

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: P831213

Luminaire Tested: S123DIP-S1165D1195U840-4F0-1E-UDD-G

Issue Date: 05/03/2024

Test Information

Test Method: LM-79-2019
Report Number: P831213
REPORT IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2301-905-1, G3-1807-864-5)
Test Lab: INNOVATION CENTER
Issue Date: 05/03/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S123DIP-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

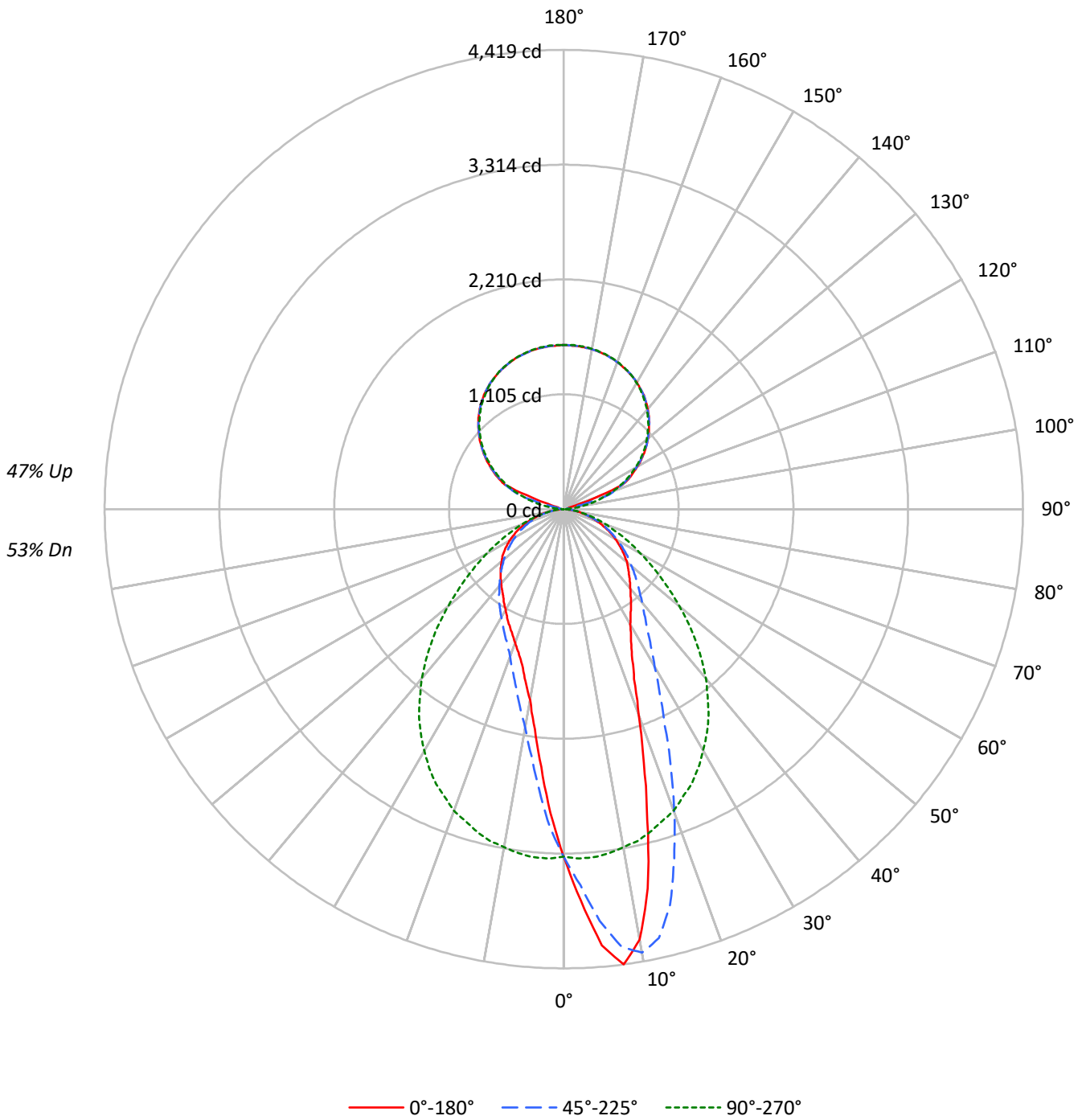
Lumens per Lamp: N/A
Luminaire Lumens: 10194.4 lumens
Efficiency: N/A
Efficacy: 139.3 lumens/watt
Spacing Criteria (0/90/45): 0.65 / 1.19 / 0.89
Luminous Opening: Rectangular (W 4' x L: 0.25' x H: 0')
CIE Type: General Diffuse

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	108	108	108	108	100	100	100	100	85	85	85	71	71	71	59	59	59	53				
1	99	95	91	88	92	88	85	82	75	73	71	63	62	60	53	52	51	46				
2	91	83	78	73	84	78	73	68	67	63	60	56	54	51	47	45	44	39				
3	83	74	67	61	77	69	63	58	59	55	51	51	47	44	42	40	38	34				
4	76	66	58	53	71	62	55	50	53	48	44	46	42	39	38	36	33	30				
5	70	59	51	46	65	55	48	43	48	43	39	41	37	34	35	32	29	26				
6	65	53	46	40	60	50	43	38	44	38	34	38	33	30	32	29	26	24				
7	61	49	41	36	56	46	39	34	40	34	30	35	30	27	30	26	24	21				
8	56	44	37	32	52	42	35	30	37	31	27	32	28	25	27	24	22	19				
9	53	41	34	29	49	38	32	27	34	29	25	30	25	22	25	22	20	18				
10	49	38	31	26	46	36	29	25	31	26	23	28	23	20	24	21	18	16				

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	36004	36004	36004	36004	36004
5°	45533	42976	36327	29274	26901
10°	45976	47367	36085	23335	20392
15°	34628	43977	35839	19762	17245
20°	24127	35586	35381	17282	15664
25°	18398	27366	34601	15899	14693
30°	15915	21742	33356	14922	13909
35°	14767	18357	31919	14217	13360
40°	13980	16467	29901	13544	13173
45°	13515	15239	27338	13018	13090
50°	13283	14269	24303	12541	13021
55°	12787	13559	21322	12087	13078
60°	12329	12798	18378	11662	12865
65°	11584	12078	15852	11207	12610
70°	10697	11163	13482	10455	11871
75°	9682	10006	11553	9715	10846
80°	7984	8753	9143	8467	9143
85°	6323	7089	6706	7188	7287

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 80°
 Vertical Angle: 45°
 Luminance: 31212 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	316.2	3.1
10°-20°	786.7	7.7
20°-30°	931.5	9.1
30°-40°	936.6	9.2
40°-50°	859.3	8.4
50°-60°	709.2	7.0
60°-70°	501.7	4.9
70°-80°	267.8	2.6
80°-90°	71.1	0.7
90°-100°	55.7	0.5
100°-110°	269.2	2.6
110°-120°	659.8	6.5
120°-130°	837.6	8.2
130°-140°	894.8	8.8
140°-150°	836.7	8.2
150°-160°	674.9	6.6
160°-170°	435.5	4.3
170°-180°	150.1	1.5
0°-30°	2034.4	20.0
0°-40°	2971.0	29.1
0°-60°	4539.6	44.5
0°-90°	5380.2	52.8
90°-120°	984.6	9.7
90°-150°	3553.7	34.9
90°-180°	4814.0	47.2
0°-180°	10194.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	3345	3345	3345	3345	3345	
5°	4214	3977	3362	2709	2490	402
15°	3107	3946	3216	1773	1548	858
25°	1549	2304	2913	1339	1237	731
35°	1124	1397	2429	1082	1017	706
45°	888	1001	1796	855	860	688
55°	681	722	1136	644	697	610
65°	455	474	622	440	495	452
75°	233	241	278	234	261	245
85°	51	57	54	58	59	57
90°	35	28	1	28	35	19
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°	3344.9	3344.9	3344.9	3344.9	3344.9	3344.9	3344.9	3344.9	3344.9	3344.9	3344.9
2.5°	3770.2	3766.3	3762.5	3743.1	3723.6	3714.3	3705.0	3677.1	3649.1	3618.1	3587.1
5°	4214.1	4225.0	4235.9	4223.4	4211.0	4173.0	4135.0	4084.5	4034.1	3977.4	3920.8
7.5°	4419.0	4425.2	4431.4	4423.7	4415.9	4405.8	4395.7	4350.7	4305.7	4247.5	4189.3
10°	4206.4	4220.3	4234.3	4264.6	4294.8	4329.0	4363.1	4356.9	4350.7	4333.7	4316.6
12.5°	3739.2	3756.2	3773.3	3833.9	3894.4	3972.0	4049.6	4116.3	4183.1	4229.7	4276.2
15°	3107.4	3154.8	3202.1	3257.2	3312.3	3426.4	3540.5	3681.0	3821.4	3946.4	4071.3
17.5°	2559.5	2577.4	2595.2	2654.2	2713.2	2856.8	3000.3	3162.5	3324.7	3532.0	3739.2
20°	2106.3	2122.6	2138.9	2216.5	2294.1	2406.6	2519.2	2701.5	2883.9	3106.7	3329.4
22.5°	1769.5	1795.1	1820.7	1864.2	1907.6	2015.5	2123.4	2285.6	2447.8	2693.8	2939.8
25°	1549.1	1567.7	1586.3	1612.7	1639.1	1725.2	1811.4	1944.9	2078.4	2304.2	2530.0
27.5°	1398.5	1406.3	1414.0	1440.4	1466.8	1522.7	1578.6	1693.4	1808.3	2000.0	2191.7
30°	1280.5	1286.0	1291.4	1314.7	1338.0	1376.0	1414.0	1497.1	1580.1	1749.3	1918.5
32.5°	1198.3	1202.2	1206.0	1223.9	1241.7	1268.9	1296.1	1356.6	1417.1	1556.8	1696.5
35°	1123.8	1126.1	1128.4	1141.6	1154.8	1175.0	1195.2	1241.0	1286.7	1397.0	1507.2
37.5°	1058.6	1061.7	1064.8	1072.5	1080.3	1098.2	1116.0	1152.5	1189.0	1273.6	1358.1
40°	994.9	1000.4	1005.8	1011.2	1016.7	1031.4	1046.2	1074.1	1102.0	1171.9	1241.7
42.5°	940.6	946.0	951.5	953.8	956.1	964.7	973.2	998.8	1024.4	1076.4	1128.4
45°	887.8	890.2	892.5	894.8	897.2	904.1	911.1	933.6	956.1	1001.1	1046.2
47.5°	839.7	839.7	839.7	841.3	842.8	849.0	855.2	871.5	887.8	922.8	957.7
50°	793.2	793.2	793.2	790.8	788.5	792.4	796.3	808.7	821.1	852.1	883.2
52.5°	737.3	737.3	737.3	738.1	738.8	738.8	738.8	749.7	760.6	788.5	816.4
55°	681.4	684.5	687.6	685.3	683.0	684.5	686.1	693.0	700.0	722.5	745.0
57.5°	625.5	627.1	628.6	627.9	627.1	627.9	628.6	634.8	641.0	658.1	675.2
60°	572.7	572.7	572.7	571.2	569.6	571.2	572.7	575.9	579.0	594.5	610.0
62.5°	513.8	514.5	515.3	516.1	516.9	515.3	513.8	517.6	521.5	533.2	544.8
65°	454.8	455.6	456.3	458.7	461.0	459.4	457.9	461.8	465.7	474.2	482.7
67.5°	402.0	400.5	398.9	399.7	400.5	402.8	405.1	405.9	406.7	416.0	425.3
70°	339.9	341.5	343.0	342.3	341.5	342.3	343.0	345.4	347.7	354.7	361.7
72.5°	284.0	284.8	285.6	285.6	285.6	287.2	288.7	291.0	293.4	297.2	301.1
75°	232.8	232.8	232.8	234.4	235.9	236.7	237.5	237.5	237.5	240.6	243.7
77.5°	176.9	180.8	184.7	183.9	183.2	184.7	186.3	188.6	190.9	192.5	194.0
80°	128.8	128.8	128.8	129.6	130.4	132.7	135.0	136.6	138.1	141.2	144.4
82.5°	82.3	83.0	83.8	86.1	88.5	90.0	91.6	93.9	96.2	96.2	96.2
85°	51.2	49.7	48.1	49.7	51.2	52.8	54.3	55.1	55.9	57.4	59.0
87.5°	24.8	24.8	24.8	24.8	24.8	25.6	26.4	26.4	26.4	26.4	26.4
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°	3344.9	3344.9	3344.9	3344.9	3344.9	3344.9	3344.9	3344.9	3344.9	3344.9	3344.9
2.5°	3577.7	3568.4	3534.3	3500.1	3461.3	3422.5	3393.8	3365.1	3322.4	3279.7	3244.8
5°	3877.3	3833.9	3761.7	3689.5	3591.7	3493.9	3428.0	3362.0	3273.5	3185.0	3114.4
7.5°	4114.8	4040.3	3939.4	3838.5	3710.5	3582.4	3461.3	3340.3	3205.2	3070.2	2960.0
10°	4266.1	4215.7	4099.3	3982.9	3811.3	3639.8	3470.6	3301.5	3127.6	2953.8	2807.9
12.5°	4280.9	4285.5	4178.4	4071.3	3877.3	3683.3	3477.6	3272.0	3053.1	2834.3	2664.3
15°	4151.3	4231.2	4172.2	4113.2	3917.7	3722.1	3469.1	3216.1	2963.9	2711.6	2515.3
17.5°	3910.7	4082.2	4090.7	4099.3	3903.7	3708.1	3428.0	3147.8	2862.2	2576.6	2370.2
20°	3582.4	3835.4	3922.3	4009.2	3850.2	3691.1	3389.9	3088.8	2769.1	2449.3	2232.8
22.5°	3247.1	3554.5	3713.6	3872.7	3754.7	3636.7	3316.2	2995.7	2658.1	2320.5	2100.9
25°	2865.3	3200.6	3445.0	3689.5	3617.3	3545.1	3229.3	2913.4	2554.1	2194.8	1970.5
27.5°	2532.4	2873.1	3168.0	3462.9	3447.4	3431.8	3118.3	2804.8	2436.9	2069.0	1852.5
30°	2235.9	2553.3	2883.2	3213.0	3251.0	3289.0	2986.4	2683.7	2315.1	1946.4	1737.7
32.5°	1973.6	2250.6	2604.5	2958.4	3032.9	3107.4	2834.3	2561.1	2196.3	1831.6	1630.6
35°	1758.6	2010.1	2364.0	2717.8	2811.0	2904.1	2666.6	2429.1	2073.7	1718.2	1526.6
37.5°	1568.5	1778.8	2124.1	2469.5	2583.6	2697.7	2485.0	2272.4	1939.4	1606.5	1430.3
40°	1410.9	1580.1	1897.5	2214.9	2346.9	2478.8	2303.4	2128.0	1812.2	1496.3	1334.1
42.5°	1279.0	1429.5	1717.5	2005.4	2131.9	2258.4	2110.2	1961.9	1681.0	1400.1	1251.8
45°	1166.5	1286.7	1548.3	1809.8	1930.1	2050.4	1923.1	1795.9	1548.3	1300.7	1162.6
47.5°	1060.9	1164.1	1387.6	1611.1	1718.2	1825.3	1726.0	1626.7	1417.1	1207.6	1082.6
50°	966.2	1049.3	1244.8	1440.4	1533.5	1626.7	1539.0	1451.3	1279.0	1106.7	998.0
52.5°	884.0	951.5	1115.2	1279.0	1358.9	1438.9	1363.6	1288.3	1151.7	1015.1	920.4
55°	802.5	859.9	1001.9	1143.9	1198.3	1252.6	1194.4	1136.2	1026.0	915.8	835.8
57.5°	726.4	777.6	894.0	1010.5	1052.4	1094.3	1041.5	988.7	905.7	822.6	755.9
60°	651.9	693.8	790.8	887.8	913.5	939.1	896.4	853.7	795.5	737.3	677.5
62.5°	582.8	620.9	693.0	765.2	782.3	799.4	766.8	734.2	689.9	645.7	599.1
65°	511.4	540.2	599.1	658.1	669.0	679.8	651.1	622.4	589.0	555.7	521.5
67.5°	445.5	465.7	513.8	561.9	562.7	563.4	540.2	516.9	498.2	479.6	452.5
70°	381.1	400.5	432.3	464.1	464.9	465.7	447.0	428.4	414.4	400.5	380.3
72.5°	315.1	329.1	353.1	377.2	375.6	374.1	362.4	350.8	339.9	329.1	314.3
75°	255.3	267.0	283.3	299.6	294.9	290.3	284.0	277.8	268.5	259.2	249.9
77.5°	201.0	208.0	217.3	226.6	223.5	220.4	215.0	209.5	202.6	195.6	191.7
80°	147.5	150.6	156.8	163.0	161.4	159.9	153.7	147.5	145.9	144.4	138.9
82.5°	100.1	104.0	105.5	107.1	106.3	105.5	100.9	96.2	94.7	93.1	92.4
85°	59.8	60.5	61.3	62.1	59.8	57.4	55.9	54.3	54.3	54.3	53.5
87.5°	27.2	27.9	27.9	27.9	27.2	26.4	24.8	23.3	24.1	24.8	24.8
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: P831213

CATALOG NUMBER: S123DIP-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: P831213

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CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	3344.9	3344.9	3344.9	3344.9	3344.9	3344.9	3344.9	3344.9	3344.9	3344.9	3344.9
2.5°	3209.9	3179.6	3149.3	3126.1	3102.8	3063.2	3023.6	3014.3	3005.0	2991.8	2978.6
5°	3043.8	2969.3	2894.8	2828.0	2761.3	2709.3	2657.3	2623.2	2589.0	2564.2	2539.3
7.5°	2849.8	2738.0	2626.3	2547.1	2467.9	2392.7	2317.4	2293.3	2269.3	2236.7	2204.1
10°	2662.0	2538.6	2415.2	2312.0	2208.7	2135.0	2061.3	2031.8	2002.3	1961.2	1920.0
12.5°	2494.3	2359.3	2224.3	2120.3	2016.3	1944.9	1873.5	1830.8	1788.1	1764.8	1741.5
15°	2318.9	2174.6	2030.2	1934.0	1837.8	1773.4	1708.9	1671.7	1634.4	1611.9	1589.4
17.5°	2163.7	2020.9	1878.1	1785.8	1693.4	1634.4	1575.4	1542.9	1510.3	1493.2	1476.1
20°	2016.3	1876.6	1736.9	1646.8	1556.8	1508.7	1460.6	1439.6	1418.7	1404.7	1390.7
22.5°	1881.2	1743.9	1606.5	1529.7	1452.8	1414.0	1375.2	1360.5	1345.7	1334.1	1322.4
25°	1746.2	1623.6	1500.9	1435.8	1370.6	1338.7	1306.9	1292.2	1277.4	1265.8	1254.2
27.5°	1636.0	1518.8	1401.6	1345.7	1289.9	1265.0	1240.2	1228.5	1216.9	1206.0	1195.2
30°	1528.9	1424.1	1319.3	1271.2	1223.1	1200.6	1178.1	1166.5	1154.8	1144.7	1134.6
32.5°	1429.5	1339.5	1249.5	1205.3	1161.0	1142.4	1123.8	1109.8	1095.8	1088.1	1080.3
35°	1334.9	1254.2	1173.4	1137.0	1100.5	1081.9	1063.2	1051.6	1040.0	1033.7	1027.5
37.5°	1254.2	1182.0	1109.8	1074.9	1040.0	1022.1	1004.3	994.2	984.1	981.7	979.4
40°	1171.9	1109.8	1047.7	1013.6	979.4	963.9	948.4	942.2	936.0	934.4	932.9
42.5°	1103.6	1043.1	982.5	951.5	920.4	907.2	894.0	890.9	887.8	890.2	892.5
45°	1024.4	974.0	923.5	894.8	866.1	855.2	844.4	842.1	839.7	844.4	849.0
47.5°	957.7	911.1	864.6	837.4	810.2	802.5	794.7	793.9	793.2	799.4	805.6
50°	889.4	844.4	799.4	777.6	755.9	748.9	741.9	744.3	746.6	756.7	766.8
52.5°	825.8	783.8	741.9	721.8	701.6	696.9	692.3	697.7	703.1	714.0	724.9
55°	755.9	717.9	679.8	664.3	648.8	644.1	639.5	650.4	661.2	671.3	681.4
57.5°	689.2	655.8	622.4	608.4	594.5	593.7	592.9	603.0	613.1	624.0	634.8
60°	617.8	589.8	561.9	551.0	540.2	541.7	543.3	554.9	566.5	575.1	583.6
62.5°	552.6	529.3	506.0	495.9	485.8	489.7	493.6	505.2	516.9	527.0	537.0
65°	487.4	468.0	448.6	441.6	434.6	440.0	445.5	455.6	465.7	472.6	479.6
67.5°	425.3	409.0	392.7	387.3	381.8	387.3	392.7	402.8	412.9	419.9	426.8
70°	360.1	346.9	333.7	329.8	326.0	332.2	338.4	346.9	355.4	362.4	369.4
72.5°	299.6	289.5	279.4	278.6	277.8	283.3	288.7	297.2	305.8	310.4	315.1
75°	240.6	235.2	229.7	228.9	228.2	233.6	239.0	243.7	248.3	252.2	256.1
77.5°	187.8	183.2	178.5	179.3	180.1	183.9	187.8	192.5	197.1	199.5	201.8
80°	133.5	131.9	130.4	131.9	133.5	136.6	139.7	142.8	145.9	147.5	149.0
82.5°	91.6	90.0	88.5	90.8	93.1	95.5	97.8	100.1	102.4	103.2	104.0
85°	52.8	55.1	57.4	57.4	57.4	58.2	59.0	59.8	60.5	59.8	59.0
87.5°	24.8	25.6	26.4	26.4	26.4	27.2	27.9	27.9	27.9	27.2	26.4
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: P831213

CATALOG NUMBER: S123DIP-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: P831213

CATALOG NUMBER: S123DIP-S1165D1195U840-4F0-1E-UDD-G

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	3344.9	3344.9	3344.9	3344.9
2.5°	2973.2	2967.7	2946.0	2924.3
5°	2520.7	2502.1	2495.9	2489.7
7.5°	2202.5	2201.0	2168.4	2135.8
10°	1922.4	1924.7	1895.2	1865.7
12.5°	1722.1	1702.7	1700.4	1698.1
15°	1571.6	1553.7	1550.6	1547.5
17.5°	1465.2	1454.4	1451.3	1448.2
20°	1384.5	1378.3	1372.9	1367.5
22.5°	1314.7	1306.9	1302.3	1297.6
25°	1247.2	1240.2	1238.6	1237.1
27.5°	1186.6	1178.1	1178.1	1178.1
30°	1129.2	1123.8	1121.4	1119.1
32.5°	1075.7	1071.0	1071.0	1071.0
35°	1025.2	1022.9	1019.8	1016.7
37.5°	979.4	979.4	977.9	976.3
40°	935.2	937.5	937.5	937.5
42.5°	894.8	897.2	897.2	897.2
45°	852.9	856.8	858.3	859.9
47.5°	811.8	818.0	819.5	821.1
50°	771.4	776.1	776.9	777.6
52.5°	730.3	735.7	739.6	743.5
55°	686.8	692.3	694.6	696.9
57.5°	640.3	645.7	646.5	647.3
60°	589.0	594.5	596.0	597.6
62.5°	540.2	543.3	544.8	546.4
65°	484.3	488.9	492.0	495.1
67.5°	430.7	434.6	434.6	434.6
70°	371.0	372.5	374.8	377.2
72.5°	315.9	316.6	316.6	316.6
75°	257.7	259.2	260.0	260.8
77.5°	202.6	203.3	203.3	203.3
80°	148.2	147.5	147.5	147.5
82.5°	101.7	99.3	99.3	99.3
85°	58.2	57.4	58.2	59.0
87.5°	26.4	26.4	26.4	26.4
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



TEST NUMBER: P831213

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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	16.27	17.12	17.22	18.08	19.31	18.51	19.36	19.45	20.31	21.55
	3H	17.92	18.68	18.87	19.64	20.90	19.94	20.69	20.89	21.66	22.91
	4H	18.50	19.22	19.46	20.18	21.45	20.39	21.10	21.35	22.07	23.34
	6H	18.87	19.53	19.85	20.50	21.78	20.66	21.32	21.64	22.29	23.57
	8H	18.96	19.59	19.95	20.58	21.86	20.72	21.35	21.71	22.34	23.61
	12H	19.01	19.61	20.00	20.59	21.89	20.74	21.34	21.73	22.32	23.62
4H	2H	16.85	17.57	17.82	18.53	19.80	18.67	19.39	19.65	20.36	21.62
	3H	18.68	19.27	19.66	20.27	21.55	20.29	20.89	21.27	21.88	23.16
	4H	19.37	19.92	20.36	20.91	22.21	20.87	21.42	21.86	22.41	23.71
	6H	19.85	20.32	20.85	21.33	22.63	21.28	21.75	22.28	22.76	24.06
	8H	19.98	20.42	20.99	21.43	22.74	21.39	21.83	22.39	22.83	24.15
	12H	20.05	20.45	21.07	21.47	22.79	21.43	21.83	22.46	22.85	24.17
8H	4H	19.64	20.08	20.64	21.08	22.40	20.98	21.42	21.98	22.42	23.74
	6H	20.23	20.59	21.25	21.64	22.95	21.48	21.84	22.51	22.89	24.20
	8H	20.44	20.75	21.47	21.79	23.12	21.66	21.98	22.70	23.01	24.35
	12H	20.56	20.84	21.60	21.87	23.24	21.76	22.04	22.80	23.07	24.45
12H	4H	19.64	20.03	20.66	21.06	22.38	20.95	21.35	21.97	22.37	23.69
	6H	20.28	20.60	21.31	21.63	22.96	21.50	21.81	22.53	22.85	24.18
	8H	20.51	20.79	21.55	21.82	23.20	21.69	21.97	22.73	23.00	24.38