

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: P546071

Luminaire Tested: **FMR-12-4-LD4-1STD-50-UNV-80-84-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: P546071  
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-LD4-1STD-50-UNV-80-84-EDD  
Description: 1X4 FMR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .125 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 5000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

Luminaire Equipment: Sample No.   Condition   Description

**Summary**

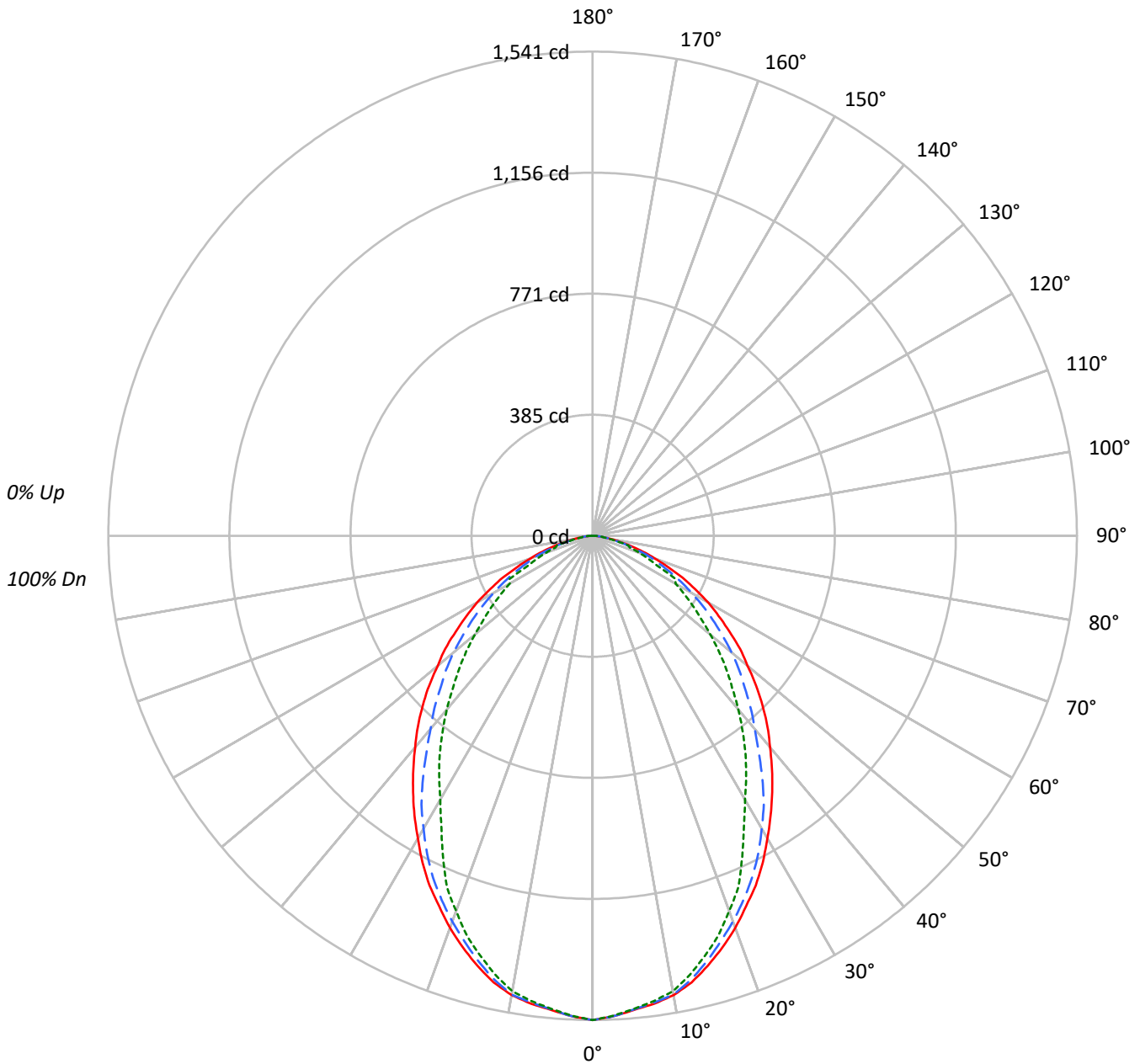
Lumens per Lamp: N/A  
Luminaire Lumens: 3026.0 lumens  
Efficiency: N/A  
Efficacy: 90.9 lumens/watt  
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15  
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')  
CIE Type: Direct

Input Watts (W): 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

TEST NUMBER: P546071

CATALOG NUMBER: FMR-12-4-LD4-1STD-50-UNV-80-84-EDD

### Luminous Intensity Polar Plot





TEST NUMBER: P546071

CATALOG NUMBER: FMR-12-4-LD4-1STD-50-UNV-80-84-EDD

**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°  | 4148 | 4148 | 4148 |
| 5°  | 4092 | 4087 | 4082 |
| 10° | 4056 | 4051 | 4022 |
| 15° | 3947 | 3907 | 3852 |
| 20° | 3802 | 3741 | 3638 |
| 25° | 3646 | 3566 | 3344 |
| 30° | 3455 | 3344 | 3012 |
| 35° | 3272 | 3091 | 2786 |
| 40° | 3086 | 2817 | 2535 |
| 45° | 2909 | 2604 | 2292 |
| 50° | 2693 | 2417 | 2044 |
| 55° | 2491 | 2190 | 1831 |
| 60° | 2282 | 1956 | 1640 |
| 65° | 2008 | 1713 | 1452 |
| 70° | 1655 | 1500 | 1234 |
| 75° | 1315 | 1149 | 1204 |
| 80° | 883  | 829  | 773  |
| 85° | 550  | 661  | 769  |



TEST NUMBER: P546071

CATALOG NUMBER: FMR-12-4-LD4-1STD-50-UNV-80-84-EDD

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 143.5  | 4.7       |
| 10°-20°   | 393.8  | 13.0      |
| 20°-30°   | 545.2  | 18.0      |
| 30°-40°   | 581.3  | 19.2      |
| 40°-50°   | 530.3  | 17.5      |
| 50°-60°   | 415.5  | 13.7      |
| 60°-70°   | 270.8  | 8.9       |
| 70°-80°   | 120.0  | 4.0       |
| 80°-90°   | 25.8   | 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°    | 1082.4 | 35.8      |
| 0°-40°    | 1663.7 | 55.0      |
| 0°-60°    | 2609.5 | 86.2      |
| 0°-90°    | 3026.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 3026.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1541 | 1541  | 1541 | 1541  | 1541 |      |
| 5°  | 1515 | 1513  | 1513 | 1511  | 1511 | 144  |
| 15° | 1417 | 1417  | 1402 | 1388  | 1383 | 398  |
| 25° | 1228 | 1221  | 1201 | 1158  | 1126 | 564  |
| 35° | 996  | 989   | 941  | 870   | 848  | 623  |
| 45° | 764  | 748   | 684  | 627   | 602  | 589  |
| 55° | 531  | 515   | 467  | 412   | 390  | 476  |
| 65° | 315  | 298   | 269  | 274   | 228  | 311  |
| 75° | 126  | 118   | 110  | 105   | 116  | 136  |
| 85° | 18   | 20    | 21   | 23    | 25   | 25   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



TEST NUMBER: P546071

CATALOG NUMBER: FMR-12-4-LD4-1STD-50-UNV-80-84-EDD

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1541.4 | 1541.4 | 1541.4 | 1541.4 | 1541.4 |
| 2.5°  | 1530.7 | 1530.7 | 1530.7 | 1528.9 | 1528.9 |
| 5°    | 1514.7 | 1512.9 | 1512.9 | 1511.1 | 1511.1 |
| 7.5°  | 1502.2 | 1500.4 | 1498.6 | 1496.9 | 1493.3 |
| 10°   | 1484.4 | 1484.4 | 1482.6 | 1473.7 | 1471.9 |
| 12.5° | 1455.9 | 1454.1 | 1447.0 | 1434.5 | 1430.9 |
| 15°   | 1416.7 | 1416.7 | 1402.4 | 1388.2 | 1382.8 |
| 17.5° | 1373.9 | 1372.1 | 1354.3 | 1340.0 | 1332.9 |
| 20°   | 1327.6 | 1324.0 | 1306.2 | 1283.0 | 1270.5 |
| 22.5° | 1275.9 | 1275.9 | 1254.5 | 1224.2 | 1211.7 |
| 25°   | 1227.8 | 1220.6 | 1201.0 | 1158.3 | 1126.2 |
| 27.5° | 1172.5 | 1161.8 | 1140.5 | 1079.9 | 1042.5 |
| 30°   | 1111.9 | 1106.6 | 1076.3 | 997.9  | 969.4  |
| 32.5° | 1054.9 | 1046.0 | 1013.9 | 932.0  | 908.8  |
| 35°   | 996.1  | 989.0  | 940.9  | 869.6  | 848.2  |
| 37.5° | 937.3  | 928.4  | 867.8  | 810.8  | 784.1  |
| 40°   | 878.5  | 867.8  | 801.9  | 750.2  | 721.7  |
| 42.5° | 823.3  | 809.0  | 744.9  | 689.6  | 657.5  |
| 45°   | 764.5  | 748.4  | 684.3  | 627.3  | 602.3  |
| 47.5° | 705.7  | 691.4  | 632.6  | 573.8  | 545.3  |
| 50°   | 643.3  | 630.8  | 577.4  | 518.6  | 488.3  |
| 52.5° | 591.6  | 572.0  | 520.3  | 461.5  | 436.6  |
| 55°   | 531.0  | 515.0  | 466.9  | 411.6  | 390.3  |
| 57.5° | 475.8  | 459.7  | 415.2  | 363.5  | 345.7  |
| 60°   | 424.1  | 400.9  | 363.5  | 319.0  | 304.7  |
| 62.5° | 367.1  | 349.3  | 317.2  | 279.8  | 297.6  |
| 65°   | 315.4  | 297.6  | 269.1  | 274.4  | 228.1  |
| 67.5° | 258.4  | 249.5  | 224.5  | 199.6  | 192.5  |
| 70°   | 210.3  | 199.6  | 190.7  | 163.9  | 156.8  |
| 72.5° | 167.5  | 156.8  | 144.3  | 130.1  | 124.7  |
| 75°   | 126.5  | 117.6  | 110.5  | 105.1  | 115.8  |
| 77.5° | 87.3   | 83.8   | 78.4   | 73.1   | 71.3   |
| 80°   | 57.0   | 55.2   | 53.5   | 51.7   | 49.9   |
| 82.5° | 33.9   | 33.9   | 33.9   | 33.9   | 33.9   |
| 85°   | 17.8   | 19.6   | 21.4   | 23.2   | 24.9   |
| 87.5° | 10.7   | 10.7   | 12.5   | 14.3   | 16.0   |
| 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)