

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: P243442

Luminaire Tested: S123RDRP-H1000D930-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P243442
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-69)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S123RDRP-H1000D930-X4F0-XX-UDD-A-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3000K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

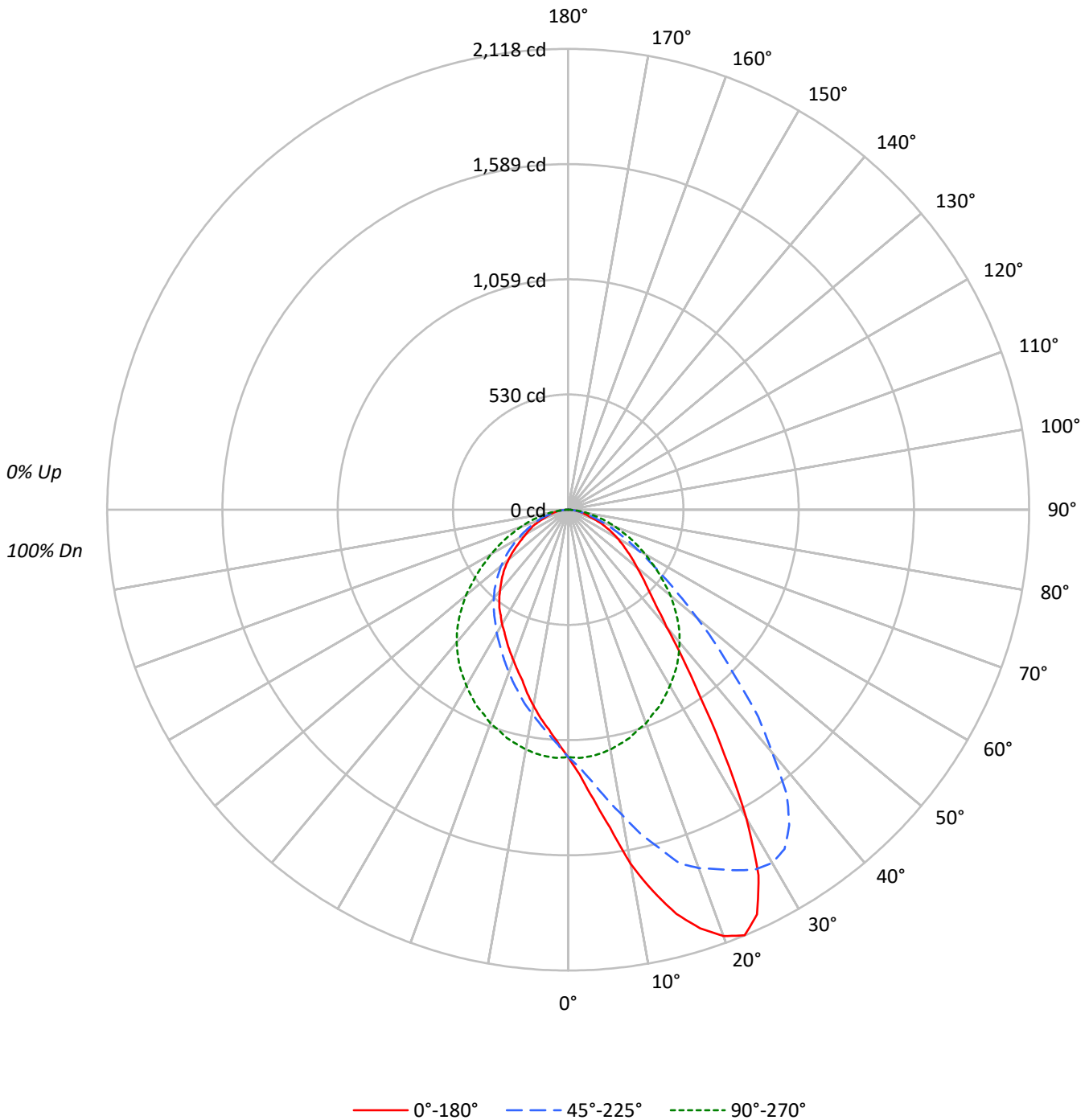
Lumens per Lamp: N/A
Luminaire Lumens: 2962.0 lumens
Efficiency: N/A
Efficacy: 94.0 lumens/watt
Spacing Criteria (0/90/45): 1.28 / 1.22 / 1.4
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

Input Watts (W): 31.5
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	110	106	102	99	107	104	100	97	99	97	94	96	93	91	92	90	89	87					87			
2	101	94	88	83	99	92	86	82	89	84	80	85	81	78	82	79	76	74					74			
3	93	84	76	70	91	82	75	70	79	73	68	76	71	67	74	70	66	64					64			
4	86	75	67	61	84	74	66	60	71	65	59	69	63	59	67	62	58	56					56			
5	79	68	59	53	77	66	59	53	64	57	52	62	56	52	61	55	51	49					49			
6	74	61	53	47	72	60	52	47	59	52	46	57	51	46	55	50	46	44					44			
7	69	56	48	42	67	55	47	42	54	47	41	52	46	41	51	45	41	39					39			
8	64	51	43	38	62	51	43	37	49	42	37	48	42	37	47	41	37	35					35			
9	60	47	39	34	59	47	39	34	45	39	34	44	38	34	43	38	33	32					32			
10	56	44	36	31	55	43	36	31	42	35	31	41	35	31	40	35	31	29					29			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	13779	13779	13779	13779	13779
5°	16245	15247	13855	12596	12339
10°	20334	17532	13774	11708	11261
15°	24133	20172	13637	10951	10200
20°	26896	22610	13473	10275	9496
25°	27453	24454	13306	9663	8941
30°	22877	26236	13080	9184	8506
35°	15805	26197	12899	8759	8149
40°	11106	23067	12605	8404	7720
45°	8919	18578	12159	8028	7302
50°	7775	14541	11578	7581	6757
55°	6970	11224	10714	7084	6016
60°	6305	8936	9901	6424	5450
65°	5518	7334	9124	5814	5097
70°	4455	5968	8211	5341	4313
75°	3864	4688	7147	4505	4229
80°	3560	3839	6101	4314	4251
85°	3143	3282	4909	3894	3685

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 55°
 Vertical Angle: 45°
 Luminance: 23281 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	111.5	3.8
10°-20°	351.1	11.9
20°-30°	562.5	19.0
30°-40°	610.7	20.6
40°-50°	523.2	17.7
50°-60°	396.6	13.4
60°-70°	253.4	8.6
70°-80°	121.2	4.1
80°-90°	31.8	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°	1025.1	34.6
0°-40°	1635.8	55.2
0°-60°	2555.6	86.3
0°-90°	2962.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2962.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1137	1137	1137	1137	1137	
5°	1335	1253	1139	1035	1014	137
15°	1923	1608	1087	873	813	545
25°	2053	1828	995	722	668	911
35°	1068	1770	872	592	551	686
45°	520	1084	709	468	426	411
55°	330	531	507	335	285	297
65°	192	256	318	203	178	191
75°	82	100	153	96	90	89
85°	23	24	35	28	26	26
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°	1136.8	1136.8	1136.8	1136.8	1136.8	1136.8	1136.8	1136.8	1136.8	1136.8	1136.8
2.5°	1218.2	1219.7	1217.3	1216.8	1216.3	1208.4	1206.0	1202.0	1188.3	1184.9	1182.4
5°	1335.1	1331.1	1335.6	1327.2	1317.9	1312.5	1303.7	1284.0	1266.8	1253.1	1244.3
7.5°	1473.5	1475.0	1470.5	1462.7	1444.0	1436.2	1412.1	1388.6	1366.0	1337.5	1316.4
10°	1652.1	1640.4	1642.8	1618.3	1598.6	1575.1	1542.2	1504.4	1464.6	1424.4	1394.5
12.5°	1794.5	1802.8	1796.9	1785.2	1747.4	1724.3	1694.4	1639.4	1576.6	1522.6	1476.9
15°	1923.1	1911.8	1913.3	1884.8	1871.1	1849.9	1800.4	1745.9	1705.2	1607.5	1553.5
17.5°	2017.3	2016.3	2014.9	1990.8	1974.1	1930.0	1879.4	1823.4	1772.4	1704.7	1636.9
20°	2085.1	2092.4	2090.5	2070.8	2041.4	1998.7	1968.2	1898.5	1814.6	1752.8	1669.8
22.5°	2117.5	2117.9	2118.9	2109.6	2090.0	2062.5	2019.3	1963.3	1888.7	1787.6	1695.3
25°	2052.7	2055.1	2067.9	2075.7	2081.1	2068.9	2046.3	1995.7	1931.4	1828.4	1732.6
27.5°	1893.6	1901.5	1915.7	1962.8	1982.0	2008.5	2017.8	1997.7	1950.1	1864.2	1755.2
30°	1634.5	1656.6	1670.3	1723.8	1798.9	1869.6	1903.0	1935.8	1931.4	1874.5	1764.1
32.5°	1338.0	1352.2	1392.0	1449.4	1508.8	1612.4	1728.2	1807.7	1852.4	1849.5	1771.4
35°	1068.1	1088.7	1122.5	1166.2	1248.2	1355.7	1486.7	1611.9	1723.8	1770.4	1742.5
37.5°	866.8	868.8	900.7	962.5	1013.6	1108.3	1226.6	1381.2	1528.0	1649.7	1676.7
40°	701.9	715.6	732.3	771.1	831.5	922.3	1000.8	1153.0	1305.1	1457.8	1566.7
42.5°	597.8	597.8	616.5	641.0	681.3	735.8	829.5	967.4	1104.4	1291.9	1414.6
45°	520.3	525.2	533.5	549.2	577.7	619.9	692.6	786.3	926.2	1083.8	1268.3
47.5°	464.3	463.8	471.2	480.5	502.6	534.5	577.2	653.3	756.9	926.7	1089.6
50°	412.3	414.3	419.7	427.5	442.2	464.8	491.8	549.2	636.6	771.1	941.9
52.5°	372.1	371.6	376.0	380.9	392.2	404.9	429.0	471.7	532.1	639.1	780.9
55°	329.8	331.8	337.2	340.1	349.5	357.8	377.9	402.0	450.6	531.1	660.2
57.5°	293.5	296.0	298.9	301.9	308.2	316.6	333.3	348.0	383.3	441.3	544.3
60°	260.1	259.2	262.6	267.5	270.9	278.3	287.6	302.8	327.4	368.6	444.2
62.5°	226.8	227.3	227.7	230.7	237.1	243.5	251.8	263.1	277.8	308.2	361.7
65°	192.4	192.9	193.9	196.8	203.2	207.1	216.0	225.8	237.6	255.7	293.0
67.5°	162.0	163.9	163.9	166.4	168.8	172.8	179.2	186.5	196.3	209.6	233.6
70°	125.7	125.2	127.6	132.5	135.0	141.9	146.3	151.2	160.0	168.4	189.0
72.5°	101.1	101.1	101.1	103.1	103.6	105.0	108.0	118.3	125.2	133.5	144.8
75°	82.5	83.0	83.0	83.4	83.9	85.4	86.4	89.3	91.3	100.1	107.0
77.5°	65.8	66.3	66.3	66.8	67.2	67.7	69.7	69.7	71.2	73.1	76.1
80°	51.0	50.6	50.6	51.0	51.0	52.5	52.5	53.5	54.0	55.0	56.4
82.5°	36.3	35.8	36.3	35.8	36.3	36.8	37.8	37.3	38.3	39.3	39.8
85°	22.6	23.1	23.1	24.1	23.6	23.1	23.6	23.6	23.6	23.6	24.5
87.5°	9.8	10.8	10.8	10.3	10.8	10.8	9.8	10.8	10.8	10.8	11.3
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°	1136.8	1136.8	1136.8	1136.8	1136.8	1136.8	1136.8	1136.8	1136.8	1136.8	1136.8
2.5°	1180.9	1179.0	1171.6	1164.7	1154.4	1150.0	1144.1	1141.7	1133.8	1123.0	1118.1
5°	1235.9	1221.2	1207.0	1189.8	1175.5	1158.9	1149.5	1138.7	1122.0	1106.8	1096.0
7.5°	1294.3	1272.7	1246.2	1217.8	1192.2	1168.2	1147.6	1130.4	1108.8	1087.7	1071.0
10°	1358.6	1321.8	1279.1	1242.8	1206.0	1171.1	1145.1	1119.1	1091.1	1064.6	1044.5
12.5°	1427.8	1375.8	1324.3	1269.8	1214.8	1174.6	1135.8	1102.4	1071.0	1043.0	1019.0
15°	1499.5	1428.3	1362.6	1301.2	1224.6	1170.6	1127.9	1086.7	1047.4	1013.1	989.5
17.5°	1550.5	1469.1	1386.1	1299.2	1233.5	1166.7	1113.7	1061.7	1025.3	990.0	958.1
20°	1597.7	1505.4	1406.7	1325.7	1234.0	1152.5	1094.6	1044.5	993.9	956.1	929.1
22.5°	1617.8	1534.3	1434.7	1322.3	1230.5	1147.1	1072.5	1016.0	970.9	929.6	894.3
25°	1621.7	1528.5	1426.4	1317.9	1217.3	1127.0	1051.4	994.9	936.0	893.3	865.8
27.5°	1638.9	1511.3	1411.1	1303.2	1201.1	1106.8	1027.3	964.5	909.5	863.9	828.5
30°	1643.3	1503.9	1378.7	1275.7	1170.6	1078.4	997.9	934.5	874.7	828.0	796.1
32.5°	1645.3	1494.1	1344.9	1232.0	1131.9	1045.0	971.4	902.6	845.7	796.6	763.7
35°	1638.4	1480.4	1304.1	1182.4	1086.2	1000.8	932.6	871.7	808.4	762.3	727.4
37.5°	1611.4	1458.8	1281.1	1124.5	1032.7	952.2	894.3	834.4	776.0	725.9	690.1
40°	1560.4	1427.3	1237.9	1075.9	971.8	899.7	845.7	796.6	737.7	689.6	654.3
42.5°	1478.9	1384.6	1198.1	1020.9	911.5	843.3	798.1	755.9	702.9	657.2	618.4
45°	1358.1	1324.8	1145.1	965.0	845.7	781.4	742.1	709.3	661.2	619.4	583.6
47.5°	1227.6	1234.9	1091.6	908.0	785.8	724.5	690.1	661.2	624.8	580.2	547.3
50°	1076.9	1117.1	1016.5	850.6	725.9	665.6	631.7	614.0	580.2	542.9	511.9
52.5°	939.0	1002.8	940.4	787.8	667.0	607.7	576.2	558.6	536.0	505.1	473.7
55°	796.1	877.1	832.0	720.1	607.2	547.3	520.8	507.0	488.4	464.3	435.9
57.5°	677.8	764.2	735.8	648.9	548.8	494.8	471.2	455.5	444.2	422.1	399.0
60°	562.0	642.0	630.7	566.9	490.8	439.3	421.1	408.4	399.0	382.8	360.3
62.5°	453.5	531.1	538.0	487.9	434.4	387.8	371.1	362.2	354.9	342.1	321.5
65°	359.8	428.0	442.2	404.0	375.0	339.7	323.5	318.1	312.7	297.9	282.2
67.5°	281.7	335.2	353.9	332.3	311.7	291.1	278.3	270.9	267.0	258.2	247.4
70°	215.5	261.6	277.3	268.0	254.3	246.4	236.6	231.7	227.7	216.5	210.6
72.5°	161.5	192.9	212.5	209.6	206.6	201.2	195.4	193.9	188.0	180.6	175.2
75°	118.3	136.5	154.1	160.5	159.5	161.5	155.1	152.6	149.2	143.8	139.4
77.5°	84.9	95.7	108.0	115.8	119.8	120.3	120.3	118.8	116.3	112.4	109.0
80°	58.9	61.4	72.6	80.0	83.9	86.9	86.9	87.4	84.9	83.4	81.0
82.5°	40.7	42.2	44.7	50.6	55.5	58.9	59.4	58.9	57.9	57.4	54.0
85°	25.5	25.0	25.0	26.5	30.4	33.9	34.4	35.3	34.8	34.4	30.9
87.5°	10.8	10.8	11.3	10.8	12.3	12.8	13.7	16.2	15.7	13.3	12.3
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1136.8	1136.8	1136.8	1136.8	1136.8	1136.8	1136.8	1136.8	1136.8	1136.8	1136.8
2.5°	1115.2	1108.8	1102.9	1096.5	1088.7	1081.3	1080.3	1079.3	1081.8	1076.9	1074.9
5°	1087.7	1075.4	1066.1	1054.3	1046.0	1035.2	1029.3	1027.8	1027.3	1024.4	1020.4
7.5°	1057.7	1044.5	1031.2	1018.0	1004.2	993.0	986.6	983.1	980.2	975.3	971.4
10°	1029.8	1013.1	998.8	980.7	966.0	951.2	945.3	940.4	937.5	930.6	925.2
12.5°	998.4	977.2	961.5	941.9	928.7	915.9	906.6	897.2	890.4	880.1	875.6
15°	970.9	948.8	922.3	910.5	891.8	872.7	862.4	862.4	848.2	839.8	834.4
17.5°	934.1	914.9	896.3	872.2	845.7	834.4	822.6	812.3	802.5	800.1	790.2
20°	901.7	879.1	859.9	833.9	809.9	796.6	782.9	771.6	764.2	757.4	752.0
22.5°	869.8	847.2	817.7	792.2	776.0	758.3	743.6	733.8	727.4	717.1	712.2
25°	836.4	809.4	782.9	757.8	737.7	722.5	707.3	701.9	690.6	685.2	678.3
27.5°	803.0	770.6	745.6	724.0	701.4	686.7	676.4	666.6	656.7	653.8	649.9
30°	765.7	735.8	711.7	690.6	669.0	656.2	644.0	635.1	626.8	620.4	616.0
32.5°	728.4	703.4	680.3	655.8	636.1	622.4	612.1	604.2	600.3	589.5	585.6
35°	694.0	668.5	644.0	620.9	605.2	591.9	582.6	575.3	566.9	560.0	556.1
37.5°	658.7	635.6	610.6	591.0	573.3	562.5	552.2	542.4	536.0	532.1	527.2
40°	624.3	599.8	580.7	559.1	543.4	531.1	520.3	512.9	505.1	501.6	495.3
42.5°	591.9	568.4	546.3	526.7	512.4	500.6	490.3	482.0	475.6	469.2	465.8
45°	554.6	534.0	513.9	494.3	481.0	468.3	457.0	449.6	440.8	435.4	433.4
47.5°	523.2	501.6	480.0	461.9	448.1	434.4	425.1	416.2	408.9	403.5	400.5
50°	485.9	465.8	448.1	430.0	416.7	402.0	390.7	382.4	374.0	370.1	365.2
52.5°	454.0	434.4	412.8	396.6	381.4	368.6	358.3	351.4	344.1	338.2	334.7
55°	414.3	395.1	377.9	360.8	345.5	335.2	326.9	315.1	308.7	302.8	293.5
57.5°	379.4	361.3	343.1	326.4	312.2	299.9	289.6	281.7	273.4	269.0	262.6
60°	342.6	323.5	306.8	294.0	278.3	265.0	258.2	248.9	242.0	235.1	233.1
62.5°	306.3	288.6	271.9	258.7	244.4	234.1	225.3	220.9	214.0	208.6	206.6
65°	268.5	253.8	238.1	223.3	214.5	202.7	197.8	190.4	186.5	184.1	183.6
67.5°	231.2	217.9	203.7	192.4	184.1	176.2	170.3	167.4	163.4	160.5	158.0
70°	197.3	184.6	172.3	163.0	156.6	150.7	146.8	141.4	137.4	133.5	128.1
72.5°	163.9	153.6	143.3	136.0	129.6	126.1	120.7	112.4	108.5	107.5	107.0
75°	133.0	121.7	114.4	110.4	104.5	96.2	92.8	91.8	91.3	90.3	90.3
77.5°	102.6	95.7	90.8	82.5	79.5	79.0	76.6	76.1	75.1	75.6	75.6
80°	74.6	70.7	64.8	62.3	61.4	61.8	60.9	61.4	60.4	60.9	59.9
82.5°	49.6	46.1	47.1	45.6	45.6	46.6	46.1	44.7	44.7	44.2	44.2
85°	29.4	29.0	29.9	29.9	29.4	28.0	29.0	28.5	27.0	27.5	27.5
87.5°	12.8	12.8	12.8	12.3	12.8	12.3	12.3	12.3	10.8	10.8	10.8
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: P243442

CATALOG NUMBER: S123RDRP-H1000D930-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1136.8	1136.8	1136.8	1136.8
2.5°	1075.9	1074.9	1073.5	1072.0
5°	1020.4	1016.0	1015.5	1014.1
7.5°	968.4	966.4	963.0	966.9
10°	920.8	922.3	918.8	914.9
12.5°	871.2	868.3	862.9	865.8
15°	827.5	822.6	819.7	812.8
17.5°	781.9	778.0	778.0	773.6
20°	742.1	738.2	739.2	736.2
22.5°	708.8	705.8	701.4	701.9
25°	677.3	672.9	668.0	668.5
27.5°	642.5	638.6	637.6	634.2
30°	611.6	608.1	607.7	607.7
32.5°	581.6	580.2	577.7	576.2
35°	555.6	553.7	549.7	550.7
37.5°	523.2	521.3	520.8	520.3
40°	492.8	491.3	487.4	487.9
42.5°	462.4	459.9	457.5	456.5
45°	429.5	429.0	425.1	426.0
47.5°	398.1	397.1	395.1	392.7
50°	363.2	362.7	361.3	358.3
52.5°	329.3	327.9	324.9	322.0
55°	291.1	286.6	287.1	284.7
57.5°	259.7	257.7	253.8	252.3
60°	229.2	227.3	226.8	224.8
62.5°	203.7	201.7	200.3	200.3
65°	180.6	178.2	177.7	177.7
67.5°	155.1	152.6	152.2	151.2
70°	123.2	122.7	121.7	121.7
72.5°	106.0	105.5	106.0	104.1
75°	90.3	89.8	89.8	90.3
77.5°	75.1	75.1	74.6	74.6
80°	59.4	59.9	59.4	60.9
82.5°	44.7	43.7	44.2	43.2
85°	27.5	27.5	26.5	26.5
87.5°	10.8	10.8	10.8	10.8
90°	0.0	0.0	0.0	0.0

TEST NUMBER: P243442

CATALOG NUMBER: S123RDRP-H1000D930-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	17.50	19.00	17.87	19.32	19.63	20.20	21.70	20.57	22.02	22.33
	3H	18.69	20.03	19.07	20.36	20.72	21.63	22.97	22.01	23.30	23.66
	4H	19.04	20.30	19.44	20.65	21.03	22.13	23.39	22.53	23.74	24.12
	6H	19.32	20.48	19.73	20.85	21.24	22.48	23.64	22.89	24.01	24.40
	8H	19.41	20.51	19.83	20.90	21.30	22.58	23.68	23.00	24.07	24.47
	12H	19.47	20.53	19.90	20.91	21.34	22.64	23.70	23.07	24.08	24.51
4H	2H	18.45	19.71	18.85	20.06	20.44	20.48	21.74	20.88	22.09	22.47
	3H	19.72	20.76	20.13	21.16	21.57	22.20	23.24	22.61	23.64	24.04
	4H	20.13	21.07	20.56	21.48	21.92	22.81	23.75	23.25	24.17	24.61
	6H	20.47	21.29	20.93	21.73	22.19	23.27	24.08	23.73	24.53	24.99
	8H	20.59	21.35	21.05	21.79	22.26	23.41	24.17	23.87	24.61	25.08
	12H	20.68	21.36	21.16	21.84	22.31	23.50	24.18	23.98	24.66	25.13
8H	4H	20.49	21.25	20.95	21.69	22.16	22.87	23.63	23.34	24.08	24.55
	6H	20.91	21.54	21.41	22.03	22.51	23.40	24.03	23.90	24.52	25.00
	8H	21.07	21.64	21.59	22.15	22.63	23.59	24.15	24.10	24.66	25.15
	12H	21.22	21.72	21.73	22.21	22.77	23.74	24.24	24.25	24.73	25.30
12H	4H	20.52	21.20	21.00	21.68	22.15	22.86	23.54	23.34	24.02	24.49
	6H	20.95	21.52	21.47	22.03	22.52	23.39	23.96	23.91	24.47	24.95
	8H	21.16	21.66	21.67	22.16	22.72	23.62	24.12	24.13	24.61	25.18