

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: P242348

Luminaire Tested: S122DRP-S290D940-X4F0-XX-UDD-D-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P242348  
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-S290D940-X4F0-XX-UDD-D-W  
Description: DEFINE 2 DIRECT RECESSED WITH SATIN DROP DIFFUSER  
STANDARD LIGHT ENGINE  
Light Source: (92) 4000K CCT, 90 CRI LEDS  
Ballast/Driver: -

**Summary**

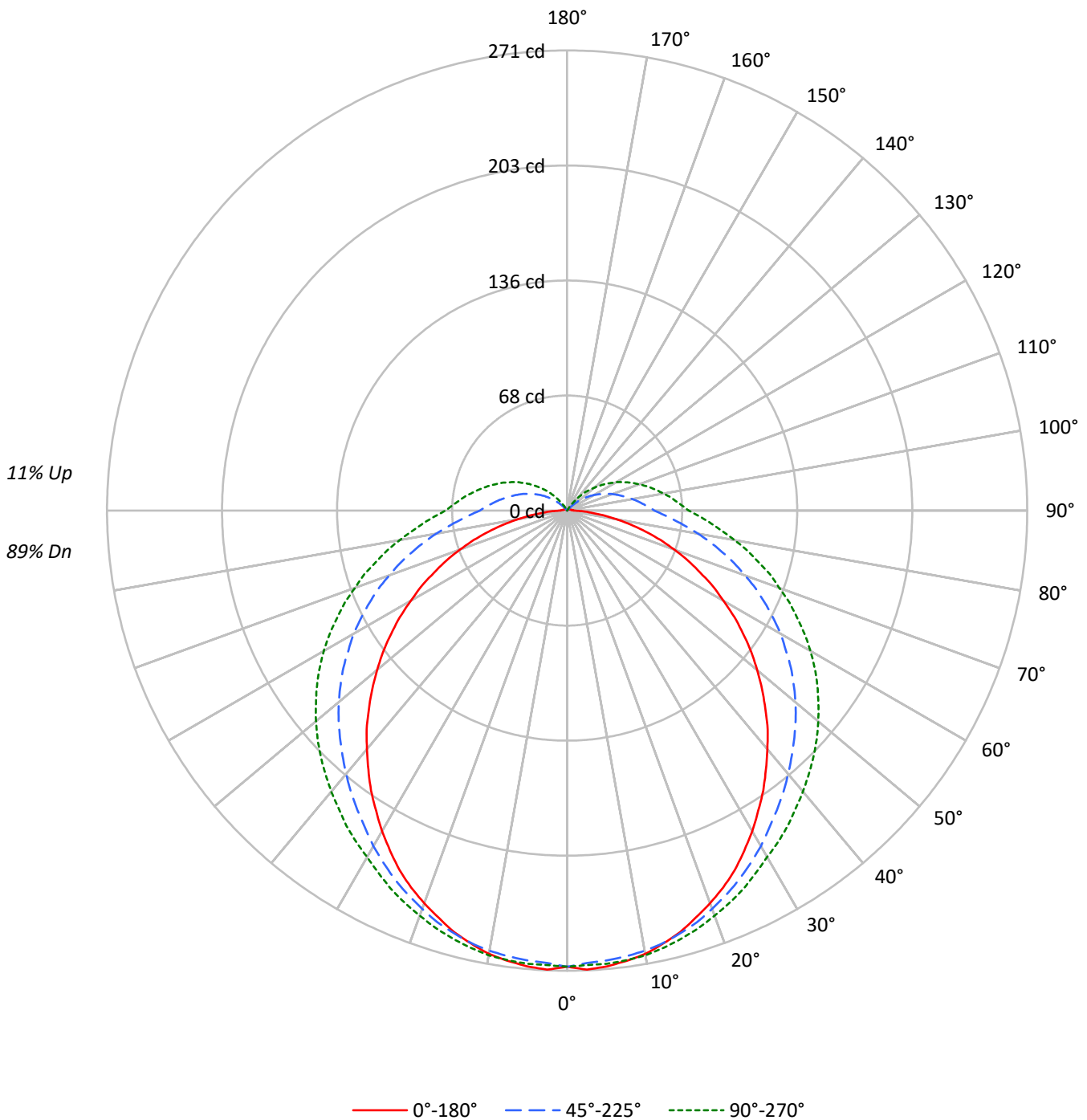
Lumens per Lamp: N/A  
Luminaire Lumens: 1025.1 lumens  
Efficiency: N/A  
Efficacy: 88.4 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.31 / 1.42  
Luminous Opening: Rectangular w/ Sides (W: 0.15' x L: 3.88' x H: 0.08')  
CIE Type: Semi-Direct

Input Watts (W): 11.6  
Input Voltage (V): 120  
Input Current (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	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°	5116	5116	5116
5°	5141	4904	4878
10°	5108	4740	4672
15°	5039	4569	4462
20°	4950	4390	4261
25°	4861	4216	4077
30°	4736	4041	3896
35°	4611	3870	3763
40°	4479	3725	3632
45°	4354	3591	3518
50°	4218	3470	3404
55°	4076	3340	3290
60°	3904	3204	3169
65°	3722	3050	3028
70°	3523	2883	2878
75°	3263	2715	2735
80°	2855	2543	2589
85°	2456	2381	2464

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 4354 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	25.5	2.5
10°-20°	73.0	7.1
20°-30°	110.7	10.8
30°-40°	134.8	13.1
40°-50°	145.0	14.1
50°-60°	140.8	13.7
60°-70°	123.0	12.0
70°-80°	94.6	9.2
80°-90°	63.4	6.2
90°-100°	43.7	4.3
100°-110°	31.9	3.1
110°-120°	21.1	2.1
120°-130°	11.8	1.1
130°-140°	4.9	0.5
140°-150°	0.8	0.1
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	209.2	20.4
0°-40°	343.9	33.6
0°-60°	629.8	61.4
0°-90°	910.8	88.9
90°-120°	96.7	9.4
90°-150°	114.3	11.1
90°-180°	114.0	11.1
0°-180°	1025.1	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	269	269	269	269	269	
5°	269	268	266	268	268	26
15°	257	258	258	261	261	72
25°	234	236	240	244	246	107
35°	201	208	215	224	227	126
45°	165	176	189	201	205	127
55°	126	141	161	175	180	113
65°	86	106	128	144	150	86
75°	48	70	95	111	116	51
85°	14	38	63	79	85	15
90°	4	26	51	67	72	3
95°	3	21	45	60	64	2
105°	2	13	34	47	51	2
115°	2	6	23	35	39	1
125°	1	1	13	24	27	1
135°	0	0	4	12	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°	268.6	268.6	268.6	268.6	268.6
2.5°	270.6	269.4	266.7	268.6	267.9
5°	269.4	268.3	265.9	268.3	267.9
7.5°	267.5	266.7	264.8	267.5	267.1
10°	265.1	264.4	263.2	266.3	265.9
12.5°	261.2	261.6	260.9	264.0	263.6
15°	257.0	257.7	257.7	261.2	260.9
17.5°	251.5	253.1	254.2	257.7	257.7
20°	246.1	248.0	249.6	253.9	253.9
22.5°	240.2	242.6	244.9	249.2	250.0
25°	233.6	236.3	239.8	244.5	245.7
27.5°	225.8	230.1	234.0	239.8	240.6
30°	218.0	223.1	228.2	234.4	235.6
32.5°	209.5	215.3	221.5	228.9	231.3
35°	201.3	207.9	215.3	223.9	226.6
37.5°	192.3	199.7	209.1	218.4	221.1
40°	183.4	191.9	202.5	212.6	216.1
42.5°	174.8	183.4	195.8	207.1	210.6
45°	165.1	175.6	189.2	201.3	205.2
47.5°	155.7	167.0	182.6	195.1	199.3
50°	146.0	158.1	175.6	188.8	193.1
52.5°	136.7	149.5	168.2	181.8	186.5
55°	126.5	140.6	160.8	174.8	179.9
57.5°	116.8	132.4	152.6	167.8	172.9
60°	106.3	123.0	145.2	160.0	165.5
62.5°	96.9	114.5	136.7	152.6	157.7
65°	86.4	105.5	128.5	144.4	149.5
67.5°	77.1	96.9	120.3	136.3	141.7
70°	67.0	87.2	111.4	128.1	132.8
72.5°	57.6	78.6	103.2	119.5	125.4
75°	47.9	69.7	94.6	111.4	116.4
77.5°	38.5	61.1	86.4	103.2	108.6
80°	29.2	53.0	78.3	94.6	100.1
82.5°	21.4	44.8	70.5	86.8	91.9
85°	14.0	38.2	63.1	79.4	84.9
87.5°	8.6	31.9	56.8	72.8	77.9
90°	3.9	26.5	51.4	67.0	71.6
92.5°	3.5	24.1	47.9	63.1	67.7
95°	3.1	21.4	44.8	59.6	64.2
97.5°	2.7	19.5	42.0	56.5	61.1
100°	2.7	17.1	38.9	53.3	57.6
102.5°	2.3	15.2	36.2	50.2	54.5
105°	1.9	13.2	33.5	47.1	51.4
107.5°	1.9	11.3	30.8	44.0	48.3
110°	1.6	9.3	28.4	40.9	45.2



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	1.6	7.8	25.7	38.2	42.4
115°	1.6	5.8	23.4	35.0	39.3
117.5°	1.2	4.3	20.6	32.3	36.2
120°	1.2	2.7	18.3	29.2	33.5
122.5°	1.2	1.6	16.0	26.5	30.0
125°	0.8	0.8	13.2	23.7	27.3
127.5°	0.8	0.4	10.9	20.6	24.1
130°	0.8	0.4	8.6	17.9	21.0
132.5°	0.8	0.4	6.2	15.2	18.3
135°	0.4	0.4	4.3	12.5	15.6
137.5°	0.4	0.4	2.3	9.7	12.5
140°	0.4	0.0	0.8	7.0	9.3
142.5°	0.4	0.0	0.0	4.7	6.6
145°	0.0	0.0	0.0	2.3	4.3
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	13.89	15.37	14.42	15.90	16.48	16.95	18.43	17.48	18.96	19.54
	3H	15.39	16.75	15.93	17.28	17.90	19.58	20.94	20.12	21.47	22.09
	4H	15.89	17.18	16.45	17.73	18.36	20.86	22.15	21.42	22.70	23.33
	6H	16.21	17.41	16.78	17.97	18.62	22.19	23.39	22.77	23.96	24.60
	8H	16.28	17.43	16.87	18.02	18.67	22.87	24.02	23.46	24.61	25.26
	12H	16.32	17.42	16.91	18.01	18.69	23.63	24.73	24.22	25.31	25.99
4H	2H	15.00	16.29	15.56	16.84	17.47	17.34	18.63	17.90	19.18	19.81
	3H	16.76	17.86	17.33	18.45	19.10	20.19	21.29	20.76	21.88	22.53
	4H	17.41	18.42	18.00	19.02	19.70	21.63	22.64	22.22	23.24	23.92
	6H	17.86	18.75	18.46	19.38	20.07	23.13	24.03	23.74	24.66	25.35
	8H	17.98	18.82	18.60	19.45	20.16	23.91	24.76	24.53	25.38	26.09
	12H	18.06	18.82	18.69	19.48	20.19	24.78	25.55	25.42	26.20	26.91
8H	4H	18.25	19.09	18.86	19.72	20.42	21.82	22.67	22.44	23.29	24.00
	6H	18.91	19.63	19.55	20.29	21.00	23.48	24.20	24.13	24.87	25.58
	8H	19.14	19.79	19.80	20.46	21.18	24.39	25.04	25.04	25.71	26.43
	12H	19.30	19.88	19.96	20.55	21.33	25.42	26.00	26.08	26.66	27.45
12H	4H	18.48	19.24	19.11	19.90	20.61	21.83	22.60	22.46	23.25	23.96
	6H	19.25	19.90	19.91	20.57	21.30	23.52	24.17	24.17	24.84	25.56
	8H	19.59	20.17	20.25	20.83	21.62	24.48	25.06	25.14	25.73	26.51