

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: P545973

Luminaire Tested: **FMR-12-4-LD4-1LO-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: P545973  
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-LD4-1LO-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**

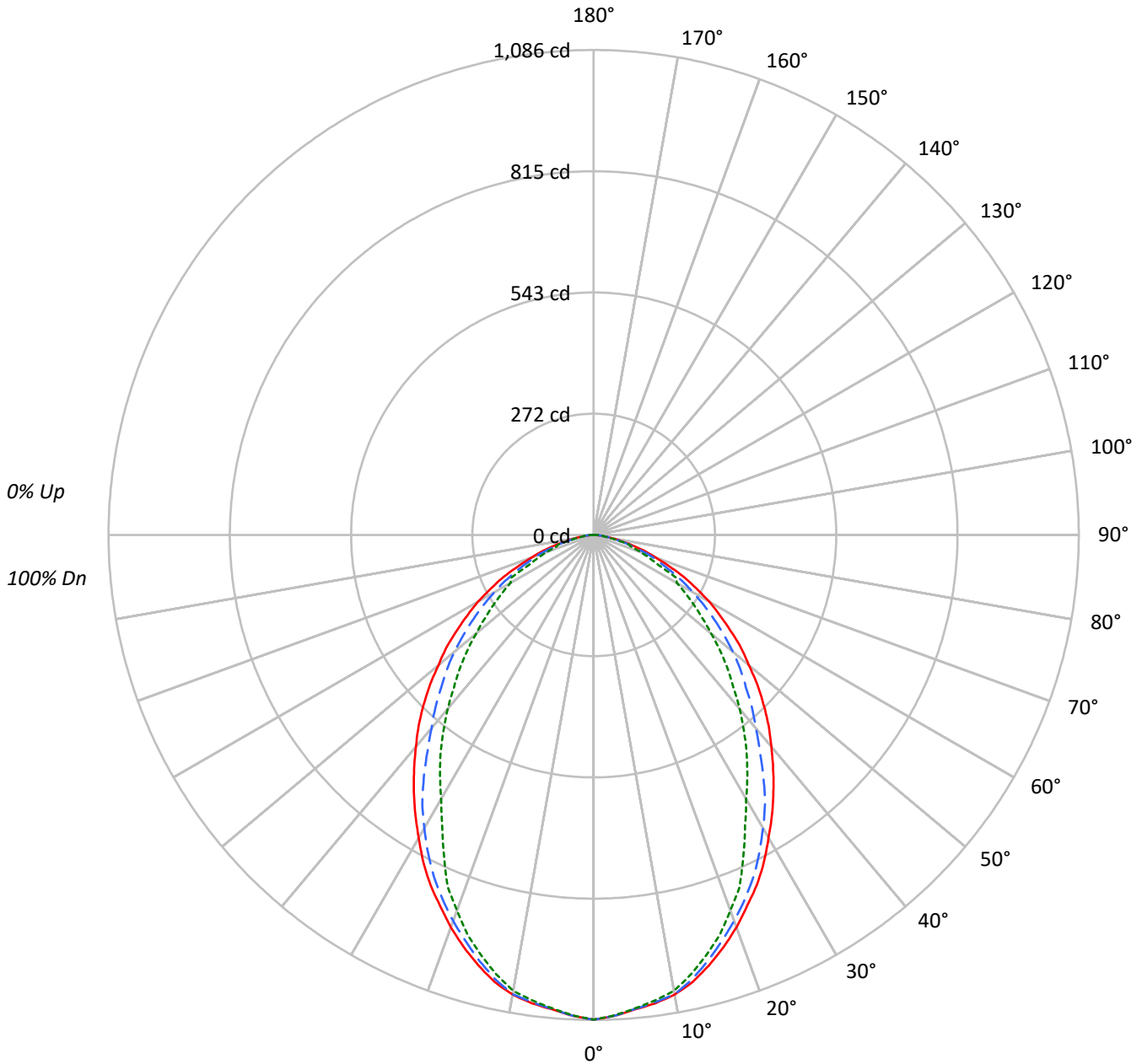
Lumens per Lamp: N/A  
Luminaire Lumens: 2131.0 lumens  
Efficiency: N/A  
Efficacy: 91.1 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')  
CIE Type: Direct

Input Watts (W): 23.4  
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°	2921	2921	2921
5°	2881	2878	2875
10°	2856	2853	2833
15°	2779	2751	2713
20°	2677	2634	2562
25°	2567	2511	2355
30°	2433	2355	2121
35°	2304	2177	1962
40°	2173	1984	1785
45°	2049	1834	1614
50°	1896	1702	1439
55°	1755	1543	1289
60°	1608	1378	1155
65°	1414	1207	1023
70°	1165	1057	869
75°	926	809	848
80°	623	583	544
85°	386	466	543



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	101.0	4.7
10°-20°	277.3	13.0
20°-30°	383.9	18.0
30°-40°	409.4	19.2
40°-50°	373.5	17.5
50°-60°	292.6	13.7
60°-70°	190.7	8.9
70°-80°	84.5	4.0
80°-90°	18.1	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°	762.3	35.8
0°-40°	1171.6	55.0
0°-60°	1837.7	86.2
0°-90°	2131.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2131.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1086	1086	1086	1086	1086	
5°	1067	1065	1065	1064	1064	101
15°	998	998	988	978	974	280
25°	865	860	846	816	793	397
35°	702	696	663	612	597	439
45°	538	527	482	442	424	415
55°	374	363	329	290	275	335
65°	222	210	190	193	161	219
75°	89	83	78	74	82	96
85°	12	14	15	16	18	17
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1085.5	1085.5	1085.5	1085.5	1085.5
2.5°	1078.0	1078.0	1078.0	1076.7	1076.7
5°	1066.7	1065.4	1065.4	1064.2	1064.2
7.5°	1057.9	1056.6	1055.4	1054.1	1051.6
10°	1045.3	1045.3	1044.1	1037.8	1036.6
12.5°	1025.3	1024.0	1019.0	1010.2	1007.7
15°	997.7	997.7	987.6	977.6	973.8
17.5°	967.5	966.3	953.7	943.7	938.7
20°	934.9	932.4	919.9	903.5	894.8
22.5°	898.5	898.5	883.5	862.1	853.3
25°	864.6	859.6	845.8	815.7	793.1
27.5°	825.7	818.2	803.1	760.5	734.1
30°	783.1	779.3	758.0	702.8	682.7
32.5°	742.9	736.6	714.0	656.3	640.0
35°	701.5	696.5	662.6	612.4	597.3
37.5°	660.1	653.8	611.1	571.0	552.2
40°	618.7	611.1	564.7	528.3	508.2
42.5°	579.8	569.7	524.6	485.7	463.1
45°	538.4	527.1	481.9	441.7	424.2
47.5°	496.9	486.9	445.5	404.1	384.0
50°	453.0	444.2	406.6	365.2	343.8
52.5°	416.6	402.8	366.4	325.0	307.5
55°	374.0	362.7	328.8	289.9	274.8
57.5°	335.1	323.8	292.4	256.0	243.5
60°	298.7	282.4	256.0	224.6	214.6
62.5°	258.5	246.0	223.4	197.0	209.6
65°	222.1	209.6	189.5	193.3	160.6
67.5°	182.0	175.7	158.1	140.6	135.5
70°	148.1	140.6	134.3	115.5	110.4
72.5°	118.0	110.4	101.6	91.6	87.8
75°	89.1	82.8	77.8	74.0	81.6
77.5°	61.5	59.0	55.2	51.5	50.2
80°	40.2	38.9	37.6	36.4	35.1
82.5°	23.8	23.8	23.8	23.8	23.8
85°	12.5	13.8	15.1	16.3	17.6
87.5°	7.5	7.5	8.8	10.0	11.3
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)