

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: P546485

Luminaire Tested: **FMR-24-4-LD4-1HI-40-UNV-93-96-EDD**

Issue Date: 6/15/2021

This test was performed under the Supervised Manufacturer's Testing Program. The results of this test have not been influenced by sources from within Cooper Lighting Solutions or from external interests.



**Test Information**

Test Method: LM-79-08  
Report Number: P546485  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2102-135-5)  
Test Lab: INNOVATION CENTER  
Issue Date: 6/15/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: FMR-24-4-LD4-1HI-40-UNV-93-96-EDD  
Description: 2X4 FMR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .250 CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 4000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

Luminaire Equipment: Sample No.    Condition    Description

**Summary**

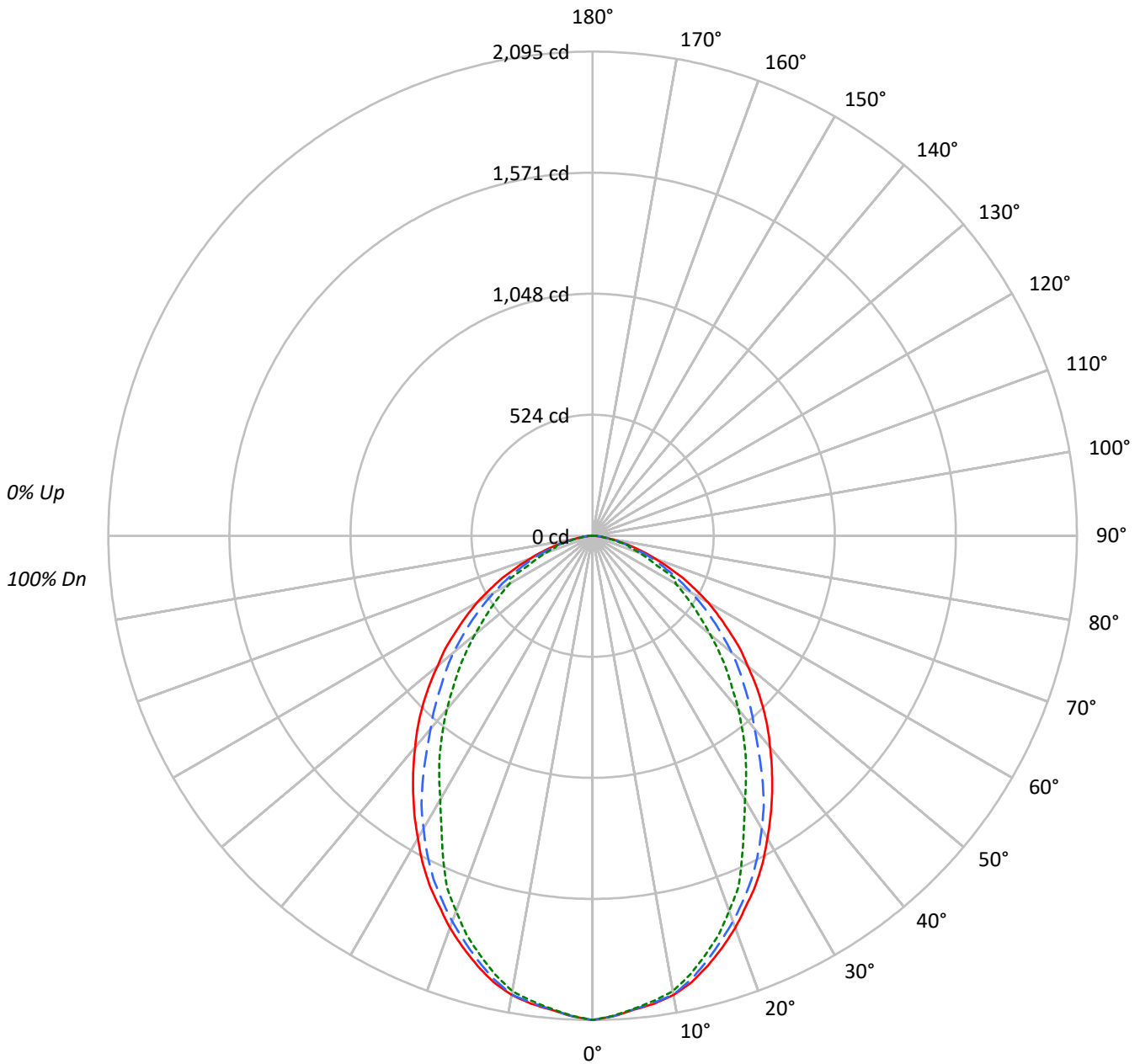
Lumens per Lamp: N/A  
Luminaire Lumens: 4113.0 lumens  
Efficiency: N/A  
Efficacy: 95.2 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct

Input Watts (W): 43.2  
Input Voltage (V): NR  
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





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20									20									20									20									
RC	80									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	100																			
1	110	106	102	99	108	104	100	97	100	97	94	96	94	91	92	90	89	87																			
2	101	94	88	83	99	92	87	82	89	84	80	86	82	78	83	79	77	75																			
3	93	84	77	71	91	82	76	70	79	74	69	77	72	68	74	70	67	65																			
4	86	75	67	61	84	74	66	61	72	65	60	69	64	59	67	62	58	56																			
5	80	68	60	54	78	67	59	53	65	58	53	63	57	52	61	56	52	50																			
6	74	62	53	48	72	61	53	47	59	52	47	57	51	47	56	50	46	44																			
7	69	56	48	43	67	56	48	42	54	47	42	53	46	42	51	46	42	40																			
8	65	52	44	38	63	51	44	38	50	43	38	49	42	38	48	42	38	36																			
9	61	48	40	35	59	47	40	35	46	39	35	45	39	34	44	38	34	33																			
10	57	44	37	32	56	44	37	32	43	36	32	42	36	32	41	36	32	30																			

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

	0°	45°	90°
0°	2819	2819	2819
5°	2781	2777	2774
10°	2757	2753	2733
15°	2682	2655	2618
20°	2584	2542	2473
25°	2477	2424	2273
30°	2348	2273	2047
35°	2224	2101	1894
40°	2097	1914	1723
45°	1977	1770	1558
50°	1830	1643	1389
55°	1693	1489	1244
60°	1551	1330	1115
65°	1365	1164	987
70°	1124	1020	838
75°	894	781	818
80°	600	563	525
85°	374	449	523



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	195.0	4.7
10°-20°	535.2	13.0
20°-30°	741.0	18.0
30°-40°	790.1	19.2
40°-50°	720.8	17.5
50°-60°	564.7	13.7
60°-70°	368.0	8.9
70°-80°	163.1	4.0
80°-90°	35.0	0.9
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°	1471.3	35.8
0°-40°	2261.4	55.0
0°-60°	3546.9	86.2
0°-90°	4113.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4113.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2095	2095	2095	2095	2095	
5°	2059	2056	2056	2054	2054	195
15°	1926	1926	1906	1887	1880	541
25°	1669	1659	1632	1574	1531	766
35°	1354	1344	1279	1182	1153	846
45°	1039	1017	930	853	819	800
55°	722	700	635	560	530	647
65°	429	404	366	373	310	423
75°	172	160	150	143	157	184
85°	24	27	29	32	34	34
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2095.1	2095.1	2095.1	2095.1	2095.1
2.5°	2080.6	2080.6	2080.6	2078.2	2078.2
5°	2058.8	2056.4	2056.4	2053.9	2053.9
7.5°	2041.8	2039.4	2037.0	2034.6	2029.7
10°	2017.6	2017.6	2015.2	2003.1	2000.6
12.5°	1978.8	1976.4	1966.7	1949.8	1944.9
15°	1925.6	1925.6	1906.2	1886.8	1879.5
17.5°	1867.4	1865.0	1840.8	1821.4	1811.7
20°	1804.5	1799.6	1775.4	1743.9	1726.9
22.5°	1734.2	1734.2	1705.2	1664.0	1647.0
25°	1668.8	1659.1	1632.5	1574.4	1530.8
27.5°	1593.7	1579.2	1550.1	1467.8	1416.9
30°	1511.4	1504.1	1462.9	1356.4	1317.6
32.5°	1433.9	1421.8	1378.2	1266.8	1235.3
35°	1353.9	1344.3	1278.9	1182.0	1152.9
37.5°	1274.0	1261.9	1179.6	1102.1	1065.7
40°	1194.1	1179.6	1089.9	1019.7	980.9
42.5°	1119.0	1099.6	1012.4	937.3	893.8
45°	1039.1	1017.3	930.1	852.6	818.7
47.5°	959.1	939.8	859.8	779.9	741.2
50°	874.4	857.4	784.8	704.8	663.7
52.5°	804.1	777.5	707.3	627.3	593.4
55°	721.8	700.0	634.6	559.5	530.4
57.5°	646.7	624.9	564.3	494.1	469.9
60°	576.5	545.0	494.1	433.6	414.2
62.5°	499.0	474.7	431.1	380.3	404.5
65°	428.7	404.5	365.7	373.0	310.0
67.5°	351.2	339.1	305.2	271.3	261.6
70°	285.8	271.3	259.2	222.8	213.1
72.5°	227.7	213.1	196.2	176.8	169.5
75°	172.0	159.9	150.2	142.9	157.4
77.5°	118.7	113.8	106.6	99.3	96.9
80°	77.5	75.1	72.7	70.2	67.8
82.5°	46.0	46.0	46.0	46.0	46.0
85°	24.2	26.6	29.1	31.5	33.9
87.5°	14.5	14.5	17.0	19.4	21.8
90°	0.0	0.0	0.0	0.0	0.0



Report Generated By 670246072 / DESKTOP-MV3F9LC







— 0°-180°    - - 45°-225°    - - - - 90°-270°







(END OF REPORT)