

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: P546641

Luminaire Tested: **FMR-24-4-LD4-1STD-40-UNV-93-86-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: P546641  
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-93-86-EDD  
Description: 2X4 FMR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .250 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 4000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

Luminaire Equipment: Sample No.   Condition   Description

**Summary**

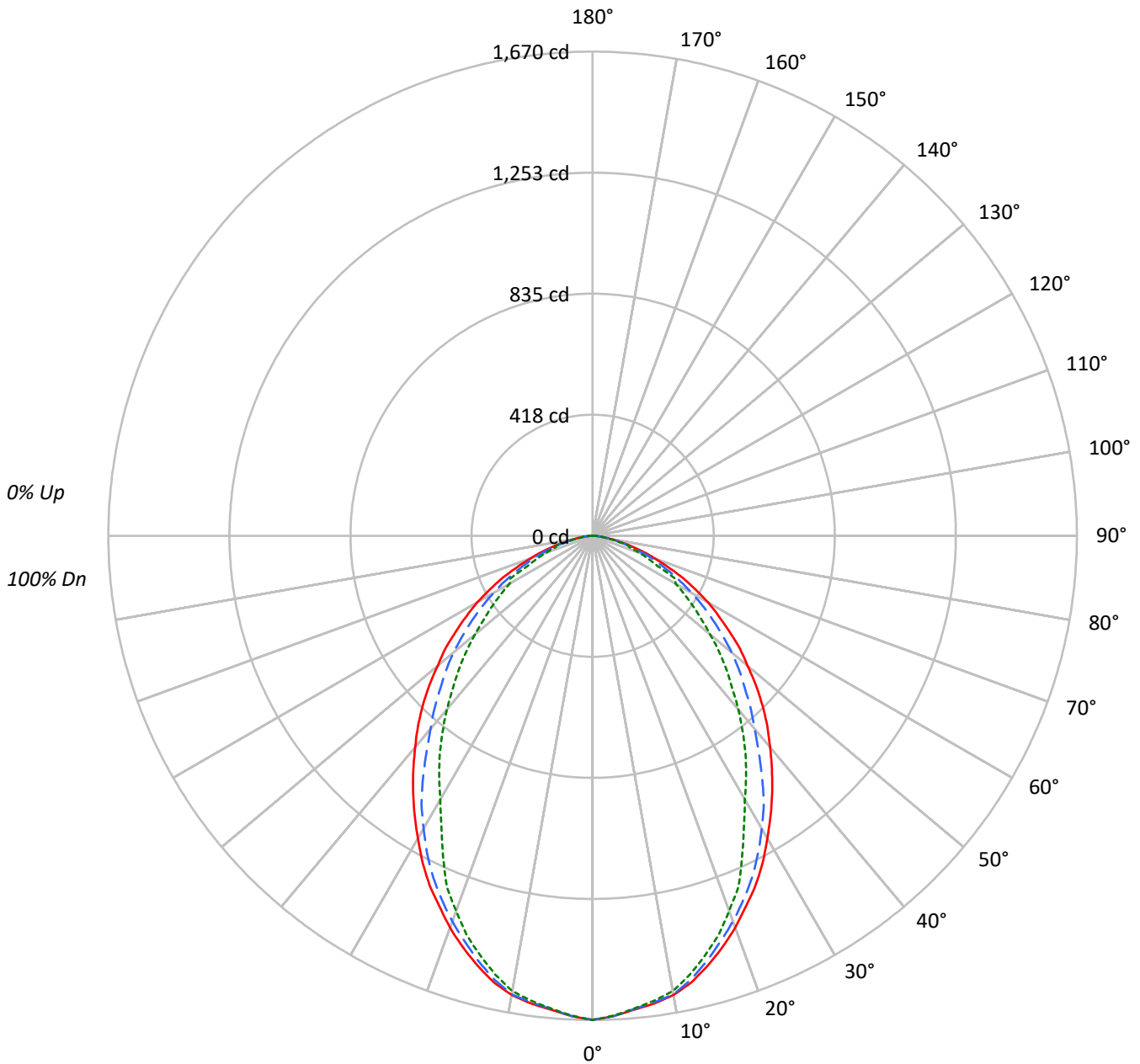
Lumens per Lamp: N/A  
Luminaire Lumens: 3278.0 lumens  
Efficiency: N/A  
Efficacy: 98.4 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct

Input Watts (W): 33.3  
Input Voltage (V): NR  
Input Current (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°	2247	2247	2247
5°	2216	2214	2211
10°	2197	2194	2178
15°	2138	2116	2087
20°	2059	2026	1971
25°	1974	1932	1811
30°	1872	1811	1631
35°	1772	1674	1509
40°	1672	1526	1373
45°	1576	1411	1242
50°	1459	1309	1107
55°	1350	1187	992
60°	1236	1060	888
65°	1088	928	787
70°	896	812	668
75°	713	622	652
80°	479	449	419
85°	298	358	417



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	155.4	4.7
10°-20°	426.6	13.0
20°-30°	590.6	18.0
30°-40°	629.7	19.2
40°-50°	574.5	17.5
50°-60°	450.1	13.7
60°-70°	293.3	8.9
70°-80°	130.0	4.0
80°-90°	27.9	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°	1172.6	35.8
0°-40°	1802.3	55.0
0°-60°	2826.8	86.2
0°-90°	3278.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3278.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1670	1670	1670	1670	1670	
5°	1641	1639	1639	1637	1637	156
15°	1535	1535	1519	1504	1498	431
25°	1330	1322	1301	1255	1220	611
35°	1079	1071	1019	942	919	675
45°	828	811	741	680	652	638
55°	575	558	506	446	423	516
65°	342	322	292	297	247	337
75°	137	127	120	114	126	147
85°	19	21	23	25	27	27
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1669.8	1669.8	1669.8	1669.8	1669.8
2.5°	1658.2	1658.2	1658.2	1656.3	1656.3
5°	1640.8	1638.9	1638.9	1637.0	1637.0
7.5°	1627.3	1625.4	1623.4	1621.5	1617.6
10°	1608.0	1608.0	1606.1	1596.4	1594.5
12.5°	1577.1	1575.2	1567.5	1553.9	1550.1
15°	1534.6	1534.6	1519.2	1503.8	1498.0
17.5°	1488.3	1486.4	1467.1	1451.6	1443.9
20°	1438.1	1434.3	1415.0	1389.9	1376.4
22.5°	1382.1	1382.1	1359.0	1326.2	1312.7
25°	1330.0	1322.3	1301.1	1254.7	1220.0
27.5°	1270.2	1258.6	1235.4	1169.8	1129.3
30°	1204.6	1198.8	1165.9	1081.0	1050.1
32.5°	1142.8	1133.1	1098.4	1009.6	984.5
35°	1079.1	1071.4	1019.2	942.0	918.9
37.5°	1015.4	1005.7	940.1	878.3	849.4
40°	951.7	940.1	868.7	812.7	781.8
42.5°	891.8	876.4	806.9	747.1	712.3
45°	828.1	810.8	741.3	679.5	652.5
47.5°	764.4	749.0	685.3	621.6	590.7
50°	696.9	683.4	625.4	561.7	528.9
52.5°	640.9	619.6	563.7	500.0	472.9
55°	575.3	557.9	505.8	445.9	422.8
57.5°	515.4	498.0	449.8	393.8	374.5
60°	459.4	434.3	393.8	345.5	330.1
62.5°	397.7	378.4	343.6	303.1	322.4
65°	341.7	322.4	291.5	297.3	247.1
67.5°	279.9	270.3	243.2	216.2	208.5
70°	227.8	216.2	206.5	177.6	169.9
72.5°	181.5	169.9	156.4	140.9	135.1
75°	137.1	127.4	119.7	113.9	125.5
77.5°	94.6	90.7	84.9	79.1	77.2
80°	61.8	59.8	57.9	56.0	54.1
82.5°	36.7	36.7	36.7	36.7	36.7
85°	19.3	21.2	23.2	25.1	27.0
87.5°	11.6	11.6	13.5	15.4	17.4
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)