

Scaled data based on original data using  
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P831741

Luminaire Tested: S123DP-S340D850-4F0-1E-UDD-G

Issue Date: 05/03/2024

**Test Information**

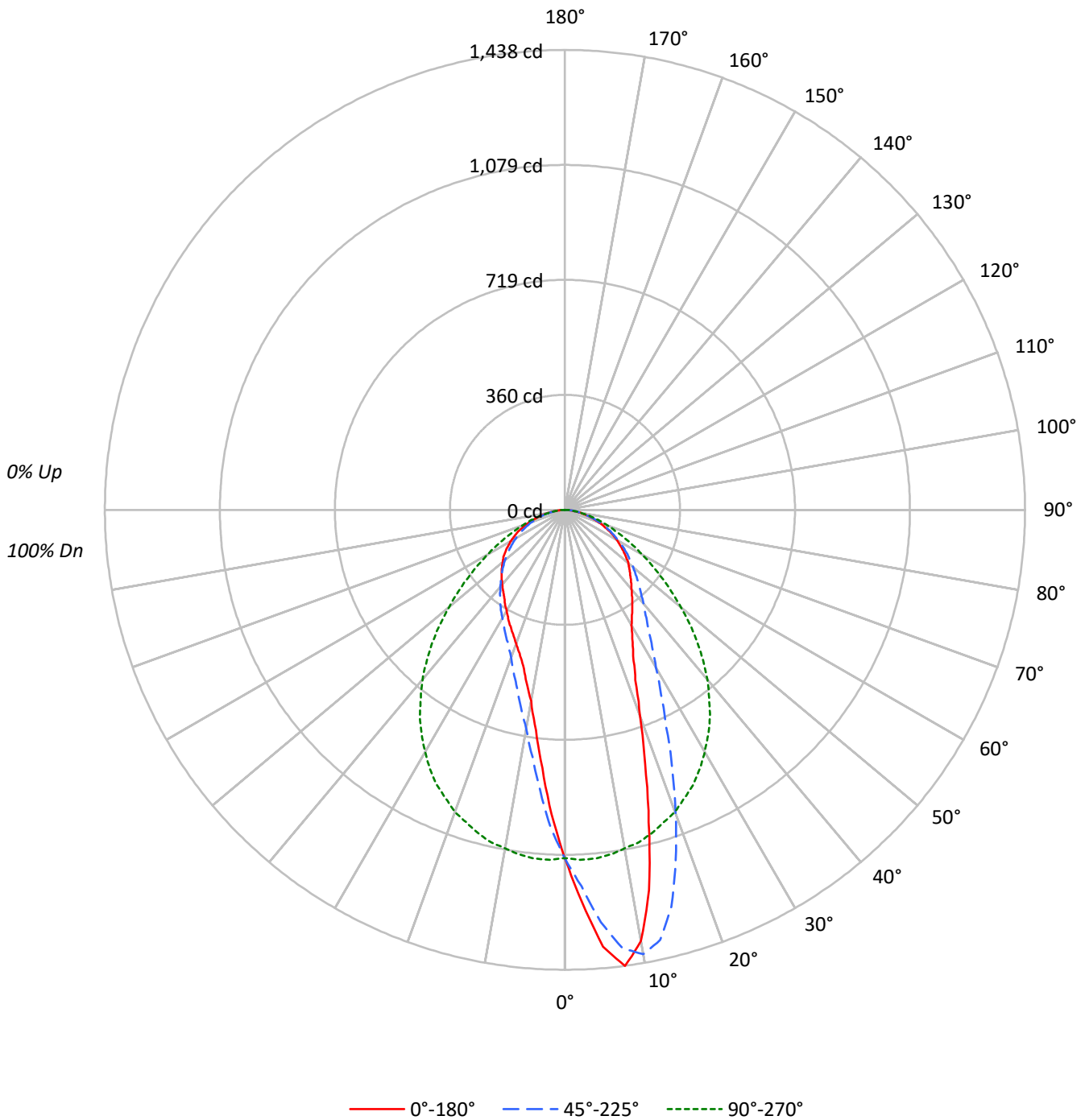
Test Method: LM-79-2019  
Report Number: P831741  
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2301-905-1, -)  
Test Lab: INNOVATION CENTER  
Issue Date: 05/03/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: S123DP-S340D850-4F0-1E-UDD-G  
Description: DEFINE 3 DIRECT PENDANT LED LUMINAIRE  
DOWNLIGHT 340 LUMENS PER FOOT, GRAZE OPTIC  
  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1750.3 lumens  
Efficiency: N/A  
Efficacy: 141.2 lumens/watt  
Spacing Criteria (0/90/45): 0.65 / 1.19 / 0.89  
Luminous Opening: Rectangular (W 4' x L: 0.25' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 12.4  
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	0	
RCR																						
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100				100
1	110	106	102	98	107	103	100	97	99	96	94	95	93	91	92	90	88	86				86
2	101	94	88	82	99	92	86	81	88	84	80	85	81	78	82	79	76	74				74
3	93	84	76	70	91	82	75	70	79	73	69	77	72	67	74	70	66	64				64
4	86	75	67	61	84	74	67	61	72	65	60	69	64	59	67	62	58	56				56
5	80	68	60	54	78	67	59	54	65	58	53	63	57	52	61	56	52	50				50
6	74	62	54	48	73	61	53	48	60	53	47	58	52	47	56	51	47	45				45
7	70	57	49	43	68	56	49	43	55	48	43	53	47	43	52	47	42	40				40
8	65	53	45	39	64	52	44	39	51	44	39	49	43	39	48	43	39	37				37
9	61	49	41	36	60	48	41	36	47	40	36	46	40	36	45	40	35	34				34
10	58	45	38	33	57	45	38	33	44	37	33	43	37	33	42	37	33	31				31

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

	0°	45°	90°	135°	180°
0°	11720	11720	11720	11720	11720
5°	14822	13989	11825	9529	8756
10°	14966	15419	11746	7596	6638
15°	11272	14315	11666	6433	5613
20°	7853	11584	11518	5625	5098
25°	5989	8909	11264	5176	4783
30°	5180	7077	10858	4857	4528
35°	4807	5975	10390	4628	4348
40°	4551	5361	9733	4409	4288
45°	4399	4961	8899	4238	4261
50°	4324	4645	7911	4083	4238
55°	4162	4414	6942	3935	4258
60°	4013	4166	5983	3795	4187
65°	3769	3933	5160	3647	4106
70°	3484	3635	4390	3402	3865
75°	3152	3256	3760	3161	3531
80°	2597	2851	2975	2758	2975
85°	2062	2309	2186	2334	2371

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 80°  
 Vertical Angle: 45°  
 Luminance: 10161 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	102.9	5.9
10°-20°	256.1	14.6
20°-30°	303.2	17.3
30°-40°	304.9	17.4
40°-50°	279.7	16.0
50°-60°	230.9	13.2
60°-70°	163.3	9.3
70°-80°	87.2	5.0
80°-90°	22.1	1.3
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°	662.3	37.8
0°-40°	967.1	55.3
0°-60°	1477.7	84.4
0°-90°	1750.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1750.3	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	1089	1089	1089	1089	1089	
5°	1372	1295	1094	882	810	131
15°	1012	1285	1047	577	504	279
25°	504	750	948	436	403	238
35°	366	455	791	352	331	230
45°	289	326	585	278	280	224
55°	222	235	370	210	227	198
65°	148	154	203	143	161	147
75°	76	78	90	76	85	80
85°	17	19	18	19	19	20
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°	1088.8	1088.8	1088.8	1088.8	1088.8	1088.8	1088.8	1088.8	1088.8	1088.8	1088.8
2.5°	1227.3	1226.0	1224.8	1218.4	1212.1	1209.1	1206.1	1197.0	1187.9	1177.8	1167.7
5°	1371.8	1375.3	1378.9	1374.8	1370.8	1358.4	1346.0	1329.6	1313.2	1294.7	1276.3
7.5°	1438.5	1440.5	1442.5	1440.0	1437.5	1434.2	1430.9	1416.3	1401.6	1382.7	1363.7
10°	1369.3	1373.8	1378.4	1388.2	1398.1	1409.2	1420.3	1418.3	1416.3	1410.7	1405.1
12.5°	1217.2	1222.7	1228.3	1248.0	1267.7	1293.0	1318.2	1340.0	1361.7	1376.8	1392.0
15°	1011.5	1026.9	1042.4	1060.3	1078.2	1115.4	1152.5	1198.2	1244.0	1284.6	1325.3
17.5°	833.2	839.0	844.8	864.0	883.2	929.9	976.7	1029.5	1082.3	1149.7	1217.2
20°	685.6	690.9	696.3	721.5	746.8	783.4	820.0	879.4	938.8	1011.3	1083.8
22.5°	576.0	584.3	592.7	606.8	621.0	656.1	691.2	744.0	796.8	876.9	957.0
25°	504.3	510.3	516.4	525.0	533.6	561.6	589.6	633.1	676.5	750.1	823.6
27.5°	455.2	457.8	460.3	468.9	477.5	495.7	513.9	551.2	588.6	651.0	713.4
30°	416.8	418.6	420.4	428.0	435.5	447.9	460.3	487.3	514.4	569.4	624.5
32.5°	390.1	391.3	392.6	398.4	404.2	413.1	421.9	441.6	461.3	506.8	552.3
35°	365.8	366.6	367.3	371.6	375.9	382.5	389.1	404.0	418.9	454.7	490.6
37.5°	344.6	345.6	346.6	349.1	351.7	357.5	363.3	375.2	387.0	414.6	442.1
40°	323.9	325.6	327.4	329.2	330.9	335.7	340.5	349.6	358.7	381.5	404.2
42.5°	306.2	308.0	309.7	310.5	311.2	314.0	316.8	325.1	333.5	350.4	367.3
45°	289.0	289.8	290.5	291.3	292.0	294.3	296.6	303.9	311.2	325.9	340.5
47.5°	273.3	273.3	273.3	273.9	274.4	276.4	278.4	283.7	289.0	300.4	311.7
50°	258.2	258.2	258.2	257.4	256.7	257.9	259.2	263.2	267.3	277.4	287.5
52.5°	240.0	240.0	240.0	240.3	240.5	240.5	240.5	244.0	247.6	256.7	265.8
55°	221.8	222.8	223.8	223.1	222.3	222.8	223.3	225.6	227.9	235.2	242.5
57.5°	203.6	204.1	204.6	204.4	204.1	204.4	204.6	206.7	208.7	214.2	219.8
60°	186.4	186.4	186.4	185.9	185.4	185.9	186.4	187.5	188.5	193.5	198.6
62.5°	167.2	167.5	167.7	168.0	168.3	167.7	167.2	168.5	169.8	173.6	177.3
65°	148.0	148.3	148.5	149.3	150.1	149.6	149.1	150.3	151.6	154.4	157.1
67.5°	130.9	130.4	129.9	130.1	130.4	131.1	131.9	132.1	132.4	135.4	138.4
70°	110.7	111.2	111.7	111.4	111.2	111.4	111.7	112.4	113.2	115.5	117.7
72.5°	92.5	92.7	93.0	93.0	93.0	93.5	94.0	94.7	95.5	96.8	98.0
75°	75.8	75.8	75.8	76.3	76.8	77.1	77.3	77.3	77.3	78.3	79.3
77.5°	57.6	58.9	60.1	59.9	59.6	60.1	60.6	61.4	62.1	62.7	63.2
80°	41.9	41.9	41.9	42.2	42.4	43.2	44.0	44.5	45.0	46.0	47.0
82.5°	26.8	27.0	27.3	28.0	28.8	29.3	29.8	30.6	31.3	31.3	31.3
85°	16.7	16.2	15.7	16.2	16.7	17.2	17.7	17.9	18.2	18.7	19.2
87.5°	8.1	8.1	8.1	8.1	8.1	8.3	8.6	8.6	8.6	8.6	8.6
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°	1088.8	1088.8	1088.8	1088.8	1088.8	1088.8	1088.8	1088.8	1088.8	1088.8	1088.8
2.5°	1164.6	1161.6	1150.5	1139.4	1126.7	1114.1	1104.8	1095.4	1081.5	1067.6	1056.3
5°	1262.1	1248.0	1224.5	1201.0	1169.2	1137.3	1115.9	1094.4	1065.6	1036.8	1013.8
7.5°	1339.5	1315.2	1282.4	1249.5	1207.8	1166.1	1126.7	1087.3	1043.4	999.4	963.5
10°	1388.7	1372.3	1334.4	1296.5	1240.7	1184.8	1129.8	1074.7	1018.1	961.5	914.0
12.5°	1393.5	1395.0	1360.2	1325.3	1262.1	1199.0	1132.0	1065.1	993.9	922.6	867.3
15°	1351.3	1377.3	1358.1	1338.9	1275.3	1211.6	1129.3	1046.9	964.8	882.7	818.8
17.5°	1273.0	1328.8	1331.6	1334.4	1270.7	1207.1	1115.9	1024.7	931.7	838.7	771.5
20°	1166.1	1248.5	1276.8	1305.1	1253.3	1201.5	1103.5	1005.5	901.4	797.3	726.8
22.5°	1057.0	1157.1	1208.8	1260.6	1222.2	1183.8	1079.5	975.2	865.3	755.4	683.9
25°	932.7	1041.9	1121.4	1201.0	1177.5	1154.0	1051.2	948.4	831.4	714.4	641.4
27.5°	824.3	935.2	1031.2	1127.2	1122.2	1117.1	1015.1	913.0	793.3	673.5	603.0
30°	727.8	831.2	938.5	1045.9	1058.3	1070.7	972.1	873.6	753.6	633.6	565.6
32.5°	642.4	732.6	847.8	963.0	987.3	1011.5	922.6	833.7	714.9	596.2	530.8
35°	572.5	654.3	769.5	884.7	915.0	945.3	868.0	790.7	675.0	559.3	496.9
37.5°	510.6	579.0	691.5	803.9	841.0	878.1	808.9	739.7	631.3	522.9	465.6
40°	459.3	514.4	617.7	721.0	764.0	806.9	749.8	692.7	589.9	487.1	434.3
42.5°	416.3	465.3	559.1	652.8	694.0	735.2	686.9	638.7	547.2	455.7	407.5
45°	379.7	418.9	504.0	589.1	628.3	667.5	626.0	584.6	504.0	423.4	378.4
47.5°	345.3	378.9	451.7	524.5	559.3	594.2	561.9	529.5	461.3	393.1	352.4
50°	314.5	341.6	405.2	468.9	499.2	529.5	501.0	472.4	416.3	360.3	324.9
52.5°	287.7	309.7	363.0	416.3	442.4	468.4	443.9	419.4	374.9	330.4	299.6
55°	261.2	279.9	326.1	372.4	390.1	407.7	388.8	369.9	334.0	298.1	272.1
57.5°	236.5	253.1	291.0	328.9	342.6	356.2	339.0	321.9	294.8	267.8	246.1
60°	212.2	225.9	257.4	289.0	297.3	305.7	291.8	277.9	258.9	240.0	220.5
62.5°	189.7	202.1	225.6	249.1	254.7	260.2	249.6	239.0	224.6	210.2	195.0
65°	166.5	175.8	195.0	214.2	217.8	221.3	212.0	202.6	191.7	180.9	169.8
67.5°	145.0	151.6	167.2	182.9	183.2	183.4	175.8	168.3	162.2	156.1	147.3
70°	124.0	130.4	140.7	151.1	151.3	151.6	145.5	139.5	134.9	130.4	123.8
72.5°	102.6	107.1	114.9	122.8	122.3	121.8	118.0	114.2	110.7	107.1	102.3
75°	83.1	86.9	92.2	97.5	96.0	94.5	92.5	90.4	87.4	84.4	81.3
77.5°	65.4	67.7	70.7	73.8	72.8	71.7	70.0	68.2	65.9	63.7	62.4
80°	48.0	49.0	51.0	53.1	52.5	52.0	50.0	48.0	47.5	47.0	45.2
82.5°	32.6	33.9	34.4	34.9	34.6	34.4	32.8	31.3	30.8	30.3	30.1
85°	19.5	19.7	20.0	20.2	19.5	18.7	18.2	17.7	17.7	17.7	17.4
87.5°	8.8	9.1	9.1	9.1	8.8	8.6	8.1	7.6	7.8	8.1	8.1
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°	1088.8	1088.8	1088.8	1088.8	1088.8	1088.8	1088.8	1088.8	1088.8	1088.8	1088.8
2.5°	1044.9	1035.0	1025.2	1017.6	1010.0	997.1	984.3	981.2	978.2	973.9	969.6
5°	990.8	966.6	942.3	920.6	898.9	881.9	865.0	853.9	842.8	834.7	826.6
7.5°	927.7	891.3	854.9	829.1	803.4	778.9	754.4	746.5	738.7	728.1	717.5
10°	866.5	826.4	786.2	752.6	719.0	695.0	671.0	661.4	651.8	638.4	625.0
12.5°	812.0	768.0	724.0	690.2	656.3	633.1	609.9	596.0	582.1	574.5	566.9
15°	754.9	707.9	660.9	629.6	598.2	577.3	556.3	544.2	532.0	524.7	517.4
17.5°	704.3	657.9	611.4	581.3	551.2	532.0	512.8	502.2	491.6	486.1	480.5
20°	656.3	610.9	565.4	536.1	506.8	491.1	475.5	468.6	461.8	457.3	452.7
22.5°	612.4	567.7	522.9	497.9	472.9	460.3	447.7	442.9	438.1	434.3	430.5
25°	568.4	528.5	488.6	467.4	446.1	435.8	425.4	420.6	415.8	412.0	408.3
27.5°	532.5	494.4	456.3	438.1	419.9	411.8	403.7	399.9	396.1	392.6	389.1
30°	497.7	463.6	429.5	413.8	398.1	390.8	383.5	379.7	375.9	372.6	369.3
32.5°	465.3	436.0	406.7	392.3	377.9	371.9	365.8	361.3	356.7	354.2	351.7
35°	434.5	408.3	382.0	370.1	358.2	352.2	346.1	342.3	338.5	336.5	334.5
37.5°	408.3	384.8	361.3	349.9	338.5	332.7	326.9	323.6	320.3	319.6	318.8
40°	381.5	361.3	341.1	329.9	318.8	313.8	308.7	306.7	304.7	304.2	303.7
42.5°	359.2	339.5	319.8	309.7	299.6	295.3	291.0	290.0	289.0	289.8	290.5
45°	333.5	317.1	300.6	291.3	281.9	278.4	274.9	274.1	273.3	274.9	276.4
47.5°	311.7	296.6	281.4	272.6	263.7	261.2	258.7	258.4	258.2	260.2	262.2
50°	289.5	274.9	260.2	253.1	246.1	243.8	241.5	242.3	243.0	246.3	249.6
52.5°	268.8	255.2	241.5	234.9	228.4	226.9	225.3	227.1	228.9	232.4	236.0
55°	246.1	233.7	221.3	216.3	211.2	209.7	208.2	211.7	215.2	218.5	221.8
57.5°	224.3	213.5	202.6	198.1	193.5	193.3	193.0	196.3	199.6	203.1	206.7
60°	201.1	192.0	182.9	179.4	175.8	176.3	176.8	180.6	184.4	187.2	190.0
62.5°	179.9	172.3	164.7	161.4	158.1	159.4	160.7	164.5	168.3	171.5	174.8
65°	158.7	152.3	146.0	143.7	141.5	143.2	145.0	148.3	151.6	153.9	156.1
67.5°	138.4	133.1	127.8	126.1	124.3	126.1	127.8	131.1	134.4	136.7	138.9
70°	117.2	112.9	108.6	107.4	106.1	108.1	110.1	112.9	115.7	118.0	120.3
72.5°	97.5	94.2	90.9	90.7	90.4	92.2	94.0	96.8	99.5	101.1	102.6
75°	78.3	76.5	74.8	74.5	74.3	76.0	77.8	79.3	80.8	82.1	83.4
77.5°	61.1	59.6	58.1	58.4	58.6	59.9	61.1	62.7	64.2	64.9	65.7
80°	43.5	42.9	42.4	42.9	43.5	44.5	45.5	46.5	47.5	48.0	48.5
82.5°	29.8	29.3	28.8	29.6	30.3	31.1	31.8	32.6	33.3	33.6	33.9
85°	17.2	17.9	18.7	18.7	18.7	18.9	19.2	19.5	19.7	19.5	19.2
87.5°	8.1	8.3	8.6	8.6	8.6	8.8	9.1	9.1	9.1	8.8	8.6
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: P831741

CATALOG NUMBER: S123DP-S340D850-4F0-1E-UDD-G

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	1088.8	1088.8	1088.8	1088.8
2.5°	967.8	966.1	959.0	951.9
5°	820.5	814.5	812.5	810.4
7.5°	717.0	716.5	705.9	695.2
10°	625.8	626.5	616.9	607.3
12.5°	560.6	554.3	553.5	552.8
15°	511.6	505.8	504.8	503.7
17.5°	477.0	473.4	472.4	471.4
20°	450.7	448.7	446.9	445.1
22.5°	428.0	425.4	423.9	422.4
25°	406.0	403.7	403.2	402.7
27.5°	386.3	383.5	383.5	383.5
30°	367.6	365.8	365.1	364.3
32.5°	350.1	348.6	348.6	348.6
35°	333.7	333.0	332.0	330.9
37.5°	318.8	318.8	318.3	317.8
40°	304.4	305.2	305.2	305.2
42.5°	291.3	292.0	292.0	292.0
45°	277.6	278.9	279.4	279.9
47.5°	264.3	266.3	266.8	267.3
50°	251.1	252.6	252.9	253.1
52.5°	237.7	239.5	240.8	242.0
55°	223.6	225.3	226.1	226.9
57.5°	208.4	210.2	210.4	210.7
60°	191.7	193.5	194.0	194.5
62.5°	175.8	176.8	177.3	177.9
65°	157.6	159.2	160.2	161.2
67.5°	140.2	141.5	141.5	141.5
70°	120.8	121.3	122.0	122.8
72.5°	102.8	103.1	103.1	103.1
75°	83.9	84.4	84.6	84.9
77.5°	65.9	66.2	66.2	66.2
80°	48.3	48.0	48.0	48.0
82.5°	33.1	32.3	32.3	32.3
85°	18.9	18.7	18.9	19.2
87.5°	8.6	8.6	8.6	8.6
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P831741

CATALOG NUMBER: S123DP-S340D850-4F0-1E-UDD-G

**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	16.03	17.54	16.40	17.85	18.17	18.27	19.78	18.63	20.09	20.41
	3H	17.72	19.08	18.10	19.41	19.77	19.74	21.09	20.11	21.42	21.78
	4H	18.33	19.60	18.73	19.95	20.33	20.21	21.49	20.61	21.84	22.21
	6H	18.73	19.90	19.14	20.27	20.66	20.52	21.70	20.93	22.06	22.45
	8H	18.84	19.96	19.27	20.35	20.75	20.60	21.72	21.03	22.11	22.51
	12H	18.91	19.98	19.34	20.36	20.79	20.64	21.71	21.07	22.09	22.52
4H	2H	16.68	17.95	17.08	18.30	18.68	18.50	19.78	18.90	20.12	20.50
	3H	18.56	19.62	18.97	20.02	20.42	20.17	21.23	20.59	21.63	22.03
	4H	19.28	20.23	19.71	20.65	21.09	20.78	21.73	21.21	22.15	22.59
	6H	19.79	20.62	20.25	21.06	21.52	21.22	22.05	21.68	22.49	22.95
	8H	19.94	20.71	20.40	21.16	21.62	21.34	22.12	21.81	22.56	23.03
	12H	20.03	20.73	20.52	21.20	21.68	21.42	22.11	21.90	22.59	23.06
8H	4H	19.59	20.37	20.06	20.81	21.28	20.93	21.71	21.40	22.15	22.62
	6H	20.20	20.84	20.70	21.34	21.81	21.46	22.10	21.95	22.59	23.07
	8H	20.42	20.99	20.93	21.50	21.99	21.64	22.21	22.15	22.72	23.21
	12H	20.57	21.07	21.08	21.57	22.13	21.77	22.28	22.28	22.77	23.33
12H	4H	19.62	20.31	20.10	20.79	21.26	20.94	21.63	21.42	22.11	22.58
	6H	20.26	20.83	20.77	21.34	21.83	21.47	22.05	21.99	22.56	23.05
	8H	20.52	21.03	21.03	21.52	22.08	21.70	22.21	22.21	22.70	23.27