

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: P243441

Luminaire Tested: S123RDRP-H775D930-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P243441
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-69)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S123RDRP-H775D930-X4F0-XX-UDD-A-W
Description: DEFINE 3 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3000K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

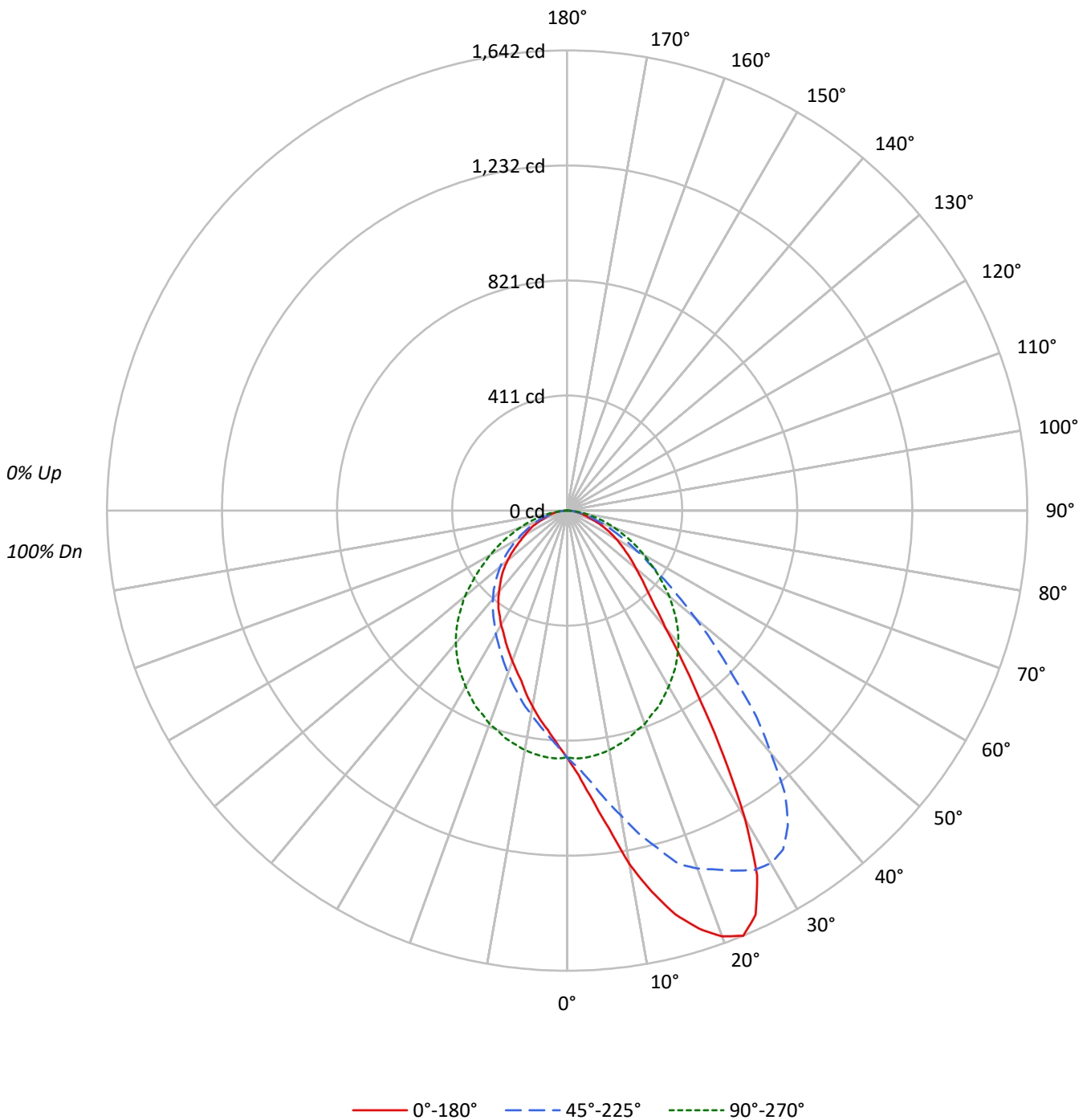
Lumens per Lamp: N/A
Luminaire Lumens: 2296.8 lumens
Efficiency: N/A
Efficacy: 97.3 lumens/watt
Spacing Criteria (0/90/45): 1.28 / 1.22 / 1.4
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

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	106	102	99	107	104	100	97	99	97	94	96	93	91	92	90	89	87					87			
2	101	94	88	83	99	92	86	82	89	84	80	85	81	78	82	79	76	74					74			
3	93	84	76	70	91	82	75	70	79	73	68	76	71	67	74	70	66	64					64			
4	86	75	67	61	84	74	66	60	71	65	59	69	63	59	67	62	58	56					56			
5	79	68	59	53	77	66	59	53	64	57	52	62	56	52	61	55	51	49					49			
6	74	61	53	47	72	60	52	47	59	52	46	57	51	46	55	50	46	44					44			
7	69	56	48	42	67	55	47	42	54	47	41	52	46	41	51	45	41	39					39			
8	64	51	43	38	62	51	43	37	49	42	37	48	42	37	47	41	37	35					35			
9	60	47	39	34	59	47	39	34	45	39	34	44	38	34	43	38	33	32					32			
10	56	44	36	31	55	43	36	31	42	35	31	41	35	31	40	35	31	29					29			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	10685	10685	10685	10685	10685
5°	12596	11823	10744	9767	9567
10°	15768	13594	10681	9079	8731
15°	18713	15642	10574	8492	7910
20°	20855	17531	10447	7968	7364
25°	21288	18961	10318	7492	6933
30°	17739	20344	10143	7123	6595
35°	12255	20314	10001	6792	6318
40°	8613	17886	9774	6516	5986
45°	6915	14406	9428	6224	5664
50°	6029	11275	8978	5878	5239
55°	5406	8702	8309	5495	4664
60°	4890	6928	7678	4982	4225
65°	4279	5687	7073	4509	3952
70°	3452	4625	6365	4139	3346
75°	2993	3634	5545	3494	3278
80°	2764	2974	4726	3351	3295
85°	2434	2545	3811	3018	2865

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 55°
 Vertical Angle: 45°
 Luminance: 18052 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	86.4	3.8
10°-20°	272.2	11.9
20°-30°	436.2	19.0
30°-40°	473.5	20.6
40°-50°	405.7	17.7
50°-60°	307.5	13.4
60°-70°	196.5	8.6
70°-80°	94.0	4.1
80°-90°	24.7	1.1
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°	794.9	34.6
0°-40°	1268.4	55.2
0°-60°	1981.6	86.3
0°-90°	2296.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2296.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	882	882	882	882	882	
5°	1035	972	883	803	786	106
15°	1491	1246	843	677	630	423
25°	1592	1418	772	560	518	706
35°	828	1373	676	459	427	532
45°	403	840	550	363	330	319
55°	256	412	393	260	221	231
65°	149	198	247	157	138	148
75°	64	78	118	75	70	69
85°	18	18	27	22	21	20
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°	881.5	881.5	881.5	881.5	881.5	881.5	881.5	881.5	881.5	881.5	881.5
2.5°	944.7	945.8	943.9	943.5	943.1	937.0	935.1	932.1	921.4	918.8	916.9
5°	1035.2	1032.2	1035.6	1029.1	1021.9	1017.7	1010.9	995.7	982.3	971.7	964.8
7.5°	1142.6	1143.7	1140.3	1134.2	1119.7	1113.6	1095.0	1076.7	1059.2	1037.1	1020.8
10°	1281.1	1272.0	1273.9	1254.8	1239.6	1221.3	1195.8	1166.5	1135.7	1104.5	1081.3
12.5°	1391.5	1397.9	1393.4	1384.2	1354.9	1337.0	1313.8	1271.2	1222.5	1180.6	1145.2
15°	1491.2	1482.4	1483.6	1461.5	1450.8	1434.5	1396.0	1353.8	1322.2	1246.5	1204.6
17.5°	1564.3	1563.5	1562.4	1543.7	1530.8	1496.5	1457.3	1413.9	1374.3	1321.8	1269.3
20°	1616.8	1622.5	1621.0	1605.8	1582.9	1549.8	1526.2	1472.2	1407.1	1359.1	1294.8
22.5°	1641.9	1642.3	1643.1	1635.8	1620.6	1599.3	1565.8	1522.4	1464.6	1386.1	1314.6
25°	1591.7	1593.6	1603.5	1609.6	1613.7	1604.2	1586.7	1547.5	1497.7	1417.7	1343.5
27.5°	1468.4	1474.4	1485.5	1522.0	1536.9	1557.4	1564.6	1549.0	1512.1	1445.5	1361.0
30°	1267.4	1284.5	1295.2	1336.7	1394.9	1449.7	1475.6	1501.1	1497.7	1453.5	1367.9
32.5°	1037.5	1048.6	1079.4	1123.9	1170.0	1250.3	1340.1	1401.8	1436.4	1434.1	1373.6
35°	828.2	844.2	870.4	904.3	967.9	1051.2	1152.8	1249.9	1336.7	1372.8	1351.1
37.5°	672.1	673.7	698.4	746.4	785.9	859.4	951.1	1071.0	1184.8	1279.2	1300.1
40°	544.3	554.9	567.9	597.9	644.7	715.1	776.0	894.0	1012.0	1130.4	1214.9
42.5°	463.6	463.6	478.0	497.1	528.3	570.5	643.2	750.2	856.4	1001.7	1096.9
45°	403.4	407.2	413.7	425.9	448.0	480.7	537.0	609.7	718.2	840.4	983.5
47.5°	360.0	359.7	365.4	372.6	389.7	414.5	447.6	506.6	586.9	718.6	844.9
50°	319.7	321.2	325.4	331.5	342.9	360.4	381.4	425.9	493.6	597.9	730.4
52.5°	288.5	288.1	291.5	295.3	304.1	314.0	332.6	365.8	412.6	495.5	605.5
55°	255.8	257.3	261.5	263.8	271.0	277.5	293.1	311.7	349.4	411.8	511.9
57.5°	227.6	229.5	231.8	234.1	239.0	245.5	258.4	269.8	297.2	342.2	422.1
60°	201.7	201.0	203.6	207.4	210.1	215.8	223.0	234.8	253.9	285.8	344.4
62.5°	175.8	176.2	176.6	178.9	183.8	188.8	195.2	204.0	215.4	239.0	280.5
65°	149.2	149.6	150.3	152.6	157.6	160.6	167.5	175.1	184.2	198.3	227.2
67.5°	125.6	127.1	127.1	129.0	130.9	134.0	138.9	144.6	152.2	162.5	181.2
70°	97.4	97.1	99.0	102.8	104.7	110.0	113.4	117.2	124.1	130.5	146.5
72.5°	78.4	78.4	78.4	79.9	80.3	81.4	83.7	91.7	97.1	103.5	112.3
75°	63.9	64.3	64.3	64.7	65.1	66.2	67.0	69.3	70.8	77.6	83.0
77.5°	51.0	51.4	51.4	51.8	52.1	52.5	54.0	54.0	55.2	56.7	59.0
80°	39.6	39.2	39.2	39.6	39.6	40.7	40.7	41.5	41.9	42.6	43.8
82.5°	28.2	27.8	28.2	27.8	28.2	28.5	29.3	28.9	29.7	30.4	30.8
85°	17.5	17.9	17.9	18.6	18.3	17.9	18.3	18.3	18.3	18.3	19.0
87.5°	7.6	8.4	8.4	8.0	8.4	8.4	7.6	8.4	8.4	8.4	8.8
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°	881.5	881.5	881.5	881.5	881.5	881.5	881.5	881.5	881.5	881.5	881.5
2.5°	915.7	914.2	908.5	903.2	895.2	891.7	887.2	885.3	879.2	870.8	867.0
5°	958.4	946.9	935.9	922.6	911.5	898.6	891.4	883.0	870.1	858.3	849.9
7.5°	1003.6	986.9	966.3	944.3	924.5	905.8	889.8	876.5	859.8	843.4	830.5
10°	1053.5	1025.0	991.8	963.7	935.1	908.1	887.9	867.8	846.1	825.5	809.9
12.5°	1107.2	1066.8	1026.9	984.6	942.0	910.8	880.7	854.8	830.5	808.8	790.1
15°	1162.7	1107.5	1056.5	1009.0	949.6	907.7	874.6	842.6	812.2	785.6	767.3
17.5°	1202.3	1139.1	1074.8	1007.4	956.4	904.7	863.6	823.2	795.1	767.7	742.9
20°	1238.9	1167.3	1090.8	1028.0	956.8	893.6	848.7	809.9	770.7	741.4	720.5
22.5°	1254.5	1189.8	1112.5	1025.3	954.2	889.5	831.6	787.8	752.8	720.9	693.5
25°	1257.5	1185.2	1106.0	1021.9	943.9	873.9	815.2	771.5	725.8	692.7	671.4
27.5°	1270.8	1171.9	1094.2	1010.5	931.3	858.3	796.6	747.9	705.3	669.9	642.5
30°	1274.3	1166.2	1069.1	989.2	907.7	836.2	773.8	724.7	678.2	642.1	617.3
32.5°	1275.8	1158.5	1042.8	955.3	877.7	810.3	753.2	699.9	655.8	617.7	592.2
35°	1270.4	1147.9	1011.3	916.9	842.3	776.0	723.1	675.9	626.8	591.1	564.0
37.5°	1249.5	1131.1	993.4	872.0	800.8	738.4	693.5	647.0	601.7	562.9	535.1
40°	1209.9	1106.8	959.9	834.3	753.6	697.6	655.8	617.7	572.0	534.7	507.3
42.5°	1146.7	1073.7	929.0	791.6	706.8	653.9	618.9	586.1	545.0	509.6	479.6
45°	1053.1	1027.2	887.9	748.3	655.8	605.9	575.5	550.0	512.7	480.3	452.5
47.5°	951.9	957.6	846.5	704.1	609.3	561.8	535.1	512.7	484.5	449.9	424.4
50°	835.0	866.2	788.2	659.6	562.9	516.1	489.8	476.1	449.9	420.9	397.0
52.5°	728.1	777.6	729.2	610.9	517.2	471.2	446.8	433.1	415.6	391.6	367.3
55°	617.3	680.1	645.1	558.3	470.8	424.4	403.8	393.2	378.7	360.0	338.0
57.5°	525.6	592.6	570.5	503.2	425.5	383.6	365.4	353.2	344.4	327.3	309.4
60°	435.8	497.8	489.1	439.6	380.6	340.6	326.6	316.7	309.4	296.9	279.4
62.5°	351.7	411.8	417.1	378.3	336.8	300.7	287.7	280.9	275.2	265.3	249.3
65°	279.0	331.9	342.9	313.2	290.8	263.4	250.8	246.6	242.4	231.0	218.8
67.5°	218.5	260.0	274.4	257.7	241.7	225.7	215.8	210.1	207.0	200.2	191.8
70°	167.1	202.9	215.0	207.8	197.2	191.1	183.4	179.6	176.6	167.8	163.3
72.5°	125.2	149.6	164.8	162.5	160.2	156.0	151.5	150.3	145.8	140.1	135.9
75°	91.7	105.8	119.5	124.5	123.7	125.2	120.3	118.4	115.7	111.5	108.1
77.5°	65.8	74.2	83.7	89.8	92.9	93.2	93.2	92.1	90.2	87.2	84.5
80°	45.7	47.6	56.3	62.0	65.1	67.4	67.4	67.7	65.8	64.7	62.8
82.5°	31.6	32.7	34.6	39.2	43.0	45.7	46.1	45.7	44.9	44.5	41.9
85°	19.8	19.4	19.4	20.6	23.6	26.3	26.6	27.4	27.0	26.6	24.0
87.5°	8.4	8.4	8.8	8.4	9.5	9.9	10.7	12.6	12.2	10.3	9.5
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°	881.5	881.5	881.5	881.5	881.5	881.5	881.5	881.5	881.5	881.5	881.5
2.5°	864.7	859.8	855.2	850.3	844.2	838.5	837.7	836.9	838.8	835.0	833.5
5°	843.4	833.9	826.7	817.5	811.1	802.7	798.1	797.0	796.6	794.3	791.3
7.5°	820.2	809.9	799.6	789.4	778.7	770.0	765.0	762.3	760.1	756.3	753.2
10°	798.5	785.6	774.5	760.4	749.0	737.6	733.0	729.2	726.9	721.6	717.4
12.5°	774.1	757.8	745.6	730.4	720.1	710.2	703.0	695.7	690.4	682.4	679.0
15°	752.8	735.7	715.1	706.0	691.6	676.7	668.7	668.7	657.7	651.2	647.0
17.5°	724.3	709.4	695.0	676.3	655.8	647.0	637.9	629.9	622.3	620.4	612.8
20°	699.2	681.7	666.8	646.6	628.0	617.7	607.1	598.3	592.6	587.3	583.1
22.5°	674.4	656.9	634.1	614.3	601.7	588.0	576.6	569.0	564.0	556.1	552.3
25°	648.5	627.6	607.1	587.6	572.0	560.2	548.4	544.3	535.5	531.3	526.0
27.5°	622.7	597.5	578.1	561.4	543.9	532.5	524.5	516.9	509.2	507.0	503.9
30°	593.7	570.5	551.9	535.5	518.8	508.9	499.3	492.5	486.0	481.1	477.7
32.5°	564.8	545.4	527.5	508.5	493.3	482.6	474.6	468.5	465.5	457.1	454.1
35°	538.2	518.4	499.3	481.5	469.3	459.0	451.8	446.1	439.6	434.3	431.2
37.5°	510.8	492.9	473.5	458.2	444.5	436.2	428.2	420.6	415.6	412.6	408.8
40°	484.1	465.1	450.3	433.5	421.3	411.8	403.4	397.7	391.6	389.0	384.0
42.5°	459.0	440.7	423.6	408.4	397.3	388.2	380.2	373.7	368.8	363.9	361.2
45°	430.1	414.1	398.5	383.3	373.0	363.1	354.3	348.6	341.8	337.6	336.1
47.5°	405.7	389.0	372.2	358.1	347.5	336.8	329.6	322.7	317.0	312.9	310.6
50°	376.8	361.2	347.5	333.4	323.1	311.7	303.0	296.5	290.0	287.0	283.2
52.5°	352.1	336.8	320.1	307.5	295.7	285.8	277.8	272.5	266.8	262.2	259.6
55°	321.2	306.4	293.1	279.7	267.9	260.0	253.5	244.3	239.4	234.8	227.6
57.5°	294.2	280.1	266.0	253.1	242.1	232.5	224.6	218.5	212.0	208.6	203.6
60°	265.7	250.8	237.9	228.0	215.8	205.5	200.2	193.0	187.6	182.3	180.8
62.5°	237.5	223.8	210.9	200.6	189.5	181.5	174.7	171.3	165.9	161.8	160.2
65°	208.2	196.8	184.6	173.2	166.3	157.2	153.4	147.7	144.6	142.7	142.3
67.5°	179.3	169.0	157.9	149.2	142.7	136.6	132.1	129.8	126.7	124.5	122.6
70°	153.0	143.1	133.6	126.4	121.4	116.8	113.8	109.6	106.6	103.5	99.3
72.5°	127.1	119.1	111.1	105.4	100.5	97.8	93.6	87.2	84.1	83.4	83.0
75°	103.1	94.4	88.7	85.6	81.1	74.6	71.9	71.2	70.8	70.0	70.0
77.5°	79.5	74.2	70.4	63.9	61.7	61.3	59.4	59.0	58.2	58.6	58.6
80°	57.9	54.8	50.2	48.3	47.6	48.0	47.2	47.6	46.8	47.2	46.4
82.5°	38.4	35.8	36.5	35.4	35.4	36.2	35.8	34.6	34.6	34.3	34.3
85°	22.8	22.5	23.2	23.2	22.8	21.7	22.5	22.1	20.9	21.3	21.3
87.5°	9.9	9.9	9.9	9.5	9.9	9.5	9.5	9.5	8.4	8.4	8.4
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: P243441

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CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	881.5	881.5	881.5	881.5
2.5°	834.3	833.5	832.4	831.2
5°	791.3	787.8	787.5	786.3
7.5°	750.9	749.4	746.7	749.8
10°	714.0	715.1	712.5	709.4
12.5°	675.6	673.3	669.1	671.4
15°	641.7	637.9	635.6	630.3
17.5°	606.3	603.3	603.3	599.8
20°	575.5	572.4	573.2	570.9
22.5°	549.6	547.3	543.9	544.3
25°	525.2	521.8	518.0	518.4
27.5°	498.2	495.2	494.4	491.7
30°	474.2	471.6	471.2	471.2
32.5°	451.0	449.9	448.0	446.8
35°	430.8	429.3	426.3	427.0
37.5°	405.7	404.2	403.8	403.4
40°	382.1	381.0	377.9	378.3
42.5°	358.5	356.6	354.7	354.0
45°	333.0	332.6	329.6	330.4
47.5°	308.7	307.9	306.4	304.5
50°	281.6	281.3	280.1	277.8
52.5°	255.4	254.2	252.0	249.7
55°	225.7	222.3	222.7	220.7
57.5°	201.3	199.8	196.8	195.6
60°	177.7	176.2	175.8	174.3
62.5°	157.9	156.4	155.3	155.3
65°	140.1	138.2	137.8	137.8
67.5°	120.3	118.4	118.0	117.2
70°	95.5	95.2	94.4	94.4
72.5°	82.2	81.8	82.2	80.7
75°	70.0	69.6	69.6	70.0
77.5°	58.2	58.2	57.9	57.9
80°	46.1	46.4	46.1	47.2
82.5°	34.6	33.9	34.3	33.5
85°	21.3	21.3	20.6	20.6
87.5°	8.4	8.4	8.4	8.4
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P243441
 CATALOG NUMBER: S123RDRP-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	16.62	18.12	16.98	18.43	18.75	19.32	20.82	19.68	21.13	21.45
	3H	17.81	19.15	18.18	19.48	19.84	20.74	22.09	21.12	22.42	22.78
	4H	18.16	19.42	18.56	19.77	20.15	21.25	22.51	21.65	22.85	23.23
	6H	18.43	19.60	18.84	19.96	20.35	21.59	22.75	22.00	23.12	23.51
	8H	18.52	19.63	18.95	20.02	20.42	21.69	22.80	22.12	23.19	23.59
	12H	18.58	19.64	19.01	20.03	20.46	21.75	22.81	22.18	23.19	23.62
4H	2H	17.57	18.83	17.97	19.18	19.56	19.60	20.86	20.00	21.21	21.58
	3H	18.84	19.88	19.25	20.28	20.68	21.31	22.36	21.72	22.76	23.16
	4H	19.24	20.18	19.68	20.60	21.04	21.93	22.87	22.36	23.28	23.72
	6H	19.59	20.41	20.05	20.85	21.31	22.39	23.20	22.84	23.64	24.10
	8H	19.70	20.47	20.17	20.91	21.38	22.52	23.28	22.99	23.73	24.20
	12H	19.80	20.47	20.28	20.95	21.43	22.62	23.30	23.10	23.78	24.25
8H	4H	19.60	20.37	20.07	20.81	21.28	21.99	22.75	22.45	23.19	23.66
	6H	20.02	20.65	20.52	21.14	21.62	22.52	23.15	23.01	23.64	24.11
	8H	20.19	20.75	20.70	21.26	21.75	22.71	23.27	23.22	23.78	24.27
	12H	20.33	20.83	20.84	21.33	21.89	22.86	23.36	23.37	23.85	24.41
12H	4H	19.63	20.31	20.12	20.79	21.26	21.98	22.65	22.46	23.13	23.60
	6H	20.07	20.63	20.58	21.14	21.63	22.51	23.07	23.02	23.58	24.07
	8H	20.28	20.78	20.79	21.27	21.84	22.74	23.23	23.25	23.73	24.29