

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: P831933

Luminaire Tested: S123RDIP-S1165D1195U840-4F0-1E-UDD-G

Issue Date: 05/03/2024

Test Information

Test Method: LM-79-2019
Report Number: P831933
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-S1165D1195U840-4F0-1E-UDD-G
Description: DEFINE 3 DIRECT-INDIRECT PENDANT LED LUMINAIRE
DOWNLIGHT 1165 LUMENS PER FOOT, GRAZE OPTIC
UPLIGHT 1195 LUMENS PER FOOT, NO LENS
Light Source: -
Ballast/Driver: -

Summary

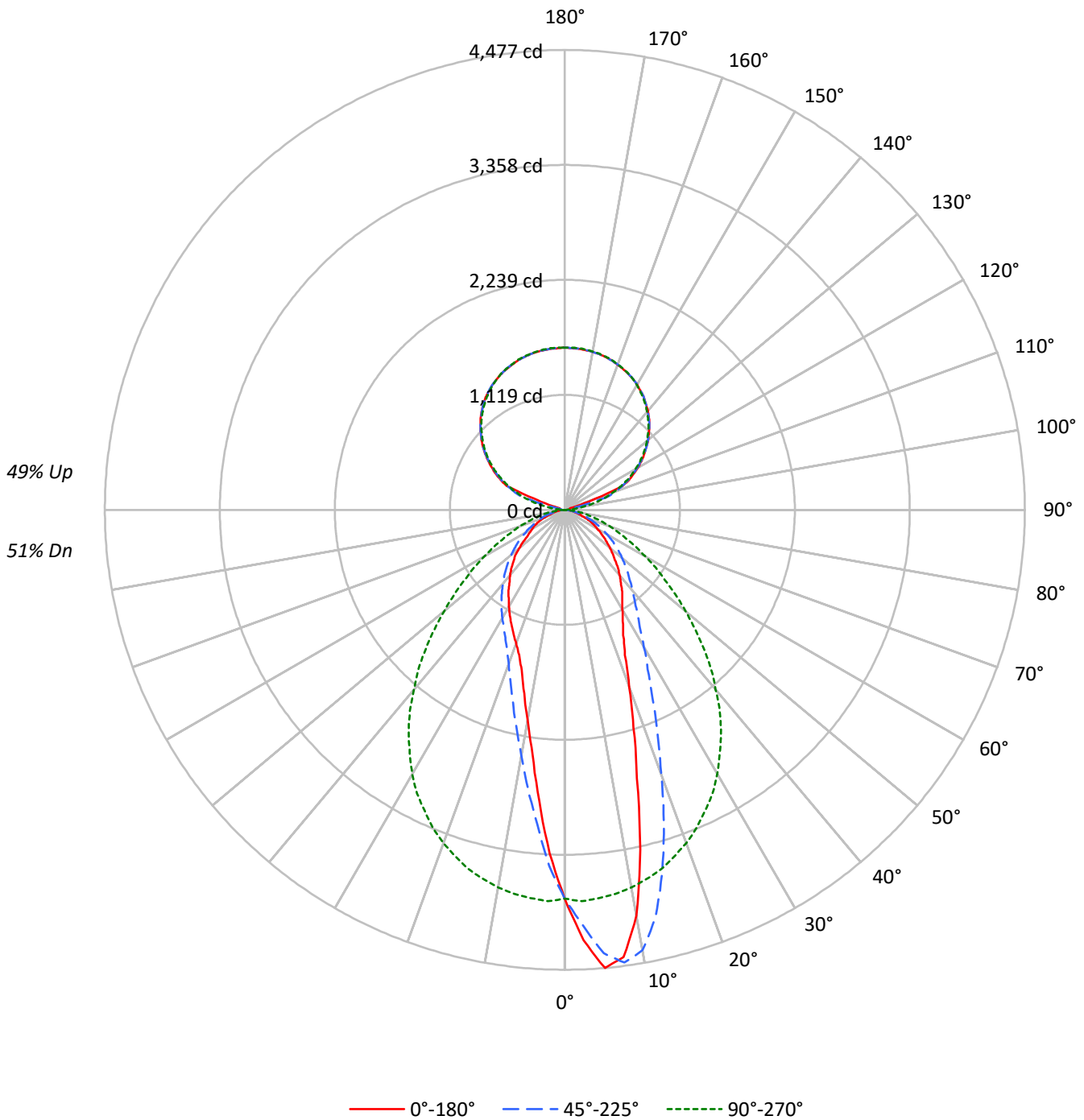
Lumens per Lamp: N/A
Luminaire Lumens: 9835.3 lumens
Efficiency: N/A
Efficacy: 134.4 lumens/watt
Spacing Criteria (0/90/45): 0.55 / 1.17 / 0.8
Luminous Opening: Rectangular (W 4' x L: 0.25' x H: 0')
CIE Type: General Diffuse

Input Watts (W): 73.2
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	107	107	107	107	99	99	99	99	84	84	84	70	70	70	57	57	57	51				51
1	99	95	91	88	91	88	85	82	75	73	71	63	61	60	52	51	50				45	
2	91	84	78	73	84	78	73	69	67	63	60	56	54	51	47	45	43				39	
3	83	74	68	62	77	69	63	59	60	55	51	50	47	45	42	40	38				34	
4	77	67	59	53	71	62	56	51	54	49	45	46	42	39	38	36	34				30	
5	71	60	52	47	65	56	49	44	48	43	39	42	38	35	35	32	30				27	
6	66	54	47	41	61	51	44	39	44	39	35	38	34	31	32	29	27				24	
7	61	49	42	37	57	46	40	35	40	35	31	35	31	28	30	27	24				22	
8	57	45	38	33	53	42	36	31	37	32	28	32	28	25	28	25	22				20	
9	53	42	34	30	49	39	33	28	34	29	26	30	26	23	26	23	21				18	
10	50	38	31	27	46	36	30	26	32	27	23	28	24	21	24	21	19				17	

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	40739	40739	40739	40739	40739
5°	48372	46830	40995	33140	30767
10°	43827	47566	40791	26552	22778
15°	30175	40783	40360	21702	18018
20°	20992	31400	39550	18299	15837
25°	15997	23931	38371	16264	14596
30°	13926	19132	36896	15101	13520
35°	12786	16139	34807	14121	12540
40°	11665	14412	32073	13159	11643
45°	10535	13181	29125	12248	10749
50°	9562	12161	25648	11355	9640
55°	8649	11168	22308	10483	8270
60°	7750	10155	19375	9522	7817
65°	7154	9011	16677	8558	7391
70°	5813	7789	14552	7742	6008
75°	5099	6197	12327	6421	5290
80°	4618	5244	10098	5387	5002
85°	4211	4594	7669	4891	4594

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°
 Vertical Angle: 45°
 Luminance: 30731 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	345.0	3.5
10°-20°	798.3	8.1
20°-30°	915.9	9.3
30°-40°	902.8	9.2
40°-50°	796.1	8.1
50°-60°	612.5	6.2
60°-70°	402.7	4.1
70°-80°	195.6	2.0
80°-90°	52.5	0.5
90°-100°	55.7	0.6
100°-110°	269.2	2.7
110°-120°	659.8	6.7
120°-130°	837.6	8.5
130°-140°	894.8	9.1
140°-150°	836.7	8.5
150°-160°	674.9	6.9
160°-170°	435.5	4.4
170°-180°	150.1	1.5
0°-30°	2059.1	20.9
0°-40°	2961.9	30.1
0°-60°	4370.5	44.4
0°-90°	5021.2	51.1
90°-120°	984.6	10.0
90°-150°	3553.7	36.1
90°-180°	4814.0	48.9
0°-180°	9835.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	3785	3785	3785	3785	3785	
5°	4477	4334	3794	3067	2848	409
15°	2708	3660	3622	1948	1617	764
25°	1347	2015	3231	1369	1229	636
35°	973	1228	2649	1075	954	607
45°	692	866	1913	805	706	537
55°	461	595	1189	559	441	413
65°	281	354	655	336	290	275
75°	123	149	296	154	127	132
85°	34	37	62	40	37	36
90°	35	28	1	28	35	17
95°	45	36	72	36	45	37
105°	52	257	350	257	52	108
115°	690	674	656	674	690	649
125°	943	939	924	939	943	843
135°	1163	1163	1151	1163	1163	897
145°	1341	1339	1328	1339	1341	837
155°	1461	1462	1463	1462	1461	674
165°	1539	1538	1543	1538	1539	435
175°	1573	1574	1579	1574	1573	150
180°	1579	1579	1579	1579	1579	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	3784.8	3784.8	3784.8	3784.8	3784.8	3784.8	3784.8	3784.8	3784.8	3784.8	3784.8
2.5°	4194.4	4181.2	4168.0	4164.2	4160.3	4147.9	4135.5	4107.5	4079.6	4050.9	4022.2
5°	4476.8	4478.4	4479.9	4476.1	4472.2	4455.9	4439.6	4405.5	4371.3	4334.1	4296.8
7.5°	4389.9	4414.8	4439.6	4444.3	4448.9	4461.3	4473.7	4466.0	4458.2	4444.3	4430.3
10°	4009.8	4008.2	4006.7	4034.6	4062.5	4145.5	4228.6	4271.2	4313.9	4351.9	4389.9
12.5°	3389.1	3391.4	3393.7	3485.3	3576.8	3655.2	3733.5	3842.2	3950.8	4067.9	4185.1
15°	2707.8	2745.8	2783.9	2865.3	2946.8	3064.7	3182.7	3328.5	3474.4	3659.8	3845.3
17.5°	2223.7	2240.0	2256.3	2334.6	2413.0	2524.7	2636.4	2801.7	2967.0	3205.9	3444.9
20°	1832.6	1847.4	1862.1	1918.8	1975.4	2082.5	2189.5	2347.0	2504.5	2741.2	2977.8
22.5°	1530.0	1558.7	1587.5	1625.5	1663.5	1741.1	1818.7	1979.3	2139.9	2355.6	2571.3
25°	1346.9	1360.1	1373.3	1405.9	1438.5	1513.0	1587.5	1693.8	1800.0	2015.0	2229.9
27.5°	1222.8	1226.7	1230.5	1254.6	1278.7	1326.8	1374.9	1473.4	1571.9	1748.8	1925.7
30°	1120.4	1127.4	1134.3	1153.0	1171.6	1206.5	1241.4	1311.2	1381.1	1539.3	1697.6
32.5°	1041.2	1045.1	1049.0	1064.5	1080.0	1105.6	1131.2	1186.3	1241.4	1362.4	1483.5
35°	973.0	973.7	974.5	986.1	997.8	1022.6	1047.4	1093.2	1139.0	1228.2	1317.4
37.5°	895.4	900.8	906.2	914.8	923.3	945.0	966.7	1004.0	1041.2	1114.9	1188.7
40°	830.2	834.8	839.5	849.6	859.7	876.7	893.8	928.0	962.1	1025.7	1089.3
42.5°	765.0	768.1	771.2	781.3	791.4	812.3	833.3	860.5	887.6	940.4	993.1
45°	692.1	699.8	707.6	718.5	729.3	747.2	765.0	793.0	820.9	865.9	910.9
47.5°	631.6	635.4	639.3	648.6	657.9	679.7	701.4	726.2	751.1	793.0	834.8
50°	571.0	572.6	574.2	582.7	591.2	610.6	630.0	658.7	687.4	726.2	765.0
52.5°	513.6	517.5	521.4	529.9	538.5	551.7	564.8	594.3	623.8	661.8	699.8
55°	460.9	463.2	465.5	471.7	477.9	493.5	509.0	534.6	560.2	595.1	630.0
57.5°	411.2	414.3	417.4	422.1	426.7	440.7	454.7	477.2	499.7	534.6	569.5
60°	360.0	363.9	367.8	373.2	378.6	389.5	400.4	420.5	440.7	471.7	502.8
62.5°	322.8	323.5	324.3	329.0	333.6	341.4	349.1	365.4	381.7	412.8	443.8
65°	280.9	283.2	285.5	287.9	290.2	296.4	302.6	316.6	330.5	353.8	377.1
67.5°	237.4	239.7	242.1	246.0	249.8	255.3	260.7	270.0	279.3	301.0	322.8
70°	184.7	184.7	184.7	190.9	197.1	206.4	215.7	222.7	229.7	247.5	265.4
72.5°	150.5	151.3	152.1	152.8	153.6	159.1	164.5	176.1	187.8	198.6	209.5
75°	122.6	123.4	124.1	124.9	125.7	127.2	128.8	132.7	136.6	149.0	161.4
77.5°	97.8	98.5	99.3	100.1	100.9	102.4	104.0	105.5	107.1	111.7	116.4
80°	74.5	75.3	76.0	76.8	77.6	78.4	79.1	80.7	82.2	84.6	86.9
82.5°	54.3	54.3	54.3	54.3	54.3	55.9	57.4	57.4	57.4	59.0	60.5
85°	34.1	34.1	34.1	34.9	35.7	35.7	35.7	36.5	37.2	37.2	37.2
87.5°	15.5	14.7	14.0	14.7	15.5	15.5	15.5	16.3	17.1	17.1	17.1
90°	35.2	34.7	34.2	33.6	33.1	32.3	31.3	30.2	29.2	28.2	24.8
92.5°	39.9	39.6	39.4	39.1	38.8	37.8	36.0	34.2	32.3	30.5	28.2
95°	44.6	44.6	44.6	44.6	44.6	43.7	41.8	40.0	38.2	36.4	33.5
97.5°	48.1	47.8	47.6	47.3	47.1	45.9	43.8	41.7	39.6	37.5	50.8
100°	49.3	49.0	48.8	48.5	48.2	47.1	45.0	42.9	40.8	38.7	79.4
102.5°	50.5	49.9	49.4	48.9	48.4	52.4	61.0	69.6	78.2	86.8	132.2
105°	51.6	51.1	50.6	50.1	49.5	72.4	118.5	164.6	210.8	256.9	280.4
107.5°	122.0	156.2	190.3	224.5	258.6	295.8	335.9	376.1	416.3	456.4	452.5
110°	322.6	359.9	397.2	434.5	471.8	494.7	503.3	511.9	520.5	529.1	526.3



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
112.5°	611.3	611.8	612.3	612.8	613.4	612.4	610.1	607.8	605.4	603.1	600.2
115°	689.9	688.8	687.8	686.8	685.7	683.9	681.3	678.7	676.1	673.5	671.1
117.5°	753.2	753.0	752.7	752.5	752.2	751.0	748.9	746.9	744.8	742.7	741.4
120°	818.9	818.9	818.9	818.9	818.9	817.9	815.8	813.7	811.6	809.6	808.8
122.5°	883.5	883.2	883.0	882.7	882.4	881.6	880.3	879.0	877.7	876.4	875.4
125°	943.3	942.8	942.3	941.7	941.2	940.7	940.2	939.7	939.1	938.6	937.6
127.5°	1002.0	1002.5	1003.0	1003.5	1004.1	1003.9	1003.1	1002.4	1001.6	1000.8	999.5
130°	1058.3	1058.8	1059.3	1059.9	1060.4	1060.1	1059.1	1058.0	1057.0	1055.9	1054.9
132.5°	1109.9	1110.7	1111.5	1112.3	1113.0	1112.9	1111.9	1110.8	1109.8	1108.7	1108.0
135°	1162.7	1163.5	1164.3	1165.1	1165.8	1165.8	1165.1	1164.3	1163.5	1162.7	1161.7
137.5°	1213.2	1213.7	1214.2	1214.7	1215.2	1214.9	1213.6	1212.3	1210.9	1209.6	1209.1
140°	1257.7	1258.3	1258.8	1259.3	1259.8	1259.6	1258.5	1257.5	1256.4	1255.4	1254.6
142.5°	1298.8	1299.6	1300.4	1301.2	1301.9	1301.9	1301.2	1300.4	1299.6	1298.8	1298.0
145°	1341.0	1341.0	1341.0	1341.0	1341.0	1340.8	1340.3	1339.7	1339.2	1338.7	1338.2
147.5°	1371.6	1372.9	1374.2	1375.5	1376.8	1377.2	1376.6	1376.1	1375.6	1375.1	1374.6
150°	1406.8	1407.5	1408.3	1409.1	1409.9	1410.0	1409.5	1409.0	1408.4	1407.9	1407.4
152.5°	1434.9	1436.2	1437.5	1438.8	1440.1	1440.3	1439.2	1438.2	1437.1	1436.1	1435.8
155°	1460.7	1462.3	1463.9	1465.4	1467.0	1467.1	1465.8	1464.5	1463.2	1461.9	1461.6
157.5°	1483.0	1485.1	1487.2	1489.3	1491.4	1491.6	1490.1	1488.5	1486.9	1485.4	1485.6
160°	1504.1	1506.0	1507.8	1509.6	1511.4	1511.6	1510.0	1508.4	1506.9	1505.3	1505.6
162.5°	1524.1	1525.6	1527.2	1528.8	1530.3	1530.2	1528.4	1526.6	1524.7	1522.9	1523.2
165°	1539.3	1541.2	1543.0	1544.8	1546.6	1546.5	1544.4	1542.3	1540.2	1538.2	1538.4
167.5°	1551.1	1553.2	1555.2	1557.3	1559.4	1559.4	1557.3	1555.2	1553.2	1551.1	1551.1
170°	1561.6	1563.7	1565.8	1567.9	1570.0	1570.0	1567.9	1565.8	1563.7	1561.6	1561.6
172.5°	1567.5	1569.8	1572.2	1574.5	1576.9	1577.0	1574.9	1572.8	1570.8	1568.7	1568.4
175°	1573.4	1575.4	1577.5	1579.6	1581.7	1581.8	1580.0	1578.2	1576.4	1574.5	1574.3
177.5°	1574.5	1577.1	1579.7	1582.4	1585.0	1585.2	1583.1	1581.0	1579.0	1576.9	1576.6
180°	1579.2	1579.2	1579.2	1579.2	1579.2	1579.2	1579.2	1579.2	1579.2	1579.2	1579.2



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	3784.8	3784.8	3784.8	3784.8	3784.8	3784.8	3784.8	3784.8	3784.8	3784.8	3784.8
2.5°	4018.3	4014.4	3977.2	3939.9	3903.5	3867.0	3839.8	3812.7	3766.9	3721.1	3692.4
5°	4267.4	4237.9	4178.9	4119.9	4031.5	3943.0	3868.5	3794.1	3699.4	3604.7	3525.6
7.5°	4406.2	4382.2	4310.8	4239.4	4122.3	4005.1	3888.7	3772.3	3632.7	3493.0	3373.5
10°	4410.1	4430.3	4371.3	4312.4	4180.5	4048.6	3890.3	3732.0	3544.2	3356.5	3202.1
12.5°	4272.0	4358.9	4346.5	4334.1	4199.8	4065.6	3873.2	3680.8	3450.3	3219.9	3026.7
15°	4013.6	4182.0	4231.7	4281.3	4170.4	4059.4	3840.6	3621.8	3351.0	3080.3	2858.3
17.5°	3680.8	3916.7	4047.8	4178.9	4098.2	4017.5	3777.8	3538.0	3233.1	2928.2	2686.9
20°	3286.6	3595.4	3801.0	4006.7	3977.2	3947.7	3700.2	3452.7	3123.7	2794.7	2533.3
22.5°	2897.1	3223.0	3507.0	3791.0	3821.2	3851.5	3601.6	3351.8	2991.8	2631.8	2365.7
25°	2561.2	2892.5	3230.8	3569.1	3637.3	3705.6	3468.2	3230.8	2857.6	2484.4	2219.8
27.5°	2240.7	2555.8	2928.2	3300.6	3424.7	3548.9	3331.6	3114.4	2725.7	2337.0	2073.2
30°	1979.3	2260.9	2641.1	3021.3	3194.3	3367.3	3167.9	2968.5	2582.9	2197.3	1938.9
32.5°	1735.6	1987.8	2369.5	2751.3	2952.2	3153.2	2980.9	2808.7	2437.8	2066.9	1811.7
35°	1543.2	1769.0	2125.1	2481.3	2706.3	2931.3	2790.1	2648.9	2286.5	1924.2	1682.9
37.5°	1378.0	1567.3	1901.7	2236.1	2475.1	2714.0	2596.1	2478.2	2137.6	1796.9	1568.8
40°	1241.4	1393.5	1704.6	2015.7	2250.1	2484.4	2383.5	2282.6	1977.7	1672.8	1459.4
42.5°	1124.3	1255.4	1534.7	1814.0	2028.9	2243.9	2177.1	2110.4	1834.2	1558.0	1360.1
45°	1021.1	1131.2	1377.2	1623.1	1821.0	2018.8	1966.1	1913.3	1675.1	1436.9	1255.4
47.5°	929.5	1024.2	1243.7	1463.3	1641.0	1818.7	1769.8	1720.9	1523.8	1326.8	1161.5
50°	845.7	926.4	1109.5	1292.6	1452.5	1612.3	1571.9	1531.6	1368.7	1205.7	1063.0
52.5°	766.6	833.3	997.8	1162.3	1291.1	1419.9	1388.8	1357.8	1232.1	1106.4	976.8
55°	691.3	752.6	891.5	1030.4	1140.5	1250.7	1219.7	1188.7	1090.9	993.1	879.1
57.5°	623.0	676.6	789.1	901.6	989.2	1076.9	1062.2	1047.4	966.0	884.5	790.6
60°	550.9	599.0	696.0	793.0	863.6	934.2	917.1	900.0	841.8	783.6	702.9
62.5°	486.5	529.2	606.7	684.3	741.7	799.2	786.7	774.3	730.1	685.9	619.2
65°	419.0	460.9	523.7	586.6	631.6	676.6	665.7	654.8	621.5	588.1	534.6
67.5°	357.7	392.6	446.9	501.2	531.5	561.7	555.5	549.3	523.7	498.1	456.2
70°	295.6	325.9	370.9	415.9	436.8	457.8	460.1	462.4	439.1	415.9	384.8
72.5°	233.5	257.6	299.5	341.4	357.7	374.0	373.2	372.4	358.5	344.5	316.6
75°	179.2	197.1	229.7	262.2	276.2	290.2	293.3	296.4	283.2	270.0	254.5
77.5°	128.8	141.2	166.0	190.9	206.4	221.9	223.5	225.0	218.8	212.6	197.8
80°	90.8	94.7	110.2	125.7	142.0	158.3	160.6	162.9	156.7	150.5	141.2
82.5°	62.8	65.2	70.6	76.0	89.2	102.4	105.5	108.6	105.5	102.4	92.3
85°	38.0	38.8	41.1	43.4	49.7	55.9	59.0	62.1	60.5	59.0	53.5
87.5°	17.1	17.1	17.8	18.6	20.2	21.7	25.6	29.5	27.2	24.8	22.5
90°	21.4	18.0	14.6	11.6	9.0	6.4	3.8	1.2	3.8	6.4	9.0
92.5°	25.8	23.5	21.1	20.7	22.3	23.9	25.4	27.0	25.4	23.9	22.3
95°	30.6	27.8	24.9	28.8	39.5	50.2	60.9	71.6	60.9	50.2	39.5
97.5°	64.1	77.4	90.7	101.0	108.3	115.6	122.9	130.2	122.9	115.6	108.3
100°	120.1	160.7	201.4	219.1	213.9	208.7	203.5	198.3	203.5	208.7	213.9
102.5°	177.6	222.9	268.3	289.3	285.9	282.5	279.1	275.7	279.1	282.5	285.9
105°	303.9	327.3	350.8	361.1	358.2	355.4	352.5	349.6	352.5	355.4	358.2
107.5°	448.6	444.7	440.8	437.6	435.3	432.9	430.6	428.2	430.6	432.9	435.3
110°	523.4	520.5	517.7	515.2	513.1	511.0	508.9	506.9	508.9	511.0	513.1



TEST NUMBER: P831933

CATALOG NUMBER: S123RDIP-S1165D1195U840-4F0-1E-UDD-G

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
112.5°	597.3	594.5	591.6	589.2	587.4	585.6	583.8	581.9	583.8	585.6	587.4
115°	668.8	666.4	664.1	662.1	660.6	659.0	657.4	655.9	657.4	659.0	660.6
117.5°	740.1	738.8	737.5	735.9	734.1	732.3	730.4	728.6	730.4	732.3	734.1
120°	808.0	807.2	806.4	804.9	802.5	800.2	797.8	795.5	797.8	800.2	802.5
122.5°	874.3	873.3	872.3	870.8	869.0	867.2	865.4	863.5	865.4	867.2	869.0
125°	936.5	935.5	934.4	932.9	930.8	928.7	926.6	924.5	926.6	928.7	930.8
127.5°	998.2	996.9	995.6	993.9	991.8	989.7	987.6	985.5	987.6	989.7	991.8
130°	1053.9	1052.8	1051.8	1050.2	1048.1	1046.0	1044.0	1041.9	1044.0	1046.0	1048.1
132.5°	1107.2	1106.4	1105.6	1104.2	1102.1	1100.0	1097.9	1095.8	1097.9	1100.0	1102.1
135°	1160.6	1159.6	1158.5	1157.2	1155.7	1154.1	1152.5	1151.0	1152.5	1154.1	1155.7
137.5°	1208.6	1208.1	1207.6	1206.3	1204.2	1202.1	1200.0	1197.9	1200.0	1202.1	1204.2
140°	1253.8	1253.1	1252.3	1251.1	1249.5	1248.0	1246.4	1244.8	1246.4	1248.0	1249.5
142.5°	1297.2	1296.5	1295.7	1294.5	1292.9	1291.4	1289.8	1288.3	1289.8	1291.4	1292.9
145°	1337.7	1337.1	1336.6	1335.4	1333.6	1331.8	1330.0	1328.1	1330.0	1331.8	1333.6
147.5°	1374.0	1373.5	1373.0	1372.1	1370.8	1369.5	1368.2	1366.9	1368.2	1369.5	1370.8
150°	1406.9	1406.4	1405.8	1405.2	1404.4	1403.6	1402.8	1402.1	1402.8	1403.6	1404.4
152.5°	1435.6	1435.3	1435.0	1434.8	1434.5	1434.3	1434.0	1433.7	1434.0	1434.3	1434.5
155°	1461.4	1461.1	1460.9	1461.0	1461.5	1462.0	1462.5	1463.1	1462.5	1462.0	1461.5
157.5°	1485.9	1486.1	1486.4	1486.5	1486.5	1486.5	1486.5	1486.5	1486.5	1486.5	1486.5
160°	1505.8	1506.1	1506.4	1506.6	1506.9	1507.1	1507.4	1507.7	1507.4	1507.1	1506.9
162.5°	1523.4	1523.7	1523.9	1524.5	1525.3	1526.0	1526.8	1527.6	1526.8	1526.0	1525.3
165°	1538.7	1538.9	1539.2	1539.7	1540.5	1541.3	1542.1	1542.9	1542.1	1541.3	1540.5
167.5°	1551.1	1551.1	1551.1	1551.6	1552.6	1553.7	1554.7	1555.8	1554.7	1553.7	1552.6
170°	1561.6	1561.6	1561.6	1562.1	1563.2	1564.2	1565.3	1566.3	1565.3	1564.2	1563.2
172.5°	1568.1	1567.9	1567.6	1568.1	1569.4	1570.8	1572.1	1573.4	1572.1	1570.8	1569.4
175°	1574.0	1573.7	1573.5	1574.0	1575.3	1576.6	1577.9	1579.2	1577.9	1576.6	1575.3
177.5°	1576.4	1576.1	1575.8	1576.4	1577.7	1579.0	1580.3	1581.6	1580.3	1579.0	1577.7
180°	1579.2	1579.2	1579.2	1579.2	1579.2	1579.2	1579.2	1579.2	1579.2	1579.2	1579.2



TEST NUMBER: P831933

CATALOG NUMBER: S123RDIP-S1165D1195U840-4F0-1E-UDD-G

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	3784.8	3784.8	3784.8	3784.8	3784.8	3784.8	3784.8	3784.8	3784.8	3784.8	3784.8
2.5°	3663.7	3619.5	3575.3	3543.5	3511.6	3472.1	3432.5	3431.0	3429.4	3399.9	3370.4
5°	3446.5	3369.7	3292.8	3217.6	3142.3	3067.1	2991.8	2974.7	2957.7	2932.1	2906.5
7.5°	3254.0	3131.5	3008.9	2912.7	2816.5	2741.2	2665.9	2614.7	2563.5	2523.9	2484.4
10°	3047.7	2895.6	2743.5	2627.1	2510.8	2429.3	2347.8	2288.9	2229.9	2202.0	2174.0
12.5°	2833.5	2668.3	2503.0	2388.9	2274.9	2177.1	2079.4	2025.8	1972.3	1933.5	1894.7
15°	2636.4	2458.8	2281.1	2160.1	2039.0	1947.5	1855.9	1802.4	1748.8	1710.0	1671.2
17.5°	2445.6	2266.4	2087.1	1964.5	1841.9	1758.9	1675.9	1623.9	1571.9	1547.9	1523.8
20°	2271.8	2091.0	1910.2	1794.6	1679.0	1597.5	1516.1	1488.1	1460.2	1437.7	1415.2
22.5°	2099.5	1925.7	1751.9	1641.0	1530.0	1471.1	1412.1	1389.6	1367.1	1350.0	1333.0
25°	1955.2	1782.2	1609.2	1512.2	1415.2	1369.4	1323.7	1308.9	1294.2	1277.1	1260.0
27.5°	1809.4	1644.9	1480.4	1402.8	1325.2	1288.0	1250.7	1232.1	1213.5	1199.5	1185.5
30°	1680.6	1528.5	1376.4	1312.0	1247.6	1215.0	1182.4	1162.3	1142.1	1128.9	1115.7
32.5°	1556.4	1421.4	1286.4	1231.3	1176.2	1144.4	1112.6	1093.2	1073.8	1058.3	1042.8
35°	1441.6	1324.4	1207.3	1156.8	1106.4	1074.6	1042.8	1023.4	1004.0	988.5	973.0
37.5°	1340.7	1234.4	1128.1	1080.8	1033.5	1005.5	977.6	957.4	937.3	921.0	904.7
40°	1246.1	1152.2	1058.3	1012.5	966.7	936.5	906.2	888.4	870.5	855.8	841.1
42.5°	1162.3	1076.1	990.0	945.0	900.0	871.3	842.6	821.7	800.7	792.2	783.6
45°	1073.8	997.8	921.7	878.3	834.8	804.6	774.3	756.5	738.6	730.9	723.1
47.5°	996.2	925.6	855.0	812.3	769.7	742.5	715.4	701.4	687.4	676.6	665.7
50°	920.2	851.9	783.6	742.5	701.4	678.1	654.8	637.8	620.7	612.9	605.2
52.5°	847.3	785.2	723.1	681.2	639.3	616.8	594.3	579.6	564.8	548.5	532.3
55°	765.0	710.7	656.4	619.2	581.9	558.6	535.4	518.3	501.2	484.2	467.1
57.5°	696.7	643.2	589.7	556.3	522.9	500.4	477.9	459.3	440.7	426.7	412.8
60°	622.3	575.7	529.2	496.6	464.0	442.3	420.5	402.7	384.8	377.9	370.9
62.5°	552.4	509.0	465.5	436.8	408.1	387.2	366.2	354.6	342.9	338.3	333.6
65°	481.0	443.8	406.6	380.2	353.8	336.0	318.1	312.7	307.2	303.4	299.5
67.5°	414.3	382.5	350.7	327.4	304.1	291.7	279.3	273.1	266.9	262.2	257.6
70°	353.8	325.9	297.9	277.8	257.6	246.0	234.3	228.9	223.5	214.9	206.4
72.5°	288.6	266.9	245.2	229.7	214.1	204.1	194.0	183.1	172.2	164.5	156.7
75°	239.0	217.2	195.5	180.8	166.0	154.4	142.8	138.9	135.0	132.7	130.3
77.5°	183.1	164.5	145.9	134.2	122.6	117.2	111.7	109.4	107.1	106.3	105.5
80°	131.9	116.4	100.9	94.7	88.5	86.9	85.3	83.8	82.2	81.5	80.7
82.5°	82.2	74.5	66.7	65.2	63.6	62.8	62.1	61.3	60.5	59.7	59.0
85°	48.1	45.0	41.9	41.1	40.3	39.6	38.8	38.8	38.8	38.8	38.8
87.5°	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2	19.4	18.6
90°	11.6	14.6	18.0	21.4	24.8	28.2	29.2	30.2	31.3	32.3	33.1
92.5°	20.7	21.1	23.5	25.8	28.2	30.5	32.3	34.2	36.0	37.8	38.8
95°	28.8	24.9	27.8	30.6	33.5	36.4	38.2	40.0	41.8	43.7	44.6
97.5°	101.0	90.7	77.4	64.1	50.8	37.5	39.6	41.7	43.8	45.9	47.1
100°	219.1	201.4	160.7	120.1	79.4	38.7	40.8	42.9	45.0	47.1	48.2
102.5°	289.3	268.3	222.9	177.6	132.2	86.8	78.2	69.6	61.0	52.4	48.4
105°	361.1	350.8	327.3	303.9	280.4	256.9	210.8	164.6	118.5	72.4	49.5
107.5°	437.6	440.8	444.7	448.6	452.5	456.4	416.3	376.1	335.9	295.8	258.6
110°	515.2	517.7	520.5	523.4	526.3	529.1	520.5	511.9	503.3	494.7	471.8



TEST NUMBER: P831933

CATALOG NUMBER: S123RDIP-S1165D1195U840-4F0-1E-UDD-G

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
112.5°	589.2	591.6	594.5	597.3	600.2	603.1	605.4	607.8	610.1	612.4	613.4
115°	662.1	664.1	666.4	668.8	671.1	673.5	676.1	678.7	681.3	683.9	685.7
117.5°	735.9	737.5	738.8	740.1	741.4	742.7	744.8	746.9	748.9	751.0	752.2
120°	804.9	806.4	807.2	808.0	808.8	809.6	811.6	813.7	815.8	817.9	818.9
122.5°	870.8	872.3	873.3	874.3	875.4	876.4	877.7	879.0	880.3	881.6	882.4
125°	932.9	934.4	935.5	936.5	937.6	938.6	939.1	939.7	940.2	940.7	941.2
127.5°	993.9	995.6	996.9	998.2	999.5	1000.8	1001.6	1002.4	1003.1	1003.9	1004.1
130°	1050.2	1051.8	1052.8	1053.9	1054.9	1055.9	1057.0	1058.0	1059.1	1060.1	1060.4
132.5°	1104.2	1105.6	1106.4	1107.2	1108.0	1108.7	1109.8	1110.8	1111.9	1112.9	1113.0
135°	1157.2	1158.5	1159.6	1160.6	1161.7	1162.7	1163.5	1164.3	1165.1	1165.8	1165.8
137.5°	1206.3	1207.6	1208.1	1208.6	1209.1	1209.6	1210.9	1212.3	1213.6	1214.9	1215.2
140°	1251.1	1252.3	1253.1	1253.8	1254.6	1255.4	1256.4	1257.5	1258.5	1259.6	1259.8
142.5°	1294.5	1295.7	1296.5	1297.2	1298.0	1298.8	1299.6	1300.4	1301.2	1301.9	1301.9
145°	1335.4	1336.6	1337.1	1337.7	1338.2	1338.7	1339.2	1339.7	1340.3	1340.8	1341.0
147.5°	1372.1	1373.0	1373.5	1374.0	1374.6	1375.1	1375.6	1376.1	1376.6	1377.2	1376.8
150°	1405.2	1405.8	1406.4	1406.9	1407.4	1407.9	1408.4	1409.0	1409.5	1410.0	1409.9
152.5°	1434.8	1435.0	1435.3	1435.6	1435.8	1436.1	1437.1	1438.2	1439.2	1440.3	1440.1
155°	1461.0	1460.9	1461.1	1461.4	1461.6	1461.9	1463.2	1464.5	1465.8	1467.1	1467.0
157.5°	1486.5	1486.4	1486.1	1485.9	1485.6	1485.4	1486.9	1488.5	1490.1	1491.6	1491.4
160°	1506.6	1506.4	1506.1	1505.8	1505.6	1505.3	1506.9	1508.4	1510.0	1511.6	1511.4
162.5°	1524.5	1523.9	1523.7	1523.4	1523.2	1522.9	1524.7	1526.6	1528.4	1530.2	1530.3
165°	1539.7	1539.2	1538.9	1538.7	1538.4	1538.2	1540.2	1542.3	1544.4	1546.5	1546.6
167.5°	1551.6	1551.1	1551.1	1551.1	1551.1	1551.1	1553.2	1555.2	1557.3	1559.4	1559.4
170°	1562.1	1561.6	1561.6	1561.6	1561.6	1561.6	1563.7	1565.8	1567.9	1570.0	1570.0
172.5°	1568.1	1567.6	1567.9	1568.1	1568.4	1568.7	1570.8	1572.8	1574.9	1577.0	1576.9
175°	1574.0	1573.5	1573.7	1574.0	1574.3	1574.5	1576.4	1578.2	1580.0	1581.8	1581.7
177.5°	1576.4	1575.8	1576.1	1576.4	1576.6	1576.9	1579.0	1581.0	1583.1	1585.2	1585.0
180°	1579.2	1579.2	1579.2	1579.2	1579.2	1579.2	1579.2	1579.2	1579.2	1579.2	1579.2



TEST NUMBER: P831933

CATALOG NUMBER: S123RDIP-S1165D1195U840-4F0-1E-UDD-G

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	3784.8	3784.8	3784.8	3784.8
2.5°	3362.7	3354.9	3351.8	3348.7
5°	2882.4	2858.3	2852.9	2847.5
7.5°	2474.3	2464.2	2430.8	2397.5
10°	2143.0	2112.0	2098.0	2084.0
12.5°	1866.0	1837.3	1832.6	1828.0
15°	1651.1	1630.9	1623.9	1616.9
17.5°	1509.9	1495.9	1487.4	1478.8
20°	1405.1	1395.0	1388.8	1382.6
22.5°	1325.2	1317.4	1312.8	1308.1
25°	1248.4	1236.8	1232.9	1229.0
27.5°	1175.5	1165.4	1161.5	1157.6
30°	1107.2	1098.6	1093.2	1087.8
32.5°	1032.7	1022.6	1019.5	1016.4
35°	966.7	960.5	957.4	954.3
37.5°	896.9	889.2	884.5	879.9
40°	837.2	833.3	831.0	828.6
42.5°	776.7	769.7	768.9	768.1
45°	716.1	709.2	707.6	706.1
47.5°	659.5	653.3	652.5	651.7
50°	596.7	588.1	581.9	575.7
52.5°	524.5	516.7	511.3	505.9
55°	458.5	450.0	445.4	440.7
57.5°	408.9	405.0	402.7	400.4
60°	368.5	366.2	364.7	363.1
62.5°	331.3	329.0	329.0	329.0
65°	297.2	294.8	292.5	290.2
67.5°	252.9	248.3	247.5	246.7
70°	199.4	192.4	191.6	190.9
72.5°	156.0	155.2	153.6	152.1
75°	128.8	127.2	127.2	127.2
77.5°	104.0	102.4	102.4	102.4
80°	79.9	79.1	79.9	80.7
82.5°	59.0	59.0	58.2	57.4
85°	38.0	37.2	37.2	37.2
87.5°	18.6	18.6	18.6	18.6
90°	33.6	34.2	34.7	35.2
92.5°	39.1	39.4	39.6	39.9
95°	44.6	44.6	44.6	44.6
97.5°	47.3	47.6	47.8	48.1
100°	48.5	48.8	49.0	49.3
102.5°	48.9	49.4	49.9	50.5
105°	50.1	50.6	51.1	51.6
107.5°	224.5	190.3	156.2	122.0
110°	434.5	397.2	359.9	322.6



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CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
112.5°	612.8	612.3	611.8	611.3
115°	686.8	687.8	688.8	689.9
117.5°	752.5	752.7	753.0	753.2
120°	818.9	818.9	818.9	818.9
122.5°	882.7	883.0	883.2	883.5
125°	941.7	942.3	942.8	943.3
127.5°	1003.5	1003.0	1002.5	1002.0
130°	1059.9	1059.3	1058.8	1058.3
132.5°	1112.3	1111.5	1110.7	1109.9
135°	1165.1	1164.3	1163.5	1162.7
137.5°	1214.7	1214.2	1213.7	1213.2
140°	1259.3	1258.8	1258.3	1257.7
142.5°	1301.2	1300.4	1299.6	1298.8
145°	1341.0	1341.0	1341.0	1341.0
147.5°	1375.5	1374.2	1372.9	1371.6
150°	1409.1	1408.3	1407.5	1406.8
152.5°	1438.8	1437.5	1436.2	1434.9
155°	1465.4	1463.9	1462.3	1460.7
157.5°	1489.3	1487.2	1485.1	1483.0
160°	1509.6	1507.8	1506.0	1504.1
162.5°	1528.8	1527.2	1525.6	1524.1
165°	1544.8	1543.0	1541.2	1539.3
167.5°	1557.3	1555.2	1553.2	1551.1
170°	1567.9	1565.8	1563.7	1561.6
172.5°	1574.5	1572.2	1569.8	1567.5
175°	1579.6	1577.5	1575.4	1573.4
177.5°	1582.4	1579.7	1577.1	1574.5
180°	1579.2	1579.2	1579.2	1579.2



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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	13.72	14.54	14.68	15.51	16.77	18.39	19.20	19.35	20.17	21.43
	3H	14.95	15.67	15.92	16.65	17.93	19.89	20.62	20.86	21.59	22.88
	4H	15.33	16.02	16.31	17.00	18.29	20.38	21.06	21.36	22.04	23.34
	6H	15.61	16.24	16.60	17.23	18.53	20.69	21.32	21.68	22.31	23.61
	8H	15.69	16.30	16.70	17.30	18.60	20.77	21.37	21.77	22.37	23.67
	12H	15.74	16.32	16.75	17.31	18.64	20.80	21.37	21.80	22.36	23.69
4H	2H	14.45	15.13	15.44	16.11	17.41	18.38	19.07	19.37	20.05	21.34
	3H	15.81	16.39	16.81	17.40	18.70	20.04	20.61	21.04	21.62	22.93
	4H	16.27	16.79	17.28	17.79	19.12	20.65	21.17	21.65	22.17	23.50
	6H	16.64	17.08	17.65	18.11	19.44	21.08	21.53	22.10	22.56	23.88
	8H	16.76	17.18	17.78	18.20	19.54	21.21	21.63	22.23	22.65	23.99
	12H	16.84	17.21	17.87	18.25	19.59	21.27	21.65	22.31	22.69	24.03
8H	4H	16.58	17.00	17.60	18.02	19.36	20.61	21.03	21.63	22.05	23.39
	6H	17.05	17.39	18.09	18.45	19.79	21.11	21.45	22.15	22.51	23.85
	8H	17.24	17.54	18.29	18.59	19.95	21.29	21.60	22.34	22.64	24.00
	12H	17.38	17.64	18.43	18.68	20.09	21.41	21.67	22.46	22.71	24.12
12H	4H	16.59	16.97	17.63	18.00	19.35	20.56	20.94	21.60	21.97	23.32
	6H	17.10	17.41	18.15	18.45	19.81	21.08	21.38	22.13	22.43	23.79
	8H	17.32	17.59	18.38	18.63	20.03	21.27	21.54	22.33	22.58	23.98