

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: P242397

Luminaire Tested: S122RDRP-S290D835-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P242397  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-29)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: S122RDRP-S290D835-X4F0-XX-UDD-A-W  
Description: DEFINE 2 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER  
STANDARD LIGHT ENGINE  
Light Source: (92) 3500K CCT, 80 CRI LEDS  
Ballast/Driver: -

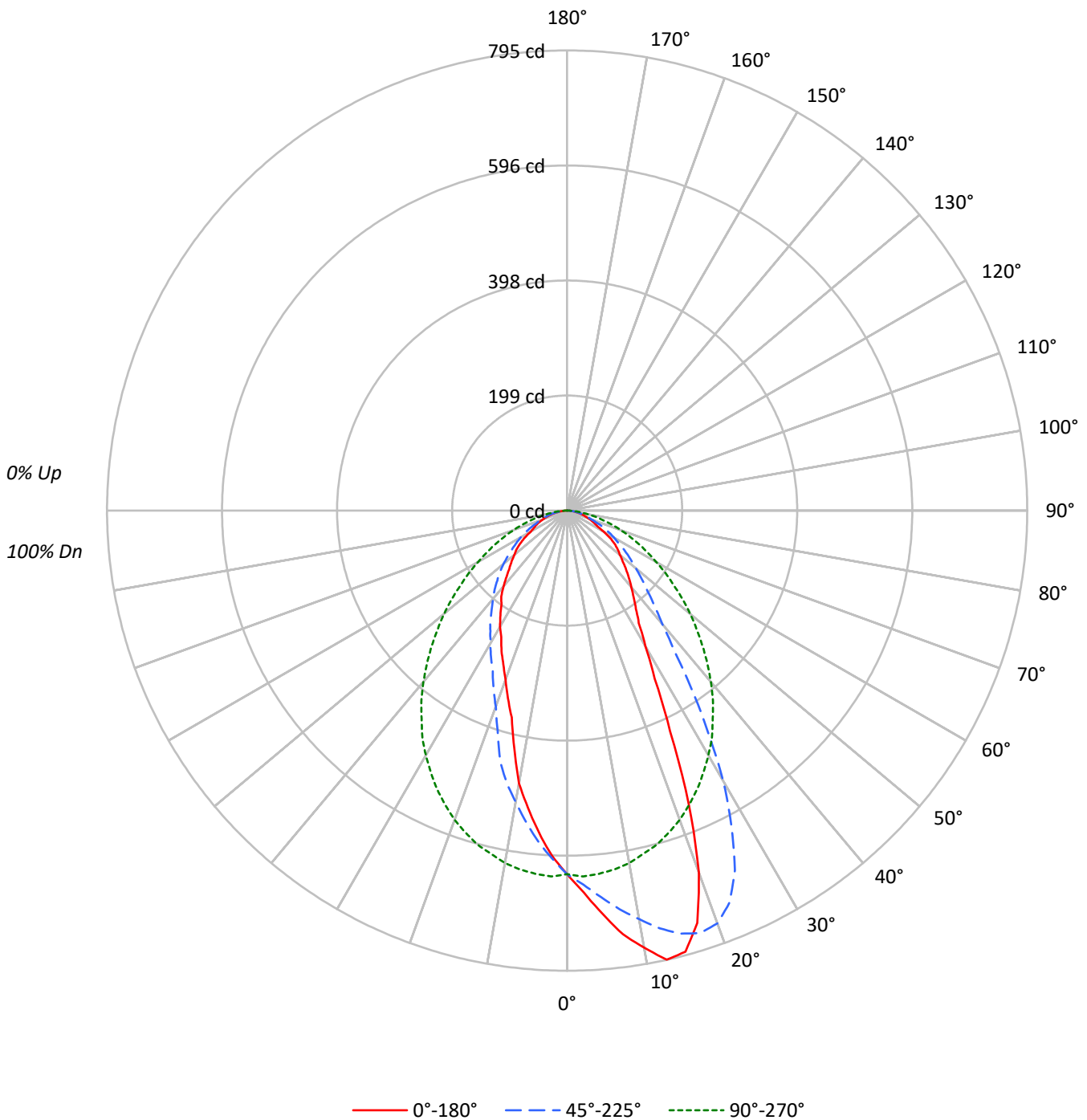
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1085.8 lumens  
Efficiency: N/A  
Efficacy: 93.6 lumens/watt  
Spacing Criteria (0/90/45): 0.85 / 1.16 / 1.02  
Luminous Opening: Rectangular (W 3.88' x L: 0.15' 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	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	111	106	103	100	108	104	101	98	100	97	95	96	94	92	93	91	89					87				
2	102	95	89	84	100	93	88	83	90	85	81	87	83	80	84	81	78					76				
3	94	85	78	72	92	84	77	72	81	75	71	78	73	69	76	72	68					66				
4	87	77	69	63	85	76	68	63	73	67	62	71	66	61	69	64	60					59				
5	81	70	62	56	79	69	61	56	67	60	55	65	59	55	63	58	54					52				
6	76	64	56	50	74	63	55	50	61	54	49	60	54	49	58	53	49					47				
7	71	59	51	45	69	58	50	45	56	50	45	55	49	44	54	48	44					42				
8	66	54	46	41	65	53	46	41	52	45	41	51	45	40	50	44	40					39				
9	62	50	43	38	61	50	42	37	49	42	37	47	41	37	47	41	37					35				
10	59	47	39	35	58	46	39	35	45	39	34	44	38	34	44	38	34					33				

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°	135°	180°
0°	11968	11968	11968	11968	11968
5°	13367	12816	12044	10975	10679
10°	14831	13864	11959	9889	9257
15°	15559	14922	11784	8821	7292
20°	13490	15383	11524	7307	6310
25°	8846	14413	11168	6395	5635
30°	5954	11866	10738	5824	5101
35°	4823	8666	10194	5371	4599
40°	4289	6368	9603	4956	4257
45°	3882	5293	8911	4593	3798
50°	3532	4587	8223	4243	3520
55°	3321	4061	7462	3836	3278
60°	2777	3535	6762	3520	2743
65°	2344	3150	6139	3128	2655
70°	2166	2506	5486	2762	2506
75°	2024	2267	4769	2605	2311
80°	1865	2062	3927	2271	2062
85°	1727	1770	3103	1814	1814

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 70°  
 Vertical Angle: 45°  
 Luminance: 12979 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	59.6	5.5
10°-20°	166.3	15.3
20°-30°	214.1	19.7
30°-40°	203.1	18.7
40°-50°	174.0	16.0
50°-60°	132.6	12.2
60°-70°	83.6	7.7
70°-80°	41.7	3.8
80°-90°	10.7	1.0
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°	440.0	40.5
0°-40°	643.1	59.2
0°-60°	949.7	87.5
0°-90°	1085.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1085.8	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	628	628	628	628	628	
5°	699	670	630	574	558	69
15°	789	757	598	447	370	215
25°	421	686	531	304	268	199
35°	207	373	438	231	198	132
45°	144	196	331	170	141	111
55°	100	122	225	116	99	88
65°	52	70	136	69	59	53
75°	28	31	65	35	31	29
85°	8	8	14	8	8	9
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°	628.3	628.3	628.3	628.3	628.3	628.3	628.3	628.3	628.3	628.3	628.3
2.5°	660.2	660.9	661.5	660.0	660.0	658.7	655.8	653.7	647.5	646.7	646.7
5°	699.1	698.6	699.5	696.7	692.7	691.9	687.7	682.3	676.6	670.3	668.9
7.5°	738.4	735.8	734.7	736.0	731.8	726.1	719.2	712.6	702.8	694.7	689.7
10°	766.8	774.0	769.6	761.9	763.5	753.2	747.8	738.4	730.5	716.8	713.7
12.5°	794.7	796.4	795.8	792.3	789.5	783.1	775.3	767.4	751.3	739.2	726.6
15°	789.0	793.2	794.3	793.0	794.0	793.6	789.7	782.9	770.2	756.7	744.9
17.5°	747.1	751.9	755.8	759.3	764.8	775.5	778.8	780.1	774.8	765.2	755.4
20°	665.5	660.6	680.7	691.0	699.7	721.6	740.3	747.5	759.1	758.9	756.7
22.5°	549.7	552.4	571.1	583.8	613.5	635.3	657.4	689.5	714.6	733.1	744.5
25°	420.9	429.2	448.2	464.8	493.2	533.8	570.7	613.5	653.9	685.8	716.1
27.5°	327.5	328.6	345.8	362.6	380.1	415.3	464.6	515.9	573.5	615.0	667.4
30°	270.7	269.4	275.7	285.1	299.5	325.3	360.2	410.4	467.9	539.5	603.2
32.5°	230.5	231.0	235.4	241.7	253.0	268.3	289.5	327.9	381.4	451.5	529.0
35°	207.4	207.2	210.7	215.7	220.7	231.9	248.2	269.6	307.0	372.7	449.1
37.5°	188.2	189.3	190.8	194.1	200.2	206.8	217.0	232.1	260.5	301.3	369.8
40°	172.5	172.9	175.3	177.9	181.2	186.0	194.1	205.7	225.1	256.1	303.0
42.5°	158.1	158.5	160.0	162.4	164.8	169.6	176.0	185.6	200.4	222.9	259.6
45°	144.1	144.1	145.6	146.7	149.6	153.9	159.4	167.7	178.6	196.5	222.3
47.5°	130.6	130.6	131.6	133.6	135.6	139.1	144.7	151.7	159.6	174.2	197.1
50°	119.2	119.4	120.1	121.6	122.7	125.8	129.9	135.8	144.1	154.8	173.1
52.5°	110.0	109.8	110.7	111.1	111.8	113.7	116.6	121.6	128.8	137.8	152.2
55°	100.0	99.1	100.4	101.5	102.2	103.0	104.8	108.1	114.4	122.3	133.6
57.5°	88.2	87.8	88.4	89.5	91.5	93.7	94.8	96.9	100.2	106.3	118.3
60°	72.9	72.9	74.9	75.5	77.9	81.0	84.1	85.8	89.1	92.8	101.1
62.5°	59.4	59.6	60.3	60.9	62.0	65.9	70.5	74.9	77.9	81.4	86.2
65°	52.0	52.4	52.4	52.8	53.7	54.6	56.3	59.4	64.8	69.9	74.0
67.5°	45.4	45.4	45.6	46.1	46.3	47.4	48.0	49.6	50.7	56.3	62.0
70°	38.9	39.5	39.3	39.7	40.0	40.4	41.3	41.9	43.9	45.0	48.0
72.5°	32.7	33.2	33.2	33.4	34.1	34.1	34.7	35.4	36.5	37.3	38.6
75°	27.5	27.3	27.5	27.9	28.2	28.4	28.4	29.3	29.9	30.8	31.9
77.5°	22.3	22.5	22.5	22.5	22.5	22.9	22.9	23.4	24.0	24.5	25.1
80°	17.0	17.2	17.0	17.2	17.5	17.7	17.5	17.7	18.3	18.8	18.8
82.5°	12.2	12.2	12.4	12.4	12.4	12.4	12.9	12.9	13.3	13.1	13.3
85°	7.9	7.6	7.6	7.6	7.9	8.1	7.9	7.9	8.1	8.1	8.1
87.5°	3.5	3.7	3.7	3.7	3.7	3.7	3.7	3.9	3.7	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):**

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	628.3	628.3	628.3	628.3	628.3	628.3	628.3	628.3	628.3	628.3	628.3
2.5°	647.1	645.4	643.8	639.9	637.9	633.6	632.9	632.7	627.0	621.6	620.0
5°	665.5	662.0	656.7	650.6	644.3	637.7	633.4	629.9	621.1	612.8	608.0
7.5°	683.6	677.2	668.9	658.5	649.5	639.0	631.8	625.3	613.3	602.4	595.1
10°	704.3	692.1	680.1	664.1	651.7	639.5	628.1	618.3	604.3	588.6	577.5
12.5°	717.2	703.4	685.8	670.3	653.2	636.8	620.7	607.4	590.3	574.0	560.2
15°	728.5	714.1	694.1	671.8	651.0	630.7	613.3	597.6	576.2	556.7	540.6
17.5°	739.0	719.2	698.4	672.7	649.7	625.1	603.0	583.4	560.0	537.1	518.7
20°	743.6	724.0	699.1	673.3	644.9	614.6	590.3	568.5	543.0	517.4	495.6
22.5°	740.8	726.6	698.2	666.1	636.8	604.8	576.6	550.4	521.4	495.2	469.0
25°	725.9	720.7	694.5	660.9	627.7	590.8	559.1	531.4	499.1	471.1	443.6
27.5°	698.6	706.3	687.7	651.3	615.5	575.7	541.2	510.0	477.0	445.8	418.3
30°	655.4	681.4	674.4	641.2	600.0	561.1	521.1	488.2	452.4	420.1	393.0
32.5°	596.2	643.4	653.7	627.2	584.2	540.6	498.2	465.5	427.7	393.2	367.0
35°	532.7	596.9	626.4	608.7	565.9	519.8	476.6	438.4	400.8	367.2	341.0
37.5°	457.4	543.0	588.4	586.4	545.6	498.7	451.7	413.9	375.3	342.1	314.8
40°	384.5	479.2	543.2	557.4	524.2	472.5	424.9	386.2	348.7	316.4	283.8
42.5°	319.0	413.3	495.6	522.9	498.2	446.9	399.1	358.3	322.0	291.9	258.5
45°	268.5	351.1	437.7	481.8	467.2	419.6	369.2	330.8	296.5	270.1	238.2
47.5°	232.5	292.6	379.7	437.3	435.6	390.4	340.1	303.3	270.9	246.5	219.4
50°	202.6	253.3	324.2	391.9	397.6	361.1	313.9	277.5	247.8	221.8	201.1
52.5°	175.8	215.3	277.3	341.5	360.2	329.9	284.5	251.5	222.9	199.5	182.5
55°	153.0	185.4	233.8	294.5	319.0	296.7	256.1	224.7	201.3	181.2	165.9
57.5°	133.2	158.5	198.9	249.8	277.5	262.4	227.7	201.7	181.0	162.2	150.0
60°	114.6	134.5	167.5	208.3	239.7	229.9	201.3	177.5	160.5	144.7	133.4
62.5°	97.2	113.5	140.6	171.8	200.0	197.4	175.3	156.3	141.9	127.9	118.8
65°	81.0	93.4	115.5	141.5	164.6	166.6	149.8	136.2	122.9	111.6	103.0
67.5°	67.0	75.5	92.1	115.1	132.7	138.9	127.5	116.6	105.7	96.5	88.9
70°	54.4	60.9	72.3	89.9	105.9	112.4	106.5	98.5	89.3	82.1	75.8
72.5°	41.5	47.8	55.5	67.2	80.3	87.5	86.5	81.2	74.2	68.6	62.7
75°	33.2	35.2	40.8	49.6	60.3	66.4	67.9	64.8	58.9	54.4	50.9
77.5°	25.8	27.1	30.1	35.4	42.8	48.2	50.7	50.2	45.8	42.8	39.5
80°	19.6	20.3	21.6	23.6	28.8	34.3	35.8	35.8	33.0	31.9	28.6
82.5°	13.8	14.2	14.8	15.7	17.5	22.1	23.8	24.2	22.7	21.2	18.8
85°	8.5	8.3	8.7	9.4	9.8	11.1	13.8	14.2	13.8	12.0	11.4
87.5°	3.7	3.9	3.9	3.7	3.9	4.1	5.2	6.3	5.5	4.8	4.4
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):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	628.3	628.3	628.3	628.3	628.3	628.3	628.3	628.3	628.3	628.3	628.3
2.5°	617.2	615.7	612.8	608.5	605.8	601.3	598.2	600.0	600.4	600.0	599.5
5°	602.8	598.2	591.9	585.8	580.1	574.0	570.5	569.0	565.9	564.1	563.3
7.5°	586.4	579.6	570.7	560.9	551.7	543.0	539.0	536.0	530.3	527.3	524.4
10°	567.6	555.2	546.2	532.3	523.8	511.3	502.8	503.0	494.5	489.7	486.2
12.5°	546.9	532.9	516.6	504.3	491.7	482.3	471.6	466.3	457.2	452.6	441.7
15°	523.5	507.6	491.9	474.9	462.8	447.3	432.5	414.4	399.8	387.1	383.6
17.5°	498.7	479.0	463.5	446.0	427.3	399.1	380.8	369.6	360.9	354.3	349.1
20°	472.9	452.8	436.0	405.9	378.1	360.5	347.8	339.7	330.5	323.3	319.4
22.5°	445.8	424.6	400.2	365.7	345.6	332.3	321.4	311.8	306.3	301.1	297.6
25°	420.5	397.6	359.8	336.7	319.2	304.3	296.5	290.8	284.3	276.6	273.1
27.5°	394.1	357.6	329.0	312.2	294.3	284.9	278.1	268.8	262.9	260.0	256.1
30°	363.7	327.3	306.1	287.3	275.5	264.8	256.5	251.7	246.1	240.2	237.8
32.5°	329.9	302.6	282.5	267.7	255.7	246.9	240.8	232.3	228.6	225.5	219.9
35°	303.0	281.0	262.4	249.8	238.4	231.0	223.3	218.8	211.3	208.3	206.3
37.5°	278.6	259.4	245.4	231.4	222.7	214.0	209.6	201.9	199.1	194.3	190.4
40°	258.5	239.7	226.4	215.5	205.4	199.3	193.4	187.5	182.7	180.8	175.8
42.5°	238.0	223.6	210.2	198.0	192.1	185.6	177.7	173.8	168.8	165.3	162.7
45°	219.4	205.9	194.5	184.7	177.3	170.5	165.7	158.5	155.7	149.3	146.7
47.5°	203.0	189.9	179.0	169.4	162.0	158.1	151.1	144.7	140.8	136.5	132.7
50°	185.4	174.9	164.4	156.1	149.6	143.2	136.0	133.2	126.2	124.2	122.3
52.5°	169.2	159.4	150.0	141.9	135.4	129.2	123.1	119.2	115.1	113.1	111.8
55°	154.4	144.7	135.6	128.4	121.8	115.5	111.6	107.0	104.8	103.3	101.5
57.5°	139.1	130.3	123.1	115.7	109.2	103.9	99.1	96.5	94.3	92.6	90.2
60°	124.7	116.4	110.0	103.3	96.5	92.4	88.9	85.6	83.0	79.9	79.0
62.5°	109.4	102.4	96.7	90.2	84.5	80.8	77.5	74.4	71.2	66.4	65.1
65°	95.6	89.9	83.8	78.4	73.1	69.4	64.6	61.1	59.8	59.4	59.2
67.5°	83.0	77.5	72.3	66.6	61.8	57.6	54.8	54.4	53.5	53.3	52.6
70°	70.3	65.3	60.0	54.8	50.2	49.6	48.7	47.8	46.7	46.3	45.8
72.5°	58.9	53.7	48.5	44.5	43.2	42.4	41.5	40.6	40.0	39.5	39.3
75°	46.9	42.1	38.6	37.1	36.0	35.4	34.1	33.4	33.0	32.3	32.1
77.5°	35.8	32.7	31.0	30.1	28.8	28.2	27.3	26.6	26.0	26.0	25.5
80°	25.8	24.5	23.4	22.1	21.6	20.7	20.5	19.9	20.1	19.4	19.4
82.5°	18.6	16.8	15.9	15.5	15.1	14.4	14.2	14.0	14.0	13.5	13.5
85°	10.3	9.8	9.4	9.0	9.0	8.3	8.5	8.3	8.3	7.9	7.6
87.5°	4.1	3.9	3.5	3.5	3.5	3.3	3.3	3.1	3.1	3.1	2.8
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: P242397

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**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	628.3	628.3	628.3	628.3
2.5°	597.1	597.6	596.9	597.3
5°	562.2	559.6	559.1	558.5
7.5°	520.9	520.7	519.4	517.9
10°	481.4	480.3	480.1	478.6
12.5°	435.1	426.6	425.7	421.4
15°	378.4	377.0	372.7	369.8
17.5°	346.7	342.3	340.8	340.1
20°	316.4	312.4	311.8	311.3
22.5°	295.4	291.2	289.3	287.8
25°	270.9	269.4	268.5	268.1
27.5°	251.7	247.8	247.4	246.3
30°	235.8	234.7	233.2	231.9
32.5°	217.0	216.1	214.8	214.4
35°	204.1	201.1	199.8	197.8
37.5°	189.9	188.2	186.0	186.9
40°	172.9	171.8	171.4	171.2
42.5°	159.4	155.9	154.6	154.6
45°	145.6	142.8	140.8	141.0
47.5°	130.8	131.0	129.7	130.1
50°	120.7	119.4	118.5	118.8
52.5°	111.1	110.0	109.4	110.5
55°	100.4	99.1	98.9	98.7
57.5°	88.9	88.2	87.1	86.5
60°	76.2	74.4	72.3	72.0
62.5°	64.6	64.6	64.6	64.6
65°	58.7	58.5	58.7	58.9
67.5°	52.6	52.2	51.7	52.0
70°	45.4	45.2	45.0	45.0
72.5°	38.4	38.4	38.2	38.0
75°	31.9	31.4	31.4	31.4
77.5°	25.5	25.3	25.1	24.9
80°	19.2	19.0	18.8	18.8
82.5°	13.5	13.3	13.3	13.1
85°	7.9	8.1	7.9	8.3
87.5°	2.8	2.6	2.8	2.6
90°	0.0	0.0	0.0	0.0

TEST NUMBER: P242397

CATALOG NUMBER: S122RDRP-S290D835-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	14.16	15.61	14.53	15.93	16.24	20.06	21.51	20.42	21.82	22.14
	3H	15.27	16.57	15.65	16.90	17.26	21.22	22.51	21.59	22.84	23.21
	4H	15.73	16.94	16.13	17.29	17.67	21.61	22.83	22.01	23.18	23.56
	6H	16.09	17.21	16.51	17.58	17.98	21.88	23.00	22.29	23.37	23.76
	8H	16.22	17.28	16.64	17.67	18.07	21.95	23.01	22.38	23.40	23.81
	12H	16.30	17.32	16.73	17.70	18.13	21.99	23.01	22.42	23.39	23.82
4H	2H	14.87	16.09	15.27	16.44	16.82	20.02	21.24	20.42	21.59	21.97
	3H	16.14	17.15	16.55	17.55	17.95	21.32	22.32	21.73	22.73	23.13
	4H	16.69	17.59	17.12	18.01	18.45	21.81	22.72	22.25	23.13	23.57
	6H	17.16	17.95	17.62	18.39	18.85	22.20	22.98	22.66	23.43	23.89
	8H	17.32	18.05	17.79	18.50	18.97	22.31	23.04	22.78	23.49	23.96
	12H	17.44	18.09	17.92	18.57	19.04	22.39	23.04	22.87	23.52	23.99
8H	4H	17.03	17.77	17.50	18.21	18.68	21.80	22.53	22.26	22.97	23.44
	6H	17.60	18.21	18.10	18.70	19.18	22.23	22.83	22.72	23.32	23.80
	8H	17.83	18.37	18.34	18.88	19.37	22.37	22.92	22.89	23.43	23.92
	12H	18.01	18.49	18.52	18.98	19.55	22.50	22.97	23.01	23.47	24.03
12H	4H	17.08	17.73	17.56	18.21	18.68	21.77	22.43	22.26	22.91	23.38
	6H	17.67	18.21	18.18	18.72	19.21	22.20	22.74	22.71	23.25	23.74
	8H	17.94	18.42	18.46	18.91	19.48	22.38	22.86	22.89	23.35	23.92