

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: P243348

Luminaire Tested: S123DRP-H775D940-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P243348
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-59)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S123DRP-H775D940-X4F0-XX-UDD-A-W
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 4000K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

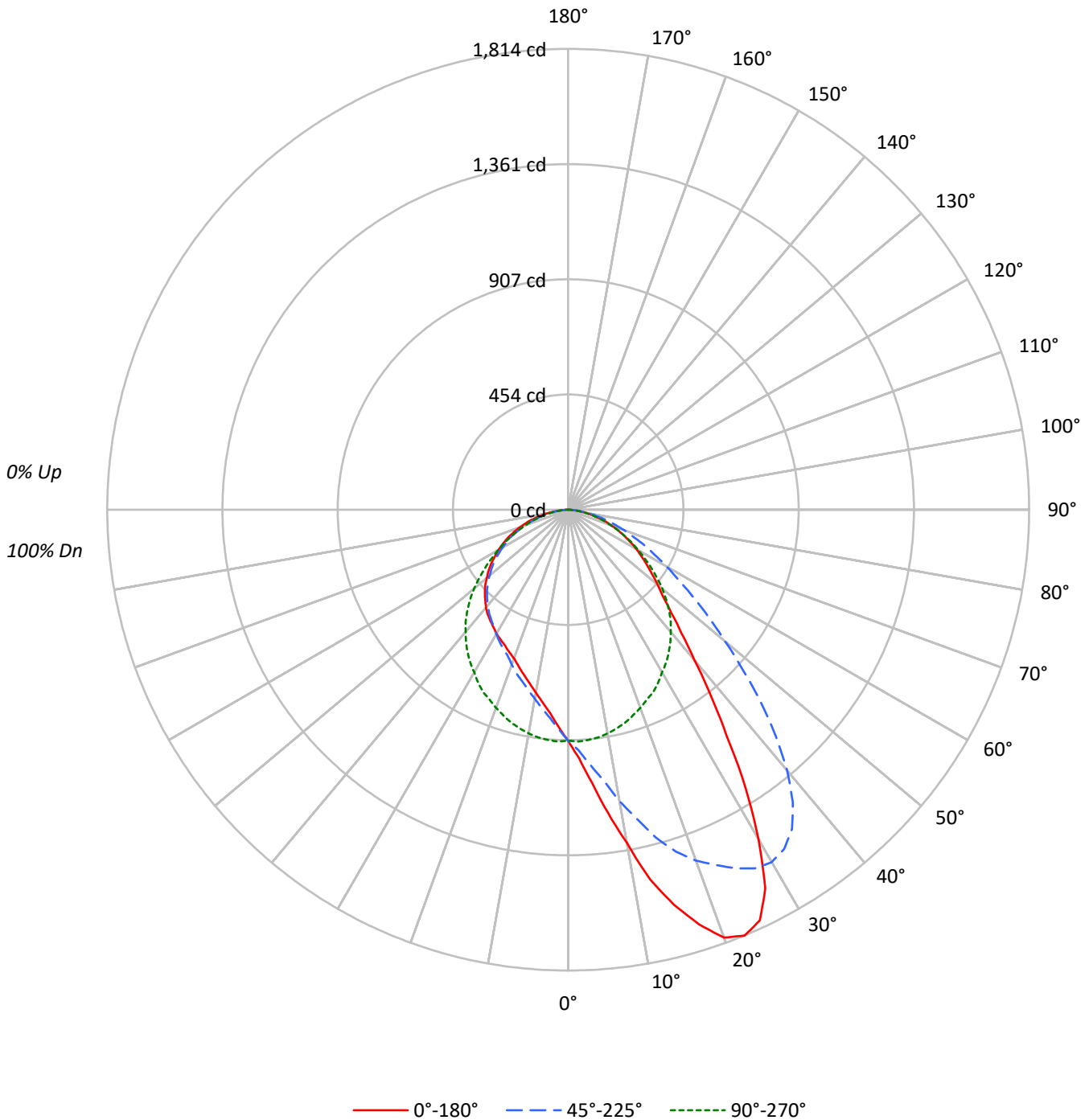
Lumens per Lamp: N/A
Luminaire Lumens: 2739.8 lumens
Efficiency: N/A
Efficacy: 116.1 lumens/watt
Spacing Criteria (0/90/45): 1.39 / 1.21 / 1.5
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

Input Watts (W): 23.6
Input Voltage (V): 120
Input Current (A_{in}): 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	110	105	101	98	107	103	99	96	99	96	93	95	92	90	91	89	87	85					85			
2	100	92	86	81	98	91	85	80	87	82	78	84	80	76	81	77	74	72					72			
3	92	82	74	68	89	80	73	67	77	71	66	75	69	65	72	68	64	62					62			
4	84	73	64	58	82	72	64	58	69	62	57	67	61	56	65	60	55	53					53			
5	78	65	57	50	76	64	56	50	62	55	50	60	54	49	58	53	49	46					46			
6	72	59	50	44	70	58	50	44	56	49	44	55	48	43	53	47	43	41					41			
7	67	54	45	39	65	53	45	39	51	44	39	50	43	39	49	43	38	36					36			
8	62	49	41	35	61	48	41	35	47	40	35	46	39	35	45	39	34	33					33			
9	58	45	37	32	57	45	37	32	43	36	31	42	36	31	41	35	31	29					29			
10	55	42	34	29	53	41	34	29	40	33	29	39	33	28	38	33	28	27					27			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	11019	11019	11019	11019	11019
5°	13128	12277	11071	10013	9785
10°	16395	14340	11005	9299	8996
15°	20205	16778	10886	8770	8442
20°	23120	18959	10711	8370	8032
25°	23861	20826	10594	8078	7883
30°	20962	22419	10342	7918	7888
35°	16089	22709	10188	7816	7896
40°	12238	21195	9939	7791	7956
45°	9846	18381	9618	7750	7949
50°	8665	15205	9106	7615	7880
55°	7988	12720	8436	7496	7830
60°	7527	10858	7719	7246	7670
65°	6995	9430	7056	6961	7520
70°	6404	8219	6330	6404	7198
75°	5690	7020	5517	5732	6706
80°	4768	5780	4565	4907	5870
85°	3352	4284	3296	3699	4395

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 55°
 Vertical Angle: 45°
 Luminance: 20636 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	89.4	3.3
10°-20°	287.2	10.5
20°-30°	474.3	17.3
30°-40°	542.8	19.8
40°-50°	491.9	18.0
50°-60°	397.4	14.5
60°-70°	276.9	10.1
70°-80°	145.2	5.3
80°-90°	34.6	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°	850.9	31.1
0°-40°	1393.7	50.9
0°-60°	2283.1	83.3
0°-90°	2739.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2739.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	909	909	909	909	909	
5°	1079	1009	910	823	804	111
15°	1610	1337	868	699	673	458
25°	1784	1557	792	604	589	797
35°	1087	1535	688	528	534	689
45°	574	1072	561	452	464	453
55°	378	602	399	355	370	340
65°	244	329	246	243	262	242
75°	122	150	118	122	143	130
85°	24	31	24	27	32	31
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°	909.1	909.1	909.1	909.1	909.1	909.1	909.1	909.1	909.1	909.1	909.1
2.5°	979.0	977.8	979.9	974.9	972.0	967.4	965.3	955.3	948.2	945.7	
5°	1078.9	1079.8	1074.8	1068.9	1058.5	1044.8	1036.1	1026.1	1009.0	1000.3	
7.5°	1204.6	1194.2	1185.1	1177.2	1160.1	1145.1	1127.2	1103.9	1075.6	1060.6	
10°	1332.0	1334.5	1324.9	1304.5	1276.7	1254.6	1228.8	1192.6	1165.1	1126.0	
12.5°	1491.0	1475.6	1461.1	1438.6	1409.0	1374.9	1336.6	1290.0	1244.6	1200.9	
15°	1610.1	1610.9	1591.8	1569.7	1529.7	1498.1	1434.4	1375.3	1337.0	1264.6	
17.5°	1710.8	1710.0	1681.3	1661.7	1638.0	1597.6	1526.8	1473.1	1411.1	1331.2	
20°	1792.4	1783.2	1762.0	1739.5	1712.9	1659.6	1605.5	1553.1	1469.8	1393.6	
22.5°	1814.0	1816.1	1814.0	1804.9	1786.6	1758.3	1718.3	1668.4	1602.2	1513.5	1442.7
25°	1784.1	1782.8	1789.9	1784.5	1783.7	1774.5	1748.3	1707.9	1642.5	1557.2	1467.3
27.5°	1679.2	1670.4	1688.3	1711.6	1715.0	1729.5	1730.0	1711.2	1664.2	1591.3	1493.5
30°	1497.7	1506.0	1514.8	1563.5	1590.5	1628.4	1661.3	1673.4	1655.5	1601.8	1510.2
32.5°	1300.4	1327.0	1351.6	1385.3	1424.8	1489.0	1541.0	1586.8	1606.3	1582.6	1510.2
35°	1087.3	1101.4	1140.1	1183.0	1240.0	1290.0	1393.2	1459.8	1519.3	1534.7	1491.0
37.5°	920.8	933.7	947.0	980.3	1044.4	1127.6	1213.0	1300.4	1388.6	1451.9	1449.4
40°	773.4	776.3	788.0	816.7	870.0	944.1	1033.6	1138.9	1253.3	1339.5	1375.7
42.5°	660.2	660.2	674.8	708.1	738.9	793.0	879.6	972.4	1097.7	1208.4	1285.8
45°	574.4	575.3	586.9	610.6	634.8	677.2	741.4	828.8	957.8	1072.3	1180.1
47.5°	504.5	512.4	519.1	531.6	555.7	593.2	639.8	714.3	806.3	931.2	1056.9
50°	459.5	461.2	466.2	473.7	492.4	517.0	557.4	614.0	695.6	806.3	933.2
52.5°	415.4	415.4	420.4	429.6	440.4	460.4	489.5	536.6	597.7	698.1	812.1
55°	378.0	379.2	380.0	387.5	396.7	411.7	434.6	465.4	521.6	601.9	701.4
57.5°	341.3	345.9	344.7	350.5	357.1	368.0	384.2	410.8	453.7	514.9	604.4
60°	310.5	309.7	311.8	314.3	318.9	326.3	341.3	360.9	396.7	447.9	521.2
62.5°	275.6	274.7	277.2	280.1	284.3	290.5	301.4	316.4	344.7	383.0	446.6
65°	243.9	243.1	244.3	246.0	250.6	255.6	263.9	276.4	295.1	328.8	377.5
67.5°	212.3	212.3	213.1	214.8	217.7	221.4	228.1	235.6	254.3	276.8	315.1
70°	180.7	181.1	181.1	182.7	185.2	188.1	193.6	200.2	211.9	231.9	262.7
72.5°	153.2	153.2	152.3	153.2	154.8	156.1	159.4	165.7	174.4	189.0	212.3
75°	121.5	123.6	123.2	122.8	124.0	126.1	129.0	134.0	139.4	149.9	167.3
77.5°	93.2	94.5	94.5	94.9	96.2	97.8	98.7	103.6	108.6	114.9	127.8
80°	68.3	69.1	68.3	68.7	69.5	71.2	72.8	73.7	77.4	82.8	89.1
82.5°	45.8	44.5	46.2	45.8	46.6	47.0	47.9	48.3	50.8	54.1	58.3
85°	24.1	26.2	25.8	26.6	25.8	26.2	26.6	28.3	28.7	30.8	33.3
87.5°	9.2	10.0	10.0	10.0	10.0	10.0	10.8	11.2	12.1	12.5	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



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	909.1	909.1	909.1	909.1	909.1	909.1	909.1	909.1	909.1	909.1	909.1
2.5°	947.4	943.7	938.2	932.4	926.2	919.9	917.0	913.3	905.8	898.3	892.5
5°	993.2	982.8	968.6	958.2	943.2	929.1	917.8	909.9	897.9	883.3	873.7
7.5°	1044.4	1025.7	1003.2	980.3	957.8	936.6	919.1	904.1	885.4	867.5	852.9
10°	1104.7	1068.5	1037.3	1004.0	970.7	940.7	915.8	894.1	870.0	848.3	830.4
12.5°	1158.0	1116.0	1072.7	1025.7	980.7	942.0	909.9	881.6	852.5	827.5	809.2
15°	1216.7	1157.6	1097.7	1044.4	989.9	942.4	900.4	867.5	834.2	805.9	784.6
17.5°	1284.2	1205.1	1129.7	1053.1	1004.8	943.7	892.0	848.7	814.6	786.3	758.8
20°	1324.1	1245.4	1153.0	1074.4	994.4	931.6	874.1	830.4	790.5	758.0	735.5
22.5°	1345.8	1262.9	1166.4	1085.6	992.4	922.0	860.8	809.2	766.3	733.9	708.5
25°	1376.1	1262.9	1173.4	1076.4	995.7	910.8	841.7	792.1	747.2	709.7	683.1
27.5°	1389.9	1274.2	1174.3	1059.0	975.7	889.5	819.6	767.2	717.2	680.6	657.7
30°	1401.1	1276.2	1157.6	1045.2	952.4	865.8	797.5	738.9	692.2	657.3	633.1
32.5°	1402.0	1270.8	1135.1	1019.4	921.2	837.9	771.3	716.0	667.3	630.2	606.5
35°	1394.5	1257.5	1109.3	979.9	885.0	809.2	742.6	688.5	639.0	603.6	579.4
37.5°	1375.3	1242.5	1085.2	942.8	842.1	768.4	711.8	660.2	611.1	575.7	555.7
40°	1334.5	1218.4	1053.5	903.3	798.8	725.1	675.6	628.1	584.4	547.8	527.8
42.5°	1280.4	1182.2	1015.3	861.2	750.5	679.3	635.6	597.3	552.8	521.2	500.8
45°	1203.8	1133.1	977.0	817.1	702.6	632.7	592.7	561.1	522.8	491.2	473.3
47.5°	1117.2	1073.9	927.4	767.6	652.3	586.5	548.6	523.2	490.8	463.7	445.8
50°	1019.8	1003.6	872.9	717.6	605.2	537.8	502.8	482.9	455.4	433.7	418.3
52.5°	914.1	924.1	815.4	666.8	559.9	491.6	458.3	440.0	422.5	404.2	389.6
55°	806.7	830.4	745.9	611.5	507.8	448.3	415.8	399.2	386.3	370.9	360.5
57.5°	706.0	743.0	673.9	552.4	460.0	402.9	372.1	357.6	348.0	339.7	330.1
60°	608.2	651.0	599.8	497.0	412.1	360.1	332.6	318.4	313.9	307.6	298.5
62.5°	521.6	565.3	527.0	440.0	363.8	319.3	294.3	282.6	276.0	273.9	268.5
65°	440.4	481.2	452.1	380.5	318.0	278.5	256.4	246.0	242.3	241.8	237.7
67.5°	370.1	409.6	383.0	322.6	269.7	237.7	221.0	212.7	209.0	209.4	206.5
70°	305.1	333.0	317.2	269.7	228.9	200.6	187.7	178.6	175.7	175.7	174.8
72.5°	244.8	266.8	254.7	218.5	186.5	164.8	153.6	148.2	145.7	145.3	145.7
75°	191.5	210.6	199.8	171.5	147.4	131.1	121.5	117.8	116.6	115.7	116.1
77.5°	143.2	155.3	148.6	130.3	110.3	99.1	94.5	90.7	89.5	89.9	90.7
80°	101.2	107.8	104.1	92.4	79.1	71.6	68.3	65.4	64.1	65.4	65.4
82.5°	64.1	69.1	65.8	58.3	51.6	46.6	43.3	42.5	42.0	41.2	42.5
85°	35.0	37.5	35.8	33.3	28.7	26.6	24.1	23.7	23.7	23.7	23.7
87.5°	13.7	15.4	13.3	13.3	12.5	10.4	10.4	10.0	9.6	10.0	10.0
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	909.1	909.1	909.1	909.1	909.1	909.1	909.1	909.1	909.1	909.1	909.1
2.5°	890.0	884.5	881.2	876.6	871.2	864.1	861.2	864.1	862.5	859.6	860.8
5°	865.4	858.3	849.2	841.7	833.3	822.9	819.6	817.9	815.4	814.2	812.1
7.5°	841.3	830.8	819.6	809.2	797.1	788.0	783.8	780.9	780.1	773.8	771.3
10°	816.3	803.4	792.1	778.0	767.6	755.5	750.5	747.2	743.4	739.3	736.4
12.5°	790.1	777.2	763.0	749.7	739.3	726.0	719.3	715.5	712.6	709.7	706.4
15°	767.2	754.3	734.7	724.7	712.2	698.9	694.7	686.4	687.2	682.2	678.9
17.5°	743.0	723.9	710.1	695.1	686.0	676.4	668.5	659.8	658.5	654.8	653.5
20°	716.0	696.0	686.4	671.0	658.5	648.9	641.9	641.0	638.5	633.1	631.0
22.5°	689.3	673.1	659.8	645.6	634.4	621.9	618.6	619.8	615.2	614.0	609.4
25°	665.2	651.0	634.4	621.1	611.9	604.0	599.4	597.7	596.1	594.8	592.7
27.5°	639.4	624.4	610.2	599.4	590.7	585.3	582.3	578.6	578.2	578.2	577.3
30°	613.6	600.2	590.7	576.9	569.0	565.7	563.2	561.9	563.2	563.2	563.6
32.5°	589.8	576.9	565.7	556.1	548.2	545.7	545.3	545.3	547.0	547.0	548.2
35°	565.3	552.4	542.0	535.3	528.6	528.2	528.6	529.5	531.6	532.0	533.6
37.5°	538.6	528.6	520.7	512.4	510.7	511.6	512.4	513.2	514.1	517.4	517.4
40°	514.1	506.6	498.7	493.3	490.4	492.4	493.7	494.1	496.6	498.7	500.3
42.5°	489.9	482.9	476.6	472.0	470.8	472.5	473.7	474.9	477.4	479.1	482.0
45°	462.9	458.3	452.9	449.1	449.6	452.1	452.1	456.2	457.9	458.7	460.8
47.5°	437.9	432.9	429.2	427.5	427.1	429.2	430.4	433.7	434.6	437.5	439.2
50°	411.3	407.5	404.6	402.5	402.9	403.8	406.7	410.0	410.8	414.2	417.1
52.5°	383.4	380.0	377.5	378.4	379.6	379.6	382.5	384.6	386.7	389.2	392.1
55°	355.9	351.3	351.7	350.5	351.7	354.7	355.9	359.2	360.9	362.1	366.3
57.5°	325.9	325.1	323.8	322.6	325.1	326.3	328.4	330.5	333.4	335.1	338.0
60°	295.1	293.9	293.9	295.5	296.4	298.9	302.2	303.5	304.3	307.6	311.4
62.5°	266.8	265.6	265.2	267.7	267.7	270.2	271.4	273.5	276.8	278.1	283.1
65°	236.4	235.6	235.6	237.7	238.1	242.7	242.7	242.7	244.8	249.3	251.8
67.5°	204.8	205.2	206.5	207.7	209.4	210.6	211.0	213.5	216.9	219.8	224.8
70°	173.2	175.2	177.7	177.3	178.6	180.7	181.1	183.6	186.5	190.2	196.1
72.5°	144.9	146.1	148.6	148.6	150.3	151.5	153.6	155.3	159.0	162.3	164.8
75°	116.6	117.0	119.0	120.3	121.5	122.4	124.5	127.4	129.5	132.4	136.1
77.5°	91.6	90.7	92.4	92.8	93.7	95.3	97.0	99.9	101.6	104.9	106.1
80°	64.9	66.6	67.0	67.4	68.3	70.3	71.6	72.8	74.5	77.4	78.7
82.5°	42.9	43.7	45.0	45.4	46.2	46.6	47.0	49.1	50.4	51.2	55.4
85°	25.0	26.2	25.4	25.4	26.2	26.6	28.3	28.3	30.0	29.1	31.2
87.5°	10.8	10.4	10.4	10.8	10.4	10.0	11.2	11.2	10.8	11.2	11.2
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: P243348

CATALOG NUMBER: S123DRP-H775D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	909.1	909.1	909.1	909.1
2.5°	858.7	858.7	855.4	856.7
5°	808.0	809.6	805.5	804.2
7.5°	770.5	768.8	765.9	765.9
10°	733.9	732.2	730.9	730.9
12.5°	702.2	700.6	698.1	700.1
15°	673.9	674.3	672.7	672.7
17.5°	652.3	648.5	647.3	646.9
20°	626.5	627.3	625.6	622.7
22.5°	610.2	608.2	606.5	606.1
25°	593.6	591.5	591.1	589.4
27.5°	576.9	577.3	576.1	576.1
30°	563.2	564.4	563.2	563.6
32.5°	549.5	549.5	549.5	547.8
35°	534.5	534.9	534.5	533.6
37.5°	519.1	519.1	519.5	520.3
40°	502.0	502.0	502.8	502.8
42.5°	481.6	483.7	484.9	482.9
45°	463.3	463.7	464.1	463.7
47.5°	442.9	441.6	442.1	442.9
50°	417.5	420.4	420.4	417.9
52.5°	392.9	393.8	395.4	395.4
55°	368.8	369.2	369.6	370.5
57.5°	341.3	341.7	341.7	341.3
60°	313.9	316.4	315.9	316.4
62.5°	284.3	288.0	289.3	288.9
65°	256.4	257.2	259.3	262.2
67.5°	226.9	228.9	232.3	231.4
70°	197.7	200.6	201.5	203.1
72.5°	168.6	172.3	173.2	174.0
75°	140.3	141.9	143.6	143.2
77.5°	109.5	112.0	114.9	113.2
80°	82.0	82.4	84.9	84.1
82.5°	54.1	57.4	57.4	55.8
85°	31.6	31.6	31.6	31.6
87.5°	10.8	10.4	11.2	10.8
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P243348
 CATALOG NUMBER: S123DRP-H775D940-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	18.74	20.30	19.10	20.61	20.92	19.27	20.83	19.63	21.14	21.45
	3H	20.25	21.66	20.63	21.99	22.35	20.61	22.01	20.98	22.34	22.70
	4H	20.80	22.12	21.20	22.47	22.84	21.06	22.38	21.46	22.73	23.10
	6H	21.16	22.38	21.57	22.75	23.14	21.36	22.58	21.77	22.95	23.34
	8H	21.26	22.42	21.69	22.81	23.21	21.44	22.60	21.86	22.99	23.39
	12H	21.31	22.42	21.74	22.81	23.24	21.47	22.59	21.90	22.97	23.40
4H	2H	19.90	21.22	20.30	21.57	21.94	20.06	21.38	20.46	21.72	22.10
	3H	21.46	22.55	21.87	22.95	23.35	21.85	22.95	22.26	23.34	23.75
	4H	22.05	23.04	22.48	23.46	23.89	22.41	23.40	22.84	23.81	24.25
	6H	22.48	23.34	22.94	23.78	24.24	22.78	23.64	23.24	24.08	24.54
	8H	22.60	23.40	23.06	23.85	24.31	22.87	23.67	23.33	24.12	24.58
	12H	22.67	23.39	23.15	23.87	24.34	22.92	23.64	23.40	24.12	24.59
8H	4H	22.52	23.32	22.98	23.76	24.23	22.72	23.52	23.18	23.96	24.43
	6H	23.02	23.68	23.51	24.17	24.65	23.22	23.89	23.72	24.38	24.86
	8H	23.18	23.77	23.69	24.28	24.77	23.37	23.97	23.88	24.48	24.96
	12H	23.30	23.82	23.80	24.31	24.88	23.47	24.00	23.98	24.49	25.05
12H	4H	22.56	23.28	23.04	23.76	24.23	22.73	23.45	23.21	23.93	24.40
	6H	23.08	23.68	23.60	24.19	24.68	23.26	23.86	23.77	24.36	24.85
	8H	23.29	23.82	23.80	24.31	24.88	23.46	23.99	23.97	24.48	25.05