

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: P243317

Luminaire Tested: S123DRP-H560D927-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P243317
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-H560D927-X4F0-XX-UDD-A-W
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 2700K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

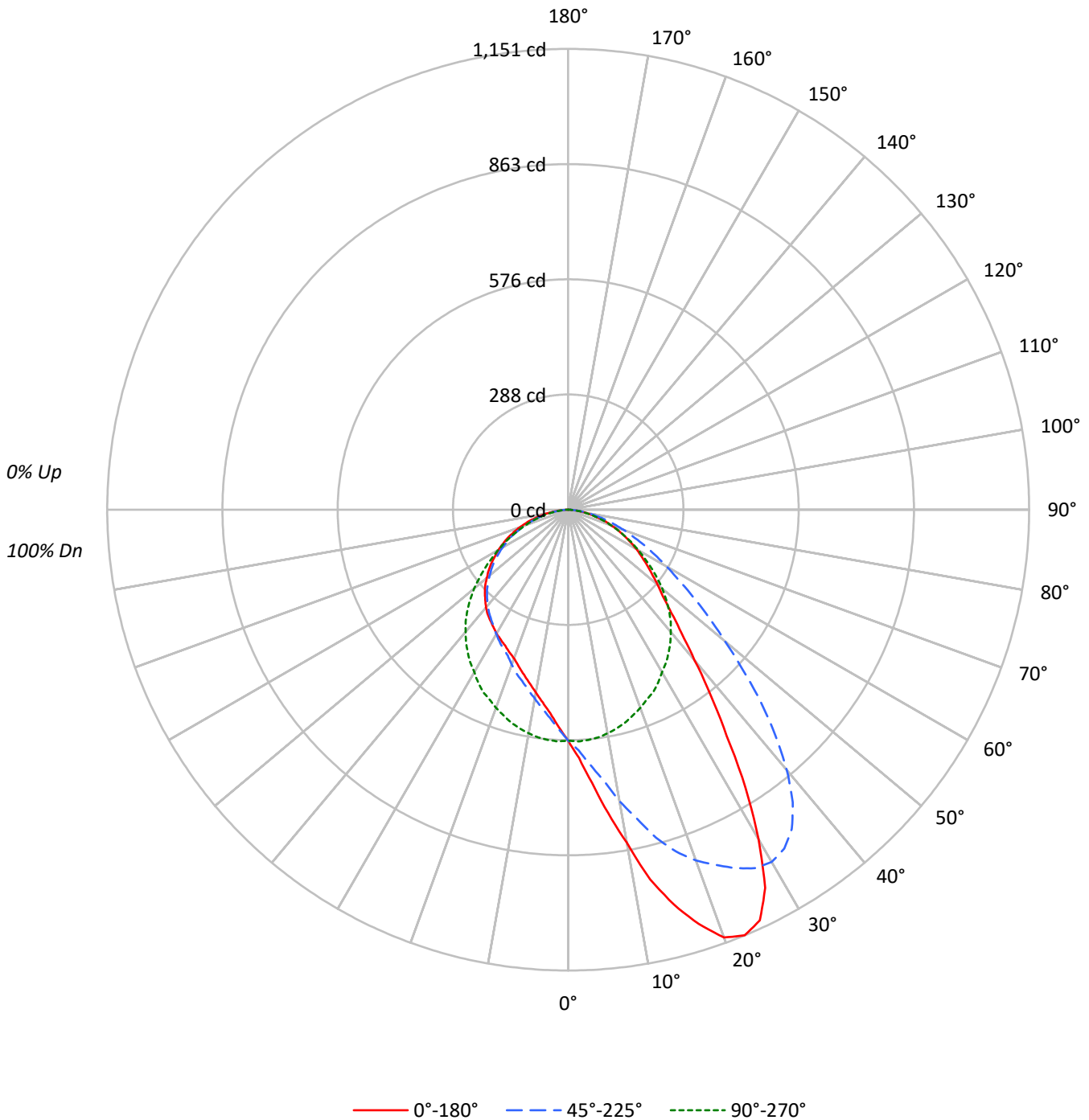
Lumens per Lamp: N/A
Luminaire Lumens: 1738.0 lumens
Efficiency: N/A
Efficacy: 101.0 lumens/watt
Spacing Criteria (0/90/45): 1.39 / 1.21 / 1.5
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

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					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°	6990	6990	6990	6990	6990
5°	8327	7788	7023	6351	6207
10°	10400	9097	6981	5898	5707
15°	12816	10643	6906	5563	5355
20°	14666	12027	6795	5311	5095
25°	15136	13211	6721	5124	5001
30°	13297	14222	6560	5022	5004
35°	10206	14405	6462	4959	5009
40°	7763	13445	6304	4943	5048
45°	6247	11660	6101	4916	5041
50°	5497	9645	5776	4829	4999
55°	5068	8068	5351	4755	4966
60°	4776	6887	4897	4596	4865
65°	4437	5983	4477	4414	4773
70°	4061	5213	4015	4061	4568
75°	3611	4454	3498	3634	4252
80°	3022	3665	2897	3113	3721
85°	2128	2712	2100	2350	2795

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 55°
 Vertical Angle: 45°
 Luminance: 13090 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	56.7	3.3
10°-20°	182.2	10.5
20°-30°	300.9	17.3
30°-40°	344.3	19.8
40°-50°	312.0	18.0
50°-60°	252.1	14.5
60°-70°	175.7	10.1
70°-80°	92.1	5.3
80°-90°	22.0	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°	539.8	31.1
0°-40°	884.1	50.9
0°-60°	1448.2	83.3
0°-90°	1738.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1738.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	577	577	577	577	577	
5°	684	640	577	522	510	70
15°	1021	848	550	443	427	291
25°	1132	988	502	383	374	506
35°	690	974	437	335	338	437
45°	364	680	356	287	294	287
55°	240	382	253	225	235	215
65°	155	209	156	154	166	153
75°	77	95	75	78	91	82
85°	15	20	15	17	20	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°	576.7	576.7	576.7	576.7	576.7	576.7	576.7	576.7	576.7	576.7	576.7
2.5°	621.0	622.4	620.2	621.6	618.4	616.6	613.6	612.3	606.0	601.5	599.9
5°	684.4	684.4	684.9	681.8	678.1	671.5	662.8	657.2	650.9	640.1	634.5
7.5°	764.2	760.2	757.6	751.7	746.7	735.9	726.4	715.0	700.3	682.3	672.8
10°	845.0	849.2	846.5	840.5	827.5	809.8	795.8	779.5	756.5	739.1	714.2
12.5°	945.8	940.3	936.0	926.8	912.5	893.8	872.1	847.9	818.3	789.5	761.8
15°	1021.3	1022.1	1021.9	1009.7	995.7	970.4	950.3	909.9	872.4	848.1	802.2
17.5°	1085.2	1088.7	1084.7	1066.5	1054.1	1039.0	1013.4	968.5	934.5	895.1	844.4
20°	1137.0	1137.5	1131.2	1117.7	1103.5	1086.6	1052.8	1018.4	985.2	932.4	884.0
22.5°	1150.7	1152.0	1150.7	1144.9	1133.3	1115.3	1090.0	1058.3	1016.3	960.1	915.2
25°	1131.7	1130.9	1135.4	1132.0	1131.4	1125.6	1109.0	1083.4	1041.9	987.8	930.8
27.5°	1065.2	1059.6	1071.0	1085.8	1087.9	1097.1	1097.4	1085.5	1055.7	1009.5	947.4
30°	950.0	955.3	960.9	991.8	1008.9	1033.0	1053.8	1061.5	1050.1	1016.1	958.0
32.5°	824.9	841.8	857.4	878.8	903.8	944.5	977.5	1006.6	1019.0	1003.9	958.0
35°	689.7	698.7	723.2	750.4	786.6	818.3	883.8	926.0	963.8	973.5	945.8
37.5°	584.1	592.3	600.7	621.8	662.5	715.3	769.4	824.9	880.9	921.0	919.4
40°	490.6	492.4	499.8	518.1	551.9	598.9	655.6	722.4	795.0	849.7	872.7
42.5°	418.8	418.8	428.0	449.1	468.7	503.0	557.9	616.8	696.3	766.5	815.6
45°	364.4	364.9	372.3	387.4	402.7	429.6	470.3	525.7	607.6	680.2	748.6
47.5°	320.0	325.0	329.3	337.2	352.5	376.3	405.8	453.1	511.5	590.7	670.4
50°	291.5	292.6	295.7	300.5	312.4	327.9	353.6	389.5	441.2	511.5	592.0
52.5°	263.5	263.5	266.7	272.5	279.4	292.0	310.5	340.4	379.2	442.8	515.2
55°	239.8	240.5	241.1	245.8	251.6	261.1	275.7	295.2	330.9	381.8	444.9
57.5°	216.5	219.4	218.6	222.3	226.6	233.4	243.7	260.6	287.8	326.6	383.4
60°	197.0	196.5	197.8	199.4	202.3	207.0	216.5	228.9	251.6	284.1	330.6
62.5°	174.8	174.3	175.9	177.7	180.3	184.3	191.2	200.7	218.6	242.9	283.3
65°	154.7	154.2	155.0	156.1	159.0	162.1	167.4	175.3	187.2	208.6	239.5
67.5°	134.7	134.7	135.2	136.2	138.1	140.5	144.7	149.5	161.3	175.6	199.9
70°	114.6	114.9	114.9	115.9	117.5	119.3	122.8	127.0	134.4	147.1	166.6
72.5°	97.2	97.2	96.6	97.2	98.2	99.0	101.1	105.1	110.6	119.9	134.7
75°	77.1	78.4	78.2	77.9	78.7	80.0	81.9	85.0	88.5	95.1	106.1
77.5°	59.1	59.9	59.9	60.2	61.0	62.1	62.6	65.7	68.9	72.9	81.1
80°	43.3	43.8	43.3	43.6	44.1	45.2	46.2	46.7	49.1	52.5	56.5
82.5°	29.0	28.3	29.3	29.0	29.6	29.8	30.4	30.6	32.2	34.3	37.0
85°	15.3	16.6	16.4	16.9	16.4	16.6	16.9	18.0	18.2	19.5	21.1
87.5°	5.8	6.3	6.3	6.3	6.3	6.3	6.9	7.1	7.7	7.9	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



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CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	576.7	576.7	576.7	576.7	576.7	576.7	576.7	576.7	576.7	576.7	576.7
2.5°	601.0	598.6	595.2	591.5	587.5	583.5	581.7	579.3	574.6	569.8	566.1
5°	630.0	623.4	614.4	607.8	598.3	589.4	582.2	577.2	569.6	560.3	554.2
7.5°	662.5	650.6	636.4	621.8	607.6	594.1	583.0	573.5	561.6	550.3	541.0
10°	700.8	677.8	658.0	636.9	615.8	596.7	580.9	567.2	551.9	538.1	526.8
12.5°	734.6	707.9	680.5	650.6	622.1	597.5	577.2	559.3	540.8	524.9	513.3
15°	771.8	734.3	696.3	662.5	627.9	597.8	571.1	550.3	529.2	511.2	497.7
17.5°	814.6	764.4	716.6	668.0	637.4	598.6	565.9	538.4	516.7	498.8	481.4
20°	839.9	790.0	731.4	681.5	630.8	590.9	554.5	526.8	501.4	480.8	466.6
22.5°	853.7	801.1	739.9	688.6	629.5	584.9	546.1	513.3	486.1	465.5	449.4
25°	872.9	801.1	744.4	682.8	631.6	577.7	533.9	502.5	474.0	450.2	433.3
27.5°	881.7	808.3	744.9	671.7	618.9	564.3	519.9	486.6	455.0	431.7	417.2
30°	888.8	809.6	734.3	663.0	604.1	549.2	505.9	468.7	439.1	416.9	401.6
32.5°	889.3	806.1	720.1	646.7	584.3	531.5	489.3	454.2	423.3	399.8	384.7
35°	884.6	797.7	703.7	621.6	561.4	513.3	471.1	436.7	405.3	382.9	367.6
37.5°	872.4	788.2	688.4	598.1	534.2	487.4	451.5	418.8	387.6	365.2	352.5
40°	846.5	772.9	668.3	573.0	506.7	460.0	428.5	398.4	370.7	347.5	334.8
42.5°	812.2	749.9	644.0	546.3	476.1	430.9	403.2	378.9	350.7	330.6	317.6
45°	763.6	718.7	619.7	518.3	445.7	401.4	376.0	355.9	331.6	311.6	300.2
47.5°	708.7	681.2	588.3	486.9	413.8	372.0	348.0	331.9	311.3	294.1	282.8
50°	646.9	636.6	553.7	455.2	383.9	341.1	319.0	306.3	288.9	275.1	265.4
52.5°	579.8	586.2	517.3	423.0	355.1	311.8	290.7	279.1	268.0	256.4	247.1
55°	511.7	526.8	473.2	387.9	322.1	284.4	263.8	253.2	245.0	235.3	228.7
57.5°	447.8	471.3	427.5	350.4	291.8	255.6	236.1	226.8	220.7	215.5	209.4
60°	385.8	413.0	380.5	315.3	261.4	228.4	211.0	202.0	199.1	195.1	189.3
62.5°	330.9	358.6	334.3	279.1	230.8	202.5	186.7	179.3	175.1	173.7	170.3
65°	279.4	305.2	286.8	241.3	201.7	176.6	162.7	156.1	153.7	153.4	150.8
67.5°	234.7	259.8	242.9	204.6	171.1	150.8	140.2	134.9	132.6	132.8	131.0
70°	193.5	211.2	201.2	171.1	145.2	127.3	119.1	113.3	111.4	111.4	110.9
72.5°	155.3	169.3	161.6	138.6	118.3	104.6	97.4	94.0	92.4	92.2	92.4
75°	121.5	133.6	126.7	108.8	93.5	83.2	77.1	74.7	73.9	73.4	73.7
77.5°	90.8	98.5	94.3	82.6	70.0	62.8	59.9	57.6	56.8	57.0	57.6
80°	64.2	68.4	66.0	58.6	50.2	45.4	43.3	41.5	40.7	41.5	41.5
82.5°	40.7	43.8	41.7	37.0	32.7	29.6	27.5	26.9	26.7	26.1	26.9
85°	22.2	23.8	22.7	21.1	18.2	16.9	15.3	15.1	15.1	15.1	15.1
87.5°	8.7	9.8	8.4	8.4	7.9	6.6	6.6	6.3	6.1	6.3	6.3
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):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	576.7	576.7	576.7	576.7	576.7	576.7	576.7	576.7	576.7	576.7	576.7
2.5°	564.5	561.1	559.0	556.1	552.7	548.2	546.3	548.2	547.1	545.3	546.1
5°	549.0	544.5	538.7	533.9	528.6	522.0	519.9	518.9	517.3	516.5	515.2
7.5°	533.6	527.0	519.9	513.3	505.7	499.8	497.2	495.4	494.8	490.9	489.3
10°	517.8	509.6	502.5	493.5	486.9	479.2	476.1	474.0	471.6	468.9	467.1
12.5°	501.2	493.0	484.0	475.6	468.9	460.5	456.3	453.9	452.0	450.2	448.1
15°	486.6	478.5	466.0	459.7	451.8	443.3	440.7	435.4	435.9	432.8	430.7
17.5°	471.3	459.2	450.5	441.0	435.2	429.1	424.1	418.5	417.7	415.3	414.6
20°	454.2	441.5	435.4	425.6	417.7	411.7	407.2	406.6	405.0	401.6	400.3
22.5°	437.3	427.0	418.5	409.5	402.4	394.5	392.4	393.2	390.3	389.5	386.6
25°	421.9	413.0	402.4	394.0	388.2	383.1	380.2	379.2	378.1	377.3	376.0
27.5°	405.6	396.1	387.1	380.2	374.7	371.3	369.4	367.0	366.8	366.8	366.2
30°	389.2	380.8	374.7	366.0	361.0	358.8	357.3	356.5	357.3	357.3	357.5
32.5°	374.2	366.0	358.8	352.8	347.8	346.2	345.9	345.9	347.0	347.0	347.8
35°	358.6	350.4	343.8	339.6	335.3	335.1	335.3	335.9	337.2	337.5	338.5
37.5°	341.7	335.3	330.3	325.0	324.0	324.5	325.0	325.6	326.1	328.2	328.2
40°	326.1	321.3	316.3	312.9	311.0	312.4	313.2	313.4	315.0	316.3	317.4
42.5°	310.8	306.3	302.3	299.4	298.6	299.7	300.5	301.3	302.9	303.9	305.8
45°	293.6	290.7	287.3	284.9	285.2	286.8	286.8	289.4	290.5	291.0	292.3
47.5°	277.8	274.6	272.2	271.2	270.9	272.2	273.0	275.1	275.7	277.5	278.6
50°	260.9	258.5	256.7	255.3	255.6	256.1	258.0	260.1	260.6	262.7	264.6
52.5°	243.2	241.1	239.5	240.0	240.8	240.8	242.7	244.0	245.3	246.9	248.7
55°	225.8	222.9	223.1	222.3	223.1	225.0	225.8	227.9	228.9	229.7	232.4
57.5°	206.7	206.2	205.4	204.6	206.2	207.0	208.3	209.7	211.5	212.6	214.4
60°	187.2	186.4	186.4	187.5	188.0	189.6	191.7	192.5	193.0	195.1	197.5
62.5°	169.3	168.5	168.2	169.8	169.8	171.4	172.2	173.5	175.6	176.4	179.6
65°	150.0	149.5	149.5	150.8	151.0	153.9	153.9	153.9	155.3	158.2	159.7
67.5°	129.9	130.2	131.0	131.8	132.8	133.6	133.9	135.5	137.6	139.4	142.6
70°	109.8	111.2	112.7	112.5	113.3	114.6	114.9	116.4	118.3	120.7	124.4
72.5°	91.9	92.7	94.3	94.3	95.3	96.1	97.4	98.5	100.9	103.0	104.6
75°	73.9	74.2	75.5	76.3	77.1	77.6	79.0	80.8	82.1	84.0	86.3
77.5°	58.1	57.6	58.6	58.9	59.4	60.5	61.5	63.4	64.4	66.5	67.3
80°	41.2	42.2	42.5	42.8	43.3	44.6	45.4	46.2	47.3	49.1	49.9
82.5°	27.2	27.7	28.5	28.8	29.3	29.6	29.8	31.2	31.9	32.5	35.1
85°	15.8	16.6	16.1	16.1	16.6	16.9	18.0	18.0	19.0	18.5	19.8
87.5°	6.9	6.6	6.6	6.9	6.6	6.3	7.1	7.1	6.9	7.1	7.1
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: P243317

CATALOG NUMBER: S123DRP-H560D927-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	576.7	576.7	576.7	576.7
2.5°	544.7	544.7	542.6	543.4
5°	512.5	513.6	510.9	510.1
7.5°	488.8	487.7	485.8	485.8
10°	465.5	464.5	463.7	463.7
12.5°	445.4	444.4	442.8	444.1
15°	427.5	427.8	426.7	426.7
17.5°	413.8	411.4	410.6	410.3
20°	397.4	397.9	396.9	395.0
22.5°	387.1	385.8	384.7	384.5
25°	376.5	375.2	374.9	373.9
27.5°	366.0	366.2	365.4	365.4
30°	357.3	358.0	357.3	357.5
32.5°	348.5	348.5	348.5	347.5
35°	339.0	339.3	339.0	338.5
37.5°	329.3	329.3	329.5	330.1
40°	318.4	318.4	319.0	319.0
42.5°	305.5	306.8	307.6	306.3
45°	293.9	294.1	294.4	294.1
47.5°	280.9	280.2	280.4	280.9
50°	264.8	266.7	266.7	265.1
52.5°	249.3	249.8	250.8	250.8
55°	233.9	234.2	234.5	235.0
57.5°	216.5	216.8	216.8	216.5
60°	199.1	200.7	200.4	200.7
62.5°	180.3	182.7	183.5	183.2
65°	162.7	163.2	164.5	166.4
67.5°	143.9	145.2	147.3	146.8
70°	125.4	127.3	127.8	128.9
72.5°	106.9	109.3	109.8	110.4
75°	89.0	90.0	91.1	90.8
77.5°	69.4	71.0	72.9	71.8
80°	52.0	52.3	53.9	53.3
82.5°	34.3	36.4	36.4	35.4
85°	20.1	20.1	20.1	20.1
87.5°	6.9	6.6	7.1	6.9
90°	0.0	0.0	0.0	0.0

TEST NUMBER: P243317
 CATALOG NUMBER: S123DRP-H560D927-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	17.15	18.71	17.52	19.03	19.34	17.68	19.24	18.05	19.56	19.87
	3H	18.67	20.08	19.05	20.40	20.77	19.02	20.43	19.40	20.75	21.12
	4H	19.22	20.54	19.62	20.89	21.26	19.48	20.80	19.88	21.15	21.52
	6H	19.58	20.80	19.99	21.17	21.56	19.78	21.00	20.19	21.37	21.76
	8H	19.68	20.84	20.10	21.23	21.63	19.86	21.02	20.28	21.41	21.81
	12H	19.73	20.84	20.16	21.23	21.65	19.89	21.00	20.32	21.39	21.82
4H	2H	18.32	19.64	18.72	19.98	20.36	18.48	19.80	18.88	20.14	20.52
	3H	19.88	20.97	20.29	21.37	21.77	20.27	21.36	20.68	21.76	22.16
	4H	20.47	21.46	20.90	21.88	22.31	20.83	21.82	21.26	22.23	22.67
	6H	20.90	21.76	21.35	22.20	22.66	21.20	22.06	21.65	22.50	22.96
	8H	21.02	21.82	21.48	22.27	22.73	21.29	22.09	21.75	22.54	23.00
	12H	21.09	21.81	21.57	22.29	22.76	21.34	22.06	21.82	22.54	23.01
8H	4H	20.93	21.74	21.40	22.18	22.65	21.13	21.94	21.60	22.38	22.85
	6H	21.43	22.10	21.93	22.59	23.07	21.64	22.31	22.14	22.80	23.28
	8H	21.60	22.19	22.11	22.70	23.19	21.79	22.39	22.30	22.90	23.38
	12H	21.71	22.24	22.22	22.73	23.30	21.89	22.42	22.40	22.91	23.47
12H	4H	20.98	21.70	21.46	22.18	22.65	21.15	21.87	21.63	22.35	22.82
	6H	21.50	22.10	22.02	22.61	23.10	21.68	22.28	22.19	22.78	23.27
	8H	21.71	22.24	22.22	22.73	23.29	21.88	22.41	22.39	22.90	23.46