482.8	465.5	448.7	433.0	419.5	406.2	393.9	382.1	371.7
15°	531.8	511.6	490.6	470.2	450.7	434.3	416.7	399.5	386.7	372.4	360.9
17.5°	549.2	525.3	504.5	479.9	455.6	429.2	410.6	391.8	376.5	362.6	351.2
20°	560.8	534.5	504.5	476.6	451.7	428.0	405.6	384.1	367.9	351.9	338.1
22.5°	570.0	542.9	509.7	480.7	449.5	420.8	396.6	375.4	356.3	341.1	328.0
25°	574.8	541.7	510.1	474.9	443.7	416.2	388.9	365.5	346.3	329.4	318.1
27.5°	574.9	541.0	503.6	468.8	435.3	405.6	378.7	355.6	334.0	317.8	304.3
30°	574.1	536.5	497.1	459.1	425.8	395.4	367.2	343.4	323.6	306.3	293.5
32.5°	568.6	530.4	487.4	447.5	411.3	380.7	354.8	331.1	309.9	294.2	280.7
35°	556.3	516.9	473.7	432.6	398.3	366.6	341.0	317.1	298.1	281.1	267.2
37.5°	540.6	503.8	459.9	416.9	379.9	349.8	325.8	303.3	283.5	267.8	253.9
40°	520.8	486.2	443.0	398.3	361.3	330.9	308.2	287.2	270.3	254.3	240.8
42.5°	493.7	467.1	422.7	379.2	340.5	311.8	289.8	272.4	255.0	240.5	227.0
45°	464.7	440.5	401.0	357.9	320.7	291.1	270.5	254.4	239.6	224.9	214.0
47.5°	432.6	412.8	376.3	334.1	297.5	271.3	251.0	236.7	223.0	211.8	200.9
50°	394.4	384.0	349.8	311.6	275.9	249.2	232.4	217.8	207.7	196.8	186.5
52.5°	358.9	350.5	322.7	285.2	252.7	229.2	211.3	199.7	189.8	181.7	173.6
55°	320.3	316.1	292.5	260.1	230.7	207.2	191.8	181.2	173.4	165.9	159.9
57.5°	284.8	284.5	263.7	235.8	207.2	187.2	172.5	163.8	157.0	151.7	146.6
60°	248.5	251.4	234.3	208.9	186.2	167.4	154.1	146.3	141.6	136.7	132.4
62.5°	215.5	220.0	204.4	184.5	162.1	146.8	136.5	130.6	125.4	121.8	118.6
65°	184.0	189.6	177.0	159.1	142.0	127.5	118.8	113.1	109.2	107.2	105.0
67.5°	156.1	159.2	150.7	136.7	122.5	109.9	102.7	97.8	94.4	93.5	91.0
70°	128.3	131.9	125.9	113.1	102.2	93.0	86.5	82.6	80.5	79.4	77.6
72.5°	106.0	107.5	101.5	92.7	84.0	76.3	71.5	68.6	66.2	65.7	64.8
75°	82.9	85.2	80.4	73.6	66.4	60.9	57.3	55.0	53.8	52.9	52.9
77.5°	62.6	64.5	61.8	55.8	51.5	46.8	44.4	42.2	41.6	40.8	41.1
80°	44.5	45.4	43.9	39.8	36.0	33.4	31.4	30.2	30.0	29.4	30.0
82.5°	29.5	29.7	28.0	26.1	23.2	21.8	20.5	20.0	19.8	19.8	19.5
85°	16.4	16.7	15.5	14.3	13.3	12.1	11.8	11.4	11.1	11.6	11.9
87.5°	6.3	6.5	6.3	5.8	5.5	5.1	4.9	5.3	4.8	5.1	5.3
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: P243508

CATALOG NUMBER: S124DRP-H350D930-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	418.1	418.1	418.1	418.1	418.1	418.1	418.1	418.1	418.1	418.1	418.1
2.5°	408.5	407.2	405.1	401.7	399.3	396.8	395.7	396.1	395.1	393.7	394.0
5°	397.8	393.9	390.5	385.7	381.2	377.5	376.3	374.8	373.4	372.5	371.7
7.5°	386.4	380.9	375.8	371.0	365.9	361.1	359.2	357.9	357.2	354.8	353.8
10°	375.4	369.1	363.0	357.4	352.1	346.8	344.9	343.2	340.8	339.8	338.6
12.5°	363.8	357.5	350.9	344.0	338.8	334.5	331.2	330.0	327.7	326.6	326.0
15°	352.6	344.9	339.6	334.3	326.3	321.5	320.1	315.9	314.5	312.5	311.1
17.5°	341.3	334.1	326.3	320.1	315.2	309.2	306.0	304.1	301.5	299.7	297.1
20°	330.2	321.9	315.7	308.0	302.6	297.1	293.0	291.3	289.1	286.5	282.9
22.5°	319.5	310.3	304.3	297.1	290.3	284.0	280.6	278.2	273.7	273.2	270.0
25°	306.8	298.6	290.8	283.3	276.6	270.3	268.1	264.3	262.8	259.7	259.2
27.5°	294.9	286.2	277.7	269.5	263.7	259.2	255.3	252.9	251.4	249.0	249.2
30°	282.4	272.9	264.9	257.3	251.0	246.8	244.2	243.0	240.8	240.5	239.3
32.5°	269.1	260.4	252.1	245.4	238.9	235.2	234.0	232.8	231.4	231.6	231.2
35°	255.8	248.1	239.3	233.1	227.8	225.6	223.7	223.4	222.9	223.2	223.2
37.5°	242.8	234.5	227.1	221.5	218.4	215.4	214.5	214.3	214.5	214.9	215.7
40°	230.2	222.5	215.4	210.8	207.3	206.0	204.8	205.3	206.0	207.2	208.2
42.5°	217.6	210.2	204.3	199.7	196.4	195.7	195.9	196.9	197.1	198.8	200.7
45°	204.3	198.0	192.3	188.7	186.7	185.8	186.2	187.2	188.4	190.8	193.2
47.5°	192.0	186.4	181.4	177.8	176.3	175.9	176.6	178.0	180.7	183.1	185.8
50°	179.5	174.4	169.8	166.6	166.4	165.2	166.7	168.4	171.7	174.9	179.0
52.5°	167.2	162.3	158.4	155.8	155.1	155.1	157.0	160.1	163.0	167.2	171.0
55°	154.4	150.0	146.3	145.4	144.4	144.9	146.9	150.0	154.1	158.9	163.0
57.5°	141.3	137.5	134.8	133.6	133.1	134.8	137.2	140.4	145.7	150.5	155.0
60°	128.8	125.6	122.7	122.4	122.0	124.2	127.1	130.6	135.8	140.6	146.1
62.5°	115.5	113.0	111.1	110.6	110.6	112.8	116.0	120.5	125.4	130.6	136.4
65°	102.1	99.8	99.3	98.6	100.2	101.5	104.8	109.0	114.3	120.0	126.1
67.5°	89.6	88.2	87.2	87.2	88.4	91.0	93.9	98.1	103.6	109.6	115.0
70°	77.1	75.8	74.9	75.8	76.5	79.5	82.6	86.7	91.8	97.6	103.4
72.5°	64.2	64.3	64.5	64.3	65.0	67.9	71.0	74.9	79.9	85.5	90.8
75°	52.7	51.9	52.0	52.4	54.6	56.1	59.2	63.0	68.3	73.4	77.8
77.5°	41.0	40.6	41.5	41.5	43.5	45.4	48.0	51.7	56.3	60.9	64.5
80°	30.0	30.2	30.9	31.1	32.8	34.8	37.5	40.1	44.2	47.4	50.9
82.5°	20.3	20.6	21.5	22.7	23.4	24.6	27.0	29.7	32.6	36.0	38.1
85°	11.8	12.3	13.0	13.8	14.5	15.7	17.4	19.6	21.7	23.6	25.3
87.5°	5.8	5.8	6.3	6.7	7.2	7.9	9.0	9.9	11.3	12.6	13.3
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: P243508

CATALOG NUMBER: S124DRP-H350D930-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	418.1	418.1	418.1	418.1
2.5°	393.4	393.2	392.5	392.8
5°	371.2	369.5	369.3	368.6
7.5°	352.1	351.5	351.5	350.2
10°	337.4	335.8	336.2	335.5
12.5°	323.4	322.5	321.5	320.5
15°	307.7	307.7	307.7	304.8
17.5°	295.4	295.2	294.4	294.2
20°	282.6	281.9	279.7	281.2
22.5°	269.6	269.1	267.2	267.6
25°	257.5	257.0	256.7	255.3
27.5°	247.1	247.3	247.6	246.8
30°	239.3	238.7	239.4	238.6
32.5°	231.9	231.9	231.2	231.4
35°	223.6	224.2	224.4	224.2
37.5°	216.2	217.1	217.8	217.1
40°	209.4	210.1	210.8	210.6
42.5°	202.2	203.4	203.9	204.4
45°	195.4	196.9	197.8	198.0
47.5°	188.4	190.3	192.0	191.8
50°	181.6	184.0	185.5	185.3
52.5°	174.8	177.1	179.0	179.9
55°	167.1	170.1	171.8	173.4
57.5°	159.4	162.8	164.5	165.2
60°	150.9	153.9	156.1	156.7
62.5°	141.3	144.5	147.4	148.1
65°	131.4	135.0	137.2	137.5
67.5°	120.0	123.4	125.6	126.6
70°	108.2	110.8	113.1	114.7
72.5°	95.1	98.1	100.3	101.4
75°	81.4	84.8	86.0	86.7
77.5°	67.2	69.3	71.2	71.3
80°	53.1	55.6	56.3	58.0
82.5°	39.1	41.5	41.0	41.6
85°	25.8	26.6	27.1	27.3
87.5°	13.7	14.2	14.5	14.7
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P243508
 CATALOG NUMBER: S124DRP-H350D930-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	15.13	16.70	15.50	17.02	17.33	15.42	16.99	15.78	17.30	17.62
	3H	16.57	17.99	16.95	18.31	18.68	16.80	18.22	17.18	18.55	18.91
	4H	17.09	18.42	17.49	18.77	19.15	17.29	18.62	17.68	18.96	19.34
	6H	17.44	18.67	17.85	19.03	19.42	17.60	18.83	18.01	19.20	19.59
	8H	17.53	18.71	17.96	19.10	19.50	17.69	18.86	18.11	19.25	19.65
	12H	17.58	18.71	18.01	19.09	19.52	17.73	18.86	18.16	19.24	19.67
4H	2H	16.27	17.60	16.66	17.94	18.32	16.21	17.54	16.61	17.89	18.26
	3H	17.77	18.88	18.18	19.28	19.68	17.91	19.02	18.32	19.42	19.82
	4H	18.34	19.34	18.77	19.76	20.20	18.50	19.51	18.94	19.92	20.36
	6H	18.76	19.63	19.21	20.07	20.53	18.91	19.78	19.36	20.22	20.68
	8H	18.87	19.69	19.33	20.13	20.60	19.01	19.83	19.47	20.27	20.74
	12H	18.95	19.68	19.43	20.15	20.62	19.08	19.81	19.56	20.29	20.76
8H	4H	18.77	19.59	19.23	20.03	20.50	18.84	19.66	19.31	20.10	20.57
	6H	19.27	19.94	19.76	20.43	20.91	19.38	20.05	19.87	20.54	21.02
	8H	19.43	20.04	19.94	20.54	21.03	19.54	20.15	20.05	20.66	21.14
	12H	19.55	20.08	20.05	20.57	21.14	19.66	20.19	20.16	20.69	21.25
12H	4H	18.81	19.54	19.29	20.02	20.49	18.88	19.61	19.36	20.09	20.56
	6H	19.33	19.94	19.84	20.45	20.94	19.44	20.05	19.95	20.56	21.04
	8H	19.55	20.08	20.05	20.57	21.14	19.66	20.20	20.17	20.69	21.25