

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: P546100

Luminaire Tested: **FMR-12-4-LD4-1STD-50-UNV-93-94-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: P546100  
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-LD4-1STD-50-UNV-93-94-EDD  
Description: 1X4 FMR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .187 CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 5000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

Luminaire Equipment: Sample No.   Condition   Description

**Summary**

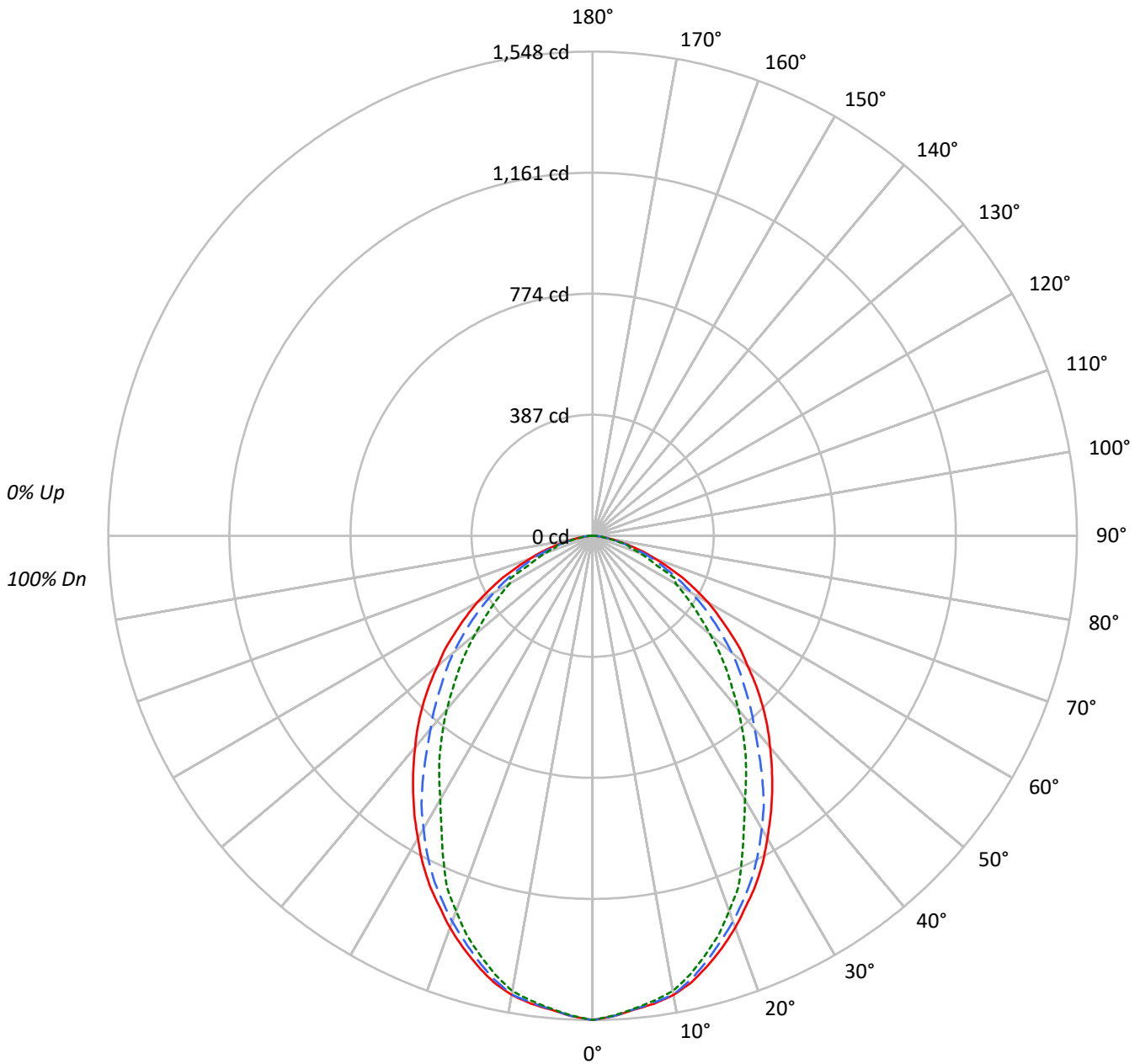
Lumens per Lamp: N/A  
Luminaire Lumens: 3039.0 lumens  
Efficiency: N/A  
Efficacy: 91.3 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')  
CIE Type: Direct

Input Watts (W): 33.3  
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°	4166	4166	4166
5°	4109	4104	4099
10°	4074	4069	4039
15°	3964	3924	3869
20°	3818	3757	3654
25°	3661	3581	3358
30°	3470	3359	3025
35°	3286	3104	2799
40°	3099	2829	2546
45°	2922	2615	2302
50°	2705	2427	2053
55°	2502	2200	1839
60°	2292	1965	1647
65°	2017	1720	1459
70°	1662	1507	1239
75°	1321	1154	1209
80°	888	832	776
85°	553	664	775



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	144.1	4.7
10°-20°	395.5	13.0
20°-30°	547.5	18.0
30°-40°	583.8	19.2
40°-50°	532.6	17.5
50°-60°	417.2	13.7
60°-70°	271.9	8.9
70°-80°	120.5	4.0
80°-90°	25.9	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°	1087.1	35.8
0°-40°	1670.9	55.0
0°-60°	2620.7	86.2
0°-90°	3039.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3039.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1548	1548	1548	1548	1548	
5°	1521	1519	1519	1518	1518	144
15°	1423	1423	1408	1394	1389	400
25°	1233	1226	1206	1163	1131	566
35°	1000	993	945	873	852	625
45°	768	752	687	630	605	591
55°	533	517	469	413	392	478
65°	317	299	270	276	229	312
75°	127	118	111	106	116	136
85°	18	20	22	23	25	25
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1548.0	1548.0	1548.0	1548.0	1548.0
2.5°	1537.3	1537.3	1537.3	1535.5	1535.5
5°	1521.2	1519.4	1519.4	1517.6	1517.6
7.5°	1508.7	1506.9	1505.1	1503.3	1499.7
10°	1490.8	1490.8	1489.0	1480.0	1478.2
12.5°	1462.1	1460.3	1453.2	1440.6	1437.1
15°	1422.8	1422.8	1408.4	1394.1	1388.7
17.5°	1379.8	1378.0	1360.1	1345.8	1338.6
20°	1333.3	1329.7	1311.8	1288.5	1276.0
22.5°	1281.4	1281.4	1259.9	1229.5	1216.9
25°	1233.1	1225.9	1206.2	1163.3	1131.0
27.5°	1177.6	1166.8	1145.4	1084.5	1046.9
30°	1116.7	1111.4	1080.9	1002.2	973.6
32.5°	1059.5	1050.5	1018.3	936.0	912.7
35°	1000.4	993.2	944.9	873.3	851.9
37.5°	941.3	932.4	871.5	814.3	787.4
40°	882.3	871.5	805.3	753.4	724.8
42.5°	826.8	812.5	748.1	692.6	660.4
45°	767.7	751.6	687.2	629.9	604.9
47.5°	708.7	694.4	635.3	576.3	547.6
50°	646.1	633.5	579.8	520.8	490.4
52.5°	594.2	574.5	522.6	463.5	438.5
55°	533.3	517.2	468.9	413.4	391.9
57.5°	477.8	461.7	417.0	365.1	347.2
60°	425.9	402.7	365.1	320.3	306.0
62.5°	368.7	350.8	318.6	281.0	298.9
65°	316.8	298.9	270.2	275.6	229.1
67.5°	259.5	250.5	225.5	200.4	193.3
70°	211.2	200.4	191.5	164.6	157.5
72.5°	168.2	157.5	145.0	130.6	125.3
75°	127.1	118.1	111.0	105.6	116.3
77.5°	87.7	84.1	78.7	73.4	71.6
80°	57.3	55.5	53.7	51.9	50.1
82.5°	34.0	34.0	34.0	34.0	34.0
85°	17.9	19.7	21.5	23.3	25.1
87.5°	10.7	10.7	12.5	14.3	16.1
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)