

Scaled data based on original data using  
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State  
Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: NEO-RAY

Report Number: P231555

Luminaire Tested: **S123-DR-LO-27-X-0048-1-U-DD-3-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P231555  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P29684)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S123-DR-LO-27-X-0048-1-U-DD-3-W  
Description: DEFINE 3 LED LINEAR DIRECT RECESSED LED LUMINAIRE WITH ASYMMETRIC LENS.  
Light Source: 2700K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1207.5 lumens  
Efficiency: N/A  
Efficacy: 88.8 lumens/watt  
Spacing Criteria (0/90/45): 1.33 / 1.22 / 1.46  
Luminous Opening: Rectangular (W 3.92' x L: 0.22' x H: 0')  
CIE Type: Direct

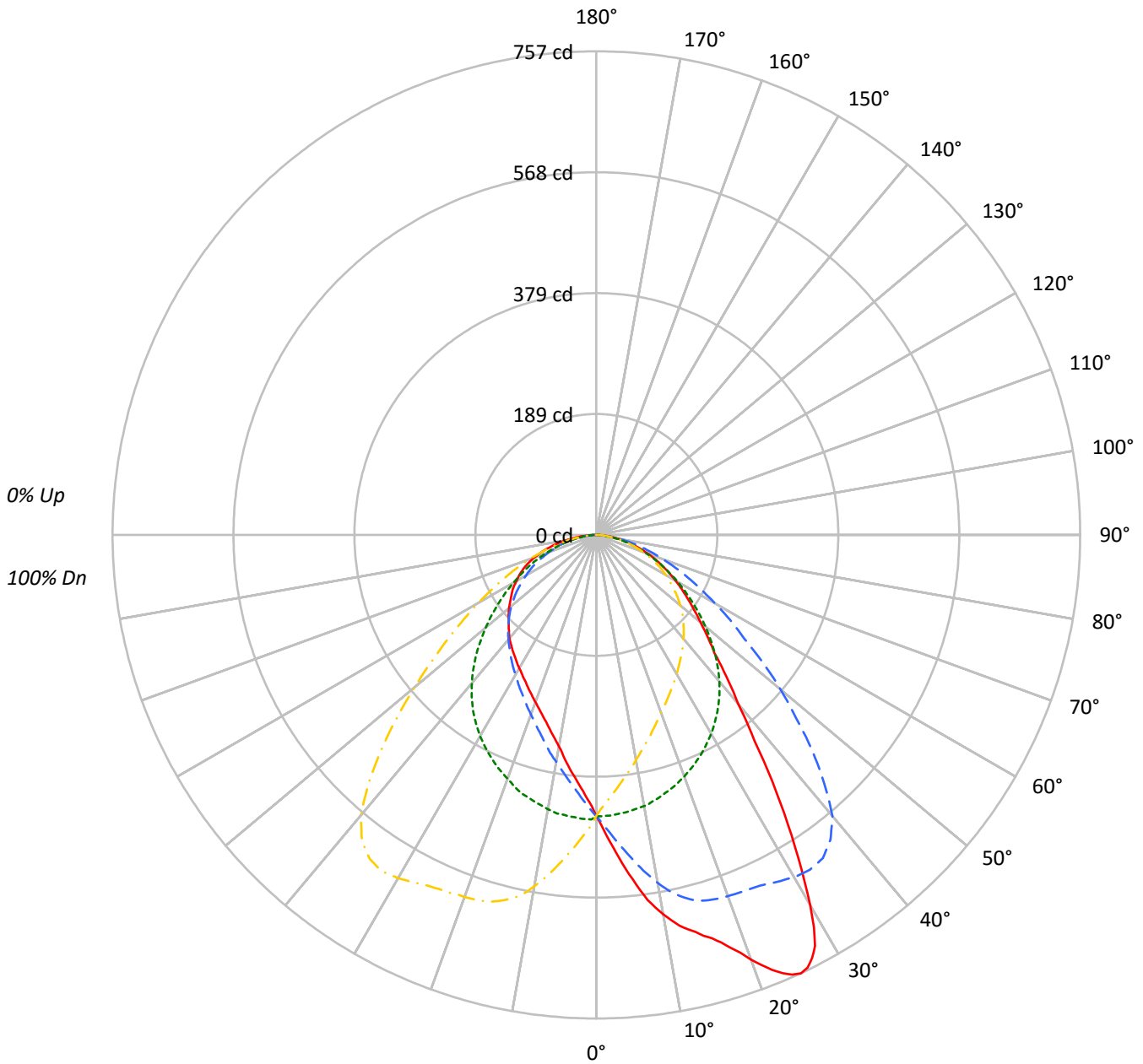
Input Watts (W): 13.6  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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### Luminous Intensity Polar Plot



— 0°-180°    - - - 45°-225°    ···· 90°-270°    - · - · 135°-315°



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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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	109	105	101	97	107	103	99	96	98	95	93	95	92	90	91	89	87	85
2	100	92	86	80	98	90	84	79	87	82	78	84	79	76	81	77	74	72
3	92	82	74	68	89	80	73	67	77	71	66	74	69	65	72	67	64	61
4	84	73	64	58	82	71	64	57	69	62	57	67	61	56	65	59	55	53
5	78	65	57	50	76	64	56	50	62	55	49	60	54	49	58	53	48	46
6	72	59	50	44	70	58	50	44	56	49	44	55	48	43	53	47	43	41
7	67	54	45	39	65	53	45	39	51	44	39	50	43	39	49	43	38	36
8	62	49	41	35	61	48	41	35	47	40	35	46	39	35	45	39	34	33
9	58	45	37	32	57	45	37	32	43	36	31	42	36	31	41	35	31	29
10	55	42	34	29	53	41	34	29	40	33	29	39	33	29	38	33	28	27

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

	0°	90°	180°	270°
0°	5418	5418	5418	5418
5°	6485	5405	4714	5470
10°	7538	5386	4204	5449
15°	8277	5327	3864	5395
20°	9265	5272	3649	5321
25°	10282	5198	3505	5250
30°	9507	5105	3425	5170
35°	7372	4981	3393	5048
40°	5540	4812	3395	4868
45°	4544	4565	3375	4631
50°	4069	4258	3414	4323
55°	3753	3931	3465	4012
60°	3517	3611	3554	3687
65°	3288	3299	3675	3387
70°	3091	2940	3721	3023
75°	2801	2568	3633	2658
80°	2481	2098	3395	2211
85°	1991	1553	3064	1723



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	42.8	3.5
10°-20°	128.2	10.6
20°-30°	204.5	16.9
30°-40°	235.5	19.5
40°-50°	214.5	17.8
50°-60°	173.9	14.4
60°-70°	123.5	10.2
70°-80°	67.0	5.5
80°-90°	17.7	1.5
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	375.5	31.1
0°-40°	611.0	50.6
0°-60°	999.4	82.8
0°-90°	1207.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1207.5	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	440	440	440	440	440	
5°	525	438	382	443	525	53
15°	650	418	303	423	650	186
25°	757	383	258	387	757	339
35°	491	332	226	336	491	307
45°	261	262	194	266	261	207
55°	175	183	162	187	175	157
65°	113	113	126	116	113	113
75°	59	54	76	56	59	63
85°	14	11	22	12	14	17
90°	0	0	0	0	0	



TEST NUMBER: P231555

CATALOG NUMBER: S123-DR-LO-27-X-0048-1-U-DD-3-W

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	440.2	440.2	440.2	440.2	440.2	440.2	440.2	440.2	440.2	440.2	440.2
1°	454.6	451.6	449.7	441.7	440.6	432.2	428.8	425.7	424.6	426.5	432.2
2°	471.7	466.0	460.3	447.0	439.8	426.9	420.0	414.3	412.8	415.1	422.7
3°	488.4	480.8	471.7	452.3	439.8	421.9	411.3	403.3	401.4	404.1	414.3
4°	506.3	496.8	483.1	457.3	438.7	416.6	402.9	393.4	391.5	393.8	405.6
5°	524.9	513.2	494.9	462.6	437.5	410.1	394.9	383.5	381.6	383.9	397.2
6°	542.0	529.5	506.7	467.9	436.8	406.3	387.0	374.8	372.9	374.8	389.6
7°	559.9	546.2	518.9	472.9	435.2	400.6	379.4	366.0	363.8	366.4	382.0
8°	577.0	561.8	531.0	477.8	433.7	395.3	372.1	357.7	354.6	357.7	374.8
9°	590.7	575.5	541.7	482.4	432.2	390.0	364.9	349.7	344.4	349.7	367.6
10°	603.2	588.4	553.1	486.9	431.0	384.7	357.7	341.7	336.4	341.7	360.7
11°	614.6	599.4	563.3	491.1	429.1	379.7	350.8	334.5	329.2	334.1	354.6
12°	625.3	609.7	572.5	496.8	426.1	374.8	344.0	327.3	322.3	326.9	348.9
13°	633.3	617.7	580.1	499.8	423.8	368.7	337.5	320.8	315.9	320.4	341.3
14°	640.5	625.7	586.5	503.3	420.8	363.0	331.1	314.0	309.4	314.4	334.1
15°	649.6	632.1	592.2	506.3	418.1	357.7	325.4	307.9	303.3	308.3	327.7
16°	656.8	638.6	595.6	509.0	415.1	352.4	318.9	302.2	298.0	303.0	321.6
17°	667.1	645.1	597.9	510.9	412.4	347.0	312.8	296.9	292.7	297.2	315.9
18°	679.3	651.5	599.4	512.0	409.4	341.7	307.1	291.5	287.7	291.5	309.8
19°	691.4	659.5	601.0	513.2	405.6	336.0	301.8	286.6	283.2	286.2	304.5
20°	707.4	668.2	601.7	512.8	402.5	331.1	296.5	282.0	278.6	281.3	299.1
21°	721.1	678.1	602.5	511.3	398.4	325.4	291.5	277.5	274.4	276.7	294.2
22°	734.4	688.8	602.9	510.1	394.9	320.1	286.6	273.3	269.9	272.5	289.3
23°	745.4	699.4	603.6	507.1	391.1	314.7	281.7	268.7	266.1	268.4	284.3
24°	753.4	710.8	604.8	503.7	386.6	309.4	277.1	264.9	261.9	264.2	279.4
25°	757.2	720.3	605.9	499.1	382.8	304.5	272.5	261.1	258.1	259.6	274.8
26°	753.8	726.4	608.2	494.1	378.2	299.1	268.0	257.7	254.3	255.8	270.3
27°	743.5	729.1	610.8	488.4	373.7	293.8	263.8	254.3	251.3	252.4	266.1
28°	728.7	726.8	613.5	482.4	368.7	288.9	259.6	250.5	247.5	248.6	261.5
29°	702.5	719.2	615.8	475.9	364.1	283.9	255.4	246.3	244.0	244.8	257.3
30°	669.0	705.5	618.8	469.4	359.2	278.6	251.3	242.9	241.0	241.4	253.2
32.5°	577.8	647.3	621.5	451.2	345.9	266.5	241.0	233.8	233.4	233.0	243.3
35°	490.7	567.1	617.7	431.8	331.5	254.3	231.1	225.4	225.8	225.0	233.0
37.5°	406.7	484.6	601.3	413.9	316.3	242.1	221.6	217.8	218.6	217.0	223.1
40°	344.8	410.9	574.7	392.7	299.5	230.3	212.1	209.8	211.3	209.4	214.0
42.5°	301.1	350.1	528.0	372.5	281.3	218.6	202.2	201.5	202.6	201.1	204.1
45°	261.1	302.2	477.8	351.6	262.3	206.4	192.3	191.6	193.9	191.6	194.6
47.5°	235.7	264.9	423.4	332.2	242.5	194.6	182.5	182.5	186.3	182.1	184.4
50°	212.5	233.0	376.3	310.2	222.4	182.5	171.1	172.6	178.3	172.6	173.7
52.5°	192.7	208.3	328.0	287.4	202.6	169.9	160.0	163.4	169.5	163.4	162.3
55°	174.9	186.3	282.0	263.4	183.2	157.4	148.2	153.2	161.5	154.3	150.9
57.5°	158.5	166.9	248.2	238.7	164.6	144.8	136.8	144.8	154.3	146.0	139.1
60°	142.9	149.0	214.0	214.0	146.7	131.5	125.1	134.6	144.4	135.3	127.3
62.5°	128.1	132.7	184.4	188.5	129.6	118.2	114.0	124.3	136.1	125.8	115.9
65°	112.9	116.3	157.7	164.2	113.3	103.8	101.9	113.7	126.2	115.2	104.2



TEST NUMBER: P231555

CATALOG NUMBER: S123-DR-LO-27-X-0048-1-U-DD-3-W

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
67.5°	99.6	101.1	133.4	140.3	97.3	90.1	88.9	102.3	115.2	103.8	90.5
70°	85.9	86.3	111.0	117.5	81.7	77.5	76.8	89.7	103.4	91.2	78.7
72.5°	72.2	72.2	90.1	95.4	67.7	64.6	65.0	77.9	90.1	79.1	66.9
75°	58.9	58.5	71.5	75.6	54.0	52.1	52.8	65.8	76.4	66.5	54.7
77.5°	46.4	46.8	54.7	57.4	41.4	40.3	42.6	53.2	62.3	54.0	43.3
80°	35.0	33.8	39.5	41.1	29.6	29.6	31.2	40.7	47.9	41.4	32.7
82.5°	23.6	23.9	26.2	27.0	19.4	19.8	21.3	28.9	34.6	29.6	22.8
85°	14.1	14.1	15.2	15.2	11.0	11.4	13.7	17.9	21.7	19.0	14.1
87.5°	6.1	6.1	6.5	6.5	4.9	5.3	6.5	8.7	10.6	9.5	7.2
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P231555

CATALOG NUMBER: S123-DR-LO-27-X-0048-1-U-DD-3-W

**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	440.2	440.2	440.2	440.2	440.2	440.2
1°	434.1	445.5	445.9	454.6	456.9	454.6
2°	429.1	445.1	452.0	465.6	471.7	471.7
3°	423.8	444.7	456.9	477.4	487.3	488.4
4°	418.1	443.6	462.6	489.2	502.9	506.3
5°	412.8	442.8	467.2	500.6	518.9	524.9
6°	407.5	442.1	472.9	512.8	535.6	542.0
7°	402.5	440.6	478.2	524.9	551.5	559.9
8°	397.2	440.6	483.1	536.7	567.1	577.0
9°	393.4	438.3	490.0	547.7	581.6	590.7
10°	386.6	436.0	493.0	558.4	594.1	603.2
11°	380.9	433.3	496.8	569.0	605.1	614.6
12°	375.2	431.0	501.4	577.8	614.6	625.3
13°	370.2	428.8	504.4	583.5	622.6	633.3
14°	364.9	426.1	508.6	588.8	629.5	640.5
15°	359.2	423.4	511.6	593.4	635.6	649.6
16°	354.3	421.5	514.3	597.2	641.3	656.8
17°	349.3	418.1	517.0	599.4	648.1	667.1
18°	344.0	414.3	517.7	601.3	654.9	679.3
19°	337.5	410.1	518.1	602.1	663.7	691.4
20°	332.2	406.3	517.7	603.2	674.7	707.4
21°	327.3	402.5	516.2	603.2	686.5	721.1
22°	321.6	399.1	514.3	605.1	698.3	734.4
23°	316.3	395.3	512.4	605.9	708.9	745.4
24°	310.9	391.1	508.6	606.7	718.8	753.4
25°	306.0	386.6	505.2	608.2	727.2	757.2
26°	300.7	382.4	500.2	609.7	733.2	753.8
27°	295.3	377.8	494.5	612.4	734.8	743.5
28°	290.0	373.3	486.9	615.0	731.3	728.7
29°	285.1	368.3	480.5	617.7	722.2	702.5
30°	280.1	363.8	473.6	620.3	707.0	669.0
32.5°	268.4	350.5	457.3	624.5	645.8	577.8
35°	255.8	336.0	437.5	618.8	563.3	490.7
37.5°	244.0	320.1	418.1	602.5	480.5	406.7
40°	232.6	303.0	398.7	572.8	406.0	344.8
42.5°	220.8	285.1	379.0	527.6	345.9	301.1
45°	209.4	266.1	358.1	476.3	298.0	261.1
47.5°	197.7	245.9	336.8	422.7	260.4	235.7
50°	184.7	225.8	314.7	371.4	231.1	212.5
52.5°	172.2	206.4	291.5	324.2	206.4	192.7
55°	161.2	187.0	267.2	282.4	184.7	174.9
57.5°	148.2	168.4	242.5	245.6	165.7	158.5
60°	134.2	149.8	217.0	212.9	148.2	142.9
62.5°	120.9	132.7	191.6	183.2	131.5	128.1
65°	108.3	116.3	166.9	157.0	116.3	112.9





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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	93.9	100.0	142.9	132.7	101.5	99.6
70°	79.4	84.0	120.1	111.0	85.5	85.9
72.5°	67.7	69.2	98.4	89.7	73.0	72.2
75°	54.7	55.9	77.5	71.5	59.3	58.9
77.5°	42.6	43.0	59.3	55.1	46.8	46.4
80°	31.5	31.2	42.6	39.9	33.8	35.0
82.5°	21.3	20.9	28.1	27.0	24.3	23.6
85°	12.9	12.2	16.3	16.0	14.4	14.1
87.5°	6.5	6.1	7.6	7.6	6.8	6.1
90°	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)