

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: FAIL-SAFE

Report Number: P

Luminaire Tested: **4APN-28L830-X-UNV-ASY**

Issue Date: 06/06/2024



**Test Information**

Test Method: LM-79-08  
Report Number: P  
Test Lab: INNOVATION CENTER(G2)  
Issue Date: 06/06/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: 4APN-28L830-X-UNV-ASY  
Description: ArcMed Patient Recessed 4 FT x6 IN Fixture Ambient Light w/  
ASYMMETRIC Lens  
Light Source: 3000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

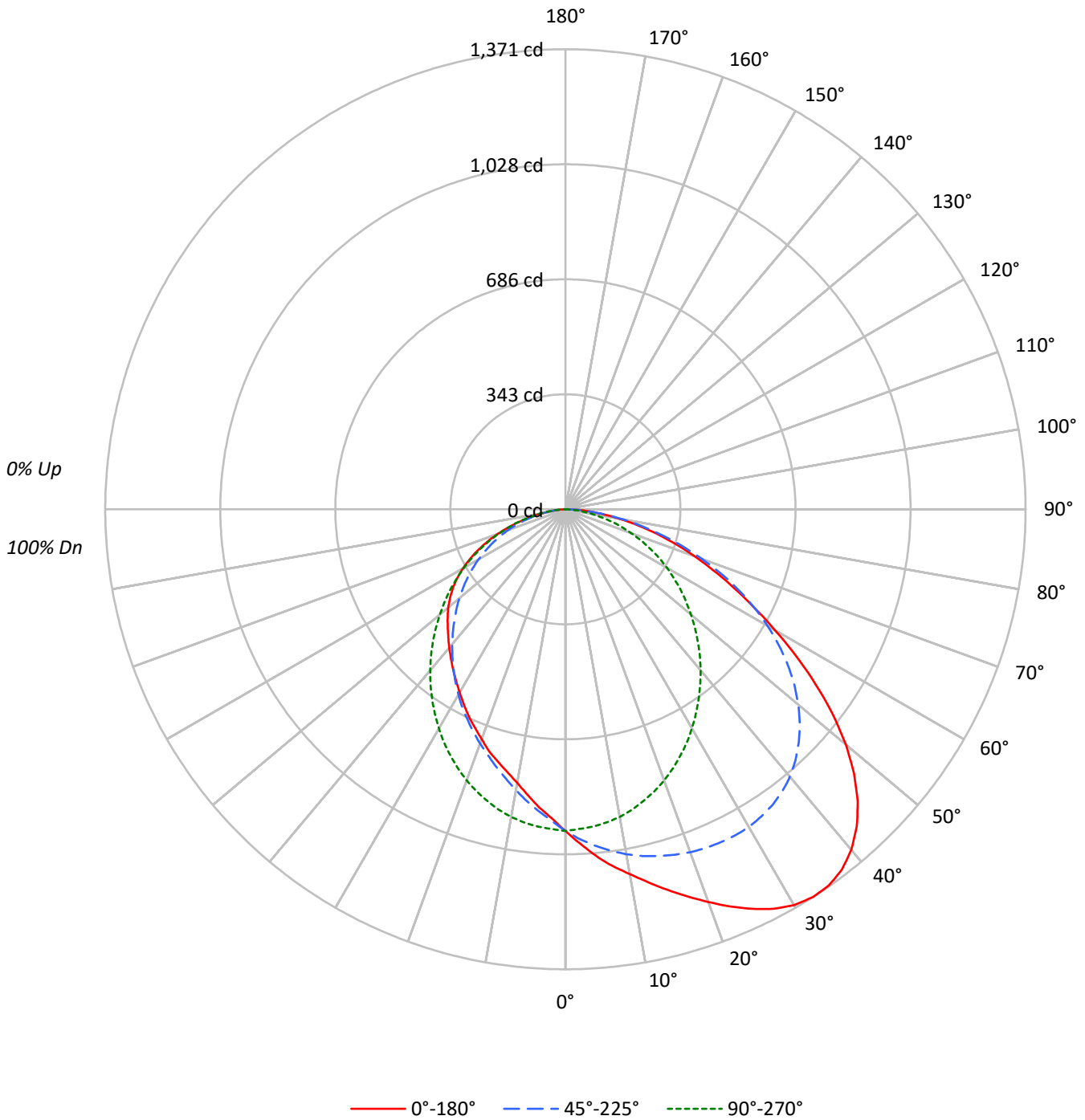
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2969.2 lumens  
Efficiency: N/A  
Efficacy: 92.2 lumens/watt  
Spacing Criteria (0/90/45): 1.53 / 1.18 / 1.46  
Luminous Opening: Rectangular (W 0.29' x L: 3.83' x H: 0')  
CIE Type: Direct

Input Watts (W): 32.2  
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





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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	0
RCR																					
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	102	102	102	100
1	109	104	100	96	106	102	98	94	97	94	91	93	91	88	90	88	86	86	86	86	84
2	99	90	83	78	96	88	82	77	85	80	75	82	77	73	79	75	72	72	72	72	69
3	90	79	71	64	87	78	70	64	75	68	63	72	66	61	69	64	60	60	60	60	58
4	82	70	61	54	80	69	60	54	66	59	53	64	57	52	62	56	52	52	52	52	49
5	75	62	53	46	73	61	53	46	59	51	46	57	50	45	55	49	45	45	45	45	43
6	69	56	47	40	68	55	46	40	53	46	40	51	45	39	50	44	39	39	39	39	37
7	64	51	42	36	63	50	41	35	48	41	35	47	40	35	45	39	35	35	35	35	33
8	60	46	37	32	58	45	37	31	44	37	31	43	36	31	42	35	31	31	31	31	29
9	56	42	34	28	54	42	34	28	40	33	28	39	33	28	38	32	28	28	28	28	26
10	52	39	31	26	51	38	31	26	37	30	25	36	30	25	36	30	25	25	25	25	23

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

	0°	90°	180°
0°	9229	9229	9229
5°	10014	9173	8620
10°	10789	9101	8089
15°	11702	8969	7756
20°	12759	8812	7468
25°	13958	8605	7236
30°	15142	8379	7004
35°	16083	8132	6853
40°	16652	7874	6764
45°	16770	7601	6749
50°	16328	7312	6822
55°	15289	7050	6865
60°	13898	6730	6797
65°	12602	6363	6533
70°	11535	5900	6001
75°	10464	5304	5159
80°	9153	4435	3975
85°	7699	3225	2960



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	91.0	3.1
10°-20°	264.8	8.9
20°-30°	414.8	14.0
30°-40°	520.0	17.5
40°-50°	553.6	18.6
50°-60°	499.8	16.8
60°-70°	370.0	12.5
70°-80°	203.0	6.8
80°-90°	52.1	1.8
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°	770.6	26.0
0°-40°	1290.7	43.5
0°-60°	2344.1	78.9
0°-90°	2969.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2969.2	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	959	959	959	959	959	
5°	1036	1006	949	903	892	101
15°	1174	1070	900	795	778	335
25°	1314	1095	810	691	681	608
35°	1368	1076	692	581	583	853
45°	1232	983	558	468	496	944
55°	911	809	420	356	409	812
65°	553	570	279	241	287	552
75°	281	298	143	123	139	299
85°	70	69	29	27	27	82
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	958.6	958.6	958.6	958.6	958.6	958.6	958.6	958.6	958.6	958.6	958.6
2.5°	997.2	995.3	992.9	992.1	988.6	983.8	979.5	979.5	974.4	962.2	953.5
5°	1036.2	1033.1	1027.2	1022.4	1015.0	1005.9	996.8	991.3	979.1	960.6	949.2
7.5°	1072.1	1068.1	1060.7	1051.6	1039.4	1026.0	1011.0	999.2	980.7	955.9	941.3
10°	1103.6	1100.1	1091.0	1080.0	1062.6	1043.7	1021.7	1003.9	978.7	948.0	931.0
12.5°	1138.3	1134.7	1122.1	1107.1	1083.5	1058.3	1029.1	1004.7	973.6	936.5	917.2
15°	1174.1	1169.4	1155.2	1135.1	1103.6	1069.7	1033.9	1002.3	965.3	922.8	899.9
17.5°	1209.6	1204.9	1187.1	1161.5	1122.1	1080.0	1035.8	996.8	953.5	905.8	881.0
20°	1245.4	1240.7	1218.3	1185.9	1138.3	1087.4	1035.4	988.6	939.3	886.5	860.1
22.5°	1281.3	1275.8	1248.6	1209.2	1151.7	1092.6	1031.1	977.1	921.6	864.4	836.1
25°	1314.0	1308.5	1278.5	1232.0	1165.9	1094.9	1023.6	961.4	901.9	840.0	810.1
27.5°	1342.4	1335.7	1304.5	1253.3	1178.1	1095.7	1013.8	943.6	879.0	813.6	783.3
30°	1362.1	1356.2	1323.1	1268.3	1185.2	1093.0	1001.2	922.8	852.6	785.2	753.7
32.5°	1370.7	1365.6	1332.9	1275.4	1186.3	1085.9	985.8	899.5	825.0	755.3	723.4
35°	1368.4	1363.3	1332.1	1274.2	1182.8	1075.6	966.5	873.1	795.5	724.2	691.9
37.5°	1353.4	1347.5	1319.1	1263.6	1172.6	1060.7	944.4	844.3	763.6	692.3	659.6
40°	1325.0	1319.1	1294.7	1243.5	1155.2	1040.6	919.2	813.6	730.9	658.8	626.5
42.5°	1284.5	1278.1	1258.8	1212.0	1130.4	1014.2	890.4	780.9	696.2	626.5	592.6
45°	1231.7	1225.3	1212.3	1172.6	1098.1	983.0	857.7	745.5	660.0	589.8	558.3
47.5°	1166.2	1160.7	1154.4	1123.7	1058.3	947.2	821.1	707.6	622.1	555.5	523.2
50°	1090.2	1084.7	1086.7	1065.8	1012.2	905.8	780.9	667.8	583.1	517.3	488.2
52.5°	1003.9	999.6	1009.0	1000.0	958.6	859.7	738.0	626.9	543.3	481.1	453.1
55°	910.9	906.2	924.3	927.1	898.7	808.9	689.1	584.3	503.1	445.6	420.0
57.5°	815.2	811.3	834.5	847.5	833.3	754.1	639.9	540.6	461.8	408.6	383.0
60°	721.8	718.7	743.1	764.4	762.8	696.2	588.6	493.3	420.4	371.2	349.5
62.5°	634.0	630.4	654.8	680.0	689.1	634.3	537.8	446.8	379.0	333.7	314.4
65°	553.2	549.6	570.5	596.5	613.1	569.7	483.0	398.7	337.3	295.9	279.3
67.5°	479.1	479.1	492.1	516.1	536.2	503.5	427.1	353.0	294.3	260.8	244.3
70°	409.8	409.4	418.8	435.8	459.0	432.6	370.4	305.0	253.7	224.2	209.6
72.5°	344.0	346.7	350.3	363.3	387.7	364.8	314.0	257.7	213.9	187.9	175.7
75°	281.3	280.9	286.0	297.5	315.2	298.3	257.7	211.6	174.5	153.3	142.6
77.5°	221.4	221.0	225.4	232.1	247.0	233.6	203.3	169.0	135.9	118.2	110.7
80°	165.1	165.1	169.0	172.6	183.6	173.0	151.7	126.5	99.7	85.9	80.0
82.5°	114.7	117.0	115.4	120.2	126.5	117.4	104.0	86.7	66.2	56.7	52.8
85°	69.7	71.7	69.7	73.7	76.4	68.6	61.9	51.6	38.2	31.9	29.2
87.5°	35.9	35.5	35.1	37.0	37.8	33.1	29.2	24.8	16.9	13.0	11.0
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):**

	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	958.6	958.6	958.6	958.6	958.6	958.6	958.6	958.6	958.6	958.6
2.5°	948.4	950.7	947.2	934.2	929.1	923.5	921.2	918.8	923.1	922.0
5°	940.5	937.7	928.7	912.1	903.4	894.4	890.1	887.3	893.2	892.0
7.5°	929.8	922.0	908.6	888.5	877.4	865.2	859.3	855.8	859.7	858.9
10°	916.5	903.4	886.9	862.9	849.9	836.5	829.8	824.6	827.8	827.4
12.5°	899.5	882.6	862.5	835.3	821.9	808.1	802.2	798.6	802.6	801.4
15°	880.6	860.1	836.9	809.3	794.7	782.1	777.8	775.0	778.2	778.2
17.5°	859.7	835.7	810.1	782.1	768.3	758.5	754.1	752.2	753.7	756.1
20°	836.5	809.7	782.1	754.9	743.1	732.8	728.9	726.9	730.5	728.9
22.5°	810.9	782.5	753.7	728.1	717.5	707.2	703.3	702.1	706.1	704.5
25°	783.7	752.9	724.6	701.3	690.7	682.0	678.5	677.3	679.3	681.2
27.5°	758.1	723.4	695.4	674.5	665.1	656.8	653.7	651.7	653.3	655.6
30°	726.9	693.4	665.9	646.6	637.5	629.6	627.3	625.7	628.0	630.0
32.5°	697.8	663.9	636.3	617.4	609.5	602.0	601.6	600.9	603.6	606.0
35°	666.3	633.2	606.4	588.6	581.2	574.9	576.0	577.2	580.4	583.1
37.5°	634.3	602.0	576.4	560.3	553.2	548.1	551.6	553.2	557.5	560.3
40°	602.0	569.7	546.1	531.5	524.4	522.1	527.2	530.7	535.8	538.2
42.5°	568.9	539.0	515.4	502.0	496.1	496.1	502.7	508.3	514.2	516.5
45°	535.8	506.7	484.2	472.0	467.7	470.8	478.7	485.8	493.3	495.7
47.5°	502.4	474.0	453.5	442.5	440.1	444.8	454.7	464.1	472.8	476.0
50°	468.9	443.3	422.8	412.5	412.5	418.4	431.0	442.9	452.3	455.5
52.5°	435.4	410.9	390.1	382.6	384.2	392.4	407.0	419.2	429.9	433.0
55°	401.5	377.5	359.3	353.0	355.8	366.0	381.0	395.2	405.4	409.0
57.5°	368.0	345.1	328.6	323.5	327.4	338.8	356.2	368.4	379.0	382.2
60°	334.1	310.9	297.9	293.9	299.0	310.9	328.6	340.0	349.9	353.0
62.5°	300.6	279.0	267.5	264.0	269.9	282.5	299.8	310.1	317.6	320.7
65°	266.7	247.4	236.8	234.4	240.7	253.0	269.5	278.2	283.7	286.8
67.5°	233.2	216.7	206.9	204.9	211.6	222.6	238.0	242.7	247.8	251.0
70°	200.2	185.2	176.9	175.7	181.6	192.3	205.3	207.6	210.4	213.2
72.5°	167.5	155.6	147.4	147.0	152.5	161.1	171.8	172.2	173.0	175.7
75°	135.9	125.3	119.0	120.2	123.3	130.4	138.7	136.3	136.7	138.7
77.5°	105.6	96.9	92.6	93.4	95.7	100.9	106.4	103.6	102.0	104.0
80°	76.0	68.6	67.0	67.4	69.0	72.5	75.6	73.3	70.1	71.7
82.5°	50.0	45.3	44.5	44.9	46.1	48.1	48.9	45.3	44.5	45.7
85°	27.6	25.6	25.6	26.8	27.2	27.6	27.6	25.6	26.0	26.8
87.5°	11.0	11.0	12.2	13.4	12.6	11.0	9.5	6.3	6.3	7.5
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)