

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: P546143

Luminaire Tested: **FMR-12-4-LD4-2HI-40-UNV-81-84-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: P546143  
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-81-84-EDD  
Description: 1X4 FMR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .125 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 4000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

Luminaire Equipment: Sample No.   Condition   Description

**Summary**

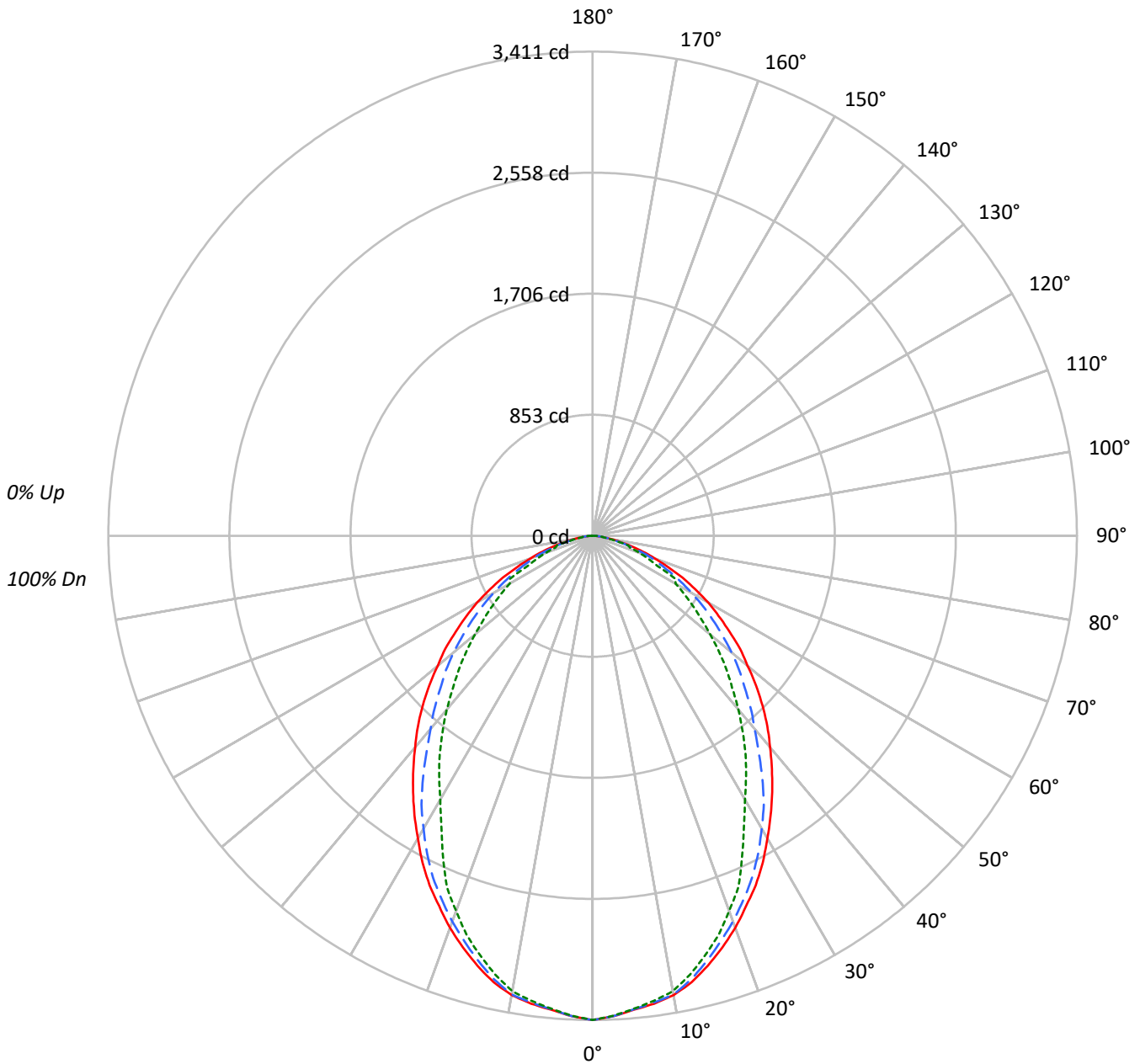
Lumens per Lamp: N/A  
Luminaire Lumens: 6697.0 lumens  
Efficiency: N/A  
Efficacy: 77.5 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')  
CIE Type: Direct

Input Watts (W): 86.4  
Input Voltage (V): NR  
Input Current (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									
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°	9180	9180	9180
5°	9055	9045	9034
10°	8977	8966	8901
15°	8735	8647	8526
20°	8414	8278	8052
25°	8068	7892	7401
30°	7647	7402	6666
35°	7242	6841	6167
40°	6830	6234	5611
45°	6439	5763	5073
50°	5960	5349	4524
55°	5514	4848	4052
60°	5052	4330	3630
65°	4444	3792	3214
70°	3662	3320	2731
75°	2911	2542	2665
80°	1956	1833	1711
85°	1216	1460	1704



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	317.6	4.7
10°-20°	871.5	13.0
20°-30°	1206.5	18.0
30°-40°	1286.5	19.2
40°-50°	1173.7	17.5
50°-60°	919.5	13.7
60°-70°	599.3	8.9
70°-80°	265.5	4.0
80°-90°	57.0	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°	2395.6	35.8
0°-40°	3682.1	55.0
0°-60°	5775.2	86.2
0°-90°	6697.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	6697.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3411	3411	3411	3411	3411	
5°	3352	3348	3348	3344	3344	318
15°	3135	3135	3104	3072	3060	881
25°	2717	2702	2658	2564	2492	1247
35°	2205	2189	2082	1925	1877	1378
45°	1692	1656	1514	1388	1333	1303
55°	1175	1140	1033	911	864	1054
65°	698	659	596	607	505	688
75°	280	260	244	233	256	300
85°	39	43	47	51	55	55
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3411.4	3411.4	3411.4	3411.4	3411.4
2.5°	3387.7	3387.7	3387.7	3383.8	3383.8
5°	3352.2	3348.3	3348.3	3344.3	3344.3
7.5°	3324.6	3320.7	3316.7	3312.8	3304.9
10°	3285.2	3285.2	3281.2	3261.5	3257.6
12.5°	3222.1	3218.1	3202.3	3174.7	3166.8
15°	3135.3	3135.3	3103.7	3072.2	3060.4
17.5°	3040.6	3036.7	2997.3	2965.7	2949.9
20°	2938.1	2930.2	2890.8	2839.5	2811.9
22.5°	2823.7	2823.7	2776.4	2709.4	2681.8
25°	2717.3	2701.5	2658.1	2563.5	2492.5
27.5°	2595.0	2571.3	2524.0	2389.9	2307.1
30°	2460.9	2449.1	2382.0	2208.5	2145.4
32.5°	2334.7	2315.0	2244.0	2062.6	2011.3
35°	2204.6	2188.8	2082.3	1924.6	1877.2
37.5°	2074.4	2054.7	1920.6	1794.4	1735.3
40°	1944.3	1920.6	1774.7	1660.3	1597.2
42.5°	1822.0	1790.5	1648.5	1526.2	1455.3
45°	1691.9	1656.4	1514.4	1388.2	1333.0
47.5°	1561.7	1530.2	1400.0	1269.9	1206.8
50°	1423.7	1396.1	1277.8	1147.6	1080.6
52.5°	1309.3	1266.0	1151.6	1021.4	966.2
55°	1175.2	1139.7	1033.3	911.0	863.7
57.5°	1053.0	1017.5	918.9	804.5	765.1
60°	938.6	887.3	804.5	705.9	674.4
62.5°	812.4	773.0	702.0	619.2	658.6
65°	698.0	658.6	595.5	607.3	504.8
67.5°	571.8	552.1	496.9	441.7	425.9
70°	465.4	441.7	422.0	362.8	347.1
72.5°	370.7	347.1	319.4	287.9	276.1
75°	280.0	260.3	244.5	232.7	256.3
77.5°	193.2	185.4	173.5	161.7	157.8
80°	126.2	122.3	118.3	114.4	110.4
82.5°	74.9	74.9	74.9	74.9	74.9
85°	39.4	43.4	47.3	51.3	55.2
87.5°	23.7	23.7	27.6	31.6	35.5
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)