

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: P831909

Luminaire Tested: S123RDIP-S1165D1025U850-4F0-1E-UDD-G

Issue Date: 05/03/2024

Test Information

Test Method: LM-79-2019
Report Number: P831909
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2301-905-2, G3-1807-864-5)
Test Lab: INNOVATION CENTER
Issue Date: 05/03/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S123RDIP-S1165D1025U850-4F0-1E-UDD-G
Description: DEFINE 3 DIRECT-INDIRECT PENDANT LED LUMINAIRE
DOWNLIGHT 1165 LUMENS PER FOOT, GRAZE OPTIC
UPLIGHT 1025 LUMENS PER FOOT, NO LENS
Light Source: -
Ballast/Driver: -

Summary

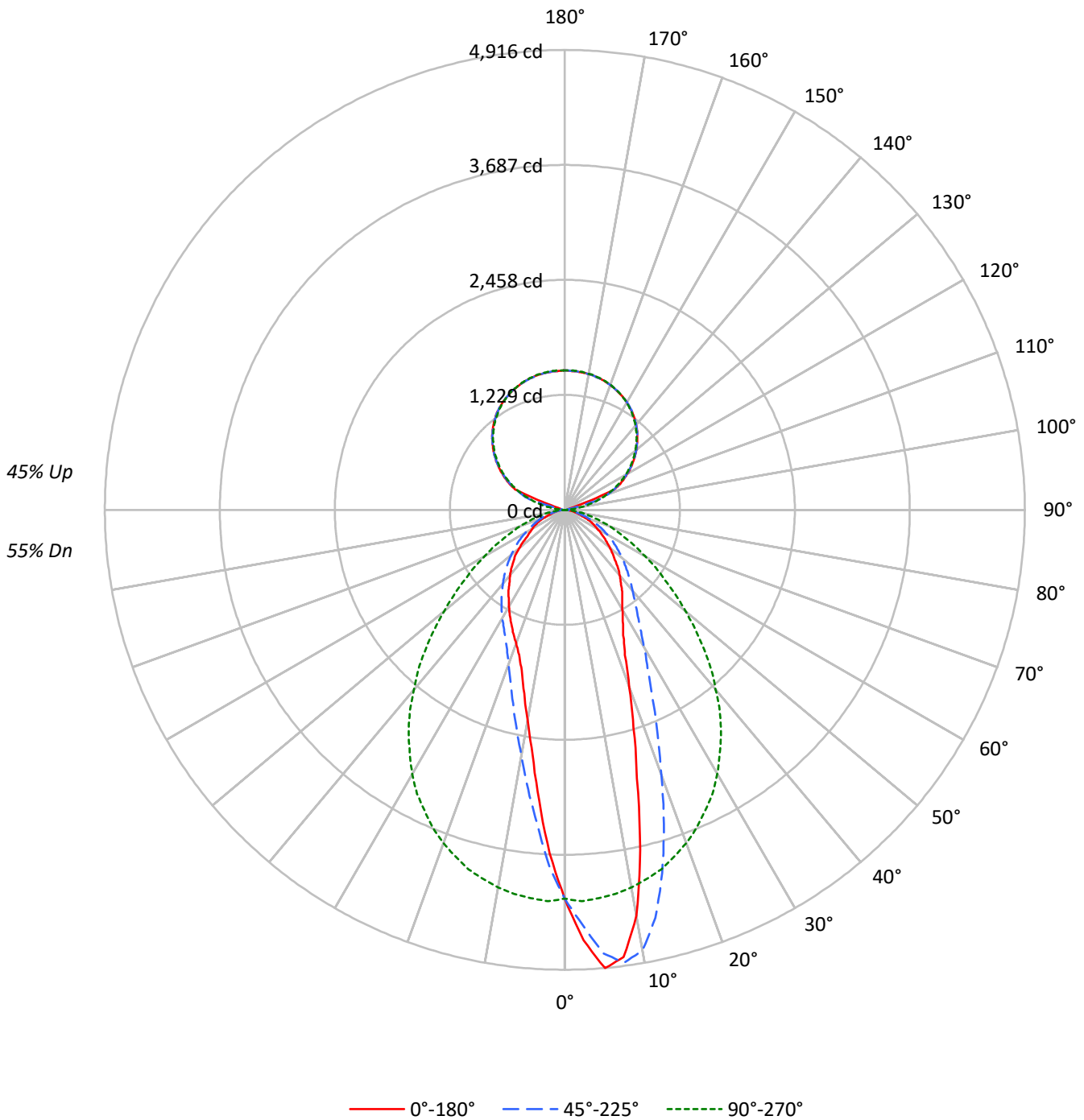
Lumens per Lamp: N/A
Luminaire Lumens: 10055.6 lumens
Efficiency: N/A
Efficacy: 147.7 lumens/watt
Spacing Criteria (0/90/45): 0.55 / 1.17 / 0.8
Luminous Opening: Rectangular (W 4' x L: 0.25' x H: 0')
CIE Type: General Diffuse

Input Watts (W): 68.1
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	108	108	108	108	101	101	101	101	86	86	86	73	73	73	61	61	61	55				55
1	100	96	92	89	93	89	86	83	77	74	72	65	64	62	55	54	53				48	
2	92	85	79	74	85	79	74	70	68	65	61	59	56	54	49	48	46				42	
3	84	75	68	63	78	70	64	60	61	57	53	53	49	46	45	42	40				36	
4	78	67	60	54	72	63	57	51	55	50	46	48	44	41	41	38	36				32	
5	72	61	53	47	67	57	50	45	50	45	41	43	39	36	37	34	32				29	
6	66	55	47	42	62	52	45	40	46	40	36	40	36	32	34	31	29				26	
7	62	50	43	37	58	47	40	36	42	36	32	37	32	29	32	28	26				24	
8	58	46	39	33	54	43	37	32	38	33	29	34	30	26	29	26	24				22	
9	54	42	35	30	50	40	33	29	36	30	27	31	27	24	28	24	22				20	
10	51	39	32	28	47	37	31	26	33	28	24	29	25	22	26	23	20				18	

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	44738	44738	44738	44738	44738
5°	53121	51427	45019	36392	33787
10°	48129	52235	44794	29159	25014
15°	33137	44787	44323	23832	19788
20°	23053	34482	43432	20096	17392
25°	17568	26281	42137	17861	16029
30°	15293	21011	40518	16584	14848
35°	14040	17724	38224	15507	13771
40°	12811	15827	35222	14450	12787
45°	11569	14475	31984	13451	11804
50°	10501	13355	28165	12471	10587
55°	9498	12264	24496	11513	9083
60°	8510	11151	21278	10456	8585
65°	7855	9895	18315	9396	8117
70°	6382	8554	15981	8500	6596
75°	5598	6804	13537	7053	5810
80°	5071	5759	11089	5914	5492
85°	4631	5051	8423	5372	5051

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°
 Vertical Angle: 45°
 Luminance: 33748 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	378.8	3.8
10°-20°	876.6	8.7
20°-30°	1005.8	10.0
30°-40°	991.4	9.9
40°-50°	874.3	8.7
50°-60°	672.6	6.7
60°-70°	442.2	4.4
70°-80°	214.8	2.1
80°-90°	57.1	0.6
90°-100°	52.5	0.5
100°-110°	253.9	2.5
110°-120°	622.5	6.2
120°-130°	790.2	7.9
130°-140°	844.2	8.4
140°-150°	789.4	7.9
150°-160°	636.7	6.3
160°-170°	410.9	4.1
170°-180°	141.6	1.4
0°-30°	2261.3	22.5
0°-40°	3252.7	32.3
0°-60°	4799.5	47.7
0°-90°	5513.6	54.8
90°-120°	928.9	9.2
90°-150°	3352.8	33.3
90°-180°	4542.0	45.2
0°-180°	10055.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	4156	4156	4156	4156	4156	
5°	4916	4760	4166	3368	3127	449
15°	2974	4019	3977	2139	1776	839
25°	1479	2213	3548	1504	1350	699
35°	1068	1349	2909	1180	1048	666
45°	760	951	2101	884	775	590
55°	506	654	1305	614	484	454
65°	308	388	719	369	319	302
75°	135	164	326	170	140	145
85°	38	41	68	44	41	40
90°	33	27	1	27	33	17
95°	42	34	68	34	42	35
105°	49	242	330	242	49	101
115°	651	635	619	635	651	612
125°	890	886	872	886	890	795
135°	1097	1097	1086	1097	1097	846
145°	1265	1263	1253	1263	1265	790
155°	1378	1379	1380	1379	1378	636
165°	1452	1451	1456	1451	1452	410
175°	1484	1486	1490	1486	1484	141
180°	1490	1490	1490	1490	1490	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	4156.3	4156.3	4156.3	4156.3	4156.3	4156.3	4156.3	4156.3	4156.3	4156.3	4156.3
2.5°	4606.2	4591.7	4577.2	4572.9	4568.7	4555.0	4541.4	4510.7	4480.1	4448.5	4417.0
5°	4916.3	4918.0	4919.7	4915.5	4911.2	4893.3	4875.4	4837.9	4800.4	4759.5	4718.6
7.5°	4820.9	4848.1	4875.4	4880.5	4885.6	4899.3	4912.9	4904.4	4895.9	4880.5	4865.2
10°	4403.4	4401.7	4400.0	4430.6	4461.3	4552.5	4643.7	4690.5	4737.4	4779.1	4820.9
12.5°	3721.7	3724.3	3726.9	3827.4	3927.9	4014.0	4100.1	4219.3	4338.6	4467.3	4595.9
15°	2973.6	3015.4	3057.1	3146.6	3236.1	3365.6	3495.1	3655.3	3815.5	4019.1	4222.7
17.5°	2442.0	2459.9	2477.8	2563.8	2649.9	2772.6	2895.3	3076.7	3258.2	3520.7	3783.1
20°	2012.5	2028.7	2044.9	2107.1	2169.3	2286.9	2404.5	2577.4	2750.4	3010.3	3270.2
22.5°	1680.2	1711.8	1743.3	1785.0	1826.8	1912.0	1997.2	2173.6	2349.9	2586.8	2823.7
25°	1479.2	1493.6	1508.1	1543.9	1579.7	1661.5	1743.3	1860.0	1976.7	2212.8	2448.8
27.5°	1342.8	1347.1	1351.3	1377.8	1404.2	1457.0	1509.8	1618.0	1726.2	1920.5	2114.8
30°	1230.4	1238.0	1245.7	1266.1	1286.6	1324.9	1363.3	1440.0	1516.6	1690.5	1864.3
32.5°	1143.4	1147.7	1152.0	1169.0	1186.0	1214.2	1242.3	1302.8	1363.3	1496.2	1629.1
35°	1068.5	1069.3	1070.2	1083.0	1095.7	1123.0	1150.3	1200.5	1250.8	1348.8	1446.8
37.5°	983.3	989.2	995.2	1004.6	1013.9	1037.8	1061.7	1102.5	1143.4	1224.4	1305.3
40°	911.7	916.8	921.9	933.0	944.1	962.8	981.6	1019.0	1056.5	1126.4	1196.3
42.5°	840.1	843.5	846.9	858.0	869.1	892.1	915.1	944.9	974.7	1032.7	1090.6
45°	760.0	768.5	777.1	789.0	800.9	820.5	840.1	870.8	901.5	950.9	1000.3
47.5°	693.6	697.8	702.1	712.3	722.5	746.4	770.3	797.5	824.8	870.8	916.8
50°	627.1	628.8	630.5	639.9	649.3	670.6	691.9	723.4	754.9	797.5	840.1
52.5°	564.1	568.3	572.6	581.9	591.3	605.8	620.3	652.7	685.0	726.8	768.5
55°	506.1	508.7	511.2	518.0	524.9	541.9	558.9	587.1	615.2	653.5	691.9
57.5°	451.6	455.0	458.4	463.5	468.6	484.0	499.3	524.0	548.7	587.1	625.4
60°	395.3	399.6	403.9	409.8	415.8	427.7	439.7	461.8	484.0	518.0	552.1
62.5°	354.5	355.3	356.2	361.3	366.4	374.9	383.4	401.3	419.2	453.3	487.4
65°	308.4	311.0	313.6	316.1	318.7	325.5	332.3	347.6	363.0	388.5	414.1
67.5°	260.7	263.3	265.8	270.1	274.4	280.3	286.3	296.5	306.7	330.6	354.5
70°	202.8	202.8	202.8	209.6	216.4	226.6	236.9	244.5	252.2	271.8	291.4
72.5°	165.3	166.1	167.0	167.9	168.7	174.7	180.6	193.4	206.2	218.1	230.1
75°	134.6	135.5	136.3	137.2	138.0	139.7	141.4	145.7	150.0	163.6	177.2
77.5°	107.4	108.2	109.1	109.9	110.8	112.5	114.2	115.9	117.6	122.7	127.8
80°	81.8	82.6	83.5	84.4	85.2	86.1	86.9	88.6	90.3	92.9	95.4
82.5°	59.6	59.6	59.6	59.6	59.6	61.3	63.1	63.1	63.1	64.8	66.5
85°	37.5	37.5	37.5	38.3	39.2	39.2	39.2	40.0	40.9	40.9	40.9
87.5°	17.0	16.2	15.3	16.2	17.0	17.0	17.0	17.9	18.7	18.7	18.7
90°	33.2	32.7	32.2	31.7	31.2	30.5	29.5	28.5	27.6	26.6	23.4
92.5°	37.6	37.4	37.1	36.9	36.7	35.7	33.9	32.2	30.5	28.8	26.6
95°	42.1	42.1	42.1	42.1	42.1	41.2	39.5	37.8	36.0	34.3	31.6
97.5°	45.4	45.1	44.9	44.6	44.4	43.3	41.3	39.4	37.4	35.4	48.0
100°	46.5	46.2	46.0	45.8	45.5	44.4	42.4	40.5	38.5	36.5	74.9
102.5°	47.6	47.1	46.6	46.1	45.6	49.4	57.6	65.7	73.8	81.9	124.7
105°	48.7	48.2	47.7	47.2	46.7	68.3	111.8	155.3	198.9	242.4	264.6
107.5°	115.1	147.3	179.6	211.8	244.0	279.1	317.0	354.8	392.7	430.6	426.9
110°	304.4	339.6	374.8	409.9	445.1	466.8	474.9	483.0	491.1	499.2	496.5



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	576.7	577.2	577.7	578.2	578.7	577.8	575.6	573.4	571.2	569.0	566.3
115°	650.9	649.9	648.9	647.9	646.9	645.2	642.8	640.3	637.8	635.4	633.2
117.5°	710.7	710.4	710.2	709.9	709.7	708.6	706.6	704.6	702.7	700.7	699.5
120°	772.6	772.6	772.6	772.6	772.6	771.7	769.7	767.7	765.8	763.8	763.1
122.5°	833.5	833.3	833.0	832.8	832.5	831.8	830.6	829.3	828.1	826.9	825.9
125°	890.0	889.5	889.0	888.5	888.0	887.5	887.0	886.5	886.0	885.6	884.6
127.5°	945.3	945.8	946.3	946.8	947.3	947.2	946.4	945.7	945.0	944.2	943.0
130°	998.5	999.0	999.4	999.9	1000.4	1000.2	999.2	998.2	997.2	996.3	995.3
132.5°	1047.2	1047.9	1048.6	1049.4	1050.1	1050.0	1049.0	1048.0	1047.0	1046.1	1045.3
135°	1097.0	1097.7	1098.5	1099.2	1099.9	1099.9	1099.2	1098.5	1097.7	1097.0	1096.0
137.5°	1144.6	1145.1	1145.6	1146.1	1146.5	1146.2	1144.9	1143.7	1142.5	1141.3	1140.8
140°	1186.6	1187.1	1187.6	1188.1	1188.6	1188.4	1187.4	1186.4	1185.4	1184.4	1183.7
142.5°	1225.4	1226.1	1226.9	1227.6	1228.3	1228.3	1227.6	1226.9	1226.1	1225.4	1224.6
145°	1265.2	1265.2	1265.2	1265.2	1265.2	1265.0	1264.5	1264.0	1263.5	1263.0	1262.5
147.5°	1294.0	1295.2	1296.5	1297.7	1298.9	1299.3	1298.8	1298.3	1297.8	1297.3	1296.8
150°	1327.2	1328.0	1328.7	1329.4	1330.2	1330.3	1329.8	1329.3	1328.8	1328.3	1327.8
152.5°	1353.8	1355.0	1356.3	1357.5	1358.7	1358.8	1357.9	1356.9	1355.9	1354.9	1354.7
155°	1378.1	1379.6	1381.1	1382.6	1384.0	1384.2	1382.9	1381.7	1380.5	1379.3	1379.0
157.5°	1399.2	1401.1	1403.1	1405.1	1407.0	1407.3	1405.8	1404.3	1402.9	1401.4	1401.6
160°	1419.1	1420.8	1422.5	1424.3	1426.0	1426.1	1424.6	1423.2	1421.7	1420.2	1420.5
162.5°	1437.9	1439.4	1440.9	1442.3	1443.8	1443.7	1442.0	1440.3	1438.5	1436.8	1437.1
165°	1452.3	1454.0	1455.8	1457.5	1459.2	1459.1	1457.1	1455.1	1453.2	1451.2	1451.5
167.5°	1463.4	1465.3	1467.3	1469.3	1471.3	1471.3	1469.3	1467.3	1465.3	1463.4	1463.4
170°	1473.3	1475.3	1477.3	1479.2	1481.2	1481.2	1479.2	1477.3	1475.3	1473.3	1473.3
172.5°	1478.9	1481.1	1483.3	1485.5	1487.7	1487.9	1485.9	1483.9	1482.0	1480.0	1479.7
175°	1484.4	1486.4	1488.3	1490.3	1492.3	1492.4	1490.7	1489.0	1487.2	1485.5	1485.3
177.5°	1485.5	1488.0	1490.4	1492.9	1495.4	1495.6	1493.6	1491.7	1489.7	1487.7	1487.5
180°	1489.9	1489.9	1489.9	1489.9	1489.9	1489.9	1489.9	1489.9	1489.9	1489.9	1489.9



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	4156.3	4156.3	4156.3	4156.3	4156.3	4156.3	4156.3	4156.3	4156.3	4156.3	4156.3
2.5°	4412.8	4408.5	4367.6	4326.7	4286.6	4246.6	4216.8	4187.0	4136.7	4086.4	4054.9
5°	4686.3	4653.9	4589.1	4524.4	4427.2	4330.1	4248.3	4166.5	4062.6	3958.6	3871.7
7.5°	4838.8	4812.4	4734.0	4655.6	4526.9	4398.3	4270.5	4142.7	3989.3	3835.9	3704.7
10°	4843.0	4865.2	4800.4	4735.7	4590.8	4446.0	4272.2	4098.3	3892.2	3686.0	3516.4
12.5°	4691.4	4786.8	4773.2	4759.5	4612.1	4464.7	4253.4	4042.1	3789.1	3536.0	3323.8
15°	4407.6	4592.5	4647.1	4701.6	4579.8	4457.9	4217.6	3977.4	3680.0	3382.6	3138.9
17.5°	4042.1	4301.1	4445.1	4589.1	4500.5	4411.9	4148.6	3885.3	3550.5	3215.6	2950.6
20°	3609.3	3948.4	4174.2	4400.0	4367.6	4335.2	4063.4	3791.6	3430.3	3069.1	2781.9
22.5°	3181.5	3539.4	3851.3	4163.1	4196.3	4229.6	3955.2	3680.8	3285.5	2890.1	2597.9
25°	2812.6	3176.4	3547.9	3919.4	3994.4	4069.4	3808.7	3547.9	3138.1	2728.3	2437.7
27.5°	2460.7	2806.6	3215.6	3624.6	3760.9	3897.3	3658.7	3420.1	2993.2	2566.4	2276.7
30°	2173.6	2482.9	2900.4	3317.9	3507.9	3697.9	3478.9	3259.9	2836.5	2413.0	2129.3
32.5°	1906.0	2182.9	2602.2	3021.4	3242.0	3462.7	3273.6	3084.4	2677.1	2269.9	1989.5
35°	1694.7	1942.7	2333.8	2724.8	2971.9	3219.0	3064.0	2908.9	2511.0	2113.1	1848.1
37.5°	1513.2	1721.1	2088.4	2455.6	2718.0	2980.5	2850.9	2721.4	2347.4	1973.3	1722.8
40°	1363.3	1530.3	1871.9	2213.6	2470.9	2728.3	2617.5	2506.7	2171.9	1837.0	1602.7
42.5°	1234.6	1378.6	1685.3	1992.1	2228.1	2464.1	2390.8	2317.6	2014.2	1710.9	1493.6
45°	1121.3	1242.3	1512.4	1782.5	1999.8	2217.0	2159.1	2101.1	1839.6	1578.0	1378.6
47.5°	1020.8	1124.7	1365.8	1607.0	1802.1	1997.2	1943.5	1889.8	1673.4	1457.0	1275.5
50°	928.7	1017.3	1218.4	1419.5	1595.0	1770.6	1726.2	1681.9	1503.0	1324.1	1167.3
52.5°	841.8	915.1	1095.7	1276.4	1417.8	1559.2	1525.2	1491.1	1353.1	1215.0	1072.7
55°	759.2	826.5	979.0	1131.5	1252.5	1373.5	1339.4	1305.3	1198.0	1090.6	965.4
57.5°	684.2	743.0	866.5	990.1	1086.4	1182.6	1166.5	1150.3	1060.8	971.3	868.2
60°	605.0	657.8	764.3	870.8	948.3	1025.9	1007.1	988.4	924.5	860.6	772.0
62.5°	534.2	581.1	666.3	751.5	814.6	877.6	864.0	850.3	801.8	753.2	679.9
65°	460.1	506.1	575.1	644.1	693.6	743.0	731.1	719.1	682.5	645.9	587.1
67.5°	392.8	431.1	490.8	550.4	583.7	616.9	610.1	603.2	575.1	547.0	501.0
70°	324.6	357.9	407.3	456.7	479.7	502.7	505.3	507.8	482.3	456.7	422.6
72.5°	256.5	282.9	328.9	374.9	392.8	410.7	409.8	409.0	393.6	378.3	347.6
75°	196.8	216.4	252.2	288.0	303.3	318.7	322.1	325.5	311.0	296.5	279.5
77.5°	141.4	155.1	182.3	209.6	226.6	243.7	245.4	247.1	240.3	233.5	217.3
80°	99.7	103.9	121.0	138.0	155.9	173.8	176.4	178.9	172.1	165.3	155.1
82.5°	69.0	71.6	77.5	83.5	98.0	112.5	115.9	119.3	115.9	112.5	101.4
85°	41.8	42.6	45.2	47.7	54.5	61.3	64.8	68.2	66.5	64.8	58.8
87.5°	18.7	18.7	19.6	20.4	22.2	23.9	28.1	32.4	29.8	27.3	24.7
90°	20.2	17.0	13.8	10.9	8.5	6.0	3.6	1.1	3.6	6.0	8.5
92.5°	24.4	22.1	19.9	19.6	21.0	22.5	24.0	25.5	24.0	22.5	21.0
95°	28.9	26.2	23.5	27.2	37.3	47.4	57.4	67.5	57.4	47.4	37.3
97.5°	60.5	73.1	85.6	95.3	102.2	109.1	116.0	122.9	116.0	109.1	102.2
100°	113.3	151.7	190.0	206.8	201.8	196.9	192.0	187.1	192.0	196.9	201.8
102.5°	167.5	210.3	253.1	272.9	269.7	266.5	263.3	260.1	263.3	266.5	269.7
105°	286.7	308.8	331.0	340.7	338.0	335.3	332.6	329.9	332.6	335.3	338.0
107.5°	423.2	419.5	415.8	412.9	410.7	408.5	406.2	404.0	406.2	408.5	410.7
110°	493.8	491.1	488.4	486.1	484.1	482.1	480.2	478.2	480.2	482.1	484.1



TEST NUMBER: P831909

CATALOG NUMBER: S123RDIP-S1165D1025U850-4F0-1E-UDD-G

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
112.5°	563.6	560.9	558.1	555.9	554.2	552.5	550.8	549.0	550.8	552.5	554.2
115°	631.0	628.7	626.5	624.7	623.2	621.7	620.3	618.8	620.3	621.7	623.2
117.5°	698.2	697.0	695.8	694.3	692.6	690.9	689.1	687.4	689.1	690.9	692.6
120°	762.3	761.6	760.8	759.4	757.2	754.9	752.7	750.5	752.7	754.9	757.2
122.5°	824.9	823.9	823.0	821.6	819.9	818.2	816.4	814.7	816.4	818.2	819.9
125°	883.6	882.6	881.6	880.1	878.2	876.2	874.2	872.3	874.2	876.2	878.2
127.5°	941.8	940.5	939.3	937.7	935.7	933.8	931.8	929.8	931.8	933.8	935.7
130°	994.3	993.3	992.3	990.8	988.9	986.9	984.9	983.0	984.9	986.9	988.9
132.5°	1044.6	1043.8	1043.1	1041.8	1039.8	1037.8	1035.9	1033.9	1035.9	1037.8	1039.8
135°	1095.0	1094.0	1093.0	1091.8	1090.3	1088.9	1087.4	1085.9	1087.4	1088.9	1090.3
137.5°	1140.3	1139.8	1139.3	1138.1	1136.1	1134.1	1132.2	1130.2	1132.2	1134.1	1136.1
140°	1183.0	1182.2	1181.5	1180.4	1178.9	1177.4	1175.9	1174.5	1175.9	1177.4	1178.9
142.5°	1223.9	1223.2	1222.4	1221.3	1219.9	1218.4	1216.9	1215.4	1216.9	1218.4	1219.9
145°	1262.0	1261.5	1261.1	1259.9	1258.2	1256.5	1254.8	1253.1	1254.8	1256.5	1258.2
147.5°	1296.4	1295.9	1295.4	1294.5	1293.3	1292.1	1290.8	1289.6	1290.8	1292.1	1293.3
150°	1327.3	1326.9	1326.4	1325.8	1325.0	1324.3	1323.5	1322.8	1323.5	1324.3	1325.0
152.5°	1354.4	1354.2	1353.9	1353.7	1353.4	1353.2	1352.9	1352.7	1352.9	1353.2	1353.4
155°	1378.8	1378.5	1378.3	1378.4	1378.9	1379.4	1379.9	1380.4	1379.9	1379.4	1378.9
157.5°	1401.9	1402.1	1402.4	1402.5	1402.5	1402.5	1402.5	1402.5	1402.5	1402.5	1402.5
160°	1420.7	1420.9	1421.2	1421.4	1421.7	1421.9	1422.2	1422.4	1422.2	1421.9	1421.7
162.5°	1437.3	1437.6	1437.8	1438.3	1439.0	1439.8	1440.5	1441.2	1440.5	1439.8	1439.0
165°	1451.7	1451.9	1452.2	1452.7	1453.4	1454.2	1454.9	1455.6	1454.9	1454.2	1453.4
167.5°	1463.4	1463.4	1463.4	1463.9	1464.9	1465.8	1466.8	1467.8	1466.8	1465.8	1464.9
170°	1473.3	1473.3	1473.3	1473.8	1474.8	1475.8	1476.8	1477.8	1476.8	1475.8	1474.8
172.5°	1479.5	1479.2	1479.0	1479.5	1480.7	1482.0	1483.2	1484.4	1483.2	1482.0	1480.7
175°	1485.0	1484.8	1484.5	1485.0	1486.3	1487.5	1488.7	1489.9	1488.7	1487.5	1486.3
177.5°	1487.2	1487.0	1486.7	1487.2	1488.5	1489.7	1490.9	1492.2	1490.9	1489.7	1488.5
180°	1489.9	1489.9	1489.9	1489.9	1489.9	1489.9	1489.9	1489.9	1489.9	1489.9	1489.9



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CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	4156.3	4156.3	4156.3	4156.3	4156.3	4156.3	4156.3	4156.3	4156.3	4156.3	4156.3
2.5°	4023.4	3974.8	3926.2	3891.3	3856.4	3812.9	3769.5	3767.8	3766.0	3733.7	3701.3
5°	3784.8	3700.4	3616.1	3533.4	3450.8	3368.1	3285.5	3266.7	3248.0	3219.9	3191.8
7.5°	3573.5	3438.9	3304.2	3198.6	3092.9	3010.3	2927.6	2871.4	2815.2	2771.7	2728.3
10°	3346.8	3179.8	3012.8	2885.0	2757.2	2667.8	2578.3	2513.5	2448.8	2418.1	2387.4
12.5°	3111.7	2930.2	2748.7	2623.5	2498.2	2390.8	2283.5	2224.7	2165.9	2123.3	2080.7
15°	2895.3	2700.1	2505.0	2372.1	2239.2	2138.6	2038.1	1979.3	1920.5	1877.9	1835.3
17.5°	2685.7	2488.8	2292.0	2157.4	2022.8	1931.6	1840.4	1783.3	1726.2	1699.8	1673.4
20°	2494.8	2296.3	2097.7	1970.8	1843.8	1754.4	1664.9	1634.2	1603.6	1578.8	1554.1
22.5°	2305.6	2114.8	1923.9	1802.1	1680.2	1615.5	1550.7	1526.0	1501.3	1482.6	1463.8
25°	2147.2	1957.2	1767.1	1660.6	1554.1	1503.9	1453.6	1437.4	1421.2	1402.5	1383.7
27.5°	1987.0	1806.3	1625.7	1540.5	1455.3	1414.4	1373.5	1353.1	1332.6	1317.3	1301.9
30°	1845.5	1678.5	1511.5	1440.8	1370.1	1334.3	1298.5	1276.4	1254.2	1239.7	1225.2
32.5°	1709.2	1561.0	1412.7	1352.2	1291.7	1256.8	1221.8	1200.5	1179.2	1162.2	1145.2
35°	1583.1	1454.4	1325.8	1270.4	1215.0	1180.1	1145.2	1123.9	1102.5	1085.5	1068.5
37.5°	1472.3	1355.6	1238.9	1186.9	1134.9	1104.3	1073.6	1051.4	1029.3	1011.4	993.5
40°	1368.4	1265.3	1162.2	1111.9	1061.7	1028.4	995.2	975.6	956.0	939.8	923.6
42.5°	1276.4	1181.8	1087.2	1037.8	988.4	956.8	925.3	902.3	879.3	869.9	860.6
45°	1179.2	1095.7	1012.2	964.5	916.8	883.6	850.3	830.7	811.1	802.6	794.1
47.5°	1094.0	1016.5	939.0	892.1	845.2	815.4	785.6	770.3	754.9	743.0	731.1
50°	1010.5	935.5	860.6	815.4	770.3	744.7	719.1	700.4	681.6	673.1	664.6
52.5°	930.4	862.3	794.1	748.1	702.1	677.4	652.7	636.5	620.3	602.4	584.5
55°	840.1	780.5	720.8	679.9	639.0	613.5	587.9	569.2	550.4	531.7	512.9
57.5°	765.1	706.3	647.6	610.9	574.3	549.6	524.9	504.4	484.0	468.6	453.3
60°	683.3	632.2	581.1	545.3	509.5	485.7	461.8	442.2	422.6	414.9	407.3
62.5°	606.7	558.9	511.2	479.7	448.2	425.2	402.2	389.4	376.6	371.5	366.4
65°	528.3	487.4	446.5	417.5	388.5	368.9	349.3	343.4	337.4	333.2	328.9
67.5°	455.0	420.1	385.1	359.6	334.0	320.4	306.7	299.9	293.1	288.0	282.9
70°	388.5	357.9	327.2	305.0	282.9	270.1	257.3	251.4	245.4	236.0	226.6
72.5°	317.0	293.1	269.2	252.2	235.2	224.1	213.0	201.1	189.2	180.6	172.1
75°	262.4	238.6	214.7	198.5	182.3	169.6	156.8	152.5	148.3	145.7	143.1
77.5°	201.1	180.6	160.2	147.4	134.6	128.7	122.7	120.1	117.6	116.7	115.9
80°	144.8	127.8	110.8	103.9	97.1	95.4	93.7	92.0	90.3	89.5	88.6
82.5°	90.3	81.8	73.3	71.6	69.9	69.0	68.2	67.3	66.5	65.6	64.8
85°	52.8	49.4	46.0	45.2	44.3	43.5	42.6	42.6	42.6	42.6	42.6
87.5°	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	22.2	21.3	20.4
90°	10.9	13.8	17.0	20.2	23.4	26.6	27.6	28.5	29.5	30.5	31.2
92.5°	19.6	19.9	22.1	24.4	26.6	28.8	30.5	32.2	33.9	35.7	36.7
95°	27.2	23.5	26.2	28.9	31.6	34.3	36.0	37.8	39.5	41.2	42.1
97.5°	95.3	85.6	73.1	60.5	48.0	35.4	37.4	39.4	41.3	43.3	44.4
100°	206.8	190.0	151.7	113.3	74.9	36.5	38.5	40.5	42.4	44.4	45.5
102.5°	272.9	253.1	210.3	167.5	124.7	81.9	73.8	65.7	57.6	49.4	45.6
105°	340.7	331.0	308.8	286.7	264.6	242.4	198.9	155.3	111.8	68.3	46.7
107.5°	412.9	415.8	419.5	423.2	426.9	430.6	392.7	354.8	317.0	279.1	244.0
110°	486.1	488.4	491.1	493.8	496.5	499.2	491.1	483.0	474.9	466.8	445.1



TEST NUMBER: P831909

CATALOG NUMBER: S123RDIP-S1165D1025U850-4F0-1E-UDD-G

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
112.5°	555.9	558.1	560.9	563.6	566.3	569.0	571.2	573.4	575.6	577.8	578.7
115°	624.7	626.5	628.7	631.0	633.2	635.4	637.8	640.3	642.8	645.2	646.9
117.5°	694.3	695.8	697.0	698.2	699.5	700.7	702.7	704.6	706.6	708.6	709.7
120°	759.4	760.8	761.6	762.3	763.1	763.8	765.8	767.7	769.7	771.7	772.6
122.5°	821.6	823.0	823.9	824.9	825.9	826.9	828.1	829.3	830.6	831.8	832.5
125°	880.1	881.6	882.6	883.6	884.6	885.6	886.0	886.5	887.0	887.5	888.0
127.5°	937.7	939.3	940.5	941.8	943.0	944.2	945.0	945.7	946.4	947.2	947.3
130°	990.8	992.3	993.3	994.3	995.3	996.3	997.2	998.2	999.2	1000.2	1000.4
132.5°	1041.8	1043.1	1043.8	1044.6	1045.3	1046.1	1047.0	1048.0	1049.0	1050.0	1050.1
135°	1091.8	1093.0	1094.0	1095.0	1096.0	1097.0	1097.7	1098.5	1099.2	1099.9	1099.9
137.5°	1138.1	1139.3	1139.8	1140.3	1140.8	1141.3	1142.5	1143.7	1144.9	1146.2	1146.5
140°	1180.4	1181.5	1182.2	1183.0	1183.7	1184.4	1185.4	1186.4	1187.4	1188.4	1188.6
142.5°	1221.3	1222.4	1223.2	1223.9	1224.6	1225.4	1226.1	1226.9	1227.6	1228.3	1228.3
145°	1259.9	1261.1	1261.5	1262.0	1262.5	1263.0	1263.5	1264.0	1264.5	1265.0	1265.2
147.5°	1294.5	1295.4	1295.9	1296.4	1296.8	1297.3	1297.8	1298.3	1298.8	1299.3	1298.9
150°	1325.8	1326.4	1326.9	1327.3	1327.8	1328.3	1328.8	1329.3	1329.8	1330.3	1330.2
152.5°	1353.7	1353.9	1354.2	1354.4	1354.7	1354.9	1355.9	1356.9	1357.9	1358.8	1358.7
155°	1378.4	1378.3	1378.5	1378.8	1379.0	1379.3	1380.5	1381.7	1382.9	1384.2	1384.0
157.5°	1402.5	1402.4	1402.1	1401.9	1401.6	1401.4	1402.9	1404.3	1405.8	1407.3	1407.0
160°	1421.4	1421.2	1420.9	1420.7	1420.5	1420.2	1421.7	1423.2	1424.6	1426.1	1426.0
162.5°	1438.3	1437.8	1437.6	1437.3	1437.1	1436.8	1438.5	1440.3	1442.0	1443.7	1443.8
165°	1452.7	1452.2	1451.9	1451.7	1451.5	1451.2	1453.2	1455.1	1457.1	1459.1	1459.2
167.5°	1463.9	1463.4	1463.4	1463.4	1463.4	1463.4	1465.3	1467.3	1469.3	1471.3	1471.3
170°	1473.8	1473.3	1473.3	1473.3	1473.3	1473.3	1475.3	1477.3	1479.2	1481.2	1481.2
172.5°	1479.5	1479.0	1479.2	1479.5	1479.7	1480.0	1482.0	1483.9	1485.9	1487.9	1487.7
175°	1485.0	1484.5	1484.8	1485.0	1485.3	1485.5	1487.2	1489.0	1490.7	1492.4	1492.3
177.5°	1487.2	1486.7	1487.0	1487.2	1487.5	1487.7	1489.7	1491.7	1493.6	1495.6	1495.4
180°	1489.9	1489.9	1489.9	1489.9	1489.9	1489.9	1489.9	1489.9	1489.9	1489.9	1489.9



TEST NUMBER: P831909

CATALOG NUMBER: S123RDIP-S1165D1025U850-4F0-1E-UDD-G

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	4156.3	4156.3	4156.3	4156.3
2.5°	3692.8	3684.3	3680.8	3677.4
5°	3165.4	3138.9	3133.0	3127.0
7.5°	2717.2	2706.1	2669.5	2632.8
10°	2353.4	2319.3	2303.9	2288.6
12.5°	2049.2	2017.6	2012.5	2007.4
15°	1813.2	1791.0	1783.3	1775.7
17.5°	1658.1	1642.7	1633.4	1624.0
20°	1543.1	1532.0	1525.2	1518.3
22.5°	1455.3	1446.8	1441.7	1436.6
25°	1370.9	1358.2	1353.9	1349.6
27.5°	1290.9	1279.8	1275.5	1271.3
30°	1215.9	1206.5	1200.5	1194.6
32.5°	1134.1	1123.0	1119.6	1116.2
35°	1061.7	1054.8	1051.4	1048.0
37.5°	985.0	976.4	971.3	966.2
40°	919.4	915.1	912.5	910.0
42.5°	852.9	845.2	844.4	843.5
45°	786.4	778.8	777.1	775.4
47.5°	724.2	717.4	716.6	715.7
50°	655.2	645.9	639.0	632.2
52.5°	576.0	567.5	561.5	555.5
55°	503.6	494.2	489.1	484.0
57.5°	449.0	444.8	442.2	439.7
60°	404.7	402.2	400.5	398.8
62.5°	363.8	361.3	361.3	361.3
65°	326.3	323.8	321.2	318.7
67.5°	277.8	272.7	271.8	271.0
70°	219.0	211.3	210.5	209.6
72.5°	171.3	170.4	168.7	167.0
75°	141.4	139.7	139.7	139.7
77.5°	114.2	112.5	112.5	112.5
80°	87.8	86.9	87.8	88.6
82.5°	64.8	64.8	63.9	63.1
85°	41.8	40.9	40.9	40.9
87.5°	20.4	20.4	20.4	20.4
90°	31.7	32.2	32.7	33.2
92.5°	36.9	37.1	37.4	37.6
95°	42.1	42.1	42.1	42.1
97.5°	44.6	44.9	45.1	45.4
100°	45.8	46.0	46.2	46.5
102.5°	46.1	46.6	47.1	47.6
105°	47.2	47.7	48.2	48.7
107.5°	211.8	179.6	147.3	115.1
110°	409.9	374.8	339.6	304.4



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CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
112.5°	578.2	577.7	577.2	576.7
115°	647.9	648.9	649.9	650.9
117.5°	709.9	710.2	710.4	710.7
120°	772.6	772.6	772.6	772.6
122.5°	832.8	833.0	833.3	833.5
125°	888.5	889.0	889.5	890.0
127.5°	946.8	946.3	945.8	945.3
130°	999.9	999.4	999.0	998.5
132.5°	1049.4	1048.6	1047.9	1047.2
135°	1099.2	1098.5	1097.7	1097.0
137.5°	1146.1	1145.6	1145.1	1144.6
140°	1188.1	1187.6	1187.1	1186.6
142.5°	1227.6	1226.9	1226.1	1225.4
145°	1265.2	1265.2	1265.2	1265.2
147.5°	1297.7	1296.5	1295.2	1294.0
150°	1329.4	1328.7	1328.0	1327.2
152.5°	1357.5	1356.3	1355.0	1353.8
155°	1382.6	1381.1	1379.6	1378.1
157.5°	1405.1	1403.1	1401.1	1399.2
160°	1424.3	1422.5	1420.8	1419.1
162.5°	1442.3	1440.9	1439.4	1437.9
165°	1457.5	1455.8	1454.0	1452.3
167.5°	1469.3	1467.3	1465.3	1463.4
170°	1479.2	1477.3	1475.3	1473.3
172.5°	1485.5	1483.3	1481.1	1478.9
175°	1490.3	1488.3	1486.4	1484.4
177.5°	1492.9	1490.4	1488.0	1485.5
180°	1489.9	1489.9	1489.9	1489.9



TEST NUMBER: P831909

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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	14.39	15.24	15.32	16.18	17.38	19.06	19.90	19.99	20.84	22.05
	3H	15.62	16.37	16.56	17.32	18.55	20.56	21.32	21.50	22.26	23.49
	4H	16.00	16.71	16.95	17.66	18.90	21.05	21.76	22.00	22.71	23.95
	6H	16.28	16.94	17.25	17.89	19.14	21.36	22.02	22.33	22.97	24.23
	8H	16.37	16.99	17.34	17.97	19.21	21.44	22.07	22.41	23.04	24.29
	12H	16.42	17.01	17.40	17.98	19.25	21.47	22.07	22.45	23.03	24.31
4H	2H	15.12	15.83	16.08	16.78	18.02	19.06	19.77	20.01	20.72	21.96
	3H	16.49	17.08	17.46	18.06	19.31	20.72	21.31	21.68	22.29	23.54
	4H	16.95	17.49	17.92	18.46	19.74	21.32	21.86	22.30	22.84	24.11
	6H	17.31	17.78	18.30	18.78	20.05	21.76	22.22	22.75	23.22	24.50
	8H	17.44	17.87	18.43	18.86	20.15	21.89	22.33	22.88	23.32	24.61
	12H	17.52	17.91	18.52	18.91	20.21	21.96	22.34	22.96	23.35	24.65
8H	4H	17.26	17.69	18.25	18.69	19.97	21.29	21.72	22.28	22.71	24.00
	6H	17.73	18.08	18.74	19.12	20.40	21.79	22.14	22.80	23.18	24.46
	8H	17.92	18.23	18.94	19.25	20.56	21.97	22.29	23.00	23.31	24.61
	12H	18.06	18.34	19.08	19.35	20.70	22.09	22.37	23.12	23.38	24.73
12H	4H	17.27	17.66	18.28	18.67	19.96	21.24	21.63	22.25	22.64	23.93
	6H	17.78	18.10	18.81	19.12	20.43	21.76	22.08	22.78	23.10	24.40
	8H	18.00	18.28	19.03	19.29	20.65	21.96	22.23	22.98	23.25	24.60