

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: P231570

Luminaire Tested: **S124-DR-LO-40-X-0048-1-U-DD-3-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P231570  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P29681)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: NEO-RAY  
Catalog Number: S124-DR-LO-40-X-0048-1-U-DD-3-W  
Description: DEFINE 4 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: 1580.0 lumens  
Efficiency: N/A  
Efficacy: 116.2 lumens/watt  
Spacing Criteria (0/90/45): 1.39 / 1.24 / 1.51  
Luminous Opening: Rectangular (W 3.92' x L: 0.31' x H: 0')  
CIE Type: Direct

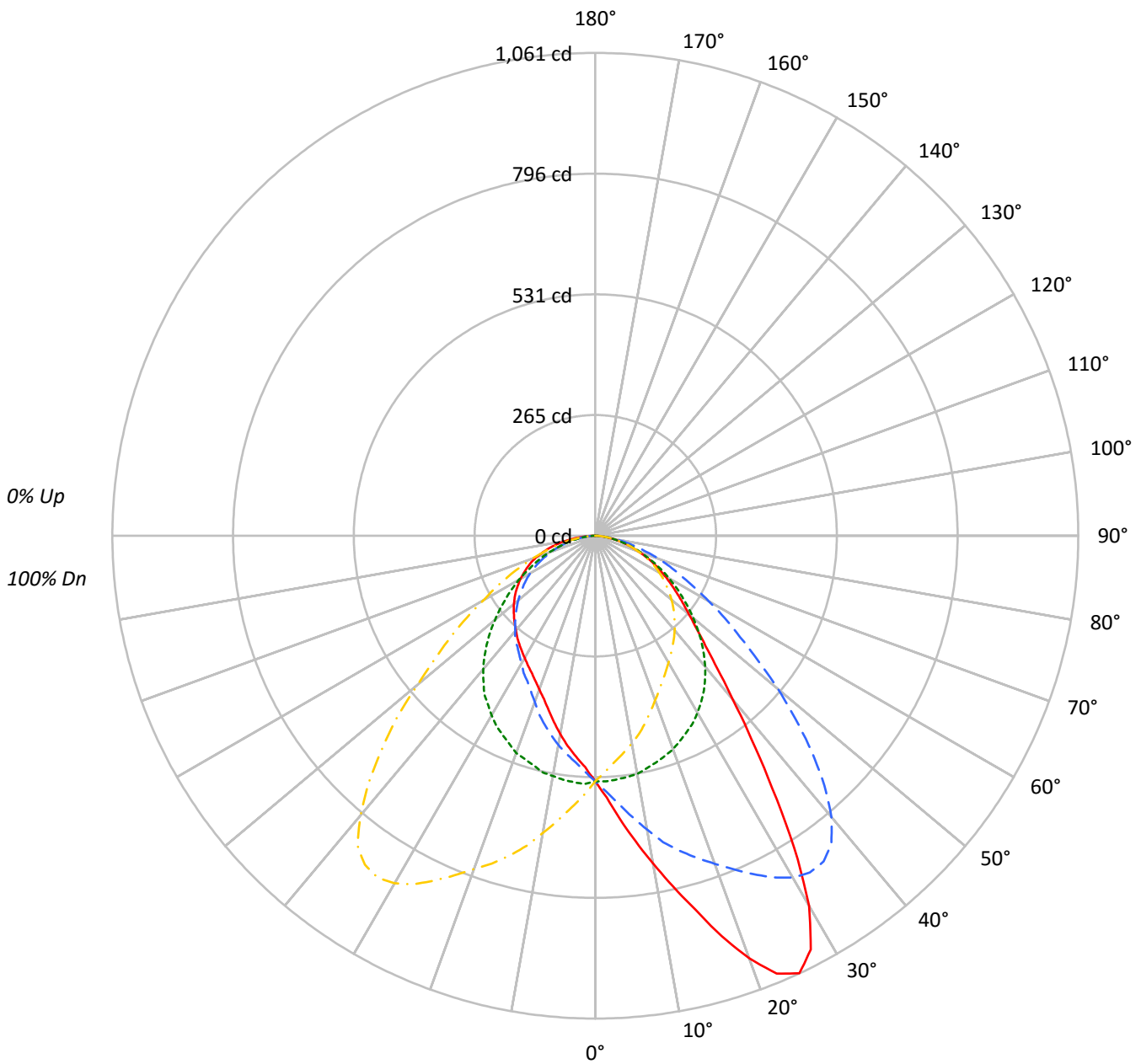
Input Watts (W): 13.6  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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	64	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	43	55	48	43	53	47	43	41					41			
7	67	54	45	39	65	53	45	39	51	44	39	50	43	38	48	43	38	36					36			
8	62	49	41	35	61	48	40	35	47	40	35	46	39	34	45	39	34	32					32			
9	58	45	37	31	57	44	37	31	43	36	31	42	36	31	41	35	31	29					29			
10	54	42	34	29	53	41	34	29	40	33	28	39	33	28	38	32	28	26					26			

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

	0°	90°	180°	270°
0°	4835	4835	4835	4835
5°	5621	4836	4380	4890
10°	6654	4837	4028	4878
15°	7893	4782	3674	4847
20°	9419	4757	3427	4844
25°	10486	4699	3276	4769
30°	9711	4643	3210	4711
35°	7401	4552	3184	4650
40°	5489	4392	3176	4480
45°	4338	4179	3200	4268
50°	3736	3912	3254	4009
55°	3403	3631	3324	3732
60°	3158	3355	3400	3471
65°	2926	3066	3501	3161
70°	2657	2774	3602	2866
75°	2365	2417	3597	2486
80°	1992	1966	3473	2126
85°	1450	1398	3197	1758



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	52.6	3.3
10°-20°	162.5	10.3
20°-30°	270.1	17.1
30°-40°	314.3	19.9
40°-50°	283.1	17.9
50°-60°	227.5	14.4
60°-70°	160.5	10.2
70°-80°	86.6	5.5
80°-90°	22.9	1.4
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°	485.2	30.7
0°-40°	799.5	50.6
0°-60°	1310.1	82.9
0°-90°	1580.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1580.0	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	540	540	540	540	540	
5°	625	538	487	544	625	63
15°	851	516	396	522	851	246
25°	1061	475	331	482	1061	473
35°	677	416	291	425	677	427
45°	342	330	252	337	342	271
55°	218	232	213	239	218	196
65°	138	145	165	149	138	137
75°	68	70	104	72	68	73
85°	14	14	31	17	14	17
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°	202.5°	225°
0°	539.6	539.6	539.6	539.6	539.6	539.6	539.6	539.6	539.6	539.6	539.6
2.5°	575.7	571.2	563.2	548.6	540.1	524.0	517.5	512.5	509.0	509.0	519.0
5°	624.9	610.9	591.3	561.2	537.6	511.0	497.9	489.4	486.9	486.9	499.4
7.5°	677.1	657.0	623.4	573.7	534.6	497.9	480.4	469.3	465.8	467.3	483.4
10°	731.3	704.7	655.5	587.8	531.6	486.9	463.3	447.7	442.7	446.2	466.8
12.5°	789.5	752.9	689.7	595.8	523.0	471.3	445.2	424.6	419.1	423.6	448.7
15°	850.8	805.1	716.8	604.3	515.5	457.3	425.1	401.6	396.0	402.1	429.7
17.5°	922.6	861.3	741.9	610.9	507.5	442.7	403.6	381.5	376.0	380.5	411.1
20°	987.8	918.0	767.0	614.9	498.9	428.2	384.5	363.4	359.4	363.4	388.5
22.5°	1041.5	972.3	793.1	611.4	487.4	410.6	366.4	348.8	344.8	346.8	369.9
25°	1060.6	1013.9	820.2	603.8	475.3	391.0	350.4	336.8	331.3	333.8	352.9
27.5°	1025.0	1020.4	846.3	592.8	464.3	375.5	335.8	323.2	320.7	322.7	340.3
30°	938.6	985.3	867.3	579.7	448.7	358.9	321.7	311.7	310.2	314.7	324.3
32.5°	813.6	905.0	877.4	563.2	432.7	341.3	308.7	300.2	300.2	301.2	310.7
35°	676.6	794.1	873.9	544.1	416.1	325.3	296.1	289.6	291.1	289.1	298.2
37.5°	562.7	674.6	851.8	526.5	396.0	310.7	283.6	278.6	281.6	279.1	288.6
40°	469.3	565.7	807.1	506.0	375.5	294.6	271.0	268.0	271.5	269.0	273.6
42.5°	396.5	475.3	744.9	484.4	352.9	279.6	258.0	257.0	262.0	258.0	260.5
45°	342.3	402.6	673.1	462.3	329.8	264.5	244.9	246.5	252.5	247.5	248.0
47.5°	300.7	346.3	596.3	437.2	304.7	249.5	231.9	235.4	242.9	236.4	234.4
50°	268.0	302.2	523.0	410.1	280.6	234.4	218.3	223.4	233.4	225.4	220.9
52.5°	241.4	266.5	449.7	381.5	256.5	218.3	204.8	212.3	223.4	214.8	207.3
55°	217.8	236.9	388.0	351.9	232.4	202.3	190.7	200.8	212.8	203.3	193.7
57.5°	196.3	211.3	337.3	321.2	209.8	185.7	177.2	187.7	201.3	191.2	179.7
60°	176.2	187.2	288.6	287.1	187.2	169.2	162.6	174.7	189.7	178.2	165.1
62.5°	156.6	165.6	243.9	253.0	165.1	152.1	148.1	161.1	177.2	164.6	150.1
65°	138.0	145.1	207.3	220.4	144.6	134.5	132.5	147.1	165.1	150.1	134.5
67.5°	119.0	124.5	177.2	188.7	123.0	116.4	116.4	132.5	152.1	135.5	118.5
70°	101.4	104.4	146.6	157.1	105.9	99.9	99.9	116.4	137.5	119.5	102.9
72.5°	84.3	86.8	118.0	127.0	87.3	82.8	84.8	101.4	120.5	104.4	87.3
75°	68.3	69.8	91.4	99.9	69.8	66.8	69.3	86.3	103.9	88.8	72.3
77.5°	53.2	53.7	70.3	75.3	53.2	51.7	54.2	71.8	85.8	72.8	57.2
80°	38.6	39.2	50.2	53.7	38.1	37.6	40.7	56.2	67.3	57.2	43.2
82.5°	25.1	26.1	33.6	34.6	24.6	25.1	28.1	40.7	48.7	41.7	30.6
85°	14.1	14.6	19.1	19.1	13.6	14.6	17.6	25.1	31.1	27.1	19.6
87.5°	5.5	5.5	7.5	7.5	5.5	6.5	8.0	13.6	15.6	14.1	10.0
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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**CANDELA DISTRIBUTION (continued):**

	247.5°	270°	292.5°	315°	337.5°	360°
0°	539.6	539.6	539.6	539.6	539.6	539.6
2.5°	525.5	546.1	554.1	570.2	575.7	575.7
5°	513.0	543.6	567.2	599.3	616.9	624.9
7.5°	499.9	540.6	580.7	630.9	664.6	677.1
10°	486.9	536.1	593.8	663.1	714.3	731.3
12.5°	477.3	532.6	609.4	697.7	764.5	789.5
15°	459.8	522.5	614.4	727.3	815.7	850.8
17.5°	445.7	514.5	622.4	755.4	873.9	922.6
20°	429.7	508.0	625.4	779.0	934.6	987.8
22.5°	415.1	494.4	626.4	807.6	989.8	1041.5
25°	395.0	482.4	618.4	835.7	1028.0	1060.6
27.5°	377.0	470.8	607.8	863.3	1032.5	1025.0
30°	362.4	455.3	596.8	881.9	993.3	938.6
32.5°	343.3	439.2	576.7	890.4	903.0	813.6
35°	327.3	425.1	559.2	882.4	787.0	676.6
37.5°	314.2	403.6	541.6	858.3	666.6	562.7
40°	296.6	383.0	520.5	802.6	559.2	469.3
42.5°	281.6	360.4	498.4	736.8	469.3	396.5
45°	266.5	336.8	473.3	662.1	398.5	342.3
47.5°	251.0	313.2	447.7	590.8	343.3	300.7
50°	235.9	287.6	422.6	509.0	300.2	268.0
52.5°	220.9	263.0	393.0	442.2	265.0	241.4
55°	205.3	238.9	359.4	387.5	235.9	217.8
57.5°	188.7	216.8	326.8	334.3	209.8	196.3
60°	172.7	193.7	296.1	283.6	186.2	176.2
62.5°	155.6	169.7	261.0	246.5	164.6	156.6
65°	138.5	149.1	227.9	209.8	144.1	138.0
67.5°	120.5	130.0	195.8	176.7	123.5	119.0
70°	102.4	109.4	163.6	147.1	104.9	101.4
72.5°	86.3	88.8	134.0	118.5	87.3	84.3
75°	69.8	71.8	105.9	94.4	70.3	68.3
77.5°	55.7	56.2	81.3	72.3	54.7	53.2
80°	40.2	41.2	58.2	52.7	40.2	38.6
82.5°	28.1	27.6	39.2	35.6	28.1	25.1
85°	17.1	17.1	23.1	21.1	15.6	14.1
87.5°	8.5	8.5	10.5	9.5	6.5	5.5
90°	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)