

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: P546643

Luminaire Tested: **FMR-24-4-LD4-1STD-40-UNV-93-88-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: P546643  
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-LD4-1STD-40-UNV-93-88-EDD  
Description: 2X4 FMR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .500 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 4000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

Luminaire Equipment: Sample No.   Condition   Description

**Summary**

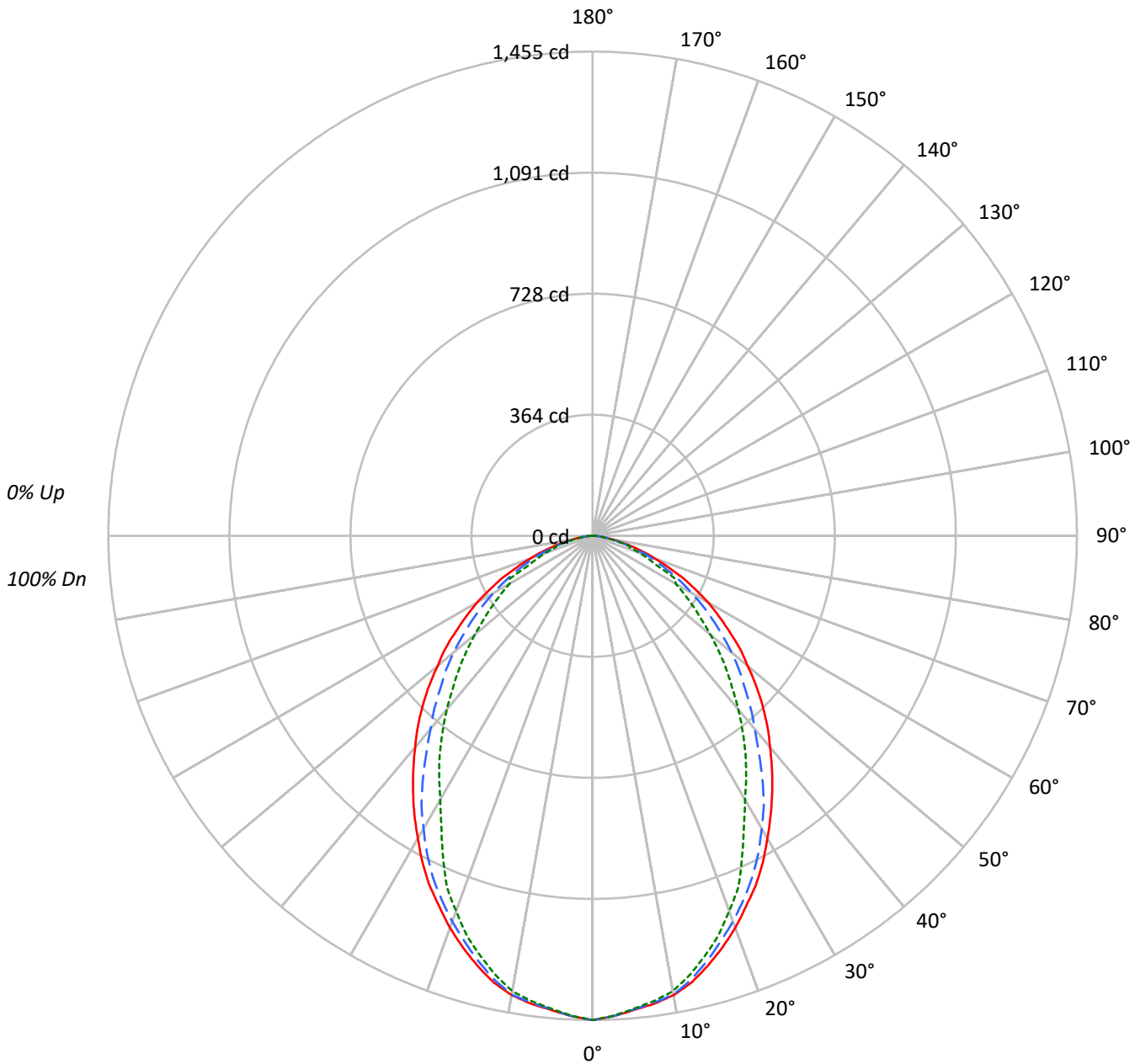
Lumens per Lamp: N/A  
Luminaire Lumens: 2857.0 lumens  
Efficiency: N/A  
Efficacy: 85.8 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct

Input Watts (W): 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				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				100
1	110	106	102	99	108	104	100	97	100	97	94	96	94	91	92	90	89	87				87
2	101	94	88	83	99	92	87	82	89	84	80	86	82	78	83	79	77	75				75
3	93	84	77	71	91	82	76	70	79	74	69	77	72	68	74	70	67	65				65
4	86	75	67	61	84	74	66	61	72	65	60	69	64	59	67	62	58	56				56
5	80	68	60	54	78	67	59	53	65	58	53	63	57	52	61	56	52	50				50
6	74	62	53	48	72	61	53	47	59	52	47	57	51	47	56	50	46	44				44
7	69	56	48	43	67	56	48	42	54	47	42	53	46	42	51	46	42	40				40
8	65	52	44	38	63	51	44	38	50	43	38	49	42	38	48	42	38	36				36
9	61	48	40	35	59	47	40	35	46	39	35	45	39	34	44	38	34	33				33
10	57	44	37	32	56	44	37	32	43	36	32	42	36	32	41	36	32	30				30

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	1958	1958	1958
5°	1932	1929	1927
10°	1915	1912	1899
15°	1863	1844	1819
20°	1795	1766	1718
25°	1721	1684	1579
30°	1631	1579	1422
35°	1545	1459	1315
40°	1457	1330	1197
45°	1373	1229	1082
50°	1271	1141	965
55°	1176	1034	864
60°	1077	924	774
65°	948	809	686
70°	781	708	583
75°	621	542	569
80°	417	391	365
85°	259	312	364



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	135.5	4.7
10°-20°	371.8	13.0
20°-30°	514.7	18.0
30°-40°	548.8	19.2
40°-50°	500.7	17.5
50°-60°	392.3	13.7
60°-70°	255.7	8.9
70°-80°	113.3	4.0
80°-90°	24.3	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°	1022.0	35.8
0°-40°	1570.8	55.0
0°-60°	2463.8	86.2
0°-90°	2857.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2857.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1455	1455	1455	1455	1455	
5°	1430	1428	1428	1427	1427	136
15°	1338	1338	1324	1311	1306	376
25°	1159	1152	1134	1094	1063	532
35°	940	934	888	821	801	588
45°	722	707	646	592	569	556
55°	501	486	441	389	368	450
65°	298	281	254	259	215	293
75°	120	111	104	99	109	128
85°	17	18	20	22	24	23
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1455.3	1455.3	1455.3	1455.3	1455.3
2.5°	1445.2	1445.2	1445.2	1443.5	1443.5
5°	1430.1	1428.4	1428.4	1426.7	1426.7
7.5°	1418.3	1416.6	1414.9	1413.3	1409.9
10°	1401.5	1401.5	1399.8	1391.4	1389.7
12.5°	1374.6	1372.9	1366.1	1354.4	1351.0
15°	1337.5	1337.5	1324.1	1310.6	1305.6
17.5°	1297.2	1295.5	1278.7	1265.2	1258.5
20°	1253.4	1250.1	1233.2	1211.4	1199.6
22.5°	1204.6	1204.6	1184.4	1155.8	1144.1
25°	1159.2	1152.5	1134.0	1093.6	1063.3
27.5°	1107.1	1097.0	1076.8	1019.6	984.2
30°	1049.8	1044.8	1016.2	942.2	915.3
32.5°	996.0	987.6	957.3	879.9	858.0
35°	940.5	933.8	888.3	821.0	800.8
37.5°	885.0	876.6	819.4	765.5	740.3
40°	829.4	819.4	757.1	708.3	681.4
42.5°	777.3	763.8	703.3	651.1	620.8
45°	721.8	706.6	646.1	592.2	568.7
47.5°	666.2	652.8	597.3	541.7	514.8
50°	607.4	595.6	545.1	489.6	461.0
52.5°	558.6	540.1	491.3	435.8	412.2
55°	501.4	486.2	440.8	388.6	368.5
57.5°	449.2	434.1	392.0	343.2	326.4
60°	400.4	378.6	343.2	301.2	287.7
62.5°	346.6	329.8	299.5	264.1	281.0
65°	297.8	281.0	254.0	259.1	215.4
67.5°	244.0	235.5	212.0	188.4	181.7
70°	198.5	188.4	180.0	154.8	148.1
72.5°	158.2	148.1	136.3	122.8	117.8
75°	119.5	111.0	104.3	99.3	109.4
77.5°	82.4	79.1	74.0	69.0	67.3
80°	53.8	52.2	50.5	48.8	47.1
82.5°	32.0	32.0	32.0	32.0	32.0
85°	16.8	18.5	20.2	21.9	23.6
87.5°	10.1	10.1	11.8	13.5	15.1
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)