

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: P242680

Luminaire Tested: S124DRP-S1020D840-X4F0-XX-UDD-D-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P242680  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-16)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: S124DRP-S1020D840-X4F0-XX-UDD-D-W  
Description: DEFINE 4 DIRECT RECESSED WITH SATIN DROP DIFFUSER  
STANDARD LIGHT ENGINE  
Light Source: (92) 4000K CCT, 80 CRI LEDS  
Ballast/Driver: -

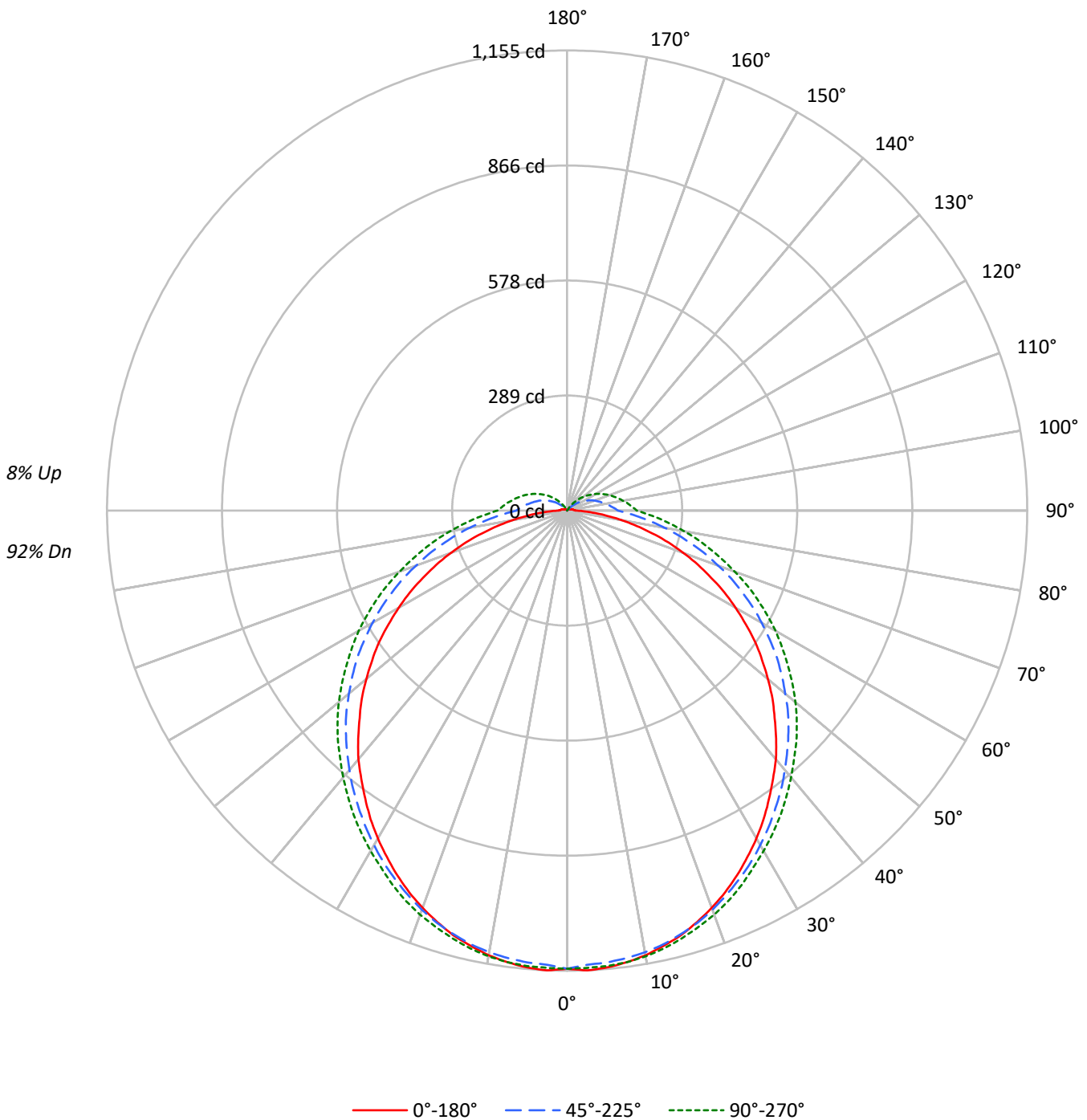
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3920.9 lumens  
Efficiency: N/A  
Efficacy: 112.7 lumens/watt  
Spacing Criteria (0/90/45): 1.23 / 1.28 / 1.39  
Luminous Opening: Rectangular w/ Sides (W: 0.31' x L: 3.88' x H: 0.08')  
CIE Type: Direct  
  
Input Watts (W): 34.8  
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	0
RCR																		
0	117	117	117	117	114	114	114	114	107	107	107	101	101	101	95	95	95	92
1	105	100	95	91	102	97	93	89	91	88	84	86	83	80	81	79	77	74
2	95	86	79	73	92	84	77	71	79	73	68	74	70	66	70	67	63	60
3	87	75	67	60	83	73	65	59	69	62	57	65	60	55	62	57	53	50
4	79	66	57	50	76	65	56	49	61	54	48	58	52	47	55	49	45	43
5	73	59	50	43	70	58	49	42	55	47	41	52	45	40	49	44	39	37
6	67	53	44	37	64	52	43	37	49	42	36	47	40	35	45	39	34	32
7	62	48	39	33	60	47	38	32	45	37	32	43	36	31	41	35	30	28
8	58	44	35	29	56	43	35	29	41	33	28	39	32	28	37	31	27	25
9	54	40	32	26	52	39	31	26	38	30	25	36	29	25	34	29	24	22
10	50	37	29	24	49	36	29	23	35	28	23	33	27	23	32	26	22	20

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

	0°	45°	90°
0°	10222	10222	10222
5°	10254	9980	10006
10°	10191	9807	9792
15°	10099	9608	9546
20°	9960	9390	9305
25°	9805	9147	9043
30°	9635	8905	8775
35°	9444	8659	8538
40°	9292	8423	8291
45°	9065	8204	8077
50°	8873	7952	7852
55°	8674	7714	7588
60°	8366	7412	7345
65°	8026	7087	7048
70°	7617	6716	6703
75°	7042	6305	6385
80°	6406	5904	6062
85°	5591	5524	5840

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 9065 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	109.0	2.8
10°-20°	312.2	8.0
20°-30°	472.1	12.0
30°-40°	571.1	14.6
40°-50°	603.8	15.4
50°-60°	568.2	14.5
60°-70°	471.5	12.0
70°-80°	330.9	8.4
80°-90°	186.5	4.8
90°-100°	111.0	2.8
100°-110°	82.2	2.1
110°-120°	55.2	1.4
120°-130°	31.1	0.8
130°-140°	13.4	0.3
140°-150°	2.7	0.1
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	893.2	22.8
0°-40°	1464.3	37.3
0°-60°	2636.3	67.2
0°-90°	3625.3	92.5
90°-120°	248.5	6.3
90°-150°	295.7	7.5
90°-180°	296.0	7.5
0°-180°	3920.9	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1150	1150	1150	1150	1150	
5°	1151	1148	1138	1149	1148	109
15°	1104	1105	1101	1113	1111	311
25°	1010	1017	1021	1035	1037	465
35°	883	899	912	930	934	553
45°	737	761	786	808	814	569
55°	577	604	643	668	676	514
65°	399	440	484	516	527	396
75°	222	269	323	359	371	235
85°	68	122	180	219	232	71
90°	21	72	128	165	175	14
95°	17	59	112	147	158	13
105°	12	37	85	117	128	13
115°	8	19	60	89	98	8
125°	5	4	36	60	68	5
135°	3	3	12	32	40	2
145°	1	0	0	8	13	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°	1150.0	1150.0	1150.0	1150.0	1150.0
2.5°	1155.2	1151.3	1141.0	1150.0	1148.7
5°	1151.3	1147.5	1138.4	1148.7	1147.5
7.5°	1143.6	1141.0	1133.3	1144.9	1143.6
10°	1133.3	1132.0	1125.6	1137.1	1135.9
12.5°	1119.1	1119.1	1115.3	1125.6	1125.6
15°	1103.7	1105.0	1101.1	1112.7	1111.4
17.5°	1083.1	1086.9	1085.6	1097.2	1095.9
20°	1061.2	1065.0	1066.3	1079.2	1079.2
22.5°	1036.7	1041.9	1044.4	1057.3	1059.9
25°	1009.7	1017.4	1021.2	1035.4	1036.7
27.5°	980.0	991.6	996.8	1009.7	1010.9
30°	950.4	960.7	969.7	983.9	986.5
32.5°	918.2	931.1	941.4	958.1	960.7
35°	883.4	898.9	911.8	929.8	933.7
37.5°	848.7	866.7	882.2	900.2	904.1
40°	815.2	831.9	850.0	869.3	874.4
42.5°	776.6	795.9	817.8	839.7	843.5
45°	736.6	761.1	785.6	807.5	813.9
47.5°	699.3	723.8	752.1	774.0	781.7
50°	658.1	686.4	714.7	740.5	748.2
52.5°	616.9	645.2	678.7	704.4	712.2
55°	576.9	604.0	642.6	668.4	676.1
57.5°	531.9	565.4	602.7	633.6	640.0
60°	488.1	521.6	564.1	593.7	604.0
62.5°	445.6	482.9	525.4	555.1	565.4
65°	399.2	440.4	484.2	516.4	526.7
67.5°	355.4	399.2	445.6	477.8	488.1
70°	310.4	354.2	403.1	437.9	446.9
72.5°	266.6	311.7	364.5	397.9	408.2
75°	221.5	269.2	323.2	359.3	370.9
77.5°	179.0	229.2	285.9	322.0	334.8
80°	140.4	191.9	248.6	287.2	297.5
82.5°	101.7	155.8	212.5	252.4	264.0
85°	68.3	122.3	180.3	218.9	231.8
87.5°	42.5	95.3	152.0	189.3	200.9
90°	20.6	72.1	127.5	164.8	175.1
92.5°	19.3	64.4	119.8	155.8	166.1
95°	16.7	59.2	112.0	146.8	158.4
97.5°	15.5	52.8	105.6	139.1	150.7
100°	14.2	47.6	97.9	132.6	141.7
102.5°	14.2	42.5	91.4	124.9	135.2
105°	11.6	37.3	85.0	117.2	127.5
107.5°	11.6	33.5	78.6	110.8	119.8
110°	10.3	28.3	73.4	103.0	113.3



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	9.0	24.5	67.0	95.3	105.6
115°	7.7	19.3	60.5	88.9	97.9
117.5°	7.7	15.5	54.1	81.1	91.4
120°	6.4	10.3	47.6	73.4	83.7
122.5°	6.4	6.4	41.2	67.0	76.0
125°	5.2	3.9	36.1	60.5	68.3
127.5°	5.2	3.9	29.6	52.8	61.8
130°	3.9	2.6	23.2	46.4	54.1
132.5°	3.9	2.6	18.0	39.9	47.6
135°	2.6	2.6	11.6	32.2	39.9
137.5°	2.6	1.3	6.4	25.8	32.2
140°	2.6	1.3	2.6	19.3	25.8
142.5°	1.3	1.3	0.0	14.2	19.3
145°	1.3	0.0	0.0	7.7	12.9
147.5°	1.3	0.0	0.0	1.3	6.4
150°	1.3	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	17.87	19.39	18.35	19.86	20.36	19.42	20.94	19.90	21.41	21.91
	3H	19.51	20.90	20.00	21.37	21.91	21.73	23.12	22.22	23.59	24.13
	4H	20.07	21.39	20.58	21.88	22.43	22.79	24.10	23.30	24.60	25.15
	6H	20.46	21.68	20.98	22.19	22.76	23.84	25.07	24.36	25.57	26.14
	8H	20.56	21.74	21.10	22.27	22.84	24.36	25.53	24.89	26.06	26.64
	12H	20.62	21.75	21.17	22.27	22.88	24.91	26.04	25.45	26.56	27.16
4H	2H	18.71	20.03	19.23	20.52	21.08	19.92	21.24	20.43	21.73	22.28
	3H	20.60	21.72	21.12	22.25	22.83	22.45	23.57	22.97	24.10	24.68
	4H	21.30	22.32	21.84	22.87	23.48	23.67	24.69	24.21	25.24	25.84
	6H	21.82	22.72	22.38	23.29	23.91	24.90	25.80	25.46	26.37	26.99
	8H	21.97	22.82	22.54	23.39	24.03	25.51	26.36	26.08	26.93	27.56
	12H	22.07	22.84	22.67	23.44	24.08	26.17	26.94	26.76	27.54	28.18
8H	4H	21.88	22.73	22.45	23.30	23.93	23.92	24.77	24.49	25.34	25.97
	6H	22.57	23.29	23.18	23.91	24.54	25.31	26.03	25.91	26.65	27.28
	8H	22.83	23.47	23.44	24.10	24.75	26.05	26.70	26.67	27.33	27.98
	12H	23.01	23.59	23.63	24.20	24.92	26.88	27.46	27.49	28.07	28.79
12H	4H	22.02	22.79	22.61	23.39	24.02	23.94	24.71	24.53	25.31	25.95
	6H	22.79	23.43	23.40	24.06	24.71	25.36	26.01	25.98	26.63	27.29
	8H	23.13	23.70	23.74	24.31	25.03	26.17	26.75	26.79	27.36	28.08