

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: P243321

Luminaire Tested: S123DRP-H340D830-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P243321
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-H340D830-X4F0-XX-UDD-A-W
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.
HIGH PERFORMANCE LIGHT ENGINE
Light Source: (184) 3000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

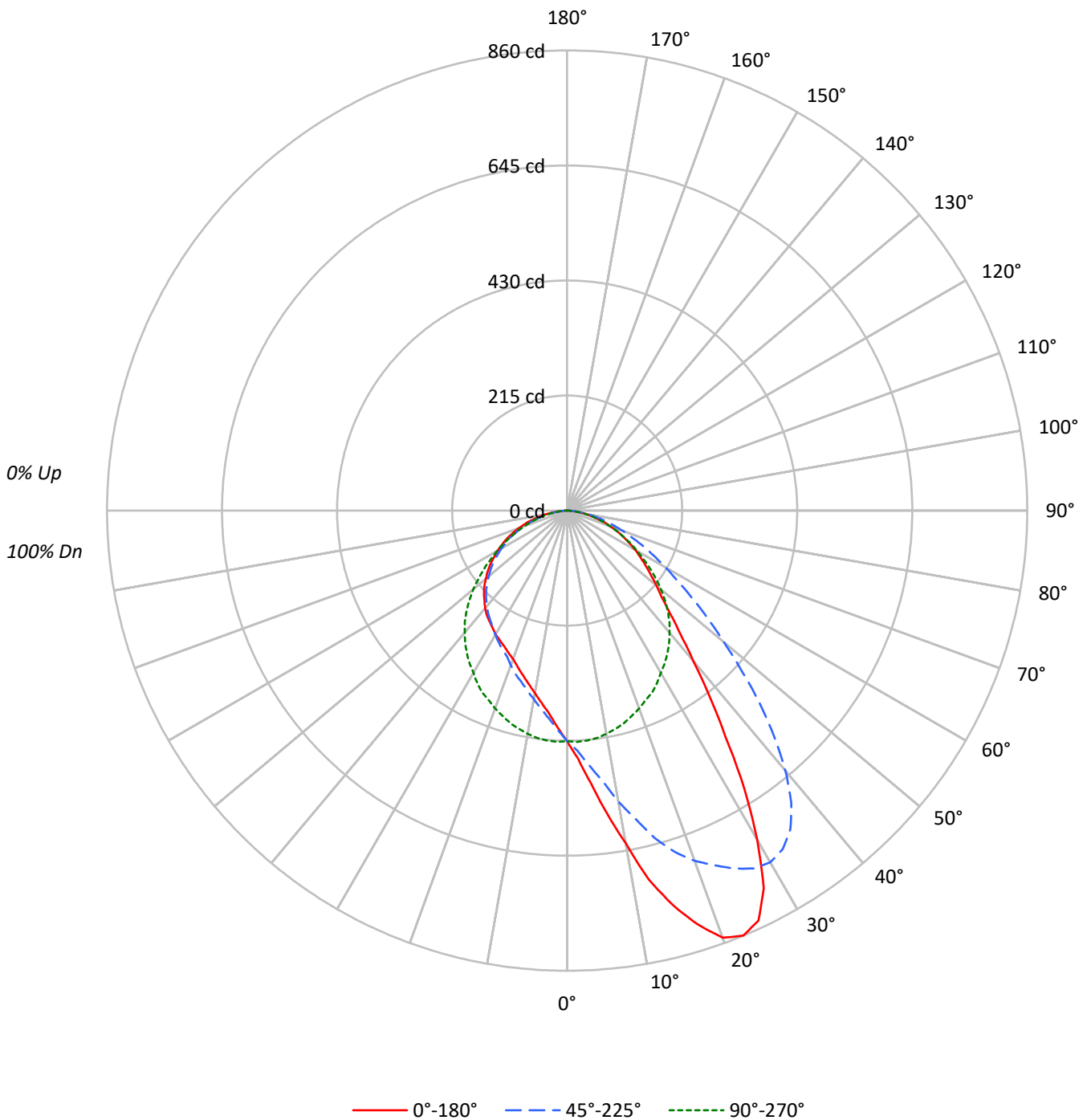
Lumens per Lamp: N/A
Luminaire Lumens: 1298.5 lumens
Efficiency: N/A
Efficacy: 115.9 lumens/watt
Spacing Criteria (0/90/45): 1.39 / 1.21 / 1.5
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

Input Watts (W): 11.2
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																		
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	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°	5222	5222	5222	5222	5222
5°	6221	5819	5247	4745	4637
10°	7770	6797	5215	4408	4264
15°	9576	7951	5159	4156	4001
20°	10958	8986	5077	3968	3807
25°	11308	9870	5021	3828	3735
30°	9935	10625	4902	3752	3738
35°	7625	10764	4828	3704	3742
40°	5799	10045	4711	3693	3771
45°	4666	8712	4558	3672	3768
50°	4107	7205	4315	3609	3736
55°	3785	6029	3998	3552	3711
60°	3568	5147	3658	3433	3634
65°	3316	4469	3344	3298	3565
70°	3034	3895	2998	3034	3413
75°	2698	3325	2613	2716	3180
80°	2262	2743	2164	2324	2778
85°	1585	2031	1558	1752	2086

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 55°
 Vertical Angle: 45°
 Luminance: 9780 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	42.4	3.3
10°-20°	136.1	10.5
20°-30°	224.8	17.3
30°-40°	257.3	19.8
40°-50°	233.1	18.0
50°-60°	188.4	14.5
60°-70°	131.2	10.1
70°-80°	68.8	5.3
80°-90°	16.4	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°	403.3	31.1
0°-40°	660.5	50.9
0°-60°	1082.0	83.3
0°-90°	1298.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1298.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	431	431	431	431	431	
5°	511	478	431	390	381	53
15°	763	634	411	331	319	217
25°	846	738	375	286	279	378
35°	515	727	326	250	253	326
45°	272	508	266	214	220	215
55°	179	285	189	168	176	161
65°	116	156	117	115	124	115
75°	58	71	56	58	68	62
85°	11	15	11	13	15	15
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°	430.8	430.8	430.8	430.8	430.8	430.8	430.8	430.8	430.8	430.8	430.8
2.5°	464.0	465.0	463.4	464.4	462.0	460.6	458.5	457.5	452.7	449.4	448.2
5°	511.3	511.3	511.7	509.4	506.6	501.7	495.2	491.0	486.3	478.2	474.1
7.5°	570.9	568.0	566.0	561.6	557.9	549.8	542.7	534.2	523.2	509.8	502.7
10°	631.3	634.4	632.5	627.9	618.3	605.0	594.6	582.4	565.2	552.2	533.6
12.5°	706.6	702.5	699.3	692.4	681.8	667.8	651.6	633.4	611.4	589.9	569.1
15°	763.1	763.7	763.5	754.4	743.9	725.0	710.0	679.8	651.8	633.6	599.3
17.5°	810.8	813.4	810.4	796.8	787.5	776.3	757.1	723.6	698.2	668.8	630.9
20°	849.5	849.9	845.1	835.1	824.4	811.8	786.5	760.9	736.0	696.6	660.5
22.5°	859.7	860.7	859.7	855.4	846.7	833.3	814.4	790.7	759.3	717.3	683.8
25°	845.5	844.9	848.3	845.7	845.3	841.0	828.6	809.4	778.4	738.0	695.4
27.5°	795.8	791.7	800.1	811.2	812.8	819.7	819.9	811.0	788.7	754.2	707.8
30°	709.8	713.7	717.9	741.0	753.8	771.7	787.3	793.0	784.6	759.1	715.7
32.5°	616.3	628.9	640.6	656.5	675.3	705.7	730.3	752.0	761.3	750.0	715.7
35°	515.3	522.0	540.3	560.7	587.7	611.4	660.3	691.8	720.1	727.4	706.6
37.5°	436.4	442.5	448.8	464.6	495.0	534.4	574.9	616.3	658.1	688.1	686.9
40°	366.5	367.9	373.4	387.1	412.3	447.4	489.8	539.7	594.0	634.8	652.0
42.5°	312.9	312.9	319.8	335.6	350.2	375.8	416.8	460.8	520.2	572.7	609.4
45°	272.2	272.6	278.2	289.4	300.8	321.0	351.3	392.8	453.9	508.2	559.3
47.5°	239.1	242.8	246.0	251.9	263.4	281.1	303.2	338.5	382.1	441.3	500.9
50°	217.8	218.6	220.9	224.5	233.4	245.0	264.2	291.0	329.6	382.1	442.3
52.5°	196.9	196.9	199.2	203.6	208.7	218.2	232.0	254.3	283.3	330.8	384.9
55°	179.1	179.7	180.1	183.7	188.0	195.1	206.0	220.6	247.2	285.3	332.4
57.5°	161.8	163.9	163.3	166.1	169.3	174.4	182.1	194.7	215.0	244.0	286.4
60°	147.2	146.8	147.8	148.9	151.1	154.7	161.8	171.0	188.0	212.3	247.0
62.5°	130.6	130.2	131.4	132.8	134.7	137.7	142.8	149.9	163.3	181.5	211.7
65°	115.6	115.2	115.8	116.6	118.8	121.1	125.1	131.0	139.9	155.8	178.9
67.5°	100.6	100.6	101.0	101.8	103.2	105.0	108.1	111.7	120.5	131.2	149.3
70°	85.6	85.8	85.8	86.6	87.8	89.2	91.7	94.9	100.4	109.9	124.5
72.5°	72.6	72.6	72.2	72.6	73.4	74.0	75.6	78.5	82.7	89.6	100.6
75°	57.6	58.6	58.4	58.2	58.8	59.8	61.2	63.5	66.1	71.0	79.3
77.5°	44.2	44.8	44.8	45.0	45.6	46.4	46.8	49.1	51.5	54.4	60.6
80°	32.4	32.7	32.4	32.6	32.9	33.7	34.5	34.9	36.7	39.3	42.2
82.5°	21.7	21.1	21.9	21.7	22.1	22.3	22.7	22.9	24.1	25.6	27.6
85°	11.4	12.4	12.2	12.6	12.2	12.4	12.6	13.4	13.6	14.6	15.8
87.5°	4.3	4.7	4.7	4.7	4.7	4.7	5.1	5.3	5.7	5.9	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):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	430.8	430.8	430.8	430.8	430.8	430.8	430.8	430.8	430.8	430.8	430.8
2.5°	449.0	447.2	444.7	441.9	438.9	436.0	434.6	432.8	429.3	425.7	423.0
5°	470.7	465.8	459.1	454.1	447.0	440.3	435.0	431.2	425.5	418.6	414.1
7.5°	495.0	486.1	475.4	464.6	453.9	443.9	435.6	428.5	419.6	411.1	404.2
10°	523.6	506.4	491.6	475.8	460.0	445.8	434.0	423.7	412.3	402.0	393.6
12.5°	548.8	528.9	508.4	486.1	464.8	446.4	431.2	417.8	404.0	392.2	383.5
15°	576.6	548.6	520.2	495.0	469.1	446.6	426.7	411.1	395.3	381.9	371.9
17.5°	608.6	571.1	535.4	499.1	476.2	447.2	422.8	402.2	386.1	372.7	359.6
20°	627.5	590.2	546.5	509.2	471.3	441.5	414.3	393.6	374.6	359.2	348.6
22.5°	637.8	598.5	552.8	514.5	470.3	437.0	408.0	383.5	363.2	347.8	335.8
25°	652.2	598.5	556.1	510.2	471.9	431.6	398.9	375.4	354.1	336.4	323.7
27.5°	658.7	603.9	556.5	501.9	462.4	421.6	388.4	363.6	339.9	322.5	311.7
30°	664.0	604.8	548.6	495.4	451.4	410.3	378.0	350.2	328.1	311.5	300.1
32.5°	664.4	602.3	538.0	483.1	436.6	397.1	365.6	339.3	316.2	298.7	287.4
35°	660.9	596.0	525.7	464.4	419.4	383.5	351.9	326.3	302.8	286.0	274.6
37.5°	651.8	588.9	514.3	446.8	399.1	364.2	337.3	312.9	289.6	272.8	263.4
40°	632.5	577.4	499.3	428.1	378.6	343.7	320.2	297.7	277.0	259.6	250.1
42.5°	606.8	560.3	481.2	408.2	355.7	322.0	301.2	283.1	262.0	247.0	237.3
45°	570.5	537.0	463.0	387.3	333.0	299.9	280.9	265.9	247.8	232.8	224.3
47.5°	529.5	509.0	439.5	363.8	309.1	278.0	260.0	248.0	232.6	219.8	211.3
50°	483.3	475.6	413.7	340.1	286.8	254.9	238.3	228.8	215.8	205.6	198.3
52.5°	433.2	438.0	386.5	316.0	265.3	233.0	217.2	208.5	200.2	191.6	184.6
55°	382.3	393.6	353.5	289.8	240.7	212.5	197.1	189.2	183.1	175.8	170.8
57.5°	334.6	352.1	319.4	261.8	218.0	191.0	176.4	169.5	164.9	161.0	156.4
60°	288.2	308.5	284.3	235.5	195.3	170.6	157.6	150.9	148.7	145.8	141.4
62.5°	247.2	267.9	249.7	208.5	172.4	151.3	139.5	133.9	130.8	129.8	127.2
65°	208.7	228.0	214.2	180.3	150.7	132.0	121.5	116.6	114.8	114.6	112.6
67.5°	175.4	194.1	181.5	152.9	127.8	112.6	104.8	100.8	99.0	99.2	97.8
70°	144.6	157.8	150.3	127.8	108.5	95.1	89.0	84.6	83.2	83.2	82.9
72.5°	116.0	126.5	120.7	103.6	88.4	78.1	72.8	70.2	69.0	68.8	69.0
75°	90.7	99.8	94.7	81.3	69.8	62.1	57.6	55.8	55.2	54.8	55.0
77.5°	67.9	73.6	70.4	61.7	52.3	47.0	44.8	43.0	42.4	42.6	43.0
80°	47.9	51.1	49.3	43.8	37.5	33.9	32.4	31.0	30.4	31.0	31.0
82.5°	30.4	32.7	31.2	27.6	24.5	22.1	20.5	20.1	19.9	19.5	20.1
85°	16.6	17.8	17.0	15.8	13.6	12.6	11.4	11.2	11.2	11.2	11.2
87.5°	6.5	7.3	6.3	6.3	5.9	4.9	4.9	4.7	4.5	4.7	4.7
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°	430.8	430.8	430.8	430.8	430.8	430.8	430.8	430.8	430.8	430.8	430.8
2.5°	421.8	419.2	417.6	415.5	412.9	409.5	408.2	409.5	408.8	407.4	408.0
5°	410.1	406.8	402.4	398.9	394.9	390.0	388.4	387.6	386.5	385.9	384.9
7.5°	398.7	393.8	388.4	383.5	377.8	373.4	371.5	370.1	369.7	366.7	365.6
10°	386.9	380.7	375.4	368.7	363.8	358.1	355.7	354.1	352.3	350.4	349.0
12.5°	374.4	368.3	361.6	355.3	350.4	344.0	340.9	339.1	337.7	336.4	334.8
15°	363.6	357.5	348.2	343.5	337.5	331.2	329.3	325.3	325.7	323.3	321.8
17.5°	352.1	343.1	336.6	329.4	325.1	320.6	316.8	312.7	312.1	310.3	309.7
20°	339.3	329.8	325.3	318.0	312.1	307.6	304.2	303.8	302.6	300.1	299.1
22.5°	326.7	319.0	312.7	306.0	300.6	294.7	293.2	293.7	291.6	291.0	288.8
25°	315.2	308.5	300.6	294.3	290.0	286.2	284.1	283.3	282.5	281.9	280.9
27.5°	303.0	295.9	289.2	284.1	279.9	277.4	276.0	274.2	274.0	274.0	273.6
30°	290.8	284.5	279.9	273.4	269.7	268.1	266.9	266.3	266.9	266.9	267.1
32.5°	279.5	273.4	268.1	263.6	259.8	258.6	258.4	258.4	259.2	259.2	259.8
35°	267.9	261.8	256.9	253.7	250.5	250.3	250.5	250.9	251.9	252.1	252.9
37.5°	255.3	250.5	246.8	242.8	242.1	242.5	242.8	243.2	243.6	245.2	245.2
40°	243.6	240.1	236.3	233.8	232.4	233.4	234.0	234.2	235.3	236.3	237.1
42.5°	232.2	228.8	225.9	223.7	223.1	223.9	224.5	225.1	226.3	227.1	228.4
45°	219.4	217.2	214.6	212.9	213.1	214.2	214.2	216.2	217.0	217.4	218.4
47.5°	207.5	205.2	203.4	202.6	202.4	203.4	204.0	205.6	206.0	207.3	208.1
50°	194.9	193.1	191.8	190.8	191.0	191.4	192.7	194.3	194.7	196.3	197.7
52.5°	181.7	180.1	178.9	179.3	179.9	179.9	181.3	182.3	183.3	184.5	185.8
55°	168.7	166.5	166.7	166.1	166.7	168.1	168.7	170.2	171.0	171.6	173.6
57.5°	154.5	154.1	153.5	152.9	154.1	154.7	155.6	156.6	158.0	158.8	160.2
60°	139.9	139.3	139.3	140.1	140.5	141.6	143.2	143.8	144.2	145.8	147.6
62.5°	126.5	125.9	125.7	126.8	126.8	128.0	128.6	129.6	131.2	131.8	134.1
65°	112.1	111.7	111.7	112.6	112.8	115.0	115.0	115.0	116.0	118.2	119.4
67.5°	97.1	97.3	97.8	98.4	99.2	99.8	100.0	101.2	102.8	104.2	106.5
70°	82.1	83.1	84.2	84.0	84.6	85.6	85.8	87.0	88.4	90.2	92.9
72.5°	68.7	69.2	70.4	70.4	71.2	71.8	72.8	73.6	75.4	76.9	78.1
75°	55.2	55.4	56.4	57.0	57.6	58.0	59.0	60.4	61.4	62.7	64.5
77.5°	43.4	43.0	43.8	44.0	44.4	45.2	46.0	47.3	48.1	49.7	50.3
80°	30.8	31.6	31.8	32.0	32.4	33.3	33.9	34.5	35.3	36.7	37.3
82.5°	20.3	20.7	21.3	21.5	21.9	22.1	22.3	23.3	23.9	24.3	26.2
85°	11.8	12.4	12.0	12.0	12.4	12.6	13.4	13.4	14.2	13.8	14.8
87.5°	5.1	4.9	4.9	5.1	4.9	4.7	5.3	5.3	5.1	5.3	5.3
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: P243321

CATALOG NUMBER: S123DRP-H340D830-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	430.8	430.8	430.8	430.8
2.5°	407.0	407.0	405.4	406.0
5°	382.9	383.7	381.7	381.1
7.5°	365.2	364.4	363.0	363.0
10°	347.8	347.0	346.4	346.4
12.5°	332.8	332.0	330.8	331.8
15°	319.4	319.6	318.8	318.8
17.5°	309.1	307.4	306.8	306.6
20°	296.9	297.3	296.5	295.1
22.5°	289.2	288.2	287.4	287.2
25°	281.3	280.3	280.1	279.3
27.5°	273.4	273.6	273.0	273.0
30°	266.9	267.5	266.9	267.1
32.5°	260.4	260.4	260.4	259.6
35°	253.3	253.5	253.3	252.9
37.5°	246.0	246.0	246.2	246.6
40°	237.9	237.9	238.3	238.3
42.5°	228.2	229.2	229.8	228.8
45°	219.6	219.8	220.0	219.8
47.5°	209.9	209.3	209.5	209.9
50°	197.9	199.2	199.2	198.1
52.5°	186.2	186.6	187.4	187.4
55°	174.8	175.0	175.2	175.6
57.5°	161.8	162.0	162.0	161.8
60°	148.7	149.9	149.7	149.9
62.5°	134.7	136.5	137.1	136.9
65°	121.5	121.9	122.9	124.3
67.5°	107.5	108.5	110.1	109.7
70°	93.7	95.1	95.5	96.3
72.5°	79.9	81.7	82.1	82.5
75°	66.5	67.3	68.1	67.9
77.5°	51.9	53.1	54.4	53.7
80°	38.9	39.1	40.2	39.8
82.5°	25.6	27.2	27.2	26.4
85°	15.0	15.0	15.0	15.0
87.5°	5.1	4.9	5.3	5.1
90°	0.0	0.0	0.0	0.0

TEST NUMBER: P243321
 CATALOG NUMBER: S123DRP-H340D830-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	16.14	17.70	16.51	18.02	18.33	16.67	18.23	17.04	18.55	18.86
	3H	17.66	19.06	18.04	19.39	19.75	18.01	19.42	18.39	19.74	20.10
	4H	18.21	19.53	18.61	19.87	20.25	18.47	19.78	18.87	20.13	20.51
	6H	18.57	19.79	18.98	20.15	20.55	18.77	19.99	19.18	20.35	20.74
	8H	18.67	19.83	19.09	20.22	20.62	18.84	20.00	19.27	20.39	20.79
	12H	18.72	19.83	19.15	20.21	20.64	18.88	19.99	19.31	20.37	20.80
4H	2H	17.30	18.62	17.70	18.97	19.35	17.46	18.78	17.86	19.13	19.51
	3H	18.86	19.96	19.27	20.36	20.76	19.25	20.35	19.66	20.75	21.15
	4H	19.46	20.45	19.89	20.86	21.30	19.82	20.81	20.25	21.22	21.66
	6H	19.89	20.75	20.34	21.19	21.65	20.19	21.05	20.64	21.49	21.95
	8H	20.01	20.81	20.47	21.25	21.72	20.28	21.08	20.74	21.52	21.99
	12H	20.08	20.80	20.56	21.28	21.75	20.33	21.05	20.81	21.53	22.00
8H	4H	19.92	20.73	20.38	21.17	21.64	20.12	20.93	20.58	21.37	21.84
	6H	20.42	21.09	20.92	21.58	22.06	20.63	21.30	21.13	21.79	22.26
	8H	20.58	21.18	21.10	21.69	22.18	20.78	21.37	21.29	21.88	22.37
	12H	20.70	21.23	21.21	21.72	22.28	20.88	21.40	21.38	21.90	22.46
12H	4H	19.97	20.69	20.45	21.17	21.64	20.13	20.85	20.62	21.33	21.80
	6H	20.49	21.09	21.00	21.60	22.09	20.66	21.26	21.18	21.77	22.26
	8H	20.70	21.23	21.21	21.72	22.28	20.87	21.40	21.38	21.89	22.45