

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: P242502

Luminaire Tested: S123DRP-S560D835-X4F0-XX-UDD-D-W

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-2024  
Report Number: P242502  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-15)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: S123DRP-S560D835-X4F0-XX-UDD-D-W  
Description: DEFINE 3 DIRECT RECESSED WITH SATIN DROP DIFFUSER  
STANDARD LIGHT ENGINE  
Light Source: (92) 3500K CCT, 80 CRI LEDS  
Ballast/Driver: -

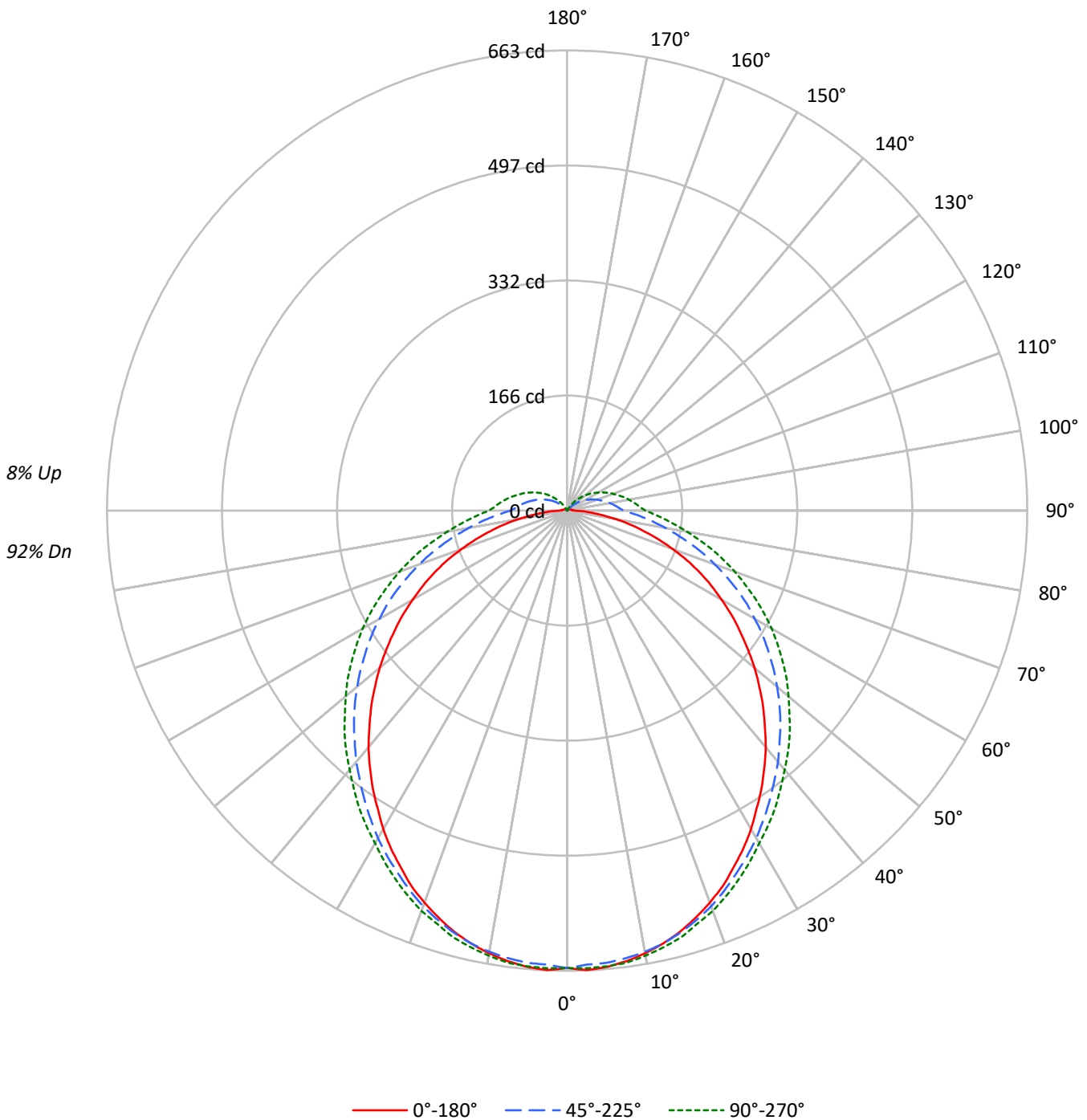
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2215.2 lumens  
Efficiency: N/A  
Efficacy: 117.8 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.25 / 1.37  
Luminous Opening: Rectangular w/ Sides (W: 0.23' x L: 3.88' x H: 0.08')  
CIE Type: Direct  
  
Input Watts (W): 18.8  
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	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	92																												
1	105	100	95	90	102	97	92	88	91	87	84	85	82	80	80	78	76	73																												
2	95	86	79	72	92	83	77	71	79	73	68	74	69	65	70	66	63	60																												
3	86	75	67	60	83	73	65	59	69	62	56	65	59	54	61	56	52	50																												
4	79	66	57	50	76	64	56	49	61	54	48	57	51	46	54	49	45	42																												
5	72	59	50	43	70	58	49	42	54	47	41	52	45	40	49	43	39	36																												
6	67	53	44	37	64	52	43	37	49	42	36	47	40	35	44	38	34	32																												
7	62	48	39	33	60	47	38	32	45	37	32	42	36	31	40	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	28	24	22																												
10	50	37	29	24	49	36	29	24	35	28	23	33	27	23	32	26	22	20																												

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

	0°	45°	90°
0°	7989	7989	7989
5°	8014	7774	7772
10°	7942	7581	7532
15°	7839	7365	7275
20°	7692	7120	6993
25°	7511	6843	6700
30°	7326	6592	6404
35°	7118	6327	6165
40°	6920	6086	5910
45°	6699	5853	5705
50°	6483	5622	5480
55°	6241	5386	5273
60°	6009	5144	5062
65°	5769	4889	4814
70°	5408	4600	4558
75°	4951	4269	4294
80°	4424	3939	3994
85°	3930	3689	3795

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 6699 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	62.5	2.8
10°-20°	178.3	8.0
20°-30°	266.6	12.0
30°-40°	318.3	14.4
40°-50°	333.0	15.0
50°-60°	312.5	14.1
60°-70°	261.0	11.8
70°-80°	186.6	8.4
80°-90°	111.1	5.0
90°-100°	69.8	3.1
100°-110°	51.3	2.3
110°-120°	34.3	1.5
120°-130°	19.6	0.9
130°-140°	8.7	0.4
140°-150°	1.8	0.1
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	507.3	22.9
0°-40°	825.6	37.3
0°-60°	1471.1	66.4
0°-90°	2029.8	91.6
90°-120°	155.3	7.0
90°-150°	185.5	8.4
90°-180°	185.0	8.4
0°-180°	2215.2	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	659	659	659	659	659	
5°	660	658	654	660	659	63
15°	628	630	630	637	636	177
25°	567	574	577	586	586	261
35°	488	500	509	520	523	305
45°	399	416	434	448	454	308
55°	304	328	354	373	379	273
65°	210	238	270	292	299	208
75°	114	148	184	208	216	122
85°	35	71	109	134	141	36
90°	9	44	81	106	113	7
95°	8	36	71	93	100	6
105°	6	23	54	74	80	6
115°	4	12	38	55	61	4
125°	2	2	23	38	43	2
135°	1	1	9	22	25	1
145°	1	0	0	6	9	0
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°	659.1	659.1	659.1	659.1	659.1
2.5°	662.7	660.6	654.8	660.6	659.9
5°	659.9	658.4	654.1	659.9	659.1
7.5°	654.8	654.8	650.5	657.7	657.0
10°	647.7	649.1	645.5	652.7	651.2
12.5°	639.0	641.2	639.0	645.5	644.1
15°	628.3	630.4	629.7	636.9	636.2
17.5°	615.3	619.7	618.9	625.4	624.0
20°	601.0	605.3	606.7	613.2	613.9
22.5°	585.9	590.2	592.4	601.0	600.3
25°	567.2	574.4	576.6	585.9	585.9
27.5°	549.3	557.2	561.5	569.4	570.1
30°	529.9	539.2	545.0	553.6	553.6
32.5°	508.4	519.1	527.0	536.4	538.5
35°	488.3	499.7	509.1	519.9	522.7
37.5°	466.7	479.6	490.4	502.6	504.8
40°	445.2	458.1	472.5	484.7	487.5
42.5°	421.5	438.0	453.1	466.7	471.0
45°	399.2	416.5	434.4	448.0	453.8
47.5°	375.5	394.9	415.0	430.1	434.4
50°	352.6	372.7	394.9	411.4	416.5
52.5°	328.1	349.7	374.8	392.0	398.5
55°	304.4	328.1	354.0	373.4	379.1
57.5°	281.5	305.9	333.9	353.3	359.7
60°	257.1	282.9	312.3	332.4	340.3
62.5°	234.1	260.6	292.2	312.3	319.5
65°	210.4	238.4	270.0	291.5	298.7
67.5°	186.7	216.1	247.7	271.4	277.2
70°	161.6	192.4	226.9	249.9	257.1
72.5°	138.6	169.5	205.4	229.1	236.2
75°	114.2	147.9	183.8	207.5	216.1
77.5°	93.3	127.1	163.0	188.1	194.6
80°	71.1	106.3	143.6	168.0	175.2
82.5°	51.7	87.6	125.7	150.1	157.2
85°	35.2	71.1	109.1	133.6	140.7
87.5°	21.5	57.4	94.1	118.5	125.7
90°	9.3	44.5	81.1	105.5	112.7
92.5°	8.6	39.5	75.4	99.1	105.5
95°	7.9	35.9	71.1	93.3	100.5
97.5°	7.2	33.0	66.8	88.3	95.5
100°	6.5	29.4	62.5	83.3	90.5
102.5°	5.7	25.8	58.2	78.3	85.4
105°	5.7	23.0	53.9	74.0	80.4
107.5°	5.0	20.1	49.5	68.9	75.4
110°	4.3	17.2	46.0	64.6	70.4



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	4.3	14.4	41.6	59.6	66.1
115°	3.6	12.2	38.1	55.3	61.0
117.5°	3.6	9.3	33.7	51.0	56.7
120°	2.9	6.5	30.2	46.7	51.7
122.5°	2.9	4.3	26.6	42.4	47.4
125°	2.2	2.2	23.0	38.1	43.1
127.5°	2.2	1.4	19.4	33.7	38.8
130°	2.2	1.4	15.8	29.4	33.7
132.5°	1.4	1.4	12.2	25.1	30.2
135°	1.4	0.7	8.6	21.5	25.1
137.5°	1.4	0.7	5.7	17.2	20.8
140°	0.7	0.7	2.9	13.6	17.2
142.5°	0.7	0.0	0.0	9.3	12.9
145°	0.7	0.0	0.0	5.7	8.6
147.5°	0.0	0.0	0.0	2.2	5.0
150°	0.0	0.0	0.0	0.0	1.4
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	16.27	17.78	16.76	18.26	18.77	18.27	19.77	18.76	20.26	20.77
	3H	17.83	19.20	18.33	19.69	20.25	20.65	22.02	21.15	22.51	23.07
	4H	18.35	19.65	18.87	20.16	20.73	21.76	23.06	22.28	23.57	24.14
	6H	18.70	19.91	19.23	20.43	21.01	22.87	24.08	23.40	24.60	25.18
	8H	18.78	19.94	19.33	20.49	21.08	23.42	24.58	23.97	25.13	25.72
	12H	18.83	19.94	19.39	20.48	21.10	24.03	25.14	24.58	25.68	26.30
4H	2H	17.18	18.48	17.70	18.99	19.56	18.73	20.03	19.25	20.54	21.11
	3H	18.98	20.09	19.52	20.64	21.23	21.32	22.43	21.86	22.98	23.57
	4H	19.64	20.66	20.20	21.22	21.84	22.59	23.60	23.15	24.16	24.79
	6H	20.12	21.01	20.69	21.60	22.24	23.87	24.77	24.45	25.35	25.99
	8H	20.26	21.10	20.84	21.68	22.33	24.52	25.36	25.10	25.95	26.60
	12H	20.34	21.10	20.94	21.72	22.37	25.24	26.00	25.84	26.62	27.27
8H	4H	20.28	21.12	20.86	21.70	22.35	22.81	23.66	23.40	24.24	24.89
	6H	20.94	21.65	21.55	22.27	22.93	24.26	24.97	24.87	25.59	26.25
	8H	21.17	21.81	21.79	22.45	23.11	25.03	25.67	25.66	26.31	26.98
	12H	21.34	21.91	21.97	22.54	23.27	25.91	26.49	26.54	27.11	27.85
12H	4H	20.43	21.20	21.04	21.81	22.46	22.83	23.59	23.43	24.20	24.86
	6H	21.18	21.82	21.80	22.46	23.12	24.30	24.94	24.92	25.58	26.24
	8H	21.50	22.07	22.13	22.70	23.43	25.14	25.71	25.77	26.34	27.07