

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: P546998

Luminaire Tested: **FMR-24-4-LD4-3HI-35-UNV-93-97-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: P546998  
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-LD4-3HI-35-UNV-93-97-EDD  
Description: 2X4 FMR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .375 CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 3500K CCT LEDS  
Light Source: -  
Ballast/Driver: -

Luminaire Equipment: Sample No.   Condition   Description

**Summary**

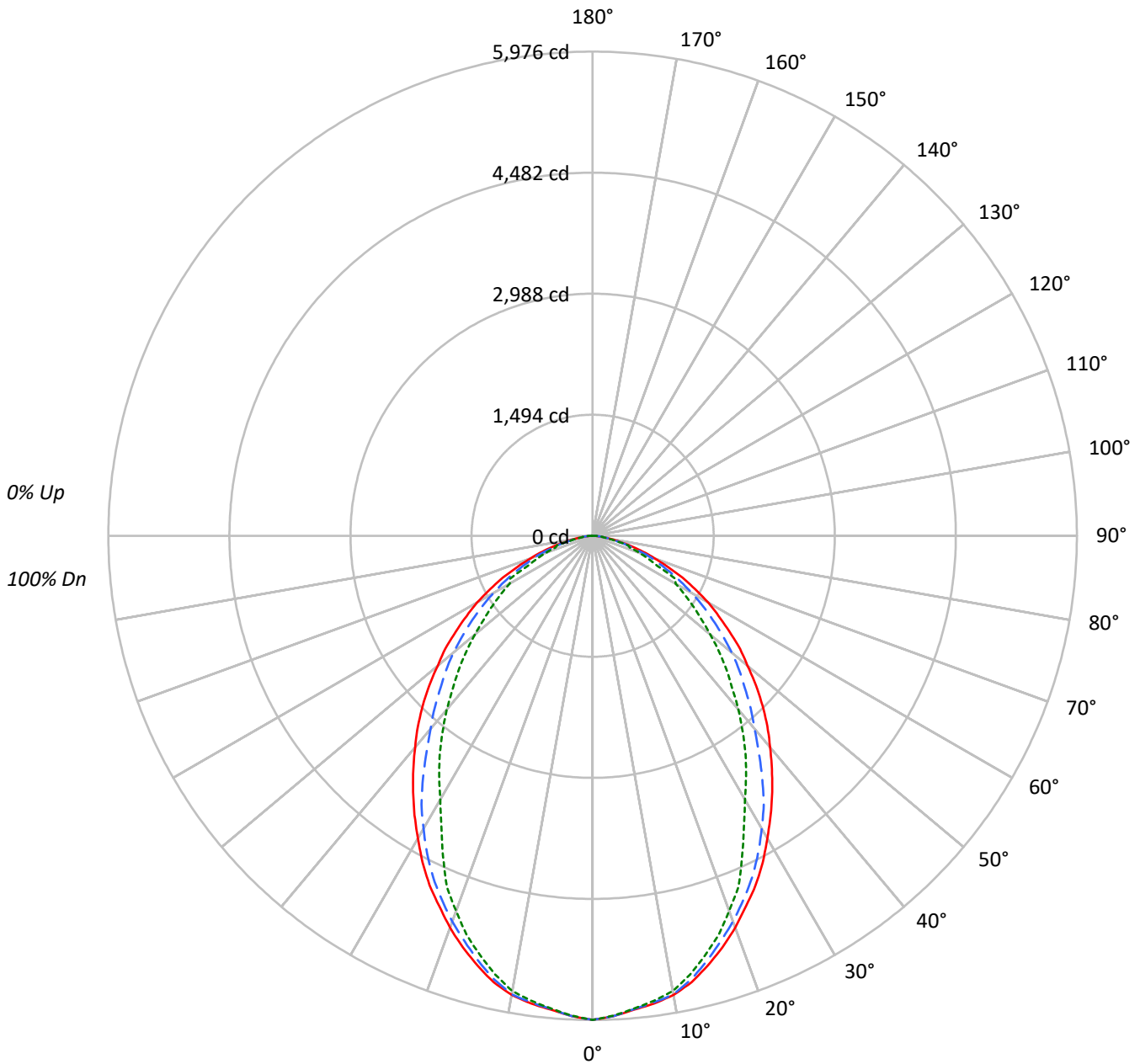
Lumens per Lamp: N/A  
Luminaire Lumens: 11731.0 lumens  
Efficiency: N/A  
Efficacy: 90.5 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct

Input Watts (W): 129.6  
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°	8040	8040	8040
5°	7931	7922	7912
10°	7862	7853	7796
15°	7650	7573	7467
20°	7369	7250	7053
25°	7066	6912	6482
30°	6697	6483	5839
35°	6343	5991	5401
40°	5982	5460	4914
45°	5639	5048	4443
50°	5220	4685	3962
55°	4829	4246	3549
60°	4425	3792	3179
65°	3893	3321	2815
70°	3207	2908	2391
75°	2550	2227	2334
80°	1713	1605	1499
85°	1067	1280	1493



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	556.2	4.7
10°-20°	1526.6	13.0
20°-30°	2113.4	18.0
30°-40°	2253.5	19.2
40°-50°	2055.9	17.5
50°-60°	1610.6	13.7
60°-70°	1049.7	8.9
70°-80°	465.1	4.0
80°-90°	99.9	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°	4196.3	35.8
0°-40°	6449.8	55.0
0°-60°	10116.3	86.2
0°-90°	11731.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	11731.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	5976	5976	5976	5976	5976	
5°	5872	5865	5865	5858	5858	557
15°	5492	5492	5437	5382	5361	1544
25°	4760	4732	4656	4490	4366	2185
35°	3862	3834	3648	3371	3288	2414
45°	2964	2902	2653	2432	2335	2283
55°	2059	1996	1810	1596	1513	1846
65°	1223	1154	1043	1064	884	1205
75°	490	456	428	408	449	526
85°	69	76	83	90	97	96
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	5975.6	5975.6	5975.6	5975.6	5975.6
2.5°	5934.2	5934.2	5934.2	5927.3	5927.3
5°	5872.0	5865.1	5865.1	5858.2	5858.2
7.5°	5823.6	5816.7	5809.8	5802.9	5789.1
10°	5754.6	5754.6	5747.6	5713.1	5706.2
12.5°	5644.0	5637.1	5609.5	5561.1	5547.3
15°	5492.0	5492.0	5436.8	5381.5	5360.8
17.5°	5326.2	5319.3	5250.3	5195.0	5167.4
20°	5146.6	5132.8	5063.7	4973.9	4925.6
22.5°	4946.3	4946.3	4863.4	4746.0	4697.6
25°	4759.8	4732.1	4656.1	4490.3	4366.0
27.5°	4545.6	4504.2	4421.3	4186.4	4041.3
30°	4310.7	4290.0	4172.6	3868.6	3758.1
32.5°	4089.7	4055.1	3930.8	3613.0	3523.2
35°	3861.7	3834.1	3647.5	3371.2	3288.3
37.5°	3633.7	3599.2	3364.3	3143.2	3039.6
40°	3405.8	3364.3	3108.7	2908.4	2797.8
42.5°	3191.6	3136.3	2887.6	2673.5	2549.1
45°	2963.6	2901.5	2652.8	2431.7	2335.0
47.5°	2735.7	2680.4	2452.4	2224.4	2113.9
50°	2493.9	2445.5	2238.3	2010.3	1892.9
52.5°	2293.5	2217.5	2017.2	1789.2	1692.5
55°	2058.7	1996.5	1810.0	1595.8	1512.9
57.5°	1844.5	1782.3	1609.6	1409.3	1340.2
60°	1644.2	1554.4	1409.3	1236.6	1181.3
62.5°	1423.1	1354.0	1229.7	1084.6	1153.7
65°	1222.8	1153.7	1043.1	1063.9	884.3
67.5°	1001.7	967.2	870.4	773.7	746.1
70°	815.2	773.7	739.2	635.6	607.9
72.5°	649.4	607.9	559.6	504.3	483.6
75°	490.5	455.9	428.3	407.6	449.0
77.5°	338.5	324.7	304.0	283.2	276.3
80°	221.1	214.2	207.2	200.3	193.4
82.5°	131.3	131.3	131.3	131.3	131.3
85°	69.1	76.0	82.9	89.8	96.7
87.5°	41.4	41.4	48.4	55.3	62.2
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)