

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: P243368

Luminaire Tested: S123DRP-H1000D840-X4F0-XX-UDD-D-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P243368  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-54)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: S123DRP-H1000D840-X4F0-XX-UDD-D-W  
Description: DEFINE 3 DIRECT RECESSED WITH SATIN DROP DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 4000K CCT, 80 CRI LEDS  
Ballast/Driver: -

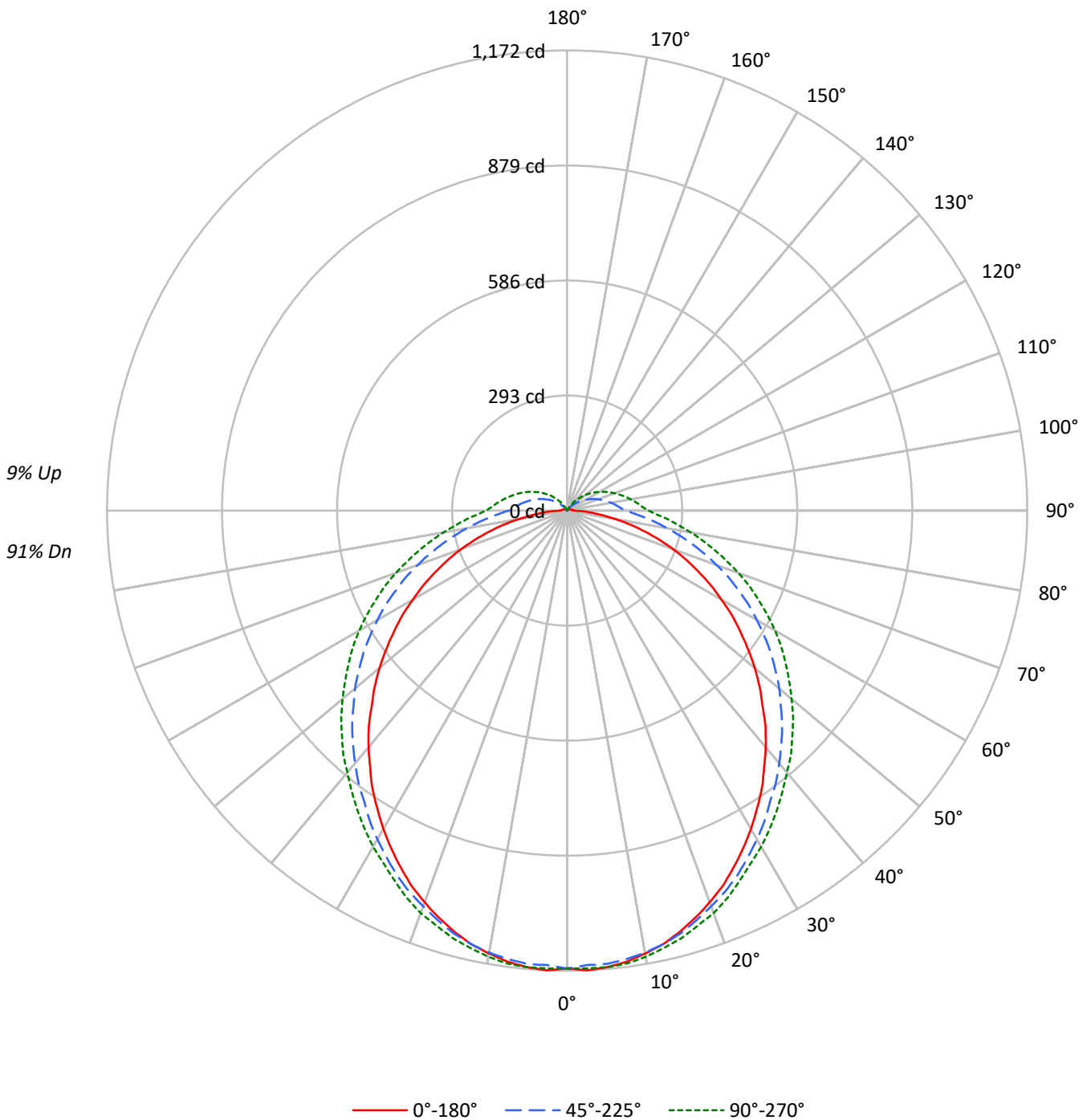
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3957.9 lumens  
Efficiency: N/A  
Efficacy: 125.6 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.26 / 1.37  
Luminous Opening: Rectangular w/ Sides (W: 0.23' x L: 3.88' x H: 0.08')  
CIE Type: Direct  
  
Input Watts (W): 31.5  
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	50	30	10	0	
RCR																						
0	117	117	117	117	113	113	113	113	106	106	106	100	100	100	94	94	94	94	94	94	91	
1	105	100	95	90	101	96	92	88	91	87	84	85	82	80	80	78	76	76	76	76	73	
2	95	86	79	72	91	83	77	71	78	73	68	74	69	65	69	66	62	62	62	62	60	
3	86	75	66	60	83	73	65	58	69	62	56	65	59	54	61	56	52	52	52	52	50	
4	79	66	57	50	76	64	56	49	61	53	48	57	51	46	54	49	45	45	45	45	42	
5	72	59	50	43	70	57	49	42	54	47	41	51	45	40	49	43	39	39	39	39	36	
6	67	53	44	37	64	52	43	37	49	41	36	46	40	35	44	38	34	34	34	34	31	
7	62	48	39	33	60	47	38	32	44	37	32	42	36	31	40	34	30	30	30	30	28	
8	57	44	35	29	55	43	34	29	41	33	28	39	32	27	37	31	27	27	27	27	25	
9	54	40	32	26	52	39	31	26	37	30	25	36	29	25	34	28	24	24	24	24	22	
10	50	37	29	24	49	36	29	23	35	28	23	33	27	22	32	26	22	22	22	22	20	

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

	0°	45°	90°
0°	14135	14135	14135
5°	14176	13772	13765
10°	14045	13424	13348
15°	13852	13042	12889
20°	13586	12587	12425
25°	13284	12165	11889
30°	12944	11692	11436
35°	12604	11213	10985
40°	12227	10822	10555
45°	11816	10436	10196
50°	11469	10041	9822
55°	11045	9639	9454
60°	10602	9193	9097
65°	10136	8718	8662
70°	9604	8208	8235
75°	8805	7653	7731
80°	7789	7105	7290
85°	6921	6662	6953

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 11816 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	110.7	2.8
10°-20°	315.7	8.0
20°-30°	472.7	11.9
30°-40°	565.6	14.3
40°-50°	593.1	15.0
50°-60°	557.6	14.1
60°-70°	466.7	11.8
70°-80°	334.9	8.5
80°-90°	200.6	5.1
90°-100°	127.2	3.2
100°-110°	93.7	2.4
110°-120°	62.7	1.6
120°-130°	36.2	0.9
130°-140°	16.7	0.4
140°-150°	3.8	0.1
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	899.1	22.7
0°-40°	1464.7	37.0
0°-60°	2615.5	66.1
0°-90°	3617.6	91.4
90°-120°	283.6	7.2
90°-150°	340.3	8.6
90°-180°	340.0	8.6
0°-180°	3957.9	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1166	1166	1166	1166	1166	
5°	1167	1166	1159	1169	1167	111
15°	1110	1118	1115	1130	1127	313
25°	1003	1017	1025	1041	1040	462
35°	865	885	902	925	931	540
45°	704	739	775	801	811	545
55°	539	584	634	668	680	482
65°	370	424	482	524	538	367
75°	203	265	330	374	389	216
85°	62	126	197	242	258	64
90°	17	80	148	193	207	12
95°	13	66	129	170	184	11
105°	10	43	98	135	146	10
115°	6	22	69	101	112	7
125°	5	5	43	69	79	4
135°	2	1	18	40	47	2
145°	1	0	0	12	17	1
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°	1166.1	1166.1	1166.1	1166.1	1166.1
2.5°	1172.2	1168.6	1158.8	1169.8	1167.3
5°	1167.3	1166.1	1158.8	1168.6	1167.3
7.5°	1158.8	1158.8	1152.7	1163.7	1163.7
10°	1145.4	1149.1	1143.0	1155.2	1154.0
12.5°	1130.9	1135.7	1130.9	1144.2	1140.6
15°	1110.2	1117.5	1115.1	1129.6	1127.2
17.5°	1087.1	1095.6	1094.4	1109.0	1107.8
20°	1061.5	1072.5	1072.5	1087.1	1090.7
22.5°	1034.8	1047.0	1050.6	1065.2	1067.6
25°	1003.2	1016.6	1025.1	1040.9	1039.7
27.5°	970.3	986.2	995.9	1012.9	1012.9
30°	936.3	954.5	966.7	984.9	988.6
32.5°	899.8	921.7	936.3	955.8	960.6
35°	864.6	885.2	902.3	925.4	931.4
37.5°	824.4	850.0	873.1	897.4	901.0
40°	786.7	814.7	840.2	865.8	870.6
42.5°	747.8	777.0	807.4	832.9	843.9
45°	704.1	739.3	774.6	801.3	811.1
47.5°	665.1	700.4	738.1	769.7	780.7
50°	623.8	660.3	705.3	735.7	746.6
52.5°	581.2	621.4	668.8	701.6	712.6
55°	538.7	583.7	633.5	667.6	679.7
57.5°	498.6	543.5	595.8	633.5	646.9
60°	453.6	503.4	558.1	597.0	611.6
62.5°	413.4	464.5	521.7	560.6	575.2
65°	369.7	424.4	481.5	524.1	537.5
67.5°	329.5	383.0	445.0	487.6	502.2
70°	287.0	342.9	404.9	448.7	464.5
72.5°	244.4	304.0	367.2	412.2	425.6
75°	203.1	265.1	329.5	374.5	389.1
77.5°	164.2	226.2	293.1	338.0	353.8
80°	125.2	189.7	259.0	304.0	319.8
82.5°	91.2	156.9	227.4	271.2	285.8
85°	62.0	126.5	197.0	242.0	257.8
87.5°	36.5	102.1	170.2	215.2	228.6
90°	17.0	80.3	148.3	193.3	206.7
92.5°	15.8	71.7	137.4	180.0	193.3
95°	13.4	65.7	128.9	170.2	183.6
97.5°	13.4	59.6	121.6	161.7	173.9
100°	12.2	53.5	114.3	152.0	164.2
102.5°	10.9	47.4	105.8	143.5	155.6
105°	9.7	42.6	98.5	135.0	145.9
107.5°	8.5	36.5	91.2	126.5	137.4
110°	8.5	31.6	83.9	117.9	128.9



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	7.3	26.8	76.6	109.4	120.4
115°	6.1	21.9	69.3	100.9	111.9
117.5°	6.1	17.0	62.0	93.6	103.4
120°	6.1	13.4	55.9	85.1	94.8
122.5°	4.9	8.5	49.9	77.8	87.6
125°	4.9	4.9	42.6	69.3	79.0
127.5°	3.6	2.4	36.5	62.0	70.5
130°	3.6	2.4	30.4	54.7	63.2
132.5°	2.4	2.4	24.3	47.4	55.9
135°	2.4	1.2	18.2	40.1	47.4
137.5°	2.4	1.2	12.2	32.8	40.1
140°	1.2	1.2	6.1	25.5	32.8
142.5°	1.2	0.0	1.2	19.5	25.5
145°	1.2	0.0	0.0	12.2	17.0
147.5°	1.2	0.0	0.0	6.1	10.9
150°	1.2	0.0	0.0	0.0	3.6
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	18.24	19.74	18.73	20.22	20.75	20.31	21.81	20.80	22.29	22.81
	3H	19.79	21.16	20.29	21.65	22.21	22.70	24.07	23.21	24.56	25.13
	4H	20.32	21.61	20.84	22.12	22.70	23.82	25.11	24.34	25.63	26.20
	6H	20.66	21.86	21.19	22.39	22.98	24.94	26.15	25.48	26.67	27.27
	8H	20.74	21.90	21.29	22.45	23.04	25.51	26.66	26.06	27.21	27.81
	12H	20.79	21.90	21.35	22.44	23.07	26.12	27.23	26.68	27.77	28.40
4H	2H	19.15	20.45	19.68	20.96	21.54	20.76	22.05	21.28	22.57	23.14
	3H	20.95	22.06	21.49	22.61	23.21	23.37	24.47	23.91	25.03	25.62
	4H	21.62	22.64	22.18	23.20	23.83	24.64	25.65	25.20	26.22	26.85
	6H	22.09	22.99	22.67	23.58	24.22	25.94	26.84	26.52	27.43	28.07
	8H	22.23	23.07	22.81	23.66	24.31	26.60	27.44	27.19	28.03	28.69
	12H	22.31	23.08	22.92	23.69	24.35	27.33	28.09	27.94	28.71	29.37
8H	4H	22.27	23.11	22.85	23.70	24.35	24.86	25.70	25.45	26.29	26.95
	6H	22.92	23.64	23.54	24.27	24.93	26.32	27.04	26.94	27.67	28.33
	8H	23.16	23.80	23.79	24.44	25.11	27.11	27.75	27.74	28.39	29.06
	12H	23.33	23.90	23.96	24.53	25.27	28.01	28.58	28.64	29.21	29.94
12H	4H	22.43	23.19	23.03	23.81	24.47	24.88	25.64	25.48	26.25	26.91
	6H	23.17	23.82	23.80	24.45	25.13	26.37	27.01	26.99	27.65	28.32
	8H	23.50	24.07	24.13	24.70	25.44	27.22	27.79	27.85	28.42	29.15