

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: P589200

Luminaire Tested: **FMR-24-2-LD4-2STD-35-UNV-93-87-EDD**

Issue Date: 12/8/2021



Test Information

Test Method: LM-79-08
Report Number: P589200
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2102-135-1)
Test Lab: INNOVATION CENTER
Issue Date: 12/8/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: FMR-24-2-LD4-2STD-35-UNV-93-87-EDD
Description: 2X2 FMR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .375 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

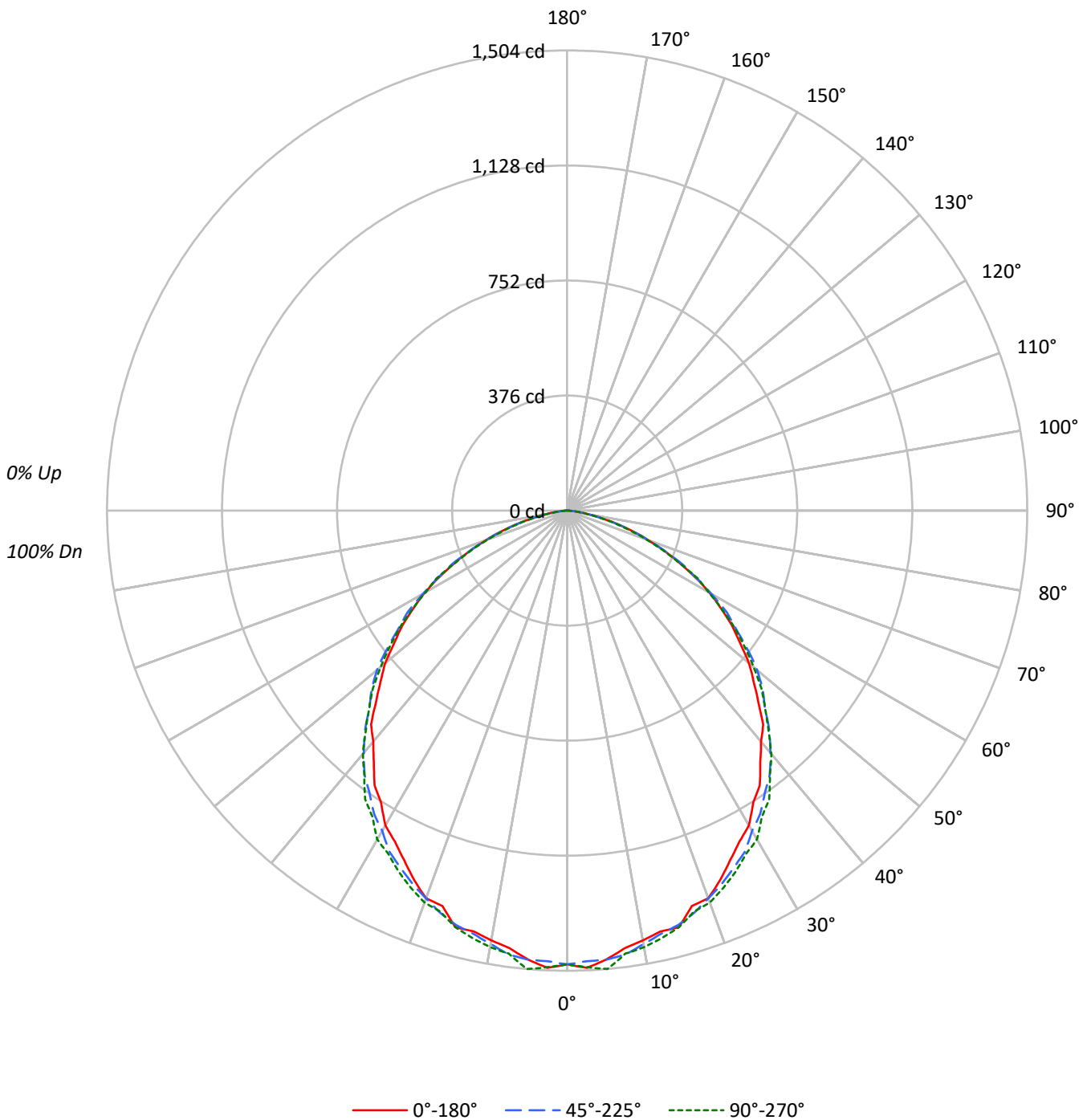
Lumens per Lamp: N/A
Luminaire Lumens: 3738.0 lumens
Efficiency: N/A
Efficacy: 112.3 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

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 | | | | 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 | 0 |
| RCR | | | | | | | | | | | | | | | | | | |
| 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |
| 1 | 110 | 105 | 101 | 98 | 107 | 103 | 100 | 96 | 99 | 96 | 93 | 95 | 93 | 90 | 91 | 90 | 88 | 86 |
| 2 | 100 | 93 | 86 | 81 | 98 | 91 | 85 | 80 | 87 | 82 | 78 | 84 | 80 | 76 | 81 | 78 | 75 | 73 |
| 3 | 92 | 82 | 74 | 68 | 89 | 80 | 73 | 67 | 77 | 71 | 66 | 75 | 69 | 65 | 72 | 68 | 64 | 62 |
| 4 | 84 | 73 | 64 | 58 | 82 | 71 | 64 | 58 | 69 | 62 | 57 | 67 | 61 | 56 | 65 | 59 | 55 | 53 |
| 5 | 78 | 65 | 57 | 50 | 76 | 64 | 56 | 50 | 62 | 55 | 49 | 60 | 54 | 49 | 58 | 53 | 48 | 46 |
| 6 | 72 | 59 | 50 | 44 | 70 | 58 | 50 | 44 | 56 | 49 | 43 | 54 | 48 | 43 | 53 | 47 | 43 | 41 |
| 7 | 67 | 53 | 45 | 39 | 65 | 53 | 45 | 39 | 51 | 44 | 39 | 50 | 43 | 38 | 48 | 42 | 38 | 36 |
| 8 | 62 | 49 | 41 | 35 | 61 | 48 | 40 | 35 | 47 | 40 | 34 | 46 | 39 | 34 | 44 | 39 | 34 | 32 |
| 9 | 58 | 45 | 37 | 31 | 57 | 44 | 37 | 31 | 43 | 36 | 31 | 42 | 36 | 31 | 41 | 35 | 31 | 29 |
| 10 | 54 | 41 | 34 | 29 | 53 | 41 | 33 | 28 | 40 | 33 | 28 | 39 | 33 | 28 | 38 | 32 | 28 | 26 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 3991 | 3991 | 3991 |
| 5° | 3978 | 3979 | 4063 |
| 10° | 3897 | 3931 | 3959 |
| 15° | 3928 | 3907 | 3929 |
| 20° | 3862 | 3862 | 3903 |
| 25° | 3743 | 3825 | 3867 |
| 30° | 3691 | 3756 | 3856 |
| 35° | 3605 | 3699 | 3782 |
| 40° | 3464 | 3631 | 3647 |
| 45° | 3360 | 3479 | 3484 |
| 50° | 3249 | 3396 | 3331 |
| 55° | 3096 | 3156 | 3134 |
| 60° | 2895 | 2924 | 2871 |
| 65° | 2581 | 2647 | 2563 |
| 70° | 2215 | 2223 | 2161 |
| 75° | 1754 | 1750 | 1682 |
| 80° | 1175 | 1142 | 1099 |
| 85° | 639 | 633 | 590 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 139.5 | 3.7 |
| 10°-20° | 395.4 | 10.6 |
| 20°-30° | 592.4 | 15.8 |
| 30°-40° | 702.1 | 18.8 |
| 40°-50° | 703.4 | 18.8 |
| 50°-60° | 597.1 | 16.0 |
| 60°-70° | 402.5 | 10.8 |
| 70°-80° | 176.9 | 4.7 |
| 80°-90° | 28.7 | 0.8 |
| 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° | 1127.3 | 30.2 |
| 0°-40° | 1829.4 | 48.9 |
| 0°-60° | 3129.8 | 83.7 |
| 0°-90° | 3738.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 3738.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1483 | 1483 | 1483 | 1483 | 1483 | |
| 5° | 1473 | 1469 | 1473 | 1469 | 1504 | 139 |
| 15° | 1410 | 1394 | 1402 | 1410 | 1410 | 393 |
| 25° | 1261 | 1268 | 1288 | 1305 | 1302 | 583 |
| 35° | 1097 | 1100 | 1126 | 1152 | 1151 | 681 |
| 45° | 883 | 899 | 914 | 938 | 916 | 683 |
| 55° | 660 | 656 | 673 | 668 | 668 | 587 |
| 65° | 405 | 400 | 416 | 400 | 402 | 403 |
| 75° | 169 | 165 | 168 | 156 | 162 | 181 |
| 85° | 21 | 20 | 20 | 20 | 19 | 30 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P589200

CATALOG NUMBER: FMR-24-2-LD4-2STD-35-UNV-93-87-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1483.1 | 1483.1 | 1483.1 | 1483.1 | 1483.1 |
| 2.5° | 1496.0 | 1484.7 | 1474.1 | 1486.4 | 1493.9 |
| 5° | 1472.6 | 1469.2 | 1473.2 | 1468.8 | 1504.2 |
| 7.5° | 1442.4 | 1455.6 | 1463.2 | 1458.4 | 1460.5 |
| 10° | 1426.3 | 1421.7 | 1438.7 | 1450.6 | 1448.9 |
| 12.5° | 1409.0 | 1415.9 | 1416.9 | 1429.7 | 1430.9 |
| 15° | 1410.0 | 1393.7 | 1402.3 | 1409.6 | 1410.2 |
| 17.5° | 1355.2 | 1372.8 | 1378.8 | 1395.4 | 1374.8 |
| 20° | 1348.5 | 1335.7 | 1348.5 | 1365.6 | 1362.9 |
| 22.5° | 1307.3 | 1293.0 | 1320.6 | 1335.7 | 1334.7 |
| 25° | 1260.6 | 1267.5 | 1288.2 | 1305.1 | 1302.4 |
| 27.5° | 1219.6 | 1227.7 | 1257.2 | 1280.3 | 1265.4 |
| 30° | 1188.0 | 1184.0 | 1208.9 | 1229.6 | 1241.1 |
| 32.5° | 1131.6 | 1146.1 | 1175.2 | 1195.7 | 1184.8 |
| 35° | 1097.3 | 1100.5 | 1126.0 | 1152.0 | 1151.3 |
| 37.5° | 1037.3 | 1052.5 | 1088.3 | 1095.6 | 1088.9 |
| 40° | 986.2 | 1001.3 | 1033.7 | 1041.6 | 1038.3 |
| 42.5° | 948.5 | 951.2 | 978.9 | 987.9 | 973.6 |
| 45° | 882.8 | 899.3 | 914.2 | 937.8 | 915.5 |
| 47.5° | 826.9 | 834.5 | 866.7 | 873.0 | 861.4 |
| 50° | 776.1 | 778.8 | 811.2 | 803.3 | 795.7 |
| 52.5° | 712.4 | 723.7 | 741.9 | 740.3 | 731.3 |
| 55° | 659.9 | 655.5 | 672.7 | 668.1 | 667.9 |
| 57.5° | 596.9 | 604.6 | 618.7 | 611.4 | 599.8 |
| 60° | 537.9 | 538.1 | 543.3 | 535.0 | 533.5 |
| 62.5° | 472.2 | 474.5 | 475.7 | 465.5 | 482.0 |
| 65° | 405.4 | 400.0 | 415.7 | 399.8 | 402.5 |
| 67.5° | 343.9 | 346.6 | 345.1 | 335.1 | 338.9 |
| 70° | 281.5 | 284.9 | 282.5 | 271.2 | 274.6 |
| 72.5° | 224.4 | 220.2 | 222.9 | 208.7 | 215.2 |
| 75° | 168.7 | 165.3 | 168.3 | 156.5 | 161.8 |
| 77.5° | 114.9 | 117.6 | 115.7 | 109.3 | 113.0 |
| 80° | 75.8 | 73.7 | 73.7 | 70.1 | 70.9 |
| 82.5° | 44.2 | 42.1 | 41.6 | 40.4 | 42.1 |
| 85° | 20.7 | 20.1 | 20.5 | 19.9 | 19.1 |
| 87.5° | 7.5 | 7.7 | 7.7 | 7.3 | 6.9 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)