

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: P243342

Luminaire Tested: S123DRP-H560D935-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P243342
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-H560D935-X4F0-XX-UDD-A-W
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3500K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

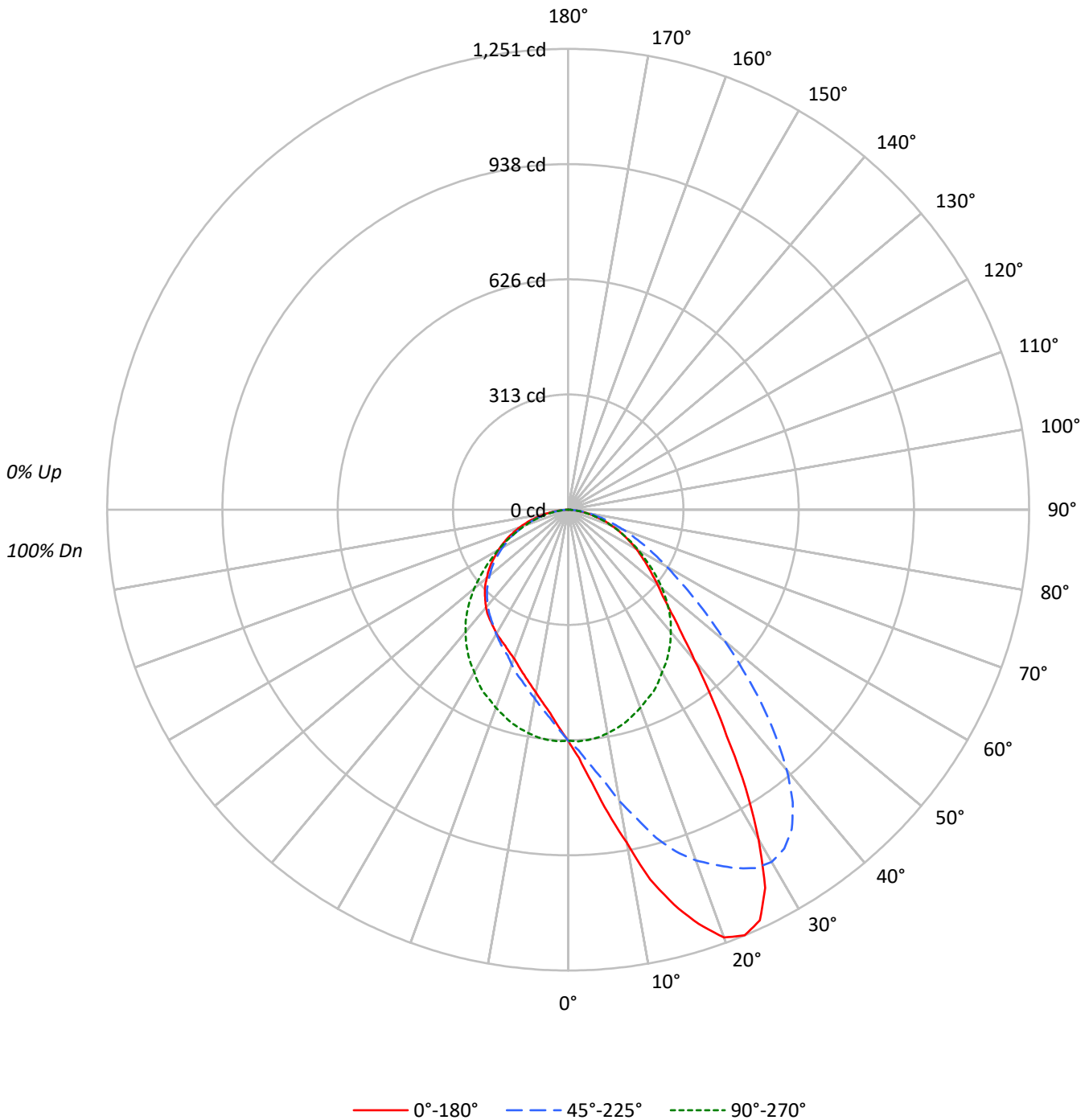
Lumens per Lamp: N/A
Luminaire Lumens: 1889.0 lumens
Efficiency: N/A
Efficacy: 109.8 lumens/watt
Spacing Criteria (0/90/45): 1.39 / 1.21 / 1.5
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

Input Watts (W): 17.2
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	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				
2	100	92	86	81	98	91	85	80	87	82	78	84	80	76	81	77	74					72				
3	92	82	74	68	89	80	73	67	77	71	66	75	69	65	72	68	64					62				
4	84	73	64	58	82	72	64	58	69	62	57	67	61	56	65	60	55					53				
5	78	65	57	50	76	64	56	50	62	55	50	60	54	49	58	53	49					46				
6	72	59	50	44	70	58	50	44	56	49	44	55	48	43	53	47	43					41				
7	67	54	45	39	65	53	45	39	51	44	39	50	43	39	49	43	38					36				
8	62	49	41	35	61	48	41	35	47	40	35	46	39	35	45	39	34					33				
9	58	45	37	32	57	45	37	32	43	36	31	42	36	31	41	35	31					29				
10	55	42	34	29	53	41	34	29	40	33	29	39	33	28	38	33	28					27				

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	7598	7598	7598	7598	7598
5°	9051	8465	7634	6904	6747
10°	11304	9887	7587	6411	6202
15°	13930	11567	7505	6046	5820
20°	15941	13071	7385	5771	5538
25°	16450	14359	7304	5569	5435
30°	14453	15456	7130	5459	5439
35°	11092	15657	7024	5389	5444
40°	8437	14613	6853	5372	5486
45°	6788	12673	6632	5343	5480
50°	5974	10483	6278	5250	5433
55°	5507	8770	5816	5167	5397
60°	5190	7486	5321	4996	5287
65°	4824	6502	4864	4798	5186
70°	4416	5667	4363	4416	4962
75°	3925	4838	3803	3953	4622
80°	3288	3986	3148	3385	4049
85°	2309	2948	2281	2559	3032

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 55°
 Vertical Angle: 45°
 Luminance: 14228 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	61.7	3.3
10°-20°	198.0	10.5
20°-30°	327.0	17.3
30°-40°	374.2	19.8
40°-50°	339.1	18.0
50°-60°	274.0	14.5
60°-70°	190.9	10.1
70°-80°	100.1	5.3
80°-90°	23.9	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°	586.6	31.1
0°-40°	960.9	50.9
0°-60°	1574.1	83.3
0°-90°	1889.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1889.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	627	627	627	627	627	
5°	744	696	627	567	554	77
15°	1110	922	598	482	464	316
25°	1230	1074	546	416	406	550
35°	750	1058	475	364	368	475
45°	396	739	387	312	320	312
55°	261	415	275	244	255	234
65°	168	227	170	167	181	167
75°	84	103	81	84	99	89
85°	17	21	16	18	22	21
90°	0	0	0	0	0	



TEST NUMBER: P243342

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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	626.8	626.8	626.8	626.8	626.8	626.8	626.8	626.8	626.8	626.8	626.8
2.5°	675.0	676.4	674.1	675.6	672.1	670.1	667.0	665.5	658.6	653.8	652.0
5°	743.9	743.9	744.4	741.0	737.0	729.8	720.3	714.3	707.4	695.7	689.6
7.5°	830.5	826.2	823.4	817.0	811.6	799.8	789.5	777.2	761.1	741.6	731.2
10°	918.4	922.9	920.1	913.5	899.4	880.2	865.0	847.2	822.2	803.3	776.3
12.5°	1028.0	1022.0	1017.4	1007.3	991.8	971.4	947.9	921.5	889.4	858.1	828.0
15°	1110.1	1110.9	1110.6	1097.4	1082.2	1054.7	1032.9	989.0	948.2	921.8	871.9
17.5°	1179.5	1183.2	1178.9	1159.1	1145.6	1129.3	1101.5	1052.7	1015.6	972.9	917.8
20°	1235.8	1236.3	1229.4	1214.8	1199.3	1180.9	1144.2	1106.9	1070.7	1013.3	960.8
22.5°	1250.7	1252.1	1250.7	1244.4	1231.7	1212.2	1184.7	1150.2	1104.6	1043.5	994.7
25°	1230.0	1229.2	1234.0	1230.3	1229.7	1223.4	1205.3	1177.5	1132.4	1073.6	1011.6
27.5°	1157.7	1151.7	1164.0	1180.1	1182.4	1192.4	1192.7	1179.8	1147.4	1097.1	1029.7
30°	1032.6	1038.3	1044.3	1077.9	1096.6	1122.7	1145.4	1153.7	1141.3	1104.3	1041.2
32.5°	896.5	914.9	931.8	955.1	982.4	1026.5	1062.4	1094.0	1107.5	1091.1	1041.2
35°	749.6	759.4	786.1	815.6	854.9	889.4	960.5	1006.5	1047.5	1058.1	1028.0
37.5°	634.8	643.7	652.9	675.9	720.0	777.4	836.3	896.5	957.4	1001.0	999.3
40°	533.2	535.2	543.3	563.1	599.8	650.9	712.6	785.2	864.1	923.5	948.5
42.5°	455.2	455.2	465.2	488.2	509.4	546.7	606.4	670.4	756.8	833.1	886.5
45°	396.0	396.6	404.7	421.0	437.7	466.9	511.1	571.4	660.4	739.3	813.6
47.5°	347.8	353.3	357.9	366.5	383.1	409.0	441.1	492.5	555.9	642.0	728.7
50°	316.8	318.0	321.4	326.6	339.5	356.4	384.3	423.3	479.6	555.9	643.4
52.5°	286.4	286.4	289.9	296.2	303.6	317.4	337.5	369.9	412.1	481.3	559.9
55°	260.6	261.4	262.0	267.2	273.5	283.8	299.6	320.9	359.6	415.0	483.6
57.5°	235.3	238.5	237.6	241.6	246.2	253.7	264.9	283.3	312.8	355.0	416.7
60°	214.1	213.5	215.0	216.7	219.8	225.0	235.3	248.8	273.5	308.8	359.3
62.5°	190.0	189.4	191.1	193.1	196.0	200.3	207.8	218.1	237.6	264.0	307.9
65°	168.2	167.6	168.5	169.6	172.8	176.2	181.9	190.6	203.5	226.7	260.3
67.5°	146.4	146.4	146.9	148.1	150.1	152.7	157.3	162.4	175.3	190.8	217.2
70°	124.6	124.8	124.8	126.0	127.7	129.7	133.4	138.0	146.1	159.9	181.1
72.5°	105.6	105.6	105.0	105.6	106.8	107.6	109.9	114.2	120.2	130.3	146.4
75°	83.8	85.2	84.9	84.7	85.5	87.0	89.0	92.4	96.1	103.3	115.4
77.5°	64.3	65.1	65.1	65.4	66.3	67.4	68.0	71.5	74.9	79.2	88.1
80°	47.1	47.6	47.1	47.4	47.9	49.1	50.2	50.8	53.4	57.1	61.4
82.5°	31.6	30.7	31.9	31.6	32.1	32.4	33.0	33.3	35.0	37.3	40.2
85°	16.6	18.1	17.8	18.4	17.8	18.1	18.4	19.5	19.8	21.2	23.0
87.5°	6.3	6.9	6.9	6.9	6.9	6.9	7.5	7.7	8.3	8.6	9.2
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°	626.8	626.8	626.8	626.8	626.8	626.8	626.8	626.8	626.8	626.8	626.8
2.5°	653.2	650.6	646.9	642.8	638.5	634.2	632.2	629.6	624.5	619.3	615.3
5°	684.7	677.6	667.8	660.6	650.3	640.6	632.8	627.4	619.0	609.0	602.4
7.5°	720.0	707.1	691.6	675.9	660.4	645.7	633.7	623.3	610.4	598.1	588.0
10°	761.7	736.7	715.2	692.2	669.3	648.6	631.4	616.4	599.8	584.9	572.5
12.5°	798.4	769.4	739.6	707.1	676.1	649.4	627.4	607.8	587.7	570.5	557.9
15°	838.9	798.1	756.8	720.0	682.5	649.7	620.8	598.1	575.1	555.6	541.0
17.5°	885.4	830.8	778.9	726.1	692.8	650.6	615.0	585.2	561.6	542.1	523.2
20°	912.9	858.7	795.0	740.7	685.6	642.3	602.7	572.5	545.0	522.6	507.1
22.5°	927.8	870.7	804.1	748.5	684.2	635.7	593.5	557.9	528.3	506.0	488.4
25°	948.8	870.7	809.0	742.1	686.5	627.9	580.3	546.1	515.1	489.3	470.9
27.5°	958.2	878.5	809.6	730.1	672.7	613.3	565.1	528.9	494.5	469.2	453.4
30°	966.0	879.9	798.1	720.6	656.6	596.9	549.9	509.4	477.3	453.2	436.5
32.5°	966.6	876.2	782.6	702.8	635.1	577.7	531.8	493.6	460.0	434.5	418.1
35°	961.4	867.0	764.8	675.6	610.1	557.9	512.0	474.7	440.5	416.1	399.5
37.5°	948.2	856.7	748.2	650.0	580.6	529.8	490.7	455.2	421.3	396.9	383.1
40°	920.1	840.0	726.4	622.8	550.7	499.9	465.8	433.1	402.9	377.7	363.9
42.5°	882.8	815.0	700.0	593.8	517.4	468.4	438.2	411.8	381.1	359.3	345.2
45°	830.0	781.2	673.6	563.4	484.4	436.2	408.7	386.9	360.5	338.6	326.3
47.5°	770.3	740.4	639.4	529.2	449.7	404.4	378.2	360.7	338.4	319.7	307.4
50°	703.1	691.9	601.8	494.8	417.3	370.8	346.7	332.9	314.0	299.0	288.4
52.5°	630.2	637.1	562.2	459.8	386.0	338.9	316.0	303.3	291.3	278.7	268.6
55°	556.2	572.5	514.3	421.6	350.1	309.1	286.7	275.2	266.3	255.7	248.5
57.5°	486.7	512.3	464.6	380.8	317.1	277.8	256.6	246.5	239.9	234.2	227.6
60°	419.3	448.8	413.5	342.7	284.1	248.2	229.3	219.5	216.4	212.1	205.8
62.5°	359.6	389.7	363.3	303.3	250.8	220.1	202.9	194.9	190.3	188.8	185.1
65°	303.6	331.8	311.7	262.3	219.3	192.0	176.8	169.6	167.0	166.7	163.9
67.5°	255.1	282.4	264.0	222.4	186.0	163.9	152.4	146.6	144.1	144.4	142.3
70°	210.4	229.6	218.7	186.0	157.8	138.3	129.4	123.1	121.1	121.1	120.5
72.5°	168.7	184.0	175.6	150.7	128.6	113.6	105.9	102.2	100.4	100.2	100.4
75°	132.0	145.2	137.8	118.2	101.6	90.4	83.8	81.2	80.4	79.8	80.1
77.5°	98.7	107.0	102.5	89.8	76.1	68.3	65.1	62.6	61.7	62.0	62.6
80°	69.7	74.3	71.7	63.7	54.5	49.4	47.1	45.1	44.2	45.1	45.1
82.5°	44.2	47.6	45.3	40.2	35.6	32.1	29.8	29.3	29.0	28.4	29.3
85°	24.1	25.8	24.7	23.0	19.8	18.4	16.6	16.4	16.4	16.4	16.4
87.5°	9.5	10.6	9.2	9.2	8.6	7.2	7.2	6.9	6.6	6.9	6.9
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	626.8	626.8	626.8	626.8	626.8	626.8	626.8	626.8	626.8	626.8	626.8
2.5°	613.6	609.8	607.5	604.4	600.7	595.8	593.8	595.8	594.6	592.6	593.5
5°	596.6	591.8	585.5	580.3	574.5	567.4	565.1	563.9	562.2	561.3	559.9
7.5°	580.0	572.8	565.1	557.9	549.6	543.3	540.4	538.4	537.8	533.5	531.8
10°	562.8	553.9	546.1	536.4	529.2	520.9	517.4	515.1	512.6	509.7	507.7
12.5°	544.7	535.8	526.0	516.9	509.7	500.5	495.9	493.3	491.3	489.3	487.0
15°	528.9	520.0	506.5	499.6	491.0	481.8	479.0	473.2	473.8	470.4	468.1
17.5°	512.3	499.1	489.6	479.3	473.0	466.4	460.9	454.9	454.0	451.4	450.6
20°	493.6	479.8	473.2	462.6	454.0	447.4	442.5	442.0	440.2	436.5	435.1
22.5°	475.2	464.1	454.9	445.1	437.4	428.8	426.5	427.3	424.2	423.3	420.1
25°	458.6	448.8	437.4	428.2	421.9	416.4	413.3	412.1	411.0	410.1	408.7
27.5°	440.8	430.5	420.7	413.3	407.2	403.5	401.5	398.9	398.6	398.6	398.0
30°	423.0	413.8	407.2	397.8	392.3	390.0	388.3	387.4	388.3	388.3	388.6
32.5°	406.7	397.8	390.0	383.4	378.0	376.2	376.0	376.0	377.1	377.1	378.0
35°	389.7	380.8	373.7	369.1	364.5	364.2	364.5	365.0	366.5	366.8	367.9
37.5°	371.4	364.5	359.0	353.3	352.1	352.7	353.3	353.9	354.4	356.7	356.7
40°	354.4	349.3	343.8	340.1	338.1	339.5	340.4	340.7	342.4	343.8	345.0
42.5°	337.8	332.9	328.6	325.4	324.6	325.7	326.6	327.5	329.2	330.3	332.3
45°	319.1	316.0	312.2	309.7	309.9	311.7	311.7	314.5	315.7	316.3	317.7
47.5°	301.9	298.5	295.9	294.7	294.4	295.9	296.7	299.0	299.6	301.6	302.8
50°	283.5	281.0	279.0	277.5	277.8	278.4	280.4	282.7	283.3	285.6	287.6
52.5°	264.3	262.0	260.3	260.9	261.7	261.7	263.7	265.2	266.6	268.3	270.3
55°	245.4	242.2	242.5	241.6	242.5	244.5	245.4	247.7	248.8	249.7	252.5
57.5°	224.7	224.1	223.3	222.4	224.1	225.0	226.4	227.9	229.9	231.0	233.0
60°	203.5	202.6	202.6	203.8	204.3	206.1	208.4	209.2	209.8	212.1	214.7
62.5°	184.0	183.1	182.8	184.5	184.5	186.3	187.1	188.5	190.8	191.7	195.2
65°	163.0	162.4	162.4	163.9	164.2	167.3	167.3	167.3	168.7	171.9	173.6
67.5°	141.2	141.5	142.3	143.2	144.4	145.2	145.5	147.2	149.5	151.5	155.0
70°	119.4	120.8	122.5	122.3	123.1	124.6	124.8	126.6	128.6	131.2	135.2
72.5°	99.9	100.7	102.5	102.5	103.6	104.5	105.9	107.0	109.6	111.9	113.6
75°	80.4	80.6	82.1	82.9	83.8	84.4	85.8	87.8	89.3	91.3	93.8
77.5°	63.1	62.6	63.7	64.0	64.6	65.7	66.9	68.9	70.0	72.3	73.2
80°	44.8	45.9	46.2	46.5	47.1	48.5	49.4	50.2	51.4	53.4	54.2
82.5°	29.6	30.1	31.0	31.3	31.9	32.1	32.4	33.9	34.7	35.3	38.2
85°	17.2	18.1	17.5	17.5	18.1	18.4	19.5	19.5	20.7	20.1	21.5
87.5°	7.5	7.2	7.2	7.5	7.2	6.9	7.7	7.7	7.5	7.7	7.7
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: P243342

CATALOG NUMBER: S123DRP-H560D935-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	626.8	626.8	626.8	626.8
2.5°	592.1	592.1	589.8	590.6
5°	557.0	558.2	555.3	554.5
7.5°	531.2	530.1	528.1	528.1
10°	506.0	504.8	503.9	503.9
12.5°	484.1	483.0	481.3	482.7
15°	464.6	464.9	463.8	463.8
17.5°	449.7	447.1	446.3	446.0
20°	431.9	432.5	431.3	429.3
22.5°	420.7	419.3	418.1	417.9
25°	409.2	407.8	407.5	406.4
27.5°	397.8	398.0	397.2	397.2
30°	388.3	389.2	388.3	388.6
32.5°	378.8	378.8	378.8	377.7
35°	368.5	368.8	368.5	367.9
37.5°	357.9	357.9	358.2	358.7
40°	346.1	346.1	346.7	346.7
42.5°	332.0	333.5	334.3	332.9
45°	319.4	319.7	320.0	319.7
47.5°	305.4	304.5	304.8	305.4
50°	287.8	289.9	289.9	288.1
52.5°	270.9	271.5	272.6	272.6
55°	254.3	254.6	254.8	255.4
57.5°	235.3	235.6	235.6	235.3
60°	216.4	218.1	217.8	218.1
62.5°	196.0	198.6	199.5	199.2
65°	176.8	177.4	178.8	180.8
67.5°	156.4	157.8	160.1	159.6
70°	136.3	138.3	138.9	140.0
72.5°	116.2	118.8	119.4	120.0
75°	96.7	97.9	99.0	98.7
77.5°	75.5	77.2	79.2	78.1
80°	56.5	56.8	58.5	58.0
82.5°	37.3	39.6	39.6	38.5
85°	21.8	21.8	21.8	21.8
87.5°	7.5	7.2	7.7	7.5
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P243342
 CATALOG NUMBER: S123DRP-H560D935-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	17.44	19.00	17.81	19.32	19.63	17.97	19.53	18.34	19.85	20.16
	3H	18.96	20.37	19.34	20.69	21.05	19.31	20.72	19.69	21.04	21.40
	4H	19.51	20.83	19.91	21.18	21.55	19.77	21.09	20.17	21.43	21.81
	6H	19.87	21.09	20.28	21.45	21.85	20.07	21.29	20.48	21.65	22.05
	8H	19.97	21.13	20.39	21.52	21.92	20.15	21.31	20.57	21.70	22.10
	12H	20.02	21.13	20.45	21.51	21.94	20.18	21.29	20.61	21.68	22.11
4H	2H	18.61	19.92	19.01	20.27	20.65	18.77	20.08	19.17	20.43	20.81
	3H	20.16	21.26	20.57	21.66	22.06	20.56	21.65	20.97	22.05	22.45
	4H	20.76	21.75	21.19	22.16	22.60	21.12	22.11	21.55	22.52	22.96
	6H	21.19	22.05	21.64	22.49	22.95	21.49	22.35	21.94	22.79	23.25
	8H	21.31	22.11	21.77	22.55	23.02	21.58	22.38	22.04	22.83	23.29
	12H	21.38	22.10	21.86	22.58	23.05	21.63	22.35	22.11	22.83	23.30
8H	4H	21.22	22.03	21.69	22.47	22.94	21.42	22.23	21.89	22.67	23.14
	6H	21.72	22.39	22.22	22.88	23.36	21.93	22.60	22.43	23.09	23.57
	8H	21.89	22.48	22.40	22.99	23.48	22.08	22.68	22.59	23.19	23.67
	12H	22.00	22.53	22.51	23.02	23.59	22.18	22.71	22.69	23.20	23.76
12H	4H	21.27	21.99	21.75	22.47	22.94	21.44	22.16	21.92	22.63	23.10
	6H	21.79	22.39	22.30	22.90	23.39	21.97	22.56	22.48	23.07	23.56
	8H	22.00	22.53	22.51	23.02	23.58	22.17	22.70	22.68	23.19	23.75