

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: P546161

Luminaire Tested: **FMR-12-4-LD4-2HI-40-UNV-93-86-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: P546161  
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-12-4-LD4-2HI-40-UNV-93-86-EDD  
Description: 1X4 FMR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .250 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 4000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

Luminaire Equipment: Sample No.   Condition   Description

**Summary**

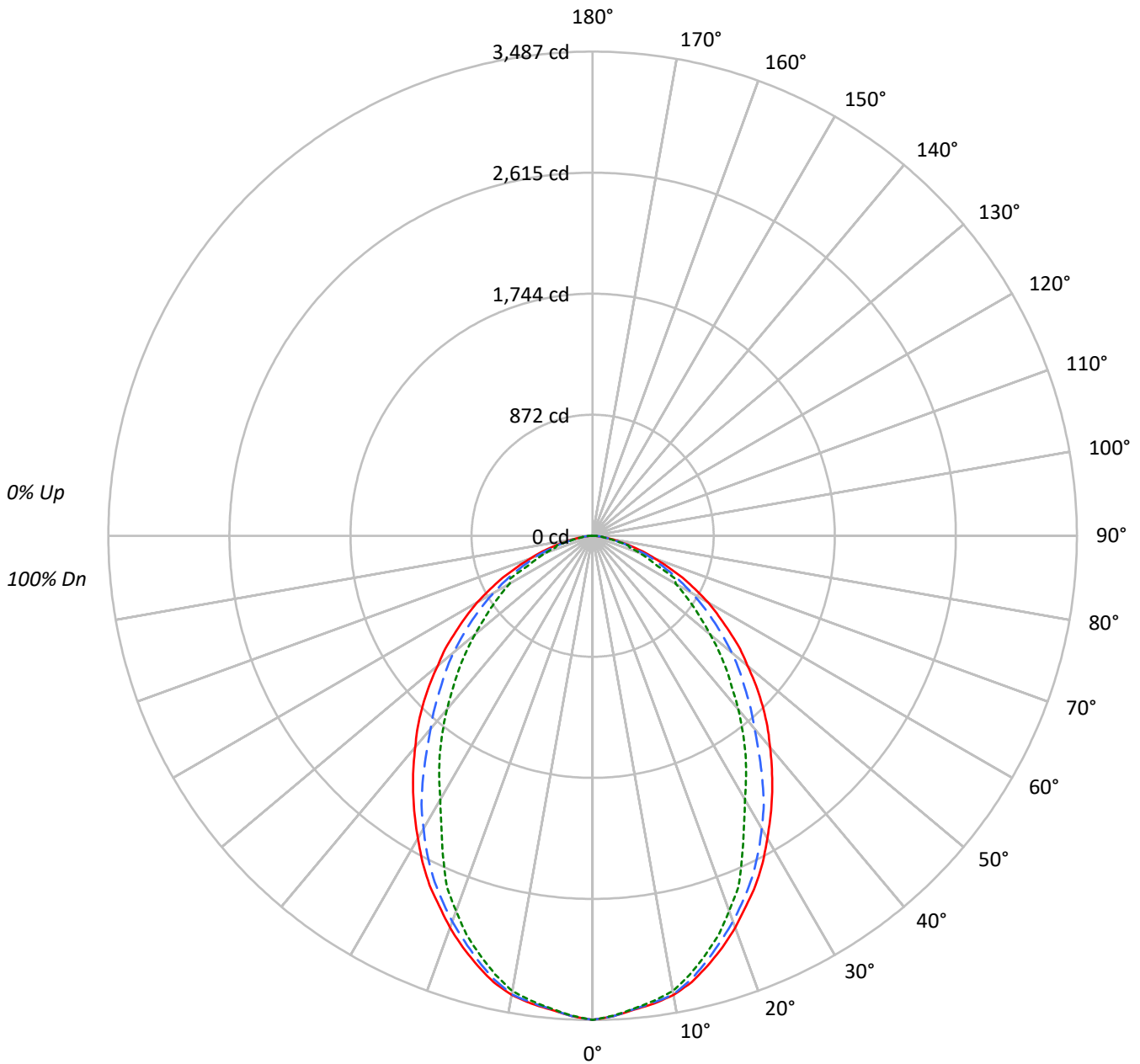
Lumens per Lamp: N/A  
Luminaire Lumens: 6845.0 lumens  
Efficiency: N/A  
Efficacy: 79.2 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')  
CIE Type: Direct

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°	9383	9383	9383
5°	9255	9245	9233
10°	9175	9164	9098
15°	8928	8838	8714
20°	8600	8461	8231
25°	8246	8067	7564
30°	7816	7565	6814
35°	7402	6992	6303
40°	6981	6372	5735
45°	6581	5891	5185
50°	6092	5467	4624
55°	5636	4955	4142
60°	5163	4426	3710
65°	4543	3876	3286
70°	3742	3393	2791
75°	2976	2598	2724
80°	1999	1874	1750
85°	1244	1494	1741



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	324.6	4.7
10°-20°	890.8	13.0
20°-30°	1233.2	18.0
30°-40°	1314.9	19.2
40°-50°	1199.6	17.5
50°-60°	939.8	13.7
60°-70°	612.5	8.9
70°-80°	271.4	4.0
80°-90°	58.3	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°	2448.5	35.8
0°-40°	3763.5	55.0
0°-60°	5902.9	86.2
0°-90°	6845.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	6845.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3487	3487	3487	3487	3487	
5°	3426	3422	3422	3418	3418	325
15°	3205	3205	3172	3140	3128	901
25°	2777	2761	2717	2620	2548	1275
35°	2253	2237	2128	1967	1919	1409
45°	1729	1693	1548	1419	1362	1332
55°	1201	1165	1056	931	883	1077
65°	714	673	609	621	516	703
75°	286	266	250	238	262	307
85°	40	44	48	52	56	56
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3486.8	3486.8	3486.8	3486.8	3486.8
2.5°	3462.6	3462.6	3462.6	3458.5	3458.5
5°	3426.3	3422.3	3422.3	3418.2	3418.2
7.5°	3398.1	3394.0	3390.0	3386.0	3377.9
10°	3357.8	3357.8	3353.7	3333.6	3329.5
12.5°	3293.3	3289.2	3273.1	3244.9	3236.8
15°	3204.6	3204.6	3172.3	3140.1	3128.0
17.5°	3107.8	3103.8	3063.5	3031.3	3015.1
20°	3003.0	2995.0	2954.7	2902.3	2874.1
22.5°	2886.1	2886.1	2837.8	2769.2	2741.0
25°	2777.3	2761.2	2716.8	2620.1	2547.5
27.5°	2652.3	2628.2	2579.8	2442.7	2358.1
30°	2515.3	2503.2	2434.7	2257.3	2192.8
32.5°	2386.3	2366.2	2293.6	2108.2	2055.8
35°	2253.3	2237.2	2128.3	1967.1	1918.7
37.5°	2120.3	2100.1	1963.1	1834.1	1773.6
40°	1987.2	1963.1	1813.9	1697.0	1632.5
42.5°	1862.3	1830.0	1684.9	1560.0	1487.4
45°	1729.3	1693.0	1547.9	1418.9	1362.5
47.5°	1596.2	1564.0	1431.0	1298.0	1233.5
50°	1455.2	1426.9	1306.0	1173.0	1104.5
52.5°	1338.3	1293.9	1177.0	1044.0	987.6
55°	1201.2	1164.9	1056.1	931.1	882.8
57.5°	1076.3	1040.0	939.2	822.3	782.0
60°	959.4	907.0	822.3	721.5	689.3
62.5°	830.4	790.1	717.5	632.9	673.2
65°	713.5	673.2	608.7	620.8	516.0
67.5°	584.5	564.3	507.9	451.5	435.3
70°	475.6	451.5	431.3	370.8	354.7
72.5°	378.9	354.7	326.5	294.3	282.2
75°	286.2	266.0	249.9	237.8	262.0
77.5°	197.5	189.5	177.4	165.3	161.2
80°	129.0	125.0	120.9	116.9	112.9
82.5°	76.6	76.6	76.6	76.6	76.6
85°	40.3	44.3	48.4	52.4	56.4
87.5°	24.2	24.2	28.2	32.2	36.3
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)