

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: P546742

Luminaire Tested: **FMR-24-4-LD4-2HI-40-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: P546742  
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-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 4000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

Luminaire Equipment: Sample No.   Condition   Description

**Summary**

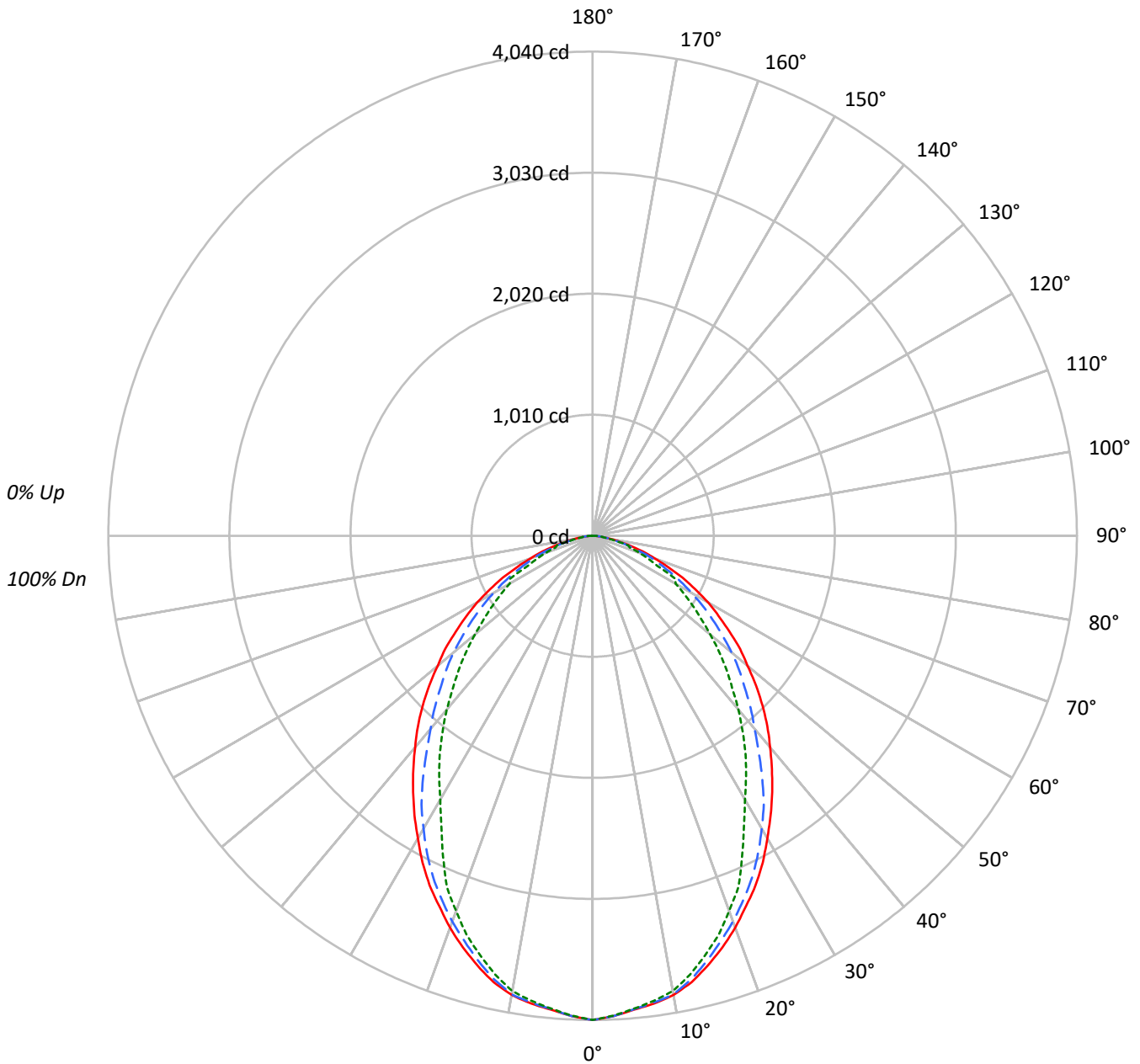
Lumens per Lamp: N/A  
Luminaire Lumens: 7931.0 lumens  
Efficiency: N/A  
Efficacy: 91.8 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct

Input Watts (W): 86.4  
Input Voltage (V): NR  
Input Current (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°	5436	5436	5436
5°	5362	5356	5349
10°	5315	5309	5271
15°	5172	5120	5048
20°	4982	4902	4768
25°	4777	4673	4382
30°	4528	4383	3947
35°	4288	4051	3652
40°	4044	3691	3322
45°	3812	3413	3004
50°	3529	3167	2679
55°	3265	2871	2399
60°	2991	2564	2149
65°	2632	2245	1903
70°	2168	1966	1617
75°	1724	1506	1578
80°	1158	1086	1013
85°	721	865	1010



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	376.1	4.7
10°-20°	1032.1	13.0
20°-30°	1428.8	18.0
30°-40°	1523.6	19.2
40°-50°	1389.9	17.5
50°-60°	1088.9	13.7
60°-70°	709.7	8.9
70°-80°	314.4	4.0
80°-90°	67.5	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°	2837.0	35.8
0°-40°	4360.5	55.0
0°-60°	6839.4	86.2
0°-90°	7931.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	7931.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	4040	4040	4040	4040	4040	
5°	3970	3965	3965	3960	3960	377
15°	3713	3713	3676	3638	3624	1044
25°	3218	3199	3148	3036	2952	1477
35°	2611	2592	2466	2279	2223	1632
45°	2004	1962	1794	1644	1579	1543
55°	1392	1350	1224	1079	1023	1248
65°	827	780	705	719	598	815
75°	332	308	290	276	304	355
85°	47	51	56	61	65	65
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	4039.9	4039.9	4039.9	4039.9	4039.9
2.5°	4011.9	4011.9	4011.9	4007.3	4007.3
5°	3969.9	3965.2	3965.2	3960.5	3960.5
7.5°	3937.2	3932.5	3927.9	3923.2	3913.8
10°	3890.5	3890.5	3885.8	3862.5	3857.8
12.5°	3815.8	3811.1	3792.4	3759.7	3750.4
15°	3713.0	3713.0	3675.6	3638.3	3624.3
17.5°	3600.9	3596.3	3549.5	3512.2	3493.5
20°	3479.5	3470.1	3423.4	3362.7	3330.0
22.5°	3344.0	3344.0	3288.0	3208.6	3175.9
25°	3217.9	3199.3	3147.9	3035.8	2951.7
27.5°	3073.2	3045.1	2989.1	2830.3	2732.2
30°	2914.4	2900.4	2821.0	2615.5	2540.7
32.5°	2764.9	2741.6	2657.5	2442.6	2381.9
35°	2610.8	2592.1	2466.0	2279.2	2223.1
37.5°	2456.7	2433.3	2274.5	2125.1	2055.0
40°	2302.5	2274.5	2101.7	1966.3	1891.5
42.5°	2157.8	2120.4	1952.3	1807.5	1723.4
45°	2003.6	1961.6	1793.5	1644.0	1578.6
47.5°	1849.5	1812.1	1658.0	1503.9	1429.2
50°	1686.0	1653.3	1513.2	1359.1	1279.7
52.5°	1550.6	1499.2	1363.8	1209.6	1144.3
55°	1391.8	1349.8	1223.7	1078.9	1022.8
57.5°	1247.0	1205.0	1088.2	952.8	906.1
60°	1111.6	1050.9	952.8	836.0	798.6
62.5°	962.1	915.4	831.3	733.3	780.0
65°	826.7	780.0	705.2	719.3	597.8
67.5°	677.2	653.9	588.5	523.1	504.4
70°	551.1	523.1	499.7	429.7	411.0
72.5°	439.0	411.0	378.3	340.9	326.9
75°	331.6	308.3	289.6	275.6	303.6
77.5°	228.9	219.5	205.5	191.5	186.8
80°	149.5	144.8	140.1	135.4	130.8
82.5°	88.7	88.7	88.7	88.7	88.7
85°	46.7	51.4	56.0	60.7	65.4
87.5°	28.0	28.0	32.7	37.4	42.0
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)