

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: P243535

Luminaire Tested: S124DRP-H1020D835-X4F0-XX-UDD-D-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P243535  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-55)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: S124DRP-H1020D835-X4F0-XX-UDD-D-W  
Description: DEFINE 4 DIRECT RECESSED WITH SATIN DROP DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 3500K CCT, 80 CRI LEDS  
Ballast/Driver: -

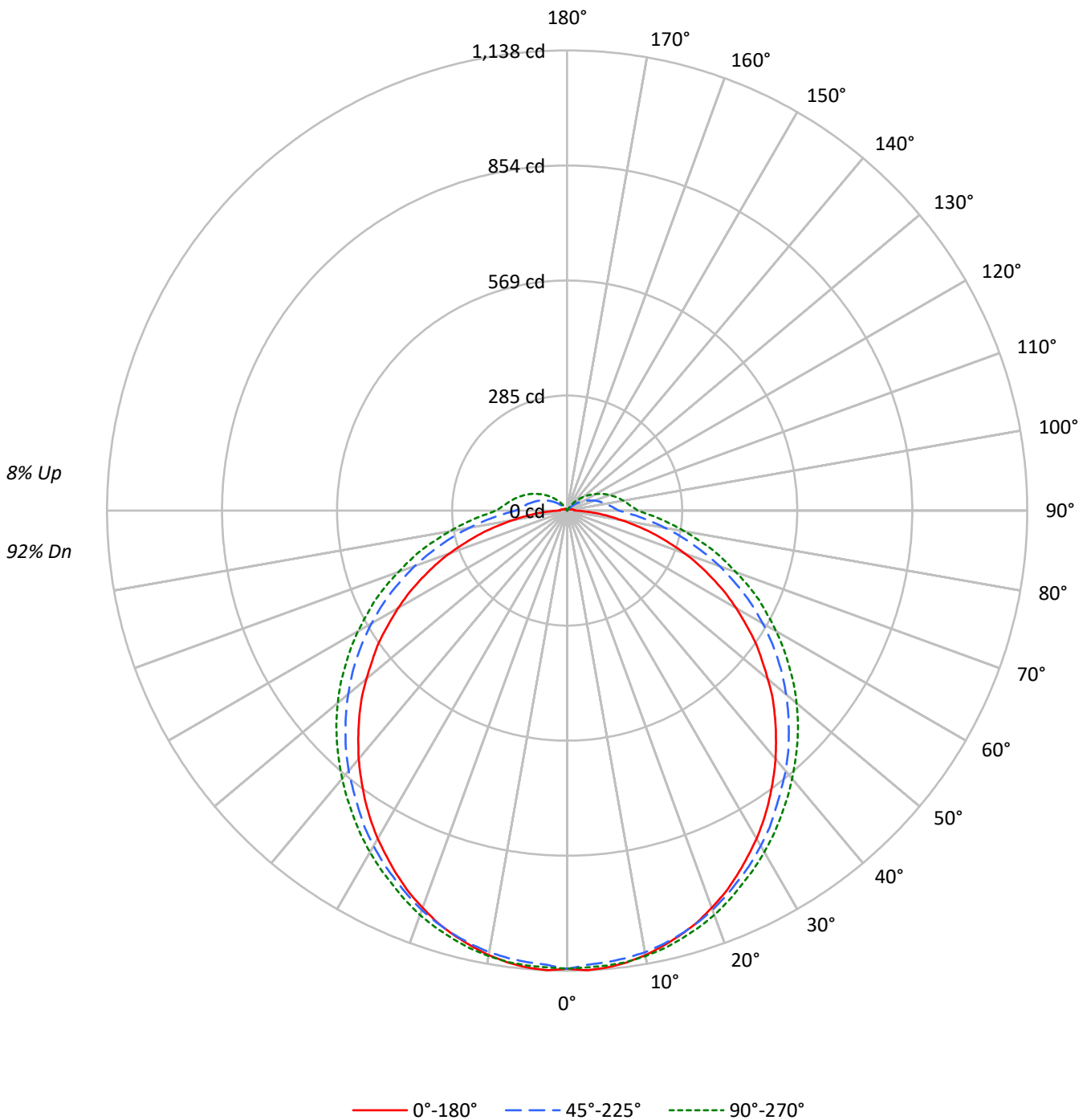
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3873.1 lumens  
Efficiency: N/A  
Efficacy: 123.0 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): 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	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	86	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	46	55	49	45	43
5	72	59	50	43	70	58	49	42	55	47	41	52	45	40	49	43	39	37
6	67	53	44	37	64	52	43	37	49	42	36	47	40	35	44	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	37	30	25	36	29	25	34	29	24	22
10	50	37	29	24	49	36	29	23	35	28	23	33	27	22	32	26	22	20

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

	0°	45°	90°
0°	10072	10072	10072
5°	10102	9827	9848
10°	10037	9663	9643
15°	9938	9467	9411
20°	9810	9257	9178
25°	9658	9016	8907
30°	9497	8792	8675
35°	9320	8542	8434
40°	9140	8329	8209
45°	8950	8097	7994
50°	8734	7864	7771
55°	8545	7618	7514
60°	8275	7341	7263
65°	7964	7032	7009
70°	7595	6681	6646
75°	7007	6249	6385
80°	6210	5832	6011
85°	5616	5496	5795

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 8950 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	107.3	2.8
10°-20°	307.6	7.9
20°-30°	465.6	12.0
30°-40°	563.8	14.6
40°-50°	596.3	15.4
50°-60°	561.7	14.5
60°-70°	466.8	12.1
70°-80°	328.1	8.5
80°-90°	184.8	4.8
90°-100°	109.7	2.8
100°-110°	81.2	2.1
110°-120°	54.2	1.4
120°-130°	30.6	0.8
130°-140°	13.1	0.3
140°-150°	2.5	0.1
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	880.4	22.7
0°-40°	1444.2	37.3
0°-60°	2602.2	67.2
0°-90°	3581.9	92.5
90°-120°	245.0	6.3
90°-150°	291.1	7.5
90°-180°	291.0	7.5
0°-180°	3873.1	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1133	1133	1133	1133	1133	
5°	1134	1129	1121	1131	1129	108
15°	1086	1088	1085	1097	1096	306
25°	995	1003	1007	1021	1021	458
35°	872	886	900	919	922	545
45°	727	750	775	798	806	561
55°	568	598	635	662	670	506
65°	396	436	480	510	524	392
75°	220	267	320	356	371	233
85°	69	122	179	218	230	71
90°	20	71	128	163	175	14
95°	17	58	111	146	155	13
105°	12	37	84	116	126	13
115°	8	19	59	87	98	8
125°	5	4	35	59	67	5
135°	2	2	11	31	38	2
145°	1	0	0	7	12	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°	1133.1	1133.1	1133.1	1133.1	1133.1
2.5°	1137.9	1134.3	1124.6	1131.9	1130.6
5°	1134.3	1129.4	1121.0	1130.6	1129.4
7.5°	1127.0	1123.4	1116.2	1127.0	1125.8
10°	1116.2	1113.8	1109.0	1118.6	1118.6
12.5°	1101.8	1101.8	1098.1	1109.0	1109.0
15°	1086.1	1088.5	1084.9	1096.9	1095.7
17.5°	1068.0	1070.4	1069.2	1081.3	1081.3
20°	1045.2	1048.8	1051.2	1064.4	1064.4
22.5°	1022.3	1027.1	1029.5	1044.0	1044.0
25°	994.6	1003.0	1006.6	1021.1	1021.1
27.5°	965.7	976.5	983.7	997.0	999.4
30°	936.8	948.8	957.3	971.7	975.3
32.5°	905.5	917.5	930.8	945.2	950.0
35°	871.8	886.2	899.5	918.7	922.3
37.5°	836.8	853.7	869.4	889.8	894.6
40°	801.9	822.4	840.5	859.7	865.7
42.5°	764.6	785.1	809.2	829.6	835.6
45°	727.3	750.2	775.4	798.3	805.5
47.5°	689.9	714.0	741.7	765.8	774.2
50°	647.8	674.3	706.8	730.9	740.5
52.5°	606.9	635.8	671.9	696.0	706.8
55°	568.3	598.4	634.6	662.3	669.5
57.5°	523.8	557.5	597.2	627.3	634.6
60°	482.8	516.6	558.7	588.8	597.2
62.5°	440.7	476.8	520.2	550.3	558.7
65°	396.1	435.9	480.4	510.5	523.8
67.5°	352.8	392.5	439.5	473.2	484.0
70°	309.5	350.4	401.0	434.7	443.1
72.5°	263.7	308.2	360.0	394.9	407.0
75°	220.4	267.3	320.3	356.4	370.9
77.5°	178.2	227.6	283.0	320.3	329.9
80°	136.1	190.2	245.6	283.0	295.0
82.5°	102.3	152.9	210.7	250.5	260.1
85°	68.6	121.6	179.4	217.9	230.0
87.5°	40.9	95.1	150.5	186.6	198.7
90°	20.5	71.0	127.6	162.6	174.6
92.5°	18.1	63.8	118.0	152.9	165.0
95°	16.9	57.8	110.8	145.7	155.3
97.5°	15.7	53.0	103.6	137.3	148.1
100°	14.4	47.0	97.5	130.0	140.9
102.5°	13.2	42.1	90.3	122.8	133.7
105°	12.0	37.3	84.3	115.6	126.4
107.5°	10.8	32.5	78.3	108.4	119.2
110°	9.6	27.7	72.2	101.1	112.0



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	8.4	24.1	65.0	93.9	104.8
115°	8.4	19.3	59.0	86.7	97.5
117.5°	7.2	14.4	53.0	79.5	89.1
120°	7.2	10.8	47.0	72.2	81.9
122.5°	6.0	7.2	40.9	66.2	74.7
125°	4.8	3.6	34.9	59.0	67.4
127.5°	4.8	3.6	28.9	51.8	60.2
130°	3.6	3.6	22.9	44.6	53.0
132.5°	3.6	2.4	16.9	38.5	45.8
135°	2.4	2.4	10.8	31.3	38.5
137.5°	2.4	1.2	7.2	25.3	32.5
140°	2.4	1.2	2.4	19.3	25.3
142.5°	1.2	1.2	0.0	13.2	18.1
145°	1.2	0.0	0.0	7.2	12.0
147.5°	1.2	0.0	0.0	1.2	6.0
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	17.81	19.34	18.29	19.81	20.30	19.39	20.92	19.87	21.39	21.88
	3H	19.46	20.85	19.95	21.33	21.87	21.71	23.10	22.20	23.57	24.11
	4H	20.04	21.35	20.55	21.85	22.40	22.78	24.09	23.29	24.59	25.14
	6H	20.42	21.64	20.94	22.15	22.72	23.82	25.05	24.35	25.56	26.12
	8H	20.52	21.70	21.06	22.23	22.80	24.34	25.51	24.87	26.04	26.61
	12H	20.59	21.71	21.13	22.24	22.84	24.89	26.02	25.43	26.54	27.14
4H	2H	18.67	19.99	19.18	20.48	21.03	19.90	21.21	20.41	21.71	22.26
	3H	20.56	21.68	21.08	22.22	22.79	22.43	23.55	22.95	24.09	24.66
	4H	21.27	22.30	21.81	22.84	23.45	23.66	24.68	24.20	25.23	25.83
	6H	21.79	22.69	22.35	23.26	23.88	24.88	25.78	25.44	26.35	26.97
	8H	21.94	22.79	22.51	23.36	24.00	25.49	26.34	26.06	26.91	27.54
	12H	22.05	22.82	22.64	23.42	24.05	26.15	26.92	26.74	27.52	28.16
8H	4H	21.85	22.70	22.42	23.27	23.90	23.91	24.76	24.48	25.33	25.96
	6H	22.54	23.26	23.14	23.88	24.51	25.29	26.01	25.90	26.63	27.26
	8H	22.80	23.44	23.41	24.07	24.72	26.03	26.68	26.65	27.30	27.95
	12H	22.98	23.56	23.60	24.17	24.89	26.86	27.44	27.47	28.05	28.76
12H	4H	21.99	22.76	22.58	23.36	23.99	23.93	24.70	24.52	25.30	25.93
	6H	22.76	23.41	23.37	24.03	24.68	25.34	25.99	25.96	26.62	27.27
	8H	23.09	23.67	23.71	24.28	25.00	26.15	26.73	26.76	27.34	28.06