

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: P242461

Luminaire Tested: S123DRP-S340D830-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-2024
Report Number: P242461
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-S340D830-X4F0-XX-UDD-A-W
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 3000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

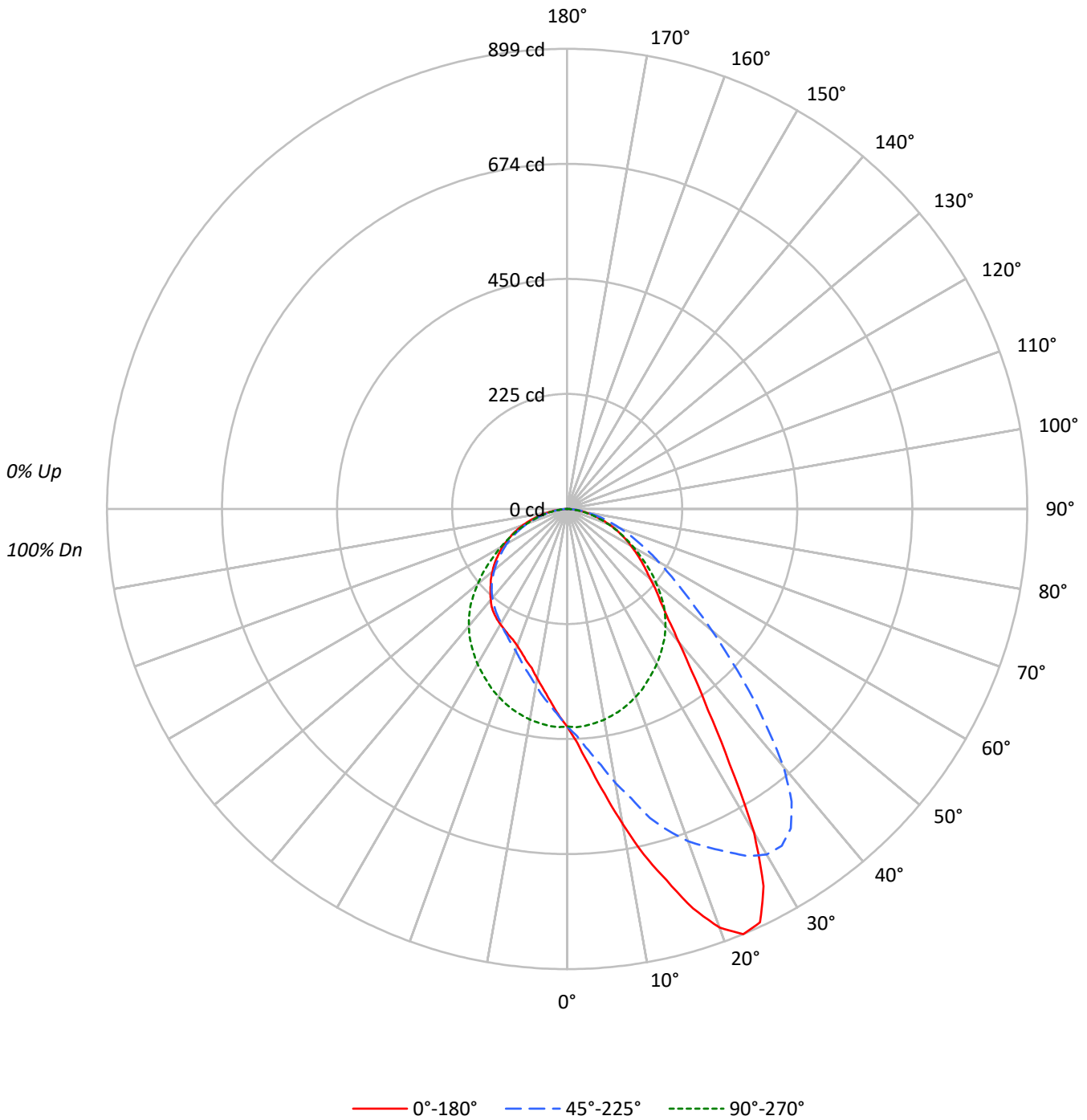
Lumens per Lamp: N/A
Luminaire Lumens: 1281.8 lumens
Efficiency: N/A
Efficacy: 110.5 lumens/watt
Spacing Criteria (0/90/45): 1.37 / 1.23 / 1.5
Luminous Opening: Rectangular (W 3.88' x L: 0.23' x H: 0')
CIE Type: Direct

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

TEST NUMBER: P242461

CATALOG NUMBER: S123DRP-S340D830-X4F0-XX-UDD-A-W

Luminous Intensity Polar Plot



TEST NUMBER: P242461

CATALOG NUMBER: S123DRP-S340D830-X4F0-XX-UDD-A-W

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	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°	5148	5148	5148	5148	5148
5°	6139	5753	5170	4682	4581
10°	7684	6688	5144	4313	4138
15°	9424	7844	5102	4023	3852
20°	11227	8907	5037	3795	3669
25°	11922	9880	4959	3685	3627
30°	10217	10909	4902	3614	3646
35°	7106	11271	4819	3602	3685
40°	5353	10405	4725	3595	3673
45°	4445	8607	4582	3569	3626
50°	3981	6945	4292	3500	3592
55°	3721	5761	3979	3400	3548
60°	3491	4984	3651	3302	3513
65°	3281	4385	3327	3135	3399
70°	3076	3916	2959	2881	3239
75°	2754	3391	2590	2571	2969
80°	2415	2785	2129	2080	2555
85°	1891	2170	1544	1516	1711

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 55°
 Vertical Angle: 45°
 Luminance: 10172 cd/sqm



TEST NUMBER: P242461

CATALOG NUMBER: S123DRP-S340D830-X4F0-XX-UDD-A-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	41.8	3.3
10°-20°	134.2	10.5
20°-30°	225.7	17.6
30°-40°	255.1	19.9
40°-50°	228.5	17.8
50°-60°	184.4	14.4
60°-70°	128.5	10.0
70°-80°	67.5	5.3
80°-90°	16.2	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°	401.6	31.3
0°-40°	656.8	51.2
0°-60°	1069.7	83.5
0°-90°	1281.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1281.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	425	425	425	425	425	
5°	504	473	425	385	376	52
15°	751	625	407	321	307	217
25°	891	739	371	276	271	394
35°	480	762	326	243	249	310
45°	259	502	267	208	212	204
55°	176	273	188	161	168	158
65°	114	153	116	109	118	114
75°	59	72	55	55	63	63
85°	14	16	11	11	12	16
90°	0	0	0	0	0	



TEST NUMBER: P242461

CATALOG NUMBER: S123DRP-S340D830-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	424.7	424.7	424.7	424.7	424.7	424.7	424.7	424.7	424.7	424.7	424.7
2.5°	457.2	456.8	455.8	456.6	454.9	452.7	452.5	450.4	444.4	444.0	442.4
5°	504.5	502.9	502.7	502.5	499.6	495.7	488.3	487.7	477.8	472.8	466.9
7.5°	561.7	561.1	559.5	557.6	547.9	543.2	536.2	527.2	515.6	504.5	497.5
10°	624.3	631.1	622.6	616.9	611.5	601.4	589.7	575.1	560.5	543.4	530.4
12.5°	691.4	693.8	693.8	688.5	679.4	662.8	639.7	623.2	610.1	578.8	567.7
15°	751.0	763.6	755.5	737.0	737.4	722.8	695.7	665.8	650.0	625.1	591.1
17.5°	818.5	820.8	818.3	801.0	792.6	771.4	746.9	719.1	689.3	659.0	623.9
20°	870.4	869.1	861.9	853.9	836.2	820.6	793.2	761.3	720.2	690.5	651.2
22.5°	899.2	896.9	894.4	888.1	874.1	857.0	833.1	797.5	758.8	715.2	668.3
25°	891.4	894.0	894.4	892.6	887.4	877.4	858.0	830.2	791.1	738.7	691.4
27.5°	830.9	837.6	846.3	852.1	861.3	867.5	861.3	843.8	811.7	764.8	706.6
30°	730.0	721.8	742.2	767.9	785.4	816.2	833.5	834.6	818.3	779.4	723.0
32.5°	590.1	603.5	609.7	642.8	686.2	721.8	760.5	794.8	802.9	780.2	732.7
35°	480.2	491.6	508.0	524.5	565.6	601.0	661.5	714.2	756.2	761.7	731.5
37.5°	399.2	405.8	415.8	433.3	461.5	505.3	553.3	621.8	679.6	720.4	716.2
40°	338.3	339.9	351.6	364.2	386.0	420.6	462.8	521.6	594.4	657.6	683.9
42.5°	292.6	296.7	300.0	311.9	328.2	352.1	390.5	436.6	501.8	577.0	634.8
45°	259.3	263.4	266.5	274.5	286.8	304.3	331.7	376.1	427.0	502.1	571.4
47.5°	236.2	235.8	238.5	244.9	253.7	267.7	287.9	317.5	366.3	429.0	501.6
50°	211.1	214.4	215.2	220.0	226.5	236.2	252.3	276.5	314.8	368.3	433.7
52.5°	193.4	193.8	196.5	199.6	205.1	212.1	225.5	243.2	271.2	314.8	373.7
55°	176.1	176.1	178.4	181.1	184.4	191.2	200.4	214.4	237.2	272.6	322.4
57.5°	160.1	160.9	163.0	163.6	166.5	171.2	179.2	190.3	207.8	236.4	277.6
60°	144.0	145.9	145.7	147.3	149.8	153.3	159.9	168.5	183.7	205.6	238.9
62.5°	130.0	129.4	129.4	131.5	133.9	137.2	140.9	148.1	160.5	179.2	206.4
65°	114.4	114.0	115.4	116.7	117.5	120.0	123.3	129.8	138.5	152.9	174.9
67.5°	100.8	99.6	100.6	101.0	102.5	104.5	107.8	111.9	118.9	131.1	148.8
70°	86.8	85.8	85.6	86.0	87.2	88.7	90.9	94.9	101.2	110.5	122.6
72.5°	72.4	71.8	71.8	72.8	73.3	74.1	75.5	79.0	83.7	90.1	101.2
75°	58.8	58.8	58.8	59.1	59.7	60.5	61.7	63.6	67.5	72.4	80.0
77.5°	46.5	46.7	46.3	46.1	47.1	47.5	47.7	49.8	52.1	55.8	61.7
80°	34.6	33.5	34.0	34.6	35.0	35.2	35.8	36.2	38.1	39.9	43.8
82.5°	23.5	22.6	22.6	23.7	23.7	23.9	24.5	25.1	25.5	27.2	28.8
85°	13.6	13.6	13.8	13.8	14.0	13.8	14.4	14.6	14.6	15.6	16.9
87.5°	6.2	5.8	6.0	6.2	6.0	6.2	6.4	6.6	6.8	7.0	7.2
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: P242461

CATALOG NUMBER: S123DRP-S340D830-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	424.7	424.7	424.7	424.7	424.7	424.7	424.7	424.7	424.7	424.7	424.7
2.5°	441.1	439.5	437.9	435.0	432.5	429.0	428.0	426.7	423.0	419.7	417.3
5°	464.6	459.7	452.5	445.9	440.5	433.3	429.2	424.9	418.7	413.2	408.6
7.5°	487.0	478.4	468.3	457.4	446.9	436.8	428.8	421.6	413.6	405.8	399.8
10°	514.8	500.8	485.2	468.3	453.9	439.9	428.2	417.9	406.8	397.1	389.1
12.5°	546.5	524.1	501.0	479.6	461.9	441.1	426.3	412.5	399.6	387.4	378.2
15°	570.2	543.8	518.3	490.1	464.2	439.9	423.0	406.6	392.0	380.0	368.5
17.5°	593.6	564.8	532.3	498.4	467.9	439.9	416.9	399.2	381.3	366.9	355.8
20°	613.0	579.0	540.9	505.3	470.8	438.7	412.8	390.5	370.8	355.3	342.4
22.5°	629.6	588.5	548.8	510.1	470.6	435.4	405.1	382.1	360.3	345.3	331.3
25°	640.1	592.6	553.1	508.4	465.4	429.6	396.7	370.8	349.4	331.7	317.5
27.5°	650.0	592.0	547.3	499.2	459.3	423.7	388.3	360.5	338.1	318.9	304.3
30°	659.9	593.0	537.2	489.7	449.4	412.3	378.2	350.2	326.3	306.8	293.2
32.5°	666.0	592.4	528.0	476.5	433.7	402.1	367.3	338.1	313.4	294.2	281.3
35°	667.7	588.9	517.1	457.4	416.7	384.8	355.8	325.7	300.0	282.1	267.3
37.5°	664.2	582.5	505.1	440.1	396.1	364.4	339.1	313.4	288.7	268.7	255.8
40°	652.9	576.3	490.7	421.6	374.7	344.4	323.7	298.6	274.3	255.6	243.6
42.5°	631.3	563.8	474.9	401.0	352.5	322.2	303.5	283.5	260.9	243.6	231.7
45°	593.4	544.4	459.0	380.4	330.7	299.4	282.5	267.3	246.5	229.4	219.1
47.5°	545.1	518.3	436.2	358.8	307.8	277.6	259.9	247.3	231.1	217.3	207.2
50°	494.2	484.6	413.0	336.6	285.0	255.6	238.7	227.6	216.7	202.9	193.8
52.5°	435.6	445.5	385.8	313.6	261.7	232.9	217.3	209.1	199.4	188.7	181.1
55°	381.3	402.9	353.7	287.2	238.7	211.1	196.1	188.3	182.5	174.1	167.3
57.5°	328.6	356.2	320.4	260.7	216.0	192.0	177.2	168.3	164.6	159.9	154.3
60°	282.7	309.9	284.2	233.9	193.2	170.6	157.8	150.6	146.9	143.8	139.3
62.5°	241.8	269.3	248.8	206.8	170.8	150.2	139.5	132.5	129.8	128.6	124.9
65°	204.9	228.6	214.2	178.4	149.6	131.1	121.0	116.0	113.4	112.8	110.3
67.5°	173.0	191.4	180.2	153.3	129.8	113.0	104.1	99.8	97.5	97.3	95.3
70°	141.8	158.6	150.6	126.7	107.2	94.6	87.2	83.5	82.3	82.1	81.1
72.5°	117.5	128.0	122.0	103.1	89.1	78.0	73.0	69.1	67.7	68.1	67.5
75°	90.5	99.4	95.7	81.9	69.8	62.3	57.8	55.3	54.1	54.7	53.9
77.5°	69.1	75.3	71.6	61.1	53.3	47.7	44.2	42.6	41.4	41.4	40.9
80°	49.2	52.5	50.6	44.9	38.7	34.2	31.5	30.5	29.8	29.6	29.4
82.5°	31.5	34.2	31.9	28.4	24.7	22.4	21.2	19.8	19.3	19.5	19.3
85°	17.7	18.7	17.9	15.4	13.8	12.6	11.7	11.1	10.7	10.9	10.5
87.5°	7.6	7.8	7.2	6.4	6.0	5.3	5.3	4.9	4.5	4.5	4.3
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: P242461

CATALOG NUMBER: S123DRP-S340D830-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	424.7	424.7	424.7	424.7	424.7	424.7	424.7	424.7	424.7	424.7	424.7
2.5°	415.8	414.4	412.3	409.3	406.8	402.9	402.9	403.5	403.5	403.3	402.9
5°	404.9	401.8	398.1	393.8	389.3	384.8	383.9	382.3	381.1	380.2	379.2
7.5°	393.8	388.7	383.5	377.6	372.4	368.1	365.0	362.3	360.7	358.8	357.4
10°	382.5	375.7	369.3	363.0	356.0	350.4	346.9	344.4	342.6	340.9	340.1
12.5°	369.1	361.1	353.9	347.9	340.1	334.4	331.1	330.2	328.0	324.1	322.0
15°	356.2	349.0	340.5	331.3	327.6	320.6	316.7	314.8	313.6	310.9	310.1
17.5°	345.5	335.8	326.1	319.3	312.5	307.0	304.7	302.3	300.6	298.1	297.5
20°	332.1	323.7	315.0	307.6	300.4	294.2	292.4	290.7	289.1	288.1	287.2
22.5°	318.5	310.1	303.3	296.5	288.7	285.2	283.1	281.3	280.2	279.6	278.8
25°	306.0	298.6	290.5	284.4	278.2	275.5	274.3	273.2	272.4	271.4	271.2
27.5°	294.9	286.6	279.8	273.9	269.3	267.1	265.6	265.0	265.0	265.4	265.6
30°	282.1	274.7	269.3	264.4	260.3	258.2	258.0	258.0	258.8	259.1	259.5
32.5°	270.4	264.6	259.3	254.5	251.6	250.4	251.4	251.4	252.1	252.7	253.5
35°	259.1	253.7	249.6	245.5	242.8	243.4	243.8	244.2	245.3	246.5	247.3
37.5°	248.4	243.4	239.1	235.8	234.2	235.4	236.4	237.2	238.5	239.5	240.3
40°	236.6	233.1	229.0	226.1	226.5	227.2	228.0	229.0	230.0	230.7	231.5
42.5°	225.7	222.0	219.1	216.9	217.5	218.3	218.7	219.1	220.4	221.6	222.0
45°	214.6	211.7	208.8	207.4	207.8	208.2	208.6	209.3	210.3	211.1	211.3
47.5°	202.1	200.0	198.1	196.5	197.3	197.1	197.7	199.0	199.4	199.8	201.0
50°	190.1	188.3	186.0	185.6	185.6	185.6	185.8	187.4	187.4	188.3	189.1
52.5°	177.0	175.9	174.7	173.9	173.5	173.5	174.5	175.1	175.5	176.7	177.6
55°	164.0	162.8	161.5	160.9	160.5	160.9	162.6	163.0	164.0	164.6	165.2
57.5°	150.4	149.6	148.6	148.1	148.1	148.4	149.6	150.6	150.8	152.9	153.7
60°	137.0	135.6	134.8	134.8	134.4	136.2	135.8	137.9	138.3	139.5	140.9
62.5°	123.3	121.2	121.0	121.0	121.8	122.0	122.8	123.5	124.7	126.3	127.4
65°	108.2	107.2	108.6	108.4	108.0	109.3	109.3	110.3	111.5	113.0	115.2
67.5°	94.2	93.4	93.8	93.6	94.2	95.1	95.7	96.5	97.9	99.6	101.0
70°	80.0	80.7	79.6	80.5	81.1	81.3	81.7	82.9	84.6	85.6	87.2
72.5°	66.3	66.0	66.5	66.7	67.3	67.7	68.1	69.5	71.4	72.2	73.5
75°	53.1	52.9	53.5	53.5	54.5	54.9	55.3	56.0	57.6	58.8	59.9
77.5°	41.2	41.4	41.2	42.0	41.6	41.8	43.0	43.6	43.8	46.5	46.9
80°	29.2	29.6	29.8	30.0	30.2	29.8	31.3	31.9	31.9	33.3	34.4
82.5°	18.9	19.1	19.8	20.0	20.0	20.6	20.4	20.8	21.4	21.8	23.3
85°	10.5	11.1	11.3	11.1	11.3	10.9	11.5	11.7	11.9	11.9	11.9
87.5°	4.1	4.3	4.1	4.3	4.1	4.3	4.3	3.9	3.9	4.5	3.7
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: P242461

CATALOG NUMBER: S123DRP-S340D830-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	424.7	424.7	424.7	424.7
2.5°	401.4	401.2	402.7	401.6
5°	378.0	378.6	376.5	376.5
7.5°	356.8	356.0	356.2	354.7
10°	337.7	336.4	336.0	336.2
12.5°	321.8	321.8	318.5	318.5
15°	310.1	306.2	305.8	307.0
17.5°	297.1	294.9	295.1	294.6
20°	287.2	286.0	285.8	284.4
22.5°	278.2	278.0	278.2	276.5
25°	271.0	272.0	271.2	271.2
27.5°	266.0	266.0	265.4	265.4
30°	260.3	260.1	260.5	260.5
32.5°	254.5	254.9	254.9	255.1
35°	248.6	248.8	249.4	249.0
37.5°	240.7	241.8	241.6	242.0
40°	231.7	232.3	232.1	232.1
42.5°	222.4	222.8	222.2	221.8
45°	212.1	211.7	212.3	211.5
47.5°	200.8	201.0	201.2	202.1
50°	189.5	190.7	190.7	190.5
52.5°	178.4	178.8	179.8	179.8
55°	166.9	167.3	167.7	167.9
57.5°	155.1	154.9	155.8	156.0
60°	142.6	142.6	144.2	144.9
62.5°	129.2	130.0	131.7	130.5
65°	116.3	117.9	117.7	118.5
67.5°	102.7	103.7	105.3	105.3
70°	88.9	89.9	90.7	91.4
72.5°	75.5	75.9	78.2	77.0
75°	61.3	62.8	64.0	63.4
77.5°	47.7	49.6	50.0	49.4
80°	35.8	35.6	36.8	36.6
82.5°	23.9	23.7	24.1	24.3
85°	12.8	13.4	12.6	12.3
87.5°	3.7	3.7	3.5	3.3
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P242461
 CATALOG NUMBER: S123DRP-S340D830-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	16.08	17.63	16.44	17.95	18.26	16.63	18.19	16.99	18.50	18.81
	3H	17.62	19.02	18.00	19.35	19.71	17.96	19.36	18.34	19.69	20.05
	4H	18.19	19.50	18.59	19.85	20.23	18.42	19.74	18.82	20.09	20.46
	6H	18.59	19.80	19.00	20.17	20.56	18.72	19.93	19.13	20.30	20.69
	8H	18.70	19.86	19.13	20.25	20.65	18.79	19.95	19.22	20.34	20.74
	12H	18.77	19.88	19.20	20.26	20.69	18.83	19.93	19.26	20.32	20.74
4H	2H	17.23	18.54	17.63	18.89	19.27	17.39	18.71	17.79	19.05	19.43
	3H	18.82	19.92	19.23	20.32	20.72	19.20	20.29	19.61	20.69	21.09
	4H	19.45	20.43	19.88	20.85	21.28	19.77	20.75	20.20	21.17	21.60
	6H	19.92	20.78	20.37	21.22	21.68	20.13	20.99	20.59	21.43	21.89
	8H	20.06	20.86	20.52	21.30	21.77	20.22	21.02	20.68	21.46	21.93
	12H	20.15	20.87	20.63	21.34	21.82	20.27	20.99	20.75	21.47	21.94
8H	4H	19.93	20.73	20.39	21.17	21.64	20.07	20.87	20.53	21.31	21.78
	6H	20.48	21.14	20.97	21.63	22.11	20.58	21.24	21.08	21.73	22.21
	8H	20.67	21.26	21.18	21.77	22.26	20.73	21.32	21.24	21.83	22.32
	12H	20.81	21.34	21.32	21.83	22.39	20.82	21.35	21.33	21.84	22.40
12H	4H	19.98	20.70	20.46	21.18	21.65	20.08	20.80	20.56	21.28	21.75
	6H	20.55	21.15	21.07	21.66	22.15	20.61	21.21	21.13	21.72	22.21
	8H	20.79	21.32	21.30	21.81	22.37	20.82	21.34	21.33	21.84	22.40