

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: P243328

Luminaire Tested: S123DRP-H775D835-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P243328
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-59)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S123DRP-H775D835-X4F0-XX-UDD-A-W
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3500K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

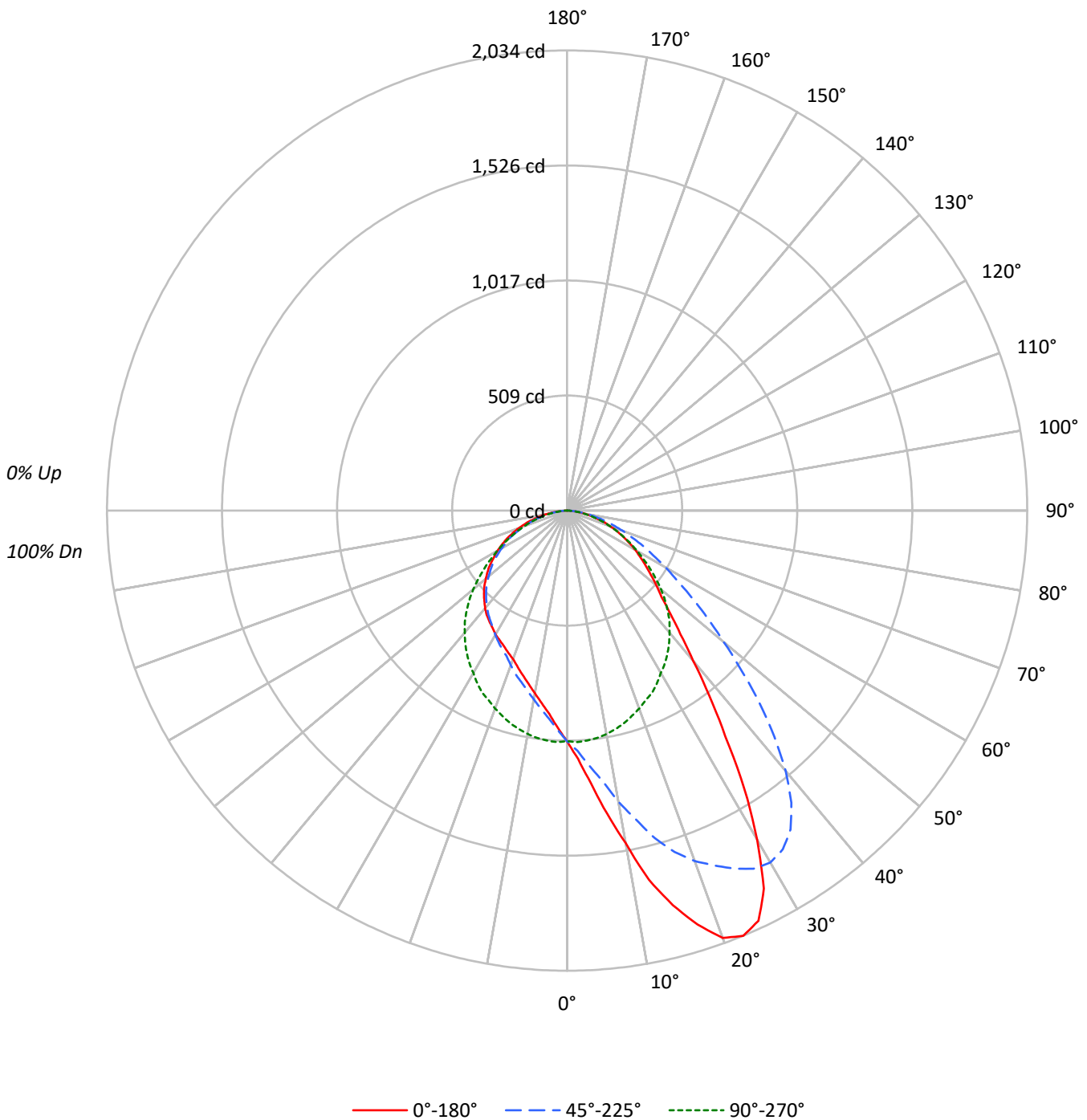
Lumens per Lamp: N/A
Luminaire Lumens: 3072.6 lumens
Efficiency: N/A
Efficacy: 130.2 lumens/watt
Spacing Criteria (0/90/45): 1.39 / 1.21 / 1.5
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

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

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	12358	12358	12358	12358	12358
5°	14723	13768	12416	11229	10974
10°	18386	16082	12341	10429	10089
15°	22658	18816	12207	9836	9467
20°	25929	21262	12013	9388	9007
25°	26758	23356	11880	9058	8840
30°	23508	25142	11597	8879	8847
35°	18042	25468	11425	8766	8855
40°	13723	23770	11146	8738	8923
45°	11043	20613	10787	8691	8914
50°	9719	17051	10211	8539	8838
55°	8958	14265	9461	8404	8781
60°	8441	12177	8657	8126	8601
65°	7844	10578	7913	7804	8435
70°	7180	9214	7099	7180	8073
75°	6383	7873	6187	6425	7521
80°	5347	6485	5117	5507	6582
85°	3769	4798	3699	4158	4937

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 55°
 Vertical Angle: 45°
 Luminance: 23142 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	100.3	3.3
10°-20°	322.0	10.5
20°-30°	531.9	17.3
30°-40°	608.7	19.8
40°-50°	551.6	18.0
50°-60°	445.7	14.5
60°-70°	310.6	10.1
70°-80°	162.9	5.3
80°-90°	38.8	1.3
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	954.2	31.1
0°-40°	1563.0	50.9
0°-60°	2560.3	83.3
0°-90°	3072.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3072.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	1020	1020	1020	1020	1020	
5°	1210	1132	1020	923	902	125
15°	1806	1499	973	784	754	514
25°	2001	1746	888	677	661	894
35°	1219	1721	772	592	598	773
45°	644	1202	629	507	520	508
55°	424	675	448	398	416	381
65°	274	369	276	272	294	271
75°	136	168	132	137	161	146
85°	27	34	27	30	36	35
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°	1019.5	1019.5	1019.5	1019.5	1019.5	1019.5	1019.5	1019.5	1019.5	1019.5	1019.5
2.5°	1097.9	1100.3	1096.5	1098.9	1093.3	1090.0	1084.9	1082.5	1071.3	1063.4	1060.6
5°	1210.0	1210.0	1210.9	1205.3	1198.8	1187.1	1171.7	1161.9	1150.7	1131.5	1121.7
7.5°	1350.9	1343.9	1339.3	1329.0	1320.1	1301.0	1284.2	1264.1	1238.0	1206.2	1189.4
10°	1493.8	1501.3	1496.6	1485.8	1463.0	1431.7	1407.0	1378.0	1337.4	1306.6	1262.7
12.5°	1672.1	1662.3	1654.8	1638.5	1613.3	1580.1	1541.9	1498.9	1446.6	1395.8	1346.7
15°	1805.6	1807.0	1806.5	1785.1	1760.3	1715.5	1680.0	1608.6	1542.3	1499.4	1418.2
17.5°	1918.6	1924.6	1917.6	1885.4	1863.5	1836.9	1791.6	1712.2	1652.0	1582.5	1492.8
20°	2010.1	2011.0	1999.8	1976.0	1950.8	1920.9	1861.2	1800.5	1741.7	1648.3	1562.9
22.5°	2034.3	2036.7	2034.3	2024.1	2003.5	1971.8	1927.0	1871.0	1796.7	1697.3	1618.0
25°	2000.7	1999.3	2007.3	2001.2	2000.3	1990.0	1960.6	1915.3	1842.0	1746.3	1645.5
27.5°	1883.1	1873.3	1893.4	1919.5	1923.2	1939.6	1940.0	1919.0	1866.3	1784.6	1674.9
30°	1679.6	1688.9	1698.7	1753.3	1783.7	1826.1	1863.0	1876.6	1856.5	1796.3	1693.6
32.5°	1458.3	1488.2	1515.7	1553.5	1597.9	1669.8	1728.1	1779.5	1801.4	1774.8	1693.6
35°	1219.3	1235.2	1278.6	1326.7	1390.6	1446.6	1562.4	1637.1	1703.8	1721.1	1672.1
37.5°	1032.6	1047.0	1062.0	1099.3	1171.2	1264.6	1360.3	1458.3	1557.3	1628.2	1625.4
40°	867.3	870.6	883.7	915.9	975.6	1058.7	1159.1	1277.2	1405.6	1502.2	1542.8
42.5°	740.4	740.4	756.7	794.0	828.6	889.3	986.4	1090.5	1231.0	1355.1	1442.0
45°	644.2	645.1	658.2	684.8	711.9	759.5	831.4	929.4	1074.1	1202.5	1323.4
47.5°	565.8	574.6	582.1	596.1	623.2	665.2	717.5	801.0	904.2	1044.2	1185.2
50°	515.4	517.2	522.8	531.2	552.2	579.8	625.1	688.5	780.0	904.2	1046.6
52.5°	465.9	465.9	471.5	481.7	493.9	516.3	549.0	601.7	670.3	782.8	910.7
55°	423.9	425.3	426.2	434.6	444.9	461.7	487.3	521.9	584.9	675.0	786.6
57.5°	382.8	387.9	386.5	393.1	400.5	412.7	430.9	460.7	508.8	577.4	677.8
60°	348.2	347.3	349.6	352.4	357.6	366.0	382.8	404.7	444.9	502.3	584.4
62.5°	309.0	308.1	310.9	314.2	318.8	325.8	338.0	354.8	386.5	429.5	500.9
65°	273.5	272.6	274.0	275.9	281.0	286.6	296.0	310.0	331.0	368.8	423.4
67.5°	238.1	238.1	239.0	240.9	244.1	248.3	255.8	264.2	285.2	310.4	353.4
70°	202.6	203.1	203.1	204.9	207.7	211.0	217.1	224.5	237.6	260.0	294.6
72.5°	171.8	171.8	170.9	171.8	173.7	175.1	178.8	185.8	195.6	211.9	238.1
75°	136.3	138.6	138.2	137.7	139.1	141.4	144.7	150.3	156.4	168.1	187.7
77.5°	104.6	106.0	106.0	106.4	107.8	109.7	110.6	116.2	121.8	128.8	143.3
80°	76.6	77.5	76.6	77.0	78.0	79.8	81.7	82.6	86.8	92.9	99.9
82.5°	51.3	49.9	51.8	51.3	52.3	52.7	53.7	54.1	57.0	60.7	65.4
85°	27.1	29.4	28.9	29.9	28.9	29.4	29.9	31.7	32.2	34.5	37.3
87.5°	10.3	11.2	11.2	11.2	11.2	11.2	12.1	12.6	13.5	14.0	14.9
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°	1019.5	1019.5	1019.5	1019.5	1019.5	1019.5	1019.5	1019.5	1019.5	1019.5	1019.5
2.5°	1062.5	1058.3	1052.2	1045.6	1038.6	1031.6	1028.4	1024.2	1015.8	1007.4	1000.8
5°	1113.8	1102.1	1086.3	1074.6	1057.8	1041.9	1029.3	1020.4	1006.9	990.6	979.8
7.5°	1171.2	1150.2	1125.0	1099.3	1074.1	1050.3	1030.7	1013.9	992.9	972.8	956.5
10°	1238.9	1198.3	1163.3	1125.9	1088.6	1055.0	1027.0	1002.7	975.6	951.4	931.3
12.5°	1298.7	1251.5	1203.0	1150.2	1099.8	1056.4	1020.4	988.7	956.0	928.0	907.5
15°	1364.5	1298.2	1231.0	1171.2	1110.1	1056.9	1009.7	972.8	935.5	903.7	879.9
17.5°	1440.1	1351.4	1266.9	1181.0	1126.9	1058.3	1000.4	951.8	913.5	881.8	851.0
20°	1484.9	1396.7	1293.1	1204.8	1115.2	1044.7	980.3	931.3	886.5	850.1	824.8
22.5°	1509.2	1416.3	1308.0	1217.4	1112.9	1034.0	965.4	907.5	859.4	823.0	794.5
25°	1543.3	1416.3	1315.9	1207.2	1116.6	1021.4	943.9	888.3	837.9	795.9	766.0
27.5°	1558.7	1428.9	1316.9	1187.6	1094.2	997.6	919.1	860.3	804.3	763.2	737.6
30°	1571.3	1431.2	1298.2	1172.2	1068.1	971.0	894.4	828.6	776.3	737.1	710.0
32.5°	1572.2	1425.2	1273.0	1143.2	1033.0	939.7	865.0	802.9	748.3	706.7	680.1
35°	1563.8	1410.2	1244.0	1098.9	992.4	907.5	832.8	772.1	716.5	676.9	649.8
37.5°	1542.3	1393.4	1217.0	1057.3	944.4	861.7	798.2	740.4	685.3	645.6	623.2
40°	1496.6	1366.3	1181.5	1013.0	895.8	813.2	757.6	704.4	655.4	614.3	591.9
42.5°	1435.9	1325.7	1138.5	965.8	841.7	761.8	712.8	669.9	619.9	584.4	561.6
45°	1350.0	1270.6	1095.6	916.3	788.0	709.5	664.7	629.3	586.3	550.8	530.8
47.5°	1252.9	1204.4	1040.0	860.8	731.5	657.7	615.3	586.8	550.4	520.0	500.0
50°	1143.7	1125.5	978.9	804.8	678.7	603.1	563.9	541.5	510.7	486.4	469.1
52.5°	1025.1	1036.3	914.5	747.8	627.9	551.3	514.0	493.4	473.8	453.3	436.9
55°	904.7	931.3	836.5	685.7	569.5	502.8	466.3	447.7	433.2	415.9	404.3
57.5°	791.7	833.3	755.8	619.5	515.8	451.9	417.3	401.0	390.3	380.9	370.2
60°	682.0	730.1	672.7	557.4	462.1	403.8	373.0	357.1	352.0	345.0	334.7
62.5°	584.9	633.9	591.0	493.4	408.0	358.0	330.0	317.0	309.5	307.2	301.1
65°	493.9	539.6	507.0	426.7	356.6	312.3	287.6	275.9	271.7	271.2	266.5
67.5°	415.0	459.3	429.5	361.8	302.5	266.5	247.9	238.5	234.3	234.8	231.5
70°	342.2	373.4	355.7	302.5	256.7	225.0	210.5	200.3	197.0	197.0	196.1
72.5°	274.5	299.2	285.7	245.1	209.1	184.9	172.3	166.2	163.4	162.9	163.4
75°	214.7	236.2	224.1	192.3	165.2	147.0	136.3	132.1	130.7	129.8	130.2
77.5°	160.6	174.1	166.7	146.1	123.7	111.1	106.0	101.8	100.4	100.8	101.8
80°	113.4	120.9	116.7	103.6	88.7	80.3	76.6	73.3	71.9	73.3	73.3
82.5°	71.9	77.5	73.8	65.4	57.9	52.3	48.5	47.6	47.1	46.2	47.6
85°	39.2	42.0	40.1	37.3	32.2	29.9	27.1	26.6	26.6	26.6	26.6
87.5°	15.4	17.3	14.9	14.9	14.0	11.7	11.7	11.2	10.7	11.2	11.2
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	1019.5	1019.5	1019.5	1019.5	1019.5	1019.5	1019.5	1019.5	1019.5	1019.5	1019.5
2.5°	998.0	992.0	988.2	983.1	977.0	969.1	965.8	969.1	967.2	964.0	965.4
5°	970.5	962.6	952.3	943.9	934.5	922.9	919.1	917.3	914.5	913.1	910.7
7.5°	943.4	931.7	919.1	907.5	893.9	883.7	879.0	875.7	874.8	867.8	865.0
10°	915.4	900.9	888.3	872.5	860.8	847.3	841.7	837.9	833.7	829.0	825.8
12.5°	886.0	871.5	855.7	840.7	829.0	814.1	806.6	802.4	799.2	795.9	792.2
15°	860.3	845.9	823.9	812.7	798.7	783.8	779.1	769.8	770.7	765.1	761.4
17.5°	833.3	811.8	796.4	779.6	769.3	758.6	749.7	739.9	738.5	734.3	732.9
20°	802.9	780.5	769.8	752.5	738.5	727.8	719.8	718.9	716.1	710.0	707.7
22.5°	773.0	754.8	739.9	724.0	711.4	697.4	693.7	695.1	689.9	688.5	683.4
25°	746.0	730.1	711.4	696.5	686.2	677.3	672.2	670.3	668.5	667.1	664.7
27.5°	717.0	700.2	684.3	672.2	662.4	656.3	653.1	648.9	648.4	648.4	647.5
30°	688.1	673.1	662.4	647.0	638.1	634.4	631.6	630.2	631.6	631.6	632.1
32.5°	661.5	647.0	634.4	623.7	614.8	612.0	611.5	611.5	613.4	613.4	614.8
35°	633.9	619.5	607.8	600.3	592.8	592.4	592.8	593.8	596.1	596.6	598.4
37.5°	604.0	592.8	584.0	574.6	572.8	573.7	574.6	575.6	576.5	580.2	580.2
40°	576.5	568.1	559.2	553.2	549.9	552.2	553.6	554.1	556.9	559.2	561.1
42.5°	549.4	541.5	534.5	529.4	528.0	529.8	531.2	532.6	535.4	537.3	540.6
45°	519.1	514.0	507.9	503.7	504.2	507.0	507.0	511.6	513.5	514.4	516.8
47.5°	491.1	485.5	481.3	479.4	478.9	481.3	482.7	486.4	487.3	490.6	492.5
50°	461.2	457.0	453.7	451.4	451.9	452.8	456.1	459.8	460.7	464.5	467.7
52.5°	429.9	426.2	423.4	424.3	425.7	425.7	429.0	431.3	433.7	436.5	439.7
55°	399.1	394.0	394.5	393.1	394.5	397.7	399.1	402.9	404.7	406.1	410.8
57.5°	365.5	364.6	363.2	361.8	364.6	366.0	368.3	370.6	373.9	375.8	379.0
60°	331.0	329.6	329.6	331.4	332.4	335.2	338.9	340.3	341.2	345.0	349.2
62.5°	299.2	297.8	297.4	300.2	300.2	303.0	304.4	306.7	310.4	311.8	317.4
65°	265.1	264.2	264.2	266.5	267.0	272.1	272.1	272.1	274.5	279.6	282.4
67.5°	229.7	230.1	231.5	232.9	234.8	236.2	236.7	239.5	243.2	246.5	252.1
70°	194.2	196.5	199.3	198.9	200.3	202.6	203.1	205.9	209.1	213.3	219.9
72.5°	162.4	163.8	166.7	166.7	168.5	169.9	172.3	174.1	178.3	182.1	184.9
75°	130.7	131.2	133.5	134.9	136.3	137.2	139.6	142.8	145.2	148.4	152.6
77.5°	102.7	101.8	103.6	104.1	105.0	106.9	108.8	112.0	113.9	117.6	119.0
80°	72.8	74.7	75.2	75.6	76.6	78.9	80.3	81.7	83.6	86.8	88.2
82.5°	48.1	49.0	50.4	50.9	51.8	52.3	52.7	55.1	56.5	57.4	62.1
85°	28.0	29.4	28.5	28.5	29.4	29.9	31.7	31.7	33.6	32.7	35.0
87.5°	12.1	11.7	11.7	12.1	11.7	11.2	12.6	12.6	12.1	12.6	12.6
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: P243328

CATALOG NUMBER: S123DRP-H775D835-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	1019.5	1019.5	1019.5	1019.5
2.5°	963.0	963.0	959.3	960.7
5°	906.1	907.9	903.3	901.9
7.5°	864.1	862.2	858.9	858.9
10°	823.0	821.1	819.7	819.7
12.5°	787.5	785.6	782.8	785.2
15°	755.8	756.2	754.4	754.4
17.5°	731.5	727.3	725.9	725.4
20°	702.5	703.5	701.6	698.3
22.5°	684.3	682.0	680.1	679.7
25°	665.7	663.3	662.9	661.0
27.5°	647.0	647.5	646.1	646.1
30°	631.6	633.0	631.6	632.1
32.5°	616.2	616.2	616.2	614.3
35°	599.4	599.8	599.4	598.4
37.5°	582.1	582.1	582.6	583.5
40°	563.0	563.0	563.9	563.9
42.5°	540.1	542.4	543.8	541.5
45°	519.6	520.0	520.5	520.0
47.5°	496.7	495.3	495.7	496.7
50°	468.2	471.5	471.5	468.7
52.5°	440.7	441.6	443.5	443.5
55°	413.6	414.1	414.5	415.5
57.5°	382.8	383.2	383.2	382.8
60°	352.0	354.8	354.3	354.8
62.5°	318.8	323.0	324.4	324.0
65°	287.6	288.5	290.8	294.1
67.5°	254.4	256.7	260.5	259.5
70°	221.7	225.0	225.9	227.8
72.5°	189.1	193.3	194.2	195.1
75°	157.3	159.2	161.0	160.6
77.5°	122.8	125.6	128.8	127.0
80°	92.0	92.4	95.2	94.3
82.5°	60.7	64.4	64.4	62.6
85°	35.5	35.5	35.5	35.5
87.5°	12.1	11.7	12.6	12.1
90°	0.0	0.0	0.0	0.0

TEST NUMBER: P243328
 CATALOG NUMBER: S123DRP-H775D835-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	19.13	20.69	19.50	21.01	21.32	19.66	21.22	20.03	21.54	21.85
	3H	20.65	22.06	21.03	22.38	22.75	21.00	22.41	21.38	22.73	23.10
	4H	21.20	22.52	21.60	22.87	23.24	21.46	22.78	21.86	23.13	23.50
	6H	21.56	22.78	21.97	23.15	23.54	21.76	22.98	22.17	23.35	23.74
	8H	21.66	22.82	22.08	23.21	23.61	21.84	23.00	22.26	23.39	23.79
	12H	21.71	22.82	22.14	23.21	23.63	21.87	22.98	22.30	23.37	23.80
4H	2H	20.30	21.62	20.70	21.96	22.34	20.46	21.77	20.86	22.12	22.50
	3H	21.86	22.95	22.27	23.35	23.75	22.25	23.34	22.66	23.74	24.14
	4H	22.45	23.44	22.88	23.85	24.29	22.81	23.80	23.24	24.21	24.65
	6H	22.88	23.74	23.33	24.18	24.64	23.18	24.04	23.63	24.48	24.94
	8H	23.00	23.80	23.46	24.25	24.71	23.27	24.07	23.73	24.52	24.98
	12H	23.07	23.79	23.55	24.27	24.74	23.32	24.04	23.80	24.52	24.99
8H	4H	22.91	23.72	23.38	24.16	24.63	23.11	23.92	23.58	24.36	24.83
	6H	23.41	24.08	23.91	24.57	25.05	23.62	24.29	24.12	24.78	25.26
	8H	23.58	24.17	24.09	24.68	25.17	23.77	24.37	24.28	24.88	25.36
	12H	23.69	24.22	24.20	24.71	25.28	23.87	24.40	24.38	24.89	25.45
12H	4H	22.96	23.68	23.44	24.16	24.63	23.13	23.85	23.61	24.32	24.80
	6H	23.48	24.08	24.00	24.59	25.08	23.66	24.25	24.17	24.76	25.25
	8H	23.69	24.22	24.20	24.71	25.27	23.86	24.39	24.37	24.88	25.44