

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: P243360

Luminaire Tested: S123DRP-H1165D830-X4F0-XX-UDD-D-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P243360  
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-H1165D830-X4F0-XX-UDD-D-W  
Description: DEFINE 3 DIRECT RECESSED WITH SATIN DROP DIFFUSER.  
HIGH PERFORMANCE LIGHT ENGINE  
Light Source: (184) 3000K CCT, 80 CRI LEDS  
Ballast/Driver: -

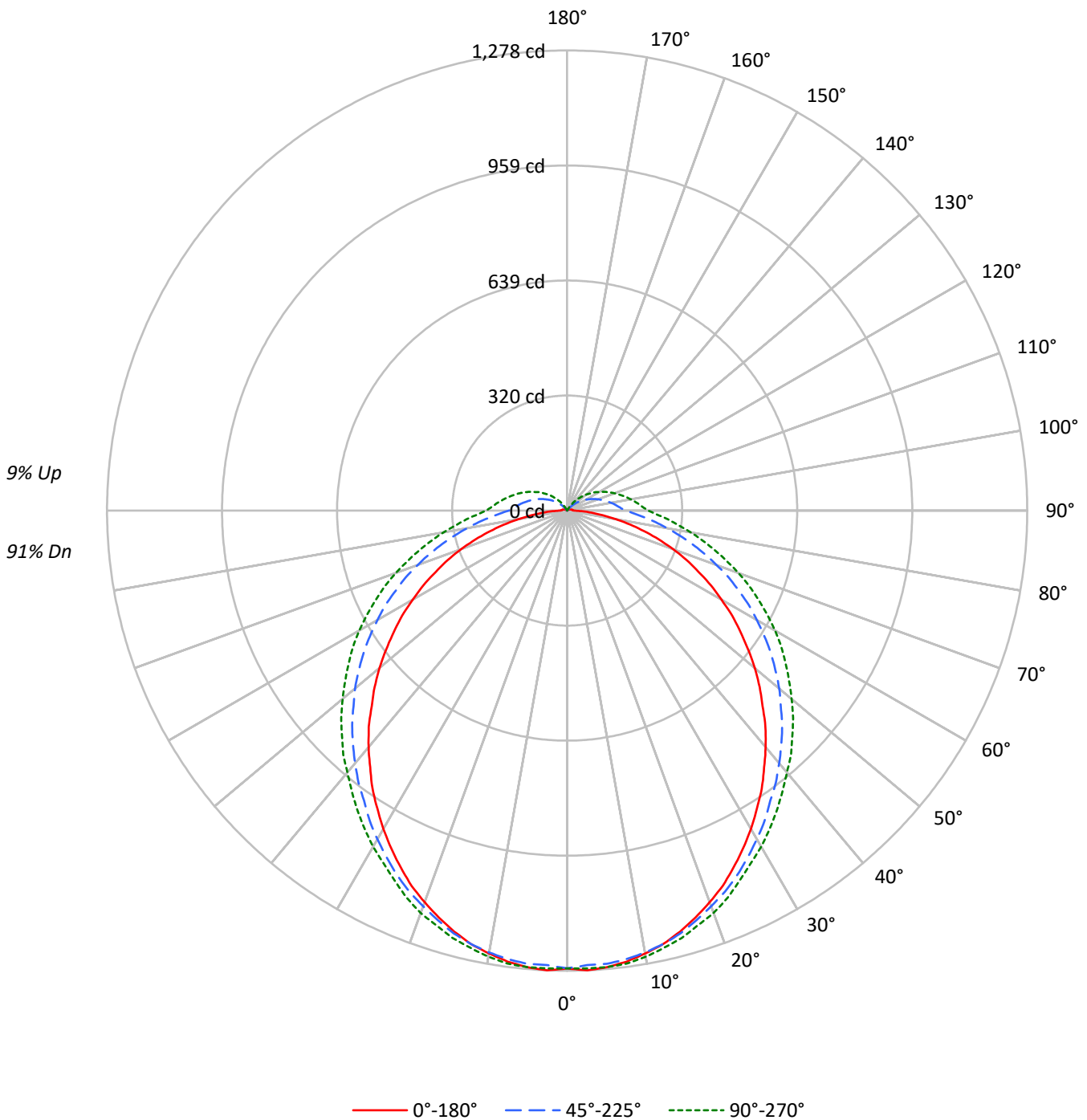
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4315.4 lumens  
Efficiency: N/A  
Efficacy: 114.5 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): 37.7  
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	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	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	76	76	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	62	62	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	52	52	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	45	45	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	39	39	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	34	34	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	30	30	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	27	27	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	24	24	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	22	22	22	22	22	22	20																			

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

	0°	45°	90°
0°	15411	15411	15411
5°	15458	15016	15009
10°	15314	14636	14553
15°	15103	14219	14053
20°	14814	13724	13547
25°	14484	13263	12963
30°	14114	12748	12469
35°	13741	12225	11978
40°	13333	11799	11509
45°	12881	11378	11116
50°	12504	10948	10709
55°	12041	10509	10308
60°	11557	10024	9920
65°	11049	9506	9443
70°	10471	8950	8980
75°	9598	8345	8431
80°	8499	7747	7949
85°	7547	7264	7582

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 12881 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	120.7	2.8
10°-20°	344.2	8.0
20°-30°	515.4	11.9
30°-40°	616.7	14.3
40°-50°	646.7	15.0
50°-60°	608.0	14.1
60°-70°	508.8	11.8
70°-80°	365.1	8.5
80°-90°	218.7	5.1
90°-100°	138.7	3.2
100°-110°	102.2	2.4
110°-120°	68.4	1.6
120°-130°	39.5	0.9
130°-140°	18.2	0.4
140°-150°	4.2	0.1
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	980.3	22.7
0°-40°	1597.0	37.0
0°-60°	2851.7	66.1
0°-90°	3944.3	91.4
90°-120°	309.2	7.2
90°-150°	371.1	8.6
90°-180°	371.0	8.6
0°-180°	4315.4	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1271	1271	1271	1271	1271	
5°	1273	1271	1264	1274	1273	121
15°	1210	1218	1216	1232	1229	341
25°	1094	1108	1118	1135	1134	504
35°	943	965	984	1009	1016	589
45°	768	806	844	874	884	594
55°	587	636	691	728	741	526
65°	403	463	525	571	586	400
75°	221	289	359	408	424	235
85°	68	138	215	264	281	69
90°	19	88	162	211	225	13
95°	15	72	140	186	200	12
105°	11	46	107	147	159	11
115°	7	24	76	110	122	7
125°	5	5	46	76	86	4
135°	3	1	20	44	52	2
145°	1	0	0	13	19	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°	1271.4	1271.4	1271.4	1271.4	1271.4
2.5°	1278.1	1274.1	1263.5	1275.4	1272.8
5°	1272.8	1271.4	1263.5	1274.1	1272.8
7.5°	1263.5	1263.5	1256.9	1268.8	1268.8
10°	1248.9	1252.9	1246.2	1259.5	1258.2
12.5°	1233.0	1238.3	1233.0	1247.6	1243.6
15°	1210.5	1218.4	1215.8	1231.7	1229.0
17.5°	1185.3	1194.5	1193.2	1209.1	1207.8
20°	1157.4	1169.4	1169.4	1185.3	1189.2
22.5°	1128.3	1141.5	1145.5	1161.4	1164.0
25°	1093.8	1108.4	1117.6	1134.9	1133.6
27.5°	1058.0	1075.2	1085.8	1104.4	1104.4
30°	1020.9	1040.7	1054.0	1073.9	1077.9
32.5°	981.1	1005.0	1020.9	1042.1	1047.4
35°	942.6	965.2	983.7	1008.9	1015.6
37.5°	898.9	926.7	951.9	978.4	982.4
40°	857.8	888.3	916.1	944.0	949.3
42.5°	815.4	847.2	880.3	908.2	920.1
45°	767.6	806.1	844.5	873.7	884.3
47.5°	725.2	763.7	804.8	839.2	851.2
50°	680.1	719.9	769.0	802.1	814.0
52.5°	633.7	677.5	729.2	765.0	776.9
55°	587.3	636.4	690.7	727.9	741.1
57.5°	543.6	592.6	649.6	690.7	705.3
60°	494.5	548.9	608.5	651.0	666.9
62.5°	450.8	506.5	568.8	611.2	627.1
65°	403.0	462.7	525.0	571.4	586.0
67.5°	359.3	417.6	485.2	531.6	547.6
70°	312.9	373.9	441.5	489.2	506.5
72.5°	266.5	331.4	400.4	449.4	464.0
75°	221.4	289.0	359.3	408.3	424.3
77.5°	179.0	246.6	319.5	368.6	385.8
80°	136.6	206.8	282.4	331.4	348.7
82.5°	99.4	171.0	247.9	295.7	311.6
85°	67.6	137.9	214.8	263.8	281.1
87.5°	39.8	111.4	185.6	234.7	249.2
90°	18.6	87.5	161.7	210.8	225.4
92.5°	17.2	78.2	149.8	196.2	210.8
95°	14.6	71.6	140.5	185.6	200.2
97.5°	14.6	65.0	132.6	176.3	189.6
100°	13.3	58.3	124.6	165.7	179.0
102.5°	11.9	51.7	115.3	156.4	169.7
105°	10.6	46.4	107.4	147.2	159.1
107.5°	9.3	39.8	99.4	137.9	149.8
110°	9.3	34.5	91.5	128.6	140.5



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	8.0	29.2	83.5	119.3	131.3
115°	6.6	23.9	75.6	110.0	122.0
117.5°	6.6	18.6	67.6	102.1	112.7
120°	6.6	14.6	61.0	92.8	103.4
122.5°	5.3	9.3	54.4	84.9	95.5
125°	5.3	5.3	46.4	75.6	86.2
127.5°	4.0	2.7	39.8	67.6	76.9
130°	4.0	2.7	33.1	59.7	68.9
132.5°	2.7	2.7	26.5	51.7	61.0
135°	2.7	1.3	19.9	43.8	51.7
137.5°	2.7	1.3	13.3	35.8	43.8
140°	1.3	1.3	6.6	27.8	35.8
142.5°	1.3	0.0	1.3	21.2	27.8
145°	1.3	0.0	0.0	13.3	18.6
147.5°	1.3	0.0	0.0	6.6	11.9
150°	1.3	0.0	0.0	0.0	4.0
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	18.54	20.04	19.03	20.52	21.05	20.61	22.11	21.10	22.59	23.11
	3H	20.09	21.46	20.59	21.95	22.52	23.00	24.37	23.51	24.87	25.43
	4H	20.62	21.91	21.14	22.43	23.00	24.12	25.42	24.64	25.93	26.50
	6H	20.96	22.16	21.49	22.69	23.28	25.24	26.45	25.78	26.98	27.57
	8H	21.04	22.20	21.59	22.75	23.34	25.81	26.96	26.36	27.51	28.11
	12H	21.09	22.20	21.65	22.74	23.37	26.42	27.53	26.98	28.08	28.70
4H	2H	19.45	20.75	19.98	21.26	21.84	21.06	22.35	21.58	22.87	23.44
	3H	21.25	22.36	21.79	22.91	23.51	23.67	24.77	24.21	25.33	25.92
	4H	21.92	22.94	22.48	23.50	24.13	24.94	25.95	25.50	26.52	27.15
	6H	22.39	23.29	22.97	23.88	24.52	26.24	27.14	26.82	27.73	28.37
	8H	22.53	23.37	23.11	23.96	24.61	26.90	27.74	27.49	28.33	28.99
	12H	22.61	23.38	23.22	23.99	24.65	27.63	28.39	28.24	29.01	29.67
8H	4H	22.57	23.41	23.15	24.00	24.65	25.17	26.01	25.75	26.59	27.25
	6H	23.22	23.94	23.84	24.57	25.23	26.62	27.34	27.24	27.97	28.63
	8H	23.46	24.10	24.09	24.74	25.41	27.41	28.05	28.04	28.69	29.36
	12H	23.63	24.20	24.26	24.83	25.57	28.31	28.88	28.94	29.51	30.24
12H	4H	22.73	23.49	23.33	24.11	24.77	25.18	25.94	25.78	26.55	27.21
	6H	23.47	24.12	24.10	24.75	25.43	26.67	27.31	27.29	27.95	28.62
	8H	23.80	24.37	24.43	25.00	25.74	27.52	28.09	28.15	28.72	29.46