

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: P546454

Luminaire Tested: **FMR-24-4-LD4-1HI-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: P546454  
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-93-97-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**

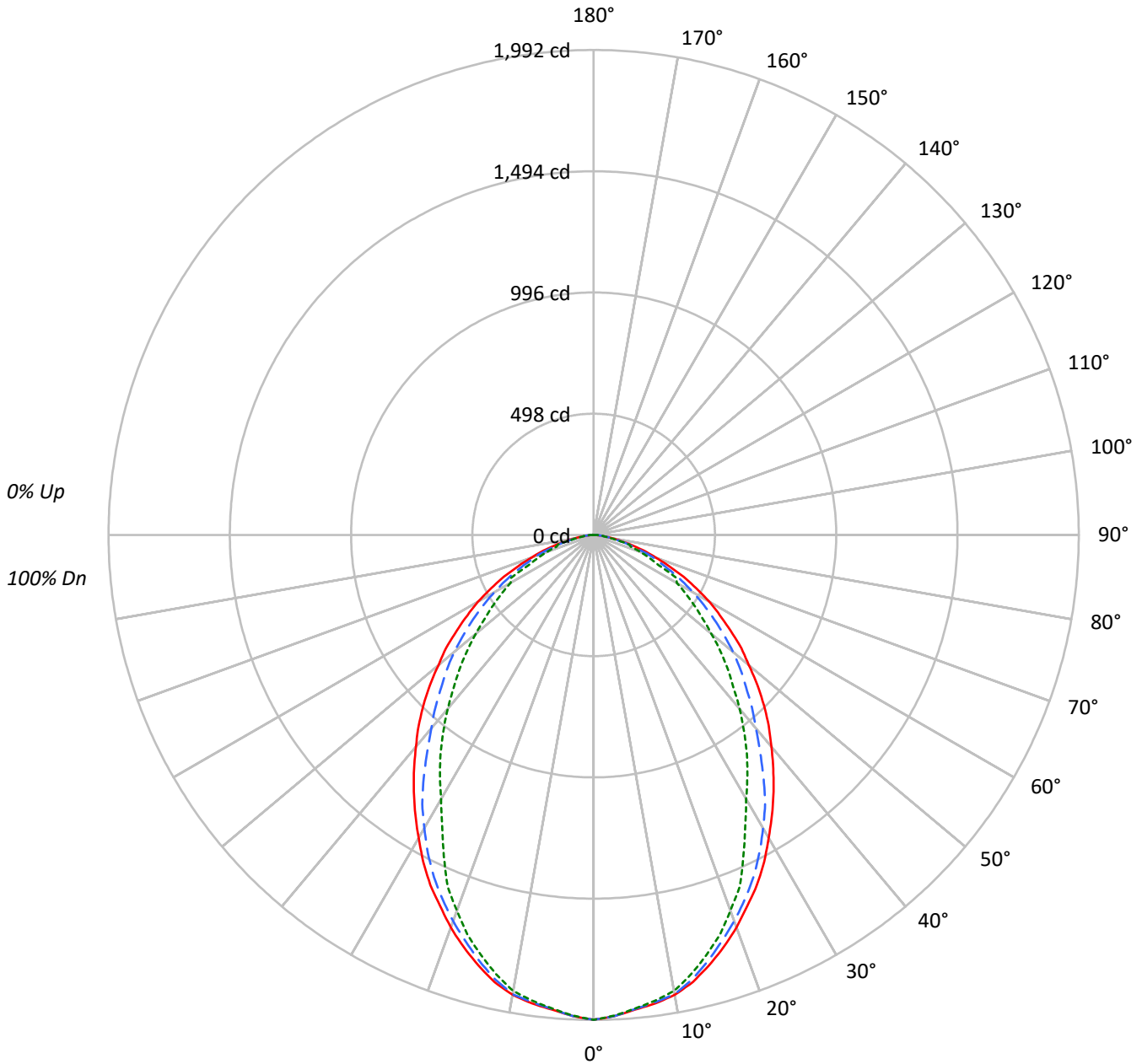
Lumens per Lamp: N/A  
Luminaire Lumens: 3910.0 lumens  
Efficiency: N/A  
Efficacy: 90.5 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct

Input Watts (W): 43.2  
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				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			
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°	2680	2680	2680
5°	2643	2640	2637
10°	2620	2617	2598
15°	2550	2524	2489
20°	2456	2417	2351
25°	2355	2304	2160
30°	2232	2161	1946
35°	2114	1997	1800
40°	1994	1820	1638
45°	1880	1682	1481
50°	1740	1562	1321
55°	1610	1415	1183
60°	1475	1264	1059
65°	1298	1107	938
70°	1069	969	797
75°	850	742	778
80°	571	535	500
85°	355	426	497



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	185.4	4.7
10°-20°	508.8	13.0
20°-30°	704.4	18.0
30°-40°	751.1	19.2
40°-50°	685.2	17.5
50°-60°	536.8	13.7
60°-70°	349.9	8.9
70°-80°	155.0	4.0
80°-90°	33.3	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°	1398.6	35.8
0°-40°	2149.7	55.0
0°-60°	3371.8	86.2
0°-90°	3910.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3910.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1992	1992	1992	1992	1992	
5°	1957	1955	1955	1953	1953	186
15°	1830	1830	1812	1794	1787	515
25°	1586	1577	1552	1497	1455	728
35°	1287	1278	1216	1124	1096	805
45°	988	967	884	810	778	761
55°	686	665	603	532	504	615
65°	408	384	348	355	295	402
75°	164	152	143	136	150	175
85°	23	25	28	30	32	32
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1991.7	1991.7	1991.7	1991.7	1991.7
2.5°	1977.9	1977.9	1977.9	1975.6	1975.6
5°	1957.2	1954.9	1954.9	1952.6	1952.6
7.5°	1941.0	1938.7	1936.4	1934.1	1929.5
10°	1918.0	1918.0	1915.7	1904.2	1901.9
12.5°	1881.2	1878.9	1869.7	1853.5	1848.9
15°	1830.5	1830.5	1812.1	1793.7	1786.8
17.5°	1775.3	1773.0	1749.9	1731.5	1722.3
20°	1715.4	1710.8	1687.8	1657.8	1641.7
22.5°	1648.6	1648.6	1621.0	1581.8	1565.7
25°	1586.5	1577.2	1551.9	1496.7	1455.2
27.5°	1515.1	1501.3	1473.6	1395.3	1347.0
30°	1436.8	1429.9	1390.7	1289.4	1252.6
32.5°	1363.1	1351.6	1310.1	1204.2	1174.3
35°	1287.1	1277.9	1215.7	1123.6	1096.0
37.5°	1211.1	1199.6	1121.3	1047.7	1013.1
40°	1135.2	1121.3	1036.1	969.4	932.5
42.5°	1063.8	1045.4	962.5	891.1	849.6
45°	987.8	967.1	884.2	810.5	778.3
47.5°	911.8	893.4	817.4	741.4	704.6
50°	831.2	815.1	746.0	670.0	630.9
52.5°	764.4	739.1	672.3	596.4	564.1
55°	686.2	665.4	603.3	531.9	504.3
57.5°	614.8	594.1	536.5	469.7	446.7
60°	548.0	518.1	469.7	412.2	393.7
62.5°	474.3	451.3	409.9	361.5	384.5
65°	407.6	384.5	347.7	354.6	294.7
67.5°	333.9	322.4	290.1	257.9	248.7
70°	271.7	257.9	246.4	211.8	202.6
72.5°	216.4	202.6	186.5	168.1	161.2
75°	163.5	152.0	142.8	135.9	149.7
77.5°	112.8	108.2	101.3	94.4	92.1
80°	73.7	71.4	69.1	66.8	64.5
82.5°	43.7	43.7	43.7	43.7	43.7
85°	23.0	25.3	27.6	29.9	32.2
87.5°	13.8	13.8	16.1	18.4	20.7
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)