

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: P547409

Luminaire Tested: **FMR-24-4-LD4-4LO-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: P547409  
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-LD4-4LO-40-UNV-93-86-EDD  
Description: 2X4 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**

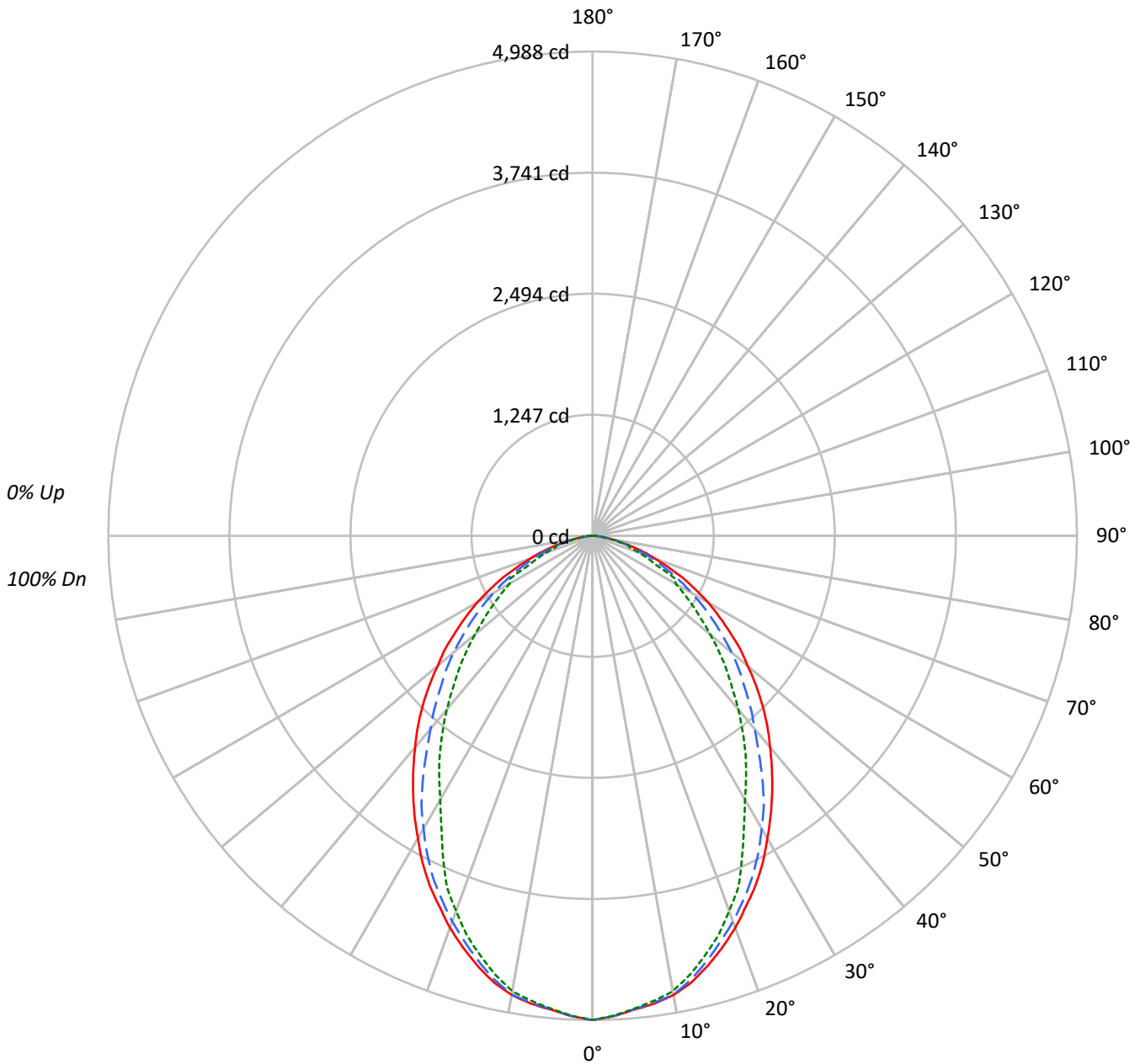
Lumens per Lamp: N/A  
Luminaire Lumens: 9793.0 lumens  
Efficiency: N/A  
Efficacy: 104.6 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct

Input Watts (W): 93.6  
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°	6712	6712	6712
5°	6621	6613	6605
10°	6563	6555	6508
15°	6386	6322	6234
20°	6152	6053	5887
25°	5899	5770	5411
30°	5591	5412	4874
35°	5295	5002	4509
40°	4994	4558	4102
45°	4708	4214	3709
50°	4358	3911	3307
55°	4031	3544	2963
60°	3693	3166	2654
65°	3250	2772	2350
70°	2677	2428	1996
75°	2129	1859	1949
80°	1430	1340	1251
85°	891	1068	1246



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	464.4	4.7
10°-20°	1274.4	13.0
20°-30°	1764.3	18.0
30°-40°	1881.3	19.2
40°-50°	1716.3	17.5
50°-60°	1344.6	13.7
60°-70°	876.3	8.9
70°-80°	388.2	4.0
80°-90°	83.4	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°	3503.0	35.8
0°-40°	5384.3	55.0
0°-60°	8445.1	86.2
0°-90°	9793.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	9793.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	4988	4988	4988	4988	4988	
5°	4902	4896	4896	4890	4890	465
15°	4585	4585	4539	4492	4475	1289
25°	3973	3950	3887	3748	3645	1824
35°	3224	3201	3045	2814	2745	2015
45°	2474	2422	2214	2030	1949	1906
55°	1719	1667	1511	1332	1263	1541
65°	1021	963	871	888	738	1006
75°	410	381	358	340	375	439
85°	58	63	69	75	81	80
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	4988.4	4988.4	4988.4	4988.4	4988.4
2.5°	4953.8	4953.8	4953.8	4948.1	4948.1
5°	4901.9	4896.2	4896.2	4890.4	4890.4
7.5°	4861.6	4855.8	4850.0	4844.2	4832.7
10°	4803.9	4803.9	4798.1	4769.3	4763.5
12.5°	4711.6	4705.8	4682.8	4642.4	4630.9
15°	4584.7	4584.7	4538.6	4492.5	4475.2
17.5°	4446.3	4440.6	4382.9	4336.8	4313.7
20°	4296.4	4284.9	4227.2	4152.2	4111.8
22.5°	4129.1	4129.1	4059.9	3961.9	3921.5
25°	3973.4	3950.4	3886.9	3748.5	3644.7
27.5°	3794.7	3760.1	3690.9	3494.8	3373.7
30°	3598.6	3581.3	3483.2	3229.5	3137.2
32.5°	3414.0	3385.2	3281.4	3016.1	2941.2
35°	3223.7	3200.7	3045.0	2814.3	2745.1
37.5°	3033.4	3004.6	2808.5	2624.0	2537.5
40°	2843.1	2808.5	2595.1	2427.9	2335.6
42.5°	2664.3	2618.2	2410.6	2231.8	2128.0
45°	2474.0	2422.1	2214.5	2030.0	1949.2
47.5°	2283.7	2237.6	2047.3	1857.0	1764.7
50°	2081.9	2041.5	1868.5	1678.2	1580.1
52.5°	1914.6	1851.2	1684.0	1493.6	1412.9
55°	1718.6	1666.7	1510.9	1332.2	1263.0
57.5°	1539.8	1487.9	1343.7	1176.5	1118.8
60°	1372.5	1297.6	1176.5	1032.3	986.2
62.5°	1188.0	1130.3	1026.5	905.4	963.1
65°	1020.8	963.1	870.8	888.1	738.2
67.5°	836.2	807.4	726.6	645.9	622.8
70°	680.5	645.9	617.1	530.6	507.5
72.5°	542.1	507.5	467.1	421.0	403.7
75°	409.5	380.6	357.6	340.3	374.9
77.5°	282.6	271.0	253.7	236.4	230.7
80°	184.5	178.8	173.0	167.2	161.5
82.5°	109.6	109.6	109.6	109.6	109.6
85°	57.7	63.4	69.2	75.0	80.7
87.5°	34.6	34.6	40.4	46.1	51.9
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)