

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: P231571

Luminaire Tested: **S124-DR-1-27-X-0048-1-U-DD-3-W**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P231571  
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-1-27-X-0048-1-U-DD-3-W  
Description: DEFINE 4 LED LINEAR DIRECT RECESSED LED LUMINAIRE WITH ASYMMETRIC LENS.  
Light Source: 2700K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

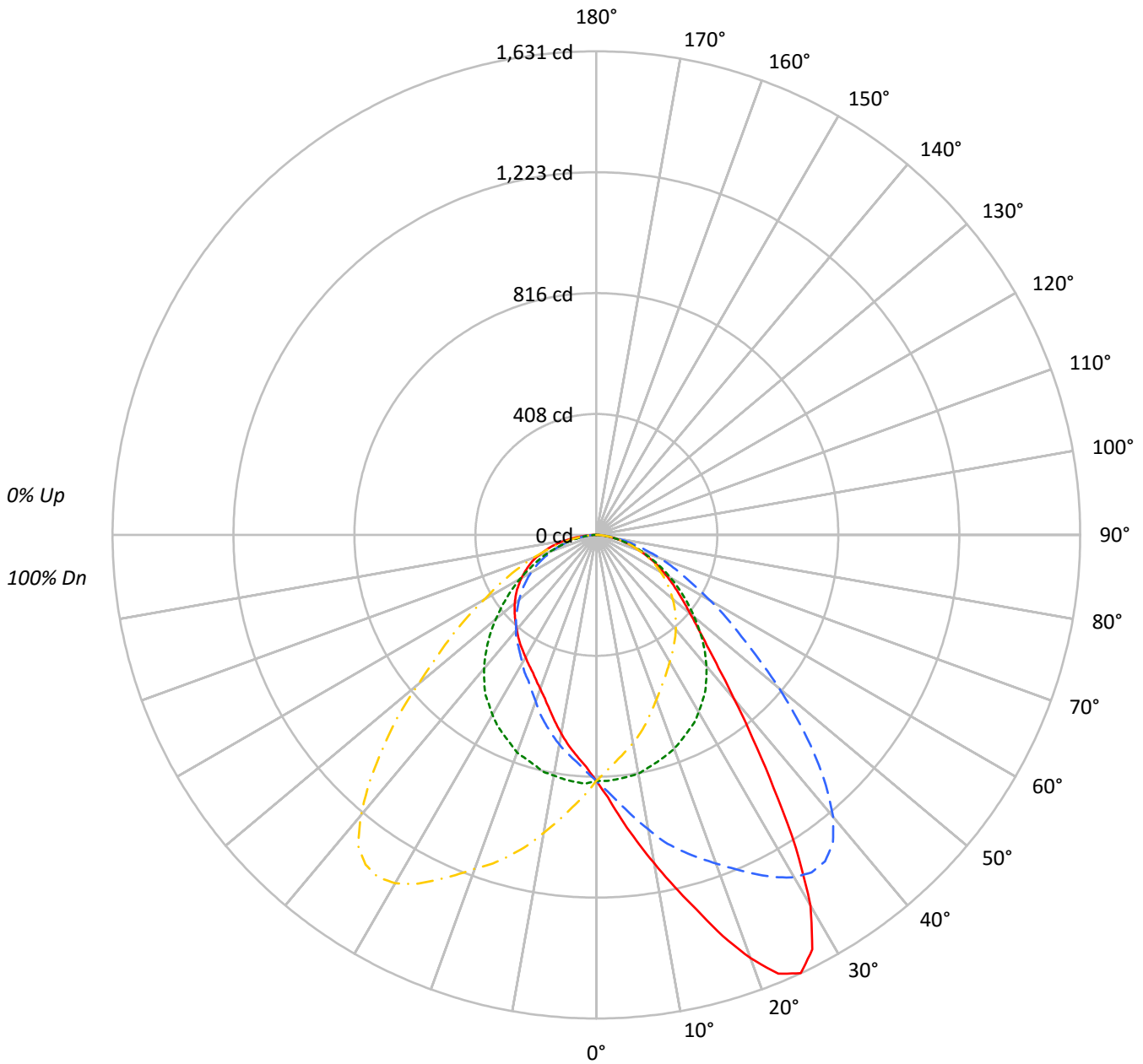
Lumens per Lamp: N/A  
Luminaire Lumens: 2429.7 lumens  
Efficiency: N/A  
Efficacy: 87.1 lumens/watt  
Spacing Criteria (0/90/45): 1.39 / 1.24 / 1.51  
Luminous Opening: Rectangular (W 3.92' x L: 0.31' x H: 0')  
CIE Type: Direct

Input Watts (W): 27.9  
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	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	64	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	43	55	48	43	53	47	43	41
7	67	54	45	39	65	53	45	39	51	44	39	50	43	38	48	43	38	36
8	62	49	41	35	61	48	40	35	47	40	35	46	39	34	45	39	34	32
9	58	45	37	31	57	44	37	31	43	36	31	42	36	31	41	35	31	29
10	54	42	34	29	53	41	34	29	40	33	28	39	33	28	38	32	28	26

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

	0°	90°	180°	270°
0°	7435	7435	7435	7435
5°	8644	7436	6734	7519
10°	10233	7437	6194	7500
15°	12137	7354	5649	7454
20°	14485	7316	5269	7448
25°	16125	7226	5036	7334
30°	14935	7139	4935	7244
35°	11382	7000	4897	7152
40°	8442	6753	4885	6888
45°	6671	6426	4919	6563
50°	5746	6015	5003	6166
55°	5233	5583	5113	5740
60°	4855	5160	5229	5339
65°	4501	4713	5383	4860
70°	4084	4268	5541	4409
75°	3635	3715	5532	3822
80°	3065	3029	5336	3266
85°	2221	2138	4925	2694



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	80.9	3.3
10°-20°	249.9	10.3
20°-30°	415.3	17.1
30°-40°	483.4	19.9
40°-50°	435.3	17.9
50°-60°	349.9	14.4
60°-70°	246.8	10.2
70°-80°	133.1	5.5
80°-90°	35.2	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°	746.1	30.7
0°-40°	1229.5	50.6
0°-60°	2014.6	82.9
0°-90°	2429.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2429.7	100.0

**CANDELA DISTRIBUTION:**

	0°	90°	180°	270°	360°	Flux
0°	830	830	830	830	830	
5°	961	827	749	836	961	97
15°	1308	793	609	804	1308	379
25°	1631	731	509	742	1631	727
35°	1040	640	448	654	1040	657
45°	526	507	388	518	526	416
55°	335	357	327	367	335	302
65°	212	222	254	229	212	210
75°	105	107	160	110	105	112
85°	22	21	48	26	22	27
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°	829.7	829.7	829.7	829.7	829.7	829.7	829.7	829.7	829.7	829.7	829.7
2.5°	885.3	878.4	866.0	843.6	830.5	805.8	795.8	788.1	782.7	782.7	798.1
5°	961.0	939.3	909.2	862.9	826.7	785.7	765.7	752.6	748.7	748.7	768.0
7.5°	1041.2	1010.4	958.6	882.2	822.0	765.7	738.7	721.7	716.3	718.6	743.3
10°	1124.6	1083.7	1008.0	903.8	817.4	748.7	712.4	688.5	680.8	686.2	717.8
12.5°	1214.1	1157.8	1060.5	916.2	804.3	724.8	684.6	653.0	644.5	651.4	690.0
15°	1308.3	1238.1	1102.2	929.3	792.7	703.2	653.8	617.5	609.0	618.3	660.7
17.5°	1418.7	1324.5	1140.8	939.3	780.3	680.8	620.6	586.6	578.1	585.1	632.1
20°	1519.0	1411.7	1179.4	945.5	767.2	658.4	591.2	558.8	552.6	558.8	597.4
22.5°	1601.6	1495.1	1219.5	940.1	749.5	631.4	563.5	536.4	530.3	533.4	568.9
25°	1630.9	1559.1	1261.2	928.5	730.9	601.3	538.8	517.9	509.4	513.3	542.6
27.5°	1576.1	1569.2	1301.3	911.6	714.0	577.3	516.4	497.1	493.2	496.3	523.3
30°	1443.4	1515.1	1333.8	891.5	690.0	551.9	494.8	479.3	477.0	484.0	498.6
32.5°	1251.2	1391.7	1349.2	866.0	665.3	524.9	474.7	461.6	461.6	463.1	477.8
35°	1040.5	1221.1	1343.8	836.7	639.9	500.2	455.4	445.4	447.7	444.6	458.5
37.5°	865.2	1037.4	1309.8	809.7	609.0	477.8	436.1	428.4	433.0	429.2	443.8
40°	721.7	869.9	1241.1	778.0	577.3	453.1	416.8	412.2	417.6	413.7	420.7
42.5°	609.8	730.9	1145.4	744.8	542.6	429.9	396.7	395.2	402.9	396.7	400.6
45°	526.4	619.0	1035.1	710.9	507.1	406.8	376.7	379.0	388.2	380.5	381.3
47.5°	462.3	532.6	917.0	672.3	468.5	383.6	356.6	362.0	373.6	363.5	360.5
50°	412.2	464.7	804.3	630.6	431.5	360.5	335.8	343.5	358.9	346.6	339.6
52.5°	371.3	409.9	691.6	586.6	394.4	335.8	314.9	326.5	343.5	330.4	318.8
55°	335.0	364.3	596.6	541.1	357.4	311.1	293.3	308.7	327.3	312.6	297.9
57.5°	301.8	325.0	518.7	494.0	322.6	285.6	272.5	288.7	309.5	294.1	276.3
60°	270.9	287.9	443.8	441.5	287.9	260.1	250.1	268.6	291.8	274.0	253.9
62.5°	240.8	254.7	375.1	389.0	253.9	233.9	227.7	247.8	272.5	253.2	230.8
65°	212.3	223.1	318.8	338.8	222.3	206.9	203.8	226.2	253.9	230.8	206.9
67.5°	182.9	191.4	272.5	290.2	189.1	179.1	179.1	203.8	233.9	208.4	182.2
70°	155.9	160.5	225.4	241.6	162.9	153.6	153.6	179.1	211.5	183.7	158.2
72.5°	129.7	133.5	181.4	195.3	134.3	127.4	130.4	155.9	185.2	160.5	134.3
75°	105.0	107.3	140.5	153.6	107.3	102.7	106.5	132.8	159.8	136.6	111.1
77.5°	81.8	82.6	108.1	115.8	81.8	79.5	83.4	110.4	132.0	111.9	88.0
80°	59.4	60.2	77.2	82.6	58.7	57.9	62.5	86.4	103.4	88.0	66.4
82.5°	38.6	40.1	51.7	53.3	37.8	38.6	43.2	62.5	74.9	64.1	47.1
85°	21.6	22.4	29.3	29.3	20.8	22.4	27.0	38.6	47.9	41.7	30.1
87.5°	8.5	8.5	11.6	11.6	8.5	10.0	12.3	20.8	23.9	21.6	15.4
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°	829.7	829.7	829.7	829.7	829.7	829.7
2.5°	808.1	839.8	852.1	876.8	885.3	885.3
5°	788.8	835.9	872.2	921.6	948.6	961.0
7.5°	768.8	831.3	893.0	970.2	1021.9	1041.2
10°	748.7	824.3	913.1	1019.6	1098.3	1124.6
12.5°	734.0	818.9	937.0	1072.9	1175.5	1214.1
15°	707.0	803.5	944.7	1118.4	1254.3	1308.3
17.5°	685.4	791.2	957.1	1161.6	1343.8	1418.7
20°	660.7	781.1	961.7	1197.9	1437.2	1519.0
22.5°	638.3	760.3	963.3	1241.9	1522.1	1601.6
25°	607.4	741.8	950.9	1285.1	1580.8	1630.9
27.5°	579.7	724.0	934.7	1327.6	1587.7	1576.1
30°	557.3	700.1	917.7	1356.1	1527.5	1443.4
32.5°	527.9	675.4	886.9	1369.3	1388.6	1251.2
35°	503.2	653.8	859.8	1356.9	1210.3	1040.5
37.5°	483.2	620.6	832.8	1319.9	1025.0	865.2
40°	456.2	588.9	800.4	1234.2	859.8	721.7
42.5°	433.0	554.2	766.5	1133.1	721.7	609.8
45°	409.9	517.9	727.9	1018.1	612.9	526.4
47.5°	385.9	481.6	688.5	908.5	527.9	462.3
50°	362.8	442.3	649.9	782.7	461.6	412.2
52.5°	339.6	404.5	604.4	680.0	407.5	371.3
55°	315.7	367.4	552.6	595.9	362.8	335.0
57.5°	290.2	333.4	502.5	514.1	322.6	301.8
60°	265.5	297.9	455.4	436.1	286.4	270.9
62.5°	239.3	260.9	401.4	379.0	253.2	240.8
65°	213.0	229.2	350.4	322.6	221.5	212.3
67.5°	185.2	199.9	301.0	271.7	189.9	182.9
70°	157.5	168.3	251.6	226.2	161.3	155.9
72.5°	132.8	136.6	206.1	182.2	134.3	129.7
75°	107.3	110.4	162.9	145.1	108.1	105.0
77.5°	85.7	86.4	125.0	111.1	84.1	81.8
80°	61.7	63.3	89.5	81.0	61.7	59.4
82.5°	43.2	42.5	60.2	54.8	43.2	38.6
85°	26.2	26.2	35.5	32.4	23.9	21.6
87.5°	13.1	13.1	16.2	14.7	10.0	8.5
90°	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)