

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: P242387

Luminaire Tested: S122RDRP-S290D927-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P242387  
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-S290D927-X4F0-XX-UDD-A-W  
Description: DEFINE 2 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER  
STANDARD LIGHT ENGINE  
Light Source: (92) 2700K CCT, 90 CRI LEDS  
Ballast/Driver: -

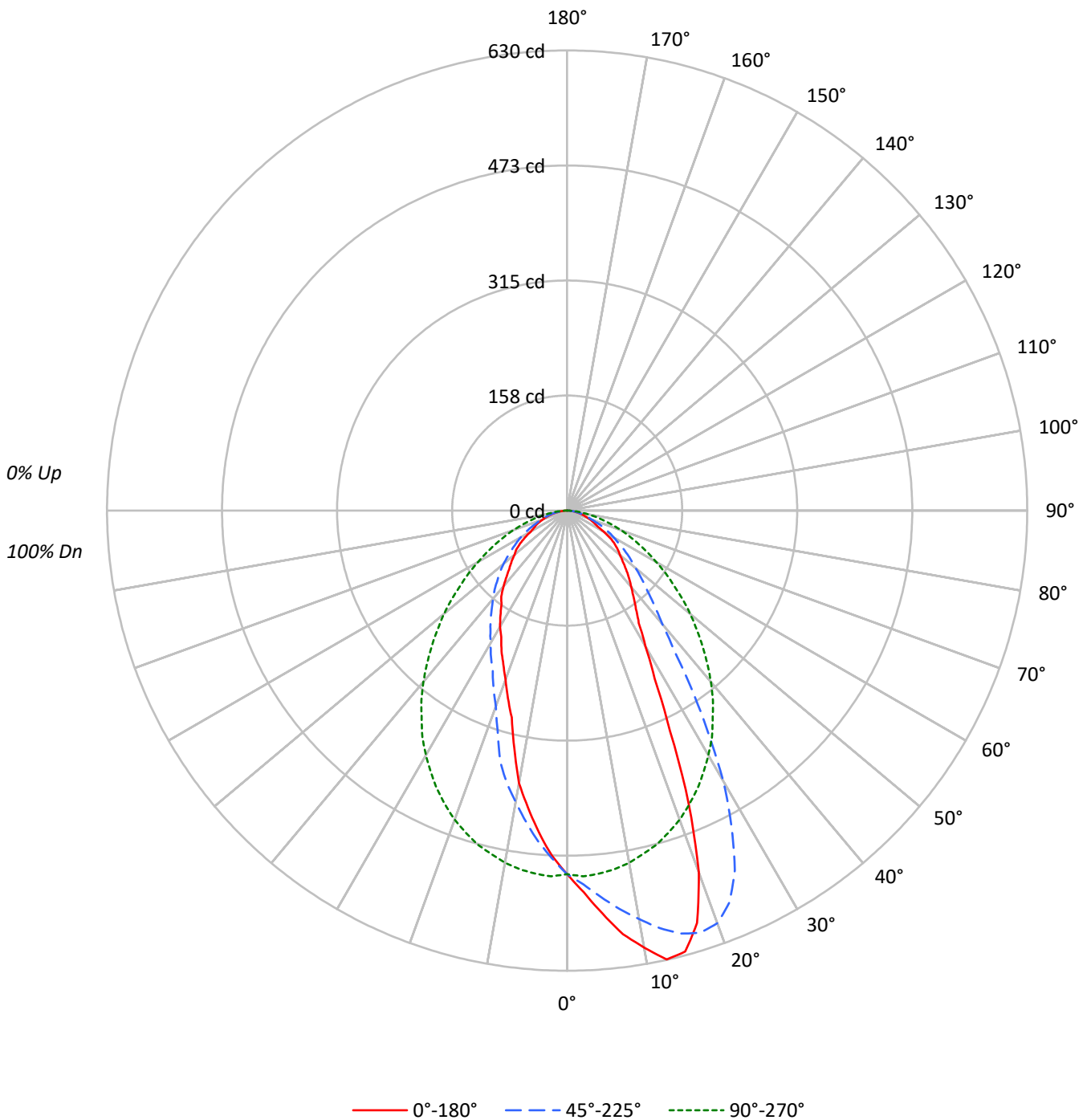
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 860.1 lumens  
Efficiency: N/A  
Efficacy: 74.2 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°	9482	9482	9482	9482	9482
5°	10589	10153	9541	8694	8459
10°	11748	10982	9473	7835	7332
15°	12325	11822	9335	6989	5778
20°	10686	12186	9130	5787	4999
25°	7009	11416	8848	5067	4464
30°	4718	9400	8505	4614	4040
35°	3820	6864	8076	4255	3644
40°	3397	5045	7609	3926	3372
45°	3074	4194	7058	3639	3009
50°	2797	3633	6513	3363	2788
55°	2630	3218	5911	3039	2597
60°	2202	2800	5356	2789	2175
65°	1857	2492	4863	2479	2105
70°	1715	1983	4344	2189	1983
75°	1604	1796	3783	2061	1833
80°	1481	1634	3115	1799	1634
85°	1355	1399	2448	1442	1442

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 70°  
 Vertical Angle: 45°  
 Luminance: 10282 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	47.2	5.5
10°-20°	131.8	15.3
20°-30°	169.6	19.7
30°-40°	160.9	18.7
40°-50°	137.9	16.0
50°-60°	105.0	12.2
60°-70°	66.2	7.7
70°-80°	33.1	3.8
80°-90°	8.5	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°	348.6	40.5
0°-40°	509.5	59.2
0°-60°	752.4	87.5
0°-90°	860.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	860.1	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	498	498	498	498	498	
5°	554	531	499	455	442	55
15°	625	600	473	354	293	170
25°	334	543	421	241	212	157
35°	164	295	347	183	157	105
45°	114	156	262	135	112	88
55°	79	97	178	92	78	70
65°	41	55	108	55	47	42
75°	22	24	51	28	25	23
85°	6	6	11	7	7	7
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°	497.8	497.8	497.8	497.8	497.8	497.8	497.8	497.8	497.8	497.8	497.8
2.5°	523.0	523.5	524.0	522.8	522.8	521.8	519.5	517.8	513.0	512.3	512.3
5°	553.8	553.4	554.1	551.9	548.8	548.1	544.8	540.5	536.0	531.0	529.9
7.5°	584.9	582.8	582.0	583.0	579.7	575.2	569.7	564.5	556.7	550.3	546.4
10°	607.4	613.1	609.7	603.6	604.8	596.7	592.4	584.9	578.7	567.8	565.4
12.5°	629.5	630.9	630.4	627.6	625.4	620.4	614.2	607.9	595.1	585.6	575.6
15°	625.0	628.3	629.2	628.2	629.0	628.7	625.6	620.2	610.2	599.5	590.1
17.5°	591.8	595.6	598.8	601.5	605.9	614.3	616.9	618.0	613.8	606.2	598.4
20°	527.2	523.4	539.3	547.4	554.3	571.6	586.5	592.2	601.4	601.2	599.5
22.5°	435.5	437.6	452.4	462.5	486.0	503.3	520.8	546.2	566.1	580.8	589.8
25°	333.5	340.0	355.1	368.2	390.7	422.9	452.1	486.0	518.0	543.2	567.3
27.5°	259.4	260.3	274.0	287.3	301.1	329.0	368.0	408.7	454.3	487.2	528.7
30°	214.5	213.4	218.4	225.9	237.3	257.7	285.4	325.1	370.6	427.4	477.9
32.5°	182.6	183.0	186.4	191.5	200.5	212.6	229.3	259.8	302.1	357.7	419.1
35°	164.3	164.1	166.9	170.9	174.9	183.7	196.6	213.6	243.2	295.2	355.8
37.5°	149.1	149.9	151.2	153.8	158.6	163.8	171.9	183.8	206.3	238.7	293.0
40°	136.6	137.0	138.9	141.0	143.6	147.4	153.8	162.9	178.3	202.9	240.1
42.5°	125.2	125.6	126.8	128.7	130.6	134.4	139.4	147.0	158.8	176.6	205.6
45°	114.1	114.1	115.4	116.2	118.5	121.9	126.3	132.8	141.5	155.7	176.1
47.5°	103.4	103.4	104.3	105.8	107.4	110.2	114.7	120.2	126.4	138.0	156.2
50°	94.4	94.6	95.1	96.3	97.2	99.6	102.9	107.6	114.1	122.6	137.2
52.5°	87.2	87.0	87.7	88.0	88.6	90.1	92.4	96.3	102.0	109.1	120.5
55°	79.2	78.5	79.6	80.4	80.9	81.6	83.0	85.6	90.6	96.9	105.8
57.5°	69.9	69.5	70.0	70.9	72.5	74.2	75.1	76.8	79.4	84.2	93.7
60°	57.8	57.8	59.3	59.8	61.7	64.2	66.6	68.0	70.6	73.5	80.1
62.5°	47.0	47.2	47.7	48.3	49.1	52.2	55.9	59.3	61.7	64.5	68.3
65°	41.2	41.5	41.5	41.9	42.5	43.2	44.6	47.0	51.4	55.3	58.6
67.5°	36.0	36.0	36.1	36.5	36.7	37.5	38.0	39.3	40.1	44.6	49.1
70°	30.8	31.3	31.1	31.5	31.7	32.0	32.7	33.2	34.8	35.6	38.0
72.5°	25.9	26.3	26.3	26.5	27.0	27.0	27.5	28.0	28.9	29.6	30.6
75°	21.8	21.6	21.8	22.1	22.3	22.5	22.5	23.2	23.7	24.4	25.3
77.5°	17.6	17.8	17.8	17.8	17.8	18.2	18.2	18.5	19.0	19.4	19.9
80°	13.5	13.7	13.5	13.7	13.8	14.0	13.8	14.0	14.5	14.9	14.9
82.5°	9.7	9.7	9.9	9.9	9.9	9.9	10.2	10.2	10.6	10.4	10.6
85°	6.2	6.1	6.1	6.1	6.2	6.4	6.2	6.2	6.4	6.4	6.4
87.5°	2.8	2.9	2.9	2.9	2.9	2.9	2.9	3.1	2.9	3.1	2.9
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°	497.8	497.8	497.8	497.8	497.8	497.8	497.8	497.8	497.8	497.8	497.8
2.5°	512.6	511.2	510.0	506.9	505.4	501.9	501.4	501.2	496.7	492.4	491.2
5°	527.2	524.4	520.2	515.4	510.4	505.2	501.7	499.0	492.0	485.5	481.7
7.5°	541.5	536.5	529.9	521.6	514.5	506.2	500.5	495.3	485.8	477.2	471.5
10°	557.9	548.3	538.7	526.1	516.3	506.6	497.6	489.8	478.7	466.3	457.5
12.5°	568.1	557.3	543.2	531.0	517.5	504.5	491.7	481.2	467.7	454.7	443.8
15°	577.1	565.7	549.8	532.2	515.7	499.7	485.8	473.4	456.4	441.0	428.2
17.5°	585.4	569.7	553.3	532.9	514.7	495.2	477.7	462.1	443.6	425.5	410.9
20°	589.1	573.5	553.8	533.4	510.9	486.9	467.7	450.4	430.1	409.9	392.6
22.5°	586.8	575.6	553.1	527.7	504.5	479.1	456.8	436.0	413.0	392.3	371.5
25°	575.1	570.9	550.2	523.5	497.2	468.0	442.9	421.0	395.4	373.2	351.4
27.5°	553.4	559.5	544.8	515.9	487.6	456.1	428.7	404.0	377.9	353.2	331.4
30°	519.2	539.8	534.2	508.0	475.3	444.5	412.8	386.7	358.4	332.8	311.3
32.5°	472.3	509.7	517.8	496.9	462.8	428.2	394.7	368.7	338.8	311.5	290.7
35°	422.0	472.9	496.2	482.2	448.3	411.8	377.6	347.3	317.5	290.9	270.2
37.5°	362.3	430.1	466.1	464.5	432.2	395.0	357.8	327.9	297.3	271.0	249.4
40°	304.6	379.6	430.3	441.5	415.3	374.3	336.6	306.0	276.2	250.6	224.8
42.5°	252.7	327.4	392.6	414.2	394.7	354.0	316.2	283.8	255.1	231.2	204.8
45°	212.7	278.1	346.8	381.7	370.1	332.4	292.5	262.0	234.9	213.9	188.7
47.5°	184.2	231.8	300.8	346.4	345.0	309.2	269.5	240.2	214.6	195.3	173.8
50°	160.5	200.6	256.8	310.4	314.9	286.1	248.7	219.8	196.3	175.7	159.3
52.5°	139.2	170.5	219.6	270.5	285.4	261.3	225.4	199.2	176.6	158.1	144.6
55°	121.2	146.8	185.2	233.3	252.7	235.0	202.9	178.0	159.5	143.6	131.4
57.5°	105.5	125.6	157.6	197.9	219.8	207.9	180.4	159.8	143.4	128.5	118.8
60°	90.8	106.5	132.7	165.0	189.9	182.1	159.5	140.6	127.1	114.7	105.7
62.5°	77.0	89.9	111.4	136.1	158.4	156.3	138.9	123.8	112.4	101.3	94.1
65°	64.2	74.0	91.5	112.1	130.4	132.0	118.6	107.9	97.4	88.4	81.6
67.5°	53.1	59.8	73.0	91.1	105.2	110.0	101.0	92.4	83.7	76.4	70.4
70°	43.1	48.3	57.2	71.3	83.9	89.1	84.4	78.0	70.7	65.0	60.0
72.5°	32.9	37.9	43.9	53.3	63.6	69.4	68.5	64.3	58.8	54.3	49.6
75°	26.3	27.8	32.3	39.3	47.7	52.6	53.8	51.4	46.7	43.1	40.3
77.5°	20.4	21.4	23.9	28.0	33.9	38.2	40.1	39.8	36.3	33.9	31.3
80°	15.6	16.1	17.1	18.7	22.8	27.2	28.4	28.4	26.1	25.3	22.7
82.5°	10.9	11.2	11.8	12.5	13.8	17.5	18.9	19.2	18.0	16.8	14.9
85°	6.7	6.6	6.9	7.4	7.8	8.8	10.9	11.2	10.9	9.5	9.0
87.5°	2.9	3.1	3.1	2.9	3.1	3.3	4.2	5.0	4.3	3.8	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



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**CANDELA DISTRIBUTION (continued):**

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	497.8	497.8	497.8	497.8	497.8	497.8	497.8	497.8	497.8	497.8	497.8
2.5°	488.9	487.7	485.5	482.0	479.9	476.3	473.9	475.3	475.6	475.3	474.9
5°	477.5	473.9	468.9	464.0	459.5	454.7	451.9	450.7	448.3	446.9	446.2
7.5°	464.5	459.2	452.1	444.3	437.0	430.1	427.0	424.6	420.1	417.7	415.4
10°	449.7	439.8	432.7	421.7	414.9	405.1	398.3	398.5	391.7	387.9	385.2
12.5°	433.2	422.2	409.2	399.5	389.5	382.1	373.6	369.4	362.2	358.5	349.9
15°	414.7	402.1	389.7	376.2	366.7	354.4	342.6	328.3	316.7	306.6	303.9
17.5°	395.0	379.5	367.2	353.3	338.5	316.2	301.6	292.8	285.9	280.7	276.6
20°	374.6	358.7	345.4	321.5	299.6	285.5	275.5	269.1	261.8	256.1	253.0
22.5°	353.2	336.4	317.0	289.7	273.8	263.2	254.6	247.0	242.7	238.5	235.7
25°	333.1	314.9	285.0	266.7	252.9	241.1	234.9	230.4	225.2	219.1	216.4
27.5°	312.2	283.3	260.6	247.3	233.1	225.7	220.3	212.9	208.2	206.0	202.9
30°	288.1	259.3	242.5	227.6	218.3	209.8	203.2	199.4	194.9	190.2	188.3
32.5°	261.3	239.7	223.8	212.0	202.5	195.6	190.8	184.0	181.1	178.7	174.2
35°	240.1	222.6	207.9	197.9	188.9	183.0	176.9	173.3	167.4	165.0	163.4
37.5°	220.7	205.5	194.4	183.3	176.4	169.5	166.0	160.0	157.7	153.9	150.8
40°	204.8	189.9	179.4	170.7	162.7	157.9	153.2	148.6	144.8	143.2	139.2
42.5°	188.5	177.1	166.6	156.9	152.2	147.0	140.8	137.7	133.7	130.9	128.8
45°	173.8	163.1	154.1	146.3	140.4	135.1	131.3	125.6	123.3	118.3	116.2
47.5°	160.8	150.5	141.8	134.2	128.3	125.2	119.7	114.7	111.6	108.1	105.2
50°	146.8	138.5	130.2	123.7	118.5	113.5	107.7	105.5	100.0	98.4	96.9
52.5°	134.0	126.3	118.8	112.4	107.2	102.4	97.5	94.4	91.1	89.6	88.6
55°	122.3	114.7	107.4	101.7	96.5	91.5	88.4	84.7	83.0	81.8	80.4
57.5°	110.2	103.3	97.5	91.7	86.5	82.3	78.5	76.4	74.7	73.3	71.4
60°	98.8	92.2	87.2	81.8	76.4	73.2	70.4	67.8	65.7	63.3	62.6
62.5°	86.6	81.1	76.6	71.4	66.9	64.0	61.4	59.0	56.4	52.6	51.5
65°	75.8	71.3	66.4	62.1	57.9	55.0	51.2	48.4	47.4	47.0	46.9
67.5°	65.7	61.4	57.2	52.8	48.9	45.7	43.4	43.1	42.4	42.2	41.7
70°	55.7	51.7	47.6	43.4	39.8	39.3	38.6	37.9	37.0	36.7	36.3
72.5°	46.7	42.5	38.4	35.3	34.2	33.6	32.9	32.2	31.7	31.3	31.1
75°	37.2	33.4	30.6	29.4	28.5	28.0	27.0	26.5	26.1	25.6	25.4
77.5°	28.4	25.9	24.6	23.9	22.8	22.3	21.6	21.1	20.6	20.6	20.2
80°	20.4	19.4	18.5	17.5	17.1	16.4	16.3	15.7	15.9	15.4	15.4
82.5°	14.7	13.3	12.6	12.3	11.9	11.4	11.2	11.1	11.1	10.7	10.7
85°	8.1	7.8	7.4	7.1	7.1	6.6	6.7	6.6	6.6	6.2	6.1
87.5°	3.3	3.1	2.8	2.8	2.8	2.6	2.6	2.4	2.4	2.4	2.2
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: P242387

CATALOG NUMBER: S122RDRP-S290D927-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	497.8	497.8	497.8	497.8
2.5°	473.0	473.4	472.9	473.2
5°	445.4	443.3	442.9	442.4
7.5°	412.7	412.5	411.5	410.2
10°	381.4	380.5	380.3	379.1
12.5°	344.7	337.9	337.3	333.8
15°	299.7	298.7	295.2	293.0
17.5°	274.6	271.2	270.0	269.5
20°	250.6	247.5	247.0	246.6
22.5°	234.0	230.7	229.2	228.0
25°	214.6	213.4	212.7	212.4
27.5°	199.4	196.3	196.0	195.1
30°	186.8	185.9	184.7	183.7
32.5°	171.9	171.2	170.2	169.8
35°	161.7	159.3	158.3	156.7
37.5°	150.5	149.1	147.4	148.0
40°	137.0	136.1	135.8	135.6
42.5°	126.3	123.5	122.5	122.5
45°	115.4	113.1	111.6	111.7
47.5°	103.6	103.8	102.7	103.1
50°	95.6	94.6	93.9	94.1
52.5°	88.0	87.2	86.6	87.5
55°	79.6	78.5	78.3	78.2
57.5°	70.4	69.9	69.0	68.5
60°	60.4	59.0	57.2	57.1
62.5°	51.2	51.2	51.2	51.2
65°	46.5	46.4	46.5	46.7
67.5°	41.7	41.3	41.0	41.2
70°	36.0	35.8	35.6	35.6
72.5°	30.4	30.4	30.3	30.1
75°	25.3	24.9	24.9	24.9
77.5°	20.2	20.1	19.9	19.7
80°	15.2	15.0	14.9	14.9
82.5°	10.7	10.6	10.6	10.4
85°	6.2	6.4	6.2	6.6
87.5°	2.2	2.1	2.2	2.1
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P242387  
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**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	13.35	14.80	13.72	15.12	15.43	19.25	20.70	19.61	21.02	21.33
	3H	14.46	15.76	14.84	16.09	16.45	20.41	21.71	20.78	22.03	22.40
	4H	14.92	16.13	15.32	16.48	16.86	20.80	22.02	21.20	22.37	22.75
	6H	15.28	16.41	15.70	16.77	17.17	21.07	22.19	21.48	22.56	22.95
	8H	15.41	16.47	15.84	16.86	17.27	21.14	22.21	21.57	22.60	23.00
	12H	15.49	16.51	15.92	16.89	17.32	21.18	22.20	21.61	22.58	23.01
4H	2H	14.06	15.28	14.46	15.63	16.01	19.21	20.43	19.61	20.78	21.16
	3H	15.33	16.34	15.74	16.74	17.14	20.51	21.52	20.92	21.92	22.32
	4H	15.88	16.78	16.31	17.20	17.64	21.00	21.91	21.44	22.32	22.76
	6H	16.35	17.14	16.81	17.58	18.04	21.39	22.17	21.85	22.62	23.08
	8H	16.51	17.25	16.98	17.69	18.16	21.50	22.24	21.97	22.68	23.15
	12H	16.63	17.28	17.12	17.76	18.24	21.58	22.23	22.06	22.71	23.18
8H	4H	16.22	16.96	16.69	17.40	17.87	20.99	21.72	21.45	22.17	22.63
	6H	16.79	17.40	17.29	17.89	18.37	21.42	22.02	21.91	22.51	22.99
	8H	17.02	17.56	17.54	18.07	18.56	21.57	22.11	22.08	22.62	23.11
	12H	17.21	17.68	17.72	18.18	18.74	21.69	22.16	22.20	22.66	23.22
12H	4H	16.26	16.92	16.75	17.40	17.87	20.96	21.62	21.45	22.10	22.57
	6H	16.86	17.40	17.37	17.91	18.40	21.39	21.93	21.91	22.44	22.93
	8H	17.14	17.61	17.65	18.11	18.67	21.57	22.05	22.08	22.54	23.11