

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: P242486

Luminaire Tested: S123DRP-S340D940-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P242486
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-20)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: S123DRP-S340D940-X4F0-XX-UDD-A-W
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 4000K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

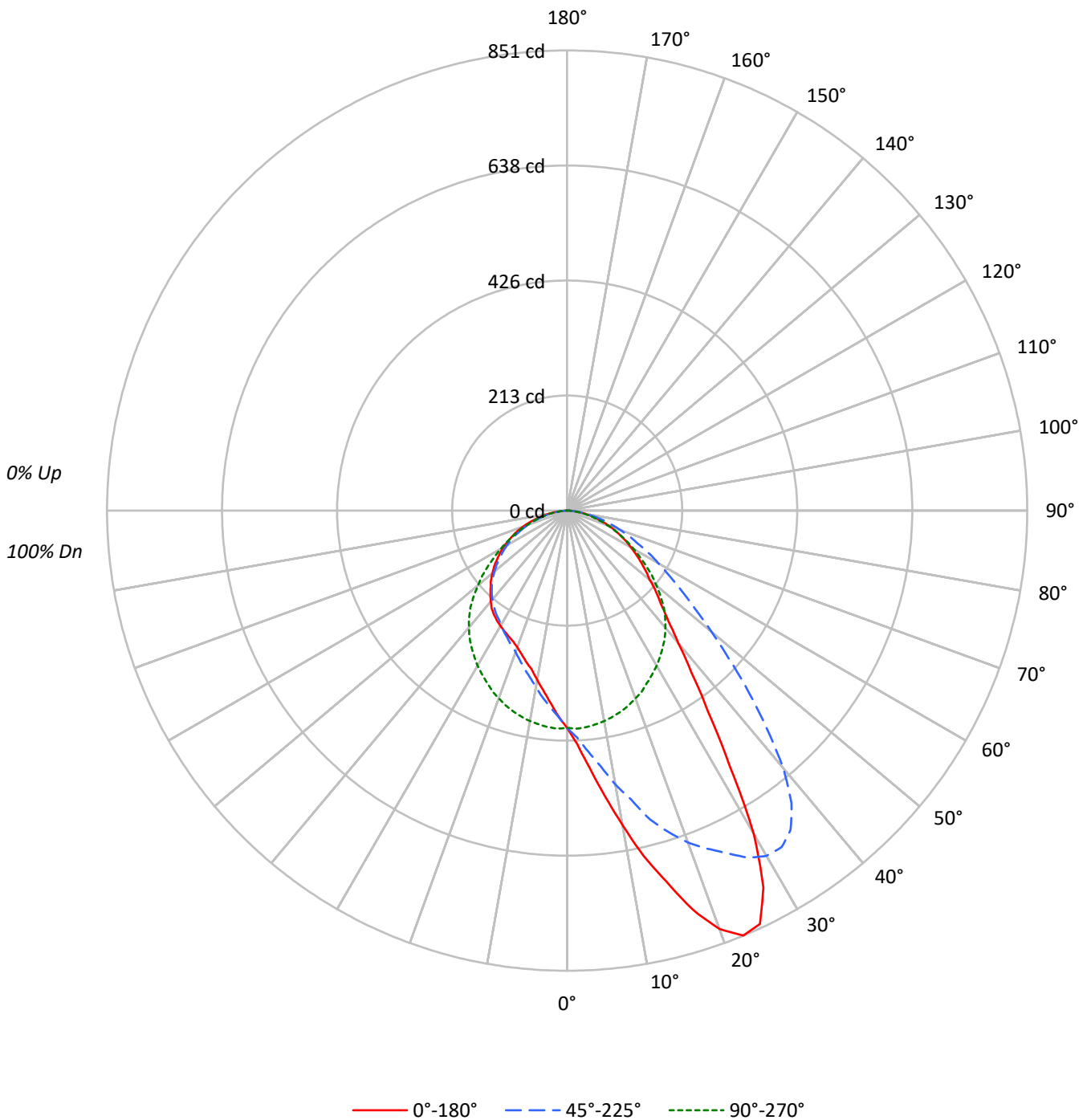
Lumens per Lamp: N/A
Luminaire Lumens: 1212.7 lumens
Efficiency: N/A
Efficacy: 104.5 lumens/watt
Spacing Criteria (0/90/45): 1.37 / 1.23 / 1.5
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

Input Watts (W): 11.6
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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CATALOG NUMBER: S123DRP-S340D940-X4F0-XX-UDD-A-W

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	93	86	81	98	91	85	80	87	82	78	84	80	76	81	78	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	65	58	82	72	64	58	69	62	57	67	61	56	65	60	56	53					53			
5	78	66	57	51	76	64	56	50	62	55	50	60	54	49	59	53	49	47					47			
6	72	59	51	44	70	58	50	44	56	49	44	55	48	43	53	48	43	41					41			
7	67	54	45	39	65	53	45	39	52	44	39	50	44	39	49	43	38	36					36			
8	62	49	41	35	61	49	41	35	47	40	35	46	39	35	45	39	35	33					33			
9	58	45	37	32	57	45	37	32	43	36	32	42	36	31	41	36	31	29					29			
10	55	42	34	29	53	41	34	29	40	33	29	39	33	29	38	33	28	27					27			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	4870	4870	4870	4870	4870
5°	5808	5443	4891	4429	4334
10°	7269	6328	4867	4080	3915
15°	8916	7421	4828	3806	3644
20°	10621	8427	4766	3591	3470
25°	11279	9346	4692	3487	3432
30°	9667	10321	4637	3419	3449
35°	6722	10663	4561	3408	3485
40°	5063	9844	4470	3400	3475
45°	4205	8142	4335	3377	3430
50°	3766	6570	4060	3311	3400
55°	3521	5450	3764	3216	3356
60°	3304	4715	3455	3125	3321
65°	3103	4147	3149	2966	3215
70°	2910	3703	2800	2725	3062
75°	2609	3208	2454	2435	2810
80°	2283	2639	2010	1968	2422
85°	1780	2058	1460	1432	1627

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 55°
 Vertical Angle: 45°
 Luminance: 9624 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	39.5	3.3
10°-20°	126.9	10.5
20°-30°	213.6	17.6
30°-40°	241.4	19.9
40°-50°	216.2	17.8
50°-60°	174.5	14.4
60°-70°	121.6	10.0
70°-80°	63.8	5.3
80°-90°	15.3	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°	380.0	31.3
0°-40°	621.3	51.2
0°-60°	1012.0	83.5
0°-90°	1212.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1212.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	402	402	402	402	402	
5°	477	447	402	364	356	49
15°	710	591	385	303	290	205
25°	843	699	351	261	257	373
35°	454	721	308	230	236	293
45°	245	475	253	197	200	193
55°	167	258	178	152	159	150
65°	108	145	110	103	112	108
75°	56	68	52	52	60	59
85°	13	15	10	10	12	16
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°	401.8	401.8	401.8	401.8	401.8	401.8	401.8	401.8	401.8	401.8	401.8
2.5°	432.5	432.2	431.2	432.0	430.4	428.3	428.1	426.1	420.5	420.1	418.5
5°	477.3	475.8	475.6	475.4	472.6	468.9	461.9	461.4	452.0	447.3	441.7
7.5°	531.4	530.8	529.3	527.5	518.4	513.9	507.3	498.7	487.8	477.3	470.7
10°	590.6	597.0	589.1	583.6	578.5	569.0	557.9	544.1	530.3	514.1	501.8
12.5°	654.1	656.4	656.4	651.3	642.8	627.0	605.2	589.6	577.2	547.6	537.1
15°	710.5	722.4	714.8	697.3	697.7	683.9	658.2	629.9	614.9	591.4	559.3
17.5°	774.4	776.5	774.2	757.8	749.8	729.8	706.6	680.3	652.1	623.5	590.2
20°	823.4	822.3	815.4	807.9	791.1	776.3	750.4	720.3	681.3	653.3	616.1
22.5°	850.7	848.5	846.2	840.2	826.9	810.8	788.2	754.5	717.9	676.6	632.3
25°	843.3	845.8	846.2	844.4	839.6	830.0	811.7	785.5	748.5	698.8	654.1
27.5°	786.0	792.5	800.6	806.1	814.9	820.7	814.9	798.3	767.9	723.6	668.5
30°	690.7	682.9	702.1	726.5	743.0	772.2	788.6	789.6	774.2	737.4	684.0
32.5°	558.3	570.9	576.8	608.1	649.2	682.9	719.5	752.0	759.6	738.2	693.2
35°	454.3	465.0	480.6	496.2	535.1	568.6	625.8	675.7	715.4	720.6	692.0
37.5°	377.6	383.9	393.4	410.0	436.6	478.1	523.4	588.3	643.0	681.5	677.6
40°	320.0	321.6	332.7	344.6	365.2	397.9	437.8	493.5	562.4	622.1	647.1
42.5°	276.8	280.7	283.8	295.1	310.5	333.1	369.5	413.1	474.8	545.8	600.5
45°	245.3	249.2	252.1	259.7	271.4	287.9	313.8	355.8	403.9	475.0	540.6
47.5°	223.5	223.1	225.6	231.6	240.0	253.3	272.3	300.4	346.5	405.9	474.6
50°	199.7	202.8	203.6	208.1	214.3	223.5	238.7	261.6	297.8	348.4	410.3
52.5°	183.0	183.4	185.9	188.8	194.1	200.7	213.4	230.1	256.6	297.8	353.5
55°	166.6	166.6	168.8	171.3	174.4	180.8	189.6	202.8	224.4	257.9	305.0
57.5°	151.4	152.2	154.2	154.8	157.5	162.0	169.6	180.1	196.6	223.7	262.6
60°	136.3	138.0	137.8	139.4	141.7	145.0	151.3	159.4	173.8	194.5	226.0
62.5°	123.0	122.4	122.4	124.4	126.7	129.8	133.3	140.2	151.8	169.6	195.2
65°	108.2	107.8	109.2	110.4	111.2	113.5	116.6	122.8	131.0	144.6	165.5
67.5°	95.4	94.2	95.2	95.6	96.9	98.9	102.0	105.9	112.5	124.0	140.7
70°	82.1	81.2	81.0	81.4	82.5	83.9	86.0	89.7	95.8	104.5	116.0
72.5°	68.5	67.9	67.9	68.9	69.3	70.1	71.4	74.8	79.2	85.3	95.8
75°	55.7	55.7	55.7	55.9	56.5	57.2	58.4	60.2	63.8	68.5	75.7
77.5°	44.0	44.2	43.8	43.6	44.6	45.0	45.2	47.1	49.2	52.8	58.4
80°	32.7	31.7	32.1	32.7	33.1	33.3	33.9	34.3	36.0	37.8	41.5
82.5°	22.2	21.4	21.4	22.4	22.4	22.6	23.2	23.7	24.1	25.7	27.3
85°	12.8	12.8	13.0	13.0	13.2	13.0	13.6	13.8	13.8	14.8	16.0
87.5°	5.8	5.5	5.6	5.8	5.6	5.8	6.0	6.2	6.4	6.6	6.8
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°	401.8	401.8	401.8	401.8	401.8	401.8	401.8	401.8	401.8	401.8	401.8
2.5°	417.4	415.8	414.2	411.5	409.2	405.9	404.9	403.7	400.2	397.1	394.8
5°	439.5	434.9	428.1	421.8	416.8	410.0	406.1	402.0	396.1	390.9	386.6
7.5°	460.8	452.6	443.1	432.7	422.8	413.3	405.7	398.9	391.3	383.9	378.2
10°	487.0	473.8	459.0	443.1	429.4	416.2	405.1	395.4	384.8	375.7	368.1
12.5°	517.0	495.8	474.0	453.8	437.0	417.4	403.3	390.3	378.0	366.6	357.8
15°	539.4	514.5	490.4	463.7	439.2	416.2	400.2	384.7	370.8	359.5	348.6
17.5°	561.6	534.4	503.6	471.5	442.7	416.2	394.4	377.6	360.7	347.1	336.6
20°	579.9	547.8	511.8	478.1	445.4	415.0	390.5	369.5	350.8	336.2	323.9
22.5°	595.7	556.7	519.2	482.6	445.2	411.9	383.3	361.5	340.9	326.6	313.4
25°	605.6	560.6	523.3	481.0	440.3	406.5	375.3	350.8	330.5	313.8	300.4
27.5°	614.9	560.0	517.8	472.3	434.5	400.8	367.3	341.0	319.8	301.7	287.9
30°	624.3	561.0	508.3	463.3	425.1	390.1	357.8	331.3	308.7	290.2	277.4
32.5°	630.1	560.4	499.5	450.8	410.3	380.4	347.5	319.8	296.5	278.4	266.1
35°	631.7	557.1	489.2	432.7	394.2	364.0	336.6	308.2	283.8	266.9	252.9
37.5°	628.4	551.1	477.9	416.4	374.7	344.7	320.8	296.5	273.1	254.2	242.0
40°	617.7	545.3	464.3	398.9	354.5	325.9	306.2	282.5	259.5	241.8	230.5
42.5°	597.2	533.4	449.3	379.4	333.5	304.8	287.1	268.2	246.8	230.5	219.2
45°	561.4	515.1	434.3	359.9	312.8	283.2	267.3	252.9	233.2	217.0	207.3
47.5°	515.7	490.4	412.7	339.5	291.2	262.6	245.9	234.0	218.6	205.6	196.0
50°	467.6	458.4	390.7	318.5	269.6	241.8	225.8	215.3	205.0	191.9	183.4
52.5°	412.1	421.4	365.0	296.7	247.6	220.4	205.6	197.8	188.6	178.5	171.3
55°	360.7	381.2	334.6	271.7	225.8	199.7	185.5	178.1	172.7	164.7	158.3
57.5°	310.9	337.0	303.1	246.6	204.4	181.6	167.6	159.2	155.7	151.3	146.0
60°	267.5	293.2	268.8	221.3	182.8	161.4	149.3	142.5	139.0	136.1	131.8
62.5°	228.7	254.8	235.3	195.6	161.6	142.1	132.0	125.4	122.8	121.7	118.2
65°	193.9	216.3	202.6	168.8	141.5	124.0	114.5	109.8	107.3	106.7	104.3
67.5°	163.7	181.0	170.5	145.0	122.8	106.9	98.5	94.4	92.3	92.1	90.1
70°	134.1	150.1	142.5	119.9	101.4	89.5	82.5	79.0	77.9	77.7	76.7
72.5°	111.2	121.1	115.4	97.5	84.3	73.8	69.1	65.4	64.0	64.4	63.8
75°	85.7	94.0	90.5	77.5	66.0	59.0	54.7	52.4	51.2	51.8	51.0
77.5°	65.4	71.2	67.7	57.8	50.4	45.2	41.9	40.3	39.1	39.1	38.7
80°	46.5	49.6	47.9	42.4	36.6	32.3	29.8	28.8	28.2	28.0	27.8
82.5°	29.8	32.3	30.2	26.9	23.4	21.2	20.1	18.7	18.3	18.5	18.3
85°	16.7	17.7	16.9	14.6	13.0	11.9	11.1	10.5	10.1	10.3	9.9
87.5°	7.2	7.4	6.8	6.0	5.6	5.1	5.1	4.7	4.3	4.3	4.1
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°	401.8	401.8	401.8	401.8	401.8	401.8	401.8	401.8	401.8	401.8	401.8
2.5°	393.4	392.1	390.1	387.2	384.8	381.2	381.2	381.7	381.7	381.5	381.2
5°	383.1	380.2	376.7	372.6	368.3	364.0	363.2	361.7	360.5	359.7	358.8
7.5°	372.6	367.7	362.9	357.2	352.3	348.3	345.3	342.8	341.2	339.5	338.1
10°	361.9	355.5	349.4	343.4	336.8	331.5	328.2	325.9	324.1	322.6	321.8
12.5°	349.2	341.6	334.8	329.2	321.8	316.3	313.2	312.4	310.3	306.6	304.6
15°	337.0	330.1	322.2	313.4	309.9	303.3	299.6	297.8	296.7	294.1	293.4
17.5°	326.8	317.7	308.5	302.1	295.7	290.4	288.3	286.0	284.4	282.1	281.5
20°	314.2	306.2	298.0	291.0	284.2	278.4	276.6	275.1	273.5	272.5	271.7
22.5°	301.3	293.4	286.9	280.5	273.1	269.8	267.9	266.1	265.1	264.5	263.8
25°	289.5	282.5	274.9	269.0	263.2	260.7	259.5	258.5	257.7	256.8	256.6
27.5°	279.0	271.2	264.7	259.1	254.8	252.7	251.3	250.7	250.7	251.1	251.3
30°	266.9	259.9	254.8	250.1	246.2	244.3	244.1	244.1	244.9	245.1	245.5
32.5°	255.8	250.3	245.3	240.8	238.1	236.9	237.9	237.9	238.5	239.0	239.8
35°	245.1	240.0	236.1	232.2	229.7	230.3	230.7	231.1	232.0	233.2	234.0
37.5°	235.0	230.3	226.2	223.1	221.5	222.7	223.7	224.4	225.6	226.6	227.4
40°	223.9	220.6	216.7	213.9	214.3	214.9	215.7	216.7	217.6	218.2	219.0
42.5°	213.5	210.0	207.3	205.2	205.8	206.5	206.9	207.3	208.5	209.7	210.0
45°	203.0	200.3	197.6	196.2	196.6	197.0	197.4	198.0	198.9	199.7	199.9
47.5°	191.2	189.2	187.5	185.9	186.7	186.5	187.1	188.2	188.6	189.0	190.2
50°	179.9	178.1	176.0	175.6	175.6	175.6	175.8	177.3	177.3	178.1	178.9
52.5°	167.4	166.4	165.3	164.5	164.1	164.1	165.1	165.7	166.0	167.2	168.0
55°	155.1	154.0	152.8	152.2	151.8	152.2	153.8	154.2	155.1	155.7	156.3
57.5°	142.3	141.5	140.5	140.2	140.2	140.4	141.5	142.5	142.7	144.6	145.4
60°	129.6	128.3	127.5	127.5	127.1	128.9	128.5	130.4	130.8	132.0	133.3
62.5°	116.6	114.7	114.5	114.5	115.2	115.4	116.2	116.8	118.0	119.5	120.5
65°	102.4	101.4	102.8	102.6	102.2	103.4	103.4	104.3	105.5	106.9	109.0
67.5°	89.2	88.4	88.8	88.6	89.2	89.9	90.5	91.3	92.7	94.2	95.6
70°	75.7	76.3	75.3	76.1	76.7	76.9	77.3	78.4	80.0	81.0	82.5
72.5°	62.7	62.5	62.9	63.1	63.7	64.0	64.4	65.8	67.5	68.3	69.5
75°	50.2	50.0	50.6	50.6	51.6	52.0	52.4	52.9	54.5	55.7	56.6
77.5°	38.9	39.1	38.9	39.7	39.3	39.5	40.7	41.3	41.5	44.0	44.4
80°	27.6	28.0	28.2	28.4	28.6	28.2	29.6	30.2	30.2	31.5	32.5
82.5°	17.9	18.1	18.7	18.9	18.9	19.5	19.3	19.7	20.2	20.6	22.0
85°	9.9	10.5	10.7	10.5	10.7	10.3	10.9	11.1	11.3	11.3	11.3
87.5°	3.9	4.1	3.9	4.1	3.9	4.1	4.1	3.7	3.7	4.3	3.5
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: P242486

CATALOG NUMBER: S123DRP-S340D940-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	401.8	401.8	401.8	401.8
2.5°	379.8	379.6	381.0	380.0
5°	357.6	358.2	356.2	356.2
7.5°	337.5	336.8	337.0	335.6
10°	319.4	318.3	317.9	318.1
12.5°	304.5	304.5	301.3	301.3
15°	293.4	289.7	289.3	290.4
17.5°	281.1	279.0	279.1	278.8
20°	271.7	270.6	270.4	269.0
22.5°	263.2	263.0	263.2	261.6
25°	256.4	257.3	256.6	256.6
27.5°	251.7	251.7	251.1	251.1
30°	246.2	246.1	246.4	246.4
32.5°	240.8	241.2	241.2	241.4
35°	235.2	235.3	235.9	235.5
37.5°	227.8	228.7	228.5	228.9
40°	219.2	219.8	219.6	219.6
42.5°	210.4	210.8	210.2	209.8
45°	200.7	200.3	200.9	200.1
47.5°	190.0	190.2	190.4	191.2
50°	179.3	180.5	180.5	180.3
52.5°	168.8	169.2	170.1	170.1
55°	157.9	158.3	158.7	158.8
57.5°	146.8	146.6	147.4	147.6
60°	134.9	134.9	136.5	137.0
62.5°	122.2	123.0	124.6	123.4
65°	110.0	111.5	111.3	112.1
67.5°	97.1	98.1	99.7	99.7
70°	84.1	85.1	85.8	86.4
72.5°	71.4	71.8	74.0	72.8
75°	58.0	59.4	60.5	60.0
77.5°	45.2	46.9	47.3	46.7
80°	33.9	33.7	34.8	34.7
82.5°	22.6	22.4	22.8	23.0
85°	12.1	12.7	11.9	11.7
87.5°	3.5	3.5	3.3	3.1
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P242486

CATALOG NUMBER: S123DRP-S340D940-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	15.89	17.44	16.25	17.75	18.07	16.44	17.99	16.80	18.31	18.62
	3H	17.43	18.83	17.81	19.16	19.52	17.77	19.17	18.15	19.50	19.86
	4H	18.00	19.31	18.40	19.66	20.04	18.23	19.54	18.63	19.89	20.27
	6H	18.40	19.61	18.81	19.98	20.37	18.52	19.74	18.94	20.10	20.50
	8H	18.51	19.67	18.93	20.06	20.46	18.60	19.76	19.02	20.14	20.54
	12H	18.58	19.69	19.01	20.07	20.50	18.63	19.74	19.06	20.12	20.55
4H	2H	17.04	18.35	17.44	18.70	19.08	17.20	18.51	17.60	18.86	19.24
	3H	18.63	19.73	19.04	20.13	20.53	19.01	20.10	19.42	20.50	20.90
	4H	19.25	20.24	19.69	20.65	21.09	19.57	20.56	20.01	20.97	21.41
	6H	19.73	20.58	20.18	21.03	21.48	19.94	20.79	20.39	21.24	21.70
	8H	19.86	20.67	20.33	21.11	21.58	20.03	20.83	20.49	21.27	21.74
	12H	19.96	20.67	20.44	21.15	21.62	20.08	20.80	20.56	21.27	21.74
8H	4H	19.74	20.54	20.20	20.98	21.45	19.88	20.68	20.34	21.12	21.59
	6H	20.29	20.95	20.78	21.44	21.92	20.39	21.05	20.88	21.54	22.02
	8H	20.47	21.07	20.99	21.58	22.06	20.53	21.13	21.05	21.64	22.12
	12H	20.62	21.14	21.13	21.63	22.20	20.63	21.15	21.14	21.65	22.21
12H	4H	19.79	20.51	20.27	20.98	21.45	19.89	20.61	20.37	21.08	21.55
	6H	20.36	20.96	20.87	21.47	21.95	20.42	21.02	20.93	21.52	22.01
	8H	20.60	21.13	21.11	21.62	22.18	20.62	21.15	21.13	21.64	22.21