

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: P546720

Luminaire Tested: **FMR-24-4-LD4-2HI-40-UNV-81-85-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: P546720  
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-LD4-2HI-40-UNV-81-85-EDD  
Description: 2X4 FMR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .187 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 4000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

Luminaire Equipment: Sample No.   Condition   Description

**Summary**

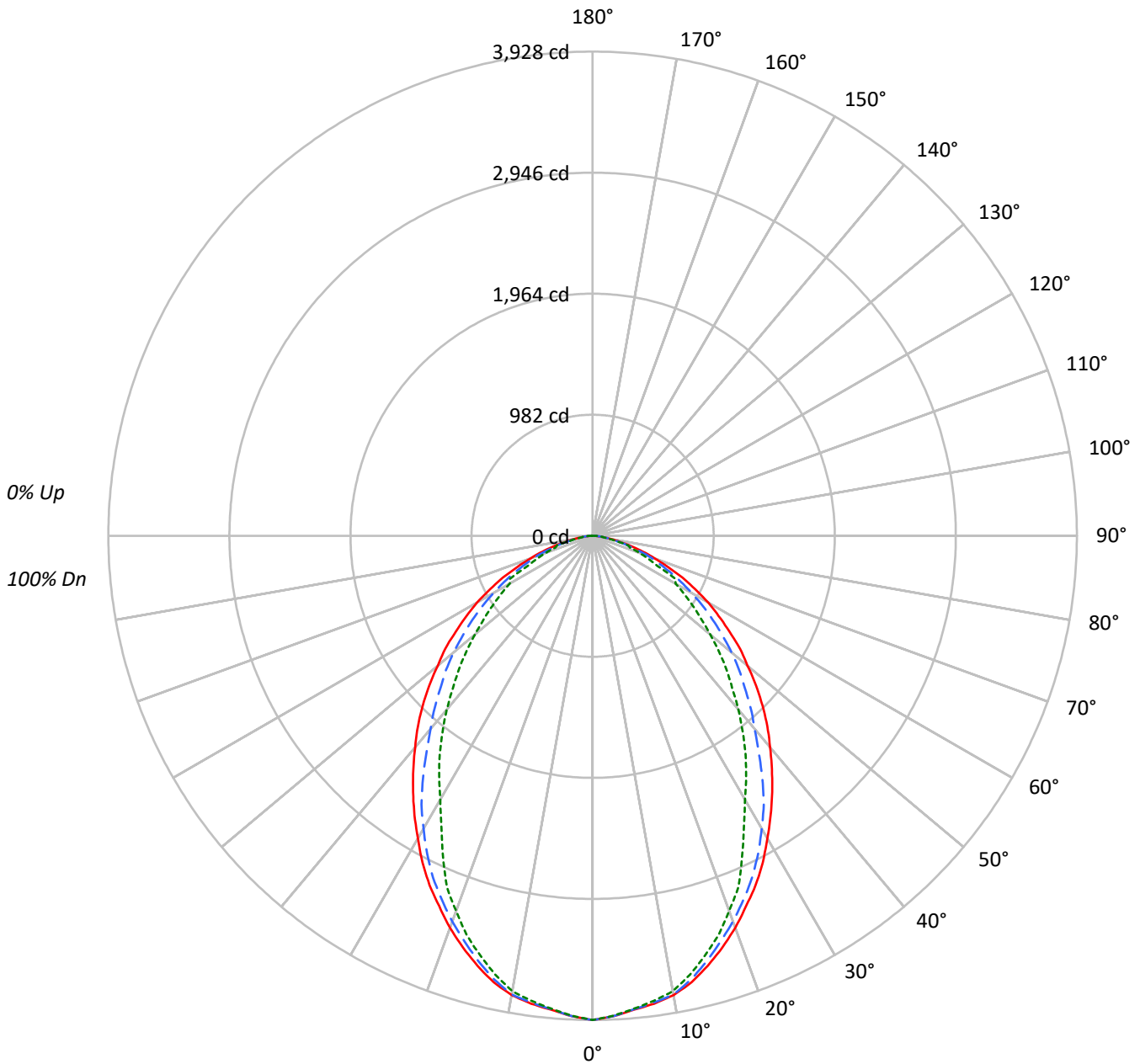
Lumens per Lamp: N/A  
Luminaire Lumens: 7712.0 lumens  
Efficiency: N/A  
Efficacy: 89.3 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct

Input Watts (W): 86.4  
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°	5286	5286	5286
5°	5214	5208	5202
10°	5169	5162	5125
15°	5029	4979	4909
20°	4844	4766	4636
25°	4645	4544	4261
30°	4403	4262	3838
35°	4170	3939	3551
40°	3933	3590	3231
45°	3707	3318	2921
50°	3432	3080	2605
55°	3175	2791	2333
60°	2909	2493	2090
65°	2559	2183	1851
70°	2108	1912	1572
75°	1676	1464	1535
80°	1126	1055	986
85°	701	841	982



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	365.7	4.7
10°-20°	1003.6	13.0
20°-30°	1389.4	18.0
30°-40°	1481.5	19.2
40°-50°	1351.5	17.5
50°-60°	1058.8	13.7
60°-70°	690.1	8.9
70°-80°	305.7	4.0
80°-90°	65.6	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°	2758.6	35.8
0°-40°	4240.1	55.0
0°-60°	6650.5	86.2
0°-90°	7712.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	7712.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3928	3928	3928	3928	3928	
5°	3860	3856	3856	3851	3851	366
15°	3610	3610	3574	3538	3524	1015
25°	3129	3111	3061	2952	2870	1437
35°	2539	2520	2398	2216	2162	1587
45°	1948	1907	1744	1599	1535	1501
55°	1353	1312	1190	1049	995	1214
65°	804	758	686	699	581	792
75°	322	300	282	268	295	346
85°	45	50	54	59	64	63
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3928.4	3928.4	3928.4	3928.4	3928.4
2.5°	3901.1	3901.1	3901.1	3896.6	3896.6
5°	3860.3	3855.7	3855.7	3851.2	3851.2
7.5°	3828.5	3823.9	3819.4	3814.9	3805.8
10°	3783.1	3783.1	3778.5	3755.8	3751.3
12.5°	3710.4	3705.9	3687.7	3655.9	3646.8
15°	3610.5	3610.5	3574.2	3537.8	3524.2
17.5°	3501.5	3496.9	3451.5	3415.2	3397.0
20°	3383.4	3374.3	3328.9	3269.9	3238.1
22.5°	3251.7	3251.7	3197.2	3120.0	3088.2
25°	3129.1	3110.9	3061.0	2952.0	2870.2
27.5°	2988.3	2961.1	2906.6	2752.1	2656.8
30°	2833.9	2820.3	2743.1	2543.2	2470.6
32.5°	2688.6	2665.9	2584.1	2375.2	2316.2
35°	2538.7	2520.5	2397.9	2216.2	2161.7
37.5°	2388.8	2366.1	2211.7	2066.4	1998.3
40°	2239.0	2211.7	2043.7	1912.0	1839.3
42.5°	2098.2	2061.8	1898.3	1757.6	1675.8
45°	1948.3	1907.4	1743.9	1598.6	1535.0
47.5°	1798.4	1762.1	1612.2	1462.4	1389.7
50°	1639.5	1607.7	1471.4	1321.6	1244.4
52.5°	1507.8	1457.8	1326.1	1176.2	1112.7
55°	1353.4	1312.5	1189.9	1049.1	994.6
57.5°	1212.6	1171.7	1058.2	926.5	881.0
60°	1080.9	1021.8	926.5	812.9	776.6
62.5°	935.5	890.1	808.4	713.0	758.4
65°	803.8	758.4	685.8	699.4	581.3
67.5°	658.5	635.8	572.2	508.6	490.5
70°	535.9	508.6	485.9	417.8	399.7
72.5°	426.9	399.7	367.9	331.5	317.9
75°	322.4	299.7	281.6	267.9	295.2
77.5°	222.5	213.5	199.8	186.2	181.7
80°	145.3	140.8	136.2	131.7	127.2
82.5°	86.3	86.3	86.3	86.3	86.3
85°	45.4	50.0	54.5	59.0	63.6
87.5°	27.2	27.2	31.8	36.3	40.9
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)