

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: P546165

Luminaire Tested: **FMR-12-4-LD4-2HI-40-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: P546165  
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-LD4-2HI-40-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 4000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

Luminaire Equipment: Sample No.   Condition   Description

**Summary**

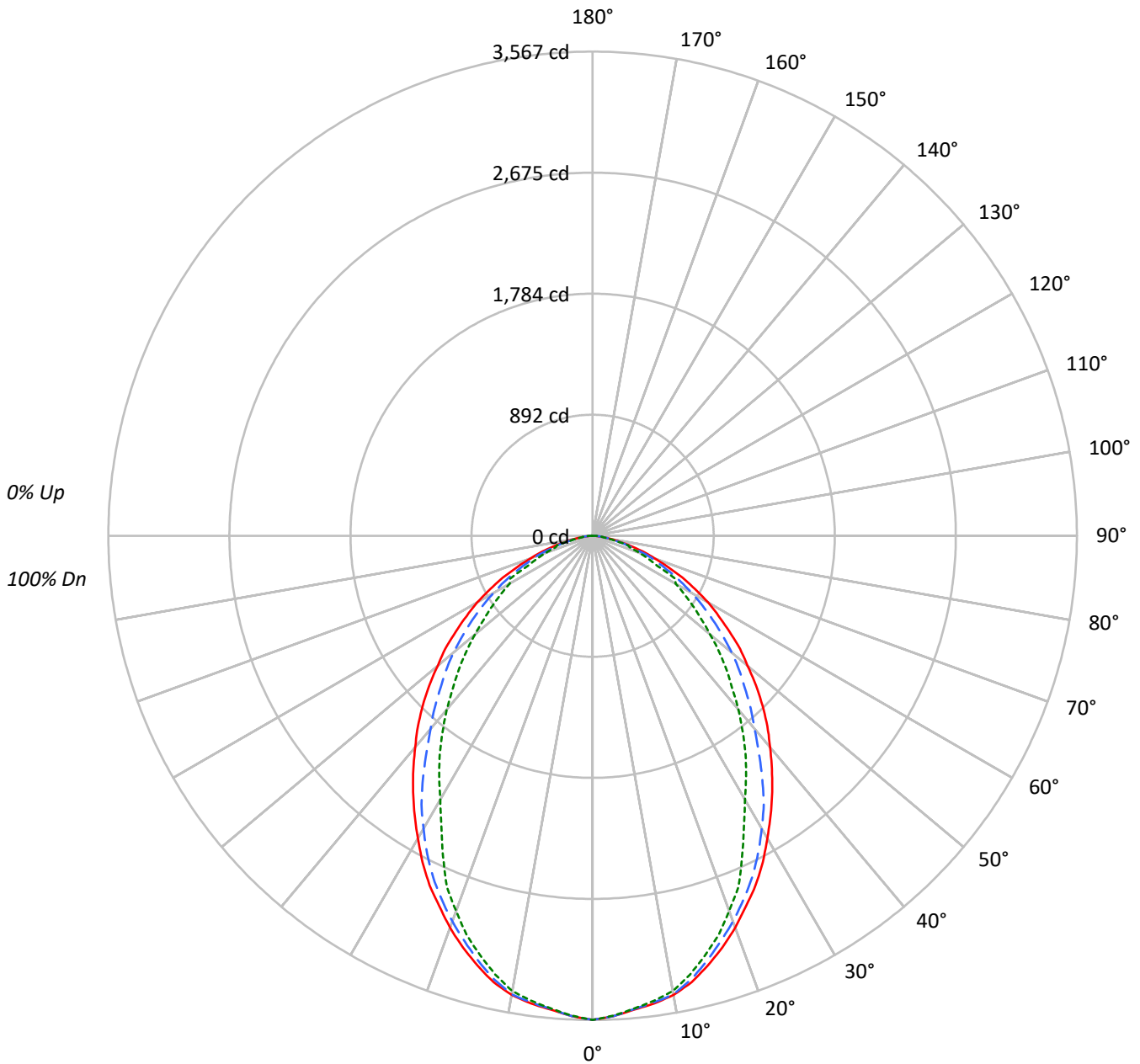
Lumens per Lamp: N/A  
Luminaire Lumens: 7002.0 lumens  
Efficiency: N/A  
Efficacy: 81.0 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')  
CIE Type: Direct

Input Watts (W): 86.4  
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°	9598	9598	9598
5°	9468	9457	9445
10°	9386	9374	9307
15°	9132	9041	8914
20°	8797	8655	8419
25°	8435	8252	7738
30°	7995	7739	6970
35°	7572	7152	6448
40°	7141	6518	5866
45°	6732	6026	5304
50°	6231	5593	4730
55°	5765	5068	4236
60°	5282	4527	3795
65°	4647	3964	3361
70°	3829	3471	2855
75°	3044	2658	2786
80°	2044	1917	1790
85°	1272	1528	1782



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	332.0	4.7
10°-20°	911.2	13.0
20°-30°	1261.5	18.0
30°-40°	1345.1	19.2
40°-50°	1227.1	17.5
50°-60°	961.4	13.7
60°-70°	626.6	8.9
70°-80°	277.6	4.0
80°-90°	59.6	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°	2504.7	35.8
0°-40°	3849.8	55.0
0°-60°	6038.2	86.2
0°-90°	7002.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	7002.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3567	3567	3567	3567	3567	
5°	3505	3501	3501	3497	3497	333
15°	3278	3278	3245	3212	3200	922
25°	2841	2824	2779	2680	2606	1304
35°	2305	2288	2177	2012	1963	1441
45°	1769	1732	1583	1451	1394	1363
55°	1229	1192	1080	952	903	1102
65°	730	689	623	635	528	719
75°	293	272	256	243	268	314
85°	41	45	50	54	58	57
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3566.7	3566.7	3566.7	3566.7	3566.7
2.5°	3542.0	3542.0	3542.0	3537.9	3537.9
5°	3504.9	3500.8	3500.8	3496.6	3496.6
7.5°	3476.0	3471.9	3467.8	3463.6	3455.4
10°	3434.8	3434.8	3430.7	3410.0	3405.9
12.5°	3368.8	3364.7	3348.2	3319.3	3311.1
15°	3278.1	3278.1	3245.1	3212.1	3199.7
17.5°	3179.1	3175.0	3133.8	3100.8	3084.3
20°	3071.9	3063.7	3022.4	2968.8	2940.0
22.5°	2952.3	2952.3	2902.9	2832.8	2803.9
25°	2841.0	2824.5	2779.2	2680.2	2606.0
27.5°	2713.2	2688.4	2639.0	2498.8	2412.2
30°	2573.0	2560.6	2490.5	2309.1	2243.1
32.5°	2441.0	2420.4	2346.2	2156.5	2102.9
35°	2305.0	2288.5	2177.1	2012.2	1962.7
37.5°	2168.9	2148.3	2008.1	1876.1	1814.3
40°	2032.8	2008.1	1855.5	1735.9	1670.0
42.5°	1905.0	1872.0	1723.6	1595.7	1521.5
45°	1768.9	1731.8	1583.4	1451.4	1393.7
47.5°	1632.9	1599.9	1463.8	1327.7	1261.8
50°	1488.5	1459.7	1336.0	1199.9	1129.8
52.5°	1369.0	1323.6	1204.0	1068.0	1010.2
55°	1228.8	1191.7	1080.3	952.5	903.0
57.5°	1100.9	1063.8	960.7	841.2	799.9
60°	981.4	927.8	841.2	738.1	705.1
62.5°	849.4	808.2	734.0	647.4	688.6
65°	729.8	688.6	622.6	635.0	527.8
67.5°	597.9	577.3	519.5	461.8	445.3
70°	486.6	461.8	441.2	379.4	362.9
72.5°	387.6	362.9	334.0	301.0	288.6
75°	292.8	272.1	255.6	243.3	268.0
77.5°	202.0	193.8	181.4	169.1	164.9
80°	131.9	127.8	123.7	119.6	115.5
82.5°	78.3	78.3	78.3	78.3	78.3
85°	41.2	45.4	49.5	53.6	57.7
87.5°	24.7	24.7	28.9	33.0	37.1
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)