

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: P545845

Luminaire Tested: **FMR-12-4-LD4-1HI-35-UNV-93-96-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: P545845  
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-LD4-1HI-35-UNV-93-96-EDD  
Description: 1X4 FMR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .250 CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 3500K CCT LEDS  
Light Source: -  
Ballast/Driver: -

Luminaire Equipment: Sample No.   Condition   Description

**Summary**

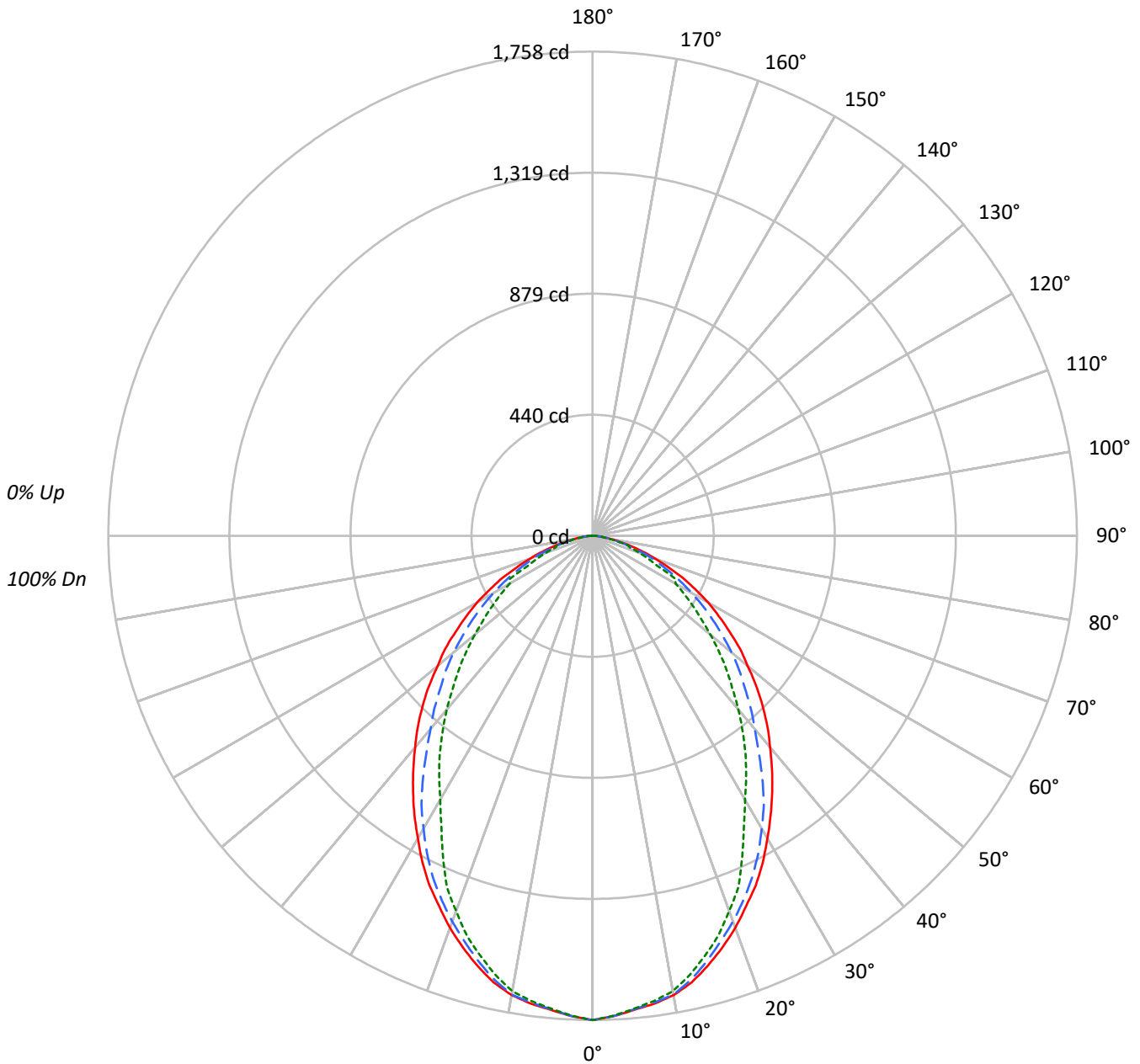
Lumens per Lamp: N/A  
Luminaire Lumens: 3452.0 lumens  
Efficiency: N/A  
Efficacy: 79.9 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')  
CIE Type: Direct

Input Watts (W): 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°	4732	4732	4732
5°	4668	4662	4656
10°	4627	4621	4588
15°	4502	4457	4395
20°	4337	4267	4151
25°	4159	4068	3815
30°	3942	3815	3436
35°	3733	3526	3179
40°	3521	3214	2892
45°	3319	2971	2615
50°	3072	2757	2332
55°	2842	2499	2089
60°	2604	2232	1871
65°	2291	1955	1657
70°	1888	1711	1408
75°	1500	1310	1373
80°	1009	945	882
85°	627	753	880



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	163.7	4.7
10°-20°	449.2	13.0
20°-30°	621.9	18.0
30°-40°	663.1	19.2
40°-50°	605.0	17.5
50°-60°	474.0	13.7
60°-70°	308.9	8.9
70°-80°	136.8	4.0
80°-90°	29.4	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°	1234.8	35.8
0°-40°	1897.9	55.0
0°-60°	2976.9	86.2
0°-90°	3452.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3452.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1758	1758	1758	1758	1758	
5°	1728	1726	1726	1724	1724	164
15°	1616	1616	1600	1584	1578	454
25°	1401	1392	1370	1321	1285	643
35°	1136	1128	1073	992	968	710
45°	872	854	781	716	687	672
55°	606	588	533	470	445	543
65°	360	340	307	313	260	355
75°	144	134	126	120	132	155
85°	20	22	24	26	28	28
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1758.4	1758.4	1758.4	1758.4	1758.4
2.5°	1746.2	1746.2	1746.2	1744.2	1744.2
5°	1727.9	1725.9	1725.9	1723.8	1723.8
7.5°	1713.7	1711.6	1709.6	1707.6	1703.5
10°	1693.4	1693.4	1691.3	1681.2	1679.1
12.5°	1660.8	1658.8	1650.7	1636.4	1632.4
15°	1616.1	1616.1	1599.8	1583.6	1577.5
17.5°	1567.3	1565.3	1545.0	1528.7	1520.6
20°	1514.5	1510.4	1490.1	1463.6	1449.4
22.5°	1455.5	1455.5	1431.1	1396.6	1382.3
25°	1400.6	1392.5	1370.1	1321.3	1284.8
27.5°	1337.6	1325.4	1301.0	1231.9	1189.2
30°	1268.5	1262.4	1227.8	1138.4	1105.9
32.5°	1203.4	1193.3	1156.7	1063.2	1036.7
35°	1136.4	1128.2	1073.3	992.0	967.6
37.5°	1069.3	1059.1	990.0	924.9	894.4
40°	1002.2	990.0	914.8	855.8	823.3
42.5°	939.2	922.9	849.7	786.7	750.1
45°	872.1	853.8	780.6	715.6	687.1
47.5°	805.0	788.7	721.7	654.6	622.0
50°	733.9	719.6	658.6	591.6	557.0
52.5°	674.9	652.5	593.6	526.5	498.0
55°	605.8	587.5	532.6	469.6	445.2
57.5°	542.8	524.5	473.7	414.7	394.4
60°	483.8	457.4	414.7	363.9	347.6
62.5°	418.8	398.4	361.8	319.2	339.5
65°	359.8	339.5	307.0	313.1	260.2
67.5°	294.8	284.6	256.1	227.7	219.5
70°	239.9	227.7	217.5	187.0	178.9
72.5°	191.1	178.9	164.7	148.4	142.3
75°	144.3	134.2	126.0	119.9	132.1
77.5°	99.6	95.5	89.4	83.3	81.3
80°	65.1	63.0	61.0	59.0	56.9
82.5°	38.6	38.6	38.6	38.6	38.6
85°	20.3	22.4	24.4	26.4	28.5
87.5°	12.2	12.2	14.2	16.3	18.3
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)