

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: P546257

Luminaire Tested: **FMR-12-4-LD4-2LO-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: P546257  
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-LD4-2LO-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**

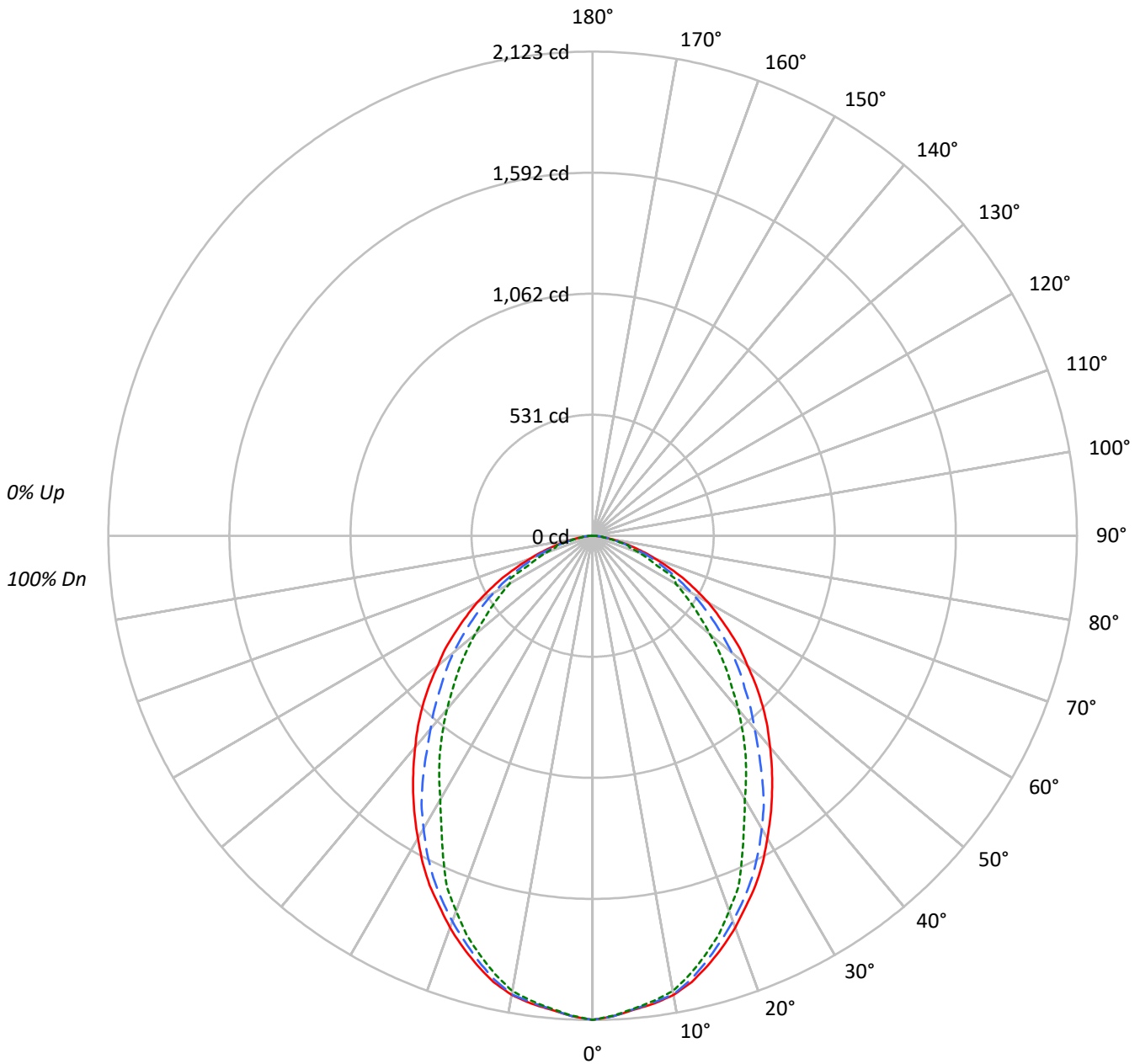
Lumens per Lamp: N/A  
Luminaire Lumens: 4167.0 lumens  
Efficiency: N/A  
Efficacy: 89.0 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')  
CIE Type: Direct

Input Watts (W): 46.8  
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				20				
RC	80				70				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	100	100	100
1	110	106	102	99	108	104	100	97	100	97	94	96	94	91	92	90	89	87	87	87	87
2	101	94	88	83	99	92	87	82	89	84	80	86	82	78	83	79	77	75	75	75	75
3	93	84	77	71	91	82	76	70	79	74	69	77	72	68	74	70	67	65	65	65	65
4	86	75	67	61	84	74	66	61	72	65	60	69	64	59	67	62	58	56	56	56	56
5	80	68	60	54	78	67	59	53	65	58	53	63	57	52	61	56	52	50	50	50	50
6	74	62	53	48	72	61	53	47	59	52	47	57	51	47	56	50	46	44	44	44	44
7	69	56	48	43	67	56	48	42	54	47	42	53	46	42	51	46	42	40	40	40	40
8	65	52	44	38	63	51	44	38	50	43	38	49	42	38	48	42	38	36	36	36	36
9	61	48	40	35	59	47	40	35	46	39	35	45	39	34	44	38	34	33	33	33	33
10	57	44	37	32	56	44	37	32	43	36	32	42	36	32	41	36	32	30	30	30	30

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	5712	5712	5712
5°	5634	5628	5621
10°	5585	5579	5538
15°	5435	5380	5305
20°	5235	5151	5010
25°	5020	4911	4605
30°	4758	4605	4148
35°	4506	4256	3837
40°	4250	3879	3491
45°	4006	3586	3156
50°	3709	3329	2815
55°	3431	3016	2521
60°	3143	2694	2258
65°	2765	2359	2000
70°	2279	2066	1699
75°	1811	1581	1658
80°	1216	1141	1065
85°	756	908	1062



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	197.6	4.7
10°-20°	542.3	13.0
20°-30°	750.7	18.0
30°-40°	800.5	19.2
40°-50°	730.3	17.5
50°-60°	572.1	13.7
60°-70°	372.9	8.9
70°-80°	165.2	4.0
80°-90°	35.5	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°	1490.6	35.8
0°-40°	2291.1	55.0
0°-60°	3593.5	86.2
0°-90°	4167.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4167.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2123	2123	2123	2123	2123	
5°	2086	2083	2083	2081	2081	198
15°	1951	1951	1931	1912	1904	548
25°	1691	1681	1654	1595	1551	776
35°	1372	1362	1296	1198	1168	858
45°	1053	1031	942	864	829	811
55°	731	709	643	567	537	656
65°	434	410	370	378	314	428
75°	174	162	152	145	160	187
85°	24	27	29	32	34	34
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2122.6	2122.6	2122.6	2122.6	2122.6
2.5°	2107.9	2107.9	2107.9	2105.4	2105.4
5°	2085.8	2083.4	2083.4	2080.9	2080.9
7.5°	2068.6	2066.2	2063.7	2061.3	2056.4
10°	2044.1	2044.1	2041.6	2029.4	2026.9
12.5°	2004.8	2002.4	1992.6	1975.4	1970.5
15°	1950.8	1950.8	1931.2	1911.6	1904.2
17.5°	1891.9	1889.5	1865.0	1845.3	1835.5
20°	1828.1	1823.2	1798.7	1766.8	1749.6
22.5°	1757.0	1757.0	1727.5	1685.8	1668.6
25°	1690.7	1680.9	1653.9	1595.0	1550.9
27.5°	1614.7	1599.9	1570.5	1487.1	1435.5
30°	1531.2	1523.9	1482.1	1374.2	1334.9
32.5°	1452.7	1440.4	1396.3	1283.4	1251.5
35°	1371.7	1361.9	1295.7	1197.5	1168.1
37.5°	1290.7	1278.5	1195.0	1116.5	1079.7
40°	1209.8	1195.0	1104.3	1033.1	993.8
42.5°	1133.7	1114.1	1025.7	949.7	905.5
45°	1052.7	1030.6	942.3	863.8	829.4
47.5°	971.7	952.1	871.1	790.2	750.9
50°	885.9	868.7	795.1	714.1	672.4
52.5°	814.7	787.7	716.5	635.6	601.2
55°	731.3	709.2	642.9	566.8	537.4
57.5°	655.2	633.1	571.8	500.6	476.1
60°	584.0	552.1	500.6	439.2	419.6
62.5°	505.5	481.0	436.8	385.3	409.8
65°	434.3	409.8	370.5	377.9	314.1
67.5°	355.8	343.5	309.2	274.8	265.0
70°	289.6	274.8	262.6	225.8	215.9
72.5°	230.7	215.9	198.8	179.1	171.8
75°	174.2	162.0	152.1	144.8	159.5
77.5°	120.2	115.3	108.0	100.6	98.2
80°	78.5	76.1	73.6	71.2	68.7
82.5°	46.6	46.6	46.6	46.6	46.6
85°	24.5	27.0	29.4	31.9	34.4
87.5°	14.7	14.7	17.2	19.6	22.1
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)