

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: P231558

Luminaire Tested: **S123-DR-LO-40-X-0048-1-U-DD-3-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P231558
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-40-X-0048-1-U-DD-3-W
Description: DEFINE 3 LED LINEAR DIRECT RECESSED LED LUMINAIRE WITH ASYMMETRIC LENS.
Light Source: 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1594.5 lumens
Efficiency: N/A
Efficacy: 117.2 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

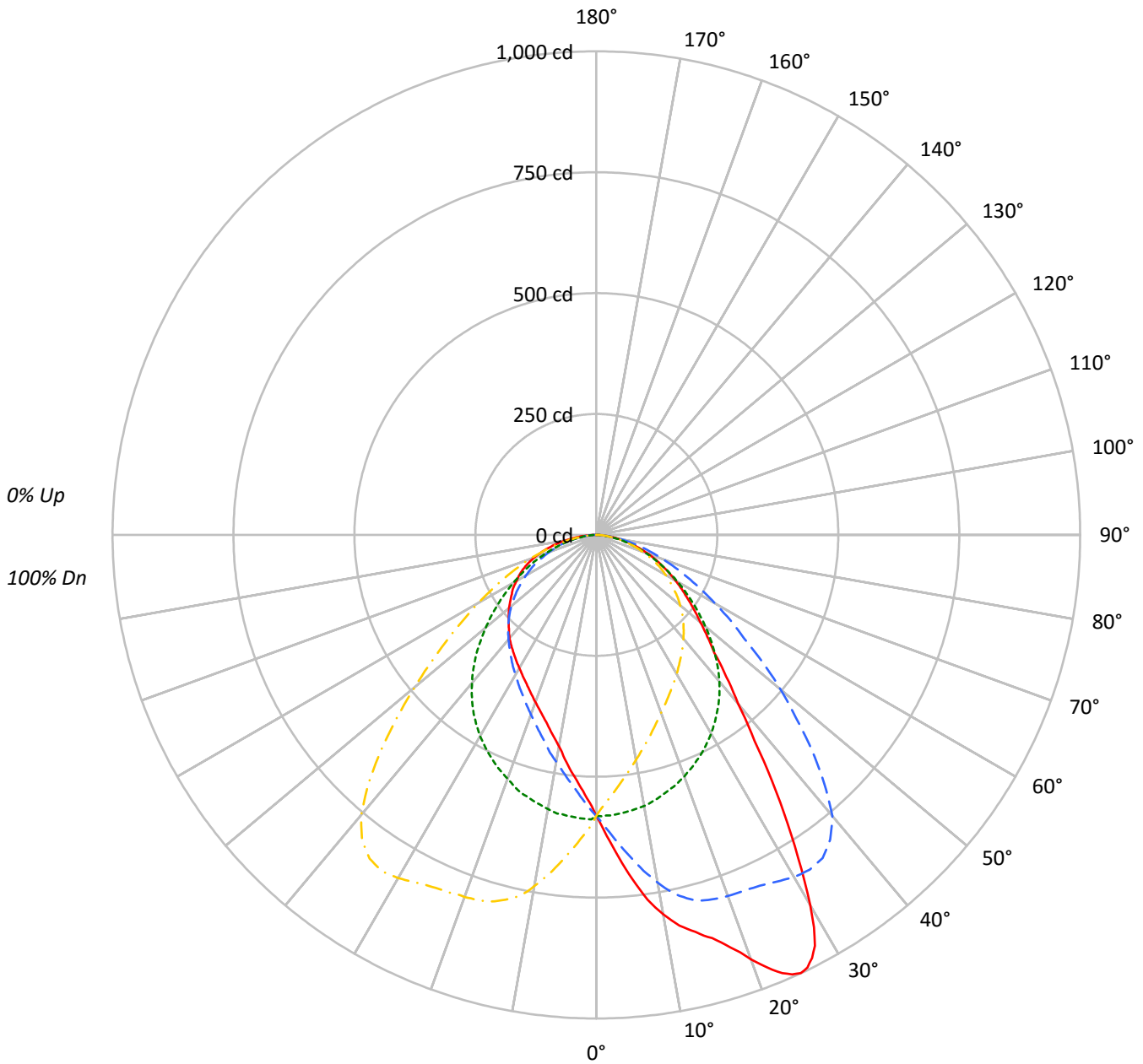
Input Watts (W): 13.6
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°	270°
0°	7153	7153	7153	7153
5°	8564	7137	6225	7225
10°	9955	7113	5551	7195
15°	10930	7035	5103	7125
20°	12234	6962	4818	7028
25°	13578	6864	4628	6932
30°	12554	6740	4522	6827
35°	9736	6576	4480	6666
40°	7315	6354	4484	6426
45°	6001	6027	4456	6116
50°	5373	5621	4507	5710
55°	4954	5190	4577	5300
60°	4645	4768	4694	4869
65°	4342	4357	4852	4473
70°	4081	3883	4912	3991
75°	3700	3390	4798	3509
80°	3274	2778	4479	2920
85°	2627	2062	4039	2273



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	56.5	3.5
10°-20°	169.3	10.6
20°-30°	270.0	16.9
30°-40°	310.9	19.5
40°-50°	283.2	17.8
50°-60°	229.6	14.4
60°-70°	163.1	10.2
70°-80°	88.4	5.5
80°-90°	23.4	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°	495.9	31.1
0°-40°	806.8	50.6
0°-60°	1319.7	82.8
0°-90°	1594.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1594.5	100.0

CANDELA DISTRIBUTION:

	0°	90°	180°	270°	360°	Flux
0°	581	581	581	581	581	
5°	693	578	504	585	693	70
15°	858	552	400	559	858	246
25°	1000	506	341	510	1000	447
35°	648	438	298	444	648	406
45°	345	346	256	351	345	273
55°	231	242	213	247	231	208
65°	149	150	167	154	149	149
75°	78	71	101	74	78	83
85°	19	15	29	16	19	22
90°	0	0	0	0	0	



TEST NUMBER: P231558

CATALOG NUMBER: S123-DR-LO-40-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°	581.2	581.2	581.2	581.2	581.2	581.2	581.2	581.2	581.2	581.2	581.2
1°	600.3	596.3	593.8	583.3	581.7	570.7	566.2	562.2	560.7	563.2	570.7
2°	622.9	615.4	607.8	590.3	580.7	563.7	554.6	547.1	545.1	548.1	558.2
3°	645.0	635.0	622.9	597.3	580.7	557.2	543.1	532.6	530.0	533.6	547.1
4°	668.6	656.0	638.0	603.8	579.2	550.1	532.1	519.5	517.0	520.0	535.6
5°	693.2	677.6	653.5	610.9	577.7	541.6	521.5	506.5	503.9	507.0	524.5
6°	715.8	699.2	669.1	617.9	576.7	536.6	511.0	494.9	492.4	494.9	514.5
7°	739.4	721.3	685.1	624.4	574.7	529.0	500.9	483.4	480.4	483.9	504.4
8°	761.9	741.9	701.2	630.9	572.7	522.0	491.4	472.3	468.3	472.3	494.9
9°	780.0	759.9	715.3	637.0	570.7	515.0	481.9	461.8	454.8	461.8	485.4
10°	796.6	777.0	730.3	643.0	569.2	508.0	472.3	451.2	444.2	451.2	476.3
11°	811.6	791.6	743.9	648.5	566.7	501.4	463.3	441.7	434.7	441.2	468.3
12°	825.7	805.1	755.9	656.0	562.7	494.9	454.3	432.2	425.6	431.7	460.8
13°	836.2	815.7	766.0	660.0	559.7	486.9	445.7	423.6	417.1	423.1	450.7
14°	845.8	826.2	774.5	664.6	555.6	479.4	437.2	414.6	408.6	415.1	441.2
15°	857.8	834.7	782.0	668.6	552.1	472.3	429.7	406.6	400.5	407.1	432.7
16°	867.3	843.3	786.5	672.1	548.1	465.3	421.1	399.0	393.5	400.0	424.6
17°	880.9	851.8	789.5	674.6	544.6	458.3	413.1	392.0	386.5	392.5	417.1
18°	897.0	860.3	791.6	676.1	540.6	451.2	405.6	385.0	380.0	385.0	409.1
19°	913.0	870.9	793.6	677.6	535.6	443.7	398.5	378.5	373.9	378.0	402.1
20°	934.1	882.4	794.6	677.1	531.6	437.2	391.5	372.4	367.9	371.4	395.0
21°	952.2	895.5	795.6	675.1	526.0	429.7	385.0	366.4	362.4	365.4	388.5
22°	969.7	909.5	796.1	673.6	521.5	422.6	378.5	360.9	356.4	359.9	382.0
23°	984.3	923.6	797.1	669.6	516.5	415.6	371.9	354.9	351.4	354.4	375.4
24°	994.8	938.6	798.6	665.1	510.5	408.6	365.9	349.9	345.8	348.8	368.9
25°	999.9	951.2	800.1	659.0	505.5	402.1	359.9	344.8	340.8	342.8	362.9
26°	995.3	959.2	803.1	652.5	499.4	395.0	353.9	340.3	335.8	337.8	356.9
27°	981.8	962.7	806.6	645.0	493.4	388.0	348.3	335.8	331.8	333.3	351.4
28°	962.2	959.7	810.1	637.0	486.9	381.5	342.8	330.8	326.8	328.3	345.3
29°	927.6	949.7	813.1	628.4	480.9	374.9	337.3	325.3	322.2	323.2	339.8
30°	883.4	931.6	817.2	619.9	474.3	367.9	331.8	320.7	318.2	318.7	334.3
32.5°	762.9	854.8	820.7	595.8	456.8	351.9	318.2	308.7	308.2	307.7	321.2
35°	648.0	748.9	815.7	570.2	437.7	335.8	305.2	297.6	298.2	297.1	307.7
37.5°	537.1	640.0	794.1	546.6	417.6	319.7	292.6	287.6	288.6	286.6	294.6
40°	455.3	542.6	758.9	518.5	395.5	304.2	280.1	277.1	279.1	276.6	282.6
42.5°	397.5	462.3	697.2	491.9	371.4	288.6	267.0	266.0	267.5	265.5	269.5
45°	344.8	399.0	630.9	464.3	346.3	272.6	254.0	253.0	256.0	253.0	257.0
47.5°	311.2	349.9	559.2	438.7	320.2	257.0	240.9	240.9	245.9	240.4	243.4
50°	280.6	307.7	496.9	409.6	293.6	240.9	225.9	227.9	235.4	227.9	229.4
52.5°	254.5	275.1	433.2	379.5	267.5	224.4	211.3	215.8	223.9	215.8	214.3
55°	230.9	245.9	372.4	347.8	241.9	207.8	195.8	202.3	213.3	203.8	199.3
57.5°	209.3	220.4	327.8	315.2	217.3	191.2	180.7	191.2	203.8	192.7	183.7
60°	188.7	196.8	282.6	282.6	193.7	173.7	165.1	177.7	190.7	178.7	168.1
62.5°	169.2	175.2	243.4	249.0	171.2	156.1	150.6	164.1	179.7	166.1	153.1
65°	149.1	153.6	208.3	216.8	149.6	137.0	134.5	150.1	166.6	152.1	137.5



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CATALOG NUMBER: S123-DR-LO-40-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°	131.5	133.5	176.2	185.2	128.5	119.0	117.5	135.0	152.1	137.0	119.5
70°	113.4	113.9	146.6	155.1	107.9	102.4	101.4	118.5	136.5	120.5	103.9
72.5°	95.4	95.4	119.0	126.0	89.3	85.3	85.8	102.9	119.0	104.4	88.3
75°	77.8	77.3	94.4	99.9	71.3	68.8	69.8	86.8	100.9	87.8	72.3
77.5°	61.2	61.7	72.3	75.8	54.7	53.2	56.2	70.3	82.3	71.3	57.2
80°	46.2	44.7	52.2	54.2	39.2	39.2	41.2	53.7	63.2	54.7	43.2
82.5°	31.1	31.6	34.6	35.6	25.6	26.1	28.1	38.1	45.7	39.2	30.1
85°	18.6	18.6	20.1	20.1	14.6	15.1	18.1	23.6	28.6	25.1	18.6
87.5°	8.0	8.0	8.5	8.5	6.5	7.0	8.5	11.5	14.1	12.5	9.5
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CATALOG NUMBER: S123-DR-LO-40-X-0048-1-U-DD-3-W

CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
0°	581.2	581.2	581.2	581.2	581.2	581.2
1°	573.2	588.3	588.8	600.3	603.3	600.3
2°	566.7	587.8	596.8	614.9	622.9	622.9
3°	559.7	587.3	603.3	630.4	643.5	645.0
4°	552.1	585.8	610.9	646.0	664.1	668.6
5°	545.1	584.8	616.9	661.1	685.1	693.2
6°	538.1	583.8	624.4	677.1	707.2	715.8
7°	531.6	581.7	631.4	693.2	728.3	739.4
8°	524.5	581.7	638.0	708.7	748.9	761.9
9°	519.5	578.7	647.0	723.3	768.0	780.0
10°	510.5	575.7	651.0	737.3	784.5	796.6
11°	502.9	572.2	656.0	751.4	799.1	811.6
12°	495.4	569.2	662.1	762.9	811.6	825.7
13°	488.9	566.2	666.1	770.5	822.2	836.2
14°	481.9	562.7	671.6	777.5	831.2	845.8
15°	474.3	559.2	675.6	783.5	839.2	857.8
16°	467.8	556.6	679.1	788.5	846.8	867.3
17°	461.3	552.1	682.6	791.6	855.8	880.9
18°	454.3	547.1	683.6	794.1	864.8	897.0
19°	445.7	541.6	684.1	795.1	876.4	913.0
20°	438.7	536.6	683.6	796.6	890.9	934.1
21°	432.2	531.6	681.6	796.6	906.5	952.2
22°	424.6	527.0	679.1	799.1	922.1	969.7
23°	417.6	522.0	676.6	800.1	936.1	984.3
24°	410.6	516.5	671.6	801.1	949.2	994.8
25°	404.1	510.5	667.1	803.1	960.2	999.9
26°	397.0	505.0	660.6	805.1	968.2	995.3
27°	390.0	498.9	653.0	808.6	970.2	981.8
28°	383.0	492.9	643.0	812.1	965.7	962.2
29°	376.5	486.4	634.5	815.7	953.7	927.6
30°	369.9	480.4	625.4	819.2	933.6	883.4
32.5°	354.4	462.8	603.8	824.7	852.8	762.9
35°	337.8	443.7	577.7	817.2	743.9	648.0
37.5°	322.2	422.6	552.1	795.6	634.5	537.1
40°	307.2	400.0	526.5	756.4	536.1	455.3
42.5°	291.6	376.5	500.4	696.7	456.8	397.5
45°	276.6	351.4	472.8	628.9	393.5	344.8
47.5°	261.0	324.8	444.7	558.2	343.8	311.2
50°	243.9	298.2	415.6	490.4	305.2	280.6
52.5°	227.4	272.6	385.0	428.2	272.6	254.5
55°	212.8	247.0	352.9	372.9	243.9	230.9
57.5°	195.8	222.4	320.2	324.3	218.8	209.3
60°	177.2	197.8	286.6	281.1	195.8	188.7
62.5°	159.6	175.2	253.0	241.9	173.7	169.2
65°	143.1	153.6	220.4	207.3	153.6	149.1



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CANDELA DISTRIBUTION (continued):

	247.5°	270°	292.5°	315°	337.5°	360°
67.5°	124.0	132.0	188.7	175.2	134.0	131.5
70°	104.9	110.9	158.6	146.6	112.9	113.4
72.5°	89.3	91.4	130.0	118.5	96.4	95.4
75°	72.3	73.8	102.4	94.4	78.3	77.8
77.5°	56.2	56.7	78.3	72.8	61.7	61.2
80°	41.7	41.2	56.2	52.7	44.7	46.2
82.5°	28.1	27.6	37.1	35.6	32.1	31.1
85°	17.1	16.1	21.6	21.1	19.1	18.6
87.5°	8.5	8.0	10.0	10.0	9.0	8.0
90°	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)