

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: P243555

Luminaire Tested: S124DRP-H1020D940-X4F0-XX-UDD-D-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P243555  
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-H1020D940-X4F0-XX-UDD-D-W  
Description: DEFINE 4 DIRECT RECESSED WITH SATIN DROP DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 4000K CCT, 90 CRI LEDS  
Ballast/Driver: -

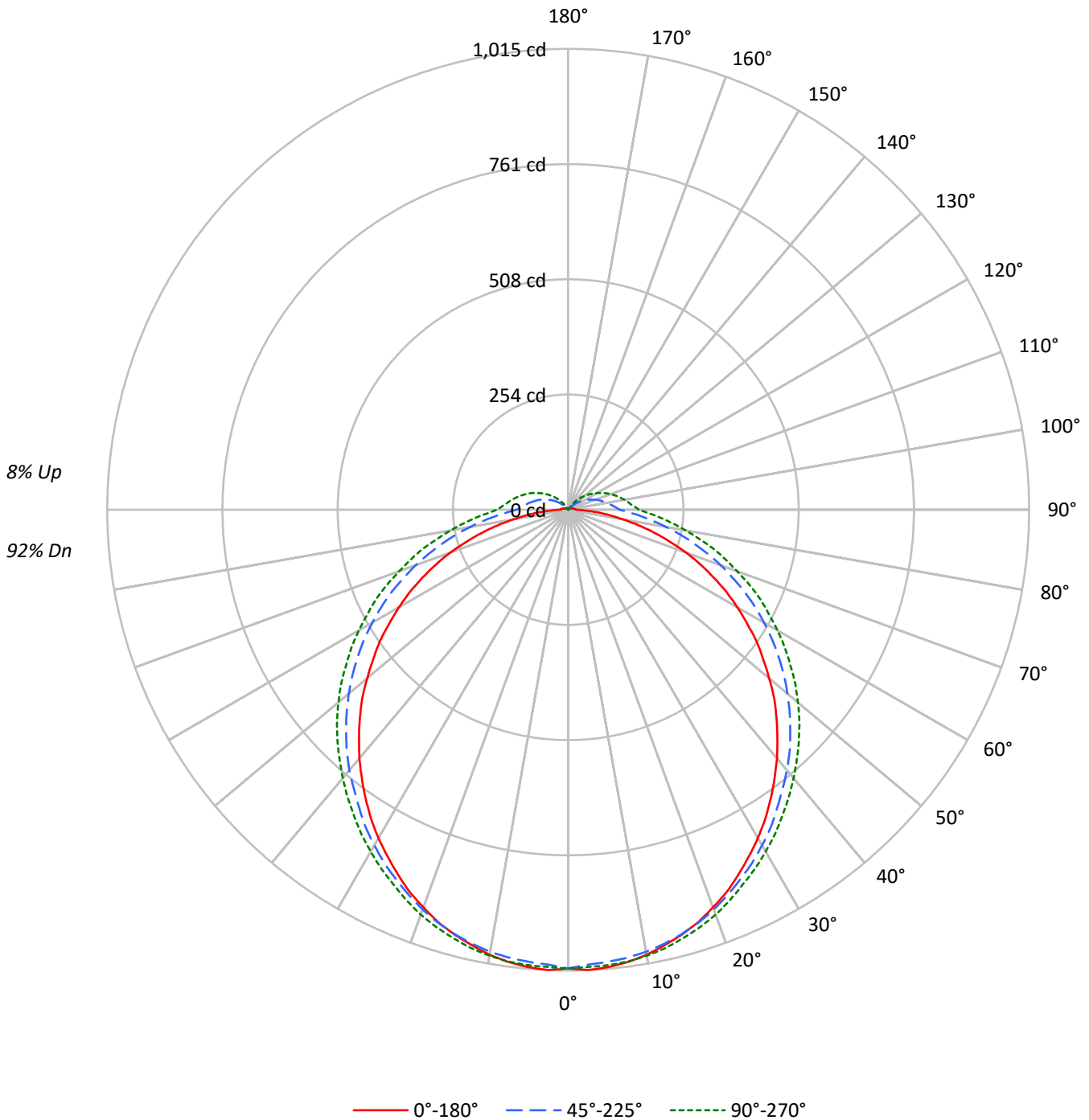
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3453.6 lumens  
Efficiency: N/A  
Efficacy: 109.6 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 (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	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°	8981	8981	8981
5°	9008	8763	8781
10°	8950	8616	8599
15°	8862	8442	8392
20°	8748	8254	8184
25°	8612	8040	7942
30°	8468	7839	7736
35°	8311	7617	7521
40°	8151	7426	7320
45°	7981	7221	7129
50°	7789	7013	6929
55°	7620	6792	6700
60°	7380	6546	6477
65°	7103	6271	6250
70°	6770	5957	5926
75°	6247	5572	5693
80°	5534	5201	5361
85°	5010	4902	5168

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 7981 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	95.7	2.8
10°-20°	274.3	7.9
20°-30°	415.1	12.0
30°-40°	502.7	14.6
40°-50°	531.7	15.4
50°-60°	500.9	14.5
60°-70°	416.2	12.1
70°-80°	292.6	8.5
80°-90°	164.8	4.8
90°-100°	97.8	2.8
100°-110°	72.4	2.1
110°-120°	48.3	1.4
120°-130°	27.2	0.8
130°-140°	11.6	0.3
140°-150°	2.2	0.1
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	785.1	22.7
0°-40°	1287.8	37.3
0°-60°	2320.4	67.2
0°-90°	3194.0	92.5
90°-120°	218.5	6.3
90°-150°	259.6	7.5
90°-180°	260.0	7.5
0°-180°	3453.6	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1010	1010	1010	1010	1010	
5°	1011	1007	1000	1008	1007	96
15°	968	971	967	978	977	273
25°	887	894	898	910	910	409
35°	777	790	802	819	822	486
45°	648	669	692	712	718	500
55°	507	534	566	590	597	452
65°	353	389	428	455	467	350
75°	196	238	286	318	331	208
85°	61	108	160	194	205	63
90°	18	63	114	145	156	12
95°	15	52	99	130	138	12
105°	11	33	75	103	113	11
115°	8	17	53	77	87	7
125°	4	3	31	53	60	4
135°	2	2	10	28	34	2
145°	1	0	0	6	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°	1010.4	1010.4	1010.4	1010.4	1010.4
2.5°	1014.7	1011.4	1002.8	1009.3	1008.2
5°	1011.4	1007.1	999.6	1008.2	1007.1
7.5°	1005.0	1001.8	995.3	1005.0	1003.9
10°	995.3	993.2	988.9	997.5	997.5
12.5°	982.4	982.4	979.2	988.9	988.9
15°	968.5	970.6	967.4	978.1	977.1
17.5°	952.4	954.5	953.5	964.2	964.2
20°	932.0	935.2	937.3	949.2	949.2
22.5°	911.6	915.9	918.0	930.9	930.9
25°	886.9	894.4	897.6	910.5	910.5
27.5°	861.1	870.8	877.2	889.0	891.2
30°	835.3	846.1	853.6	866.5	869.7
32.5°	807.4	818.2	830.0	842.9	847.2
35°	777.4	790.2	802.1	819.2	822.5
37.5°	746.2	761.3	775.2	793.5	797.8
40°	715.1	733.3	749.4	766.6	772.0
42.5°	681.8	700.1	721.5	739.8	745.2
45°	648.5	668.9	691.5	711.9	718.3
47.5°	615.2	636.7	661.4	682.9	690.4
50°	577.7	601.3	630.3	651.7	660.3
52.5°	541.1	566.9	599.1	620.6	630.3
55°	506.8	533.6	565.8	590.5	597.0
57.5°	467.1	497.1	532.6	559.4	565.8
60°	430.6	460.6	498.2	525.0	532.6
62.5°	393.0	425.2	463.8	490.7	498.2
65°	353.3	388.7	428.4	455.3	467.1
67.5°	314.6	350.0	391.9	422.0	431.6
70°	275.9	312.4	357.5	387.6	395.1
72.5°	235.1	274.9	321.0	352.2	362.9
75°	196.5	238.4	285.6	317.8	330.7
77.5°	158.9	202.9	252.3	285.6	294.2
80°	121.3	169.6	219.0	252.3	263.1
82.5°	91.3	136.4	187.9	223.3	231.9
85°	61.2	108.4	160.0	194.3	205.1
87.5°	36.5	84.8	134.2	166.4	177.2
90°	18.3	63.3	113.8	145.0	155.7
92.5°	16.1	56.9	105.2	136.4	147.1
95°	15.0	51.5	98.8	129.9	138.5
97.5°	14.0	47.2	92.3	122.4	132.1
100°	12.9	41.9	87.0	116.0	125.6
102.5°	11.8	37.6	80.5	109.5	119.2
105°	10.7	33.3	75.2	103.1	112.7
107.5°	9.7	29.0	69.8	96.6	106.3
110°	8.6	24.7	64.4	90.2	99.9



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	7.5	21.5	58.0	83.7	93.4
115°	7.5	17.2	52.6	77.3	87.0
117.5°	6.4	12.9	47.2	70.9	79.5
120°	6.4	9.7	41.9	64.4	73.0
122.5°	5.4	6.4	36.5	59.1	66.6
125°	4.3	3.2	31.1	52.6	60.1
127.5°	4.3	3.2	25.8	46.2	53.7
130°	3.2	3.2	20.4	39.7	47.2
132.5°	3.2	2.1	15.0	34.4	40.8
135°	2.1	2.1	9.7	27.9	34.4
137.5°	2.1	1.1	6.4	22.5	29.0
140°	2.1	1.1	2.1	17.2	22.5
142.5°	1.1	1.1	0.0	11.8	16.1
145°	1.1	0.0	0.0	6.4	10.7
147.5°	1.1	0.0	0.0	1.1	5.4
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	17.42	18.94	17.89	19.41	19.90	19.00	20.52	19.47	20.99	21.49
	3H	19.06	20.46	19.55	20.93	21.47	21.31	22.70	21.80	23.17	23.71
	4H	19.64	20.95	20.15	21.45	22.00	22.38	23.70	22.89	24.19	24.74
	6H	20.02	21.25	20.54	21.75	22.32	23.43	24.65	23.95	25.16	25.72
	8H	20.13	21.30	20.66	21.83	22.40	23.94	25.11	24.48	25.64	26.22
	12H	20.19	21.32	20.73	21.84	22.44	24.49	25.62	25.03	26.14	26.74
4H	2H	18.27	19.59	18.78	20.08	20.63	19.50	20.82	20.01	21.31	21.86
	3H	20.16	21.28	20.68	21.82	22.39	22.03	23.15	22.55	23.69	24.26
	4H	20.87	21.90	21.41	22.44	23.05	23.26	24.28	23.80	24.83	25.43
	6H	21.39	22.29	21.95	22.86	23.48	24.48	25.38	25.04	25.96	26.58
	8H	21.54	22.39	22.11	22.97	23.60	25.09	25.94	25.66	26.51	27.14
	12H	21.65	22.42	22.24	23.02	23.66	25.75	26.52	26.34	27.12	27.76
8H	4H	21.45	22.30	22.02	22.87	23.51	23.51	24.36	24.08	24.93	25.56
	6H	22.15	22.86	22.75	23.48	24.12	24.90	25.61	25.50	26.23	26.87
	8H	22.40	23.04	23.01	23.67	24.32	25.63	26.28	26.25	26.91	27.56
	12H	22.59	23.16	23.20	23.77	24.49	26.46	27.04	27.08	27.65	28.37
12H	4H	21.59	22.36	22.18	22.96	23.60	23.53	24.30	24.12	24.90	25.54
	6H	22.36	23.01	22.97	23.63	24.28	24.94	25.59	25.56	26.22	26.87
	8H	22.70	23.27	23.31	23.89	24.60	25.75	26.33	26.37	26.94	27.66