

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: P243338

Luminaire Tested: S123DRP-H775D930-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P243338
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-H775D930-X4F0-XX-UDD-A-W
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3000K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

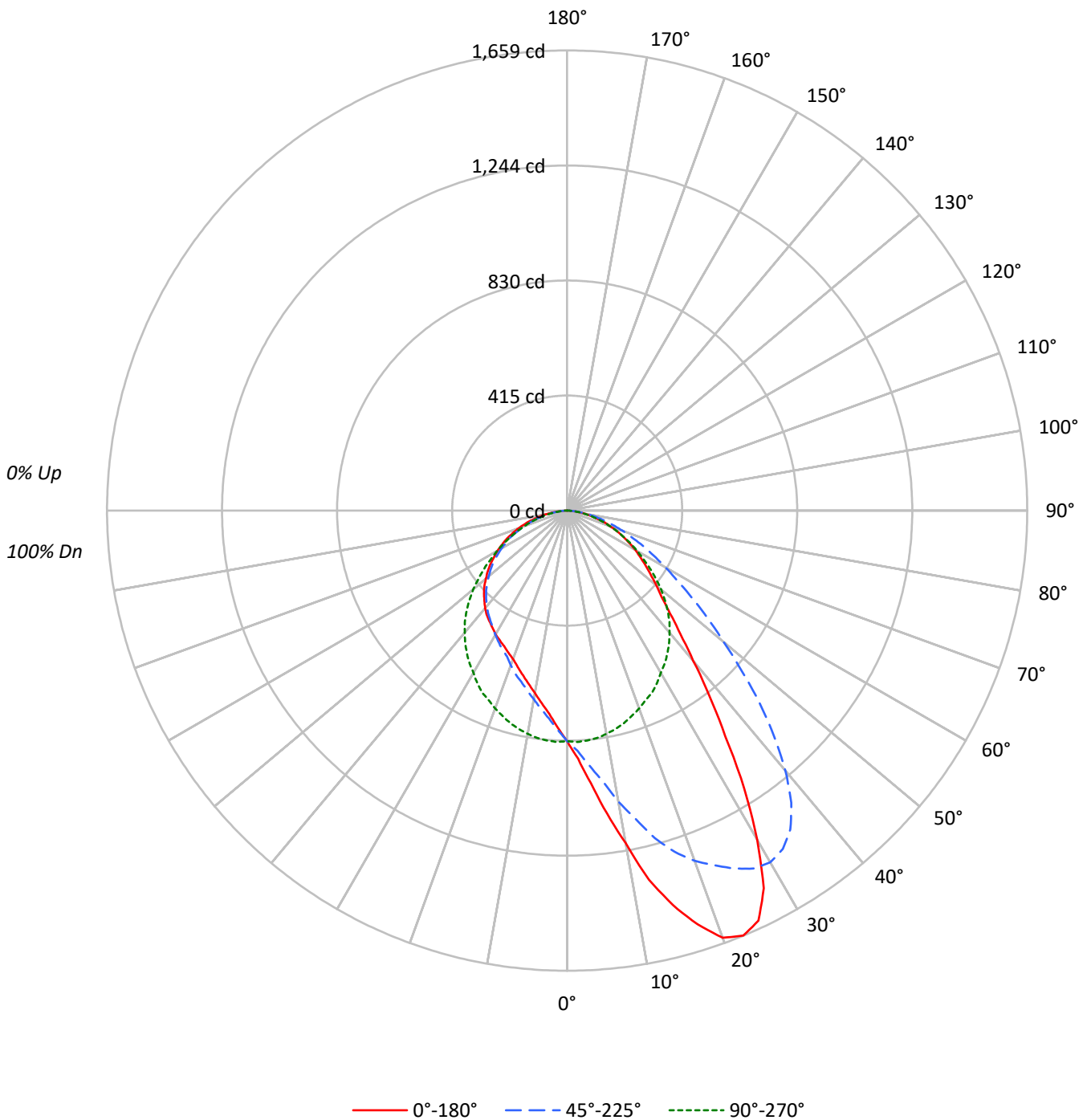
Lumens per Lamp: N/A
Luminaire Lumens: 2505.1 lumens
Efficiency: N/A
Efficacy: 106.1 lumens/watt
Spacing Criteria (0/90/45): 1.39 / 1.21 / 1.5
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

Input Watts (W): 23.6
Input Voltage (V): 120
Input Current (A_{in}): 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°	10075	10075	10075	10075	10075
5°	12003	11225	10123	9155	8947
10°	14990	13112	10062	8503	8226
15°	18473	15340	9952	8019	7718
20°	21139	17335	9794	7653	7345
25°	21816	19042	9687	7385	7207
30°	19167	20498	9455	7239	7212
35°	14710	20764	9315	7147	7220
40°	11189	19379	9087	7124	7274
45°	9003	16806	8794	7085	7268
50°	7924	13902	8325	6962	7205
55°	7303	11629	7713	6853	7158
60°	6882	9927	7057	6625	7011
65°	6396	8624	6450	6364	6878
70°	5855	7513	5787	5855	6581
75°	5203	6416	5044	5241	6130
80°	4356	5284	4174	4488	5368
85°	3074	3922	3018	3393	4019

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 55°
 Vertical Angle: 45°
 Luminance: 18868 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	81.8	3.3
10°-20°	262.6	10.5
20°-30°	433.6	17.3
30°-40°	496.3	19.8
40°-50°	449.8	18.0
50°-60°	363.4	14.5
60°-70°	253.2	10.1
70°-80°	132.8	5.3
80°-90°	31.7	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°	778.0	31.1
0°-40°	1274.3	50.9
0°-60°	2087.4	83.3
0°-90°	2505.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2505.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	831	831	831	831	831	
5°	986	922	832	752	735	102
15°	1472	1222	793	639	615	419
25°	1631	1424	724	552	539	729
35°	994	1403	630	483	488	630
45°	525	980	513	413	424	414
55°	346	550	365	324	339	310
65°	223	301	225	222	240	221
75°	111	137	108	112	131	119
85°	22	28	22	24	29	28
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°	831.2	831.2	831.2	831.2	831.2	831.2	831.2	831.2	831.2	831.2	831.2
2.5°	895.1	897.0	894.0	895.9	891.3	888.7	884.5	882.6	873.4	867.0	864.7
5°	986.5	986.5	987.2	982.7	977.3	967.8	955.3	947.3	938.1	922.5	914.6
7.5°	1101.4	1095.7	1091.9	1083.5	1076.3	1060.7	1047.0	1030.6	1009.3	983.4	969.7
10°	1217.9	1224.0	1220.2	1211.4	1192.8	1167.3	1147.1	1123.5	1090.4	1065.3	1029.5
12.5°	1363.3	1355.3	1349.2	1335.9	1315.3	1288.3	1257.1	1222.1	1179.4	1138.0	1098.0
15°	1472.1	1473.3	1472.9	1455.4	1435.2	1398.7	1369.7	1311.5	1257.5	1222.4	1156.2
17.5°	1564.2	1569.2	1563.5	1537.2	1519.3	1497.6	1460.7	1396.0	1346.9	1290.2	1217.1
20°	1638.8	1639.6	1630.4	1611.0	1590.5	1566.1	1517.4	1467.9	1420.0	1343.9	1274.2
22.5°	1658.6	1660.5	1658.6	1650.2	1633.5	1607.6	1571.1	1525.4	1464.9	1383.8	1319.1
25°	1631.2	1630.1	1636.5	1631.6	1630.8	1622.4	1598.5	1561.5	1501.8	1423.8	1341.6
27.5°	1535.3	1527.3	1543.7	1565.0	1568.0	1581.3	1581.7	1564.6	1521.6	1455.0	1365.5
30°	1369.4	1377.0	1385.0	1429.5	1454.2	1488.9	1518.9	1530.0	1513.6	1464.5	1380.8
32.5°	1189.0	1213.3	1235.8	1266.6	1302.8	1361.4	1408.9	1450.8	1468.7	1447.0	1380.8
35°	994.1	1007.0	1042.4	1081.6	1133.8	1179.4	1273.8	1334.7	1389.1	1403.2	1363.3
37.5°	841.9	853.7	865.8	896.3	954.9	1031.0	1109.0	1189.0	1269.6	1327.5	1325.2
40°	707.1	709.8	720.5	746.7	795.4	863.2	945.0	1041.3	1145.9	1224.7	1257.8
42.5°	603.6	603.6	616.9	647.4	675.5	725.0	804.2	889.1	1003.6	1104.8	1175.6
45°	525.2	526.0	536.6	558.3	580.4	619.2	677.8	757.7	875.7	980.4	1079.0
47.5°	461.3	468.5	474.6	486.0	508.1	542.3	585.0	653.1	737.2	851.4	966.3
50°	420.2	421.7	426.3	433.1	450.2	472.7	509.6	561.4	636.0	737.2	853.3
52.5°	379.8	379.8	384.4	392.8	402.7	420.9	447.6	490.6	546.5	638.2	742.5
55°	345.6	346.7	347.5	354.3	362.7	376.4	397.3	425.5	476.9	550.3	641.3
57.5°	312.1	316.3	315.1	320.5	326.5	336.4	351.3	375.6	414.8	470.8	552.6
60°	283.9	283.2	285.1	287.3	291.5	298.4	312.1	330.0	362.7	409.5	476.5
62.5°	251.9	251.2	253.5	256.1	259.9	265.6	275.5	289.2	315.1	350.1	408.4
65°	223.0	222.3	223.4	224.9	229.1	233.7	241.3	252.7	269.8	300.7	345.2
67.5°	194.1	194.1	194.9	196.4	199.0	202.5	208.6	215.4	232.5	253.1	288.1
70°	165.2	165.6	165.6	167.1	169.4	172.0	177.0	183.1	193.7	212.0	240.2
72.5°	140.1	140.1	139.3	140.1	141.6	142.7	145.8	151.5	159.5	172.8	194.1
75°	111.1	113.0	112.7	112.3	113.4	115.3	118.0	122.5	127.5	137.0	153.0
77.5°	85.3	86.4	86.4	86.8	87.9	89.4	90.2	94.8	99.3	105.0	116.8
80°	62.4	63.2	62.4	62.8	63.6	65.1	66.6	67.4	70.8	75.7	81.4
82.5°	41.9	40.7	42.2	41.9	42.6	43.0	43.8	44.1	46.4	49.5	53.3
85°	22.1	24.0	23.6	24.4	23.6	24.0	24.4	25.9	26.3	28.2	30.4
87.5°	8.4	9.1	9.1	9.1	9.1	9.1	9.9	10.3	11.0	11.4	12.2
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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	831.2	831.2	831.2	831.2	831.2	831.2	831.2	831.2	831.2	831.2	831.2
2.5°	866.2	862.8	857.8	852.5	846.8	841.1	838.4	835.0	828.2	821.3	816.0
5°	908.1	898.6	885.6	876.1	862.4	849.5	839.2	832.0	820.9	807.6	798.9
7.5°	954.9	937.8	917.2	896.3	875.7	856.3	840.3	826.6	809.5	793.1	779.8
10°	1010.1	977.0	948.4	918.0	887.5	860.1	837.3	817.5	795.4	775.6	759.3
12.5°	1058.8	1020.4	980.8	937.8	896.7	861.3	832.0	806.1	779.4	756.6	739.9
15°	1112.5	1058.4	1003.6	954.9	905.0	861.6	823.2	793.1	762.7	736.8	717.4
17.5°	1174.1	1101.8	1032.9	962.9	918.7	862.8	815.6	776.0	744.8	718.9	693.8
20°	1210.6	1138.7	1054.2	982.3	909.2	851.8	799.2	759.3	722.7	693.0	672.5
22.5°	1230.4	1154.7	1066.4	992.6	907.3	843.0	787.1	739.9	700.7	671.0	647.8
25°	1258.2	1154.7	1072.9	984.2	910.4	832.7	769.5	724.3	683.2	648.9	624.5
27.5°	1270.8	1165.0	1073.6	968.2	892.1	813.3	749.4	701.4	655.8	622.3	601.3
30°	1281.1	1166.9	1058.4	955.7	870.8	791.6	729.2	675.5	632.9	600.9	578.9
32.5°	1281.8	1161.9	1037.9	932.1	842.2	766.1	705.2	654.6	610.1	576.2	554.5
35°	1275.0	1149.8	1014.3	895.9	809.1	739.9	679.0	629.5	584.2	551.9	529.8
37.5°	1257.5	1136.1	992.2	862.0	769.9	702.6	650.8	603.6	558.7	526.4	508.1
40°	1220.2	1114.0	963.3	825.9	730.3	663.0	617.7	574.3	534.3	500.9	482.6
42.5°	1170.7	1080.9	928.3	787.4	686.2	621.1	581.2	546.1	505.4	476.5	457.8
45°	1100.7	1036.0	893.2	747.1	642.4	578.5	542.0	513.0	478.0	449.1	432.7
47.5°	1021.5	981.9	847.9	701.8	596.4	536.2	501.6	478.4	448.7	424.0	407.6
50°	932.4	917.6	798.1	656.1	553.4	491.7	459.7	441.5	416.4	396.6	382.5
52.5°	835.8	844.9	745.6	609.7	511.9	449.5	419.0	402.3	386.3	369.6	356.2
55°	737.6	759.3	682.0	559.1	464.3	409.9	380.2	365.0	353.2	339.1	329.6
57.5°	645.5	679.3	616.2	505.0	420.5	368.4	340.2	326.9	318.2	310.6	301.8
60°	556.0	595.2	548.4	454.4	376.8	329.2	304.1	291.1	287.0	281.3	272.9
62.5°	476.9	516.8	481.8	402.3	332.6	291.9	269.1	258.4	252.3	250.4	245.5
65°	402.7	440.0	413.3	347.9	290.8	254.6	234.4	224.9	221.5	221.1	217.3
67.5°	338.3	374.5	350.1	295.0	246.6	217.3	202.1	194.5	191.1	191.4	188.8
70°	279.0	304.5	290.0	246.6	209.3	183.4	171.6	163.3	160.6	160.6	159.8
72.5°	223.8	244.0	232.9	199.8	170.5	150.7	140.4	135.5	133.2	132.8	133.2
75°	175.1	192.6	182.7	156.8	134.7	119.9	111.1	107.7	106.6	105.8	106.2
77.5°	130.9	142.0	135.9	119.1	100.9	90.6	86.4	83.0	81.8	82.2	83.0
80°	92.5	98.6	95.1	84.5	72.3	65.5	62.4	59.8	58.6	59.8	59.8
82.5°	58.6	63.2	60.1	53.3	47.2	42.6	39.6	38.8	38.4	37.7	38.8
85°	32.0	34.3	32.7	30.4	26.3	24.4	22.1	21.7	21.7	21.7	21.7
87.5°	12.6	14.1	12.2	12.2	11.4	9.5	9.5	9.1	8.8	9.1	9.1
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°	831.2	831.2	831.2	831.2	831.2	831.2	831.2	831.2	831.2	831.2	831.2
2.5°	813.7	808.7	805.7	801.5	796.6	790.1	787.4	790.1	788.6	785.9	787.1
5°	791.2	784.8	776.4	769.5	761.9	752.4	749.4	747.9	745.6	744.4	742.5
7.5°	769.2	759.7	749.4	739.9	728.8	720.5	716.6	714.0	713.2	707.5	705.2
10°	746.3	734.5	724.3	711.3	701.8	690.8	686.2	683.2	679.7	675.9	673.3
12.5°	722.4	710.6	697.6	685.4	675.9	663.7	657.7	654.2	651.6	648.9	645.9
15°	701.4	689.6	671.7	662.6	651.2	639.0	635.2	627.6	628.3	623.8	620.7
17.5°	679.3	661.8	649.3	635.6	627.2	618.5	611.2	603.2	602.1	598.7	597.5
20°	654.6	636.3	627.6	613.5	602.1	593.3	586.9	586.1	583.8	578.9	577.0
22.5°	630.3	615.4	603.2	590.3	580.0	568.6	565.6	566.7	562.5	561.4	557.2
25°	608.2	595.2	580.0	567.8	559.5	552.2	548.0	546.5	545.0	543.9	542.0
27.5°	584.6	570.9	557.9	548.0	540.1	535.1	532.4	529.0	528.6	528.6	527.9
30°	561.0	548.8	540.1	527.5	520.3	517.2	514.9	513.8	514.9	514.9	515.3
32.5°	539.3	527.5	517.2	508.5	501.2	499.0	498.6	498.6	500.1	500.1	501.2
35°	516.8	505.0	495.5	489.4	483.3	483.0	483.3	484.1	486.0	486.4	487.9
37.5°	492.5	483.3	476.1	468.5	467.0	467.7	468.5	469.3	470.0	473.1	473.1
40°	470.0	463.2	455.9	451.0	448.3	450.2	451.4	451.8	454.0	455.9	457.5
42.5°	448.0	441.5	435.8	431.6	430.4	432.0	433.1	434.3	436.5	438.1	440.7
45°	423.2	419.0	414.1	410.7	411.0	413.3	413.3	417.1	418.6	419.4	421.3
47.5°	400.4	395.8	392.4	390.9	390.5	392.4	393.5	396.6	397.3	400.0	401.5
50°	376.0	372.6	369.9	368.0	368.4	369.2	371.8	374.9	375.6	378.7	381.3
52.5°	350.5	347.5	345.2	346.0	347.1	347.1	349.8	351.7	353.6	355.8	358.5
55°	325.4	321.2	321.6	320.5	321.6	324.3	325.4	328.4	330.0	331.1	334.9
57.5°	298.0	297.2	296.1	295.0	297.2	298.4	300.3	302.2	304.9	306.4	309.0
60°	269.8	268.7	268.7	270.2	271.0	273.3	276.3	277.4	278.2	281.3	284.7
62.5°	244.0	242.8	242.4	244.7	244.7	247.0	248.1	250.0	253.1	254.2	258.8
65°	216.2	215.4	215.4	217.3	217.7	221.9	221.9	221.9	223.8	228.0	230.3
67.5°	187.2	187.6	188.8	189.9	191.4	192.6	193.0	195.2	198.3	201.0	205.5
70°	158.3	160.2	162.5	162.1	163.3	165.2	165.6	167.8	170.5	173.9	179.3
72.5°	132.4	133.6	135.9	135.9	137.4	138.5	140.4	142.0	145.4	148.4	150.7
75°	106.6	106.9	108.8	110.0	111.1	111.9	113.8	116.5	118.4	121.0	124.5
77.5°	83.7	83.0	84.5	84.9	85.6	87.2	88.7	91.3	92.9	95.9	97.0
80°	59.4	60.9	61.3	61.7	62.4	64.3	65.5	66.6	68.1	70.8	71.9
82.5°	39.2	40.0	41.1	41.5	42.2	42.6	43.0	44.9	46.1	46.8	50.6
85°	22.8	24.0	23.2	23.2	24.0	24.4	25.9	25.9	27.4	26.6	28.5
87.5°	9.9	9.5	9.5	9.9	9.5	9.1	10.3	10.3	9.9	10.3	10.3
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	831.2	831.2	831.2	831.2
2.5°	785.2	785.2	782.1	783.2
5°	738.7	740.2	736.4	735.3
7.5°	704.5	702.9	700.3	700.3
10°	671.0	669.5	668.3	668.3
12.5°	642.1	640.5	638.2	640.1
15°	616.2	616.6	615.0	615.0
17.5°	596.4	593.0	591.8	591.4
20°	572.8	573.5	572.0	569.4
22.5°	557.9	556.0	554.5	554.1
25°	542.7	540.8	540.4	538.9
27.5°	527.5	527.9	526.7	526.7
30°	514.9	516.1	514.9	515.3
32.5°	502.4	502.4	502.4	500.9
35°	488.7	489.1	488.7	487.9
37.5°	474.6	474.6	475.0	475.7
40°	459.0	459.0	459.7	459.7
42.5°	440.3	442.2	443.4	441.5
45°	423.6	424.0	424.4	424.0
47.5°	404.9	403.8	404.2	404.9
50°	381.7	384.4	384.4	382.1
52.5°	359.3	360.0	361.6	361.6
55°	337.2	337.6	338.0	338.7
57.5°	312.1	312.5	312.5	312.1
60°	287.0	289.2	288.9	289.2
62.5°	259.9	263.4	264.5	264.1
65°	234.4	235.2	237.1	239.8
67.5°	207.4	209.3	212.4	211.6
70°	180.8	183.4	184.2	185.7
72.5°	154.1	157.6	158.3	159.1
75°	128.3	129.8	131.3	130.9
77.5°	100.1	102.4	105.0	103.5
80°	75.0	75.4	77.6	76.9
82.5°	49.5	52.5	52.5	51.0
85°	28.9	28.9	28.9	28.9
87.5°	9.9	9.5	10.3	9.9
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P243338
 CATALOG NUMBER: S123DRP-H775D930-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	18.42	19.98	18.79	20.30	20.61	18.95	20.51	19.32	20.83	21.14
	3H	19.94	21.35	20.32	21.67	22.04	20.29	21.70	20.67	22.02	22.39
	4H	20.49	21.81	20.89	22.16	22.53	20.75	22.07	21.15	22.42	22.79
	6H	20.85	22.07	21.26	22.44	22.83	21.05	22.27	21.46	22.64	23.03
	8H	20.95	22.11	21.38	22.50	22.90	21.13	22.29	21.55	22.68	23.08
	12H	21.00	22.11	21.43	22.50	22.92	21.16	22.27	21.59	22.66	23.09
4H	2H	19.59	20.91	19.99	21.25	21.63	19.75	21.06	20.15	21.41	21.79
	3H	21.15	22.24	21.56	22.64	23.04	21.54	22.63	21.95	23.03	23.43
	4H	21.74	22.73	22.17	23.15	23.58	22.10	23.09	22.53	23.50	23.94
	6H	22.17	23.03	22.63	23.47	23.93	22.47	23.33	22.92	23.77	24.23
	8H	22.29	23.09	22.75	23.54	24.00	22.56	23.36	23.02	23.81	24.27
	12H	22.36	23.08	22.84	23.56	24.03	22.61	23.33	23.09	23.81	24.28
8H	4H	22.21	23.01	22.67	23.45	23.92	22.40	23.21	22.87	23.65	24.12
	6H	22.71	23.37	23.20	23.86	24.34	22.91	23.58	23.41	24.07	24.55
	8H	22.87	23.46	23.38	23.97	24.46	23.06	23.66	23.57	24.17	24.65
	12H	22.98	23.51	23.49	24.00	24.57	23.16	23.69	23.67	24.18	24.74
12H	4H	22.25	22.97	22.73	23.45	23.92	22.42	23.14	22.90	23.62	24.09
	6H	22.77	23.37	23.29	23.88	24.37	22.95	23.55	23.46	24.05	24.54
	8H	22.98	23.51	23.49	24.00	24.56	23.15	23.68	23.66	24.17	24.73