

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: P242300

Luminaire Tested: S122DRP-S485D840-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P242300  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-19)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: S122DRP-S485D840-X4F0-XX-UDD-A-W  
Description: DEFINE 2 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER  
STANDARD LIGHT ENGINE  
Light Source: (92) 4000K CCT, 80 CRI LEDS  
Ballast/Driver: -

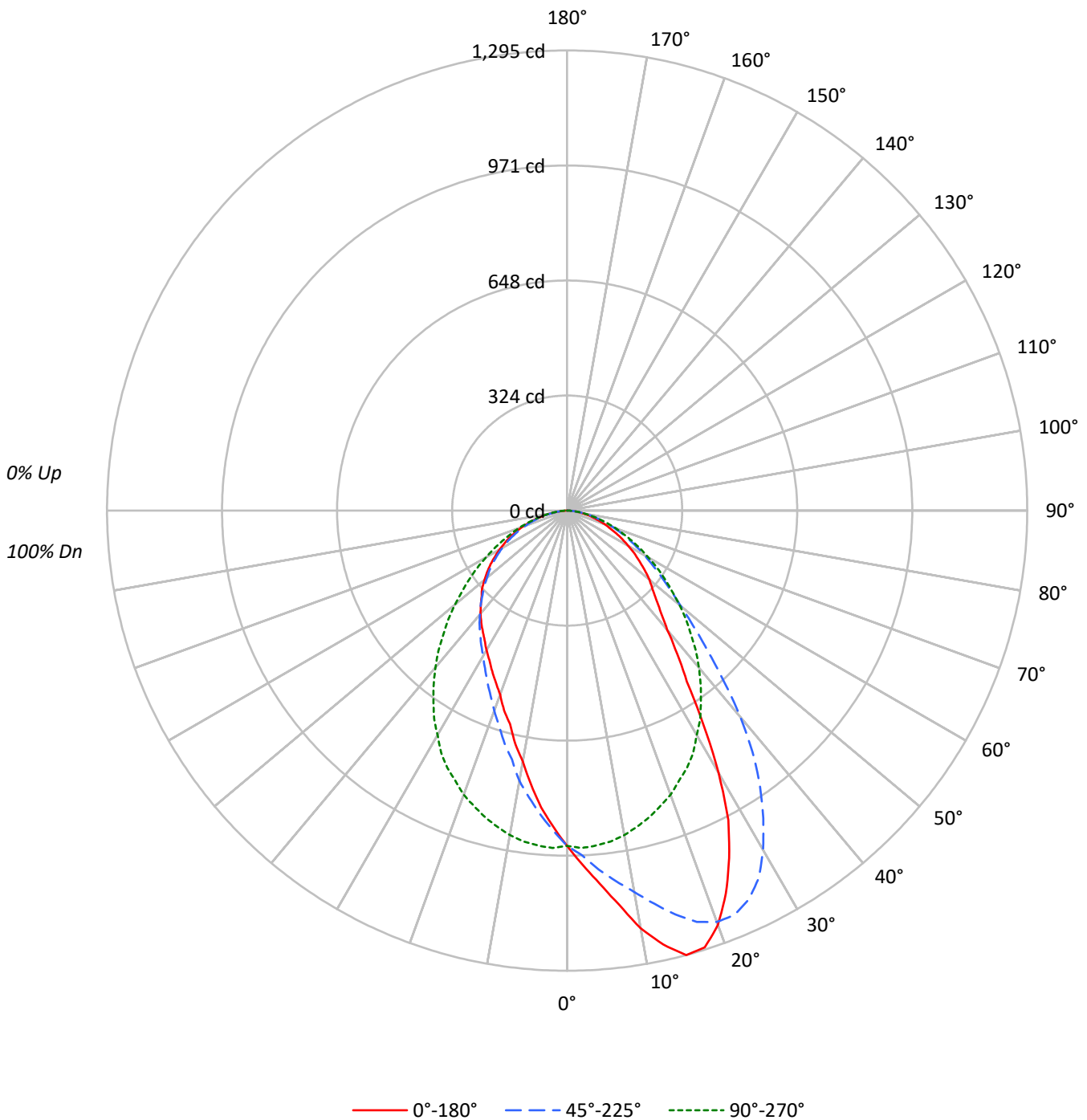
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2081.4 lumens  
Efficiency: N/A  
Efficacy: 110.7 lumens/watt  
Spacing Criteria (0/90/45): 1.09 / 1.16 / 1.23  
Luminous Opening: Rectangular (W 3.88' x L: 0.15' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 18.8  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): 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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CATALOG NUMBER: S122DRP-S485D840-X4F0-XX-UDD-A-W

### 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	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	106	102	98	107	103	100	97	99	96	94	95	93	91	92	90	88	86																																				
2	101	94	87	82	98	92	86	81	88	83	79	85	81	78	82	79	76	74																																				
3	93	83	76	70	90	82	75	69	79	73	68	76	71	67	74	69	66	64																																				
4	86	75	66	60	83	73	66	60	71	64	59	69	63	58	66	62	58	55																																				
5	79	67	59	53	77	66	58	52	64	57	52	62	56	51	60	55	51	49																																				
6	74	61	53	47	72	60	52	46	58	51	46	57	51	46	55	50	45	43																																				
7	69	56	48	42	67	55	47	42	54	46	41	52	46	41	51	45	41	39																																				
8	64	51	43	38	63	51	43	38	49	42	37	48	42	37	47	41	37	35																																				
9	60	47	39	34	59	47	39	34	46	39	34	45	38	34	44	38	34	32																																				
10	56	44	36	31	55	43	36	31	42	36	31	41	35	31	41	35	31	29																																				

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°	135°	180°
0°	17972	17972	17972	17972	17972
5°	20147	19392	18088	16432	16029
10°	23088	21082	17939	14945	13872
15°	25541	23202	17612	13392	12256
20°	25151	24975	17258	12156	11171
25°	22679	25393	16788	11164	10485
30°	18741	24253	16038	10392	9985
35°	13659	22007	15252	9915	9629
40°	10908	18870	14327	9503	9431
45°	9533	15090	13253	9083	9161
50°	8961	12313	12218	8736	8982
55°	8259	10703	11161	8418	8741
60°	7570	9531	10042	8038	8370
65°	6896	8613	9037	7549	8009
70°	6260	7691	8059	6967	7474
75°	5549	6808	6962	6241	6616
80°	4772	5770	5770	5134	5331
85°	4284	4677	4284	3562	3169

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 65°  
 Vertical Angle: 45°  
 Luminance: 23120 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	89.9	4.3
10°-20°	261.6	12.6
20°-30°	379.6	18.2
30°-40°	400.2	19.2
40°-50°	354.1	17.0
50°-60°	282.6	13.6
60°-70°	192.0	9.2
70°-80°	98.3	4.7
80°-90°	23.2	1.1
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°	731.0	35.1
0°-40°	1131.2	54.3
0°-60°	1767.9	84.9
0°-90°	2081.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2081.4	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	944	944	944	944	944	
5°	1054	1014	946	859	838	105
15°	1295	1177	893	679	622	359
25°	1079	1208	799	531	499	489
35°	587	946	656	426	414	380
45°	354	560	492	337	340	277
55°	249	322	336	254	263	223
65°	153	191	200	168	178	152
75°	75	92	95	85	90	80
85°	20	21	20	16	14	22
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°	943.5	943.5	943.5	943.5	943.5	943.5	943.5	943.5	943.5	943.5	943.5
2.5°	997.9	998.2	999.0	993.1	992.4	992.4	987.3	983.0	977.9	971.0	971.8
5°	1053.7	1057.7	1059.1	1054.8	1048.3	1047.5	1041.4	1031.2	1021.8	1014.2	1008.7
7.5°	1118.2	1119.7	1116.8	1111.7	1107.4	1099.0	1088.9	1079.1	1064.6	1051.5	1042.1
10°	1193.7	1195.8	1189.7	1181.3	1174.4	1164.3	1147.6	1130.6	1109.9	1090.0	1074.0
12.5°	1251.0	1257.1	1248.8	1249.5	1236.5	1221.6	1200.9	1194.4	1163.2	1133.5	1116.1
15°	1295.2	1294.8	1295.6	1288.7	1280.0	1277.8	1256.8	1233.9	1192.9	1176.6	1148.3
17.5°	1288.7	1293.7	1296.6	1294.5	1293.0	1289.8	1280.7	1263.6	1241.2	1213.6	1179.9
20°	1240.8	1248.1	1249.1	1257.5	1262.2	1268.4	1270.9	1266.9	1254.2	1232.1	1203.8
22.5°	1166.8	1167.6	1171.5	1185.7	1197.3	1215.1	1224.5	1242.3	1239.4	1231.4	1208.9
25°	1079.1	1075.5	1088.1	1094.7	1118.2	1142.9	1160.7	1180.2	1197.7	1208.2	1201.3
27.5°	981.9	974.3	993.5	1010.6	1027.2	1051.2	1078.0	1109.9	1134.2	1167.2	1175.2
30°	852.1	855.4	873.5	892.0	921.0	958.7	989.9	1025.8	1064.6	1102.7	1129.1
32.5°	712.1	727.0	736.8	767.6	792.3	835.4	884.7	931.9	982.6	1027.2	1071.8
35°	587.4	601.9	617.9	638.5	674.4	716.1	760.7	821.3	887.3	946.4	995.0
37.5°	508.4	505.8	515.6	530.8	561.7	597.6	650.5	712.1	791.2	856.8	922.1
40°	438.7	437.3	443.8	457.6	479.7	504.4	549.3	601.9	674.1	758.9	840.5
42.5°	390.9	392.3	395.2	403.9	417.3	436.6	467.4	510.2	574.7	653.4	742.6
45°	353.9	356.4	360.4	365.1	373.8	390.5	409.4	441.3	493.5	560.2	646.5
47.5°	324.9	325.6	330.0	334.3	339.4	349.5	366.2	386.5	426.4	483.3	560.6
50°	302.4	299.9	302.8	306.0	311.5	318.0	328.1	347.0	371.7	415.5	477.5
52.5°	274.8	275.6	278.1	278.8	283.5	290.1	299.1	310.7	332.5	364.4	412.6
55°	248.7	250.6	252.0	254.2	258.5	263.2	270.5	279.2	296.6	322.3	360.1
57.5°	224.1	224.8	225.9	230.6	233.1	237.5	244.8	252.7	264.3	284.3	314.0
60°	198.7	198.7	201.6	203.4	207.0	211.4	216.8	224.4	234.6	250.2	273.0
62.5°	175.5	175.1	175.9	179.1	181.7	185.6	191.1	197.3	206.7	220.1	237.9
65°	153.0	152.3	154.5	155.2	158.1	162.1	166.4	173.3	180.9	191.1	207.8
67.5°	130.5	131.6	133.1	134.5	136.0	140.7	143.6	148.7	155.2	163.9	175.5
70°	112.4	112.4	112.4	113.5	115.7	117.8	120.7	124.7	130.9	138.1	148.3
72.5°	92.1	93.5	95.0	93.9	96.8	97.9	101.5	103.3	109.1	113.1	121.8
75°	75.4	75.4	75.4	77.2	78.3	79.4	81.6	83.8	86.7	92.5	97.2
77.5°	59.5	59.1	59.5	59.8	61.3	62.7	63.5	65.3	68.2	71.1	75.4
80°	43.5	44.2	44.6	45.3	45.3	46.0	46.4	49.0	50.8	52.6	55.1
82.5°	31.2	31.2	31.2	31.2	31.5	31.9	33.0	33.4	33.7	35.2	37.0
85°	19.6	19.2	19.2	19.9	19.6	19.6	20.3	21.0	21.0	21.4	22.5
87.5°	9.4	9.4	9.8	9.4	9.4	9.8	9.8	9.4	9.8	10.2	10.5
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°	943.5	943.5	943.5	943.5	943.5	943.5	943.5	943.5	943.5	943.5	943.5
2.5°	974.3	971.4	969.6	963.1	957.3	951.5	949.6	950.4	942.4	934.8	931.5
5°	1005.8	998.6	991.7	981.9	970.3	957.6	951.1	946.0	933.3	919.5	911.6
7.5°	1034.5	1025.1	1012.7	995.3	979.4	960.5	948.9	939.1	921.4	902.9	891.6
10°	1060.2	1046.1	1029.0	1006.6	985.9	961.6	944.6	927.5	905.8	882.6	868.1
12.5°	1082.3	1062.0	1045.4	1014.9	989.5	957.6	936.6	910.8	887.6	859.0	844.8
15°	1120.1	1084.9	1053.0	1020.3	990.2	947.8	925.3	893.1	863.0	828.9	812.6
17.5°	1148.0	1109.9	1060.6	1021.1	987.7	942.4	910.1	871.7	837.6	799.9	778.1
20°	1171.2	1125.9	1071.8	1022.5	980.5	926.8	890.9	851.4	809.7	765.8	741.9
22.5°	1185.0	1136.7	1083.4	1017.1	966.0	914.1	866.6	822.4	779.9	731.7	706.3
25°	1185.7	1142.2	1085.6	1014.5	954.4	895.2	840.9	798.8	747.7	703.4	666.8
27.5°	1173.7	1139.3	1084.5	1009.5	940.9	873.1	814.0	768.0	714.0	666.1	629.5
30°	1147.3	1129.1	1076.2	1000.8	924.3	849.9	783.2	729.2	675.5	626.9	589.2
32.5°	1106.3	1105.9	1061.0	988.4	906.5	820.6	750.9	696.2	635.3	587.8	552.2
35°	1050.1	1067.5	1038.1	968.9	883.3	793.0	718.3	655.9	594.3	548.6	514.9
37.5°	978.6	1018.9	1007.3	942.7	853.5	763.6	682.4	617.1	558.0	510.9	477.9
40°	904.3	959.4	967.4	911.9	821.6	728.5	641.1	576.2	518.9	476.8	443.5
42.5°	824.5	891.3	916.6	874.9	786.8	691.5	604.1	536.3	479.7	439.1	410.5
45°	733.5	818.7	858.3	832.9	747.3	650.1	560.2	492.0	440.6	402.1	379.3
47.5°	651.2	743.7	794.1	782.1	704.9	608.4	519.6	453.2	402.1	370.9	349.5
50°	562.7	658.5	722.7	725.6	658.5	563.1	473.9	412.3	366.2	337.6	320.9
52.5°	485.9	576.2	647.6	666.1	606.6	516.0	432.9	371.7	332.5	306.8	292.3
55°	421.0	498.2	575.8	604.1	555.1	468.1	390.2	336.1	298.1	279.9	266.9
57.5°	359.3	427.1	500.7	530.5	499.3	422.8	347.4	299.9	267.6	251.3	241.1
60°	312.6	363.3	427.1	464.5	438.4	372.0	308.2	263.6	238.2	224.1	214.7
62.5°	269.0	312.6	364.0	397.4	386.2	324.5	269.0	231.0	209.9	196.9	190.7
65°	229.2	264.7	306.4	337.9	328.5	281.0	234.2	200.5	183.1	172.6	167.2
67.5°	195.1	222.3	252.0	281.0	273.0	237.9	198.3	171.1	157.7	148.3	145.0
70°	163.2	182.7	208.5	230.6	224.4	196.9	167.2	144.7	133.4	125.8	122.6
72.5°	132.7	147.9	166.1	183.1	179.5	157.7	134.2	118.6	110.6	103.7	101.2
75°	104.8	117.1	129.1	141.0	140.0	122.2	107.7	94.6	87.7	82.3	81.2
77.5°	81.9	89.6	98.3	105.9	104.1	92.5	80.5	72.5	67.1	63.5	63.1
80°	59.1	63.1	68.9	74.0	71.4	67.1	58.0	52.6	49.0	45.3	43.9
82.5°	38.8	42.8	45.7	47.9	46.0	42.1	37.3	34.1	32.3	30.1	29.7
85°	22.5	24.7	26.1	26.8	26.1	23.6	21.0	19.6	17.8	16.7	16.3
87.5°	10.9	10.9	10.9	11.6	10.5	10.5	9.1	8.0	7.6	7.3	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



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**CANDELA DISTRIBUTION (continued):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	943.5	943.5	943.5	943.5	943.5	943.5	943.5	943.5	943.5	943.5	943.5
2.5°	927.9	925.7	918.1	914.1	907.6	901.4	897.4	899.2	900.7	900.0	898.9
5°	904.3	897.4	886.9	877.8	871.3	859.4	854.3	851.7	849.6	847.0	844.5
7.5°	878.2	868.4	853.5	841.9	830.3	815.1	807.5	803.1	798.4	793.0	787.9
10°	849.9	834.7	818.7	800.6	786.1	772.7	760.7	752.7	745.5	738.6	733.5
12.5°	820.2	802.1	781.4	754.9	738.6	717.9	718.7	703.1	690.7	687.1	681.0
15°	788.3	763.6	738.6	709.2	696.5	679.1	668.3	657.4	647.6	640.7	638.9
17.5°	753.5	720.5	696.2	674.4	653.8	636.0	626.6	617.9	609.5	599.4	599.0
20°	712.5	684.9	657.7	639.3	617.9	599.7	587.4	578.7	571.8	566.4	561.7
22.5°	673.7	642.9	618.6	597.9	576.9	563.1	554.0	545.7	540.3	534.1	529.8
25°	631.6	608.1	580.9	558.0	540.6	531.2	523.2	516.0	512.3	508.4	503.3
27.5°	595.7	569.6	542.8	525.0	509.1	500.7	494.6	489.1	485.9	483.3	480.1
30°	557.3	530.8	510.9	493.5	480.8	472.5	468.8	465.9	461.9	460.5	459.0
32.5°	520.3	497.1	480.8	466.3	454.3	449.6	446.4	443.8	440.9	439.5	436.2
35°	485.9	465.9	449.3	440.9	431.1	426.4	423.9	420.2	417.3	415.9	415.5
37.5°	452.9	434.8	423.5	412.3	407.6	405.0	401.4	398.9	397.8	397.4	397.0
40°	421.0	406.8	397.0	388.3	386.5	382.2	379.3	377.1	377.1	377.5	377.1
42.5°	392.0	379.6	371.3	364.0	361.9	359.7	356.8	357.2	357.9	359.3	357.9
45°	362.6	353.5	347.4	343.7	339.8	337.2	336.9	337.9	338.3	338.7	339.8
47.5°	335.0	329.2	323.4	319.1	317.3	316.9	316.2	318.0	319.8	320.2	322.0
50°	311.1	304.2	299.5	297.0	295.5	294.8	295.5	297.7	299.1	301.0	302.0
52.5°	284.3	279.9	277.0	275.2	274.8	275.6	275.6	278.1	280.6	281.0	281.4
55°	260.0	256.4	255.6	252.4	253.8	253.5	255.3	256.7	258.9	261.1	261.4
57.5°	235.3	232.1	229.9	230.2	230.6	232.1	233.5	236.0	238.6	241.1	241.1
60°	210.7	209.2	208.1	208.1	208.9	211.0	212.8	215.4	216.8	218.3	219.4
62.5°	188.2	186.7	185.6	186.4	188.5	189.6	191.8	192.9	194.4	195.8	196.2
65°	164.3	163.5	164.6	165.3	165.7	167.5	170.1	171.1	172.6	173.3	175.9
67.5°	142.5	142.5	142.1	143.2	145.4	145.8	148.3	151.2	151.2	152.7	154.5
70°	120.4	121.1	121.8	122.6	124.4	125.1	126.9	128.0	129.4	130.5	131.6
72.5°	100.1	100.1	100.8	100.4	101.9	103.7	105.2	106.2	107.7	109.1	110.2
75°	80.1	80.1	80.9	81.2	83.0	84.8	84.5	85.2	86.7	88.1	88.8
77.5°	62.0	61.3	62.0	62.4	63.1	64.5	64.9	66.0	67.8	67.4	68.2
80°	44.6	43.5	44.6	45.0	45.0	46.8	46.8	47.5	48.6	47.5	48.6
82.5°	28.6	28.3	29.0	29.0	29.7	29.4	30.1	30.1	31.2	30.8	31.2
85°	16.0	15.6	16.0	15.6	16.0	16.3	16.3	16.0	16.0	16.7	15.6
87.5°	6.2	5.8	5.4	5.4	5.1	4.7	4.4	4.4	4.4	3.6	3.6
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: P242300

CATALOG NUMBER: S122DRP-S485D840-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	943.5	943.5	943.5	943.5
2.5°	895.2	894.5	894.5	891.3
5°	839.4	838.3	836.5	838.3
7.5°	786.5	781.8	781.0	777.4
10°	727.4	724.5	724.1	717.2
12.5°	682.4	674.4	676.2	673.0
15°	629.1	629.1	627.7	621.5
17.5°	591.0	590.7	587.4	589.6
20°	557.7	555.5	551.1	551.1
22.5°	526.1	526.5	521.8	523.6
25°	502.9	500.0	497.8	498.9
27.5°	479.0	477.9	477.5	474.3
30°	458.7	455.1	455.8	454.0
32.5°	435.5	434.8	433.7	432.2
35°	414.8	415.2	413.4	414.1
37.5°	396.3	397.8	396.7	396.7
40°	378.2	378.2	378.2	379.3
42.5°	360.8	360.1	359.3	359.0
45°	340.5	341.6	341.9	340.1
47.5°	322.7	323.1	322.7	324.9
50°	303.9	303.1	303.9	303.1
52.5°	283.9	284.3	283.5	283.5
55°	262.9	263.6	263.2	263.2
57.5°	241.5	241.9	242.6	240.8
60°	219.0	220.8	220.5	219.7
62.5°	198.3	198.7	198.7	198.7
65°	176.9	177.7	176.6	177.7
67.5°	153.7	154.1	154.8	155.2
70°	132.3	132.0	133.1	134.2
72.5°	109.9	111.0	110.2	111.0
75°	88.1	89.2	88.8	89.9
77.5°	67.4	67.8	67.8	68.2
80°	48.6	47.9	47.1	48.6
82.5°	30.1	30.8	30.1	29.7
85°	15.6	15.2	14.5	14.5
87.5°	3.6	3.3	3.3	2.9
90°	0.0	0.0	0.0	0.0

TEST NUMBER: P242300

CATALOG NUMBER: S122DRP-S485D840-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	18.33	19.85	18.70	20.16	20.48	21.59	23.10	21.95	23.42	23.73
	3H	19.74	21.10	20.12	21.43	21.79	22.60	23.96	22.97	24.28	24.65
	4H	20.24	21.52	20.64	21.87	22.25	22.91	24.19	23.31	24.54	24.92
	6H	20.60	21.78	21.01	22.14	22.54	23.11	24.29	23.52	24.66	25.05
	8H	20.71	21.83	21.14	22.22	22.62	23.15	24.28	23.58	24.67	25.07
	12H	20.78	21.86	21.21	22.24	22.67	23.17	24.25	23.60	24.63	25.06
4H	2H	19.19	20.47	19.59	20.82	21.20	21.80	23.07	22.20	23.42	23.80
	3H	20.75	21.81	21.16	22.21	22.61	23.14	24.20	23.55	24.60	25.00
	4H	21.34	22.29	21.77	22.71	23.15	23.64	24.60	24.08	25.01	25.45
	6H	21.78	22.61	22.24	23.06	23.52	23.98	24.81	24.44	25.25	25.71
	8H	21.92	22.70	22.39	23.14	23.61	24.05	24.83	24.52	25.27	25.74
	12H	22.03	22.72	22.51	23.20	23.67	24.09	24.79	24.58	25.26	25.74
8H	4H	21.77	22.55	22.23	22.99	23.46	23.77	24.55	24.23	24.99	25.46
	6H	22.30	22.94	22.80	23.44	23.91	24.21	24.85	24.71	25.34	25.82
	8H	22.50	23.07	23.01	23.58	24.07	24.34	24.92	24.86	25.43	25.92
	12H	22.66	23.16	23.17	23.66	24.22	24.43	24.94	24.94	25.43	26.00
12H	4H	21.83	22.52	22.31	23.00	23.47	23.77	24.46	24.25	24.94	25.41
	6H	22.38	22.96	22.90	23.47	23.95	24.21	24.79	24.73	25.30	25.78
	8H	22.62	23.13	23.13	23.62	24.19	24.39	24.90	24.90	25.39	25.95