

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: P589650

Luminaire Tested: **FMR-24-2-LD4-4HI-50-UNV-93-94-EDD**

Issue Date: 12/8/2021



Test Information

Test Method: LM-79-08
Report Number: P589650
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-LD4-4HI-50-UNV-93-94-EDD
Description: 2X2 FMR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .187 CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 5000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

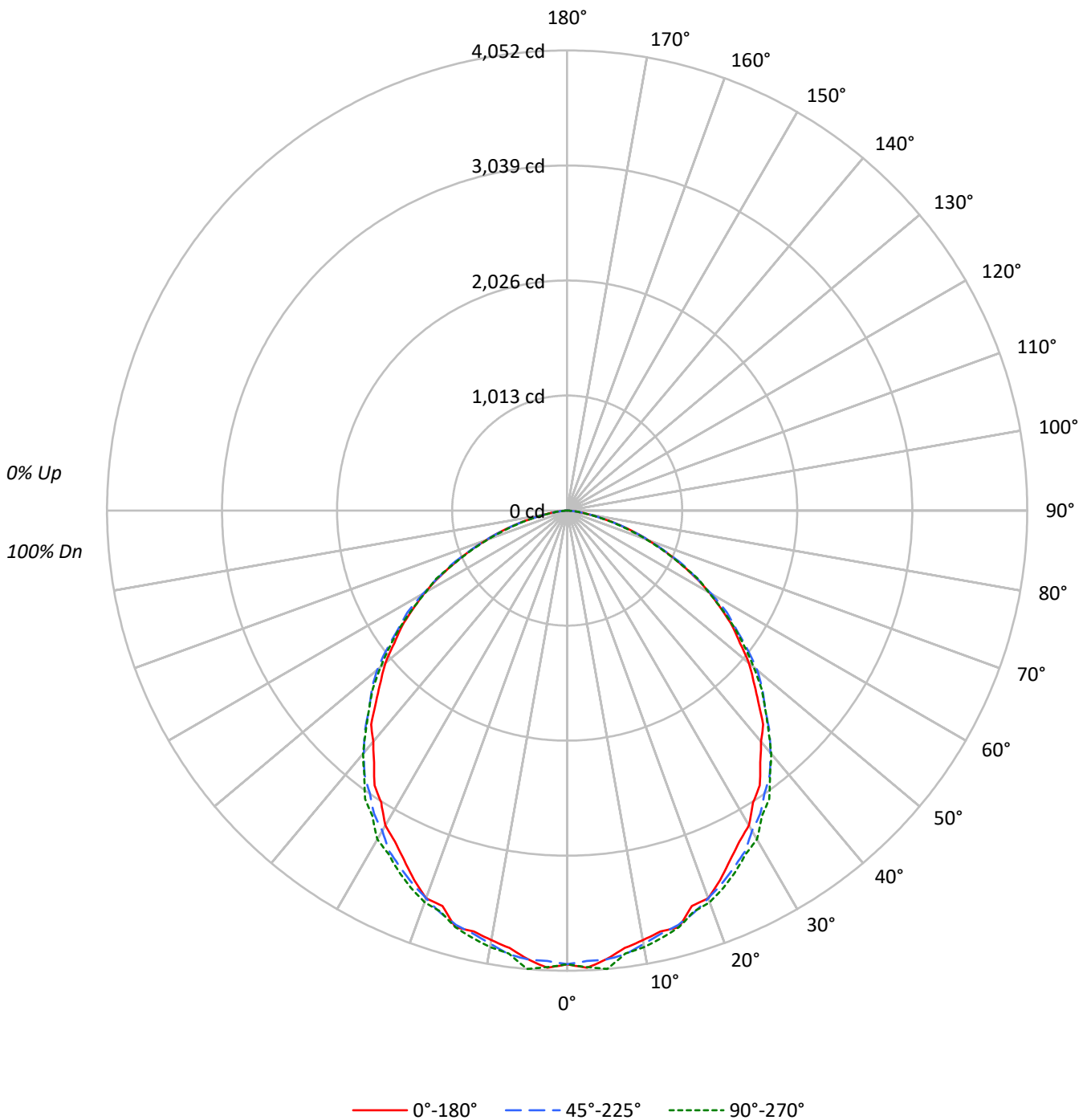
Lumens per Lamp: N/A
Luminaire Lumens: 10068.0 lumens
Efficiency: N/A
Efficacy: 116.5 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

Input Watts (W): 86.4
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° | 10750 | 10750 | 10750 |
| 5° | 10714 | 10718 | 10944 |
| 10° | 10497 | 10589 | 10663 |
| 15° | 10580 | 10523 | 10581 |
| 20° | 10401 | 10401 | 10512 |
| 25° | 10082 | 10302 | 10415 |
| 30° | 9943 | 10118 | 10387 |
| 35° | 9709 | 9963 | 10187 |
| 40° | 9331 | 9780 | 9824 |
| 45° | 9049 | 9371 | 9385 |
| 50° | 8752 | 9147 | 8972 |
| 55° | 8339 | 8501 | 8440 |
| 60° | 7797 | 7875 | 7734 |
| 65° | 6953 | 7130 | 6904 |
| 70° | 5965 | 5986 | 5819 |
| 75° | 4724 | 4714 | 4531 |
| 80° | 3164 | 3078 | 2957 |
| 85° | 1720 | 1704 | 1593 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 375.8 | 3.7 |
| 10°-20° | 1065.0 | 10.6 |
| 20°-30° | 1595.5 | 15.8 |
| 30°-40° | 1891.0 | 18.8 |
| 40°-50° | 1894.5 | 18.8 |
| 50°-60° | 1608.1 | 16.0 |
| 60°-70° | 1084.2 | 10.8 |
| 70°-80° | 476.4 | 4.7 |
| 80°-90° | 77.4 | 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° | 3036.3 | 30.2 |
| 0°-40° | 4927.3 | 48.9 |
| 0°-60° | 8430.0 | 83.7 |
| 0°-90° | 10068.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 10068.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 3995 | 3995 | 3995 | 3995 | 3995 | |
| 5° | 3966 | 3957 | 3968 | 3956 | 4052 | 374 |
| 15° | 3798 | 3754 | 3777 | 3797 | 3798 | 1058 |
| 25° | 3395 | 3414 | 3470 | 3515 | 3508 | 1570 |
| 35° | 2955 | 2964 | 3033 | 3103 | 3101 | 1835 |
| 45° | 2378 | 2422 | 2462 | 2526 | 2466 | 1839 |
| 55° | 1777 | 1766 | 1812 | 1800 | 1799 | 1581 |
| 65° | 1092 | 1078 | 1120 | 1077 | 1084 | 1086 |
| 75° | 454 | 445 | 453 | 421 | 436 | 487 |
| 85° | 56 | 54 | 55 | 54 | 52 | 81 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P589650

CATALOG NUMBER: FMR-24-2-LD4-4HI-50-UNV-93-94-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 3994.7 | 3994.7 | 3994.7 | 3994.7 | 3994.7 |
| 2.5° | 4029.3 | 3998.9 | 3970.5 | 4003.5 | 4023.6 |
| 5° | 3966.4 | 3957.1 | 3967.9 | 3956.0 | 4051.5 |
| 7.5° | 3884.9 | 3920.5 | 3941.1 | 3928.2 | 3933.9 |
| 10° | 3841.5 | 3829.2 | 3875.1 | 3907.0 | 3902.4 |
| 12.5° | 3795.1 | 3813.7 | 3816.3 | 3850.8 | 3853.9 |
| 15° | 3797.7 | 3753.9 | 3777.1 | 3796.7 | 3798.2 |
| 17.5° | 3650.2 | 3697.6 | 3713.6 | 3758.5 | 3702.8 |
| 20° | 3632.1 | 3597.6 | 3632.1 | 3678.0 | 3670.8 |
| 22.5° | 3521.2 | 3482.6 | 3556.8 | 3597.6 | 3595.0 |
| 25° | 3395.4 | 3414.0 | 3469.7 | 3515.1 | 3507.8 |
| 27.5° | 3285.0 | 3306.7 | 3386.1 | 3448.5 | 3408.3 |
| 30° | 3199.9 | 3189.1 | 3256.1 | 3311.8 | 3342.8 |
| 32.5° | 3047.8 | 3087.0 | 3165.4 | 3220.5 | 3191.1 |
| 35° | 2955.4 | 2964.2 | 3032.8 | 3102.9 | 3100.9 |
| 37.5° | 2794.0 | 2834.7 | 2931.2 | 2950.8 | 2932.7 |
| 40° | 2656.3 | 2697.0 | 2784.2 | 2805.3 | 2796.6 |
| 42.5° | 2554.7 | 2561.9 | 2636.7 | 2660.9 | 2622.2 |
| 45° | 2377.8 | 2422.1 | 2462.3 | 2525.8 | 2466.0 |
| 47.5° | 2227.1 | 2247.8 | 2334.4 | 2351.4 | 2320.0 |
| 50° | 2090.5 | 2097.7 | 2184.9 | 2163.7 | 2143.1 |
| 52.5° | 1918.7 | 1949.1 | 1998.1 | 1994.0 | 1969.8 |
| 55° | 1777.4 | 1765.5 | 1811.9 | 1799.6 | 1799.0 |
| 57.5° | 1607.7 | 1628.3 | 1666.5 | 1646.9 | 1615.4 |
| 60° | 1448.8 | 1449.3 | 1463.3 | 1441.1 | 1437.0 |
| 62.5° | 1271.9 | 1278.1 | 1281.2 | 1253.9 | 1298.2 |
| 65° | 1091.9 | 1077.5 | 1119.8 | 1077.0 | 1084.2 |
| 67.5° | 926.3 | 933.6 | 929.4 | 902.6 | 912.9 |
| 70° | 758.2 | 767.5 | 760.8 | 730.3 | 739.6 |
| 72.5° | 604.5 | 593.1 | 600.4 | 562.2 | 579.7 |
| 75° | 454.4 | 445.1 | 453.4 | 421.4 | 435.8 |
| 77.5° | 309.5 | 316.7 | 311.5 | 294.5 | 304.3 |
| 80° | 204.2 | 198.6 | 198.6 | 188.8 | 190.8 |
| 82.5° | 119.1 | 113.5 | 111.9 | 108.8 | 113.5 |
| 85° | 55.7 | 54.2 | 55.2 | 53.6 | 51.6 |
| 87.5° | 20.1 | 20.6 | 20.6 | 19.6 | 18.6 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)