

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: P242690

Luminaire Tested: S124DRP-S1020D935-X4F0-XX-UDD-D-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P242690  
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-S1020D935-X4F0-XX-UDD-D-W  
Description: DEFINE 4 DIRECT RECESSED WITH SATIN DROP DIFFUSER  
STANDARD LIGHT ENGINE  
Light Source: (92) 3500K CCT, 90 CRI LEDS  
Ballast/Driver: -

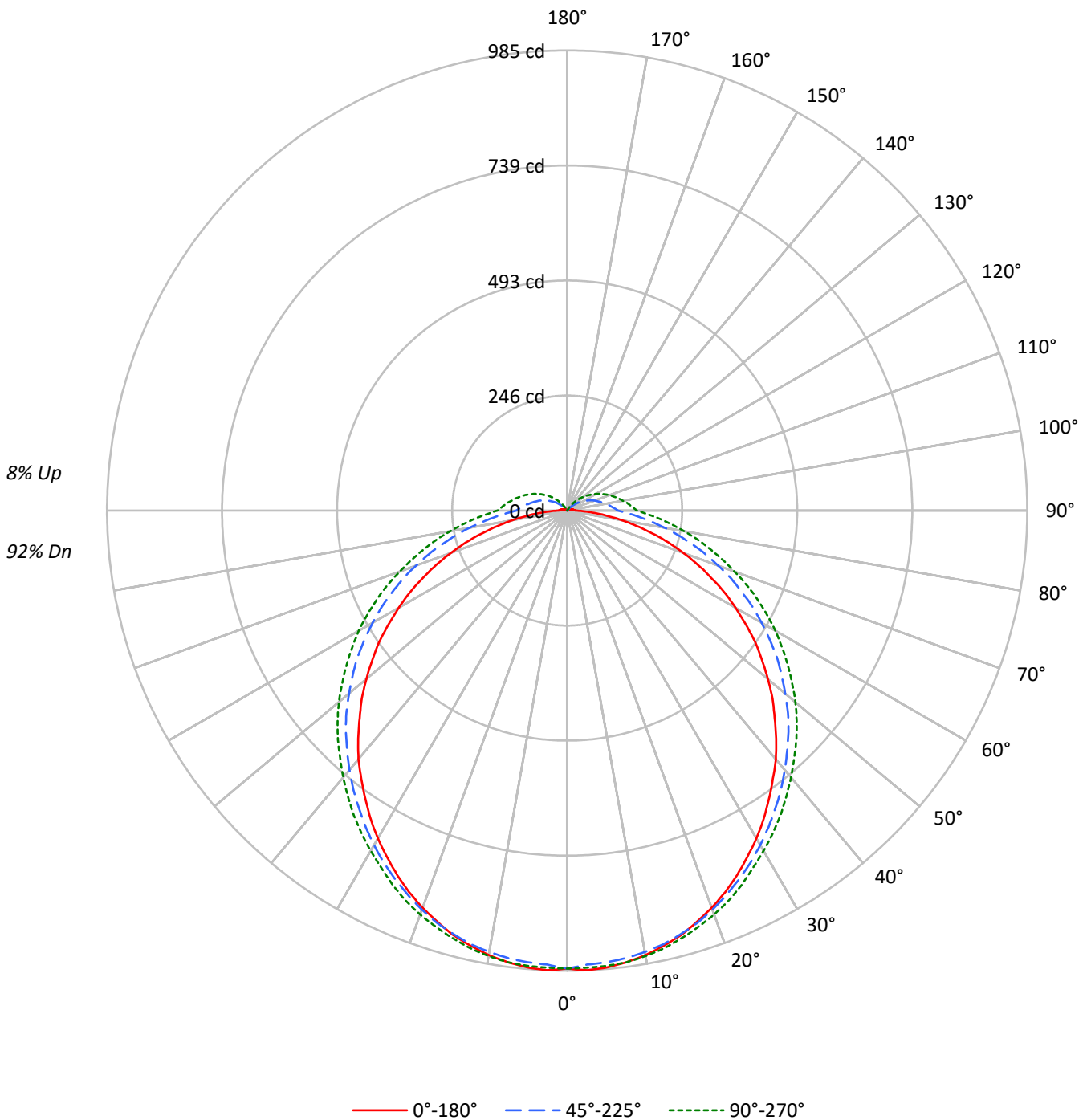
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3342.9 lumens  
Efficiency: N/A  
Efficacy: 96.1 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°	8716	8716	8716
5°	8742	8509	8530
10°	8688	8361	8348
15°	8610	8192	8139
20°	8491	8006	7934
25°	8359	7799	7710
30°	8215	7593	7481
35°	8052	7383	7279
40°	7922	7181	7069
45°	7728	6995	6887
50°	7565	6781	6694
55°	7396	6577	6469
60°	7132	6319	6263
65°	6844	6042	6009
70°	6493	5727	5715
75°	6006	5377	5443
80°	5461	5032	5167
85°	4765	4709	4979

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 7728 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	92.9	2.8
10°-20°	266.2	8.0
20°-30°	402.5	12.0
30°-40°	486.9	14.6
40°-50°	514.8	15.4
50°-60°	484.5	14.5
60°-70°	402.0	12.0
70°-80°	282.1	8.4
80°-90°	159.1	4.8
90°-100°	94.7	2.8
100°-110°	70.1	2.1
110°-120°	47.1	1.4
120°-130°	26.5	0.8
130°-140°	11.5	0.3
140°-150°	2.3	0.1
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	761.6	22.8
0°-40°	1248.5	37.3
0°-60°	2247.7	67.2
0°-90°	3090.8	92.5
90°-120°	211.9	6.3
90°-150°	252.1	7.5
90°-180°	252.0	7.5
0°-180°	3342.9	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	980	980	980	980	980	
5°	982	978	971	979	978	93
15°	941	942	939	949	948	265
25°	861	867	871	883	884	397
35°	753	766	777	793	796	472
45°	628	649	670	688	694	485
55°	492	515	548	570	576	438
65°	340	376	413	440	449	337
75°	189	230	276	306	316	201
85°	58	104	154	187	198	61
90°	18	62	109	140	149	12
95°	14	50	96	125	135	11
105°	10	32	72	100	109	11
115°	7	16	52	76	83	7
125°	4	3	31	52	58	4
135°	2	2	10	27	34	2
145°	1	0	0	7	11	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°	980.5	980.5	980.5	980.5	980.5
2.5°	984.9	981.6	972.8	980.5	979.4
5°	981.6	978.3	970.6	979.4	978.3
7.5°	975.0	972.8	966.2	976.1	975.0
10°	966.2	965.1	959.6	969.5	968.4
12.5°	954.1	954.1	950.9	959.6	959.6
15°	941.0	942.1	938.8	948.7	947.6
17.5°	923.4	926.7	925.6	935.5	934.4
20°	904.7	908.0	909.1	920.1	920.1
22.5°	883.9	888.3	890.5	901.4	903.6
25°	860.8	867.4	870.7	882.8	883.9
27.5°	835.6	845.4	849.8	860.8	861.9
30°	810.3	819.1	826.8	838.9	841.1
32.5°	782.9	793.8	802.6	816.9	819.1
35°	753.2	766.4	777.4	792.7	796.0
37.5°	723.6	738.9	752.1	767.5	770.8
40°	695.0	709.3	724.7	741.1	745.5
42.5°	662.1	678.6	697.2	715.9	719.2
45°	628.0	648.9	669.8	688.4	693.9
47.5°	596.2	617.1	641.2	659.9	666.5
50°	561.1	585.2	609.4	631.3	637.9
52.5°	525.9	550.1	578.6	600.6	607.2
55°	491.9	515.0	547.9	569.9	576.4
57.5°	453.5	482.0	513.9	540.2	545.7
60°	416.1	444.7	480.9	506.2	515.0
62.5°	379.9	411.7	448.0	473.2	482.0
65°	340.4	375.5	412.8	440.3	449.1
67.5°	303.0	340.4	379.9	407.4	416.1
70°	264.6	301.9	343.7	373.3	381.0
72.5°	227.3	265.7	310.7	339.3	348.1
75°	188.9	229.5	275.6	306.3	316.2
77.5°	152.6	195.4	243.8	274.5	285.5
80°	119.7	163.6	211.9	244.9	253.6
82.5°	86.7	132.9	181.2	215.2	225.1
85°	58.2	104.3	153.7	186.7	197.6
87.5°	36.2	81.3	129.6	161.4	171.3
90°	17.6	61.5	108.7	140.5	149.3
92.5°	16.5	54.9	102.1	132.9	141.6
95°	14.3	50.5	95.5	125.2	135.1
97.5°	13.2	45.0	90.0	118.6	128.5
100°	12.1	40.6	83.4	113.1	120.8
102.5°	12.1	36.2	78.0	106.5	115.3
105°	9.9	31.8	72.5	99.9	108.7
107.5°	9.9	28.5	67.0	94.4	102.1
110°	8.8	24.2	62.6	87.8	96.6



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	7.7	20.9	57.1	81.3	90.0
115°	6.6	16.5	51.6	75.8	83.4
117.5°	6.6	13.2	46.1	69.2	78.0
120°	5.5	8.8	40.6	62.6	71.4
122.5°	5.5	5.5	35.1	57.1	64.8
125°	4.4	3.3	30.7	51.6	58.2
127.5°	4.4	3.3	25.3	45.0	52.7
130°	3.3	2.2	19.8	39.5	46.1
132.5°	3.3	2.2	15.4	34.0	40.6
135°	2.2	2.2	9.9	27.4	34.0
137.5°	2.2	1.1	5.5	22.0	27.4
140°	2.2	1.1	2.2	16.5	22.0
142.5°	1.1	1.1	0.0	12.1	16.5
145°	1.1	0.0	0.0	6.6	11.0
147.5°	1.1	0.0	0.0	1.1	5.5
150°	1.1	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	17.31	18.84	17.79	19.30	19.80	18.87	20.39	19.34	20.86	21.35
	3H	18.95	20.34	19.44	20.82	21.36	21.17	22.56	21.66	23.04	23.58
	4H	19.52	20.84	20.03	21.33	21.88	22.23	23.55	22.74	24.04	24.59
	6H	19.90	21.13	20.43	21.63	22.20	23.29	24.51	23.81	25.02	25.58
	8H	20.01	21.18	20.54	21.71	22.28	23.80	24.98	24.34	25.51	26.08
	12H	20.07	21.19	20.61	21.72	22.32	24.36	25.48	24.90	26.01	26.61
4H	2H	18.16	19.48	18.67	19.97	20.52	19.37	20.68	19.88	21.17	21.73
	3H	20.04	21.16	20.56	21.70	22.27	21.89	23.01	22.42	23.55	24.12
	4H	20.75	21.77	21.29	22.32	22.92	23.11	24.14	23.66	24.68	25.29
	6H	21.26	22.17	21.83	22.74	23.36	24.34	25.24	24.91	25.82	26.44
	8H	21.42	22.27	21.99	22.84	23.47	24.95	25.80	25.52	26.37	27.01
	12H	21.52	22.29	22.11	22.89	23.53	25.62	26.39	26.21	26.99	27.62
8H	4H	21.33	22.17	21.90	22.75	23.38	23.37	24.22	23.94	24.79	25.42
	6H	22.02	22.74	22.62	23.35	23.99	24.76	25.48	25.36	26.09	26.73
	8H	22.27	22.92	22.89	23.54	24.19	25.50	26.15	26.11	26.77	27.42
	12H	22.46	23.03	23.07	23.65	24.36	26.33	26.90	26.94	27.51	28.23
12H	4H	21.46	22.23	22.05	22.83	23.47	23.38	24.15	23.97	24.75	25.39
	6H	22.23	22.88	22.85	23.50	24.15	24.81	25.46	25.42	26.08	26.73
	8H	22.57	23.15	23.19	23.76	24.48	25.62	26.19	26.23	26.81	27.52