

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: P589171

Luminaire Tested: **FMR-24-2-LD4-2LO-50-UNV-93-96-EDD**

Issue Date: 12/8/2021



Test Information

Test Method: LM-79-08
Report Number: P589171
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-LD4-2LO-50-UNV-93-96-EDD
Description: 2X2 FMR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .250 CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 5000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

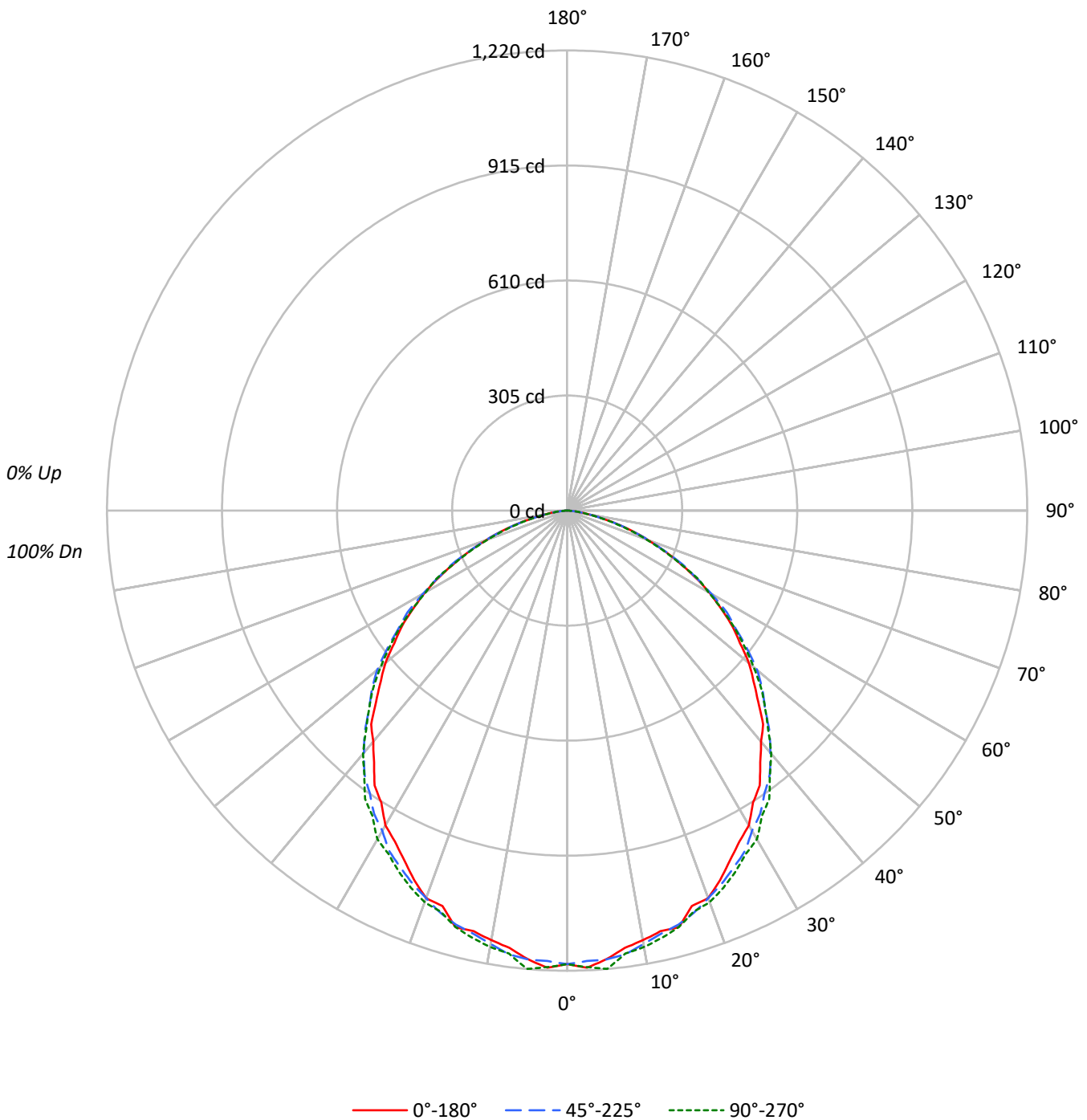
Lumens per Lamp: N/A
Luminaire Lumens: 3031.0 lumens
Efficiency: N/A
Efficacy: 129.5 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

Input Watts (W): 23.4
Input Voltage (V): NR
Input Current (A_{in}): 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° | 3236 | 3236 | 3236 |
| 5° | 3226 | 3227 | 3295 |
| 10° | 3160 | 3188 | 3210 |
| 15° | 3185 | 3168 | 3186 |
| 20° | 3131 | 3131 | 3165 |
| 25° | 3035 | 3102 | 3135 |
| 30° | 2993 | 3046 | 3127 |
| 35° | 2923 | 2999 | 3067 |
| 40° | 2809 | 2944 | 2957 |
| 45° | 2724 | 2821 | 2825 |
| 50° | 2635 | 2754 | 2701 |
| 55° | 2510 | 2559 | 2541 |
| 60° | 2348 | 2371 | 2328 |
| 65° | 2093 | 2146 | 2078 |
| 70° | 1796 | 1802 | 1752 |
| 75° | 1422 | 1419 | 1364 |
| 80° | 953 | 927 | 891 |
| 85° | 519 | 513 | 479 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 113.1 | 3.7 |
| 10°-20° | 320.6 | 10.6 |
| 20°-30° | 480.3 | 15.8 |
| 30°-40° | 569.3 | 18.8 |
| 40°-50° | 570.4 | 18.8 |
| 50°-60° | 484.1 | 16.0 |
| 60°-70° | 326.4 | 10.8 |
| 70°-80° | 143.4 | 4.7 |
| 80°-90° | 23.3 | 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° | 914.1 | 30.2 |
| 0°-40° | 1483.4 | 48.9 |
| 0°-60° | 2537.9 | 83.7 |
| 0°-90° | 3031.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 3031.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1203 | 1203 | 1203 | 1203 | 1203 | |
| 5° | 1194 | 1191 | 1194 | 1191 | 1220 | 113 |
| 15° | 1143 | 1130 | 1137 | 1143 | 1144 | 319 |
| 25° | 1022 | 1028 | 1045 | 1058 | 1056 | 473 |
| 35° | 890 | 892 | 913 | 934 | 934 | 552 |
| 45° | 716 | 729 | 741 | 760 | 742 | 554 |
| 55° | 535 | 532 | 546 | 542 | 542 | 476 |
| 65° | 329 | 324 | 337 | 324 | 326 | 327 |
| 75° | 137 | 134 | 136 | 127 | 131 | 147 |
| 85° | 17 | 16 | 17 | 16 | 16 | 24 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P589171

CATALOG NUMBER: FMR-24-2-LD4-2LO-50-UNV-93-96-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1202.6 | 1202.6 | 1202.6 | 1202.6 | 1202.6 |
| 2.5° | 1213.0 | 1203.9 | 1195.3 | 1205.3 | 1211.3 |
| 5° | 1194.1 | 1191.3 | 1194.5 | 1191.0 | 1219.7 |
| 7.5° | 1169.6 | 1180.3 | 1186.5 | 1182.6 | 1184.3 |
| 10° | 1156.5 | 1152.8 | 1166.6 | 1176.2 | 1174.8 |
| 12.5° | 1142.5 | 1148.1 | 1148.9 | 1159.3 | 1160.2 |
| 15° | 1143.3 | 1130.1 | 1137.1 | 1143.0 | 1143.5 |
| 17.5° | 1098.9 | 1113.2 | 1118.0 | 1131.5 | 1114.7 |
| 20° | 1093.5 | 1083.1 | 1093.5 | 1107.3 | 1105.1 |
| 22.5° | 1060.1 | 1048.4 | 1070.8 | 1083.1 | 1082.3 |
| 25° | 1022.2 | 1027.8 | 1044.6 | 1058.2 | 1056.0 |
| 27.5° | 989.0 | 995.5 | 1019.4 | 1038.2 | 1026.1 |
| 30° | 963.3 | 960.1 | 980.3 | 997.0 | 1006.4 |
| 32.5° | 917.5 | 929.3 | 952.9 | 969.6 | 960.7 |
| 35° | 889.7 | 892.4 | 913.0 | 934.1 | 933.5 |
| 37.5° | 841.1 | 853.4 | 882.4 | 888.3 | 882.9 |
| 40° | 799.7 | 811.9 | 838.2 | 844.6 | 841.9 |
| 42.5° | 769.1 | 771.3 | 793.8 | 801.1 | 789.4 |
| 45° | 715.8 | 729.2 | 741.3 | 760.4 | 742.4 |
| 47.5° | 670.5 | 676.7 | 702.8 | 707.9 | 698.4 |
| 50° | 629.3 | 631.5 | 657.8 | 651.4 | 645.2 |
| 52.5° | 577.6 | 586.8 | 601.5 | 600.3 | 593.0 |
| 55° | 535.1 | 531.5 | 545.5 | 541.8 | 541.6 |
| 57.5° | 484.0 | 490.2 | 501.7 | 495.8 | 486.3 |
| 60° | 436.2 | 436.3 | 440.5 | 433.8 | 432.6 |
| 62.5° | 382.9 | 384.8 | 385.7 | 377.5 | 390.8 |
| 65° | 328.7 | 324.4 | 337.1 | 324.2 | 326.4 |
| 67.5° | 278.9 | 281.1 | 279.8 | 271.7 | 274.8 |
| 70° | 228.3 | 231.1 | 229.0 | 219.9 | 222.7 |
| 72.5° | 182.0 | 178.6 | 180.7 | 169.3 | 174.5 |
| 75° | 136.8 | 134.0 | 136.5 | 126.9 | 131.2 |
| 77.5° | 93.2 | 95.3 | 93.8 | 88.7 | 91.6 |
| 80° | 61.5 | 59.8 | 59.8 | 56.8 | 57.5 |
| 82.5° | 35.9 | 34.2 | 33.7 | 32.8 | 34.2 |
| 85° | 16.8 | 16.3 | 16.6 | 16.1 | 15.5 |
| 87.5° | 6.1 | 6.2 | 6.2 | 5.9 | 5.6 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)