

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: P242324

Luminaire Tested: S122DRP-S290D830-X4F0-XX-UDD-D-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P242324  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-14)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: S122DRP-S290D830-X4F0-XX-UDD-D-W  
Description: DEFINE 2 DIRECT RECESSED WITH SATIN DROP DIFFUSER  
STANDARD LIGHT ENGINE  
Light Source: (92) 3000K CCT, 80 CRI LEDS  
Ballast/Driver: -

**Summary**

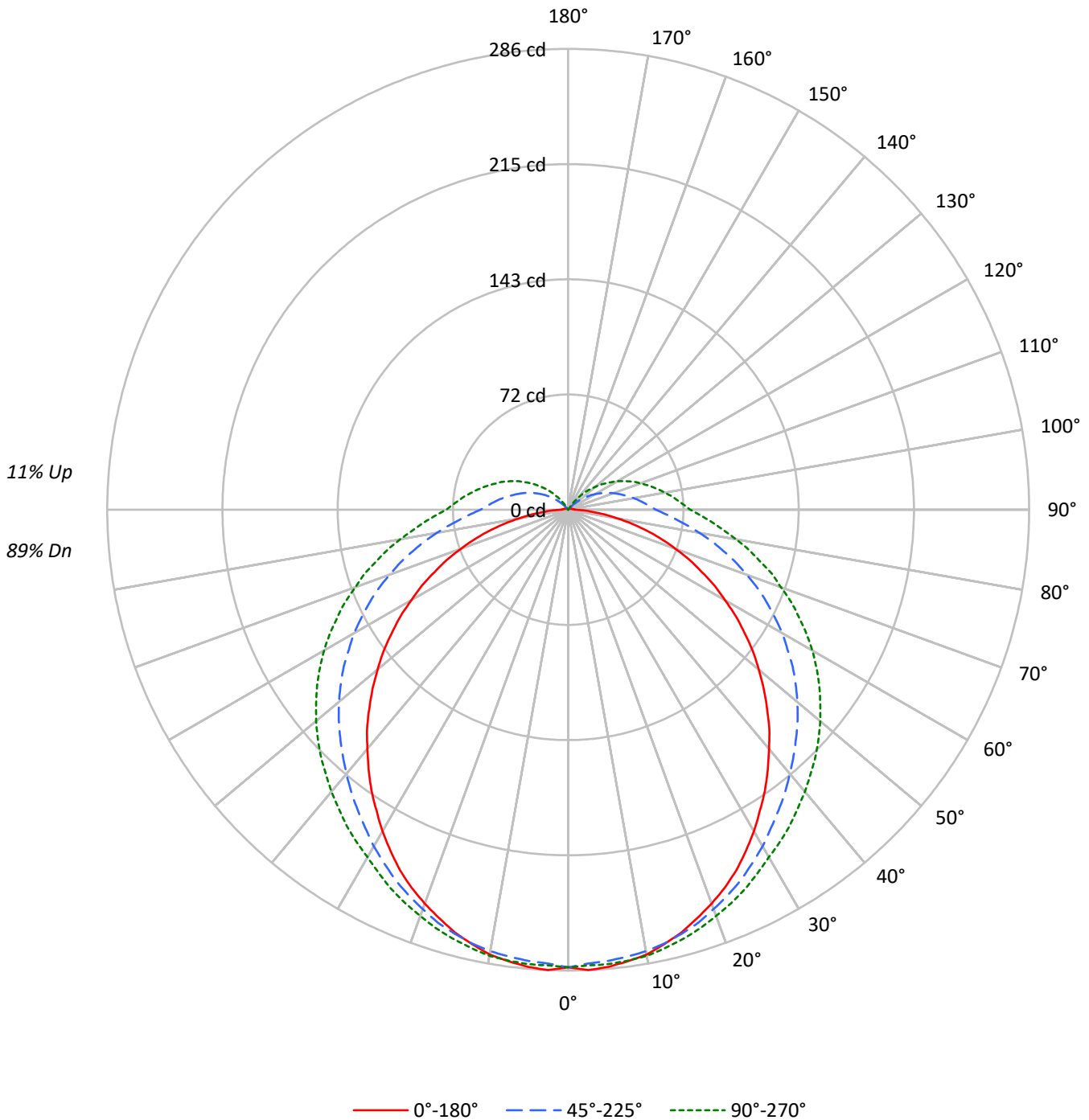
Lumens per Lamp: N/A  
Luminaire Lumens: 1083.5 lumens  
Efficiency: N/A  
Efficacy: 93.4 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.31 / 1.42  
Luminous Opening: Rectangular w/ Sides (W: 0.15' x L: 3.88' x H: 0.08')  
CIE Type: Semi-Direct

Input Watts (W): 11.6  
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	116	116	116	116	112	112	112	112	105	105	105	98	98	98	92	92	92	89
1	104	98	93	88	100	95	90	86	88	85	81	82	79	77	77	75	72	69
2	94	84	77	70	90	81	74	68	76	70	65	71	66	62	66	62	59	56
3	85	73	64	57	81	71	63	56	66	59	54	62	56	51	58	53	49	46
4	77	64	55	48	74	62	54	47	58	51	45	55	48	43	51	46	42	39
5	71	57	48	41	68	56	47	40	52	44	39	49	42	37	46	40	36	33
6	65	51	42	35	63	50	41	35	47	39	34	44	37	32	42	36	31	29
7	60	46	37	31	58	45	37	31	43	35	30	40	34	29	38	32	28	25
8	56	42	34	28	54	41	33	27	39	32	26	37	30	25	35	29	25	23
9	52	39	30	25	50	38	30	24	36	29	24	34	27	23	32	26	22	20
10	49	36	28	22	47	35	27	22	33	26	21	31	25	21	30	24	20	18

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

	0°	45°	90°
0°	5410	5410	5410
5°	5435	5185	5155
10°	5401	5010	4939
15°	5325	4829	4715
20°	5231	4639	4502
25°	5138	4457	4310
30°	5008	4271	4118
35°	4875	4091	3978
40°	4733	3936	3839
45°	4602	3796	3718
50°	4458	3667	3598
55°	4308	3531	3476
60°	4124	3388	3349
65°	3938	3223	3200
70°	3723	3046	3040
75°	3447	2870	2890
80°	3021	2686	2737
85°	2596	2517	2603

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 4602 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	26.9	2.5
10°-20°	77.2	7.1
20°-30°	117.0	10.8
30°-40°	142.5	13.1
40°-50°	153.3	14.1
50°-60°	148.8	13.7
60°-70°	130.0	12.0
70°-80°	100.0	9.2
80°-90°	67.0	6.2
90°-100°	46.2	4.3
100°-110°	33.8	3.1
110°-120°	22.3	2.1
120°-130°	12.4	1.1
130°-140°	5.2	0.5
140°-150°	0.9	0.1
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	221.1	20.4
0°-40°	363.6	33.6
0°-60°	665.7	61.4
0°-90°	962.7	88.9
90°-120°	102.3	9.4
90°-150°	120.8	11.1
90°-180°	121.0	11.2
0°-180°	1083.5	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	284	284	284	284	284	
5°	285	284	281	284	283	27
15°	272	272	272	276	276	77
25°	247	250	254	258	260	114
35°	213	220	228	237	240	133
45°	174	186	200	213	217	135
55°	134	149	170	185	190	120
65°	91	112	136	153	158	91
75°	51	74	100	118	123	54
85°	15	40	67	84	90	16
90°	4	28	54	71	76	3
95°	3	23	47	63	68	3
105°	2	14	35	50	54	2
115°	2	6	25	37	42	1
125°	1	1	14	25	29	1
135°	0	0	4	13	16	0
145°	0	0	0	2	4	0
155°	0	0	0	0	0	0
165°	0	0	0	0	0	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	0



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	284.0	284.0	284.0	284.0	284.0
2.5°	286.0	284.8	281.9	284.0	283.1
5°	284.8	283.5	281.1	283.5	283.1
7.5°	282.7	281.9	279.8	282.7	282.3
10°	280.3	279.4	278.2	281.5	281.1
12.5°	276.1	276.6	275.7	279.0	278.6
15°	271.6	272.4	272.4	276.1	275.7
17.5°	265.9	267.5	268.7	272.4	272.4
20°	260.1	262.1	263.8	268.3	268.3
22.5°	253.9	256.4	258.9	263.4	264.2
25°	246.9	249.8	253.5	258.4	259.7
27.5°	238.7	243.2	247.3	253.5	254.3
30°	230.5	235.8	241.2	247.7	249.0
32.5°	221.4	227.6	234.2	242.0	244.5
35°	212.8	219.8	227.6	236.6	239.5
37.5°	203.3	211.1	221.0	230.9	233.8
40°	193.8	202.9	214.0	224.7	228.4
42.5°	184.8	193.8	207.0	218.9	222.6
45°	174.5	185.6	200.0	212.8	216.9
47.5°	164.6	176.5	193.0	206.2	210.7
50°	154.3	167.1	185.6	199.6	204.1
52.5°	144.4	158.0	177.8	192.2	197.1
55°	133.7	148.6	170.0	184.8	190.1
57.5°	123.5	139.9	161.3	177.4	182.7
60°	112.3	130.0	153.5	169.1	174.9
62.5°	102.5	121.0	144.4	161.3	166.7
65°	91.4	111.5	135.8	152.7	158.0
67.5°	81.5	102.5	127.2	144.0	149.8
70°	70.8	92.2	117.7	135.4	140.3
72.5°	60.9	83.1	109.1	126.3	132.5
75°	50.6	73.7	100.0	117.7	123.0
77.5°	40.7	64.6	91.4	109.1	114.8
80°	30.9	56.0	82.7	100.0	105.8
82.5°	22.6	47.3	74.5	91.8	97.1
85°	14.8	40.3	66.7	84.0	89.7
87.5°	9.1	33.7	60.1	77.0	82.3
90°	4.1	28.0	54.3	70.8	75.7
92.5°	3.7	25.5	50.6	66.7	71.6
95°	3.3	22.6	47.3	63.0	67.9
97.5°	2.9	20.6	44.4	59.7	64.6
100°	2.9	18.1	41.2	56.4	60.9
102.5°	2.5	16.0	38.3	53.1	57.6
105°	2.1	14.0	35.4	49.8	54.3
107.5°	2.1	11.9	32.5	46.5	51.0
110°	1.6	9.9	30.0	43.2	47.7



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	1.6	8.2	27.2	40.3	44.9
115°	1.6	6.2	24.7	37.0	41.6
117.5°	1.2	4.5	21.8	34.2	38.3
120°	1.2	2.9	19.3	30.9	35.4
122.5°	1.2	1.6	16.9	28.0	31.7
125°	0.8	0.8	14.0	25.1	28.8
127.5°	0.8	0.4	11.5	21.8	25.5
130°	0.8	0.4	9.1	18.9	22.2
132.5°	0.8	0.4	6.6	16.0	19.3
135°	0.4	0.4	4.5	13.2	16.5
137.5°	0.4	0.4	2.5	10.3	13.2
140°	0.4	0.0	0.8	7.4	9.9
142.5°	0.4	0.0	0.0	4.9	7.0
145°	0.0	0.0	0.0	2.5	4.5
147.5°	0.0	0.0	0.0	0.4	1.6
150°	0.0	0.0	0.0	0.0	0.0
152.5°	0.0	0.0	0.0	0.0	0.0
155°	0.0	0.0	0.0	0.0	0.0
157.5°	0.0	0.0	0.0	0.0	0.0
160°	0.0	0.0	0.0	0.0	0.0
162.5°	0.0	0.0	0.0	0.0	0.0
165°	0.0	0.0	0.0	0.0	0.0
167.5°	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0
172.5°	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0
177.5°	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0



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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	14.08	15.57	14.61	16.09	16.67	17.15	18.63	17.67	19.16	19.73
	3H	15.59	16.94	16.12	17.48	18.09	19.77	21.13	20.31	21.67	22.28
	4H	16.09	17.37	16.64	17.92	18.55	21.05	22.34	21.61	22.89	23.52
	6H	16.40	17.60	16.97	18.16	18.81	22.39	23.58	22.96	24.15	24.79
	8H	16.48	17.63	17.06	18.21	18.86	23.07	24.22	23.65	24.80	25.45
	12H	16.51	17.62	17.10	18.20	18.88	23.82	24.92	24.41	25.51	26.19
4H	2H	15.19	16.48	15.75	17.03	17.66	17.54	18.82	18.10	19.38	20.00
	3H	16.95	18.05	17.52	18.65	19.30	20.38	21.48	20.95	22.07	22.72
	4H	17.60	18.61	18.19	19.21	19.89	21.82	22.83	22.41	23.43	24.11
	6H	18.05	18.94	18.66	19.57	20.26	23.33	24.22	23.94	24.85	25.54
	8H	18.17	19.02	18.79	19.64	20.35	24.11	24.95	24.72	25.57	26.28
	12H	18.25	19.02	18.88	19.67	20.38	24.97	25.74	25.61	26.39	27.10
8H	4H	18.44	19.28	19.05	19.91	20.61	22.01	22.86	22.63	23.48	24.19
	6H	19.10	19.82	19.75	20.48	21.19	23.68	24.39	24.32	25.06	25.77
	8H	19.33	19.98	19.99	20.65	21.38	24.58	25.23	25.24	25.90	26.62
	12H	19.50	20.08	20.16	20.74	21.53	25.61	26.19	26.27	26.86	27.64
12H	4H	18.67	19.44	19.31	20.09	20.80	22.02	22.79	22.66	23.44	24.15
	6H	19.44	20.09	20.10	20.77	21.49	23.71	24.36	24.37	25.03	25.75
	8H	19.78	20.36	20.44	21.02	21.81	24.67	25.25	25.34	25.92	26.70