

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: P546448

Luminaire Tested: **FMR-24-4-LD4-1HI-35-UNV-93-85-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: P546448  
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-LD4-1HI-35-UNV-93-85-EDD  
Description: 2X4 FMR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .187 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 3500K CCT LEDS  
Light Source: -  
Ballast/Driver: -

Luminaire Equipment: Sample No.   Condition   Description

**Summary**

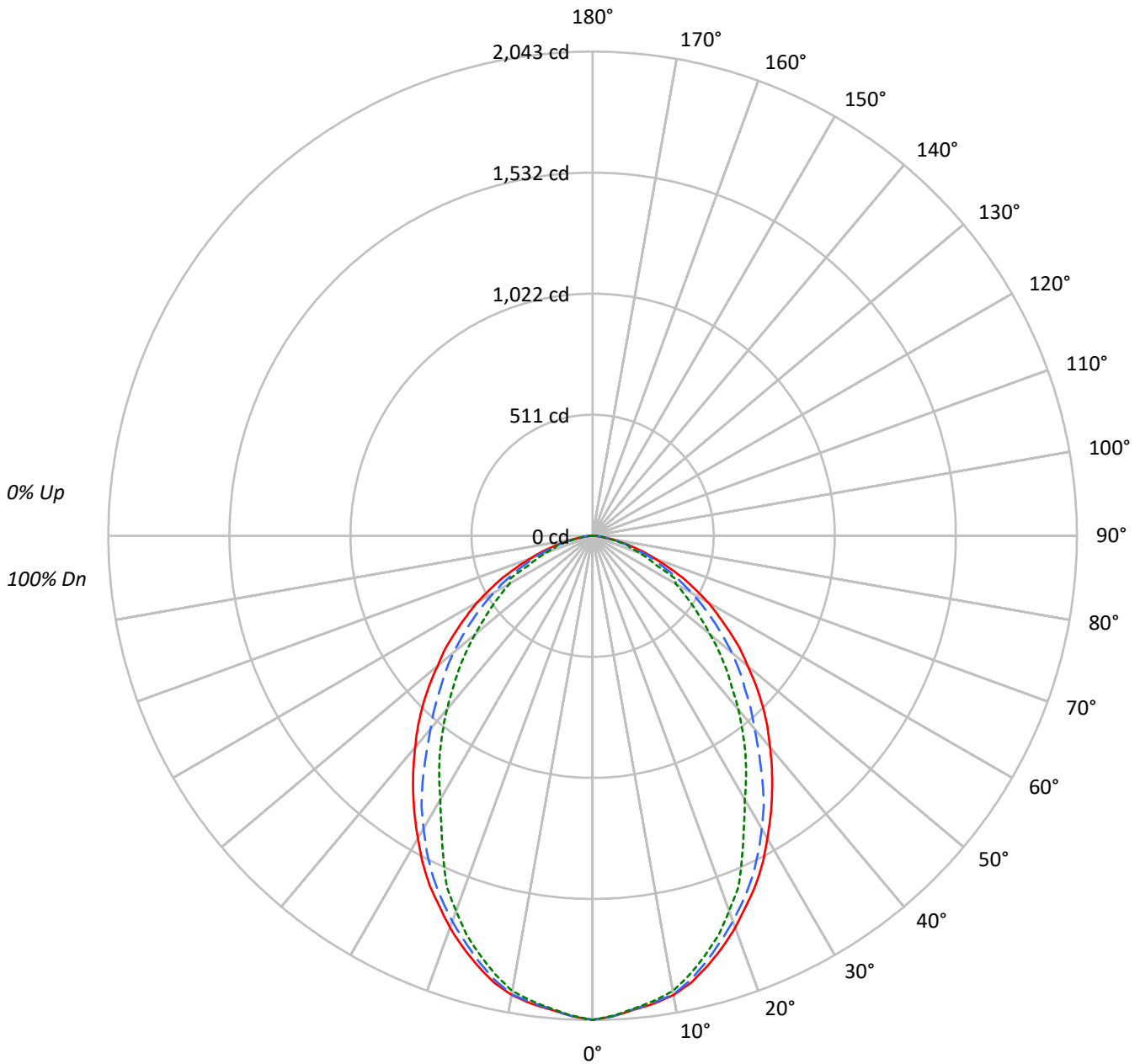
Lumens per Lamp: N/A  
Luminaire Lumens: 4010.0 lumens  
Efficiency: N/A  
Efficacy: 92.8 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct

Input Watts (W): 43.2  
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°	2748	2748	2748
5°	2711	2708	2705
10°	2688	2684	2665
15°	2615	2589	2553
20°	2519	2478	2411
25°	2415	2363	2216
30°	2289	2216	1996
35°	2168	2048	1846
40°	2045	1866	1680
45°	1928	1725	1519
50°	1784	1602	1354
55°	1651	1451	1213
60°	1512	1296	1087
65°	1331	1135	962
70°	1096	994	817
75°	872	761	798
80°	586	549	512
85°	364	437	511



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	190.1	4.7
10°-20°	521.8	13.0
20°-30°	722.4	18.0
30°-40°	770.3	19.2
40°-50°	702.8	17.5
50°-60°	550.6	13.7
60°-70°	358.8	8.9
70°-80°	159.0	4.0
80°-90°	34.1	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°	1434.4	35.8
0°-40°	2204.7	55.0
0°-60°	3458.1	86.2
0°-90°	4010.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4010.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2043	2043	2043	2043	2043	
5°	2007	2005	2005	2002	2002	191
15°	1877	1877	1858	1840	1832	528
25°	1627	1618	1592	1535	1492	747
35°	1320	1311	1247	1152	1124	825
45°	1013	992	907	831	798	780
55°	704	682	619	546	517	631
65°	418	394	357	364	302	412
75°	168	156	146	139	154	180
85°	24	26	28	31	33	33
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2042.6	2042.6	2042.6	2042.6	2042.6
2.5°	2028.5	2028.5	2028.5	2026.1	2026.1
5°	2007.2	2004.9	2004.9	2002.5	2002.5
7.5°	1990.7	1988.3	1986.0	1983.6	1978.9
10°	1967.1	1967.1	1964.7	1952.9	1950.5
12.5°	1929.3	1926.9	1917.5	1901.0	1896.2
15°	1877.3	1877.3	1858.4	1839.6	1832.5
17.5°	1820.7	1818.3	1794.7	1775.8	1766.4
20°	1759.3	1754.5	1730.9	1700.2	1683.7
22.5°	1690.8	1690.8	1662.4	1622.3	1605.8
25°	1627.0	1617.6	1591.6	1534.9	1492.4
27.5°	1553.8	1539.7	1511.3	1431.0	1381.4
30°	1473.5	1466.5	1426.3	1322.4	1284.6
32.5°	1398.0	1386.2	1343.7	1235.0	1204.3
35°	1320.0	1310.6	1246.8	1152.4	1124.0
37.5°	1242.1	1230.3	1150.0	1074.5	1039.0
40°	1164.2	1150.0	1062.6	994.2	956.4
42.5°	1091.0	1072.1	987.1	913.9	871.4
45°	1013.1	991.8	906.8	831.2	798.2
47.5°	935.1	916.2	838.3	760.4	722.6
50°	852.5	835.9	765.1	687.2	647.0
52.5°	784.0	758.0	689.5	611.6	578.6
55°	703.7	682.5	618.7	545.5	517.2
57.5°	630.5	609.2	550.2	481.7	458.1
60°	562.0	531.3	481.7	422.7	403.8
62.5°	486.5	462.8	420.3	370.7	394.4
65°	418.0	394.4	356.6	363.7	302.3
67.5°	342.4	330.6	297.5	264.5	255.0
70°	278.6	264.5	252.7	217.3	207.8
72.5°	222.0	207.8	191.3	172.4	165.3
75°	167.7	155.9	146.4	139.3	153.5
77.5°	115.7	111.0	103.9	96.8	94.5
80°	75.6	73.2	70.8	68.5	66.1
82.5°	44.9	44.9	44.9	44.9	44.9
85°	23.6	26.0	28.3	30.7	33.1
87.5°	14.2	14.2	16.5	18.9	21.3
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)