

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: P242476

Luminaire Tested: S123DRP-S340D930-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P242476  
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-S340D930-X4F0-XX-UDD-A-W  
Description: DEFINE 3 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER  
STANDARD LIGHT ENGINE  
Light Source: (92) 3000K CCT, 90 CRI LEDS  
Ballast/Driver: -

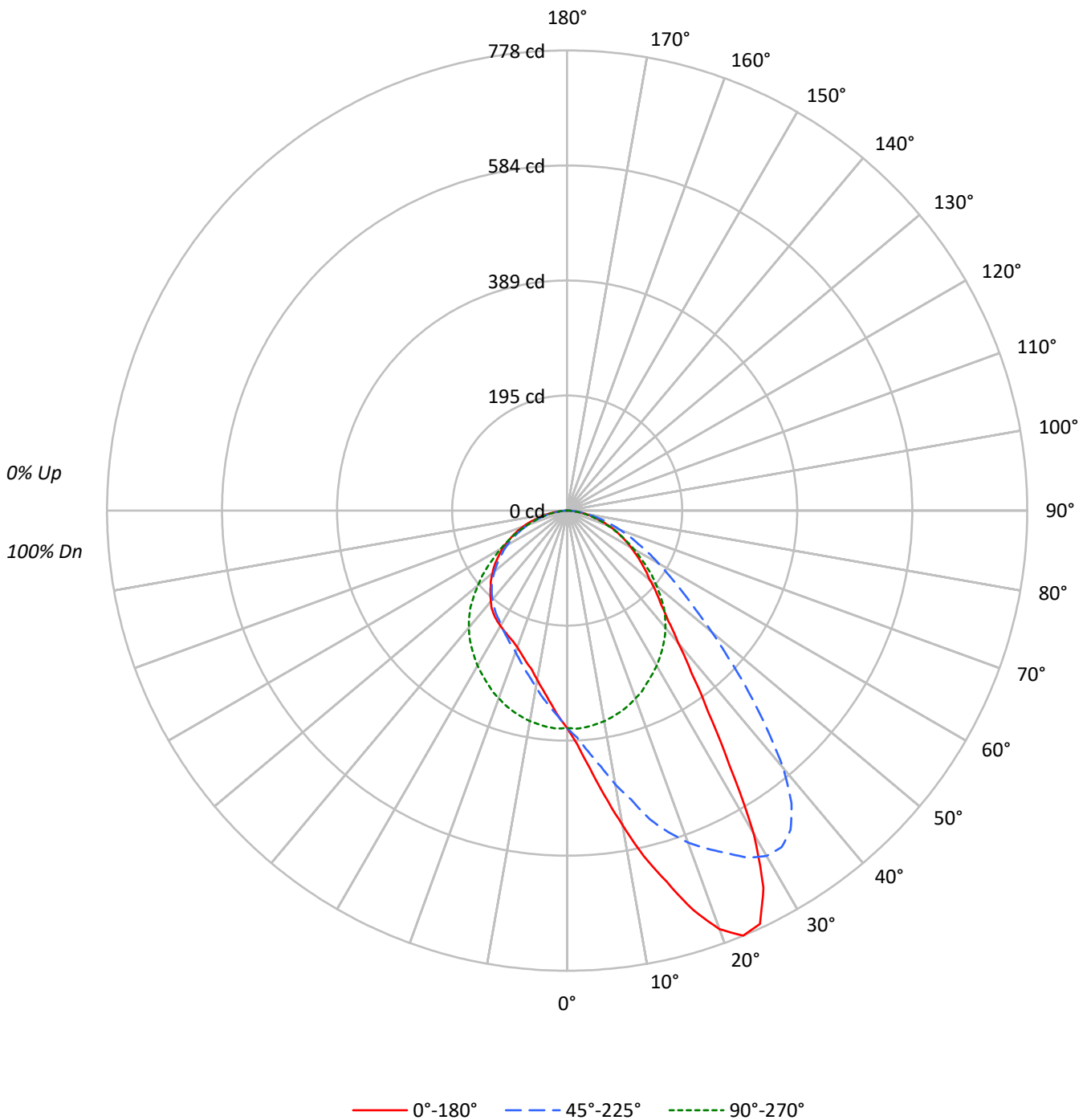
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1108.8 lumens  
Efficiency: N/A  
Efficacy: 95.6 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<sub>in</sub>): 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	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°	4453	4453	4453	4453	4453
5°	5310	4977	4472	4049	3963
10°	6646	5786	4449	3731	3579
15°	8152	6785	4413	3480	3332
20°	9712	7705	4357	3283	3173
25°	10312	8546	4289	3187	3138
30°	8839	9436	4240	3127	3153
35°	6147	9750	4168	3116	3187
40°	4630	9000	4087	3109	3177
45°	3845	7445	3963	3087	3137
50°	3443	6008	3711	3027	3108
55°	3221	4983	3443	2942	3068
60°	3021	4310	3159	2856	3038
65°	2839	3792	2880	2710	2940
70°	2662	3388	2562	2491	2800
75°	2384	2932	2243	2225	2566
80°	2087	2408	1836	1801	2213
85°	1627	1878	1335	1307	1488

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 55°  
 Vertical Angle: 45°  
 Luminance: 8799 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	36.1	3.3
10°-20°	116.0	10.5
20°-30°	195.3	17.6
30°-40°	220.7	19.9
40°-50°	197.7	17.8
50°-60°	159.5	14.4
60°-70°	111.2	10.0
70°-80°	58.3	5.3
80°-90°	14.0	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°	347.4	31.3
0°-40°	568.1	51.2
0°-60°	925.3	83.5
0°-90°	1108.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1108.8	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	367	367	367	367	367	
5°	436	409	368	333	326	45
15°	650	541	352	277	266	188
25°	771	639	321	238	235	341
35°	415	659	282	211	215	268
45°	224	434	231	180	183	177
55°	152	236	163	139	145	137
65°	99	132	100	94	102	99
75°	51	63	48	48	55	54
85°	12	14	10	9	11	14
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°	367.4	367.4	367.4	367.4	367.4	367.4	367.4	367.4	367.4	367.4	367.4
2.5°	395.5	395.1	394.2	394.9	393.5	391.6	391.4	389.6	384.4	384.1	382.7
5°	436.4	435.0	434.8	434.6	432.1	428.8	422.4	421.8	413.3	409.0	403.8
7.5°	485.9	485.4	483.9	482.3	474.0	469.9	463.8	456.0	446.0	436.4	430.4
10°	540.0	545.9	538.6	533.6	529.0	520.2	510.1	497.5	484.8	470.1	458.8
12.5°	598.0	600.2	600.2	595.5	587.7	573.3	553.3	539.1	527.7	500.7	491.1
15°	649.6	660.5	653.6	637.5	637.9	625.3	601.8	576.0	562.2	540.7	511.3
17.5°	708.0	710.0	707.8	692.9	685.6	667.3	646.1	622.0	596.2	570.1	539.6
20°	752.9	751.8	745.6	738.6	723.3	709.8	686.1	658.5	622.9	597.3	563.3
22.5°	777.8	775.8	773.7	768.2	756.1	741.3	720.6	689.9	656.4	618.7	578.1
25°	771.0	773.3	773.7	772.1	767.6	758.9	742.2	718.2	684.3	639.0	598.0
27.5°	718.7	724.6	732.0	737.0	745.0	750.4	745.0	729.9	702.1	661.6	611.2
30°	631.5	624.4	642.0	664.2	679.4	706.1	721.0	721.9	707.8	674.2	625.4
32.5°	510.5	522.0	527.4	556.0	593.6	624.4	657.8	687.5	694.5	674.9	633.8
35°	415.4	425.2	439.4	453.7	489.3	519.9	572.2	617.8	654.1	658.9	632.7
37.5°	345.3	351.0	359.7	374.8	399.2	437.1	478.6	537.9	587.9	623.1	619.6
40°	292.6	294.0	304.2	315.0	333.9	363.8	400.3	451.2	514.2	568.8	591.6
42.5°	253.1	256.7	259.5	269.8	283.9	304.5	337.8	377.7	434.1	499.1	549.1
45°	224.3	227.8	230.5	237.4	248.1	263.2	286.9	325.4	369.3	434.3	494.3
47.5°	204.3	204.0	206.3	211.8	219.5	231.6	249.0	274.6	316.8	371.1	433.9
50°	182.6	185.5	186.2	190.3	196.0	204.3	218.2	239.2	272.3	318.6	375.2
52.5°	167.3	167.7	170.0	172.6	177.4	183.5	195.1	210.4	234.6	272.3	323.2
55°	152.4	152.4	154.3	156.6	159.5	165.3	173.4	185.5	205.2	235.8	278.9
57.5°	138.5	139.2	141.0	141.5	144.0	148.1	155.0	164.6	179.8	204.5	240.1
60°	124.6	126.2	126.0	127.4	129.6	132.6	138.3	145.8	158.9	177.8	206.6
62.5°	112.5	112.0	112.0	113.7	115.9	118.7	121.9	128.1	138.8	155.0	178.5
65°	99.0	98.6	99.8	100.9	101.6	103.8	106.6	112.3	119.8	132.2	151.3
67.5°	87.2	86.1	87.0	87.4	88.6	90.4	93.3	96.8	102.9	113.4	128.7
70°	75.1	74.2	74.0	74.4	75.5	76.7	78.7	82.0	87.6	95.6	106.1
72.5°	62.6	62.1	62.1	63.0	63.4	64.1	65.3	68.3	72.4	78.0	87.6
75°	50.9	50.9	50.9	51.1	51.6	52.3	53.4	55.0	58.4	62.6	69.2
77.5°	40.2	40.4	40.0	39.9	40.8	41.1	41.3	43.1	45.0	48.2	53.4
80°	29.9	29.0	29.4	29.9	30.3	30.4	31.0	31.3	32.9	34.5	37.9
82.5°	20.3	19.6	19.6	20.5	20.5	20.6	21.2	21.7	22.1	23.5	24.9
85°	11.7	11.7	11.9	11.9	12.1	11.9	12.5	12.6	12.6	13.5	14.6
87.5°	5.3	5.0	5.2	5.3	5.2	5.3	5.5	5.7	5.9	6.1	6.2
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°	367.4	367.4	367.4	367.4	367.4	367.4	367.4	367.4	367.4	367.4	367.4
2.5°	381.6	380.2	378.7	376.3	374.1	371.1	370.2	369.1	365.9	363.1	360.9
5°	401.9	397.6	391.4	385.7	381.1	374.8	371.3	367.5	362.2	357.4	353.5
7.5°	421.3	413.8	405.1	395.7	386.6	377.9	370.9	364.7	357.7	351.0	345.8
10°	445.3	433.2	419.7	405.1	392.6	380.5	370.4	361.5	351.9	343.5	336.6
12.5°	472.7	453.3	433.4	414.9	399.6	381.6	368.8	356.9	345.6	335.1	327.1
15°	493.2	470.4	448.3	424.0	401.5	380.5	365.9	351.7	339.1	328.7	318.8
17.5°	513.5	488.6	460.4	431.1	404.7	380.5	360.6	345.3	329.8	317.3	307.7
20°	530.2	500.8	467.9	437.1	407.2	379.5	357.0	337.8	320.7	307.4	296.2
22.5°	544.6	509.0	474.7	441.2	407.0	376.6	350.4	330.5	311.6	298.7	286.6
25°	553.7	512.6	478.4	439.8	402.6	371.6	343.1	320.7	302.2	286.9	274.6
27.5°	562.2	512.1	473.4	431.8	397.3	366.5	335.9	311.8	292.4	275.9	263.2
30°	570.8	512.9	464.7	423.6	388.7	356.7	327.1	302.9	282.3	265.4	253.6
32.5°	576.1	512.4	456.7	412.2	375.2	347.8	317.7	292.4	271.1	254.5	243.3
35°	577.6	509.4	447.3	395.7	360.4	332.8	307.7	281.7	259.5	244.0	231.2
37.5°	574.5	503.9	436.9	380.7	342.6	315.2	293.3	271.1	249.7	232.4	221.2
40°	564.7	498.5	424.5	364.7	324.1	297.9	280.0	258.3	237.3	221.1	210.7
42.5°	546.0	487.7	410.8	346.9	304.9	278.7	262.5	245.3	225.7	210.7	200.4
45°	513.3	470.9	397.1	329.1	286.0	259.0	244.4	231.2	213.2	198.5	189.6
47.5°	471.5	448.3	377.3	310.4	266.3	240.1	224.8	213.9	199.9	187.9	179.2
50°	427.5	419.1	357.2	291.2	246.5	221.1	206.5	196.8	187.4	175.5	167.7
52.5°	376.8	385.3	333.7	271.2	226.4	201.5	187.9	180.8	172.5	163.2	156.6
55°	329.8	348.5	306.0	248.5	206.5	182.6	169.6	162.9	157.9	150.6	144.7
57.5°	284.2	308.1	277.1	225.5	186.9	166.1	153.2	145.6	142.4	138.3	133.5
60°	244.5	268.0	245.8	202.4	167.1	147.5	136.5	130.3	127.1	124.4	120.5
62.5°	209.1	233.0	215.2	178.9	147.7	129.9	120.7	114.6	112.3	111.2	108.0
65°	177.3	197.7	185.3	154.3	129.4	113.4	104.7	100.4	98.1	97.5	95.4
67.5°	149.7	165.5	155.9	132.6	112.3	97.7	90.1	86.3	84.4	84.2	82.4
70°	122.6	137.2	130.3	109.6	92.7	81.9	75.5	72.3	71.2	71.0	70.1
72.5°	101.6	110.7	105.5	89.2	77.1	67.5	63.2	59.8	58.6	58.9	58.4
75°	78.3	86.0	82.8	70.8	60.3	53.9	50.0	47.9	46.8	47.3	46.6
77.5°	59.8	65.1	61.9	52.9	46.1	41.3	38.3	36.8	35.8	35.8	35.4
80°	42.5	45.4	43.8	38.8	33.5	29.5	27.2	26.3	25.8	25.6	25.5
82.5°	27.2	29.5	27.6	24.6	21.4	19.4	18.3	17.1	16.7	16.9	16.7
85°	15.3	16.2	15.5	13.3	11.9	10.9	10.1	9.6	9.3	9.4	9.1
87.5°	6.6	6.8	6.2	5.5	5.2	4.6	4.6	4.3	3.9	3.9	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



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**CANDELA DISTRIBUTION (continued):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	367.4	367.4	367.4	367.4	367.4	367.4	367.4	367.4	367.4	367.4	367.4
2.5°	359.7	358.5	356.7	354.0	351.9	348.5	348.5	349.0	349.0	348.8	348.5
5°	350.3	347.6	344.4	340.7	336.7	332.8	332.1	330.7	329.6	328.9	328.0
7.5°	340.7	336.2	331.8	326.6	322.1	318.4	315.7	313.4	312.0	310.4	309.2
10°	330.9	325.0	319.5	314.0	307.9	303.1	300.1	297.9	296.3	294.9	294.2
12.5°	319.3	312.4	306.1	301.0	294.2	289.2	286.4	285.7	283.7	280.3	278.5
15°	308.1	301.9	294.6	286.6	283.3	277.3	273.9	272.3	271.2	268.9	268.2
17.5°	298.8	290.5	282.1	276.2	270.4	265.5	263.6	261.5	260.0	257.9	257.4
20°	287.3	280.0	272.5	266.1	259.9	254.5	252.9	251.5	250.1	249.2	248.5
22.5°	275.5	268.2	262.3	256.5	249.7	246.7	244.9	243.3	242.4	241.9	241.2
25°	264.7	258.3	251.3	246.0	240.6	238.3	237.3	236.4	235.6	234.8	234.6
27.5°	255.0	247.9	242.1	236.9	233.0	231.0	229.8	229.2	229.2	229.6	229.8
30°	244.0	237.6	233.0	228.7	225.1	223.4	223.2	223.2	223.9	224.1	224.4
32.5°	233.9	228.9	224.3	220.2	217.7	216.6	217.5	217.5	218.0	218.6	219.3
35°	224.1	219.5	215.9	212.3	210.0	210.6	210.9	211.3	212.2	213.2	213.9
37.5°	214.8	210.6	206.8	204.0	202.5	203.6	204.5	205.2	206.3	207.2	207.9
40°	204.7	201.7	198.1	195.6	196.0	196.5	197.2	198.1	199.0	199.5	200.2
42.5°	195.2	192.0	189.6	187.6	188.1	188.8	189.2	189.6	190.6	191.7	192.0
45°	185.6	183.1	180.7	179.4	179.8	180.1	180.5	181.0	181.9	182.6	182.8
47.5°	174.8	173.0	171.4	170.0	170.7	170.5	171.0	172.1	172.5	172.8	173.9
50°	164.5	162.9	160.9	160.5	160.5	160.5	160.7	162.1	162.1	162.9	163.6
52.5°	153.1	152.2	151.1	150.4	150.0	150.0	150.9	151.5	151.8	152.9	153.6
55°	141.9	140.8	139.7	139.2	138.8	139.2	140.6	141.0	141.9	142.4	142.9
57.5°	130.1	129.4	128.5	128.1	128.1	128.3	129.4	130.3	130.5	132.2	133.0
60°	118.5	117.3	116.6	116.6	116.2	117.8	117.5	119.2	119.6	120.7	121.9
62.5°	106.6	104.8	104.7	104.7	105.4	105.5	106.3	106.8	107.9	109.3	110.2
65°	93.6	92.7	94.0	93.8	93.4	94.5	94.5	95.4	96.5	97.7	99.7
67.5°	81.5	80.8	81.2	81.0	81.5	82.2	82.8	83.5	84.7	86.1	87.4
70°	69.2	69.8	68.9	69.6	70.1	70.3	70.7	71.7	73.2	74.0	75.5
72.5°	57.3	57.1	57.5	57.7	58.2	58.6	58.9	60.2	61.8	62.5	63.5
75°	45.9	45.7	46.3	46.3	47.2	47.5	47.9	48.4	49.8	50.9	51.8
77.5°	35.6	35.8	35.6	36.3	36.0	36.1	37.2	37.7	37.9	40.2	40.6
80°	25.3	25.6	25.8	26.0	26.2	25.8	27.1	27.6	27.6	28.8	29.7
82.5°	16.4	16.6	17.1	17.3	17.3	17.8	17.6	18.0	18.5	18.9	20.1
85°	9.1	9.6	9.8	9.6	9.8	9.4	10.0	10.1	10.3	10.3	10.3
87.5°	3.6	3.7	3.6	3.7	3.6	3.7	3.7	3.4	3.4	3.9	3.2
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: P242476

CATALOG NUMBER: S123DRP-S340D930-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	367.4	367.4	367.4	367.4
2.5°	347.2	347.1	348.3	347.4
5°	327.0	327.5	325.7	325.7
7.5°	308.6	307.9	308.1	306.8
10°	292.1	291.0	290.6	290.8
12.5°	278.4	278.4	275.5	275.5
15°	268.2	264.8	264.5	265.5
17.5°	257.0	255.0	255.2	254.9
20°	248.5	247.4	247.2	246.0
22.5°	240.6	240.5	240.6	239.2
25°	234.4	235.3	234.6	234.6
27.5°	230.1	230.1	229.6	229.6
30°	225.1	225.0	225.3	225.3
32.5°	220.2	220.5	220.5	220.7
35°	215.0	215.2	215.7	215.4
37.5°	208.2	209.1	209.0	209.3
40°	200.4	200.9	200.8	200.8
42.5°	192.4	192.8	192.2	191.9
45°	183.5	183.1	183.7	183.0
47.5°	173.7	173.9	174.1	174.8
50°	163.9	165.0	165.0	164.8
52.5°	154.3	154.7	155.6	155.6
55°	144.3	144.7	145.1	145.2
57.5°	134.2	134.0	134.7	134.9
60°	123.3	123.3	124.8	125.3
62.5°	111.8	112.5	113.9	112.8
65°	100.6	102.0	101.8	102.5
67.5°	88.8	89.7	91.1	91.1
70°	76.9	77.8	78.5	79.0
72.5°	65.3	65.7	67.6	66.6
75°	53.0	54.3	55.4	54.8
77.5°	41.3	42.9	43.2	42.7
80°	31.0	30.8	31.9	31.7
82.5°	20.6	20.5	20.8	21.0
85°	11.0	11.6	10.9	10.7
87.5°	3.2	3.2	3.0	2.8
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P242476  
 CATALOG NUMBER: S123DRP-S340D930-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	15.57	17.13	15.94	17.44	17.76	16.13	17.68	16.49	18.00	18.31
	3H	17.12	18.52	17.50	18.85	19.21	17.46	18.86	17.84	19.19	19.55
	4H	17.69	19.00	18.09	19.35	19.73	17.92	19.23	18.32	19.58	19.96
	6H	18.08	19.30	18.50	19.67	20.06	18.21	19.43	18.63	19.79	20.19
	8H	18.20	19.36	18.62	19.74	20.14	18.29	19.44	18.71	19.83	20.23
	12H	18.27	19.37	18.70	19.76	20.18	18.32	19.43	18.75	19.81	20.24
4H	2H	16.73	18.04	17.12	18.39	18.77	16.89	18.20	17.29	18.55	18.93
	3H	18.32	19.41	18.73	19.81	20.21	18.70	19.79	19.11	20.19	20.59
	4H	18.94	19.93	19.37	20.34	20.78	19.26	20.25	19.69	20.66	21.10
	6H	19.41	20.27	19.87	20.71	21.17	19.63	20.48	20.08	20.93	21.38
	8H	19.55	20.35	20.01	20.80	21.26	19.72	20.52	20.18	20.96	21.43
	12H	19.65	20.36	20.13	20.84	21.31	19.77	20.49	20.25	20.96	21.43
8H	4H	19.42	20.23	19.89	20.67	21.14	19.57	20.37	20.03	20.81	21.28
	6H	19.97	20.64	20.47	21.13	21.60	20.08	20.74	20.57	21.23	21.71
	8H	20.16	20.76	20.67	21.27	21.75	20.22	20.82	20.73	21.33	21.81
	12H	20.31	20.83	20.81	21.32	21.89	20.32	20.84	20.83	21.34	21.90
12H	4H	19.48	20.19	19.96	20.67	21.14	19.58	20.30	20.06	20.77	21.24
	6H	20.05	20.65	20.56	21.15	21.64	20.11	20.71	20.62	21.21	21.70
	8H	20.29	20.81	20.80	21.31	21.87	20.31	20.84	20.82	21.33	21.89