

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: P243169

Luminaire Tested: S122DRP-H290D935-X4F0-XX-UDD-A-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P243169  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-58)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: S122DRP-H290D935-X4F0-XX-UDD-A-W  
Description: DEFINE 2 DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 3500K CCT, 90 CRI LEDS  
Ballast/Driver: -

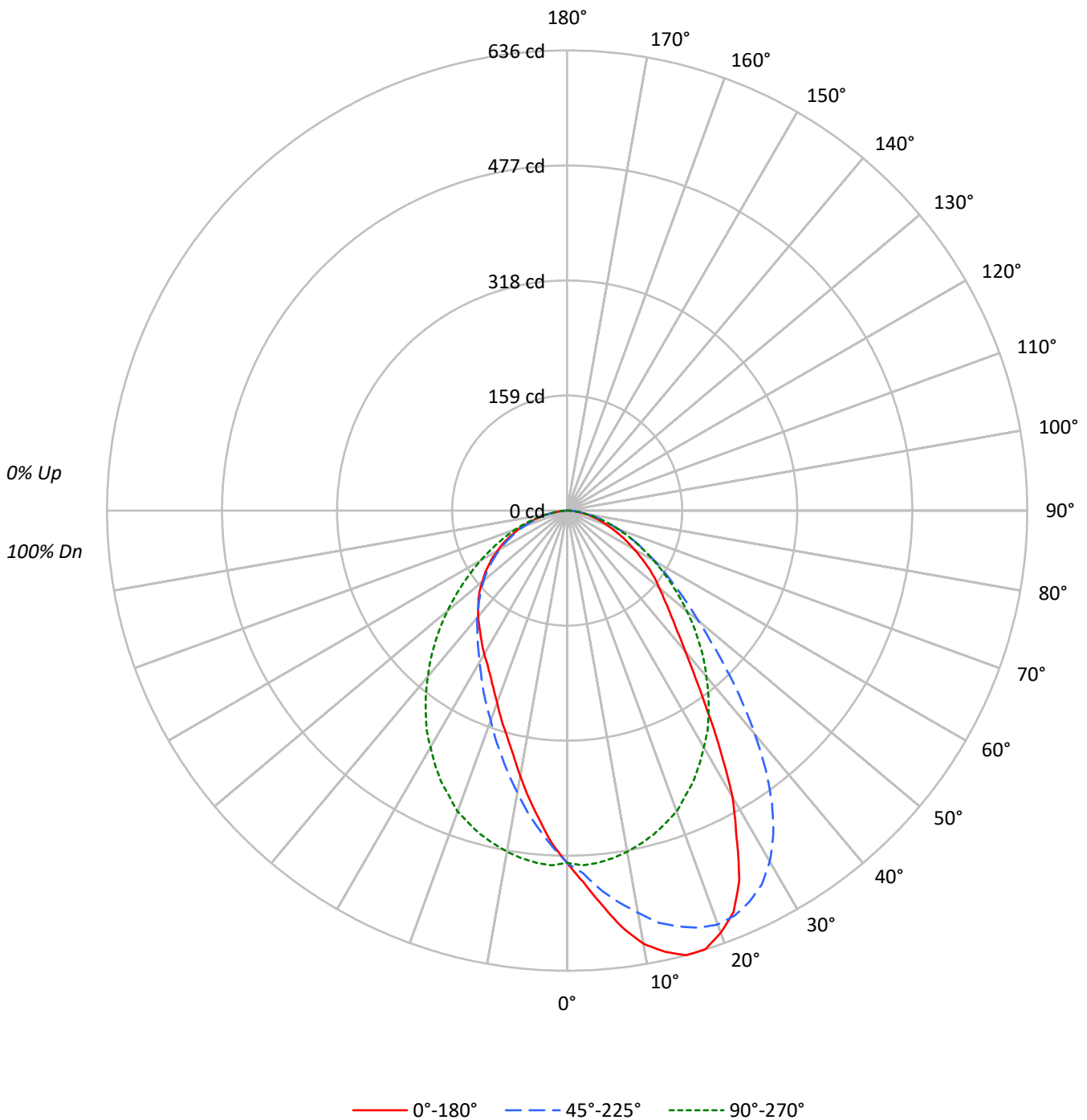
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1080.7 lumens  
Efficiency: N/A  
Efficacy: 96.5 lumens/watt  
Spacing Criteria (0/90/45): 1.09 / 1.16 / 1.24  
Luminous Opening: Rectangular (W 3.88' x L: 0.15' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 11.2  
Input Voltage (V): 120  
Input Current (Ain): 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	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	110	106	102	98	107	103	100	97	99	96	94	95	93	91	92	90	88	86
2	101	93	87	82	98	92	86	81	88	83	79	85	81	77	82	79	76	74
3	93	83	76	70	90	82	75	69	79	73	68	76	71	67	73	69	66	63
4	86	74	66	60	83	73	66	60	71	64	59	68	63	58	66	61	57	55
5	79	67	59	52	77	66	58	52	64	57	52	62	56	51	60	55	51	49
6	73	61	52	46	72	60	52	46	58	51	46	57	50	45	55	49	45	43
7	68	56	47	41	67	55	47	41	53	46	41	52	46	41	51	45	40	39
8	64	51	43	37	62	50	43	37	49	42	37	48	41	37	47	41	37	35
9	60	47	39	34	58	46	39	34	45	38	34	44	38	34	43	38	33	32
10	56	44	36	31	55	43	36	31	42	35	31	41	35	31	40	35	31	29

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

	0°	45°	90°	135°	180°
0°	9276	9276	9276	9276	9276
5°	10449	10050	9342	8461	8229
10°	11762	10914	9259	7659	7203
15°	12548	11733	9134	6914	6348
20°	12584	12338	8970	6251	5728
25°	11835	12534	8672	5759	5282
30°	10045	12321	8309	5312	5043
35°	7855	11475	7922	5018	4853
40°	6311	10036	7445	4814	4759
45°	5428	8410	6953	4612	4671
50°	4925	7014	6398	4460	4540
55°	4536	6027	5831	4287	4417
60°	4080	5314	5253	4084	4217
65°	3673	4750	4719	3827	4011
70°	3275	4216	4194	3503	3754
75°	2944	3672	3606	3106	3290
80°	2567	3049	2907	2534	2567
85°	2207	2513	2164	1705	1421

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 65°  
 Vertical Angle: 45°  
 Luminance: 11629 cd/sqm

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	46.4	4.3
10°-20°	133.4	12.3
20°-30°	193.9	17.9
30°-40°	208.0	19.3
40°-50°	186.5	17.3
50°-60°	148.6	13.8
60°-70°	100.6	9.3
70°-80°	51.3	4.7
80°-90°	12.0	1.1
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°	373.7	34.6
0°-40°	581.7	53.8
0°-60°	916.8	84.8
0°-90°	1080.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1080.7	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	487	487	487	487	487	
5°	546	526	489	442	430	54
15°	636	595	463	351	322	178
25°	563	596	413	274	251	253
35°	338	494	341	216	209	214
45°	202	312	258	171	173	158
55°	137	182	176	129	133	122
65°	82	105	105	85	89	81
75°	40	50	49	42	45	43
85°	10	12	10	8	6	12
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°	487.0	487.0	487.0	487.0	487.0	487.0	487.0	487.0	487.0	487.0	487.0
2.5°	514.1	515.7	514.2	513.7	512.6	512.3	509.4	507.0	505.6	501.6	502.0
5°	546.5	550.1	548.1	547.9	544.0	541.5	538.9	535.3	529.9	525.6	522.2
7.5°	580.7	578.9	578.4	576.4	573.5	569.9	564.3	559.1	552.3	546.0	541.3
10°	608.1	607.6	608.5	603.5	601.7	596.1	591.2	583.1	574.3	564.3	558.2
12.5°	624.4	626.0	627.3	625.3	620.9	619.3	611.2	599.9	596.8	583.3	575.9
15°	636.3	637.0	637.2	635.0	632.8	628.7	623.8	616.6	606.7	595.0	589.4
17.5°	635.5	635.4	636.4	635.2	633.9	632.7	628.9	623.3	615.5	604.5	595.2
20°	620.8	624.0	626.5	627.1	626.9	627.6	625.8	622.2	616.6	608.7	598.1
22.5°	600.6	599.3	604.7	604.4	606.7	612.1	614.5	613.0	610.8	605.8	597.3
25°	563.1	564.3	568.1	572.1	581.3	584.5	591.6	597.0	597.7	596.4	591.2
27.5°	506.8	515.9	517.8	523.1	535.9	546.5	560.7	569.2	581.3	582.4	580.0
30°	456.7	456.4	459.4	468.8	480.5	496.6	515.0	536.8	550.6	560.2	563.6
32.5°	395.1	396.5	404.5	416.0	427.9	443.9	465.2	491.9	510.5	530.3	541.5
35°	337.8	342.3	349.9	357.8	370.8	392.8	416.4	438.5	467.0	493.5	511.5
37.5°	290.6	296.7	302.5	310.0	322.6	339.6	360.9	390.2	418.5	450.4	476.9
40°	253.8	256.1	260.1	267.5	276.0	292.9	314.3	336.3	367.0	403.6	438.4
42.5°	224.9	224.4	228.7	233.4	241.2	253.8	272.5	294.5	325.0	357.4	392.6
45°	201.5	201.7	203.5	208.4	214.5	221.7	236.1	256.8	279.9	312.2	349.5
47.5°	182.4	182.9	185.7	189.1	192.7	199.4	208.9	222.4	244.1	271.1	306.1
50°	166.2	167.1	168.9	171.4	174.1	178.8	186.0	196.6	213.8	236.7	268.4
52.5°	151.8	152.1	152.7	155.0	157.2	161.5	166.9	175.2	188.7	207.8	232.5
55°	136.6	136.3	137.5	139.5	141.5	144.6	150.1	156.8	166.4	181.5	201.9
57.5°	121.1	121.7	122.6	123.6	127.3	130.5	134.6	140.8	148.3	160.2	177.2
60°	107.1	107.1	108.1	109.6	111.9	114.1	118.1	123.6	130.3	139.5	153.7
62.5°	93.4	94.1	95.2	95.9	98.1	100.8	103.8	108.1	114.3	121.7	132.3
65°	81.5	81.1	82.2	83.6	85.3	87.1	90.5	94.1	98.8	105.4	114.3
67.5°	69.2	70.3	70.7	71.4	72.6	75.0	76.6	80.4	84.2	90.1	97.5
70°	58.8	59.5	60.0	60.9	62.0	63.1	64.7	67.8	71.6	75.7	80.9
72.5°	49.4	49.9	49.4	50.3	50.8	51.9	54.1	55.5	58.4	62.0	66.7
75°	40.0	40.4	40.2	41.1	41.3	42.4	43.4	44.7	47.9	49.9	53.2
77.5°	31.4	31.7	31.9	32.3	32.6	33.2	33.7	35.0	36.8	38.6	41.1
80°	23.4	23.4	24.0	24.2	24.3	24.7	25.6	26.0	27.2	27.8	29.7
82.5°	16.2	16.4	16.6	16.6	16.8	17.1	17.3	18.0	18.4	19.3	20.2
85°	10.1	10.3	10.3	10.3	10.8	10.6	10.6	11.0	11.5	11.5	11.9
87.5°	5.0	5.2	5.2	5.2	5.4	5.4	5.4	5.4	5.4	5.8	5.6
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°	487.0	487.0	487.0	487.0	487.0	487.0	487.0	487.0	487.0	487.0	487.0
2.5°	501.8	501.6	500.9	497.7	495.1	491.9	491.3	490.8	486.3	481.4	480.0
5°	519.5	516.2	511.7	506.3	500.9	495.0	491.5	488.6	481.8	474.2	469.9
7.5°	536.8	530.5	523.4	515.0	505.9	496.4	490.3	484.5	475.1	465.2	459.3
10°	551.5	543.1	533.3	522.2	509.7	496.8	487.7	478.7	466.8	454.8	446.8
12.5°	563.8	553.0	540.2	525.1	513.7	495.9	483.2	471.3	458.2	442.5	433.8
15°	573.2	562.5	545.2	529.9	515.0	491.2	475.8	463.2	445.6	430.2	416.5
17.5°	584.5	569.4	552.3	530.3	513.7	486.5	469.2	452.8	433.7	415.6	400.5
20°	589.6	573.7	555.3	530.8	509.7	481.4	458.4	442.5	419.4	398.7	381.6
22.5°	590.3	575.2	555.2	529.2	502.9	474.0	447.5	426.8	403.7	381.8	362.5
25°	587.2	572.8	552.1	526.3	495.3	466.1	436.6	412.6	385.9	363.2	343.5
27.5°	578.9	567.2	547.6	520.0	487.6	453.9	421.6	395.5	369.1	343.4	324.6
30°	565.6	557.9	540.9	511.7	477.6	440.5	408.3	377.8	349.3	325.2	305.0
32.5°	548.5	544.7	530.6	501.8	467.6	425.9	392.2	360.9	329.8	307.0	286.2
35°	526.7	528.7	516.8	490.6	454.8	411.1	373.5	340.7	310.4	286.0	266.9
37.5°	498.4	508.1	500.5	476.0	438.4	396.2	353.8	320.8	289.1	265.7	248.9
40°	466.7	483.8	480.2	459.6	420.7	378.7	334.9	299.4	268.4	246.2	230.2
42.5°	429.3	454.2	458.2	439.6	403.2	356.9	313.6	279.4	249.5	227.6	212.3
45°	387.5	418.3	431.7	417.1	382.8	335.8	291.8	258.1	228.6	210.0	197.2
47.5°	345.5	382.7	400.7	393.7	359.0	313.3	270.2	237.2	209.3	193.0	181.0
50°	304.1	343.9	370.2	365.5	335.6	291.8	248.4	215.9	190.3	175.4	165.1
52.5°	267.7	305.3	334.0	336.3	309.5	267.3	225.3	195.2	173.4	159.9	151.2
55°	231.8	266.8	298.1	303.9	282.1	241.5	204.0	175.6	155.7	144.6	137.5
57.5°	199.7	231.4	262.6	272.7	255.0	218.5	181.1	156.1	139.0	130.3	124.2
60°	172.5	201.2	228.0	238.3	226.2	192.9	160.2	137.9	123.6	115.9	111.0
62.5°	148.7	170.9	194.7	206.0	197.9	168.9	140.4	120.6	109.0	102.4	98.6
65°	127.3	144.4	163.1	176.3	167.3	145.6	121.8	104.7	95.0	88.9	86.2
67.5°	107.4	121.7	136.6	147.1	142.6	122.9	102.9	89.6	81.5	76.8	74.3
70°	89.4	100.0	112.1	120.2	117.0	101.8	86.0	75.3	68.5	65.2	63.1
72.5°	73.4	80.2	89.4	96.1	92.6	82.0	70.7	62.2	57.1	53.4	51.7
75°	58.2	64.2	70.7	75.2	72.5	64.5	55.5	49.0	45.6	43.3	42.2
77.5°	44.2	48.8	53.4	55.5	54.3	48.5	42.4	37.3	34.4	33.0	31.7
80°	31.7	34.4	37.5	39.5	38.8	34.8	30.5	26.5	25.2	23.4	23.1
82.5°	21.3	23.4	24.2	25.1	24.5	22.7	19.6	17.3	16.2	15.3	15.1
85°	12.6	13.2	14.1	14.1	13.5	12.3	10.6	9.9	8.8	8.7	8.1
87.5°	5.6	5.6	5.6	5.6	5.6	5.2	4.5	4.1	3.8	3.6	3.4
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°	487.0	487.0	487.0	487.0	487.0	487.0	487.0	487.0	487.0	487.0	487.0
2.5°	478.7	476.9	474.4	471.5	469.0	465.0	463.8	463.8	464.7	463.6	462.7
5°	466.3	462.7	459.1	453.5	448.8	442.5	440.7	438.9	438.7	436.9	434.6
7.5°	453.0	447.5	440.2	432.2	427.2	420.3	416.5	415.5	412.0	408.8	405.0
10°	437.5	429.2	420.3	412.8	404.8	396.0	391.5	388.4	385.0	381.0	378.3
12.5°	418.7	409.3	401.2	392.4	385.7	373.3	371.8	367.9	361.0	355.1	352.9
15°	407.2	390.8	381.6	373.5	363.4	350.6	345.9	341.6	335.1	331.3	328.2
17.5°	386.8	372.0	360.5	349.7	339.9	330.0	323.0	319.4	314.2	310.9	307.9
20°	368.2	352.2	340.1	327.5	317.4	308.4	302.5	297.9	295.2	292.0	288.9
22.5°	349.5	332.7	321.2	308.4	296.5	291.1	284.1	280.3	276.7	274.2	270.9
25°	327.7	314.3	299.9	290.0	279.6	274.0	267.3	263.7	260.8	257.9	256.3
27.5°	308.2	294.7	281.4	271.4	262.6	257.2	253.1	249.6	246.0	243.9	242.6
30°	288.0	275.6	263.9	254.3	247.5	241.5	239.0	235.8	233.1	232.2	230.2
32.5°	270.0	256.1	246.8	238.1	232.3	228.2	226.4	223.0	222.4	221.5	220.4
35°	252.0	240.1	231.1	223.7	218.8	215.8	213.4	212.5	211.6	210.7	209.8
37.5°	234.1	224.8	216.3	210.3	206.4	204.0	203.5	201.7	201.5	200.3	200.3
40°	218.1	208.5	202.6	197.9	194.7	193.6	192.1	191.8	191.2	190.9	191.6
42.5°	202.1	195.6	190.5	185.7	183.1	182.2	181.9	181.3	181.0	182.0	182.4
45°	187.1	181.5	177.2	173.8	172.3	171.2	171.2	171.8	171.6	172.1	172.1
47.5°	173.2	168.2	164.6	163.3	161.5	161.1	161.3	161.1	162.0	162.8	163.5
50°	160.1	155.6	152.7	151.4	151.0	150.5	151.2	151.6	152.1	152.8	153.2
52.5°	145.5	143.3	141.5	140.2	140.1	140.2	140.1	141.3	141.9	142.9	142.8
55°	133.0	131.4	130.1	128.7	128.5	129.1	129.4	130.5	131.2	132.1	131.9
57.5°	121.3	120.0	118.6	118.2	118.1	118.2	119.9	119.7	120.8	121.5	121.8
60°	108.5	107.6	106.3	106.3	106.9	107.2	107.8	108.7	109.8	109.6	110.9
62.5°	96.8	95.7	95.3	95.9	95.7	96.6	97.2	97.2	98.6	99.1	99.5
65°	85.1	84.7	84.2	84.2	84.7	84.9	85.8	86.3	86.9	88.0	88.9
67.5°	74.1	73.2	73.2	72.8	73.5	74.1	74.6	75.3	75.7	77.0	77.5
70°	62.5	62.2	62.0	62.4	62.4	62.9	63.8	64.7	65.4	65.6	66.7
72.5°	51.4	51.4	51.4	51.9	52.3	52.8	53.0	53.7	54.8	55.0	55.5
75°	41.3	41.5	41.3	41.5	41.6	42.2	42.5	43.3	44.0	44.2	44.5
77.5°	31.9	31.5	31.2	31.7	32.1	33.2	33.0	33.3	34.1	33.7	34.1
80°	22.4	22.9	22.2	23.3	23.3	23.1	23.4	24.0	23.8	24.2	23.8
82.5°	15.1	14.6	14.6	15.1	15.3	14.8	15.1	15.3	15.5	15.1	15.0
85°	8.3	8.1	8.5	7.9	8.1	7.8	7.8	7.4	7.8	7.4	7.0
87.5°	3.1	2.9	3.1	2.5	2.3	2.2	2.0	2.0	1.6	1.6	1.6
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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CATALOG NUMBER: S122DRP-H290D935-X4F0-XX-UDD-A-W

**CANDELA DISTRIBUTION (continued):**

	165°	170°	175°	180°
0°	487.0	487.0	487.0	487.0
2.5°	464.0	462.0	461.1	461.8
5°	432.0	432.6	429.3	430.4
7.5°	404.5	402.1	402.8	401.6
10°	375.3	374.0	372.0	372.4
12.5°	355.6	347.2	346.6	345.0
15°	328.0	323.4	322.3	321.9
17.5°	306.1	302.1	303.5	302.5
20°	286.2	286.4	284.1	282.6
22.5°	268.7	268.4	267.5	266.0
25°	254.0	254.0	251.8	251.3
27.5°	240.4	240.8	239.0	239.0
30°	230.4	229.1	228.9	229.3
32.5°	220.3	218.8	219.0	218.8
35°	209.4	209.8	209.3	208.7
37.5°	200.3	200.3	200.3	199.7
40°	191.2	191.6	191.1	191.4
42.5°	182.2	182.4	182.4	181.7
45°	173.2	173.0	172.7	173.4
47.5°	163.8	163.8	163.7	164.0
50°	153.6	153.9	153.4	153.2
52.5°	143.1	143.3	143.1	143.5
55°	132.5	132.5	132.7	133.0
57.5°	121.5	122.7	121.8	122.6
60°	110.7	110.9	111.0	110.7
62.5°	100.4	100.2	100.4	100.9
65°	89.2	89.6	89.4	89.0
67.5°	78.2	77.9	78.4	77.9
70°	66.5	67.2	66.7	67.4
72.5°	55.9	55.7	56.1	55.2
75°	44.7	44.7	44.9	44.7
77.5°	34.2	33.9	33.7	33.2
80°	23.6	23.6	22.9	23.4
82.5°	14.4	14.6	14.8	13.7
85°	6.8	6.8	6.7	6.5
87.5°	1.4	1.4	1.6	1.8
90°	0.0	0.0	0.0	0.0



TEST NUMBER: P243169  
 CATALOG NUMBER: S122DRP-H290D935-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	16.39	17.91	16.75	18.22	18.54	19.22	20.75	19.59	21.06	21.37
	3H	17.74	19.11	18.12	19.43	19.80	20.24	21.61	20.62	21.94	22.30
	4H	18.23	19.51	18.62	19.86	20.23	20.57	21.85	20.97	22.20	22.58
	6H	18.57	19.76	18.99	20.13	20.52	20.77	21.95	21.18	22.32	22.71
	8H	18.68	19.81	19.11	20.20	20.60	20.81	21.94	21.24	22.33	22.73
	12H	18.75	19.83	19.18	20.21	20.64	20.83	21.90	21.26	22.29	22.72
4H	2H	17.27	18.55	17.67	18.90	19.28	19.47	20.75	19.87	21.10	21.47
	3H	18.77	19.83	19.18	20.23	20.63	20.84	21.90	21.25	22.30	22.70
	4H	19.33	20.29	19.77	20.71	21.15	21.35	22.31	21.78	22.72	23.16
	6H	19.77	20.60	20.23	21.05	21.51	21.68	22.52	22.14	22.96	23.42
	8H	19.91	20.69	20.37	21.13	21.60	21.76	22.54	22.22	22.98	23.45
	12H	20.01	20.70	20.49	21.18	21.65	21.80	22.49	22.28	22.97	23.44
8H	4H	19.77	20.55	20.24	20.99	21.46	21.49	22.27	21.95	22.71	23.18
	6H	20.29	20.94	20.79	21.43	21.91	21.93	22.57	22.43	23.06	23.54
	8H	20.48	21.06	20.99	21.57	22.06	22.06	22.64	22.58	23.15	23.64
	12H	20.64	21.14	21.15	21.64	22.20	22.15	22.66	22.66	23.15	23.72
12H	4H	19.83	20.52	20.31	21.00	21.47	21.48	22.18	21.96	22.66	23.13
	6H	20.37	20.95	20.89	21.46	21.95	21.93	22.51	22.45	23.02	23.51
	8H	20.61	21.12	21.12	21.61	22.17	22.11	22.62	22.62	23.11	23.68