

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: P243519

Luminaire Tested: S124DRP-H575D940-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P243519  
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-H575D940-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: -

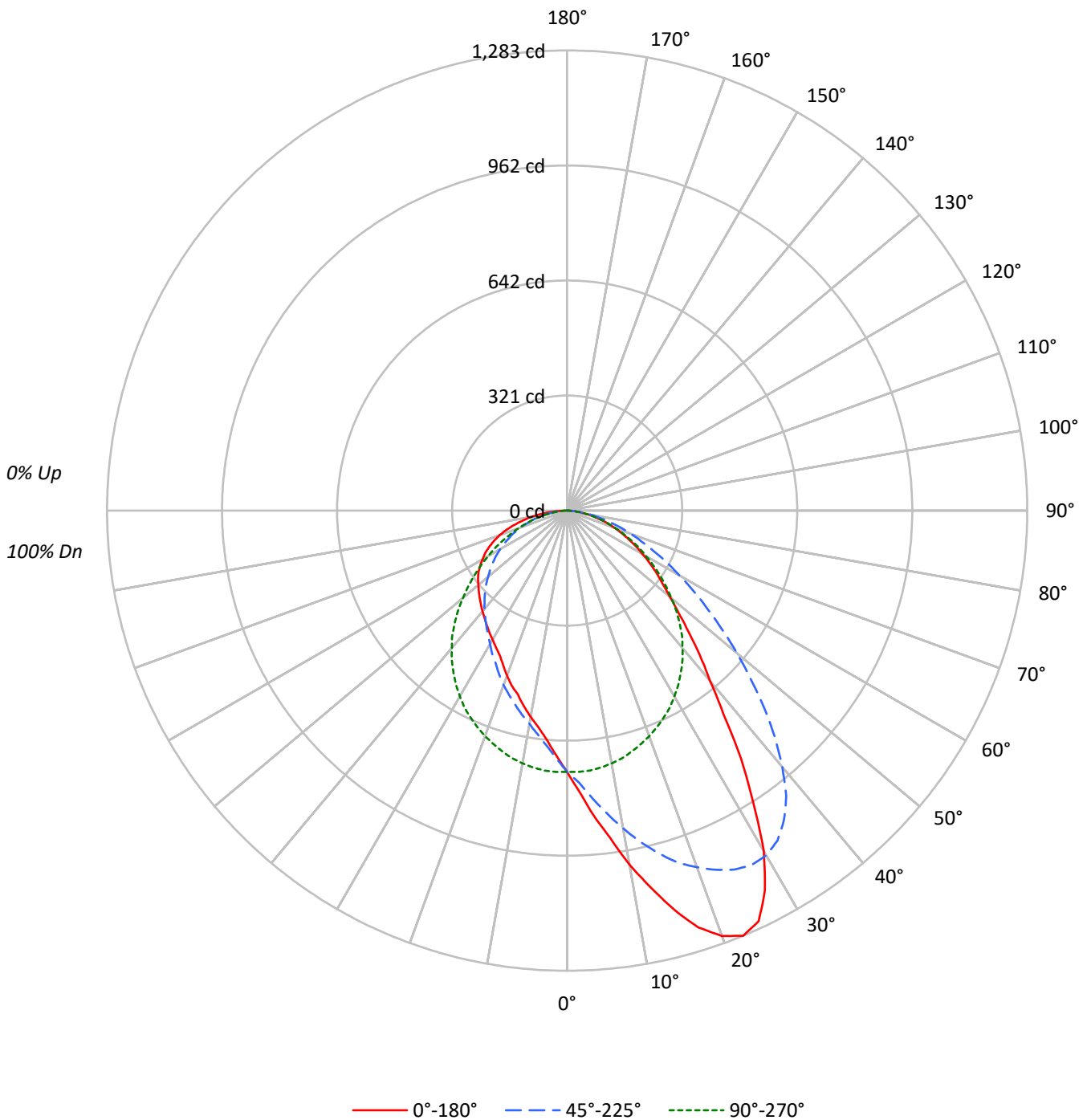
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2088.2 lumens  
Efficiency: N/A  
Efficacy: 121.4 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): 17.2  
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	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°	6473	6473	6473	6473	6473
5°	7617	7182	6490	5867	5728
10°	9052	8122	6461	5452	5275
15°	10602	9109	6403	5153	4886
20°	11939	10010	6329	4895	4634
25°	12390	10831	6245	4618	4362
30°	11251	11392	6139	4411	4265
35°	9180	11437	5993	4265	4239
40°	7188	10826	5805	4163	4256
45°	6016	9764	5571	4069	4334
50°	5162	8538	5245	3979	4464
55°	4717	7398	4893	3912	4680
60°	4322	6421	4528	3847	4852
65°	3965	5563	4146	3721	5039
70°	3646	4876	3740	3600	5190
75°	3246	4197	3287	3359	5186
80°	2708	3409	2693	3102	5175
85°	2060	2550	2030	2784	4855

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 50°  
 Vertical Angle: 45°  
 Luminance: 10205 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	70.9	3.4
10°-20°	219.5	10.5
20°-30°	352.7	16.9
30°-40°	403.2	19.3
40°-50°	371.1	17.8
50°-60°	303.6	14.5
60°-70°	216.4	10.4
70°-80°	118.9	5.7
80°-90°	31.9	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°	643.1	30.8
0°-40°	1046.3	50.1
0°-60°	1721.0	82.4
0°-90°	2088.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2088.2	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	728	728	728	728	728	
5°	854	805	727	658	642	86
15°	1152	990	696	560	531	328
25°	1263	1104	637	471	445	567
35°	846	1054	552	393	391	526
45°	479	777	443	324	345	374
55°	304	477	316	252	302	273
65°	188	264	197	177	240	188
75°	94	122	96	98	151	101
85°	20	25	20	27	48	24
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°	728.2	728.2	728.2	728.2	728.2	728.2	728.2	728.2	728.2	728.2	728.2
2.5°	784.1	781.8	780.6	779.1	778.8	777.3	774.3	770.2	764.8	759.2	759.2
5°	853.7	853.1	848.6	848.9	843.3	837.0	832.3	826.3	814.7	804.9	798.1
7.5°	920.3	926.5	925.0	920.3	911.9	903.0	893.5	885.2	863.8	851.9	842.1
10°	1002.9	1005.3	1001.1	994.3	986.8	969.6	957.1	943.2	920.0	899.8	881.9
12.5°	1075.4	1081.1	1073.6	1067.1	1049.6	1036.8	1024.3	996.4	972.0	946.4	920.6
15°	1152.1	1146.2	1150.0	1134.0	1121.5	1109.3	1077.5	1049.0	1021.3	989.8	962.8
17.5°	1218.7	1218.7	1211.6	1201.2	1188.1	1165.2	1133.4	1101.9	1071.3	1029.9	991.6
20°	1262.1	1265.4	1257.0	1246.0	1230.3	1206.5	1181.2	1147.1	1106.3	1058.2	1014.8
22.5°	1282.9	1283.5	1280.5	1271.3	1258.5	1238.3	1212.5	1179.2	1136.1	1084.3	1038.9
25°	1263.3	1266.6	1265.7	1265.1	1258.5	1246.9	1226.1	1195.2	1156.0	1104.3	1055.2
27.5°	1194.3	1202.4	1209.2	1212.2	1219.3	1219.9	1213.6	1194.9	1162.8	1114.1	1059.4
30°	1096.2	1092.1	1110.5	1119.7	1144.1	1158.7	1169.1	1167.9	1149.4	1109.9	1057.9
32.5°	965.4	976.7	989.8	1011.5	1040.4	1074.2	1099.8	1118.8	1117.0	1091.2	1047.8
35°	846.0	846.0	862.6	889.4	920.0	960.7	1003.5	1038.9	1060.6	1054.0	1023.4
37.5°	716.4	724.4	743.4	764.2	801.7	840.9	897.4	944.3	989.8	1003.5	987.7
40°	619.5	623.0	643.2	660.8	699.1	739.8	787.1	847.1	899.5	933.0	935.1
42.5°	547.5	547.2	555.5	571.3	602.2	638.5	689.6	748.5	809.7	857.3	879.5
45°	478.6	478.0	486.6	502.6	524.6	556.7	601.0	659.9	722.6	776.7	811.8
47.5°	420.3	425.7	429.5	442.0	460.1	487.5	525.5	572.5	632.8	693.5	740.7
50°	373.3	375.7	384.0	390.0	410.2	429.2	459.8	502.0	553.8	617.4	668.5
52.5°	335.9	337.4	342.4	350.2	361.7	378.4	402.8	441.7	488.4	543.7	596.6
55°	304.4	303.5	306.8	311.8	321.9	335.9	353.7	383.4	424.2	477.4	526.1
57.5°	273.5	273.5	276.4	280.0	285.7	297.2	314.8	338.3	371.0	418.2	461.3
60°	243.1	245.2	246.4	250.0	254.7	263.4	276.4	294.9	322.5	361.2	404.0
62.5°	216.4	216.4	218.5	219.7	225.9	232.1	241.7	257.4	279.1	313.6	346.9
65°	188.5	190.2	190.2	192.6	198.0	202.7	210.2	222.0	239.9	264.5	295.8
67.5°	164.7	164.7	166.2	167.3	170.3	173.6	180.1	189.3	204.5	224.1	252.4
70°	140.3	141.2	140.6	142.1	143.9	147.1	151.9	159.6	170.6	187.6	208.4
72.5°	118.3	117.1	117.7	119.2	120.1	122.2	125.1	131.1	140.0	153.7	168.8
75°	94.5	93.9	96.0	95.4	96.9	98.7	101.4	105.8	112.7	122.2	133.8
77.5°	73.7	72.8	73.7	74.3	74.9	76.4	78.5	81.1	85.9	92.1	102.5
80°	52.9	52.6	53.2	53.8	54.1	56.5	57.1	59.7	61.8	66.6	71.6
82.5°	35.1	35.7	36.0	36.6	36.3	37.5	38.0	39.8	41.6	44.0	47.9
85°	20.2	19.3	20.2	20.2	20.2	21.7	21.4	22.6	23.8	25.0	27.6
87.5°	7.1	7.1	7.4	7.7	7.7	8.6	8.3	8.9	10.1	10.1	11.0
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°	728.2	728.2	728.2	728.2	728.2	728.2	728.2	728.2	728.2	728.2	728.2
2.5°	757.4	754.1	751.7	744.9	740.7	736.9	733.3	729.4	725.3	719.9	716.7
5°	791.0	783.8	773.4	763.9	753.2	743.7	736.0	727.4	717.8	708.0	699.4
7.5°	828.1	814.7	798.7	781.2	764.5	750.5	736.0	722.3	708.9	695.8	683.7
10°	865.3	842.1	821.0	796.9	774.9	753.8	734.8	715.8	699.1	681.9	666.4
12.5°	899.8	871.8	840.9	810.9	781.5	754.1	730.6	707.4	686.0	665.5	647.4
15°	926.2	891.1	854.6	818.9	785.0	756.5	725.9	695.8	673.6	648.6	628.7
17.5°	956.5	914.9	878.7	835.8	793.6	747.6	715.2	682.5	655.7	631.6	611.7
20°	976.7	931.0	878.7	830.2	786.8	745.5	706.5	669.1	640.9	612.9	588.8
22.5°	992.8	945.5	887.9	837.3	782.9	733.0	690.8	653.9	620.6	594.2	571.3
25°	1001.1	943.5	888.5	827.2	772.8	725.0	677.4	636.7	603.1	573.7	554.1
27.5°	1001.4	942.3	877.2	816.5	758.3	706.5	659.6	619.5	581.7	553.5	530.0
30°	999.9	934.5	865.9	799.6	741.6	688.7	639.7	598.1	563.6	533.6	511.3
32.5°	990.4	923.8	848.9	779.4	716.4	663.2	618.0	576.7	539.8	512.4	489.0
35°	969.0	900.4	825.1	753.5	693.8	638.5	593.9	552.3	519.3	489.6	465.5
37.5°	941.7	877.5	801.1	726.2	661.7	609.3	567.4	528.2	493.7	466.4	442.3
40°	907.2	846.8	771.6	693.8	629.3	576.4	536.8	500.3	470.8	442.9	419.4
42.5°	859.9	813.6	736.3	660.5	593.0	543.1	504.7	474.4	444.1	418.8	395.3
45°	809.4	767.2	698.5	623.3	558.5	507.1	471.1	443.2	417.3	391.8	372.7
47.5°	753.5	719.0	655.4	582.0	518.1	472.6	437.2	412.3	388.5	368.9	349.9
50°	686.9	668.8	609.3	542.8	480.6	434.0	404.8	379.3	361.7	342.7	324.9
52.5°	625.1	610.5	562.1	496.7	440.2	399.2	368.0	347.8	330.5	316.6	302.3
55°	557.9	550.5	509.5	453.0	401.9	360.9	334.1	315.7	302.0	288.9	278.5
57.5°	496.1	495.5	459.2	410.8	360.9	326.1	300.5	285.4	273.5	264.2	255.3
60°	432.8	437.8	408.1	363.8	324.3	291.6	268.4	254.7	246.7	238.1	230.7
62.5°	375.4	383.1	356.1	321.3	282.4	255.6	237.8	227.4	218.5	212.2	206.6
65°	320.4	330.2	308.2	277.0	247.3	222.0	206.9	197.1	190.2	186.7	182.8
67.5°	272.0	277.3	262.5	238.1	213.4	191.4	178.9	170.3	164.4	162.9	158.4
70°	223.5	229.8	219.4	197.1	178.0	162.0	150.7	143.9	140.3	138.2	135.2
72.5°	184.6	187.3	176.9	161.4	146.2	132.9	124.5	119.5	115.3	114.4	113.0
75°	144.5	148.3	140.0	128.1	115.6	106.1	99.9	95.7	93.6	92.1	92.1
77.5°	109.1	112.4	107.6	97.2	89.8	81.4	77.3	73.4	72.5	71.0	71.6
80°	77.6	79.1	76.4	69.3	62.7	58.3	54.7	52.6	52.3	51.1	52.3
82.5°	51.4	51.7	48.7	45.5	40.4	38.0	35.7	34.8	34.5	34.5	33.9
85°	28.5	29.1	27.0	25.0	23.2	21.1	20.5	19.9	19.3	20.2	20.8
87.5°	11.0	11.3	11.0	10.1	9.5	8.9	8.6	9.2	8.3	8.9	9.2
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°	728.2	728.2	728.2	728.2	728.2	728.2	728.2	728.2	728.2	728.2	728.2
2.5°	711.6	709.2	705.7	699.7	695.6	691.1	689.3	689.9	688.1	685.7	686.3
5°	692.9	686.0	680.1	671.8	664.0	657.5	655.4	652.7	650.4	648.9	647.4
7.5°	673.0	663.4	654.5	646.2	637.3	629.0	625.7	623.3	622.1	618.0	616.2
10°	653.9	642.9	632.2	622.4	613.2	604.0	600.7	597.8	593.6	591.8	589.7
12.5°	633.7	622.7	611.1	599.2	590.0	582.6	577.0	574.9	570.7	568.9	567.7
15°	614.1	600.7	591.5	582.3	568.3	560.0	557.6	550.2	547.8	544.3	541.9
17.5°	594.5	582.0	568.3	557.6	549.0	538.6	533.0	529.7	525.2	522.0	517.5
20°	575.2	560.6	549.9	536.5	527.0	517.5	510.4	507.4	503.5	499.1	492.8
22.5°	556.4	540.4	530.0	517.5	505.6	494.6	488.7	484.5	476.8	475.9	470.2
25°	534.4	520.2	506.5	493.4	481.8	470.8	467.0	460.4	457.8	452.4	451.5
27.5°	513.6	498.5	483.6	469.3	459.2	451.5	444.7	440.5	437.8	433.7	434.0
30°	491.9	475.3	461.3	448.2	437.2	429.8	425.4	423.3	419.4	418.8	416.7
32.5°	468.8	453.6	439.0	427.4	416.1	409.6	407.5	405.4	403.1	403.4	402.8
35°	445.6	432.2	416.7	406.0	396.8	393.0	389.7	389.1	388.2	388.8	388.8
37.5°	423.0	408.4	395.6	385.8	380.5	375.1	373.6	373.3	373.6	374.2	375.7
40°	401.0	387.6	375.1	367.1	361.2	358.8	356.7	357.6	358.8	360.9	362.6
42.5°	379.0	366.2	355.8	347.8	342.1	340.9	341.2	343.0	343.3	346.3	349.6
45°	355.8	344.8	335.0	328.8	325.2	323.7	324.3	326.1	328.2	332.3	336.5
47.5°	334.4	324.6	316.0	309.7	307.1	306.5	307.6	310.0	314.8	318.9	323.7
50°	312.7	303.8	295.8	290.1	289.8	287.7	290.4	293.4	299.0	304.7	311.8
52.5°	291.3	282.7	275.8	271.4	270.2	270.2	273.5	278.8	283.9	291.3	297.8
55°	269.0	261.3	254.7	253.3	251.5	252.4	255.9	261.3	268.4	276.7	283.9
57.5°	246.1	239.6	234.8	232.7	231.9	234.8	239.0	244.6	253.8	262.2	269.9
60°	224.4	218.8	213.7	213.1	212.5	216.4	221.4	227.4	236.6	244.9	254.4
62.5°	201.2	196.8	193.5	192.6	192.6	196.5	202.1	209.9	218.5	227.4	237.5
65°	177.8	173.9	173.0	171.8	174.5	176.9	182.5	189.9	199.2	209.0	219.7
67.5°	156.1	153.7	151.9	151.9	154.0	158.4	163.5	170.9	180.4	190.8	200.3
70°	134.4	132.0	130.5	132.0	133.2	138.5	143.9	151.0	159.9	170.0	180.1
72.5°	111.8	112.1	112.4	112.1	113.2	118.3	123.7	130.5	139.1	148.9	158.1
75°	91.8	90.4	90.7	91.3	95.1	97.8	103.1	109.7	118.9	127.8	135.5
77.5°	71.3	70.7	72.2	72.2	75.8	79.1	83.5	90.1	98.1	106.1	112.4
80°	52.3	52.6	53.8	54.1	57.1	60.6	65.4	69.9	77.0	82.6	88.6
82.5°	35.4	36.0	37.5	39.5	40.7	42.8	47.0	51.7	56.8	62.7	66.3
85°	20.5	21.4	22.6	24.1	25.3	27.3	30.3	34.2	37.7	41.0	44.0
87.5°	10.1	10.1	11.0	11.6	12.5	13.7	15.8	17.2	19.6	22.0	23.2
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: P243519

CATALOG NUMBER: S124DRP-H575D940-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	728.2	728.2	728.2	728.2
2.5°	685.1	684.8	683.7	684.3
5°	646.5	643.5	643.2	642.0
7.5°	613.2	612.3	612.3	609.9
10°	587.7	585.0	585.6	584.4
12.5°	563.3	561.8	560.0	558.2
15°	535.9	535.9	535.9	530.9
17.5°	514.5	514.2	512.7	512.4
20°	492.2	491.0	487.2	489.9
22.5°	469.6	468.8	465.5	466.1
25°	448.5	447.6	447.1	444.7
27.5°	430.4	430.7	431.3	429.8
30°	416.7	415.8	417.0	415.5
32.5°	404.0	404.0	402.8	403.1
35°	389.4	390.6	390.9	390.6
37.5°	376.6	378.1	379.3	378.1
40°	364.7	365.9	367.1	366.8
42.5°	352.2	354.3	355.2	356.1
45°	340.3	343.0	344.5	344.8
47.5°	328.2	331.4	334.4	334.1
50°	316.3	320.4	323.1	322.8
52.5°	304.4	308.5	311.8	313.3
55°	291.0	296.4	299.3	302.0
57.5°	277.6	283.6	286.5	287.7
60°	262.8	268.1	272.0	272.9
62.5°	246.1	251.8	256.8	258.0
65°	228.9	235.1	239.0	239.6
67.5°	209.0	214.9	218.8	220.6
70°	188.5	192.9	197.1	199.7
72.5°	165.6	170.9	174.8	176.6
75°	141.8	147.7	149.8	151.0
77.5°	117.1	120.7	124.0	124.2
80°	92.4	96.9	98.1	101.1
82.5°	68.1	72.2	71.3	72.5
85°	44.9	46.4	47.3	47.6
87.5°	23.8	24.7	25.3	25.6
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P243519  
 CATALOG NUMBER: S124DRP-H575D940-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	17.06	18.63	17.42	18.94	19.26	17.35	18.92	17.71	19.23	19.55
	3H	18.50	19.91	18.88	20.24	20.60	18.73	20.15	19.11	20.47	20.83
	4H	19.02	20.35	19.42	20.70	21.07	19.21	20.54	19.61	20.89	21.27
	6H	19.36	20.60	19.78	20.96	21.35	19.53	20.76	19.94	21.13	21.52
	8H	19.46	20.63	19.89	21.02	21.42	19.61	20.79	20.04	21.18	21.58
	12H	19.51	20.63	19.94	21.02	21.45	19.66	20.78	20.09	21.16	21.59
4H	2H	18.19	19.52	18.59	19.87	20.25	18.14	19.47	18.53	19.81	20.19
	3H	19.70	20.81	20.11	21.21	21.61	19.84	20.95	20.25	21.35	21.75
	4H	20.27	21.27	20.70	21.69	22.12	20.43	21.44	20.87	21.85	22.29
	6H	20.68	21.56	21.14	22.00	22.46	20.84	21.71	21.29	22.15	22.61
	8H	20.80	21.62	21.26	22.06	22.53	20.94	21.76	21.40	22.20	22.67
	12H	20.87	21.61	21.35	22.08	22.55	21.01	21.74	21.49	22.22	22.69
8H	4H	20.70	21.51	21.16	21.96	22.42	20.77	21.59	21.23	22.03	22.50
	6H	21.19	21.87	21.69	22.36	22.84	21.31	21.98	21.80	22.47	22.95
	8H	21.36	21.96	21.87	22.47	22.96	21.47	22.08	21.98	22.59	23.07
	12H	21.47	22.01	21.98	22.50	23.07	21.58	22.12	22.09	22.61	23.18
12H	4H	20.74	21.47	21.22	21.95	22.42	20.81	21.54	21.29	22.02	22.49
	6H	21.26	21.87	21.77	22.38	22.86	21.37	21.98	21.88	22.48	22.97
	8H	21.47	22.01	21.98	22.50	23.07	21.59	22.13	22.10	22.62	23.18