

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: P546646

Luminaire Tested: **FMR-24-4-LD4-1STD-40-UNV-93-97-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: P546646  
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-93-97-EDD  
Description: 2X4 FMR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .375 CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 4000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

Luminaire Equipment: Sample No.   Condition   Description

**Summary**

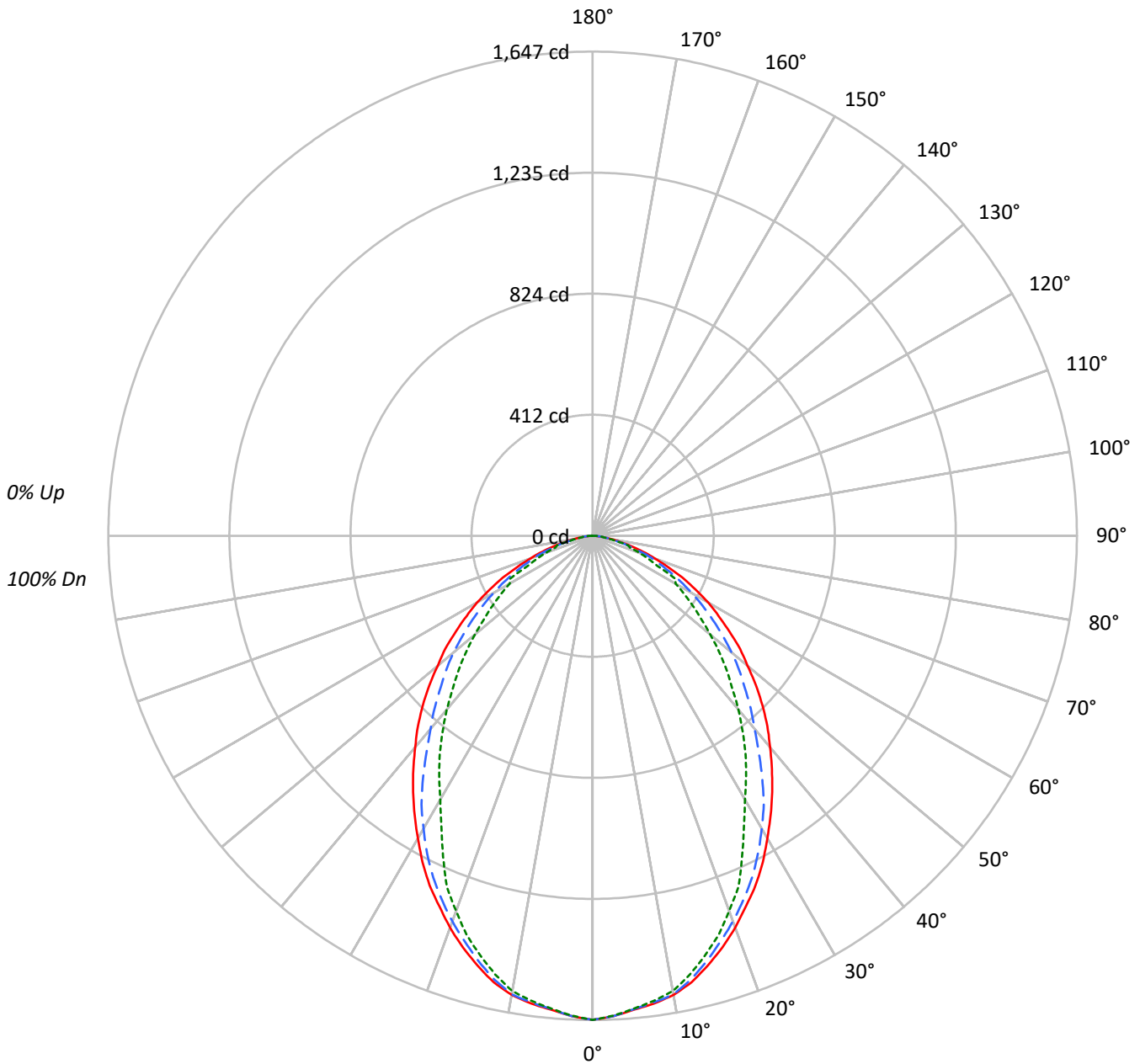
Lumens per Lamp: N/A  
Luminaire Lumens: 3233.0 lumens  
Efficiency: N/A  
Efficacy: 97.1 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct

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°	2216	2216	2216
5°	2186	2183	2181
10°	2167	2164	2149
15°	2108	2087	2058
20°	2031	1998	1944
25°	1947	1905	1786
30°	1846	1787	1609
35°	1748	1651	1488
40°	1649	1505	1354
45°	1554	1391	1224
50°	1439	1291	1092
55°	1331	1170	978
60°	1219	1045	876
65°	1073	915	776
70°	884	801	659
75°	703	613	644
80°	472	442	413
85°	293	352	412



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	153.3	4.7
10°-20°	420.7	13.0
20°-30°	582.5	18.0
30°-40°	621.1	19.2
40°-50°	566.6	17.5
50°-60°	443.9	13.7
60°-70°	289.3	8.9
70°-80°	128.2	4.0
80°-90°	27.5	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°	1156.5	35.8
0°-40°	1777.5	55.0
0°-60°	2788.0	86.2
0°-90°	3233.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	3233.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1647	1647	1647	1647	1647	
5°	1618	1616	1616	1614	1614	154
15°	1514	1514	1498	1483	1477	426
25°	1312	1304	1283	1238	1203	602
35°	1064	1057	1005	929	906	665
45°	817	800	731	670	644	629
55°	567	550	499	440	417	509
65°	337	318	288	293	244	332
75°	135	126	118	112	124	145
85°	19	21	23	25	27	26
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1646.8	1646.8	1646.8	1646.8	1646.8
2.5°	1635.4	1635.4	1635.4	1633.5	1633.5
5°	1618.3	1616.4	1616.4	1614.5	1614.5
7.5°	1605.0	1603.1	1601.2	1599.3	1595.4
10°	1585.9	1585.9	1584.0	1574.5	1572.6
12.5°	1555.5	1553.6	1545.9	1532.6	1528.8
15°	1513.6	1513.6	1498.3	1483.1	1477.4
17.5°	1467.9	1466.0	1446.9	1431.7	1424.1
20°	1418.4	1414.6	1395.5	1370.8	1357.5
22.5°	1363.2	1363.2	1340.3	1308.0	1294.6
25°	1311.8	1304.2	1283.2	1237.5	1203.2
27.5°	1252.7	1241.3	1218.5	1153.7	1113.8
30°	1188.0	1182.3	1149.9	1066.2	1035.7
32.5°	1127.1	1117.6	1083.3	995.7	971.0
35°	1064.3	1056.6	1005.2	929.1	906.2
37.5°	1001.4	991.9	927.2	866.3	837.7
40°	938.6	927.2	856.7	801.5	771.1
42.5°	879.6	864.4	795.8	736.8	702.5
45°	816.8	799.6	731.1	670.2	643.5
47.5°	753.9	738.7	675.9	613.0	582.6
50°	687.3	674.0	616.9	554.0	521.7
52.5°	632.1	611.1	555.9	493.1	466.4
55°	567.4	550.2	498.8	439.8	416.9
57.5°	508.3	491.2	443.6	388.4	369.4
60°	453.1	428.4	388.4	340.8	325.6
62.5°	392.2	373.2	338.9	298.9	317.9
65°	337.0	317.9	287.5	293.2	243.7
67.5°	276.1	266.5	239.9	213.2	205.6
70°	224.7	213.2	203.7	175.2	167.5
72.5°	179.0	167.5	154.2	139.0	133.3
75°	135.2	125.7	118.0	112.3	123.8
77.5°	93.3	89.5	83.8	78.1	76.2
80°	60.9	59.0	57.1	55.2	53.3
82.5°	36.2	36.2	36.2	36.2	36.2
85°	19.0	20.9	22.8	24.8	26.7
87.5°	11.4	11.4	13.3	15.2	17.1
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)